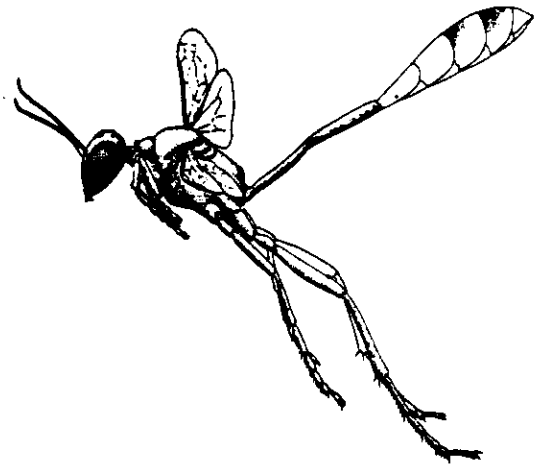
SPHECOS

A FORUM FOR ACULEATE WASP RESEARCHERS



ARNOLD S. MENKE, Editor
Terry Nuhn, Editorial Assistant

Systematic Entomology Laboratory
Agricultural Research Service, USDA
c/o U. S. National Museum of Natural History
Washington DC 20560 (202) 382 1803

NUMBER 13, NOVEMBER, 1986

EDITORIAL SCHOLIA

The double issue of last June was enthusiastically received judging by comments that came to me in the mail. The "Forum" is catching on with Jim Carpenter playing a leading role as an antagonist and Roy Snelling offering Jim and others lots of fodder - I think Roy must have masochistic tendencies! The "Pet Peeve" department is generating a fair amount of philosophical thought, mumbo jumbo, and idiosyncratic dogma (hey, Jim, how's that for 50 cent words? - I'll never match your lawyeresque lingo however). I hope we will start hearing from some new people by the next issue. We (you) can't rely on Archer, Snelling and Carpenter for our (your) entertainment. Lets hear from some new people on some new topics worthy of debate.

The questionnaires that went out with the double issue mailing have been coming in fairly steadily and a little over half of you have returned them to me "filled out" (Mick Day chided me over this particular bit of English - I guess I should have said "fill them in" or "complete it" or something). I can't produce a new directory until I have the majority of the questionnaires back from the readership. PLEASE MAKE SURE TO GET YOUR QUESTIONNAIRE TO ME SOON if you haven't already mailed it. Remember this is your chance to update your address, your research interests, etc. so that the new directory will be authoritative. I plan to add a new section that will list by family or other suitable taxonomic level those people who will identify material for others, from which areas of the world, and under what conditions. Again: PLEASE COMPLETE THE QUESTIONNAIRE AND RETURN IT TO ME soon. If you don't comply, then we will simply have to use whatever information was in the original directory and it may not be current.

The questionnaires provided quite a bit of current "research news" some of which is contained in this issue of Sphecos. Most of the research news in the questionnaires will have to await Sphecos 14 however, since #13 is about full.

Quite a few of you indicated on the questionnaire your willingness to write articles for Sphecos on collections under your care. I would like to encourage you to do so now so that I can put them into Sphecos 14. Articles that describe historic collections (types of early authors, etc.) are especially valuable. Also, many of you indicated that you had made collecting trips. How about sending me reports of these for the next issue?

Ludmila Kassianoff again helped with some Russian translations, and Rebecca Friedman helped with some French. Terry Nuhn entered most of this issue on the word processor.

RESEARCH NEWS

Roger Akre (Dept. of Ent., Washington State Univ., Pullman, Wash. 99164-6432) is working on the establishment of a venom collection network for Hollister-Stier, Spokane, Washington.

Jun'ichi Kojima (4-8-6 Zushi, Zushi-shi 249, Japan) writes: "I have finished my thesis on Ropalidia and have passed the final defense last May. Jim Carpenter has run my data on the Harvard computer with PHYSYS and I received the results of the first run. I have restudied and recoded characters. Depending on the results of the second run, I will have to restudy the characters again. Ropalidia is one of the largest polistine genera, and the only one containing both independent and swarm-founders. The paper should be ready for publication soon. Next I hope to study caste dimorphism in Ropalidia."

Jack van der Vecht ("Andrena", Burg. Vermeerlaan 4, 3881 GZ Putten (Gld.), The Netherlands) sends the following news: "Private circumstances made it impossible for me to work on vespids for nearly three years. Since the situation has now changed [his wife, Bep, passed away Aug. 20, 1986, after a long illness - edit.], I intend to continue on a restricted part of the Vespidae, primarily Paralastor, and some small papers. Because of my age the material accumulated has been transported to the Rijksmuseum van Natuurlijke Historie at Leiden where it is now under the custody of C. van Achterberg."

Martin Sorg (Zoologisches Institut, Universität zu Köln, 5000 Köln 41 (Lindenthal), West Germany) writes: "It may be of interest for you that I finished my Diplom last year. I'm now working on my dissertation dealing also with recent/fossil Aculeata esp. bethylids. To my regret, it's not possible to get financial support for this - so I'm still a slow worker, spending much time with other jobs to earn money."

Rollin E. Coville (Division of Entomology and Parasitology, 201 Wellman Hall, University of California, Berkeley, CA 94720) writes: "My work on Trypoxylon is proceeding at a steady pace now, although I only have one day per week that I can devote entirely to the revision. I have concluded that aldrichi Sandhouse is a synonym of frigidum Smith. The systematics of Trypoxylon pennsylvanicum and T. sculleni is giving me the most trouble, and still is not resolved. Most of the other groups are easier to sort out. I hope to have most of the descriptive work done by the end of this year. I intend to cover all the species in North America including Mexico."

Borge Petersen (Universitetetes Zoologiske Museum, Universitetsparken 15, 2100 Copenhagen, Denmark) says: "I am still working on Oriental and Palearctic Mutillidae. I have now seen almost all available types of Oriental Mutillidae (except some Trogaspidia dealt with by O'Toole, Oxford) and perhaps I have also seen almost all available material present in collections. But here and there some more material may hide unknown to me. Recently, I have also studied type material of Palearctic species described by Fabricius, Spinola, Klug, André, and Invrea etc. and I am about to finish a work on the Fabrician types of Mutillidae including notes on types of other authors. In order to understand the Fabrician taxa it was necessary to study many others. A. S. Lelej, Vladivostok, had a first draft of my work and used much of the information that I gave him in his 'Mutillidae of the USSR and adjacent countries', 1985, pp. 1-286."

Arnold Menke (alias The Mud D'aub) is making progress with the revision of the Neotropical species of Pison, but the project is much more difficult than originally envisioned. More species keep popping up, some known only from one sex, and sometimes virtually indistinguishable except by male genitalia. Papers in press include a review of the 10 West Indian species of the eumenine genus Pachodynerus (one new)(Proc. Ent. Soc. Wash.); a discussion of the establishment of two exotic eumenine wasps in Florida (coauthored with Lionel Stange, Fla. Ent.); a reassessment of the identity of the fossil wasp Hoplisidea kohliana Cockerell (coauthored with Alex Rasnitsyn, Psyche); and the description of three new species of the sphecid genus Arpactophilus from New Guinea. In this last paper (Austr. J. Zool.) the subtribe Stigmina is reassessed and four genera formerly included in it are placed in a new subtribe.

Roy Snelling (Dept. of Entomology, Natural History Museum of Los Angeles Co., 900 Exposition Blvd., Los Angeles, Calif. 90007) sends this note to Enrique Ruiz regarding the distribution of social wasps in northeastern Mexico (Sphecos 11:1): "be not too amazed to find Stelopolybia there. Richards saw very little of the material available in American collections, consequently his data on distribution are often incomplete."

A. Giordani Soika (Museo Civico di Storia Naturale di Venezia, S. Croce 1730, 30125 Venezia, Italy) reports: "I have in print papers on the Eumenidae of Papua and Indonesia, with some new species."

Jorge M. Gonzalez (Edif. Don Luis, Apto 501, Piso 5, Esquina Horcones, El Conde, Caracas, D.F. 1010, Venezuela) is collecting Mellitobia and other parasitoids from nests of Trypoxylon and Sceliphron. He is also working with Henry Hermann on a list of polistine wasps of Venezuela, and also studying their sting morphology. Jorge reports that he spends two days each week at Rancho Grande north of Maracay.

Ivica Radovic (Institute of Zoology, Faculty of Science, 16, Studentski Trg, 11000 Belgrade, Yugoslavia) currently is studying the systematics and biogeography of sphecid wasps in Serbia.

George Gamboa (Dept. of Biological Sciences, Oakland University, Rochester, MI 48063) currently is investigating kin recognition in Polistes, Dolichovespula, and Bombus. He is also studying colony dynamics in Polistes, especially the role of the queen in regulating worker foraging.

Hans-Joachim Jacobs (No. 41, Ranzin, 2201 East Germany) currently is revising the sphecid and chrysidid faunas of the German Democratic Republic.

Alberto Ugolini (Dipartimento Biol. Anim. & Genetic, Univ. of Firenze, Via Romana 17, 50125 Italy) has research in progress designed to identify the factor (-s) and the mechanism (-s) that determine the ability for initial orientation and homing after passive displacement and release in Polistes gallicus (L.) [more correctly: dominulus Christ, see Sphecos 12:21 - edit.]. He is also conducting similar experiments on other species of Polistes, and, with Prof. J. Ishay, on Vespa orientalis. Alberto is also studying the shape and extention of the activity range of these species.

A. Aptroot (W. v. Velsenstr. 11, 1962 WS Heemskerk, Netherlands) is studying the wasps of the Azores which he says has a depauperate fauna.

Michael Archer (College of Ripon and York St. John, Lord Mayor's Walk, York YO3 7EX, England) is developing a simulation model for the hornet Vespa crabro; is studying the nesting site characteristics of British social Vespinae; is developing a foraging profile of Paravespula vulgaris; is studying the taxonomy and classification of the Vespinae of the world; and is conducting surveys of British aculeate wasps and bees with special emphasis on the Yorkshire area.

Michael Arduser (Dept. of Biology, University of Missouri-St. Louis, 8001 Natural Bridge Rd., St. Louis, Mo. 63121) is studying the distribution of vespines and polistines in Missouri.

Qabir Argaman (Plant Protection Dept., P.O. Box 78, IL-50250 Bet Dagan, Israel) is compiling a catalog of the Bethylidae of the Palearctic Region which he plans to publish in the 'Catalogue of the Hymenoptera of the Palearctic Region' (edited by J. Papp).

Marcos Baez (Departamento de Zoologia, Universidad de la Laguna, Tenerife, Islas Canarias, Spain) is collecting and identifying aculeate wasps of the Canary Islands, Madeira and the Azores. He collects on Tenerife year round, but visited Fuerteventura in February and Gran Canaria last summer.

Jozef Banaszak (Dept. of Agrobiology and Forestry, Polish Academy of Sciences, Swierczewskiego 19, 60-809 Poznan, Poland) spends part of his time studying the Chrysididae of western Poland.

John Barron (Biosystematics Research Centre, Central Experimental Farm, Ottawa, Ontario, Canada K1A OC6) is working up the Provancher type specimens of the Sphecidae: location and condition, present status, synonymy and type designations.

Dick Bohart (Dept. of Entomology, Univ. of California, Davis, Calif. 95616) says that besides still working on the generic revision of the Chrysididae (with Lynn Kimsey), he is also revising the New World species of Pterocheilus. Dick had an interesting collecting trip to the Montgomery Pass area of western Nevada in mid May. He took a good series of Pterocheilus nigricaudus and Ammophila monachi, the latter known only from the small type series until now.

H. Jane Brockmann (Dept. of Zoology, Univ. of Florida, Gainesville, Fla. 32611) says "I am conducting a latitudinal gradient study on the life histories, sex ratios, and behavior of the pipe organ mud daubing wasp Trypargilum politum."

Eduardas R. Budrys (Lab. of Insect Systematics, Zoological Institute, Leningrad 199034, USSR) is revising the palaearctic species of Diodontus and would like to expand it to a world study eventually. He is also working on Baltic amber pemphredonine fossils in collaboration with Alex Rasnitsyn.

James H. Cane (Dept. of Zoology-Entomology, Auburn University, Alabama 36849) has a broad spectrum of research projects many of which do not involve wasps, but he is studying the repellency of mandibular gland secretions of aculeates and philopatric mate-seeking in Glenostictia (Sphecidae).

Jim Carpenter (alias Duncan YoYo) (Museum of Comparative Zoology, Harvard University, Cambridge, Mass. 02138), aside from contemplating his navel, is conducting phylogenetic analyses of the genera of social wasps (Vespinae submitted; Stenogastrinae and Polistinae being completed); is working on a catalog and revision of the neotropical Eumeninae; is revising the Masarinae at the world level; and is completing his revision of the New World Ancistrocerus - way to go, YoYo!!!! [Next year Jim will conclude his world revision of the Hymenoptera. In spite of his hectic research schedule, Jim still finds time to write mellifluous (an oxymoron), piquant, and sometimes nettlesome screed about the work and ideas of others for the amusement and amazement of Sphecos readers.]

Leo Castro (Sanz Gadea 9, E-44002 Teruel, Spain) is cataloging the wasp species of the central Mediterranean mountains of Spain (Cordillera Iberica Sur).

Aleksandar Cetokovic (Kumodraska 60, 11000 Beograd, Yugoslavia) is working on the taxonomy and biogeography of the Vespidae (s. str.) of Yugoslavia for the future series Fauna Yugoslaviae. He is also doing a revisional study of the Afrotropical Mutillini, including a revision of the Afrotropical and Palearctic species of Ronisia (with Prof. Dr. Guido Nonveiller).

Bernard Chaubet (I.N.R.A., Domaine de la Motte au Vicomte, BP-29, 35650 Le Rheu, France) is pursuing the following projects: 1) Etablir une bibliographie concernant le nant le comportement de Pemphredoninae. 2) J'ai actuellement en place un dispositif experimental sur une exploitation maraichere conduite en agrobiologue. Plusieur centaines de nichoirs artificiels de divers types ont ete poses de facon a suivre l'evolution de la population de rubicoles dans un premier temp qualitativement puis quantativement. L'object etant d'evaluer en particulier l'evolution de la population des Pemphredoninae ainsi que de mesurer leur impact en tant que predateurs de ravageurs de cultures. 3) Apres des resultats positifs d'elevage en conditions controlees je compte renouveler cette experience dans le but de mesurer avec precision le comportement.

Charles Michener (Entomology Museum, Snow Hall, University of Kansas, Lawrence, Kansas 66045) although working primarily with bees, is interested in the relations of bees to sphecoid wasps. He says that sphecoid wasps are probably paraphyletic. Charles would like to know the sphecoid group from which bees evolved, and would welcome any materials that might shed new light on this topic. [possible "food" for the FORUM? - edit.]

Denis Brothers (Entomology, PO Box 375, Pietermaritzburg, 3200 South Africa) is making progress on his revisions of the Australasian Mutillidae, the Rhopalomutillinae, and the Afrotropical Plumariidae. He would be glad to receive material of these groups from anyone having specimens.

Brian Freeman (Dept. of Zoology, Univ. West Indies, Kingston 7, Jamaica) continues to study the population dynamics of mud-nesting Sphecidae, particularly Trypoxylon, in Trinidad.

Chen Nai-zhong (PO Box 84-3, Graduate School, Beijing Agricultural University, Beijing, Peoples Republica of China) is doing a revisional study of the species of Tiphia in China.

Ken Cooper (4497 Picacho Drive, Riverside, Calif. 92507-4878) is currently studying the effects of dimensions and shapes of burrows on their partioning by renting wasps and bees, as well as an extraordinary interaction between a species of Lotus and many species of megachilid bees (see Lotus Newsletter 16:51-53, 1985).

Jeff Cumming (Biosystematics Research Centre, Agriculture Canada, Ottawa K1A 0C6, Canada) is hopefully nearing completion of his classification and evolutionary study of the eumenine wasp genus Symmorphus Wesmael. Jeff is also studying the acarinaria of eumenine wasps.

Bina Pani Das (E1966, Chittaranjan Park, New Delhi 110019, India) writes "My doctoral thesis was divided into two parts. Part I dealt with the taxonomy of the Indian Stenogastridae (formerly a subfamily of Vespidae) and Vespidae. In the Vespidae only the subfamily Polistinae, which has five genera and fifty five species, was treated in detail. Part II "A catalogue of the families Stenogastridae and Vespidae of the Indian subregion" was published in the 1983 issue of Oriental Insects, 17:395-464. The types described by me, including the determined species belonging to the families Stenogastridae and Vespidae, are in the Indian Museum at the Zoological Survey of India , 34 Chittaranjan Avenue, Calcutta 700012."

"Unfortunately I could not get a research position in my University where I could have continued studies on wasps. For the time being, I have had to take an entomologist position in the National Institute of Communicable Diseases, 22-Sham Nath Marg, Delhi where I am teaching and doing taxonomic research on mosquitoes. I hope to get back to my wasp work."

"I have sent the following papers to Oriental Insects for publication:

Das, B. P. and Gupta, V. K. Taxonomic studies on the family Stenogastridae from Indian subregion.

_____, Revision of the genus Polistes Latreille from Indian subregion with description of four new species.

_____, The tribe Ropalidiini from the Indian subregion.

Michael Charles Day (Entomology, British Museum (Nat. Hist.), Cromwell Road, London SW7 5BD, England) is studying the genera of Pompilidae and is making an "evaluation of characters appropriate to better understanding of interrelationships of wasp groups".

Hermann Dollfuss (A-3100 St. Polten, Franz Hoglgasse 4, Austria) is working on a key for the Austrian Sphecidae. In July/August, 1985, Hermann was collecting in the Republic of Central-Africa.

Barry Donovan (Entomology Division, DSIR, Lincoln, Private Bag Christchurch, New Zealand) is involved with the introduction of Sphecophaga vesparum to New Zealand for biological control of Vespula germanica and V. vulgaris. He says that the recently established V. vulgaris is continuing to expand its range in New Zealand.

Holly Downing (Biology Dept., The College of Wooster, Wooster, Ohio 44691) writes "I have just completed a dissertation on nest construction and architecture among Polistes paper wasps. The study includes a detailed description of construction behavior in 2 species, one temperate and one tropical in distribution. A second part analyzes the cues involved in regulating the construction of P. fuscatus and compares these to existing models of construction behavior. I develop a new model for construction behavior based on my findings. The last section compares quantitative and qualitative nest features among 12 Polistes species."

Eric R. Eaton (2310 S.W. Bertha Blvd. #5, Portland, Oregon 97201) is attempting to identify the Aculeata occurring in Oregon and the Pacific Northwest, and determine each species' distribution within the region. He would appreciate locality data from material of identified species collected in Oregon that anyone may have. He also needs keys to genera and species in this region. If feasible, Eric may write a guidebook to the common Hymenoptera of Oregon.

Michael Edwards (Lea-Side, Carron Lane, Midhurst, SX. England GU29 9LB) is involved in the British Aculeate mapping scheme. In 1983 he was in Morocco collecting. "Rather early for sphecids (March). Some unusual things collected - mainly bees."

Robin Edwards (Rentokil Ltd., Felcourt, East Grinstead, West Sussex RH19 2JY, England) is gathering new literature and collection data for a second volume on "Social Wasps".

Lloyd Eighme (P.U.C. - Biology, Angwin, Calif. 94508) is finishing up his revision of Diodontus and plans to submit it for publication by December, 1986. His studies of speciation and species distribution in Diodontus and Pulverro continue.

Nancy Elliott (Dept. of Biology, Hartwick College, Oneonta, N.Y. 13820) is studying presocial behavior in Cerceris, and reproductive strategies of male Campsomeris species. She asks "Is anyone aware of literature on behavior of scoliids, or is anyone currently studying them? I have seen some evidence that males of Campsomeris species may be territorial, and have been trying to study this by marking individual males."

George Richard Else (Dept. of Entomology, British Museum (Nat. Hist.), Cromwell Road, London SW7 5BD, England) says "I am a professional bee taxonomist and systematist, but retain an active interest in wasps worldwide. I've collected both bees an aculeate wasps in the U.K. and overseas during the past 17 years. I am co-author (with G. M. Spooner) on the aculeate section of the British Red Data Book on endangered and vulnerable insects. This will be published (hopefully !) early next year. I am completing a handbook for the identification of British and Irish bees (to be published by the BMNH). Future work will concentrate on the western Palearctic bee fauna with the possibility of research on the bees of Sulawesi (following a collecting trip to this island last year). I'm also sorting out the systematics and habits of the British black Psen species - there is a distinct probability that P. littoralis and P. unicolor are conspecific, but more detailed work needs to be done. The loan of material of these two species from Britain and elsewhere, as well as details on their biology and nesting habits, would be appreciated."

Howard Evans (Dept. of Entomology, Colorado State University, Fort Collins, Colo. 80523) is studying the natural history and behavior of North American bee wolves (Philanthus) (with K. M. O'Neill). He is also working out the biology of Podalonia occidentalis, and studying (with A. W. Hook) communal nesting in Cerceris.

John Clifford Felton (Karel Doormanlaan 197, 2283 AM Rijswijk, the Netherlands) is working on Nitela in southeast England, Trypoxylon in Kent, England, and studying the prey of Gorytes laticinctus.

Albert Finnamore (Provincial Museum of Alberta, 12845 - 102 Avenue, Edmonton, Alberta, Canada T5N 0M6) is revising the species of Stigmus and Carinostigmus on a world scale. He is also coordinating an ecological study of the terrestrial invertebrate fauna of a calcarious peatland in northern Canada. About 40,000 specimens of Hymenoptera have been collected in the peatlands project, and any assistance in identification, particularly of the parasitic groups would be appreciated. Albert also collected in Peru (Rio Tambopata to Iquitos) were he took large numbers of forest dwelling twig-nesting sphecids in the rainy season. He also collected in Ecuador (Rio Napo to Peruvian border than up Rio Yasuni) where twig nesting sphecids were taken at in rain forest at the end of the dry season. This material looks promising but is only partially sorted. Albert also got into Suriname in February but it was too dry for good collecting.

Ole Lomholdt (Zoological Museum, Universitetsparken 15, DK-2100 Copenhagen, Denmark) continues with his revision of Sericophorus (Sphecidae). He is also working on the bees of Fennoscandia and Denmark and the "excitingly rich sphecid fauna in S.E. Peloponnes, Greece". A revision of Carinostigmus is also in the works [Finnamore and Lomholdt had better have a conference - edit.]

George Ferguson (Dept. of Entomology, Oregon State Univ., Corvallis, Ore. 97331) continues his revisionary work on the North and Central American Cercerini.

Paul Freytag (Dept. of Entomology, Univ. of Kentucky, Lexington, Kentucky 40546) spent one week in Puerto Rico last April where he reared two dryinid species, both of which appear to be new.

Terry Galloway (Dept. of Entomology, Univ. of Manitoba, Winnipeg, Manitoba, Canada R3T 2N2) is surveying the aculeates of Manitoba in order to compile a synoptic list of species and to determine faunal affinities. He needs help with identifications.

S. F. Gayubo (Departamento de Zoologia, Facultad de Biologia, Universidad de Salamanca, 37071 Salamanca, Spain) is working on a revision of the palearctic species of Nysson s.s. He has started to study the biology of Sphecidae inhabiting the Iberian Peninsula.

Jorge Genise (Division Entomologia, Museo Argentino Ciencias Naturales, Angel Gallardo 470, (1405) Buenos Aires, Argentina) writes "I am finishing a revision of the South American Tiphiidae." "Then I shall follow with Myzinidae and Thynnidae". He is also studying the nesting biology of the Bembecini.

Gordon Gordh (Entomology Department, Univ. of California, Riverside, Calif. 92373) has nearly finished his catalog of the Bethylidae. He is having problems locating Kieffer type material and would like to hear from anyone knowing the location of such material. Gordon continues to work on the taxonomy of Goniozus.

Josef Gusenleitner (Landwirtschaftlich-chemische Bundesanstalt, Wieningerstr. 9, A-4025 Linz, Austria) is revising the genera Antepipona and Leptochilus in the Palearctic Region. He is very interested in obtaining literature on the Vespoidea that from Africa, North America, and the Pacific. Last year Josef collected wasps in Zimbabwe.

Jacques Hamon (4 rue du Coteau, 74240 Gaillard, France) says "Time permitting, I plan to contribute to the updating of the past monograph (Berland, 1926) on the Sphecidae of France, joining forces with colleagues, and publishing genus by genus." Jacques is also going to review the systematics and biogeography of the mediterranean Scoliidae.

Commenting on his collection, Jacques writes "Until I retire from my present position my collecting trips are limited to the mainland of France (mostly in the departments of Ain, Haute Savoie, Ande and Pyrenees Orientales), but in the past I have extensively collected in West Africa. This material has been deposited with the Museum National d'Histoire Naturelle, Paris. The Eumenidae were studied by A. Giordani Soika, Chrysididae by W. Linsenmaier, Pompilidae by R. Wahis, Mutillidae by Nonveiller, and part of the Sphecidae by Lomholdt. My French material will be shared between the Museum in Paris and the Musee de Lausanne."

Michael Hansell (Zoology Department, Glasgow University, Glasgow, Scotland, United Kingdom) is conducting comparative studies of nest building materials, adult and larval jaw anatomy, and adult salivary glands in the social Vespidae (Vespinae, Polistinae, Stenogastrinae). He is interested in obtaining "any specimens, male, female, worker or larvae of Vespinae, Polistinae and Stenogastrinae, either in alcohol or dry". Michael also is interested in obtaining nest material, even fragments, of species in these subfamilies.

Michael has "worked successfully for several years at the University of Malaya Field Station Centre, 25 km from Kuala Lumpur, in a not too disturbed tropical forest habitat. For details contact Dr. Fong, Department of Zoology, University of Malaya, Lembah Pantai, Kuala Lumpur, Malaysia".

Allan Hook (Dept. of Zoology, Univ. of Texas, Austin, Texas 78712) is currently studying the nesting biology of Texas Cerceris with emphasis on communal nesting. "I hope to do some electrophoretic work, which may provide some answers to questions on relatedness. I also need to examine nest site selection, i.e., under what conditions do Cerceris nest jointly and under what conditions do they nest found.

Raimond Hensen (Rijksmuseum van Natuurlijke Historie, Postbus 9517, 2300 RA Leiden, Netherlands) continues his revisional studies of the Austro-Oriental Sphex and Isodontia (Sphecidae) and the Malagasy Belonogaster (Vespidae). He would welcome reprints from anyone. Raimond has made several collecting trips in recent years: Ecuador (July/August 1982), 1500 aculeates; Madagascar, 9 weeks, all over the island (April/May 1984), 1200 aculeates; Turkey, mainly south and east, 5 weeks (Aug. 1985), 3000 aculeates; and Thailand, all over the country, 6 weeks (July/August 1986), material still unprepared.

D. S. "Woody" Horning, Jr. (Macleay Museum A12, University of Sydney 2006, NSW Australia) spends much of his time curating the Macleay Museum insect collection [see Sphecos 7:8-11]. This collection contains possible type material of Latreille, Klug, Saussure, Kirby and Donovan! A related activity is transcribing old hand-written letters (currently working on many of the Kirby letters to Alexander Macleay - a not too pleasant chore). Woody needs help with identifications of material from the Macleay collection (especially material from Europe, Great Britain and Cuba).

James Hunt (Dept. of Biology, Univ. of Missouri St. Louis, St. Louis, Missouri 63121) is studying the behavioral ecology and developmental biology of Mischocyttarus and the demography of Polistes and Sceliphron. He is also conducting a survey of the Vespidae of Missouri and in this connection is interested in obtaining records or specimens from anyone having any.

Jacob Ishay (Dept. of Physiology and Pharmacology, Sackler Faculty of Medicine, Tel Aviv University, 69978, Ramat-Aviv, Israel) is studying gravity orientation in Vespa orientalis (a project with NASA) and biological activities of the venom of this species. He is also studying thermoregulation in social wasps. Jacob says "It would be of great help to have more access to the available literature in English, Chinese, and other languages."

Daniel Janzen (Dept. of Biology, Univ. of Pennsylvania, Philadelphia, Penn. 19104) is studying the predators and parasitoids of Costa Rican dry forest caterpillars.

Lars-Ake Janzon (Swedish Museum of Natural History, Box 50007, S-104 05 Stockholm, Sweden) made collecting trips to Kenya (Jan. 1985), Cyprus (Sept. 1985), and Tenerife in the Canary Islands (March 1986).

Robert L. Jeanne (Dept. of Entomology, Univ. of Wisconsin, Madison, Wisc. 53706) will be studying the social behavior of Ropalidia wasps in northern Australia while on sabbatical leave for a year (1986-87). In 1987 he will begin studying the organization of nest construction in Polybia occidentalis in Costa Rica.

Daniel Jennings (Northeastern Forest Exp. Station, USDA Bldg., Univ. of Maine, Orono, Maine 04469) continues his work on the natural enemies of the spruce budworm, Choristoneura fumiferana, among which are various eumenine wasps. He is studying the spider prey of the pompilid Dipogon sayi sayi and also compiling a checklist of the spiders of Maine. Daniel says "Am willing to identify spider prey of pompilid and other wasps provided material (spiders) is properly preserved (70-80% alcohol) and labeled (locality, date, habitat, collector). Prior notification and approval for large collections please."

Richard Keyel (S. C. Johnson and Son, Inc., 1525 Howe Street, Racine, Wisc. 53403) currently is studying insect food-finding behavior including yellowjacket foraging strategies. He is also involved with attractants/repellants and toxic baits for yellowjackets.

Lynn Siri Kimsey (Dept. of Entomology, Univ. of California, Davis, Calif. 95616) is still slaving away on the Chrysididae of the world with Dick Bohart, but she is now taking up a study of the Thyninnae with an eventual revision in mind. Lynn would like to hear from anyone having South American thyninnine material that they would lend.

HELP NEEDED

Jun-ichi Kojima (4-8-6 Zushi, Zushi-shi 249, Japan) is building a collection of alcoholic material of Ropalidia, females and males, (specimens fixed in Kahle's solution would be better), for use in research on exocrine gland morphology. Can anyone supply such material?

Robert S. Jacobson (Dept. of Pathology, ECU School of Medicine, Greenville, NC 27858, USA) writes: "Vespa analis tyrannica Smith, from Singapore, is recorded by van der Vecht (1957) in his work on Indo-Malayan and Papuan vespine, as not having been found more recently than 1911. I am wondering whether this subspecies is now extinct due to urbanization or other factors, or whether anyone has seen or collected specimens more recently. Information concerning this subspecies is requested, and I will be happy to examine any unidentified Vespinae from Singapore."

Donald R. Hoffman and Robert S. Jacobson (Dept. of Pathology, ECU School of Medicine, Greenville, NC 27858, USA) need to obtain venom from Vespa mandarinia, V. velutina, and V. simillima for biochemical and immunological studies. Anyone in a position to supply or collect these species (and/or other species of Vespa besides V. crabro) are asked to contact us.

Borge Petersen (Universitetetes Zoologiske Museum, Universitetsparken 15, 2100 Copenhagen, Denmark) wonders if anyone has translated Lelej's 1985 book on the Mutillidae of the USSR (Acad. Sci. USSR, Nauka, Leningrad, 268p.). Please contact him if you have a translation.

Colin R. Vardy (British Museum (Natural History), Cromwell Road London SW7 5BD) writes: "Pepsis is coming along - I've seen nearly 300 types to date (have about 300 to go)."

Alexander V. Antropov (Zoological Museum of the Moscow State University, Herzen Street 6, Moscow K-9, 103009, USSR) continues to make progress on his revision of the Palaearctic Trypoxylini, and he needs to see "any possible material (determined or not) of Pison Jurine and Trypoxylon Latreille (Hymenoptera, Sphecidae, Larrinae) from the southern parts of the Palaearctic (especially from northern Africa and central Asia - Turkey, Iraq, Iran, Afghanistan, Mongolia, China, Korea and Japan)."

Michael Arduser (Dept. of Biol., Univ. of Missouri-St. Louis, 8001 Natural Bridge Rd., St. Louis, Missouri 63121) is trying to locate wasps collected by Phil Rau in Missouri, particularly Polistes. [There is much Rau material in the USNM collection - edit.]

Qabir Argaman (Plant Protection Department, P.O. Box 78, IL-50250 Bet Dagan, Israel) is anxious to build up a collection of Bethylidae and literature on the family. He would appreciate hearing from anyone that can help. Qabir has material for exchange. Older literature is especially hard for him to obtain.

Jacques Bitsch (University Paul Sabatier, 118 route de Narbonne, 31062 Toulouse Cedex, France) maintains a collection of French wasps, especially Sphecidae and Pompilidae. He collects on weekends, during vacations, etc. chiefly in southern France around Toulouse, but also in the southeastern part of France (Provence). He needs help in getting some of his material identified, and he also would like to obtain literature on American wasps.

Eduardas R. Budrys (Lab. of Insect Systematics, Zoological Institute, Leningrad 199034, USSR) would appreciate loans of Old World Diodontus for study in connection with his revision, and needs material of the Hawaiian genus Deinomimesa for his revision of the genera of the Psenini. He would welcome any Baltic or other amber with sphecid fossils.

Leo Castro (Sanz Gadea 9, E-44002 Teruel, Spain) says: "I haven't been able to find a single decent key to the W. Palearctic Pterocheilus and/or Hemipterochilus. Does anyone know where I should look?"

Bernard Chaubet (I.N.R.A. Domaine de la Motte au Vicomte, BP 29 35650 Le Rheu, France) is interested in obtaining any literature on the biology of sphecid wasps of the subfamily Pemphredoninae.

Brian Freeman (Dept. of Zoology, Univ. of the West Indies, Kingston 7, Jamaica) needs help getting his Chrysididae identified.

Chen Nai-zhong (PO Box 84-3, Graduate School, Beijing Agricultural University, Beijing, Peoples Republic of China) needs copies of the following papers:

Chen Chin-Wen. 1957. A revision of the velvet ants or Mutillidae of China. Quart. J. Taiwan Mus. 10:135-226.

Brothers, D. L. 1975. Phylogeny and classification of the aculeate Hymenoptera. Univ. of Kansas.

Jeff Cumming (Biosystematics Research Centre, Agriculture Canada, Ottawa K1A 0C6, Canada) needs identified or unidentified mite-bearing specimens of Eumeninae for dissection and scanning electron microscopy.

Holly Downing (Biology Dept., The College of Wooster, Wooster, Ohio 44691) says "I am always looking for Polistes nests. I don't need any P. fuscatus nests from Wisconsin or P. instabilis nests from Costa Rica, but any others would be appreciated (as long as the species which built the nest is known). Any other information about the nests such as collection location (detailed) and type and angle of substrate the nest was attached to would also be helpful."

Connal Desmond Eardley (Plant Protection Research Institute, Private Bag X134, Pretoria 0001, South Africa) writes "I have a large collection of southern African aculeates, and should be pleased to have some of the material identified if anyone is willing to help me. I also sometimes need specific wasps, which form the subject of scientific research projects, identified and would be pleased to receive help with these occasional identifications."

Lloyd Eighme (Pacific Union College, Biology, Angwin, Calif. 94508) says "The type of Diodontus adamsi Titus, 1909, from Isle Royale, Michigan, has been lost. I have searched all of the likely depositories for this specimen without success. If anyone knows of its location, or has topotypic material from Isle Royale please let me know. The supposed type of Diodontus americanus Packard, 1867, from Brunswick, Maine, does not match the original description. I would like to see any material from that area for possible use in selecting and designating a neotype.

S. F. Gayubo (Departamento de Zoologia, Facultad de Biologia, Universidad de Salamanca, 37071 Salamanca, Spain) would like to borrow material of palearctic Nysson (Sphecidae) for his revisionary work on the genus. He would appreciate hearing from anyone have specimens.

Donald R. Hoffman (Dept. of Pathology, East Carolina University School of Medicine, Greenville, North Carolina 27834) writes: "We would like help in obtaining both venoms (or fresh frozen insects) from other areas of the world, and sera from patients allergic to these venoms. We are particularly interested in getting venoms from the southeast Asian species of Apis and the east Asian species of Vespa and Dolichovespula."

MISSING PERSONS

Does anyone know the current addresses of the following people?

Major Donald Baker of England
Joe D. Pratt of the U.S.A.

HANDBOOK OF BIOLOGICAL TERMS FOR ANIMAL BEHAVIORISTS

Edward M. Barrows (Department of Biology, Georgetown University, Washington, D. C. 20057) writes: "I am compiling a 'handbook' of biological terminology related to animal behavior, the compilation being on a computer disk and now about 700 typed, single-spaced pages. The first draft of the book is due to the publisher in February 1988. In view of the increasing number of behavioral terms, my goal is to include at least the main ones. Principle meanings of a term (with literature references) will be included. I hope that the book will be useful to anyone interested in behavior: teachers, researchers, students, journalists, and others."

"Science is a social phenomenon: I certainly could use constructive input from any Sphecos reader who is willing to give it. If you have any input for the book [i.e., a behavioral term(s) (including evolutionary and ecological terms relating to behavior) you have coined, a clarification on the meaning, spelling, or use of a term, etc.], please write to me. If it is appropriate, I'll send you my present entry for the term and an information kit. Thank you for considering my request. My thanks to persons who have contributed to the book already."

Robin Edwards discussed the word behavior is Sphecos 12:2. The readership may be interested in the present entries from Barrows' Handbook regarding behavior:

behavior. n. 1. The manner in which a person, substance, machine, or other thing acts under specified conditions, or circumstances, or in relation to other things (Oxford English Dictionary; Michaelis 1963). [formed on BEHAVE by form analogy with HAVOUR; BEHAVE; behavior Middle Eng. be- thoroughly + have to hold oneself, act < Old Eng. behabben, had < Old High German bihabên < be- about + habban, to hold, HAVE, in senses 'encompass, contain, detain' (Oxford English Dictionary)]. British. behaviour. v. behave. Note: Some workers use behavior as both a singular and plural term; other workers use behavior as a singular and behaviors as plural (Edwards 1986).

organism behavior. n. 1. Any observable action, or response, of an organism (Lincoln et al. 1985). 2. The response of a single organism, group, or species to environmental factors (Lincoln et el. 1985). Syn. -- behavior.

animal behavior. n. 1. Activities of animals mediated by their neurendrocrine systems or analogs (R. Jander, per. comm., 1973). 2. "What an animal does" (Lehner 1979, 6). 3. One, or more, activities
of an individual animal, species, or other grouping of animals. 4. The scientific study of animal behavior. Syn. -- behavior.

human behavior. n. 1. Manner of conducting oneself in external relations of life (Oxford English Dictionary). Syn. -- bearing, demeanor, deportment, manners. 2. "Conduct, general practice, course of life; course of actions towards or to others, treatment of others" (Oxford English Dictionary). 3. Psychology: The form of glandular and muscular activity characteristic of an individual in relation to internal, or external, stimuli, with special reference to emotional, linguistic, and other responses (Michaelis 1963). Syn. -- behavior.

Edwards, R. 1986. Behavior vs. behaviors. Sphecos 12:2.
Lehner, P. N. 1979. Handbook of Ethological Methods. Garland STPM Press, New York, NY. 403 pp.
Lincoln, R. J., G. A. Boxshall, and P. F. Clark. 1982. A Dictionary of Ecology, Evolution, and Systematics. Cambridge University Press, NY. 298 pp.
Michaelis, R. R., ed. 1963. Funk & Wagnalls Standard College Dictionary. Text Edition. Harcourt, Brace & World, Inc., NY. 1606 pp.
Oxford English Dictionary. 1976. Compact Edition. Oxford University Press, Oxford, England. Volume 1. 2048 pp.

ADDRESS CHANGES

A. Aptroot: W. v. Velsenstr. 11, 1962 W-S. Heemskerk, Holland.
Qabir Argaman: Plant Protection Dept., P.O. Box 78, Bet Dagan 50250, Israel.
Suzanne W. T. Batra: Beneficial Insect Introduction Lab., Bldg. 476, BARC-East, USDA, Beltsville, MD 20705, USA.
James H. Cane: Dept. of Zoology-Entomology, Auburn University, Auburn, AL 36849, USA.
Leo Castro: Sanz Gadea 9, E-44002 Teruel, Spain.
Holly Downing: Biology Department, The College of Wooster, Wooster, Ohio 44691, USA.
William E. Ferguson: 245 Vista de Sierra, Los Gatos, Calif. 95030, USA.
Harold G. Fowler: Instituto de Biociências, UNESP, 13500, Rio Claro SP, Brazil.
Jorge Fernando Genise: Division Entomologia, Museo Argentina Ciencias Naturales, Angel Gallardo 470, (1405) Buenos Aires, Argentina.
Mehandra Giri: Department of Zoology, Kirtipur Campus, Tribhuran University, Kathmandu, Nepal.
Jorge M. Gonzalez: Edif. Don Luis, Apto. 501, Pisa 5, Esquina Horcones, El Conde, Caracas, D.F. 1010, Venezuela.
Carll Goodpasture: P.O. Box 422, Santa Cruz, New Mexico 87567, USA.
Donald A. Hunt: 3603 Macdonald Ave. #A, Richmond, Calif. 94805, USA.
Jun-ichi Kojima: 4-8-6 Zushi, Zushi-shi 249, Japan.
Richard B. Keyel: S. C. Johnson & Son, Inc., 1525 Howe St., Racine, WI 53403, USA.
Scott Miller: Bernice P. Bishop Museum, P.O. Box 19000-A, Honolulu, Hawaii 96817, USA.
Erik T. Nielsen: 4598 South 25th St., Fort Pierce, Florida 33482, USA.
Paul Opler: U.S. Fish & Wildlife Service, 1025 Pennock Place, Suite 212, Fort Collins, Colorado 80524, USA.
Laurence Packer: UCCB, P.O. Box 5300, Sydney, N.S., B1P 6L2 Canada.
D. H. Pengelly: Box 359, Erickson, Manitoba R0J 0PD Canada.
David C. Post: 2629 Armstrong Dr., Wooster, Ohio 44691, USA.
Anthony Raw: Instituto de Biologia, Universidade Federal da Bahia, Ondina, Salvador: BA Brazil.
Carl W. Rettenmeyer: Museum of Natural History, 75 N. Eagleville, Rm. 313, V-23, Storrs, Conn. 06268, USA.
Arturo Roig Alsina: Snow Entomological Museum, Snow Hall, University of Kansas, Lawrence, Kansas 66045, USA.
Charlotte T. Samuel: P.O. Box 255, 70730 Seremban, Malaysia.
Stephen P. Schembri: 'Pearl', Ujal Il-Helsien, Zebbug, Malta.
Jon Seger: Dept. of Biology, University of Utah, Salt Lake City, Utah 84112, USA.
Sandra Shanks: Dept. of Biology, Univ. of San Francisco, San Francisco, Calif. 94117, USA.
Philip Spradbery: CSIRO, P.O. Box 1700, Canberra, A.C.T. 2601, Australia.
V. V. Sudheendrakumar: Division of Entomology, Kerala Forest Res. Inst., Peechi-680 653, Trichur, Kerala, India.
David Wahl: American Entomological Institute, 3005 SW 56th Ave., Gainesville, Florida 32608.

FORUM

GEOGRAPHIC COLOR FORMS IN PALEARCTIC POMPILIDAE

by
Peter van Ooijen
(Westerkade 21, 3511 HB Utrect, Netherlands)

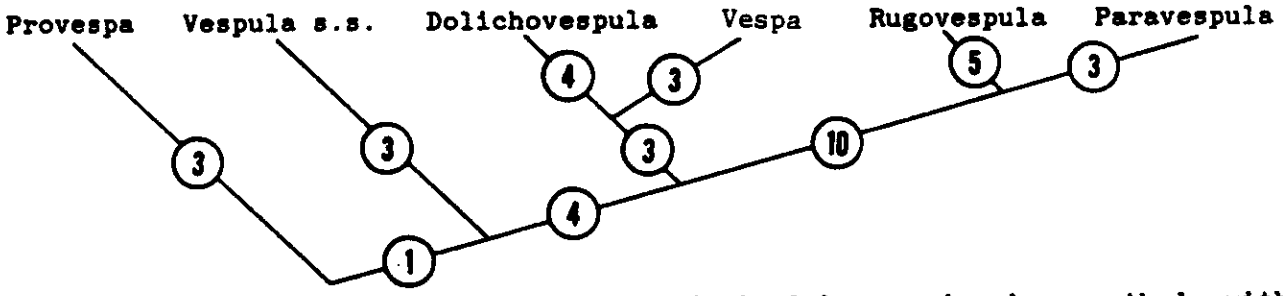
I would like to know the opinion of other aculeate workers on one interesting point in the Pompilidae. In the western palearctic fauna one can draw a line through the south of France; south of it, especially on the Iberian Peninsula, all wasps are black, to the north of it, as well as in Italy, Yugoslavia and Greece, the same wasps are red. I regard these forms as subspecies, though not every European hymenopterist will agree. In northern Turkey I always collect red wasps, in southern Turkey I always collect black wasps. As far as I know, the north African forms are black. There are morphological differences but color seems enough for identification. However, I am sure that these color forms are conspecific. This year I want to collect more in central Anatolia. Who can tell me more about this phenomen in other Aculeata?

[Peter's remarks touch on a fairly common problem in the taxonomy of wasp species that have

broad geographic ranges. Quite a few authors have discussed color patterns in wasps. For example, Bohart and Menke (1963, A reclassification of the Sphecinae, Univ. Calif. Public. Ent. 30:91-182, but specifically pages 92-93, 103, 116, 124-125) described some of the common color patterns in North American wasps. One thing that disturbs me in Peter's discussion is his statement that there are morphological differences between the color populations. This suggests to me that different species are involved here, and that careful study of the situation is needed. It might be more enlightening Peter, if you would discuss some specific examples in more detail (i.e., give us some wasp names with a description of the problem). -- A. S. Menke].

APOLOGIES TO ARCHER

Michael Archer brought to my attention two unfortunate mistakes made by your editor when setting up his Forum article on the Vespinae (Sphecos 11:9). Vespula was used instead of Vespa in the cladogram, and Provespa came out as "Provespula" (3rd line from bottom). The pertinent corrections are reproduced below with apologies to Michael:



of the cladogram used, although ideally derived by parsimonious methods with characters given equal weighting, in practice must involve subjective judgement if only because not all possible characters are used.

In this cladogram, and others considered, the usual arrangement is for Rugovespula and Paravespula to be on the right and Provespa on the left with Vespula s.s., Dolichovespula and Vespa largely interchangeable. The above cladogram with my phenogram causes me to suggest a classification of five

ARCHER OFF THE MARK

by
Jim Carpenter
(Museum of Comparative Zoology, Harvard University,
Cambridge, Mass. 02138)

Archer's "justification" of his "working cladogram" is of course no justification at all - he still does not adduce any evidence whatsoever for his "radical proposal" (comment by Wagner in Sphecos 11:10-11). I am not interested in discussing his ideas as such (I am in the process of submitting a manuscript on vespine phylogeny and classification), but wish to refute a specious implication of Archer's "justification". He states: "My investigation is based upon 25 characters which can take about 72 character states and is thus much more extensive than Carpenter's study." If by this he means that his cladogram is better supported, that is false. He does not list numbers of states on his cladogram which total to 72, but of the 39 he does list, 21 are autapomorphies and 10 apply to a clade not in dispute. Thus, only 8 apply to the part of his tree for which I discussed characters supporting an alternative interpretation - and I described 9. So his system definately does not accord with the weight of available evidence. However, Archer wishes to retain opinion as a basis for phylogenetic hypothesis, rather than evidence, since he wants to use phenetics, and discard evidence. Taxonomy is peculiar in the extent to which antiscientific beliefs continue to be regarded as acceptable. Which brings me to another point. Archer states: "it should not be surprising that two workers should come up with solutions which appear so different from each other." That is not true for cladistic analysis if the data are the same - and the analyses are properly done. As I have shown in my forthcoming paper on Vespinae, erroneous interpretations of the polarity of characters is a major source of the confusion prevailing in discussions of vespine relationships. I expect that will prove to be the case here.

Sphecos, No.13:14, (1986)

SNELLING'S "UNNATURAL ACT"

by
Jim Carpenter

In the last issue of Sphecos (12:3) Roy Snelling attacked systematists who term their classifications "natural". By this, he intended primarily to disparage cladists, who mostly use that term these days. In so doing, he wished to equate his own, intuitive approach with numerical cladistic analyses in particular, although he did not do this in a very cogent fashion. He wrote "Classifications are 'best guess' hypotheses, nothing more. Whether based on intuition or a sophisticated computer-generated system is irrelevant." The reader might well ask whether a defined method is equivalent to the lack of one when making scientific hypotheses of any sort, even "best guess" classifications. Snelling concludes with a new name in "Mihiitis", arrogans, for those systematists so arrogant as to use the term "natural." There is nothing quite so arrogant as ignorance, and Snelling in his diatribe ignores (or rather, is unaware of) an extensive body of literature on the concept of naturalness in classifications, dating back two centuries. Nowadays the term is frequently used to connote phylogenetic classifications, but it has a much more general usage. One author on this matter whom Snelling would profit by reading is Charles Darwin. In Chapter 13 of the Origin, pp. 411-414, Darwin discusses the "Natural System". He first states:

> "From the first dawn of life, all organic beings are found to resemble each other in descending degrees, so that they can be classed in groups under groups. This classification is evidently not arbitrary like the grouping of the stars in constellations."

And later

> "Naturalists try to arrange the species, genera, and families in each class, on what is called the Natural System. But what is meant by this system? Some authors look at it merely as a scheme for arranging together those living objects which are most alike, and for separating those which are most unlike; or as an artificial means for enunciating, as briefly as possible, general propositions, - that is, by one sentence to give the characters common, for instance, to all mammals....The ingenuity and utility of this system are indisputable."

Darwin argued that "propinquity of descent", i.e., phylogeny, was the basis of the Natural System, and this is generally accepted today. Thus cladists, as authors of the "best guess" phylogenetic hypotheses (something even critics such as Mayr concede, for example in The Growth of Biological Thought) are perfectly justified in terming these classifications natural in this phylogenetic sense. Cladistic classifications have much greater explanatory capability, as is generally recognized.

But there is more to this issue than that. Several influential philosophers, among them John Stuart Mill (1874, A system of logic....) and, in this century, J.S.L. Gilmour, continued the treatment of the Natural System as one separate from a phylogenetic one; one suited better to conveying information on the "general propositions" referred to by Darwin than phylogeny. Thus, the use of the term "natural classification" in its pre-Darwinian sense has continued. In the absence of a rigorous method for inferring phylogeny, this was not an unreasonable stance, but pheneticists (back in the days when anyone listened to them) claimed that natural systems could not be based on phylogeny, and argued that their classifications were natural in the Mill/Gilmour sense whereas others were not. Perhaps Snelling and other syncretists would not go that far, but they are like pheneticists in claiming that portrayal of both phylogeny and character information ("general propositons" of the Natural System) in classification are conflicting goals, which require some compromise in order to accomodate both. Therefore, although cladistic classifications are better at evolutionary explanation, they are claimed to be inferior in the descriptive function of classification. None of them ever studied this claim, but a cladist did - J. S. Farris, who showed that the claim was false, and in fact cladistic classifications were most natural in this sense as well. That is, there is no conflict between natural and phylogenetic systems, they are one and the same, and so cladists are doubly justified in using the old term natural. Particularly noteworthy papers by Farris include one in 1977, in Hecht et al, Major Patterns in Vertebrate Evolution, with an exposition on the meaning of the term natural and showing that cladistic classifications optimized phenetic criteria of classificatory goodness better than phenetic classifications; 1979, Syst. Zool. 28:483-518, where he used elementary information theory to show that cladistic classifications were more natural in the "general propositions" sense than either phenetic of intuitive ones; and 1982, Syst. Zool. 31:413-444, where he showed the same thing with a factorial approach. The basis of these results are straightforward: only in cladistic classifications are all taxa distinguished

by the possession of some character, as opposed to the absence of characters which "distinguish" paraphyletic taxa. Thus they are far more efficient at conveying information on "general propositions" "as briefly as possible".

Considerably more could be (and has been) written on the concept of naturalness in classification, and Snelling's argument could be further refuted in detail. However, the foregoing is sufficient to show that his argument was, to say the least, not very well thought out. [Jim, are you suggesting parablepsia?]

SNELLING AND CLADISTICS

by
Dave Wahl
(American Entomological Institute, 3005 SW 56th. Ave.
Gainesville, Florida 32608)

Snelling's comments in Sphecos 11:12-13 and 12:3 appear to be based on three assumptions: 1) the lack of absolute certainty in reconstructing phylogeny; 2) there are no patterns of phylogentic relationship that can be recovered independently of evolutionary considerations; 3) classifications are based on artificial assemblages of species that apparently have no reality in nature.

His objection to the lack of absolute certainty with regards to phylogeny reconstruction can be best answered by Hennig (1966: 28): "In my opinion, this position rests on a misunderstanding of the nature of all scientific endeavors. If absolute certainty of perceptions were a condition and sole justification of scientific effort there could be no science at all. A characteristic of any science is the "endless task" and the knowledge that its final goal will probably never be reached."

A casual perusal of back issues of Systematic Zoology and Cladistics will reveal an extensive literature showing that evolutionary considerations are not necessary to generate hierarchal relationships between organisms. Most workers, however, will agree that a process of descent with modification has occurred and that underlying patterns of relationships exit independent of our ability to recognize them. Since my dictionary defines "natural" as "1. existing in or formed by nature; 2. based on the state of things in nature; constituted by nature", it would follow that classifications that mirror the natural hierarchy of organisms can certainly be referred to as "natural". Classifications that are based upon overall similarity (phenetic/gradistic) ignore these relationships and are demonstrably not natural in the above sense. Snelling's belief in the artificially of higher taxa might result from confusing the recovery of patterns of relationships with the task of translating this information into a classification. The phylogenetic (or natural) classification solves this problem by making the classification isomorphic with the cladogram. I might add that I have yet to meet a systematist who believed that classifications were anything other than hypothesis (excluding a few who believed them to be indices to taxonomic literature and little else).

I think the comment concerning the mental deficiencies of those workers who accept computer-based classifications is rather amusing. Cladistic relationships, which even gradists acknowledge must be analyzed prior to construction of classifications, are based upon the careful analysis of all characters. Usually several cladograms of differing parsimony are generated, and since science strives toward hypotheses that explain the data in the most simple manner, computer assistance is invaluable for discovering the most parsimonious solutions. Although cladistic analyses are almost always preferable to intuitive studies, uncritical acceptance will lead one astray; not all cladograms are created equal.

Perhaps those who find these views objectionable and deny that it is possible to efficiently recover historical groups in nature (and to produce corresponding classifications) should turn to philately: a quiet pursuit devoid of tricky philosophical points, although the question of how we can ever prove a stamp is a stamp might occasionally haunt the small hours of the night.

A CLADIST'S DICTUM

"The bonds of blood relationship cannot be severed by false phenetic considerations"
Dave (the "Philatelist") Wahl

Sphecos, No.13:16, (1986)

PET PEEVE DEPARTMENT

PROSOMA REVISITED

Roy Snelling (Dept. of Entomology, Natural History Museum of Los Angeles Co., 900 Exposition Blvd., Los Angeles CA 90007), never at a loss for an opinion, sent in the following: "Prosoma? Hah! Head is quite good enough, thank you. Yes, there is a growing trend among bee people, especially, to use mesosoma and metasoma, respectively, in preference to the more traditional thorax and abdomen. I suppose it's because the "thorax" is not the thorax and the "abdomen" is not the abdomen, as you point out. And, while the use of "head" rather than prosoma is inconsistant, it is consistant with the fact that our nomenclature for insect morphology is not consistant. We freely mix terms that include Latin, Greek, and English (Of course, the latter changes if you are French, German, Italian, etc.), so where's the beef? We all manage to figure it out, even so. Be thankful you're not working on ants, with a funiculus, epinotum, gaster, truncus, alitrunk, etc. It all gets rather confusing, but does keep life from getting too dull. I don't think bee people are "beeing" absurd, they are just being normal."

Jun'ichi Kojima (4-8-6 Zushi, Zushi-shi 249, Japan) writes: "I was interested in your note titled "prosoma anyone?" in the Pet Peeve Department. I prefer to call the definitive abdomen the metasoma for several reasons. Most morphologists (e.g. Snodgrass) use the term "abdomen" for the definitive abdomen+propodeum. Then if someone writes "abdominal segment II elongate basally", I cannot immediately know what segment he wished to indicate with "abdominal segment II". Is it metasomal segment I or II? An alternative might be to use "gaster" as you do and I did. But, what is the gaster? Ant workers call the segment behind the petiole the gaster. I think the metasoma is the most clearly defined term for the definitive abdomen. For the consistency I will use the term mesosoma, but I won't use the term prosoma because the head is the head."

Jacques Bitsch (Universite Paul Sabatier, 118 rte de Narbonne, 31062 Toulouse Cedex, France) offers his thoughts on Prosoma: "Head, thorax and abdomen, terms commonly used in insect morphology, do not mandate the same composition for each of these body parts among different groups. They are only descriptive terms and they do not prejudge the exact number of segments (that may be determined by embryological investigations). This is a general principle in comparative morphology; for example, the vertebrate "head" does not have the same composition in fishes and mammals. That is why - in my opinion - the common terms head, thorax and abdomen, can still be used in Hymenoptera, even if the "thorax" includes the first (embryological) abdominal segment and if the "abdomen" really begins with the second abdominal segment. Everyone knows these facts and I believe that use of these terms poses no difficulty [I agree - edit.]. This was also the opinion of the great hymenopterist J. de Beaumont. The terms "prosoma", "mesosoma" and "metasoma" are more generally used in arthropod groups, such as the Arachnida. Of course, they could also be used for insects, but what would be the utility of this change? Perhaps European entomologists are a conservative people?"

BEHAVIOR AGAIN

Roy Snelling, who seems intent on commenting on everything in Sphecos [keep it up Roy!] writes: "Robin Edwards is correct re "behaviors", but then correct usage is something that is always negotiable, as far as the word twisters go. I've noted in popular usage the near-demise of "datum" as the singular form of "data". One of the more bizarre twists was a national magazine in which the plural of data became datae! No doubt some writer was showing off his scholarly erudition. Recently, I was taken to task by a reviewer who felt compelled to ridicule my use of the term "gastric" when describing some abdominal (or metasomal) feature. He thought it hilarious! Of course, he had no objection to "thoracic" (even used it himself). Humph!"

THESIS PUBLISHING

Roy Snelling offers the following for your digestion: "Talking with Ron McGinley the other day, I got onto another of my pet peeves. Now, this is not directed to you [i.e. Menke] specifically, so please don't read as such [OK Roy, Ammophila will be finished!]. My gripe is the matter of individuals who get a degree in systematics but never publish the thesis. This, of course, is common. Too common. If a degree is obtained in systematics, it is usually true that this has been possible only because curators in a number of institutions have been willing to assist by making material available. There should be a sense of obligation to the scientific community. Failure to publish also "ties up" a group so that nobody else will touch it.

Often, too, specimens with manuscript names are returned to institutions. We have quite a few here at LACM. If individuals are not familiar with the systematics literature in a group, it is all too easy for a nomen nudum to be used in ignorance. That, of course, happens all the time, not just to thesis names. Witness Dolichovespula alpicola, a very sloppy business [see Sphecos 11:8].

Presumably, if a thesis is worthy of granting a degree, it is publishable. Perhaps a degree should be awarded only after the thesis has been peer reviewed and published! That just might improve the quality of systematics theses, as well. Some are pretty bad [maybe that is why they aren't published].

In short, some who receive degrees in systematics are cheating on their professional obligations.

"RARE SPECIES"

In taxonomic papers, one often reads statements like "this is a rare species", when in fact what the writer really means is that the species is rarely collected. There is a big difference here. If a species was truly "rare" it would be on the verge of extinction, and this may certainly be true for animals that live in endangered habitats. But generally, authors that talk about "rare species" are usually reflecting the fact that something about an organism's life style precludes it from being commonly collected. Perhaps it is an early or late season species, or possibly it has very specific or narrow habitat requirements that make it easy to overlook or difficult to collect. One could list other possibilities but the point is made. "Rare" insects are mostly not rare at all - we just don't know enough about their life styles. Get into the habit of describing them as rarely or uncommonly collected. - A. S. Menke

DESCRIBING COLOR

Since I review quite a few manuscripts each year I have become aware of one common but illogical practice in species descriptions written in English that boggles my logical (?) mind. I refer to the habit of mixing English and Latin equivalents for color. For example: "legs black except tarsi testaceous." Not being a Latin scholor (how many of us are?) I often have to look up words like testaceous (=brownish yellow), fuscus (=black or dusky), ferrugineous (=rust colored or dark red), castaneous (=brown), etc., to see what they mean. Why not use English throughout? If something is brownish yellow, say so. Make it easy on the user! In some cases I'm sure that authors, out of ignorance, misuse Latin words for color. Furthermore these Latin words often have several shades of meaning, if you will pardon my pun! In fact if you look up testaceous in a dictionary or glossary (such as Torre-Bueno) you will see that its primary meaning is to have a hard covering or shell!

A. S. Menke

NECROLOGY

Prof. F. Fernandez-Yepez passed away August 16, 1986. Under his direction, the insect collection at the Universidad Central in Maracay, Venezuela, became the leading one in that country. His influence on Venezuelan entomology was widespread.

Reece Sailer, former leader of the USDA's Systematic Entomology Laboratory, died from a heart attack, Sept. 8, 1986, during a holiday outing. His taxonomic interests centered on pentatomid bugs, but after moving to Florida he became interested in finding natural predators and parasites of the 3 introduced mole crickets that plague that state. This lead him to study the biology of the sphecid genus Larra whose species attack mole crickets.

Sphecos, No.13:18, (1986)

OBITUARY

FRANCISCO-JAVIER SUAREZ EGEA

by
Guido Nonveiller
(11080 ZEMUN, Nusiceva 2a, Yugoslavia)

Currently relatively few entomologists are involved in the study of the Mutillidae and, therefore, it has not been too difficult for me to establish personal contacts with people that share my interest in these wasps. I have tried to meet as many of them as possible, perhaps at international conferences, but I have also made a series of trips to different countries in order to reach them in their laboratories, or at home, to talk with them and to become friends, and not only colleagues. One of them was the Spanish entomologist Francisco J. Suarez. He published his first scientific contribution, a list of mutillids of the Province of Almeria, where he was living, in 1952, the same year that I began to study mutillids, collecting them on the Adriatic coast, near Bar, in Montenegro (Yugoslavia). Since I was a beginner in that field of entomological research, I was not able to identify the mutillids collected in Bar. Thus I sent them for study to Fabio Invrea in Genova (Italy), a famous specialist of this insect group. The following year Invrea published a contribution on my mutillids, and he subsequently became my master in mutillidology as well as a good friend. Francisco Suarez and Invrea were colleagues and through this common relationship I very soon established a connection with Saurez. A regular exchange of letters with him grew into a very voluminous correspondance. We regularly exchanged scientific material and ideas, as well as information about problems in progress and work to be done with mutillids from different regions. Therefore, I became very familiar with his work, his problems, and troubles of other natures, such as those one nobody can avoid during a lifetime. Finally, during a short trip through Spain in 1976, I visited Suarez in his laboratory and spent a day with him, with his wife Angela and the oldest of his 9 children, a pretty sixteen year old girl.

Francisco was primarily interested in Mutillidae, but he also worked on Sphecidae (1959, 1969, 1981), Siricidae (1961), Chrysididae (1969) and Apoidea (1972). He studied mutillids of the Palearctic, Afrotropical and Neotropical Regions and published an appreciable number of contributions on them, particularly on the fauna of Spain. Francisco studied the Spanish Mutillidae carefully and thoroughly with the idea of publishing a monograph of the velvet ants of Spain or of the Iberic Peninsula, such as Invrea did for Italy in "Fauna d'Italia" in 1964 at the age of eighty. Unfortunately, Francisco never realized his dream. In 1982 he became very ill, affected by a rare sickness - a multiple myeloma, for which medical science is virtually helpless. On November 23, 1985 he died in Madrid, at age of only 59.

Born in Almeria, on 31 August 1926, he studied agriculture in Madrid, after finishing the High School of the Jesuites in Malaga. Subsequently, in 1962, he studied natural sciences and was preparing a Ph.D. From the beginning of his professional career, he worked as an entomologist in the Instituto de Acclimatacion of Almeria, which changed a few years ago into the Estacion Experimental de Zonas Aridas.

Francisco Suarez successfully continued the work done by his predecessors Garcia Mercet (1860-1932) and Jose Giner Mari (1901-1946) on the Mutillidae of Spain. Taking into account that his activity was shortened by his illness, he published a relatively impressive number of contributions during his three decades of activity. A lot of new species and several new genera were described with meticulous care by Suarez from Spain and many other Mediterranean countries, from Asia, and from different parts of Africa. He also worked on the enormous and hardly known Mutillidae of South America. Suarez gave special attention to the Myrmosidae, a family closely related to the mutillids and placed together by earlier taxonomists. A revision of the myrmosids was the subject of his thesis which he finished, and which has been prepared for publication. But many of the studies he initiated, among them a revision of the genus Tricholabioides, remain unfinished. His rich collection of Mutillidae, which according to his wishes has been deposited in the Instituto Espagnol de Entomologia in Madrid, undoubtedly comprises a lot of species and groups yet to be studied. Suarez's collection together with the mutillids formerly incorporated in the Institute's collections provides a wonderful research base that will challenge and excite some future young Spanish taxonomist interested in entomology, and hopefully inspire that person to continue the fine work done by our regretted friend Francisco Suarez.

Publications of Suarez

1952. Mutilidos de la provincia de Almeria. Bol. R. Soc. Esp. Hist. Nat., 50:73-90.
1953. Dos nuevas Smicromyrme norteafricanas (Hym., Mutillidae). Boll. Soc. Ent. Ital. (Génova), 83:126-129.
1954. Aportaciones al conocimiento de la fauna lusitana. I. Una nueva especie de Smicromyrme Thoms. (Hym., Mutillidae). Mem. Est. Mus. Zool. Univ. Coimbra, (222):1-6.
1954. Un nuevo mutilido de Espana perteneciente al género Myrmilla Wesm. (Hym., Mutillidae). Arch. Inst. Aclimat., 2:157-160.
1956. Mutilidos de la provincia Almeria. II. Una neuva Smicromyrme almeriense (Hym., Mutillidae). Arch. Inst. Aclimat., 5:53-56.
1958. Descripcion de nuevas formas de Myrmilla Wesm. pertenecientes al grupo bipunctata (Latr.)-chiesii (Spin.)(Hym., Mutillidae). EOS, 34:89--98.
1958. Especies nuevas o poco conocidas de la fauna mediterranea (Hym.: Apterogynidae, Mutillidae). Mem. Soc. Ent. Ital. (Génova), 37:109-116.
1959. Mutilidos espanoles nuevos o interesantes de la coleccion del Instituto Espanol de Entomologia (Hymenoptera). EOS, 35:97-112
1959. Especies nuevas o poco conocidas de la fauna mediterranea. II Nota (Hym.: Myrmosidae, Mutillidae). EOS, 35:283-300, 1 lam.
1959. Preambulo, traduccion y anotaciones del trabajo de Giner Mari, J. ( ). Himenopteros del Marruecos francés, Fams. Sphecidae, Psammocharidae y Mutillidae (s. l.). EOS, 35:385-403.
1959. Esfécidos de la provincia de Almeria (Hymenoptera). Arch. Inst. Aclimat. 8:51-61.
1960. Las Myrmosa de Marruecos (Hym., Myrmosidae). Hespéris-Tamuda (Rabat), 1:111-141.
1960. Datos sobre Mutilidos neotropicales. I. Nuevas especies de Sphaerophthalminae (Hymenoptera). EOS, 36:451-480.
1961. Datos sobre Mutilidos neotropicales. II. Dos nuevas especies de Argentina y Brasil (Hymenoptera). EOS, 37:221-228.
1961. Un nuevo Xeris de Marruecos (Hym., Siricidae). Graellsia, 19:19-25.
1961. Especies nuevas o poco conocidas de la fauna mediterranea. III Nota (Hym., Mutillidae). Boll. Soc. Ent. Ital. (Génova), 91:149-153.
1962. Datos sobre Mutilidos neotropicales. III. Uno nuevo género de Centroamérica y paises noroccidentales de América del Sur (Hymenoptera). EOS, 38:115-146.
1962. Datos sobre Mutilidos neotropicales. IV. Nuevas especies del género Lophomutilla Mickel (Hym., Mutillidae). Studia Ent. (Rio de Janeiro), 5:195-208.
1962. Un nuevo Dasylabris Rad. del Sahara Espanol (Hym., Mutillidae). Boll. Soc. Ent. Ital. (Génova), 92:147-151.
1963. Hyménoptères Tiphiides, Aptérogynides et Mutillides récoltés par J. Mateu dans l'Ennedi et au Tchad. Bull. I.F.A.N. (Paris), 25, sér. A:912-943.
1963. Diagnosis previas para una revision de las especies mediterraneas del género Myrmosa Latreille (Hymenoptera, Myrmosidae). Boll. Soc. Ent. Ital. (Génova), 93:113-117.
1963. Datos sobre Mutilidos neotropicales. V. Sinopsis del género Hoplognathoca Suarez (Hymenoptera, Mutillidae). Arch. Inst. Aclimat. 12:55-66, lams. I-II.
1965. Datos preliminares al estudio de los mutilidos ibéricos (Hymenoptera). Eos, 40:569-586.
1965. Nota sinonimica preliminar y propuesta del nombre genérico Eremomyrme nom. nov. (Hymenoptera, Mutillidae). Mem. Soc. Ent. Ital. (Génova), 44:51-52.
1966. Datos sobre Mutilidos neotropicales. VI. Dos nuevos géneros de Pseudometrocini de Méjico y Brasil (Hymenoptera). EOS, 41:471-482.
1967. Diagnosis preliminares de nuevas especies de Tricholabioides Rad. (Hym., Mutillidae). EOS, 42:561-573.
1968. Trogaspidia castellana (Mercet, 1903): Aclaracion de un error de procedencia y correcciones sinonimicas derivadas de la misma (Hym., Mutillidae). Graellsia 24:115-122.
1969. Contribution à la fauna do Congo (Brazzaville). Mission A. Villiers et A. Descarpentries LXXXIV. Hyménoptères Apterogynidae et Mutillidae. Bull. I.F.A.N. (Paris), 31, sér. A:102-137.
1969. Esfécidos de la provincia de Almeria, II (Hymenoptera, Sphecoidea). Arch. Inst. Aclimat., 14:25-37, lams. I-II.
1969. Crisididos de la provincia de Almeria (Hymenoptera: Chrysididae y Cleptidae). Arch. Inst. Aclimat., 14:65-75.

1970. Datos sobre Mutilidos neotropicales. VII. Algunas especies del Peru representadas en las colecciones del Museo de Historie Natural de Basilea (Suiza) (Hymenoptera). Arch. Inst. Aclimat., 15:169-188.
1970. Tres nuevos Mutilidos espanoles (Hym., Mutillidae). Graellsia, 25:245-259.
1971. Uma nova espécie de Hoplocrates Mickel, 1937 (Hymenoptera, Mutillidae). Papéis Avulsos Zool. (Sao Paulo), 25(6):41-44.
1972. Apoidos de la provincia de Almeria. I Nota (Hymenoptera, Apoidea). Arch. Inst. Aclimat. 17:5-20.
1973. Datos sobre Mutilidos neotropicales. VIII. Una nueva especie de Leucospilomutilla Ashmead (Hymenoptera). Arch. Inst. Aclimat., 18:139-146, 1 lam.
1974. Nuevas especies de Mutilidos recogidos por la mision del Dr. Kaszab en Mongolia, durante las campanas de 1963 a 1968 (Hymenoptera: Myrmosidae y Mutillidae). Arch. Inst. Aclimat., 19:5-19.
1974. Comentario sobre Milluta chobauti André, 1898, y descripcion de una nueva especie congenérica (Hymenoptera: Myzinidae). Arch. Inst. Aclimat., 19:111-130.
1975. Comentarios sobre Smicromyrmilla Suarez y Nanomutilla André (Hymenoptera, Mutillidae). Arch. Inst. Aclimat., 20:105-119.
1975. Especies nuevas o poco conocidas de la fauna mediterranea. IV. Tres nuevas Smicromyrme de la zona oriental (Hymenoptera, Mutillidae). Arch. Inst. Aclimat., 20:155-171.
1977. Dos nuevos Mutilidos etiopicos y propuesta de un género nuevo para uno de ellos (Hymenoptera, Mutillidae). Nouv. Rev. Ent. (Toulouse), 7:213-223.
1979. Una nueva especie de Paramyrmosa Saussure, 1880, de Tunez (Hym., Myrmosidae). EOS, 53 (1977):309-313.
1979. Una nueva especie del Afganistan y propuesta de un género nuevo para la misma (Hymenoptara, Mutillidae). Nouv. Rev. Ent. (Toulouse), 9:71-77.
1979. Una nueva especie del Afganistan y propuesta de un género nuevo para la misma (Hymenoptara, Mutillidae). Acta Mus. Moraviae (Brno), 64:157-163.
1980. Nuevo género segregado de Myrmosa Latreille, y descripcion de una Paramyrmosa nueva de Espana (Hymenoptera, Myrmosidae). EOS, 54 (1979):275-280.
1981. Una nueva e interesante especie de esfécido, y género nuevo para Europa (Hymenoptera, Sphecidae, Philanthinae). EOS, 55-56 (1979-80):295-280.
1982. Tres nuevos Myrmosidos palearticos (Hymenoptera, Myrmosidae). EOS, 57 (1981):265-271.
1984. Cuatro nuevos Mutilidos somalo-etiopicos (Hymenoptera, Mutillidae). Monitore zool. ital. (N.S.) Suppl., 19:223-250.

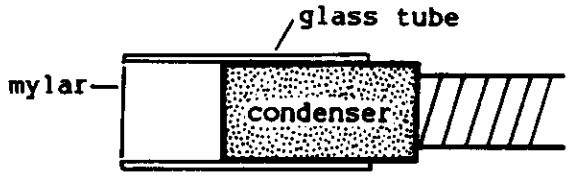
SCIENTIFIC NOTES

IMPROVING THE FIBER OPTIC ILLUMINATOR

by
Dave Wahl
(American Entomological Institute, 3005 SW 56th Ave.,
Gainesville, Florida 32608)

The search for adequate specimen illumination has always plagued entomologists. Although throwing a powerful light source on a specimen is relatively easy, the entomologist is cursed with burning fingers and/or blinded by cuticular reflections from a bright point source of illumination. Until recently, the best illumination was provided by lamps utilizing a short-focus parabolic reflector. Fiber optic illuminators provide a cool light source but the problem of unwanted reflections remains. A major step toward solving this problem was the discovery by Henri Goulet (Agriculture Canada, Ottawa) that plastic drawing film (such as opaque Mylar film), when placed between light source and specimen, provided a cheap and effective means of providing a soft (diffuse) and uniform illumination. A drawback to this technique is that the standard mode of usage entails affixing the drawing film to a base (such as a lump of plasticene) and moving it about on the microscope stage. This gets in the way and is annoying. I have recently hit upon a method of combining drawing film with fiber optics in a manner that is both cheap and space efficient.

The standard fiber optic illuminator comes equipped with a small removable condensing lens on the end of each light pipe. My method is to find a piece of glass tubing slightly larger in diameter than the condensing lens unit. I cut off a section that is roughly 3-4 cm long. A circle of drawing film equal in diameter to the glass tube is prepared and glued to one end of the tube (I use Super Glue or the equivalent). This assemblage can then be slipped over the condensing lens and, once adjusted, taped securely into place. The final distance of the drawing film relative to the condensing lens will depend on one's own taste regarding proximity to the specimen and degree of desired specimen illumination.



The result of this installation is a soft and uniform illumination, and the need for pushing around a screen of drawing film is eliminated. The difference between this style of illumination and that provided by standard lamps must truly be seen to be believed, especially with regard to surface sculpture [Dave is not exaggerating at all - the use of mylar as described here makes a huge difference in one's ability to see surface sculpture as it really looks].

ODOROUS AMMOPHILINES

by
Mark O'Brien
(Insect Division, Museum of Zoology, Univ. of Michigan
Ann Arbor, MI 48109)

After having worked with various species of Podalonia and Ammophila in the field over the past seven years, it surprises me that little attention has been paid to the odiferous secretions given off by these wasps when collected. Aside from work on Sceliphron caementarium (Hefetz and Batra 1979), mandibular gland secretions have not been well studied in the Sphecinae.

I first became aware of wasps giving off odors when I was working on Podalonia luctuosa. Since many females could be found in an overwintering burrow (O'Brien and Kurczewski 1982), there was an unmistakable odor given off when they were aroused and handled. Even a single specimen in a net being held for marking gave off an odor, which smells somewhat like a phenolic compound, and can only be categorized as mildly unpleasant (at least to my nose). Whether or not this is a defensive secretion or alarm pheromone, I can't tell. Being solitary wasps, I would guess it is defensive in nature. Based on the work by Hefetz and Batra, it is most likely that the secretion originates from mandibular glands. Batra (pers. comm. 1981) stated that they had tried to analyze mandibular glands of about thirty genera of wasps and bees, but had been successful with only a few.

Both sexes of various species of Ammophila also give off an odor when handled that smells just like that of Podalonia luctuosa. When you collect an individual or two in your net, place your nose about 5 to 20 cm away from the wasps and sniff. You'll smell something like overheated bakelite plastic.

Obviously, the next step would be to collect some specimens (kept alive until ready to analyze them) to see if indeed this is a mandibular gland secretion and what it is composed of. Depending upon the size of the wasps, 10-20 individuals would be needed for a gas chromatograph analysis of the mandibular glands. Slit the heads above the mandibles to expose the glands, and place in methylene chloride for the GC and mass spectrophotometer analysis. Had I been able to get this done when I had the quantity of specimens needed, we would know if the chemicals in the mandibular glands are similar in Sceliphron and Podalonia.

I would be interested in knowing if anyone else has had similar experiences with other ammophilines or sphecines (Arnold?) [I have noted this odor when collecting Ammophila, especially procera. See paper by Duffield, Shamin, Wheeler & Menke, 1981, Comp. Biochem. Physiol. 70B:317-318 - edit.]. Perhaps this might be a good project for someone with an interest in chemical ecology to undertake. It may even have some evolutionary significance. The next time someone says "wasps sting", you can add "They stink, too!"

References

Hefetz, A. and S. W. T. Batra. 1979. Geranyl acetate and 2-decen-1-ol in the cephalic secretion of the solitary wasp Sceliphron caementarium (Sphecidae: Hymenoptera). Experientia 35:1138.

O'Brien, M. F., and F. E. Kurczewski. 1982. Ethology and overwintering of Podalonia luctuosa (Hymenoptera: Sphecidae). Great Lakes Entomol. 15:261-275.

INTRODUCED WASP UPDATES

POLISTES DOMINULUS IN NEW JERSEY
(= Polistes gallicus, of authors)

Robert S. Jacobson (Dept. of Pathology, East Carolina University School of Medicine, Greenville, North Carolina 27858, USA) writes: "I discovered a colony of Polistes dominulus (Christ) nesting between two boards of a building at the Watchung Reservation, Mountainside (Union County), New Jersey. When disturbed, the wasps retreated and I had to corner an individual wasp in order to collect it (11 August 1986). Thus, this species appears to be less aggressive than the native species.

[See Sphecos 5:9 for information on introduction to North America, and Sphecos 12:21 for clarification of the nomenclature of "gallicus" - edit.]

VESPA CRABRO IN MISSISSIPPI

The following report is from Plant Protection and Quarantine, National Agricultural Pest Information System, U.S.D.A.:

By the early 1980's the European Hornet had spread from its site of original introduction in New England (in the mid 1800's) to Georgia and Alabama and westward into the Ohio valley. It was first detected in Mississippi in the fall of 1983 with the submittal of specimens from Alcorn County. During 1984 Vespa crabro was collected in Tippah County, Tishomingo County, Lee County, Itawamba County, and Union County. During the fall of 1985 it was collected in Monroe County and Pontotoc County, with one report of predation on honeybees in the latter county. Identifications by Richard L. Brown [Dept. of Entomology, Drawer EM, Mississippi State Univ., Starkeville, MS 39762.] (See Akre. R. D., et al, 1981. The Yellowjackets of America North of Mexico. USDA Agri. Handb. 552).

VESPULA GERMANICA IN CALIFORNIA

Marius Wasbauer (Dept. of Food and Agriculture, 1220 N. Street, Sacramento, CA 95814) relates the following: "On August 29, 1986, I was informed by Mr. Parker Gambino, a graduate student in Entomology at University of California, Berkeley that he had discovered a colony of Vespula germanica in the walls of a house on Le Roy St. in Berkeley, California. He immediately sent specimens to Robert Wagner of University of California, Riverside and to me. Both of us confirmed his identification. Upon contacting the Vector Biology and Control Branch of the Department of Public Health about this discovery, I was informed that V. germanica had been found in the South Lake Tahoe area in 1983 and 1984 (reported in California Vector Update no. 2-85 for May 1985)."

VESPULA GERMANICA IN WASHINGTON - AN UPDATE

Dan Soumi (315 JSN Hall, Washington State University, Pullman, Wash. 99164) reports that Vespula germanica has dramatically increased its range in Washington during 1986. This important urban pest is now found from Blaine in the far northwestern corner of our state, to sites in Clark and Cowlitz Counties, which are on the Oregon border. The insect's distribution nicely follows the Interstate 5 corridor. Increased Expo traffic to Vancouver, B.C. may have had a hand in moving this pest to new sites. More recently (10/17/86) the yellowjacket was discovered for the first time in eastern Washington (Walla Walla County), again, near a major highway.

DELTA CAMPANIFORME RENDALLI (BINGHAM) & ZETA ARGILLACEUM (L.) IN FLORIDA

Arnold Menke and Lionel Stange have a paper in press that gives the history of the recent successful introduction of these exotic species to southern Florida (Miami-Ft. Lauderdale). Brian Freeman (Sphecos 9:13-14) reported the establishment of D. c. rendalli (as randalli) in Jamaica. Delta c. rendalli is a native of Africa, and Zeta argillaceum comes from South America. These wasps add two genera to the fauna of North America.

INTERNATIONAL SOCIETY OF HYMENOPTERISTS - 6TH REPORT NOVEMBER 1986

We have finally printed the Directory of Hymenopterists, and it is being included with this report for those who have paid dues (US $5) or have requested a waiver. A number of additional copies have been printed for those who may wish to order them but have not already done so (cost for more than one copy is US $2 each). Dues should be sent to the treasurer, Dr. J. B. Woolley, Dept. Entomology, Texas A&M Univ., College Station, TX, USA 77843. The directory is 37 pages long, and includes a geographical index (see 5th report for further details). Apologies to Dr. Fred Bennett, whose address was inadvertently abbreviated. He is now at the Univ. of Florida, Gainesville 32611. Please send other corrections or additions to me or Jim Woolley.

The votes have been tabulated for the 3 symposium topics listed in the last report of the Society. The 1st topic, Biology of Insect Parasitoids from a Phylogenetic Perspective, to be co-chaired by M. Sharkey and M. Wood of the Canadian National Collection, Ottawa, received 109 votes. The 2nd topic, nest-provisioning and host-finding, received 74 votes, and the 3rd topic, gland functions, received 38 votes. Special thanks to Brad Vinson and Mike Sharkey for volunteering symposium topics.

Norm Johnson completed a bibliography of Hymenoptera this past summer, covering 1984-85 (and running 25 printed pages!). He will be happy to send his monumental effort to any society member who truly needs it, providing they request it directly from him, and provide him with feedback as to the value of such a commodity (especially to workers outside North America and Western Europe). Norm is continuing to compile a bibliography for 1986, and authors should send him titles or reprints by the end of January (or preferably by December) for any of their works which were published in 1986. Continuation of this activity will depend solely on response of society members.

There will be another informal conference for hymenopterists at the Entomological Soc. of America's annual meeting in Reno this year. It is scheduled for Wednesday evening, December 10th, 7 p.m., in room 1251 (check your program in case there are any changes). We will not be in conflict with the IUSSI meeting this year, since the latter will be on Tues. eve. Contact Dr. Jim Johnson, Dept. Entomol., Univ. Missouri, Columbia, 65211, or (314) 882-3446 if you wish to take an active part in the program. Also, the BRC in Ottawa will hold a 3rd workshop on identification of Hymenoptera, Aug. 20-28, 1987. Contact Mike Sarazin, BRC, Agriculture Canada, Ottawa, Ontario, Canada, K1A 0C6 for further information.

There has been considerable discussion about starting a journal for the society, but details of editorship have yet to be clarified. If you have any suggestions or comments on this matter (or any other), please send them to me or Mike Sharkey.

This is the last report which will be distributed to non-members of the society, since the directory now has over 1200 names, and we can no longer afford to mail material to non-members. Membership is available to those paying dues or those requesting a waiver due to currency exchange problems. If you did not receive a copy of the directory with this report, then we do not have you on our membership list. Please call any errors in this regard to our attention.

Bob Wharton, Secretary

The "Directory of the Hymenopterists of the World" alone is well worth the 5 dollar society membership fee. It is 37 pages long with a blue cover and contains over 1200 names and addresses worldwide. Each address is accompanied by the research interests of the individual. There is an index at the end of the directory that lists hymenopterists by country. - Editor.

PLEA FOR MANUSCRIPTS

Max Fischer (Naturhistorisches Museum, A-1014 Wien, Burgring 7, Postfach 417, Austria) writes: "I am now editor of the book series Das Tierreich (Publishers Walter de Gruyter, Berlin). If anyone is interested in contributing an article please contact me. I am also editor of the Handbook of Zoology (Publishers Walter de Gruyter, Berlin), vol. IV, Insecta. I have no author for an article on the Aculeata as yet. I would like to hear from anyone that might consider authoring such an article."

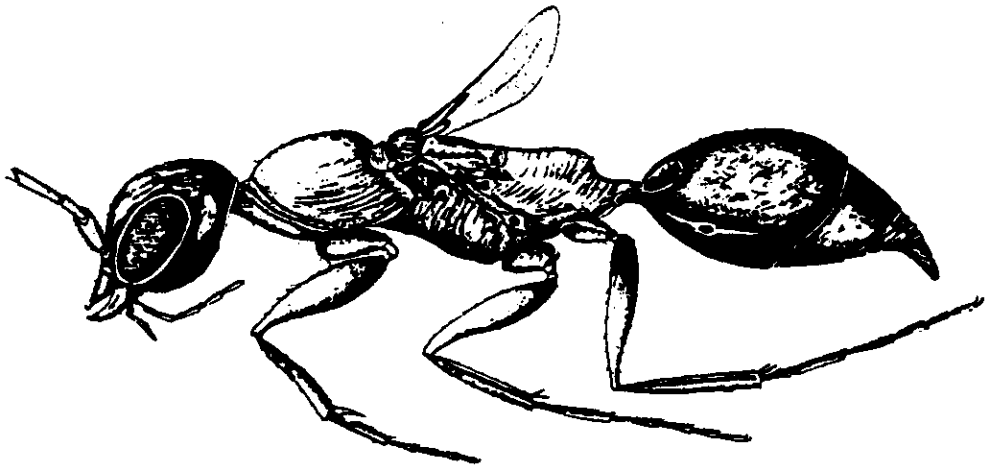
REF, A NEW PC SOFTWARE PROGRAM FOR BIBLIOGRAPHIC REFERENCE MANAGING

Peter van Ooijen (Westerkade 21, 3511 HB Utrect, Netherlands) sent in a software program that he has developed for managing literature files. Since I have virtually no knowledge or experience with these things I have had the program reviewed by Jonathan Coddington (Dept. of Entomology, Smithsonian Institution, Washington DC 20560). He has investigated many such programs. His review follows:

REF $50.00 + $10.00 shipping and handling from Gecko Software (also known as Peter van Ooijen), Westerkade 21, 3511 HB Utrect, Netherlands (telephone: 030-321981).

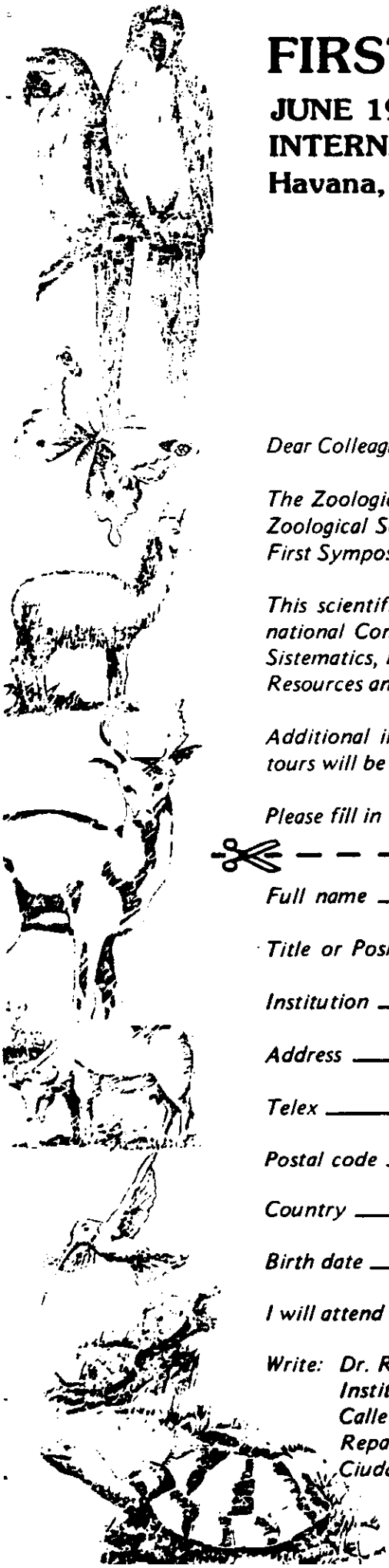
Gecko Software offers this product to taxonomists, and wasp workers in particular, as a sophisticated bibliographic reference manager. REF includes some features mandatory in bibliographic software, such as editing of references and searching on key terms. The output is only a code number for each reference, not the references themselves. As near as I can tell, REF doesn't output references in a style acceptable to any journal known to me. Getting data into, and results out of, REF seems difficult in comparison with other similarly priced packages. For example, a comparable program such as PAPERBASE stores reference files in ASCII (REF does not), it will hunt through a manuscript file (REF won't), extract the citations (REF won't), and produce the bibliography in any of 60 journal bibliographic formats (REF has only it's own output format). In PAPERBASE you can define your own formats (not in REF), edit files directly with a word processor (two step process in REF), include "upper" ASCII characters such as é, ö, å, or ç (maybe not in REF), and search the database on 3 key terms (also possible in REF). Finally the PAPERBASE documentation (31 pages) is more complete and easier to understand than is that for REF (5 pages). Both packages sell for $50.00, both are written in BASIC, but PAPERBASE offers more, and is more flexible, than REF. The author of REF has made a respectable, elementary product, but it is not yet as good as his competition.

[After reading Coddington's review of REF, perhaps Peter will want to respond to the issues raised in it and send them to me for inclusion in Sphecos 14. If there are particular benefits to hymenopterists in the REF program, perhaps Peter can outline them for us also. - edit.]



Heterogyna kugleri Argaman, 1985

Sphecos, No.13:25, (1986)



FIRST SYMPOSIUM OF ZOOLOGY

JUNE 1988
INTERNATIONAL CONFERENCE CENTER
Havana, CUBA

CUBAN ACADEMY OF SCIENCES

ZOOLOGICAL INSTITUTE

PRELIMINARY INFORMATION

Dear Colleague:

The Zoological Institute of the Cuban Academy of Sciences in collaboration with the Zoological Section of the Cuban Society of Biological Sciences invite you to attend the First Symposium of Zoology.

This scientific event will take place in June 1988. Sessions will be held at the International Conference Center in Havana. Participants may present papers dealing with Sistematics, Ecology, Etology, Zoogeography, Preservation and Management of Natural Resources and Agricultural and Medical Zoology.

Additional information on registration fees, sessions, accommodation reservation and tours will be sent later.

Please fill in this application form and return it before January 1, 1987.

Full name _____

Title or Position _____

Institution _____

Address _____

Telex _____

Postal code _____ *Nationality* _____

Country _____ *Passport Number* _____

Birth date _____

I will attend as speaker ☐ *Observer* ☐

Write: *Dr. Rafael Alayo Soto*
Instituto de Zoología ACC
Calle 214 No. 17A09
Reparto Atabey, Playa
Ciudad de La Habana, Cuba

WHAT IS Y.E.S.?

Y.E.S, the YOUNG ENTOMOLOGISTS' SOCIETY (originally the Teen International Entomology Group), was founded in 1984. Y.E.S. is an organization through which members from a variety of geographic localities (currently 46 U.S. States, 2 U.S. territories, 6 Canadian Provinces, and 15 other countries) can exchange information about insects through personal correspondence and group publications. Many members also actively participate in specimen exchanges.

The Societies' publication, Y.E.S. QUARTERLY, is full of collecting tips, "how to" articles, news, field notes, life history information, identification tips, illustrations and artwork, poems, and virtually every other entomological topic, including the non-insect arthropods. Nearly all of the articles are written by the members themselves! In addition, the members tell about themselves via a member directory and the "tradingpost."

The organization's name reflects its youth orientation, but "young" members of any age are needed for its many activities and functions. Membership in Y.E.S. is open to all individuals, young or old, amateur or professional, with an interest in entomology. Therefore, there are four membership categories: youth members (up to age 18), collegiate members, adult members, and sustaining members. The various membership dues are stated on the attached application.

Members may elect to place a listing in the Y.E.S. Member Directory--that is, if they are interested and willing to correspond or exchange specimens with other members. This activity is, of course, optional since it requires a high degree of commitment to fellow members.

So come and join with the other Y.E.S. members and send in your completed application and dues today! If your have any questions, or would like additional information, please write to us c/o Department of Entomology, Michigan State University, East Lansing, MI 48824-1115 USA. (Telephone: (517) 353-8129).

JOIN TODAY

Y.E.S. MEMBERSHIP APPLICATION

1. NAME:_____ 2. BIRTH YEAR:_____
2. ADDRESS:_____

_____

_____

4. MEMBERSHIP CATEGORY (check one): (FOR YEAR(S):19___)
   __ youth (US $3.00/yr) __ collegiate (US $5.00/yr)
   __ adult (US $10.00/yr) __ sustaining (minimum $25.00/yr)
   __ institution/library (US $7.00/yr)

   SPECIAL NOTE: Memberships in Y.E.S. may also be obtained by publication exchange, specimen exchange, special "scholarships" or by other arrangements. Please write for further information.

5. If you wish to be included in the Y.E.S. Member Directory, please complete the back side of this form. Send completed

YOUNG ENTOMOLOGISTS' SOCIETY
Department of Entomology
Michigan State University
East Lansing, MI 48824-1115
USA

COLLECTIONS

ILLIGER TYPES IN THE HUMBOLDT MUSEUM, BERLIN

Robert Brooks (Snow Entomological Museum, Univ. of Kansas, Lawrence, Kansas 66045-2106) visited the Humboldt Museum several years ago and says, "The Illiger types of bees were not segregated out or even recognized in the bee collection at Berlin. I found several Illiger types while I studied the anthophorine bees in 1983 at Berlin. Most likely the Illiger types of wasps are also hidden in the collection."

THE DEPARTMENTAL INSECT COLLECTION QUEENSLAND DEPT. OF PRIMARY INDUSTRIES INDOOROOPILLY, AUSTRALIA

The following description is from an anonymous circular published in 1985 that was sent by Ian Galloway, senior entomologist at the collection.

Early history of the collection. The Departmental insect collection began in 1894 with the appointment of Henry Tryon as Government Entomologist. Although confronted with a daunting array of problems, Mr. Tryon found time to lay the foundations of an insect reference collection. While under his care, the collection gradually increased through the generosity of private donors and the inauguration, in 1897, of a purchase system. This system of buying insects was apparently quite successful and was continued until 1909, when funds for this purpose were no longer available.

From 1894 to 1907 the insect collection was solely in the hands of Mr. Tryon and though initially well curated, little time was available for the identification or systematic arrangement of specimens. By 1907, his energies were greatly overtaxed and the collection had begun to fall into a state of disrepair. This was of considerable concern to Mr. Tryon who realized the importance of the insect reference collection.

The collection was saved from total collapse by the appointment in 1908 of Edmund Jarvis. With the Queensland Museum collection becoming more comprehensive, the necessity to increase the size and range of the Departmental collection became less pressing. So began a period of consolidation when priority was given to the identification and arrangement of existing specimens.

After 1925, when Mr. Tryon retired and Robert Veitch was appointed as Chief Entomologist, additions to the collection were entirely due to the efforts of the staff while engaged in field investigations and advisory work. This firmly established the economic bias so evident in the collection today. In the same year the care of the collection was placed in the hands of Alan Summerville, then an assistant entomologist, but later destined for a distinguished career in public service.

An eventful year was 1927, when for the first time specimens were sent for identification to the Imperial (now Commonwealth) Institute of Entomology in London, setting a pattern which is still in existance today. Each year, specimens requiring specialist attention are sent to the Commonwealth Institute of Entomology.

From 1931 to 1943, the collection underwent a period of expansion and improvement under the expert guidance of Henry Hacker, a man who has also left his mark on the collections of the Queensland Museum. Since 1943, the collection has been constantly in the care of an entomologist under the watchful eye of a succession of concerned Government Entomologists and Directors. This has produced probably the most comprehensive economic insect collection in Australia today.

Nature and purpose of the collection. The Departmental insect collection is unique in Queensland in that it is closely aligned to an identification service and is principally orientated towards insects of economic importance. Though possessing considerable aesthetic qualities the collection is, in fact, an essential reference tool which is in daily use by entomologists providing an insect identification service to the people of Queensland.

Elements of the collection. Not all insects are preserved in the same manner. For this reason, three major elements make up the Departmental insect collection. They are the pinned collection, the spirit collection and the slide collection.

1. The pinned collection. All specimens possessing a hardened exoskeleton are mounted on stainless steel pins and accommodated in either cedar or metal insect cabinets. Specimens

are stored in "unit trays", which are shallow cardboard trays with a foam base to hold the pins. Each species has its own tray (or trays), so separating it from all other species. This system facilitates handling of specimens and greatly reduces the risk of damage to irreplacable reference specimens. The pinned collection presently contains about 269,000 specimens of which 86,000 have been identified to species level. Over 9,300 different species of insects are represented in the collection.

2. The spirit collection. The spirit collection contains all specimens which are best preserved in alcohol. Specimen tubes are arranged in aluminium racks and stored in metal filing cabinets. Each tube is numbered, catelogued and cross indexed for easy retrieval. The spirit collection consists of over 7,500 tubes of specimens representing approximately 1,200 different species of insects.

3. The slide collection. In order to identify many small insects, they must first be mounted on glass microscope slides. Depending on the mounting medium used, the slides may then be stored either vertically of horizontally. The Technicon filing system currently in use incorporates both methods. This collection presently contains over 21,000 identified slides.

For further information about this collection contact:

The Director,
Entomology Branch,
Agricultural Research Laboratories,
Department of Primary Industries,
Meiers Road,
Indooroopilly. Q 4068

or telephone:

(07) 377 9421
(07) 377 9418

MUSEUM OF NATURAL HISTORY OF SIBIU

by
Dr. Xenia Scobiola-Palade
(Muzeul de Istorie Naturala "Grigore Antipa" Sos.Kiseleff 1,71243 Bucuresti)
and
Mariana Pascu
(Muzeul de Istorie Naturala str.Cetatii 1,2400, Sibiu, R.S.Romania)

The entomological collection of the Museum of Natural History of Sibiu is one of the richest in Romania. It contains more than 250,000 insect specimens from the country, particularly from Transylvania, as well as palearctic and exotic species. This collection contains the collection of the Transylvanian Society of Natural Sciences which is the oldest one (accumulated approximately in the 1880-1940 period) with 11,067 specimens; the dr. "Eugene Worell" collection accumulated between 1932 and 1959 when it was purchased by the above mentioned museum (6,038 specimens); and the "C. Hanenheim" collection, accumulated from 1951 to 1959, with 256 specimens.

The Hymenoptera occupy an important place in this collection, and this is because of the efforts of the members of the Transylvanian Society of Natural Sciences (Sibiu), as well as other passionate collectors of entomological material. The material in this collection was taken mainly in and around Sibiu, but also from remote places of the Transylvanian Plateau, the southern Carpathians and Dobrogea.

The value of the Hymenoptera in this collection is due not only to the age and large number of specimens (more than 20,000), but also because it contains, besides the common species of Romania, many species new to the country's fauna, thus expanding our biogeographical knowledge of Romania.

The origin of the collection dates back before 1879 when the entomologist C. Heinrich collected and identified the existing material. A part of the material was published in the journal of communications of the Society between 1880 and 1884 under the title "Blumenwespen" (Anthophila). In his papers he mentioned more than 83 species of Anthophila. In that period exchanges of material were made with A. Mocsary of Budapest, and H. Friese and O. Schmiedeknecht of Germany, these latter specialists being the most famous hymenopterists of that time.

In 1932 the Hymenoptera collection included 8,630 specimens belonging to 1,250 species. This collection was later enriched with material donated by members of the Society: E. Kiss

collected material from Ocna Dejului and Beclean; E. Silberagel collected Hymenoptera from Saschiz and Movila (Dobrogea); C. Orendi from Valea Sadului (Sibiu); Fr. Deubel from the surroundings of Brasov and on the Postavarul Mt.; G. Strobel collected in Austria; L. Dioszegy collected material in the Retezat Mts.; and C. Henrich from the surroundings of Sibiu. Ar. Müller collected the richest material of Hymenoptera from Transylvania and Dobrogea and included it in the collection. To these must be added the material Ar. Müller obtained from the various countries he visited (USSR, Bulgaria, Hungary, Italy, Turkey, Jordan). A part of the material of Hymenoptera of the collection was published by Ar. Müller in the journal of communications of the Society between the years 1922-1927 and 1930. In his papers, he mentioned 196 species and 20 forms of Symphyta, 10 species and one form of Sphecidae and 2 species of Pompilidae.

In 1932 E. Worell, a physicist of Sibiu, enriched the collection with material he collected that was purchased in 1958 by the Museum of Natural History of Sibiu and includes 6,038 specimens. From 1951 to 1959, H. Hanenheim collected Hymenoptera around Sibiu amassing a collection of 256 specimens.

In 1955 and 1960 V. Iuga, X. Scobiola-Palade and A. Rosca published various species of Tenthredinidae new to the fauna of Romania. In 1967, X. Scobiola-Palade published the Catalogue of Hymenoptera (Tenthredinidae, Sphecidae and Pompilidae); in 1978, M. Pascu published the Cimbicidae, Diprionidae and Argidae (Symphyta), and in 1984, Vespoidea, from the same collection.

THE WEYRAUCH COLLECTION: AN ALMOST OVERLOOKED TREASURE OF VESPIDAE

by
Heinrich Wolf
(Uhlandstr. 15, D-5970 Plettenberg, West Germany)

I suppose many friends of Vespidae do not know where the collection of Wolfgang Weyrauch is kept. Four large boxes with a lot of interesting, mostly unclassified material are waiting to be scrutinized:

Box I - contains (apart from 400 Formicidae) Vespidae from Australia and Europe, almost all unclassified;

Box II - Vespidae from Central Europe and 350 Polybiinae from Peru, unclassified;

Box III - mostly Polistes from Southern Europe and Turkestan, plus 120 Polybiinae from Brazil, all of them unclassified;

Box IV - 850 Polybiinae from Brazil and Peru, unclassified as well.

Anyone wishing to work on this collection should contact Dr. Michael Geisthardt, Kustos der naturwissenschftlichen Sammlung des Museums Wiesbaden, Friedrich-Ebert-Allee 2, D-6200 Wiesbaden, West Germany.

KÖNIGSBERG AMBER FOSSILS

by
Karl V. Krombein
(Dept. of Entomology, NHB 105, National Museum of Natural History
Washington, D.C. 20560)

I tried unsuccessfully to find the types of Protochrysis succinalis Bischoff and Omalus primordialis Brues during preparation of a short manuscript describing two new chrysidids from Baltic amber. Bischoff and Brues described many Hymenoptera prior to World War II from specimens in amber from the Königsberg museum in East Prussia. Presumably many of the amber specimens came from the Sambian Peninsula west of Königsberg. That city is now Kaliningrad, USSR, but the collection is not there.

Some of Brues' types may be in the Museum of Comparative Zoology for K. W. Cooper studied one of the ceraphronids, but the Omalus was not there. Part of the Königsberg amber collection is now in the Geologisch-Paläontologisches Institut und Museum der Georg-August-Universität, Goldschmidt str. 3, 3400 Göttingen, West Germany. The rest of the

Königsberg collection disappeared during or after the war (some soldier's souvenir?). Dr. S. Ritzkowski advised me that Brues' Omalus was not in Göttingen nor were any of the Bischoff types. I suggest that Dr. Ritzkowski be contacted by anyone searching for other types described from the Königsberg collection.

SAN SALVADOR I. WASPS

Nancy Elliott (Division of Science, Siena College, Loudonville, NY 12211) writes that her Bahamian Hymenoptera are now in the care of Frank Kurczewski, State University of New York, College of Environmental Science and Forestry, Syracuse, Ny 13210. Nancy still makes trips to San Salvador so more material is added yearly.

COLLECTING REPORTS

COLLECTING IN LEBANON

by
David L. Evans
(Dept. of Biology, American University of Beirut, Lebanon,
850 Third Ave., New York City, NY 10022)

I read with interest the reports by Schmidt (1986) and by Schmidt et al. (1986) on collecting in Sabah and the Philippines [Sphecos 12:10-12 and 16-18]. For the last five years, I have been collecting and studying in Lebanon (principally), Syria, and Jordan. Lebanon is by far the most biologically interesting country in the Middle East. The climate is a typical Mediterranean one: wet, cool winters (at Beirut, down to 5° C at night) and dry, warm summers (up to 40° C some afternoons). Lebanon has a wide range of habitats from the abyssal depths (ca. 5 kms. off of Beirut) to Alpine (though, surprisingly, no deserts). Where the hills are undisturbed, there are mixed Pistaceum-Quercus scrub forests. As is true of most Mediterranean habitats, summer fires are common. Where there has been a recent fire there will be Calycetoma and pine. Lebanon has additional interest since it is part of the temperate bridge connecting Africa and Eurasia.

The fall is the worst time for collecting since the area is (except for river gorges) too dry for small animals to be active. However, the spring and winter are great times. Old fields will be covered by a seasonal succession of anemones, orchids, poppies (the prickly poppy has joined the local species), clovers (I once found 6 species blooming at the same time in the same vacant lot), hollyhocks, grape hyacinths, and chrysanthemums. Floral visitors near the sea would include scoliids and (later on) sphecids and eumenids (on Scabeosa sp.), Xylocopa, Anthrophora, and Apis mellifera. Bombus (but not bombs) are very uncommon in Beirut but are found in the mountains. Vespa orientalis workers gather up pieces of dead fish and picnickers' lunches on the beaches but also frequent agricultural areas in the Bekaa valley. In the summer, it is not uncommon to see spider wasps lugging great spiders across roads and other empty areas.

Clearly, then, there is a lot of interest to the aculeate collector in Lebanon. What problems might one encounter on a collecting expedition? Unlike the people in Sabah which Schmidt et al. encountered, Lebanese are deeply suspicious of all foreigners (which could mean people from the next village) and especially those which come down the pike with all sorts of strange collecting gear. Scientific travellers must have a local, friendly sponsor and guide in Lebanon. This is probably a good idea in most Arab countries and is a legal requirement in some, such as Saudi Arabia. As in some parts of West Africa, the local person will be responsible for you in every way. As a result, in the evenings after a solitary collecting trip, you will be quizzed in detail about your activities. Your local friend is not necessarily nosy but, rather, trying to determine what trouble you have just gotten him/her into. The potential for offense is enormous: you may have walked near a hashish field, a counterfeiting center, or a place where somebody's recently deceased enemies have been secretly buried (yes, really). Your local friend will probably house you, feed you, transport you, and try to get you to marry a sister. When you leave, you may not be allowed to pay for any of this. If you are not so lucky as to get a local sponsor, try to contact somebody at one of the local universities who is in your field. Almost every educated person in the Middle East speaks either English (more commonly), French, or German. Allow for plenty of time (3-6 months) for your exchange of letters. The people at ICARDA in Aleppo, Syria and at the Jordanian and the Lebanese

universities are very nice. A local school teacher at Petra, Jordan was very helpful when he discovered what we were up to.

What should a Hymenopterist bring? All Arab countries have an Islamic majority. However, there is wide variance in ethanol tolerance. Syria, Jordan, and Lebanon all make excellent local beer. Jordanian and Lebanese red wines are also quite nice (I just do not know about Syrian wine but plan to improve my education soon). As far as pickling-grade alcohol is concerned, if you cannot get >95% ethanol (again, the universities can be helpful), high proof gins and vodkas can be had easily. In Lebanon, alcohol is quite cheap. Jim Beam black label, a specific remedy for any anxiety attacks you may have between falling shells, is $3.50/l. You can find ethanol with little problem in Oman, Egypt, Morocco, Algeria, Tunisia, and Iraq. You cannot drink alcohol in Sudan, Saudia Arabia, and Abou Dabi. Presumably, collecting alcohol is a major problem. You do not need to ask about Iran or Libya. I do not know about other Arab countries - national airlines (most of which have offices in the U.K., U.S.A. and Canada) sometimes can give very useful tips.

You must bring your own collecting nets, u.v. tubes, insect pins and ethyl alcohol. Requests for these will bring on blank stares. Almost anything which a hospital or clinical laboratory would have (tubes, stoppers, ether), you can easily find in Lebanon and Jordan. In more effectively socialist countries such as Syria or Algeria, medical supplies may not be so available on the open market. Most European products, such as Swiss army knives, are easy to find. Lebanon uses 110 v/50 hz but many other countries are 220 v. A power pack would be useful if you are worried about the frequent power outages. If you have something really valuable, a line filter would be an excellent idea. A friend once recorded 70 v on his 110 v line. Transformers can often be purchased locally (do not try to bring one - they are very heavy and you may get socked with a proportionally huge duty).

If, for some reason, you are hooked on U.S.A. or U.K. films or certain other photo products, you had better bring your own from home. The recent ups and downs of the pound sterling and the U.S. dollar have made it difficult for local currency people to buy such things. Therefore, Kodak, for instance, now offers almost nothing in Lebanon. On the other hand, the local film developers do an excellent job. If you break your favorite filter or lens, do not dispair. You can get a cheaper (and maybe better) replacement here.

If you bring a data logger or computer along then you will most likely be able to find all the supplies you will ever need. Computers have just begun as a fad in the Arab world (the first really useful Arabic word processing program has just come out) and there is a consequent explosion of computer shops, etc.

Lebanese food is something special. Basically, it is similar to Greek food but with a lot of very nifty salads. The most frequent question I have heard is about the taste of camels. I have never eaten nor even seen a camel in Lebanon. Ask someone else. Lebanese food is found all over the Middle East and is usually proudly advertised as such. Jordan also has a lot of good Chinese restaurants. Bedoin (nomads found in Jordan and Syria, among other places) food has a lot of ghee (clarified butter) in it so watch out for this on hot days. Try the Bedoin tea any time you can get it though. I have always found that (to paraphrase Napolean) a field party travels on its stomach. If so, you should travel well in Lebanon.

Finally, it may have come to mind that there is a security problem in Lebanon. This may explain my desire to escape this garden spot. How does one cope with this set of difficulties? We deal with this by getting out of town (where the fighting goes on) and trying to obtain information on potential future hot spots (there is some predictability). An AM radio also helps so that you do not drive into a surprise.

I hope all of this is of some use to the reader. If you have any questions about collecting data or specimens in the Arab world, I would enjoy hearing from you.

SOUTHERN SPAIN

by
Leo Castro
(Sanz Gadea 9, E-44002 Teruel, Spain)

I recently took a two-week trip to southern Spain, in the company of Ken Guichard. I was looking for eumenids, Ken was after a wider variety of aculeate wasps. Collecting wasn't spectacular (still I took 40 species of Eumenidae!), probably because of the late date (end of July/beginning of August) and a very dry year, but we did find some of the more rarely recorded species of Eumenidae. For example, we took Ischnogasteroides picteti, Euodynerus fastidiosus, E.

hellenicus vechti and a Symmorphus that may be parallelventris, a species not recorded from Europe.

PERU, DECEMBER 1984 - JANUARY 1985

by
James Carpenter
(Museum of Comparative Zoology, Harvard University,
Cambridge, Mass. 02138)

Peru was far more exotic than any other place I'd been in Latin America, in that the culture was far more alien. Part of it - the ladinos on the coast, in the cities and that run the country are westerners alright. They speak Spanish, and the middle class is tenuous (an impression in line with the country's current political and financial crises), but you don't feel so foreign. Miraflores, the suburb of Lima I stayed at in town, reminded me of nothing more than Bakersfield or Santa Barbara (there were even fern bars). But the highlands are a different country. The Incas are still there, 10 million Quechua speakers (many of which don't speak any Spanish), neglected by the ladinos and totally frozen out of the mechanisms of power. With one of the highest population growth rates in the world in the highlands, and the economy in a state of collapse due to the failure of agrarian reform (instituted by the leftist military dictatorship in the 1970s), there's tremendous pressure for out-migration. Down to the coast, and the cities, straining their infrastructure - Lima's got 6 million people now, and they could maybe handle one and a half. All the cities I was in had numerous beggars, Quechuas all of them, by their faces and dress. In the coastal valleys, they're coming down and squatting on the sides of the valleys, leading to great tension between them and the people of the valley floor. The nation is in a desparate way, and this situation is just what Sendero Luminoso (the Shining Path) wants to exploit. They're the Maoist guerillas founded by upper and middle class romantics in Lima, but based in the highlands, principally Ayacucho south of Lima. They have no real popular support, and are terrorizing the Quechuas. This seems counterproductive for a guerilla movement, but they're apparently as fanatical as, say, the Khmer Rouge.

Anyway, I went to Peru with an Earthwatch expedition, archaeologists studying the pre-ceramic culture of the valleys (about 8,000 years old). (Have you heard of Earthwatch? An organization that supports scientific expeditions if you let laypeople participate. Imagine, many people paying to do your slave labor.) The reason I was there was the hypothesis that the Amazonian forest was the source of many cultural motifs, trade commodities, natural resources - the impetus for civilization. The Zana valley, some 500 miles north of Lima, is where the Andes reach the lowest point along their spine, and this is where we were based. We flew into Lima, then to Chiclayo (the sixth largest city - where Pizarro made landfall), and drove about four hours to get to the town of Nanchoc in the Zana valley (less than 100 km; you get some idea about the roads). You can walk through, from the foothills to the Amazonian forest, about 40 miles and never go above 6,000 feet. So I was supposed to survey the insects to see if they were "leaking" over, and so perhaps had some other animals and plants during the wetter times (like 8,000 years ago). Anyway, this involved bulk sampling from different microhabitats and elevations, from the coastal desert up to the moist montane forest at the top - for there is remnant rainforest in the upper part of the valleys, not at all what you think of when you think of the west coast of South America. I did the sampling at the lower and mid-elevations OK (the stuff all shows dry western escarpment affinities, by the way), but couldn't do the high elevation collecting. A few days before I arrived, the crew tried to set up camp in a village called Monte Seco at about 4,000 feet, to start surveying the area for artifacts. It turned out that the headman of the village had been assassinated the day before, by Senderistas. They weren't supposed to be anywhere near the northern provinces. Anyway, this was a Quechua village, a closed society - isolated for 3 months of the year by the rains (the roads in the mountains have to be seen to be believed). When it's funeral time, they just don't want to see any strangers - at least that's what some of the old Andean hands in the crew told me. That night, a crowd chanting "Death to the gringos!" and beating sticks and tools together ran the crew out of camp. One vehicle got stuck in the town, but wasn't further molested; however the leader in the other one went all the way to the coast to get the Guardia, who came and got them the next morning with machine gun escorts. After moving to Nanchoc, I arrived and we did the surveys around there (1,200 to 2,400 feet). After a few weeks we figured it would be settled down in Monte Seco, so I decided to go beyond (above) the town with the leader of the expedition to set some traps

and collect. As we drove through the town, I've never seen such glowering, and a few people yelled "Regressan despues que pasada?" (You return after what happened?). That left us feeling uneasy, so we cut the collecting short and headed back after an hour. We passed some sullen crowds (we were probably a mile beyond the town), but when we got back to it, they started throwing rocks. As those started rattling we floored it out of there, and fortunately nothing was blocking our way. So we didn't get damaged, but I flashed this image of those reporters stoned to death a year or so ago in Ayacucho. We didn't go back.

The people around Nanchoc were friendly. It's an old Inca town itself (Pizarro spent his first night there in 1532, on his way to his meeting with Atahualpa in Cajamarca), but ladino now. We camped on the hill outside of town called "el Purgatorio". It richly merited the name. We thought it was due to the blazing temperature during the mid-day before the winds kicked up (which they invariably did with gale force). But the locals actually thought it was haunted, by two guys who would be grinding corn every night (they asked us if we heard them; we thought they were joking at first and said no, we ground corn only at dawn). The valley floor with the Nanchoc Quebrada was fairly green (and corn fields well irrigated), but the hillsides were covered with dry scrub, cactus and convolvulaceous vines. The collecting was fairly good there, although there weren't any of the spectacular things you associate with rainforest. But vespids prefer trashy habitats anyway, and I was running the usual gamut of bulk collecting techniques (3 Malaise traps, yellow pans, screen-sweeping, Winkler extractors) and so came back with tens of thousands of specimens. They're now being processed at the MCZ; the dry stuff has already been pinned and labeled (I'd layered it with chlorocresol), and the bulk lots in alcohol are being run through the critical point dryer and pointed up. The most notable thing about the small stuff to me was the tremendous series of bethylids.

The last week of the trip I returned to Lima and hooked up with one of my Harvard colleagues (Deane Bowers), and we then flew over the mountains to Madre de Dios in the Amazon basin. This is the southeasternmost departmento in Peru, and the Rio Madre de Dios eventually flows into a primary tributary of the Amazon - after over a thousand miles. After landing at Puerto Maldonado ("accursed port"), which is a goldrush town (part of this mad rush to get gold out of the rivers in the Amazon basin), we rode upriver about four hours to the Explorer's Inn along the Rio Tambopata. The Inn is a commercial lodge in a nature preserve, and was one of the most amazing things I ever saw in the midst of a jungle - bungalows with showers (cold), electricity at night (until ten), a bar with cold beer and full course meals featuring meat prominently. About $40/night - I still can't believe they set this up in the midst of a trackless jungle. They had resident naturalists as guides, and actually seem to be making it economically - there were some tourists that came in while we were there. There was another one that we heard of up on the Amazon, so perhaps this is the next tourist rage. For your next vacation.... Terry Erwin does his canopy fogging studies there (I'd heard of it from Terry), and I can see why. Field work needn't be hell. There were plenty of showy insects there, along with a riot of great plant life and vertebrates (including nine species of monkeys - we saw four). We were there less than a week, but it was more exciting than all of Nanchoc (that is, from a biological perspective!). Rainforests are like that. Maybe I was more relaxed - perhaps spending a week in Lima eating cebiche helped (the seafood along the coast was excellent). I mostly concentrated on netting social wasps while I was in Tambopata, and of course they were quite diverse. [Jim - how about an account of your South African adventure?]

PROJECT WALLACE - AN ENTOMOLOGICAL EXTRAVAGANZA

by
Andrew Austin
(Dept. of Entomology, Waite Institute, Glen Osmond,
South Australia 5064, Australia)

1985 saw the largest entomological expedition ever mounted. Over 120 research workers and more than 50 support staff spent varying lengths of time in and around the Dumoga-Bone National Park, North Sulawesi [formerly Celebes], an area of approx. 300,000 hectares of primary forest, comprising one of the largest national parks in Asia. Project Wallace takes its name from the famous Victorian naturalist, Alfred Russel Wallace, who, during the 1850's, spent eight years in South-East Asia collecting natural history specimens (mostly insects) in various countries, including

Sulawesi. The project was organized by the Royal Entomological Society to commemorate the 100th anniversary of its Royal Charter (1985) and the 150th anniversary of the Society itself (1983).

Sulawesi is centered in the area of South-East Asia that has become known as Wallacea; that region between Wallace's and Weber's lines that shows a mixing of Australian and Oriental faunas. Geologically the island of Sulawesi is thought to represent land that has originated both from the Oriental and Australian plates, though this is not reflected in the fauna which is virtually all Oriental is origin. As well as this the island also shows a high level of endemicity for some groups, such as mammals, birds and butterflies, while others are depauperate or as yet poorly known. The latter is certainly the case for most orders of insects, but this will certainly change in the near future.

Running for a full twelve months and ending on 31st December 1985, Project Wallace saw insect collecting on a scale never seen before. One could venture hundreds of metres into the forest and be in sight of at least one type of collecting device at nearly all times, whether they were pan, malaise, pit-fall, baited, interception, or aerial malaise traps, fogging machines, or people sweeping, running light traps, or just searching the vegetation, litter and tree trunks for those highly sought after specimens. This intensive collecting was made possible by a tremendous feat of organisation and logistic support that allowed for easy collecting in this very remote and, at times, inhospitable locality.

The organisation for the project was provided by its Director, Dr. Bill Knight of the British Museum (N.H.). His efforts with the assistance of the Royal Entomological Society and Ministry of Defence in laying down the ground-plan for scientific work, negotiating with the Indonesian Government and Indonesian Institute for Science, and organising transport of equipment and personnel insured the success of the project. An integral part of the project was the logistic and field support provided by three groups from the British Armed Services. Each group of about 20 service-people spent four months in Sulawesi, providing cooking facilities, medical support, ground transport, surveying and mapping of the area, a base camp with laboratory, workshop, sleeping quarters and even a volley ball court. They cut trails measuring many kilometers into the forest in several directions reaching points from 200 up to 1700 metres ASL. They built more than 5 major sub camps at various altitudes, which were continually supplied with food, fuel and any special equipment needed for collecting. It was possible, if you were unsure of your ability in the forest, to be guided by a service-person, who helped carry your gear and often cooked and tended camp while you maximised your collecting time.

Of the 20 days I spent at Project Wallace, 8 nights were spent away from base camp at several of the sub camps up to an altitude of 1100 metres. The forest between base camp at approximately 200 metres and the highest point I reached was fairly uniform, comprising a somewhat open forest canopy which made for a well-developed understory. Collecting along the edge of the forest in semi-disturbed vegetation and on hill tops that were often in cloud was particularly productive. Initial assessment of malaise and pan trap catches in these localities indicate a high diversity of parasitic Hymenoptera.

At one time there were up to 20 scientists (called "wallies" by the service-people) in base camp, undertaking projects in the rainforest diversity programme, or the agricultural or medical projects that were under way. Most workers were there to collect in the rainforest and collect they did. The amount of material that is now being processed must be phenomenal, as there were at least six to ten malaise traps in the field at all times for the whole year and dozens of pan traps and other collecting devices.

This much material will undoubtedly keep many workers busy for several years to come and will surely provide a detailed insight into the insect fauna of a previously little collected island. The ramifications of this material to our knowledge of faunal relationships in the Indo-Australian Region are likely to be great but will probably not emerge for several years yet. In all, Project Wallace was an unforgetable entomological experience that has left its mark indelibly on those that took part. Hymenopterists that I know of that went on Project Wallace other than myself are R. R. Askew (Univ. of Manchester), J. Noyes, and G. R. Else (both BMNH) and C. van Achterberg (Leiden).

For information on more detailed aspects of Project Wallace see New Scientist, 3rd Jan. 1985, No. 1437 pp. 12-15; 28th March, 1985, No. 1449, pp. 22-23, and progress reports that appeared in the four parts of Vol. 9, 1985, of Antenna (Bulletin of the Roy. Ent. Soc.). Also interesting reading is Alfred Wallace's book "The Malay Archipeligo" (publ. 1962, Dover Publ., N.Y.).

UTAH-ARIZONA 1986

by

Arnold Menke

On August 28, after vacationing in Sequoia National Park with my folks, I flew to Salt Lake City, Utah where I was met at the airport by my old friend Frank Parker (alias the "vacuum cleaner", a reflection of his collecting prowess). He arrived in a U.S. Government, 26' long Winnebago. This cumbersome vehicle provided such amenities as a cold shower (the water heater didn't work), a stove, lumpy beds, a table for eating and mounting insects (we ate melons and other things, not insects), and two sinks that supplied us with pink water. No, it wasn't champagne - the water contained a supposedly non toxic antifreeze for those long, hard, Logan, Utah winters that the vehicle has to survive each year. When thirsty we drank wine, soda, juice and even bottled water. The major problem that we had with the Winnebago was parking it. It was simply too big. Sometimes we would spot a good looking collecting site along the road that offered no parking - so we would drive on until we found room for it, park, then walk back.

We drove south from Salt Lake City immediately, arriving in the San Rafael Desert late in the afternoon. Sunflowers produced a few bees but not much else. The next morning we collected around the base of Little Gilson Butte and nearby sand dunes. We found some bees, but wasping was poor: a few Philanthus gloriosus, Bembix, and lots of Cerceris frontata. The last is a very large, handsome wasp and really fun to net. We did manage to take some "handle beetles" (Eleodes caudifera or near it, Tenebrionidae) but very few "VW beetles" (Sphaerionitis sp., Tenebrionidae) were seen. Later that day we collected along the river near Hanksville but got very little. We camped on highway 95 and clambered over a lot of sandstone formations until we found some bath tub sized pools of water. We stripped and took much needed baths. That was the highlight of the day! Continuing southeast on 95 the next day, we sampled here and there but no spectacular collecting was found. Finally we turned south on highway 261 (near Natural Bridges Natl. Mon.) and had fair collecting a few miles south of 95. Ammophila juncea, A. azteca and A. strenua were taken, as well as Steniolia, Trypoxylon, Spilomena, Eumenes and Vespula pennsylvanica. Farther south on 261 we took in the spectacular vista from Muley Point Overlook. This has to be one of the finest scenic views anywhere. A thousand feet below, in a deep gorge, winds the San Juan River in gooseneck fashion, while in the distance loom the many buttes, spires and other formations of the famous Monument Valley. We drove on past Mexican Hat rock, through Monument Valley to Kayenta and then westward through the Navajo Indian Reservation. We camped 18 miles west of Kayenta and had some fair late afternoon collecting: Ammophila azteca, Sphex ichneumoneus, and an Ectemnius were taken, the last commonly. Even though it was late in the day, the Ectemnius females were busy searching for prey. They would hover in front of a bush, then suddenly dive bomb some unsuspecting fly - quite a sight! We also took a nice series of a species of the meloid beetle genus Meloe that had red markings on the elytra and abdomen.

The next day we collected in Moenkopi Wash near Tuba City and had better collecting (in retrospect one of the best sites of the trip): Bembix, Microbembex, Philanthus, Clypeadon, Cerceris, Ammophila pruinosa, A. karenae, Belomicrus, Oxybelus, Plenoculus, Tachysphex, Diodontus, Pulverro, Spilomena, and Ammoplanops were taken. The small pemphredonines were taken in large numbers sweeping flowering shrubs. Later at Dinnebito Wash on the Hopi Reservation we took a Typhoctes female, Tachytes, Palmodes, Bembix, Philanthus, Cerceris, Miscophus, Mimesa, Ammoplanops, Pulverro, Ammophila pruinosa, A. wrightii, and A. ferruginosa. Cloudy weather and the threat of rain terminated collecting at this promising location, although we took more "handle beetles" (a species or population with shorter handles) and more of that fat, red and black meloid (Meloe). We headed south toward Winslow on road 87 and eventually camped for the night near Show Low.

From Show Low we drove south over the Mogollon Rim on highway 60 and stopped at Carrizo Creek near the settlement of Carrizo. Incidently, Carrizo is in Gila Co. Most Arizona maps have it located north of the county line in Navajo Co. At first, collecting here seemed slow, but by midmorning it was picking up and we eventually spent the entire day there and camped. There was quite a bit of diversity. We took Maricopodynerus, Cephalodynerus unicornis, Polistes, Pepsis, Stigmus, Hoplisoides, Tachytes, Microbembex, Podalonia, Sphex ichneumoneus, Prionyx parkeri, Ammophila mescalero, and A. breviceps. We observed a strange behavior in Polistes comanchus navajo. These wasps were aggregating in and around fissures in a vertical sandstone bluff. These clusters consisted of both sexes and we observed about a dozen different groups of wasps. When disturbed they would retreat into the crevices rather than fly out or attempt to sting. We also discovered adults of the large rhinocerus beetle, Dynastes granti, feeding on the cambium of an ash tree during the day. This will be written up for publication elsewhere since adult feeding in this beetle has not been documented.

The next morning we headed on south to Globe and eastward toward Safford. However we had been experiencing a brake problem with the Winnebago during the long downgrade to Globe from Show Low (essentially no brakes) and had to stop in Safford for repairs. Turned out there was air in the brake lines! While waiting for the repairs to be completed I checked out a nearby cotton field for Frank to see if any bees were in the flowers. I found many flowers with Ptilothrix sumichrasti in them - this species is a an obligate native pollinator of certain malvaceous plants including native cotton. Frank regards this bee as a potentially important pollinator of hybrid cotton (up to now it has been largely ignored as a pollinator). We subsequently found aggregations of nesting Ptilothrix in the dirt roads bordering the field. Being a gregarious ground nester, it probably can be managed just like the alkali bee is for alfalfa. In the afternoon we arrived at the "fabled" dry lake south of Willcox. On the advice of Woj Pulawski we drove down road 186 to a sandy area east of the dry lake itself. Woj had described the site as one of the best collecting spots he had ever been to. (Woj and his charming wife Veronica met me in Sequoia for a day while I was there with my folks and we discussed all sorts of things, including cladistics). The site is on a dirt road that runs northeastward from road 186 at a point about 8 miles south of the town of Willcox. The collecting site is about one and a half or two miles up this road just past a windmill on the south side. The area looked great! Flowers everywhere. Mutillids representing several genera and many species were running everywhere - mutillid paradise! However, the rest of waspdom let us down, and the locality was largely a bust. Frank couldn't even find any indian arrowheads! We did get Microbembix, Bembix, Ammophila cleopatra, A. pruinosa and A. wrightii. That ubiquitous Bombus was all too common, and males of a Myzinum were in abundance, massing around various bushes. We also began to pick up megachilid bees (Anthidium) that had strange markings on the thorax, and suddenly realized we were in someone's study site! Turns out that we were in the middle of Ethel Villalobos' (Univ. of Calif., Los Angeles) research project; she has been observing the Anthidium there. We let them all go, of course. Arizona is crawling with entomologists. We subsequently found out that Dick Bohart, Ken Cooper, Karl Krombein, Ron McGinley, Roy Snelling and others had been to this place only a few days before, and we then realized that such collection pressure had simply wiped out all of the wasps in the area (just kidding of course). We did collect some fine looking vinegaroons and discovered that you can't put two of those beasts together - you always end up with one. They make fun playthings though.

The next day we sampled an area 2 mi. se of Dos Cabezas, but got mostly several species of Polistes and a few other odds and ends (the usual honeybees and the single Bombus that occurs all over the place). We retraced our route until we reached a dirt road that goes north from road 186 over Apache Pass and by old Fort Bowie. We collected at the pass for several hours and had interesting but slow collecting: Steniolia, Bicyrtes, Ammophila fernaldi, Cephalodynerus and various other eumenine genera were taken. Frank scooped up a dead bee from a small pond that turned out to be a rare oxaeid. He also took a lot of Leucospidae. A 4 foot diamond back rattlesnake caught our immediate attention and Frank netted it so that I could photograph it. Later in the day we were in New Mexico at a pass about 18 miles north of Rodeo on highway 80 where we took Sphex lucae, Bembix and Stictiella (or Glenostictia if you are a splitter). A Chlorion was seen but the rascal escaped my net.

That night we drove into the Chiricahua Mts. and visited the Southwest Research Station where we were greeted by Jerry Rozen who graciously treated us to a few drinks as well as dinner. We also met Wade Sherbrooke, the new resident manager of the station. He is a lizard lover, especially Phrynosoma, the so called "horned toads". After the conviviality we left the station and parked our Winnebago in Sunnyside Campground just down the canyon. We collected there the next morning and it was a lot of fun, although slow for Hymenoptera. We got lots of Acmaeodera (a flower buprestid genus) and those large "bristle butts" (Dejeaniini - Tachinidae) were everywhere and fun to net. I took two Cephalodynerus deformiceps, a species that Frank has yet to capture himself. That made sort of made my day - imagine, collecting something that the "vacuum cleaner" missed!! We moved on to an area just north of Apache, Arizona (on the road between Rodeo, N. Mex. and Douglas, Ariz.) that Jerry Rozen had told us was supposed to be good collecting (he said that Karl Krombein had had fair luck there). It looked great: acres of sandy soil and lots of flowers, but collecting was slow, and Frank found no arrow heads. However, I finally found a flyway for Ammophila in the narrow wash that crosses the highway north of Apache, and took many specimens of the common "trash" species pruinosa and breviceps. Other sphecids taken in the general area were Stizoides, Tachytes, Bembix, Steniolia, and Stictiella. Frank took a lot of parasitic bees here. We eventually spent over two hours just walking the desert looking for horntoads - the place was too beautiful to leave!

We filled up the two 30 gallon gas tanks of the Winnebago in Douglas, and also filled our water tank so we could take a shower, and then found a restaurant and had some good old Mexican food. We drove on that evening heading west. We parked the Winnebago on the side of the road (highway 92) just north of the twin border towns of Naco. The lights of the mexican town of Naco looked very pretty from our vantage point. We also spent some time that night collecting walking sticks and buprestid beetles on the mesquite. The next day we collected around the campsite and took more Ammophila (breviceps, cleopatra, mescalero), Eucerceris, and Steniolia. Farther west on road 92, where the road crossed a wash (about 3 miles east of Palominas), we had better collecting: Sphex texanus (a good catch), Podalonia, and more Ammophila (breviceps, pruinosa, formicoides and the very rarely collected imitator). Unfortunately no females of imitator were taken. Ammophila formicoides, a species that I had never seen in the "wild", was a perfect mimic of the common myrmicine ants (Pogonomyrmex sp. det. T. Nuhn) that were running everywhere. The wasp is the same dark red color, only slightly larger than the ants, and prefers walking to flying. In fact, the first formicoides that I saw fooled me until I had watched it for nearly a minute. Suddenly I realized that the ant I had been watching was not an ant. These wasps are so reluctant to fly that you can probably pick them up with your fingers. I clamped my net down on the wasp and it just sat there. I lifted my net from the ground and simply grabbed it with my fingers. This collecting site proved to be the last good one of the trip. Frank caught one specimen of a bittacus type of Mecoptera, and also got the first female of a new species of parasitic bee. Later we collected along the eastern side of the Huachuca Mts. and also north of Patagonia, but the results were always pretty disappointing. Frank dropped me off at the airport in Tucson and I returned home. Terry Griswold flew in just after I left, Frank picked him up, and they went south to Madera Canyon. According to Frank they had pretty fair collecting there (lots of eumenids) before heading home for Logan, Utah.

After my return I talked with Karl Krombein, Roy Snelling, and Dick Bohart. They said that they experienced slow collecting also. Dick told me it was the worst trip he has had in southeastern Arizona and he has been there many times over the years. The scenery, however, always looks great and Frank and I had a great time in spite of the slow collecting. And we did get some very good things!

BLUE MOUNTAIN FIELD STATION
IRISH TOWN, JAMAICA, WEST INDIES

- open all year round -

This newly-built station offers facilities and accommodation for professional and amateur biologists, geologists and workers in all areas of terrestrial ecology and entomology. It is situated at 2800 feet in the foothills of the Blue Mountains. It comprises 600 square feet of laboratory and study space, has 60 feet of bench length, electricity and water, and essential equipment such as stereomicroscopes.

Adjacent to the laboratory are three separate and self-contained apartments each capable of accommodating six people. Separate patios and a large, outdoor dining area command magnificent views over Kingston (13 miles distant by road), its harbour, Henry Morgan's old city of Port Royal, and a costal scenery stretching fifty miles to the west. To the east there are views towards Dallas Mountain, Guava Ridge and Blue Mountain itself. The situation is a perfect compromise between the remoteness of the central mountains (where facilities are poor) and the longdistance of the coastal towns (like Kingston) to the terrestrial habitats in the montane forests.

These facilities are jointly run by Mr. D. Hall, affectionately known as "Shamrock", in this small, mountain township, and Dr. B. Freeman, a graduate of the University of Southampton, England, and a research scientist of 25 years experience, including 15 years in Jamaica.

The all-in fees for accommodation, meals, laboratory facilities and transport to and from the airport are $40.00 per person per day, with a minimum booking of seven days.

Further enquiries should be made to: Dr. Brian Freeman, Reader in Animal Ecology, Department of Zoology, University of the West Indies, Kingston 7, Jamaica.

TECHNIQUES

COMMENT ON HAND-CARRYING SPECIMENS BETWEEN COUNTRIES AS AN ALTERNATIVE TO MAILING

by
Chris Starr
(Biology Department, De La Salle University
P.O. Box 3819, Manila, Philippines)

The usual way to send specimens is of course by the postal service. I find three drawbacks in this, though, i.e. the small but serious chance of a lost package, the not-so-small chance of breakage, and the cost. For those of us working in poor countries, the cost can be a serious obstacle. In the course of sending dead specimens of philippine insects and arachnids to specialists in other countries, I have increasingly come to favor the use of volunteer travelers as a way to get around these drawbacks. Perhaps my approach can be useful in some circumstances to others working in Third World countries.

Most of us work in or near big cities, so that most transport of specimens is from one city to another. There are also plenty of people traveling between those cities, many of whom might be willing to help out in this if they were sure of its legitimacy. After all, science is a prestigious business, and if you give an ordinary person an easy chance to participate in it, he/she will usually be glad to take it. When you add to that the ineluctable strangeness of bugs, it takes on a hint of high adventure for a great many people. At least, that has been my experience. The standard request is for the traveler upon arrival to phone the specialist to come for the specimens, but some actually go out of their way to deliver them personally.

The problem, then, is to find a reliable person who is going where you want and willing to carry the specimens. As it happens, big cities also have embassies and consulates, and my standard practice is to ask the appropriate cultural officer to serve as match-maker. Cultural officers are very quick to see the scientific value of the exchange and its cooperative nature, which are the two sides of what their jobs are all about. And it is easy to show them that the effort need not be bothersome for anyone involved. As a result, I have almost always found them willing to help me make the connection. The cultural officer not only knows who is going, but can pick an entirely reliable traveler (usually government or business professionals, not tourists or nervous exchange students), who in turn knows that the request is legitimate.

None of my hand-carried packages has raised questions at customs or otherwise caused the volunteer any difficulty. This gets back to the cultural officer and sets exactly the precedent I want. The important thing is to a) arrange the package so that it handles itself and the traveler does not have to explain anything, and b) make it obvious to the traveler that it is like that. This mostly depends on attention to three details:

1. The package must be extremely easy to open, inspect, and close again. No opaque vials, hard-to-open boxes or tricky bindings.
2. The traveler must personally inspect it first. The last thing you want is your traveler telling customs that it supposedly contains insect specimens but he/she doesn't know for sure.
3. An explanatory letter accompanies the package, to be given in along with the regular customs declaration form. I prefer to overdo this by including a copy inside the package and providing the traveler with his/her own copy. The following imaginary example is suggested as a model.

To Transylvanian Customs Officials:

This package of three wooden boxes and 22 vials, carried by Mr. Bram Stoker, contains dead insect specimens for scientific study. They are being sent to Dr. D.R.Acula of the Nosferatu Museum as part of a cooperative investigation with the University of Orlock.

The specimens have no commercial value, and none is from an endangered species or otherwise protected by law. They are all dead. The boxes have naphthalene crystals in them as a mild insecticide and repellent. The vials contain ethyl alcohol as a preservative. Both of these can be safely opened for inspection. Please be sure that they are securely closed again.

If you have any questions, please contact either Dr. Acula or myself. Our addresses are given below.

Sincerely, etc.

Not all of these details are always necessary. Still, they serve not only to tell customs what they want to know, but to show that I know what I'm doing. With regard to quarantine, governments seem more worried about clumsy rather than deceitful introductions of pests or pathogens, and when hand-carrying specimens myself I have found it useful to establish a professional tone. That's the reason for specifying the poisonous-preservative chemicals, for example, when it is strictly only necessary to say that the specimens are all dead.

The use of volunteer travelers is not a general solution to the problem of getting specimens to the specialists. Nonetheless, for my particular circumstances it seems like the best way in at least half of the cases.

BOHART AND MENKE ERRATA - CONTINUED
(Sphecid Wasps of the World)

Colin Vardy is responsible for finding most of the following corrections.

p. 90, LC, L 30-31: 1858 is correct.
p. 96, RC, L 5: 1904 is correct.
p. 126, RC, L 4: 1938, not 1928.
p. 133, RC, L 5 from bottom: notinitidus is correct.
p. 147, LC, L 40: insert after "group": (B).
p. 151, LC, L 16 from bottom: 1858 is correct.
p. 191, RC, L 32: add after "Microstigmus": and Spilomena.
p. 213, LC, L 42: 1968 is correct.
p. 247, RC, L 22 from bottom: 1858 is correct.
p. 265, RC, L 6 from bottom: megaera is correct (noun).
p. 274, RC, L 13: 1971 is correct.
p. 276, LC, L 19 from bottom: 1858 is correct.
p. 276, RC, L 19 from bottom: 1858 is correct.
p. 277, LC, L 20 from bottom: willowmorensis is correct.
p. 282, RC, L 11: turneri is correct.
p. 294, RC, L 37: Transcaspian is correct.

p. 336, LC, L 21: isolatum is correct.
p. 352, LC, L 16 from bottom: insert after "latter": (except in B. paraensis).
p. 389, RC, L 1: Mozambique is correct, not Madagascar.
p. 390, LC, L 3: 1902 is correct.
p. 392, RC, L 13: officinale is correct.
p. 403, RC, L 23: taru is correct.
p. 420, RC, L 34: taprobanae is correct.
p. 426, LC, L 15: insert after "(Crabro)": New synon-
p. 469, LC, L 18 from bottom: 1917 is correct.
p. 483, LC, L 26-27: delete ", known only from the male holotype from South Africa."
p. 484, RC, key couplet 11: Austrogorytes will not run out here. From couplet 1 (p. 483) it will go to 2, then to 4, agreeing best with Dienoplus [i.e. Harpactus].
p. 489, RC, L 22 from bottom: replace (Gorytes) with (Miscothyris).
p. 496, RC, L 25: 1917 is correct.
p. 498, LC, L 8: 159 D is correct.
p. 521, RC, L 33: 1917 is correct.
p. 530, RC, L 21: Algeria is correct, not Egypt.
p. 538, RC, L 18: monodonta is correct.
p. 541, LC, L 1: transfer caesarea to Editha on p. 542, RC, after last line, as species.
p. 542, RC, L 32-35: rewrite as follows: to four species which was modified by Araujo (1939) who added caesaria Handlirsch. Araujo assigned diana to Stictia. Finally, Willink (1947) called attention to a sixth species, integra, from Argentina.
p. 543, LC, L 1: transfer diana to Stictia, p. 542, LC, and insert after L 33 as species.
p. 545, LC, insert after L 47 as species: arnoldi Arnold, 1929. S. Africa.
p. 566, RC, L 8, 29: 1858 is correct, not 1857.
p. 577, LC, L 23: 1971 is correct.
p. 580, RC, L 5: 1858 is correct.
p. 581, RC, L 1: 1912 is correct, not 1911.
p. 584, RC, L 19 from bottom: 1858 is correct.
p. 586, RC, L 28: 1858 is correct.
p. 588, RC, L 10: 1856, not 1887.
p. 623, RC, L 7: 1931 is correct, not 1932 as later emended.

ERRATA IN MY ERRATA!

Woj Pulawski found mistakes (!!!) in the errata printed in Sphecos 10:45:

"p. 162, LC, L 16-17: change Mongolia to Kamshatka" - this should have read p. 164, not 162.
"p. 470, RC, L 10, 15, 18: 1807 is ..." - this should have read: p. 470, LC, L 10, 15, and RC, L 18: 1807 is ....
"p. 527, LC insert after L 4: ornatus ..." - this should have read: p. 527, LC, insert after L 3 from bottom: ....

PROFILES

MICHAEL E. ARCHER

I was born in Bristol, England in 1935 but moved to the countryside of Somerset, near Wellington, during early childhood. My first recollections of an interest in natural history was at the age of 13 (1948) when a fellow pupil brought his microscope to school. I was converted and decided to study mammals and insects! I never got started on the mammals but passed through phases of collecting and rearing large beetles, butterflies, hawkmoths and dragonflies before settling with the aculeate wasps and bees.

At the age of 19 (1954) I started two years of National Service and found myself on Salisbury

Plain with very little to do but allowed to spend every other afternoon cross-country running as exercise to keep fit for playing rugby union football. In fact, armed with pencil and notepaper, many an afternoon was spent by the side of a wasp nest watching and recording forager activity. At this time I started to experiment with mazes placed over the burrows of social wasps and also dug up and examined my first colony.

After National Service I entered Hull University obtaining a joint degree in botany and zoology in 1959 (age 24) specializing in microbiology and entomology. A further year was spent obtaining a teacher's certificate before obtaining a job as a master in a secondary school (pupils aged 11-18). After trying to master the art of teaching I resumed the collecting of aculeate wasps and bees in south Derbyshire and started an M.Sc. thesis on the structure of vespine social wasp nests and worker behaviours.

At the age of 32 (1967) I transferred to Higher Education arriving at the now College of Ripon and York St. John (students aged 18-22 mainly) to lecture on the invertebrates and ecology, although currently I mainly lecture on animal behaviour and animal ecology and teach on how to program micro-computers. My M.Sc. thesis was completed in 1968.

Collection of wasp colonies of all British species was now increased and led to a simulation model of the colonial development of Paravespula vulgaris and Dolichovespula sylvestris with which a Ph.D. degree was obtained in 1979 at the age of 44 years. Currently a similar simulation model is being developed for Vespa crabro. Much basic data on the colony characteristics of the other British species has yet to be published.

From 1967 monitoring of wasp populations on a yearly basis was started which enabled me to produce a population dynamics hypothesis of self-regulation for at least P. vulgaris and P. germanica. The mechanisms for the self-regulation would seem to be related to the spring queen competition (or usurpation) for queen nests and a frequency dependent food distribution among queen brood reared in the autumn.

My early work with mazes placed over the entrance burrow enabled me to develop an exit-entrance apparatus so that the number of outgoers and incomers can be counted besides noting what each forager is carrying. Most of this work has yet to be published.

From 1974 I started to pay visits to the Natural History Museum in London to look at locality data of British social wasps and other exotic species. The former activity developed into producing the National Distribution Atlas and the latter into the description of several new species of Vespula and Dolichovespula. The taxonomic work is still developing with major reviews of the Vespinae in preparation. The work on Vespa and Provespa has been in collaboration with Prof. Dr. van der Vecht.

I still retain my interest in British aculeate wasps and bees and collect each summer carrying out so-called survey work both for the National Mapping Scheme but also in more detail for Yorkshire.

(Postscript by my wife Lesley: I could write a treatise on sand-pits I have known, the edge effect of motorists' paradises in England, France and even the United States of America as the wife of Michael Archer. I would have been a wasp widow all my married life but for a certain dexterity with a specimen tube - no I don't always make the 'catch of the day' or even recognise it as aculeate - flies have a curious habit of appearing different in his eyes and mine! However as a psychiatric social worker I've met some delightful - dare one say mad - men and women who share his delights and have learned to 'see' the beauty of the countryside in "small" - even if we rarely get to see the wider vistas of the landscape. As an escape from the 'real' world it beats politics and T.V.)

ALBERTO UGOLINI

I was born in Florence, Italy, on October 5, 1953.

I studied biological sciences at the University of Florence and graduated in 1976 with a thesis on parental behaviour in scorpions. In 1979 I won a fellowship of the C.N.R. and in 1981 I was appointed researcher in the Department of Animal Biology and Genetics of the University, Florence. My main interest in social wasps (orientation and homing) developed from reading the literature on this topic (almost non-existent), but also these topics are part of the two main fields of Prof. L. Pardi: animal orientation and biology of social wasps.

At present I am studying the mechanism(s) behind the initial orientation in Polistes gallicus and the homing ability and initial orientation in P. foederatus and P. nimhpa, as well as the extention of activity range. [Alberto - please read Sphecos 12:21 - edit.]

In 1985 I studied homing behaviour in Vespa orientalis and I spent, collaborating with Prof. J. Ishay, a most interesting month in Israel.

Although I "love" social wasps very much, I also study the mechanisms of zonal maintenance in littoral arthropods and the mother-young relationships in scorpions.

RECENT LITERATURE

(Notable items: Akre & MacDonald, Arbouw, J. Carpenter, Carpenter & Cumming, Dupuis, Michener, Piek & Spanjer, Schmidt, Tollitt, van Marle & Piek)

Akre, Roger D. and John F. MacDonald

1986. Biology, economic importance and control of yellowjackets, Chap. 14, p. 353-412, in: Economic Impact and Control of Social Insects, ed. by S. B. Vinson. Praeger: N.Y. 421 p.

Anonymous

1985. German yellowjacket established in California. California Vector Update (Calif. Dept. Health Serv., Vector Biol. Control Br.) 85(2):1-2.

Antropov, A. V.

1986. To knowledge of digger wasps from the genus Trypoxylon (Hymenoptera, Sphecidae) in the Palaearctic fauna. Zool. Zhurnal 65:624-628. (in Russian with English summary; 2 new species, synonymy, changes of status).

1986. [New and little known digger wasps (Hymenoptera, Sphecidae) of the Far-Eastern USSR fauna], p. 81-91, in: Hymenoptera of Eastern Siberia and the Far East. Collected Scientific articles. Acad. Sci. USSR, Vladivostok. 152 p. (entirely in Russian, new genus and species).

Arbouw, G. J.

1985. Subfamily Tiphiinae, Pars 17, Hymenopterorum Catalogus, ed. by C. van Achterberg and R. D. Shenefelt. Dr. W. Junk: Dordrecht, The Netherlands.
162 p. (3 new names included).

Argaman, Q.

1986. Taxonomy of Heterogynaidae (Hymenoptera: Aculeata). Israel J. Ent. 19:7-12. (includes key to genera and species).

Aztomasova, A. V.

1984. [Insect allergy], Chap. 11, Sec. 11.1 [Allergic reactions to the Hymenoptera sting], in: [Allergic Diseases], ed. by V. I. Pytskiy, N. V. Adzianova, and A. V. Aztomasova . Medicina Press, Moscow. 272 p. (entirely in Russian, chapter also treats allergic reactions to biting Diptera, and various contact and respiratory allergies).

Besuchet, Claude

1986. Jacques de Beaumont (1901-1985) Notice biographique. Bull. Soc. Vaud. Sc. Nat. 78:81-89. (includes photo & list of papers).

Brockmann, H. Jane

1984. The evolution of social behaviour in insects, Chap. 13, p. 340-361, in: Behavioural Ecology: an Evolutionary Approach, 2nd edition, ed. by J. R. Krebs and N. B. Davies. Sinauer Associates, Sunderland, MA.

Budrys, E. R.

1985. New and little known species of the genus Mimesa Shuck. (Hymenoptera, Sphecidae) from the Middle Asia and Kazakhstan and a key to species of the USSR fauna. Proc. Zool. Inst. Leningrad 132:58-76. (entirely in Russian).

1986. [Digging wasps of the genus Psen Latr. (Hymenoptera, Sphecidae) in the Far-Eastern USSR], p. 138-147, in: Hymenoptera of Eastern Siberia and the Far East. Collected Scientific articles. Acad. Sci. USSR, Vladivostok. 152 p. (entirely in Russian, new species and key).

Carpenter, Frank M.
1986. Substitute names for some extinct genera of fossil insects. Psyche 92:575-582. (new generic names in Eumeninae & Chrysididae).

Carpenter, James M.
1986. Cladistics of the Chrysidoidea (Hymenoptera). J. New York Ent. Soc. 94:303-330.
1986. The genus Pachodynerus in North America (Hymenoptera: Vespidae: Eumeninae). Proc. Ent. Soc. Wash. 88:572-577.

Carpenter, James M. and Jeffrey M. Cumming
1985. A character analysis of the North American potter wasps (Hymenoptera: Vespidae; Eumeninae). J. Nat. Hist. 19:877-916. (includes key to nearctic genera).

Castner, James L.
1986. Response of Larra bicolor (Hymenoptera: Sphecidae) to parasitized and unparasitized mole cricket hosts (Orthoptera: Gryllotalpidae: Scapteriscus). Florida Ent. 69:252-255.

Caussanel, Claude
1986. In Memoriam: Simone Kelner-Pillault (1925-1985). Ann. Soc. Ent. France 22:311-312. (includes photograph).

Chiappa T., E., J. C. Magunacelaya R., and H. Jopia R.
1986. Observaciones sobre el nido de Vespula germanica (Fab.) (Hymenoptera: Vespidae), en la zona central de Chile. Rev. Chilena Ent. 13:85-94.

Cloudsley-Thompson, J. L.
1986. Aggregation by male Psenulus pallipes (Panzer) (Hym., Sphecidae) at night. Ent. Mon. Mag. 122:126.

Cobos, A.
1985. IN MEMORIAM. D. Francisco-Javier Suarez Egea (1926-1985). EOS 61:7-11. (includes photograph, bibliography).

Cornett, J. W.
1986. Arthropod visitors at Washingtonia filifera (Wendl) flowers. Pan-Pac. Ent. 62:224-225. (Polistes, Pepsis, Trypoxylon, Prionyx, Tachytes).

Coville, Rollin E.
1986. Spider prey of Trypoxylon tridentatum (Hymenoptera: Sphecidae) from Arizona and California. Pan-Pac. Ent. 62:119-120.

Cowan, David P.
1986. Sexual behavior of eumenid wasps (Hymenoptera: Eumenidae). Proc. Ent. Soc. Wash. 88:531-541.

Dowell, Robert V. and Martha Johnson
1986. Polistes major (Hymenoptera: Vespidae) predation of the treehopper, Umbonia crassicornis (Homoptera: Membracidae). Pan-Pac. Ent. 62:150-152.

Dupuis, Claude
1986. Dates de publication de l'"Histoire Naturelle générale et particulière des Crustacés et des Insectes" (1802-1805) par Latreille dans le "Buffon de Sonnini". Ann. Soc. ent. France (N.S.) 22:205-210.

Eaton, Eric R.
1986. Spider slayers and caterpillar killers. Urban Nat., (Portland Audubon Soc.) Spring 1986, p. 6-7. (popular article).

Es'Kov, E. K.
1982. [Ethological anomalies in bees and wasps under the influence of electrical fields.] Ecology (Acad. Sci. USSR) (6):76-78. (entirely in Russian).

Evans, Howard E., and Allan W. Hook
1986. Nesting behavior of Australian Cerceris digger wasps, with special reference to nest reutilization and nest sharing (Hymenoptera, Sphecidae). Sociobiol. 11:175-302.

Evans, H. E., and K. M. O'Neill
1986. Reproductive and nesting biology of Bembecinus nanus strenuus (Mickel) (Hymenoptera: Sphecidae). Proc. Ent. Soc. Wash. 88:628-633.

Evans, Howard E., Kevin M. O'Neill, and Ruth Pettinga O'Neill
1986. Nesting site changes and nocturnal clustering in the sand wasp Bembecinus quinquespinosus (Hymenoptera: Sphecidae). J. Kansas Ent. Soc. 59:280-286.

Gamboa, George J., Hudson K. Reeve, and David W. Pfennig
1986. The evolution and ontogeny of nestmate recognition in social wasps. Ann. Rev. Ent. 31:431-454.

Gamboa, George J., Hudson K. Reeve, I. Deanna Ferguson, and Terry L. Wacker
1986. Nestmate recognition in social wasps: the origin and acquisition of recognition odours. Animal Behav. 34:685-695.

Genise, Jorge Fernando
1985. Estudios sobre el comportamiento do nidificacion de Bembicini Neotropicales. VII. Trichostictia vulpina (Handlirsch) (Hymenoptera, Sphecidae). Physis (Buenos Aires), Secc. C, 43:1-4. (English summary).

George, Sherly A. and U. C. Abdurahiman
1985. Some aspects of the reproductive biology of Goniozus sp. (Hymenoptera: Bethylidae), an external parasite of the mango leaf-webber, Lamida moncusalis Walker, abstract no. 15, p. 21 in: National Seminar on Entomophagous Insects & Other Arthropods and Their Potential in Biological Control, October 9-11, 1985: Abstracts. Dept. of Zoology, Univ. of Calicut, Kerala.

Gess, F. W.
1986. Three new species of southern African Bembix, a new synonymy, and biological notes on other species of the genus (Hymenoptera: Sphecidae: Nyssoninae). Ann. Cape Prov. Mus. (Nat. Hist.) 16:137-160.

Gess, F. W. and S. K. Gess
1986. Ethological notes on Ceramius bicolor (Thunberg), C. clypeatus Richards, C. nigripennis Saussure and C. socius Turner (Hymenoptera: Masaridae) in the Western Cape Province of South Africa. Ann. Cape Prov. Mus. (Nat. Hist.) 16:161-178.

Hagar, Barbara J. and Frank E. Kurczewski
1986. Cleptoparasitism of Ammophila harti (Fernald) (Hymenoptera: Sphecidae) by Senotainia vigilans Allen, with observations on Phrosinella aurifacies Downes (Diptera: Sarcophagidae). Psyche 92:451-462.
1986. Nesting behavior of Ammophila harti (Fernald) (Hymenoptera: Sphecidae). Amer. Mid. Nat. 116:7-24.

Hastings, Jon
1986. Provisioning by female western cicada killer wasps, Sphecius grandis (Hymenoptera: Sphecidae): influence of body size and emergence time on individual provisioning success. J. Kansas Ent. Soc. 59:262-268.

Hensen, Raimond
1985. De Plooivleugelwespen. Jeugdbondsuitgeverij - 1985. 60 p. (in Dutch. Keys to subfamilies, genera, and species of Vespidae s.l. occurring in the Netherlands, with some biological data and checklist).

Hermann, Henry R. and Jorge M. Gonzalez
1986. Venom apparatus of Trypoxylon clavatum clavatum (Hymenoptera: Sphecidae). J. Kansas Ent. Soc. 59:213-218.

Jennings, Daniel T. and Hewlette S. Crawford, Jr.
1985. Predators of the Spruce Budworm, Spruce Budworms Handbook, U.S. Dept. of Agr., Agr. Handbook No. 644. 77 p. (Eumeninae).

Jervis, Mark A.
1986. New host records for Aphelopus (Hymenoptera: Dryinidae). Ent. Gazette 37:37-38.

Kifune, Teiji
1986. A new species of the genus Xenos (Strepsiptera, Stylopidae) parasitic on the genus Provespa (Hymenoptera, Vespidae) from West Sumatra, Indonesia (Notulae Strepsipterologicae - XVI). Kontyû 54:84-88.

Kimsey, Lynn Siri
1986. A re-evaluation of the systematic position of Allocoelia Mocsary (Chrysididae, Hymenoptera) and a revision of the component species. Syst. Ent. 11:83-91.
1986. Designation of chrysidid lectotypes. Pan-Pac. Ent. 62:105-110.
1986. Cleptidea revisited (Hymenoptera, Chrysididae). J. Kansas Ent. Soc. 59:314-324. (key to species, new species).

Koch, F.
1986. Zum gegenwärtigen Vorkommen der Hornisse (Vespa crabro L.) in der DDR. XI. Int. Symp. Entomofaunistik Mitteleuropas, Gotha, 1986.

Kojima, Jun-ichi, and Malcolm G. Keeping
1985. Larvae of Belonogaster juncea colonialis Kohl and B. petiolata (Degeer) (Hymenoptera: Vespidae). J. ent. Soc. So. Afr. 48:233-239.

Kojima, Jun-ichi, and Tadashi Suzuki
1986. Timing of mating in five Japanese polistine wasps (Hymenoptera: Vespidae): Anatomy of fall females. J. Kansas Ent. Soc. 59:401-404.

Kolmes, Steven A.
1986. Have hymenopteran societies evolved to be ergonomically efficient? J. New York Ent. Soc. 94:447-457.

Krombein, Karl V.
1986. A remarkable new African amisegine wasp (Hymenoptera: Chrysididae: Amiseginae). Proc. Ent. Soc. Wash. 88:509-514. (new genus and species).
1986. Three cuckoo wasps from Siberian and Baltic amber (Hymenoptera: Chrysididae: Amiseginae and Elampinae). Proc. Ent. Soc. Wash. 88:740-747. (two new amisegine genera)

Kurczewski, F. E. and H. E. Evans
1986. Correct names for species of Tachysphex observed by Evans (1970) at Jackson Hole, Wyoming, with new information on T. alpestris and T. semirufus (Hymenoptera: Sphecidae). Proc. Ent. Soc. Wash. 88:720-721.

Kurzenko, N. V.
1986. [The wasps of the family Sapygidae (Hymenoptera, Aculeata) of the USSR Fauna], p. 64-80, in: Hymenoptera of Eastern Siberia and the Far East. Collected Scientific articles. Acad. Sci. USSR, Vladivostok. 152 p. (entirely in Russian, 4 new species and key).

Lane, Robert S., John R. Anderson, and Edward Rogers
1986. Nest provisioning and related activities of the sand wasp Bembix americana comata (Hymenoptera: Sphecidae). Pan-Pac. Ent. 62:258-268.

Leclercq, M.
1986. Piqûres d'insectes et d'arachnides physiopathologie et immunologie thérapeutique. Mise au point et observations inédites. Rev. Méd. Liège 41:545-565.

Leclercq, M., L. Bosson, J. Lecomte, and J. Damas
1985. Effets des piqûres d'hyménoptères: physiopathologie et immunologie selon les données récentes de la littérature. Rev. Méd. Liège 40:700-709.

Lefeber, V.
1985. De invertebratenfauna van de Zuidlimburgse kalkgraslanden. Wespen (Hymenoptera Bethyloidea, Chrysididae, Trigonalidae, Aculeata). Natuurhist. Maandblad 74:85-91.
1986. Description of Hedychridium mosadunense n. sp. from The Netherlands (Hymenoptera: Chrysididae). Ent. Ber. 46:95-96.
1986. Het genus Hedychridium Abeille in de Benelux (Hymenoptera: Chrysididae). Ent. Ber. 46:105-110.

Lubrano, D., P. Helias, P. Bach, M. Leclercq, G. Fillet, J. Lecomte, and J. Damas.
1985. Un cas d'envenimation mortelle avec hyperfibrinolyse par piqûres multiples de guêpes (Vespa crabro L.). Rev. Méd. Liège 40:844-846.

Magunacelaya, Juan C., Elizabeth Chiappa, Haroldo Toro, and P. Guerrero
1986. Observaciones preliminares sobre la alimentacion de Vespula germanica (F.) (Hymenoptera: Vespidae), en la zona central de Chile. Rev. Chilena Ent. 13:55-58.

Menke, A. S.
1986. A new Pachodynerus from Mayaguana Island, Bahamas, and a key to the West Indian species of the genus (Hymenoptera: Vespidae: Eumenidae). Proc. Ent. Soc. Wash. 88:650-665.

Michener, Charles D.
1986. Family-group names among bees. J. Kansas Ent. Soc. 59:219-234. (Apoidea has priority over Sphecoidea).

Miller, Terry D.
1986. New species of the genus Sierolomorpha from New Mexico (Hymenoptera: Sierolomorphidae). Pan-Pac. Ent. 62:121-123.

Moret, C., C. Enzel, M. Leclercq, L. Bosson, J. Lecomte.
1986. Un cas d'envenimation mortelle par piqûres multiples d'abeilles (Apis mellifera L.). Rev. Méd. Liège 38:815-822. (wasps compared).

Nemkov, P. G.
1986. [On the fauna of digging wasps (Hymenoptera, Sphecidae) of the Baikal Region], p. 92-110, in: Hymenoptera of Eastern Siberia and the Far East. Collected Scientific articles. Acad. Sci. USSR, Vladivostok. 152 p. (entirely in Russian, new species).

Nilsson, Göran E.
1986. Nya landskapsfynd av gaddsteklar, med en översikt av de fennoskandiska arterna i familjen Dryinidae. Ent. Tidskr. 107:85-90. (English abstract, records for various wasp families).

O'Brien, Mark F.
1986. Adventures in the the sand... Observing digger wasps. Young Ent. Soc. Quart. 3(3):15-20.

Ohgushi, Ryoh-ichi, Sôichi Yamane, and Nilla Djuwita Abbas
1986. Additional descriptions and records of stenogastrine nests collected in Sumatera Barat, Indonesia, with some biological notes (Hymenoptera, Vespidae). Kontyû 54:1-11.

Page, Robert E., Jr.
1986. Sperm utilization in social insects. Ann. Rev. Ent. 31:297-320.

Pagliano, Guido
1986. Ampulicinae italiani (Hymenoptera: Sphecidae). Boll. Mus. Reg. Sci. Nat. Torino 4:251-260. (keys to tribes, genera and species, with short morphological and biological notes).

Parks, Robert B., Jr.
1986. Aculeate Hymenoptera collected at Torrey Pines California State Reserve. Young Ent. Soc. Quart. 3:33-36.

Perkiömäki, Jonny and Antti Pekkarinen
1986. Discoelius dufourii Lepeletier (Hymenoptera, Eumenidae) in eastern Fennoscandia. Contribution to the Vespoidea fauna of northern Europe 2. Notulae Ent. 66:45-48.

Piek, T.
1986. Megascolia flavifrons haemorrhoidalis (Fabricius), found in the Provence (Hymenoptera: Scoliidae). Ent. Ber. 46:45-47.
1986. Sceliphron caementarium (Drury) supercedes S. spirifex Linnaeus in the Provence, France (Hymenoptera: Sphecidae). Ent. Ber. 46:77-79.
1986. Historical introduction, Chap. 1, p. 1-16, in: Venoms of the Hymenoptera, ed. by T. Piek. Academic Press: London.
1986. Methods for the collection of venoms., Chap. 3, p. 45-61, in: Venoms of the Hymenoptera, ed. by T. Piek. Academic Press: London.

Piek, T., and Willem Spanjer
1986. Chemistry and pharmacology of solitary wasp venoms, Chap. 5, p. 161-307, in: Venoms of the Hymenoptera, ed. by T. Piek. Academic Press: London.

Piek, T., Stuart Dunbar, Karel S. Kits, Jan van Marle, and Henk van Wilgenburg
1985. Philanthotoxins: A review of the diversity of actions on synaptic transmission. Pestic. Sci. 16:488-494.

Pierce, John D., Jr.
1986. A review of tool use in insects. Florida Ent. 69:95-104.

Pillai, G. B., and K. Ramachandran Nair
1985. Mating and host paralysing behaviours of Goniozus (=Parasierola) nephantidis (Mues.)(Hymenoptera: Bethylidae) on Opisina arenosella of coconut, abstract no. 18, p. 24 in: National Seminar on Entomophagous Insects & Other Arthropods and Their Potential in Biological Control, October 9-11, 1985: Abstracts. Dept. of Zoology, Univ. of Calicut, Kerala.

Pulawski, Wojciech J.
1986. Tachysphex peruanus, a new species related to Tachysphex galapagensis Williams (Hymenoptera: Sphecidae). Pan-Pac. Ent. 62:95-98.

Romankova, T. G., and A. V. Romankov
1986. [The use of traps for the study of stinging Hymenoptera (Hymenoptera, Aculeata) in the Primorsk Region], p. 130-137, in: Hymenoptera of Eastern Siberia and the Far East. Collected Scientific articles. Acad. Sci. USSR, Vladivostok. 152 p. (entirely in Russian).

Ryan, Ruth E. and George J. Gamboa
1986. Nestmate recognition between males and gynes of the social wasp Polistes fuscatus (Hymenoptera: Vespidae). Ann. Ent. Soc. Amer. 79:572-575.

Sarazin, Michael J.
1986. Primary types of Aculeata (Hymenoptera) in the Canadian National Collection. Can. Ent. 118:287-318.

Schmidt, Justin O.
1986. Chemistry, pharmacology, and chemical ecology of ant venoms, Chap. 9, p. 425-508, in: Venoms of the Hymenoptera, ed. by T. Piek. Academic Press: London. (other aculeates compared).
1986. Allergy to Hymenoptera venoms, Chap. 10, p. 509-546, in: Venoms of the Hymenoptera, ed. by T. Piek. Academic Press: London.

Schmidt, Justin O., and Stephen L. Buchmann
1986. Are Mutillids scarce? Pan-Pac. Ent. 62:103-104.

Snelling, Roy R.
1986. The taxonomy and nomenclature of some Australian paragiine wasps (Hymenoptera: Masaridae). Contrib. Sci., Nat. Hist. Mus. Los Angeles Co., (378):1-19. (6 new species & a new genus).

Soika, A. Giordani
1986. Eumenidi di Okinawa e delle Filippine raccolti da J. Kojima. Boll. Mus. civ. Stor. nat. Venezia 35:67-89. (5 new species and 5 new subspecies).
1986. Eumenidi paleartici nuovi o poco noti. Boll. Mus. civ. Stor. nat. Venezia 35:91-162. (new genus, 19 new species, 11 new subspecies).

Staub, R.
1985. Nest temperature control and social behavior in colonies of the paper wasp, Polistes biglumis bimaculatus (Hymenoptera, Vespidae). Experientia 41, p. ?

Steiner, Andre L.
1985. Evolution of predatory behavior in some solitary wasps, abstract no. 4, in: National Seminar on Entomophagous Insects & Other Arthropods and Their Potential in Biological Control, October 9-11, 1985: Abstracts. Dept. of Zoology, Univ. of Calicut, Kerala.

Sudheendrakumar, V. V., and T. C. Narendran
1983. Bio-ethology of an undescribed species of Melittobia (Hymenoptera: Eulophidae) parasitic on sphecoid wasps of Malabar (Kerala). Indian J. Parasit. 7:143-148. (hosts: Sceliphron coromandelicum (Lepeletier) and Chalybion bengalense (Dahlbom)).
1985. Alpha taxonomy of three new species of Sphecidae (Hymenoptera) from the Malabar region (India). J. Ent. Res. 9:50-53. (Gastrosericus menoni, Larra vechti, and Polemistus raoi).

Tallamy, Douglas and Thomas K. Wood
1986. Convergence patterns in subsocial insects. Ann. Rev. Ent. 31:369-390.

Tollitt, M. E.
1986. Dates and authorship of the text volumes of the Histoire naturelle section of Savigny's Description de l'Egypte Z.N.(S.)2525. Bull. zool. Nom. 43:107-111.

Tsuneki, K.
1986. New species and subspecies of the Aculeate Hymenoptera from East Asia, with some synonyms, specific remarks and distributional data. Special Pub. Japan Hymen. Assoc., (32):1-60. (Chrysididae, Tiphiidae, Eumeninae, Sphecidae).

Tyler, Timothy L.
1986. Sleeping habits of Steniolia tibialis Handlirsch (Hymenoptera: Sphecidae) in Sierra County, California. Pan-Pac. Ent. 62:226.

van Marle, Jan, and T. Piek
1986. Morphology of the venom apparatus, Chap. 2, p. 45-61, in: Venoms of the Hymenoptera, ed. by T. Piek. Academic Press: London.

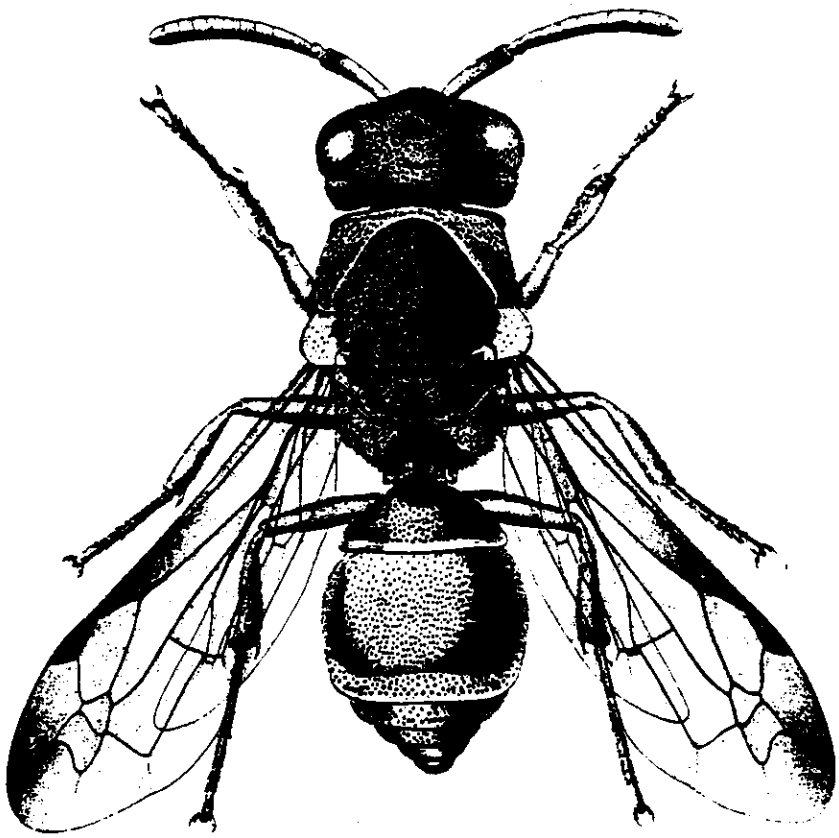
Wasbauer, Marius S.
1986. Two new species of Priocnemis from the Nearctic Region (Hymenoptera: Pompilidae). Pan-Pac. Ent. 62:214-217.

Wcislo, William T.
1986. Host nest discrimination by a cleptoparasitic fly, Metopia campestris (Fallén) (Diptera: Sarcophagidae: Miltogramminae). J. Kansas Ent. Soc. 59:82-88. (on Crabro cribrellifer).

Wcislo, William T., Bobbi S. Low, and Catherine J. Karr
1985. Parasite pressure and repeated burrow use by different individuals of Crabro (Hymenoptera: Sphecidae; Diptera: Sarcophagidae). Sociobiology 11:115-125.

Willink, Abraham
1983. Una nueva especie de Hypodynerus y observaciones sinonimicas sobre otras (Hym. Eumenidae). Rev. Peruana Ent. 24:55-58. (published May 1983 but dated 1981).

Yamane, Seiki, and Kanetosi Kusigemati
1985. Vespoidea and Scoliidae from the Fiji and Solomon Islands (Insecta, Hymenoptera). Kagoshima Univ. Res. Center S. Pac., Occ. Pap. (5):75-79. (new species in Polistes).



Antepipona paralastoroides Soika, 1985

Sphecos, No.13:49, (1986)

Club Ashmed

The following note was received just as this issue was going to the printer - editor.

PREY SPECIES OF THE RENTING WASP, CHALYBION BENGALENSE (DAHLBOM) (SPHECIDAE)

by
Sumit Chakrabarti
(Kaugachi, PO Shyamnagar, 24 Pgs. Pin: 743127, West Bengal, India)

For five years I have been studying the behavior of the sphecid wasp Chalybion bengalense in Shamnagar. The following list tabulates the 33 different spider prey items taken by this wasp. Some were removed from their mud nests, others were taken from the wasps after they were paralyzed. Dr. Animesh Bal, arachnologist at the Zoological Survey of India, Calcutta, has helped with the identification of the spider prey. Immature spiders were usually identified only to genus.

Araneidae	Neoscona poonaensis
	N. bengalensis
	N. mukerjei
	Cyrtophora cicatrosa
	C. feae
	Cyclosa confraga
	Araneus mitifica
	A. theis
	Leucauge decorata
	Argiope pulchella
	Zygeilla melamocrania
	Gasteracantha sp.
Theridiidae	Ariamnes simulans
	Rhomphea sp. (?)
	Stetoda sp.
	Theridion sp.
	unidentified spider
Salticidae	Marpissa mandali
	M. calcuttaensis
	Myramarachne orientalis
	Phidippus sp.
Pholcidae	Crossopriza lyoni
	Pholcus sp.
Thomisidae	Philodromous betrabatai
	Xysticus sp.
Oxyopidae	Oxyopes pandae
Tetragnathidae	Tetragnathus spp (4 species)
Hersilidae	unidentified spider (1 species)
Uloboridae	unidentified spiders (2 species)