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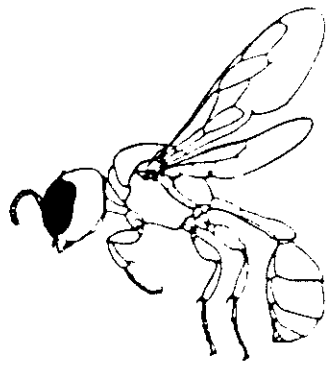

A FORUM FOR ACULEATE WASP RESEARCHERS

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Editor's Musings

Too much time has passed since Sphecos last appeared but your old editor has been been too swamped by other work to do anything about it. As a reward for your patience, Terry Nuhn and I have produced another double issue. Terry, as usual, did the lion's share of the typing, probably 97% of it for the two issues.

Most of the research news in this number is derived from those questionnaires that most of you filled out (er, that is, completed, Mick) last year. Because of the long delay some of this information may now be out of date, but at least everyone can see what others are doing research and otherwise.

The production of a new Sphecos Directory based on those questionnaires is not in the near future. I'm sorry, but there are only so many hours in the day and Terry works for me only two months out of the year. If anyone out there has access to a computer and would like to volunteer to enter information from the questionnaires and produce a new directory please contact me. Ron McGinley has a beautiful d-Base III software program that he had developed for the Melissa Directory that can be used very effectively for this chore and which I can probably make available to a volunteer with an IBM clone.

If any of you still have not returned the questionnaire to me, please do so NOW. Also, many of you completed the form in long hand and some of you use hen scratching that is literally unreadable!! If your information gets mangled in our attempts to decipher your scribbling, don't blame anyone but yourself! If you don't have a typewriter - please PRINT! Completed questionnaires are not supposed to look like a doctor's prescription handwriting!!.

Research News

R. T. Simon Thomas (Mythsteelaan 32, 8072 PZ Nunspeet, Holland) is preparing a petition for submission to the International Comm. on Zoological Nomenclature in which conservation of the sphecid name Philanthus triangulum is requested.

R. J. Paxton (Dept. of Zoology, University College, P.O. Box 78, Cardiff CF1 1XL, U.K.) has been working on sex ratios in Mellinus arvensis.

David McCorquodale (Dept. of Zoology, Australian National University, Canberra, ACT, 2601 Australia) says: "I am now completing my Ph.D. thesis on communal nesting in Cerceris antipodes, with emphasis on behaviour of individual females, the role of nest defence in promoting communal

nesting and calculation of relatedness of females sharing nests from electrophoretic data. A paper on a nest shared by two species of Cerceris will soon be published in the Journal of the Australian Entomological Society. A note describing a new species of Spilomena and the biology of this communal, ground nesting species is being prepared with Ian Naumann."

S. Turillazzi (Dipartimento di Biologia Animale e Genetica, Università degli Studi di Firenze, via Romana, 17 - 50125 Firenze, Italy) says: "At the present I am studying data collected during my last trip in Malaysia concerning the biology, social behaviour, systematics and gland morphology of some stenogastrine wasps. In the meantime I am doing research in a course (with some students) on the biology, ecology and behaviour of Sulcopolistes. Regarding Polistes wasps we are studying nest recognition and nest usurpation (with Dr. R. Cervo), male behaviour (with Dr. L. Beani) and gland ultrastructure (with Dr. G. Delfino) of some European species."

Albert T. Finnamore (Provincial Museum of Alberta, 12845 - 102nd Ave., Edmonton, Alberta, Canada T5N OM6) reports the following progress on his studies of Neotropical pemphredonines: "I have 4 new South American genera related to Stigmus, a fifth from the orient of unknown affiliation and possibly a 6th related to Carinostigmus. The South American portion of this work has mushroomed to almost 90 species in the 4 new genera and I expect a further 15 in Neotropical Stigmus s.s. There are only 8 described species in the Neotropics in this group. I have accumulated Stigmus and related genera from all areas of the world, but by far the poorest in representation is the Oriental Region even though it contains some extremely unusual Stigmus and Carinostigmus species. I hope to be collecting on Borneo in Sarawak as well as the Malaysian peninsula during February (1987) which should improve my representation in the area."

J. P. Field (Dept. of Zoology, University of Cambridge, Cambridge CB2 3EJ, England) writes: "I am close to finishing my Ph.D. at Cambridge University, on behaviour/ecology of solitary wasps - partly a detailed study of Ammophila sabulosa and partly a community-structure study on pompilids present at one site. I will then be starting (on April 1st) a 2-year research fellowship at Imperial College, London, on strategies of natural enemies attacking solitary wasps/the evolution of nest-sharing."

Peter T. Landolt (Insect Attractants, Behavior and Basic Biology Res. Lab., P.O. Box 14565, Gainesville, Florida 32604) says: "I have recently completed a study of pheromone-mediated alarm behavior in the southern yellowjacket, Vespula squamosa. A manuscript on the behavior has been submitted and a manuscript on the chemistry is being prepared (both authored with Robert R. Heath). When colonies are locally available, I intend to attempt the same experiments with Vespula maculifrons."

Peter van Ooijen (Westerkade 21, 3511 HB Utrecht, Holland) writes: "I went collecting in Turkey this summer, fell ill and brought home a small amount of wasps. The pompilids were not too interesting, the sphecids were reasonable: rarer species like Chilosphex argyrellus, but no really strange things turned up (so far). My work will try to focus on an amount of Thai pompilids collected by Mr. Raimond Hensen."

Christopher K. Starr (Dept. of Entomology, U.S. National Museum, NHB-165, Washington, D.C. 20560) has again received the Dennis Leston Award (Sphecos 8:5), which has freed him for more worthwhile pursuits. His book on Philippine Social Insects and two chapters on social wasps for multi-author books are near completion. Studies of stinger morphology in Ropalidia (with Eric Macalintal) and vespine wasps (with Eric Macalintal and Bob Jacobson) have revealed surprising uniformity, against the predicted trends. Some small side-projects on mud-nesting solitary wasps are largely done, but publication is a low priority right now. The key to social wasps of Costa Rica (with Roy Snelling) is finally near completion after almost eight years. Chris is also having fun with leafcutter bees (Megachile sp), soldier crabs (Dotilla mictyroides), mudskipper fish (Periophthalmus argentilineatus), puffer frogs (Kaloula picta), various gekkonid lizards and is contesting the Leston Award in court. Chris was just awarded a postdoc fellowship by the Smithsonian Institution and arrived in Washington, D.C. June 29. He has moved into the Ashmead Room and has begun his

studies on the systematics of stenogastrine vespids. He would be very interested to see any adults or nests from infrequently collected indomalesian localities, and would be glad to hear from you if you know or suspect that you have collected some. It must be noted that Seiki Yamane and Stefano Turillazzi each make a similar plea for stenogastrine material in this issue. By the time you write to any of the three, the questions of overlap and specimen-sharing will probably have been resolved.

Herbert Hohmann and Helmut Riemann (Übersee-museum, Bahnhofsplatz 13, 2800 Bremen 1, West Germany) are both working on the Aculeata of the NW German region. On various travels Hohmann collected Hymenoptera (e.g. from Mediterranian islands, Morocco, Kenya, Nepal, Paupa New Guinea, Peru and Costa Rica) which are now in the Übersee-Museum collection. Recently, Hohmann stayed for 3 years on the Canary Islands (on unpayed leave), and he is now preparing a catalogue on Canarian Aculeata, together with two Canarian collegues.

Elias Caïnadas (Trivonianou 47, Athens 11636 Greece) writes: "I am now working on my Ph.D. at the University of Thessaloniki and the "Benakion" phytopathological Institute in Athens under the sponsorship of the Greek state. My subject is concerned with social wasps on sone Greek islands and mainly Skopelos, an island of the contral Aegean Sea. The populations of social wasps (mainly V. germanica) in some years reach such numbers that they pose a definate risk to the future of tourism and apiculture on the island. Prof. Margaris of the Dept. of Ecology in the University of Thrssaloniki and I are now trying to find the main reasons for this "overpopulation" which is a phenomenon mainly confined on that island. The problem is much less evident on neighboring islands. In our study, we try to identify the ecological, ethological and possible genetic reasons for this population growth."

Qabir Argaman (Ministry of Agriculture, Department of Plant Protection and Inspection, P.O.B 78 Beit - Dagan 50150, Israel) writes: "I am now working on the Catalog of Palearctic Hymenoptera. I asked Dr. Gordon Gordh for cooperation on Bethylidae, Dr. Borge Peterson for the Scoliidae and Dr. Kurzenko on Sapygidae. However, many authors from the original list of Dr. Papp have not answered positively. During the summer, I searched so much for other Heterogyna, unsuccessfully. Dr. M. Day has told me that only with the help of a Malaise trap can they be collected, but I possess no such trap. However, I collected many specimens of Miscophus Jurine, some of them elegantly coloured, like chrysidids, ampulicids, but wihtout Andrade's works on the Mediterranian Miscophus, I can not identify them. During recent years visiting scientists were here such as Chris O'Toole, D. Brothers and G. Nonveiller, all studying Mutillidae. I have an incomplete collection of the Israeli Mutillidae, as a few years of work here are insufficient to collect all of them. The problem is subsequently complicated by the fact that there always exists the danger of being killed by a terroist if one collecting mutillids 'on four legs' is concentrating on a special biotope and is 'out' from the environment. Thus someone must stay near him as is customary. Consequently, the regulations prescribe that a "high functioner of the Government' - I am? - must carry a 37' magnum during field work. Do I pay it? Owing to the fact that our son David was born a year and a half ago and my daughter Naomi is seven years old, the last two years we have made no trips to the natural reserves, but collect only in city parks or gardens, so I am handicapped with the Mutillidae. In the Department there was no insect collect or library at all. I began a small one, with about 5,000 specimens now, of identified Coleoptera, Lepidoptera, Orthoptera, Hemiptera and Homoptera, all represented by one pair for subsequent comparison because I have no pins and boxes for a large collection. No Hymenoptera have been introduced in this collection yet, but I hope to get some boxes for them in the next year."

Gilbert Nixon (The Bothy, Rhinefield, Brokenhurst, Hants, England. S04 7QB) writes: "I belonged to the C.I.E. before retirement. My research has always been on the Parasitica (Proctotrupoidea and Braconidae) but I never lost my interest in the Aculeata - a group to which I gave my love when I was a teenager. Social Hymenoptera have always fascinated me and now in retirement, I have a fine opportunity of studying the habits of Vespa crabro though only in so far as they can be understood from direct observation."

László Moczár (H-1114 Budapest, Szabolcska Mihály u. 1. 111/1. Hungary) says that he is finishing a manuscript of the helvetica group of Ceropales (21 spp. in the world of which 11 are new). Next he will work on the genera Bifidoceropales and Priesnerius.

Richard Bohart and Lynn Kimsey (Univ. of California, Davis, Calif. 95616) are finally nearing the end of their work for their book on the world genera of the Chrysididae. This monumental treatise will include synonymical checklists of all species in each genus.

Arnold Menke should have the revision of the New World Pison completed by the end of September. About 45 species will be recognized at the end, two thirds of which are new. The subgenus Krombeiniellum is not a monophyletic group and it and extralimital subgenera will be abandonded in favor of species groups. Beginning this fall, Menke will begin a revision of the Neotropical members of the sphecid genus Larra, the species of which are predators of mole crickets. Three Neotropical species of these orthropterans have become established in the southeastern US where they are causing much damage to turf and other plant life. Importing species of Larra is one of the few options currently available for control of mole crickets, but the wasp species cannot be identified. Hence a review of Larra is manditory. Arnold would like to borrow Neotropical Larra from any source for his revisionary study. Unfortunately, the necessity of revising Larra has again pushed Ammophila into the background!

RESEARCH NEWS FROM QUESTIONNAIRES

Josep Daniel Asis Pardo (Dept. Zoologia, Fac. Biologicas, Dr. Moliner 50, Burjasot 46100, Spain) writes: "Actualmente estoy realizando la Tesis Doctoral sobre la biologia de los esfecidos ibericos (España y Portugal) bajo la direccion de los doctores S. F. Gayubo y J. Tormos. Estudiamos la biologia y comportamiento nidificador de las especies ibericas, que son en su mayoria en este aspecto practicalmente desconocidas. Tambien estudiamos los estadios preimaginales y de forma maginal, algunos aspectos como son la utilitacion de estos insectos en prelimitacion y control biologicas. Esperamos con nuestro trabajo poner al dia todos los datos que se conocer sobre la biologia de los esfecidos ibericos."

Elisabeth Chiappa Tapia (Casilla 4059, Universidad Catolica Valparaiso, Valparaiso, Chile) writes: Estoy estudiando dos especies introducidas en nuestro pais: Vespula germanica y Polistes buyssonii. Creo que se pueden analizar los cambios conductuales debidos a las nuevas condiciones ambientales. He empezado con el nido y le alimentecion de Vespula germanica y quiero hacer lo mismo con Polistes buyssoni. Estoy haciendo un estudio de nidos de germanica que han sobre pasado el ciclo anual (overwintering) y comparindolos con nidos normales para obtener indices de productividad. Especialmente necesito literatura sobre biologtia del nido de ambas especies.

Ian Naumann (CSIRO, Div. of Entomology, P.O.Box 1700, Canberra A.C.T. 2601, Australia) is working on a revision of Australian Arpactophilus and a faunal survey of the Sphecidae of Norfolk Island. In June-August of 1986, Ian visited museums in Pretoria, London, Paris, Leiden, Vienna, Budapest, Prague, Copenhagen, Ottawa, Washington, San Francisco and Honolulu.

T. C. Narendran (Dept. of Zoology, University of Calicut, Kerala, India - 673635) says: "I am interested in the taxonomy and ethology of the Sphecidae of Peninsular India. I did a lot of collecting of Sphecidae from different parts of South India and I plan to study them soon along with one of my research students."

Volker Haeseler (FB 7 Universität Oldengerg, Postfach 2503, D 2900 Oldenburg, West Germany) is studying the ecology and bionomics of the Vespidae and Sphecidae (especially species of the coastal areas of Europe), and the colonization of islands and coastal habitats.

Haroldo Toro (Dept. of Zoology, Universidad Catolica de Valparaíso, Casilla 4059, Valparaíso, Chile) is working on the reproductive behaviour of Sphex latreillei and the mechanical adjustments for copulation in the genitalia of the Thynninae.

Nico Schneider (Cours Universitaires, Dépt. des Sciences, Place Augusté-Laurent, L - 1921 Luxembourg) is currently using trap nests in Luxemburg.

Konrad Schmidt (Zoologischer Institut der Universität, 75 Karlsruhe 1, Postfach 6380, West Germany) is working on the fauna and ecology of the Eumenidae of Baden-Wirttemberg (together with Christian Schmid-Egger). He has been making field observations of oligoletic and polyletic solitary bees near Karlsruhe and in southern France, identifying their pollen loads, and he has been collecting Aculeata in southern France in August of 1985 and 1986.

Jeremy Paul Field (226, Whyke Rd., Chichester, W. Sussex, England) says: "I am currently finishing my Ph.D. thesis which has two parts: 1. Intraspecific parasitism, provisioning strategies, plus general aspects of nesting biology of Ammophila sabulosa (L.), with a shorter section on the same for Anoplius viaticus (L.), and implications for the evolution of sociality. 2. Community structure in solitary wasps at one site (phenology, microhabitat utilization, female and prey size), concentrating mainly on pompilids. I have also carried out a study of trap-nesting solitary wasps and bees at two sites, but this is not in the thesis and is not yet finished. My Ph.D. should be finished by 1/4/87 at the latest, as then I am due to begin a research fellowship at the Imperial College in London. There I will be studying the relationships between ground-nesting solitary wasps and their natural enemies, and the evolution of nest-sharing. I would like to correspond with others who are studying these relationships and the evolution of nest-sharing, particularly with regard to techniques.

"I went on a 3 week collecting trip to S. Morocco in March of 1983 with Mike Edwards and George Else, and have a fairly large collection from there, as yet mainly unpinned, but primarily bees."

Regina Eck (Staatliches Museum für Tierkunde, Augustrsstr. 2, 8010 Dresden, East Germany) is studying Dolichovespula media and D. maculata and the patterns of differences in Dolichvespula.

Murilo Sergio Drummond (Depto. de Biologica, Universidade Federal do Maranhao, Largo dos Amores, 21, 65000 Sao Luis (MA), Brazil) reports: "I am developing the following projects: 1. The study of sexual dynamics of solitary and presocial Hymenoptera populations in forest fragments of the Brazilian Amazon region. 2. The evolution of social behavior of Hymenoptera visualized through both the natural history and the behavioral aspects of presocial bees and wasps."

Kumar Ghorpadé (P.O. Box 2564, Bangalore 560025, India) says: "One small research note I may get into press shortly is on the nesting biology of the petiole-nesting sphecids, Dasyproctus orientalis (Cameron) which provisions its nests with small flies (Diptera), and Psenulus carinifrons (Cameron), which provisions its nests with Cicadellidae (Hemiptera)."

Derek S. Bunn (13 Walden Road, Blackburn, BB1 9PQ, England) reports making "observations on British wasps and hornets, especially the latter. I am especially interested in the phenomenon of nest-relocation in the British subspecies of Vespa crabro and would like to establish whether or not cases of secondary nests discovered in this country are true examples of 'voluntary' relocation rather than the result of the destruction of the original nest. I am also interested in the feeding behaviour of the hornet. I should be interested to hear of any observations made on the hornet in England by others."

Veli Vikberg (Liinalammintie 11 as. 6, SF-14200 Turenki, Finland) writes: "Since 1955 I have collected Hymenoptera, mostly in Finland but also in Lapland. In 1964 Erkki Valkeila identified my collections of Aculeata. In 1974-1979 I often collected together with Erkki Valkeila, who also

taught me much about aculeate Hymenoptera. But in the spring of 1979 he unexpectedly died. I am preparing a brief note on the species misidentified by W. Hellén (1953) as Gonotopus pedestris Dalm. from Finland."

Leo Pardi (Dipartimento Biologia Animale e Genetica, via Romana 17, 50195 Firenze, Italy) is studying the biology and ethology of Belonogaster in East Africa.

Henry Hespenheide (Dept. of Biology, UCLA, Los Angeles, CA 90024, USA) reports that "I have three research interests in Costa Rica which touch on aculeate Hymenoptera: 1. Visitors to extrafloral nectaries of tropical plants - although they are very much a minority component of the visiting fauna: small numbers of sphecids, stingless bees and vespids visit extrafloral nectaries of tropical plants. 2. Mimicry - Although most of my work is with systems that involve Coleoptera (including stingless bees as models) and take a community and faunistic point of view, I am also interested in those that involve parasitic Hymenoptera; some sphecids participate. Vespid-based systems have not been an object of interest to date. 3. Fauna of La Selva - The Organization for Tropical Studies has given formal support to a project (still in the planning stages) to be headed by K. C. Kim that will inventory the insect fauna of its La Selva field station. I have been making collections in regular visits to the station in proparation for this project. To date, these have included few aculeates although I am willing to collect for interested parties. I would be willing to make small collections of certain groups, especially in the context of the La Selva fauna project. Please write me. At the moment, only Chrysidids and Eumenines are spoken for."

Wyrand R. B. Heitmans (Laboratory of Experimental Entomology, Univ. of Amsterdam, Kruislaan 302 / 1098 SM Amsterdam, Netherlands) is studying variable sex ratios in Ampulex compressa (Fabr.). This project is a private enterprise of his - it is not financed by a University in Holland or any other Organization. Aspects include: sex allocation of different species of cockroaches; responses to different stages, sexes and conditions of the prey; association to the physiological condition of the prey; prey handling behavior; diurnal activities of the wasp; and population dynamics. Scientific articles on these topics will be published in the future. A student of his worked on diapause in A. compressa; little is known about diapause in tropical insects.

Wyrand adds: "I made a low budget film with the help of Jon Piek and medical photographer Martyn Overzier about the biology of Ampulex compressa entitled 'The wasp Ampulex compressa, a predator of the cockroach Periplaneta americana' (1985/86). It is in English, and the duration is 19 minutes long, on 16mm film, colour and Umatic video. Contact me at Madurastraat 11g[I], 1094 GK Amsterdam, Netherlands."

Gobbi Nivar (Depart. Ecologia, Instituto Biociências, Avenida 24-A, 1515 CEP 13.500, Rio Claro, SP., Brazil) is working on the identification of prey collected by wasps in the genera Polybia, Polistes, Mischocyttarus and Stelopolybia. He is also examining factors affecting population dynamics of social wasps, producing life tables, and looking at colonial productivity.

Graham Brown (Biological & Chemical Res. Inst., P.M.B. 10, Rydalmere NSW 2116, Australia) is revising Australian tiphiids genus by genus. Current genera include Rhagigaster, Acanthothynnus, Doratithynnus and Encopothynnus, for which manuscripts are in various states of preparation. He has been collecting in South-western Australia to collect Thynninae and to look for myzinines. He would appreciate the opportunity to examine specimens of Neotropical Thynninae.

Jeffery A. Halstead (2110 N. Hayes, Fresno, Calif. 93722, USA) is writing a paper entitled "New hosts - biology of Cephlanomia utahensis in California (Hym.: Bethylidae)". He has also submitted a paper for publication, "Biology of Microchridium minutum (Chrysididae) and its host Ammoplanellus (Ammoplanellus) umatilla (Sphecidae) in California" and is ready to submit another paper, "New distribution records in several Nearctic dryinid wasps, mainly from California (Dryinidae)."

Guido Nonveiller (11080 ZEMUN, Nusiceva 2a, Yugoslavia) is working on the following projects:

"Mutillidae of Yugoslavia", "Contributions to Palearctic Mutillidae", "Contributions to a Monograph of the Afrotropical Mutillidae", and "Catalogue of Paleartic Mutillidae" (in collaboration with A. Lelej, Vladivostok, USSR). He would appreciate seeing any specimens of Afrotropical Mutillidae that other Sphecos readers may be able to loan to him. He recently went collecting in Somalia and Kenya in September, 1986 [see article under COLLECTING REPORTS in Sphecos 15].

John Thomas Burn (17 Kingsley Crescent, Armthorpe, nr. Doncaster, S. Yorks., DN3 3JG, England) has been recording the Dryinidae, Embolemidae and Bethylidae occurring in Yorkshire, Great Britain.

Li Qiang (Graduate School, P.O. Box 85-3, Beijing Agricultural University, Beijing, Peoples Republic of China) writes: "I decided to do some revisional research on one of the subfamilies of the Sphecidae in China. Right now, I am identifying some specimens of sphecids and collecting literature."

Mervyn Burleigh (15 Seafield Ave., Osgodby, Scarborough, North Yorkshire, England) says: "I am currently engaged in an account of the life and work of J-H. Fabre: in particular his contributions to aculeate behavioural studies."

Parker Gambino (218 Wellman Hall, Univ. of California, Berkeley, CA 94720) is studying the interactions between yellowjackets and insect pathogens. He would appreciate it if Sphecos readers could provide him with any fungus-infested Vespinae, especially Cordyceps.

Robert W. Longair (Dept. of Zoology, Univ. of Toronto, Erindale College, Mississauga, Ontario, Canada L5L 1C6) is investigating male dimorphism in Synagris (Vespidae) and Forficula auricularia (Dermaptera). He is interested in seeing any museum holdings that Carpenter doesn't know about ("I already know about the ones he does know about!").

David J. Peckham (S.U.N.Y., H.S.C., Irving Ave., Syracuse, N.Y. 13210) is working on the nesting behavior, parasites and predators of Oxybelus sparideus and O. abdominalis.

Antti Pekkarinen (Dept. of Zoology, Univ. of Helsinki, P. Rautatiekatu 13, SF-00100 Helsinki, Finland) is writing a handbook of the Vespoidea (Vespidae and Eumenidae) of northern Europe.

Gertrude L. Ward (Earlham College, Richmond, Indiana 47374, USA) writes: "I'd like very much to clarify the relationships between Chalybion inflexum, C. bengalense and C. zimmermanni, and the relationship of C. californicum to these others. I was glad to see the note from Sumit Chakrabarti in the last issue of Sphecos. Reprints from others working on Chalybion would be helpful. I'd like to know more about the subspecies that occur in Texas, too."

Raymond Wahis (30 rue des Sept Collines. B.4950 Chaudfontaine, Belgium) is working on the following: Pompilides de la Corse (voir - note preliminaire en Sphecos 15), Catalogue des Pompilides de l'Afrique tropicale, Revision des Irenangelus (Pompilidae: Ceropalinae) des regions indo-orientales et australiennes, and New genus from Australia - with Pseudagenia una and fabia Turner and 11 new species. He is interested in seeing specimens of pompilids from Corsica, Indo-oriental and Australian specimens of Irenangeles, and any specimens that may be from the new genus of Pepsini (near Priocnemis) from Australia. This genus is distinguished by the hind wings not having a jugal lobe - see The Insects of Australia, p. 930, fig. E (Melbourne Univ. Press, 1970). The type species is Pseudagenia una Turner, 1910.

Sumit Chakrabarti (Kaugachi, Shamnagar, 24 Pgs., West Bengal, India - 743127) is working on these projects: 1. Life and behaviour of Sceliphron sp. from Agra, India, 2. Prey-species of Sceliphron (S.) laetum maindroni, 3. Nesting of Chalybion (Ch.) spinolae, and 4. Nesting of Odynerous ovalis.

Stellan Erlandsson (Swedish Mus. of Nat. Hist., S-10405, Stockholm, Sweden) is compiling 1. Fauna Entomologica Scandinavica. Hymenoptera Aculeata: Apidae: Fam. Colletidae, and 2. A Catalogue of the Swedish Apidae. He says: "I have previously written catalogues of the following Swedish aculeate wasps: Cleptidae, Chrysididae, Mutillidae, Myrmosidae, Thynnidae, Scoliidae, Tiphiidae, Sapygidae, Vespidae and Eumenidae."

James E. Gillaspy (1005 E. 43rd, Austin, Texas, 78751-4406) tells us: "I retired at the end of May and moved to Austin, nearer my points of origin. I have so far done little with insects, just indulged in my twin passions of reading (non-fiction) and walking. Entomological twinges do occur, but are still repressible at this point. My environmental ethos is intensifying a long penchant for sustaining myself from near the base of the pyramid, and some day I plan to describe that tropical wasp thus spared from the cows. But my carnivore, usually a meal-a-day or less, wife contributes to my entomological delinquency by causing me to ponder desperately and research as to why, after all these years into senior citizenship, she hasn't a gray hair and enjoys such relative well-being."

Karl V. Krombein (Dept. of Entomology, Museum of Nat. Hist., NHB-105, Smithsonian Inst., Washington, D.C. 20560) is revising Ceylonese Bethylidae and Chrysididae, and writing behavioral and ecological papers on those groups of Ceylonese wasps identified by other specialists.

Frank E. Kurczewski (133 Illick Hall, S.U.N.Y., CESF, Syracuse, NY 13210) is investigating the comparative behavior of Tachysphex wasps and the coevolution of solitary wasp and cleptoparasitic fly behaviors (with M. G. Spofford).

Nickolaj V. Kurzenko (Inst. of Biology and Pedology, Vladivostok-22, USSR 690022) is revising the Vespidae of the USSR fauna, and collecting literature and material on Sapygidae, Chrysididae and Bethylidae for future revisions. He would appreciate specimens; literature on the the Vespidae, Sapygidae, Chrysididae and Bethylidae; as well as identifications of bethylids from the USSR from Sphecos readers. He adds: "During a 1984 sea trip, I got some material of Vespidae and Sphecidae from Socotra, Seychelles, the islands in the Gulf of Siam and at the south-east coast of Vietnam. In 1986, during a brief field trip in Sikhote-Alin (Primorje), I collected mainly Vespidae and Chrysididae."

Folke K. Larsson (Dept. of Zoology, Univ. of Uppsala, Box 561, S-751 22 Uppsala, Sweden) is working on nesting area fidelity, and on male choice and sexual selection in gregarious Sphecidae.

Jean Leclercq (Rue de Bois-de-Breux, 190, B-4500 Liege, Belgium) is writing a key to the Dasyproctus species from Africa and keys to the species of several genera of Crabronini from S.E. Asia and from Latin America. He tells us "I am always pleased to receive Crabronini for determination, and also to receive reprints of papers on systematics, ethology and distribution of Aculeata."

Marcel Leclercq (Rue du Prof. E. Malvoz, 41, B-4610 Beyne-Heusay, Belgium) reports: "I continue to investigate the problem of insect stings which is very important in medical research. The problem of insect stings is very important 'per say', but it is also important to understand the pathology with the associated ethology. I am interested in correcting and having the finest identifications, taxonomy and phylogeny. This is the true basis for adequate interpretations in toxicology and immunology. Unfortunately, the knowledge in entomology, especially of taxonomy, systematics and biology, of physicians is wrong!"

Lee Tie-sheng (Inst. of Zoology, Academia Sinica, Beijing, Peoples Republic of China) is using vespoid (Vespoidea) wasps to control injurious caterpillars in fields and forests.

K. Tsuneki (Asahigaoka 4-15, Mishima, Japan 411) says that "Hymenopterists Communication" (entirely in Japanese) No. 24 is in press. Only a single copy is sent abroad. It goes to the British Museum (Natural History). Complete sets of this journal are no longer available.

Virgilius Lefeber (Brusselstraat 38, 6211 PG Maastricht, Netherlands) is compiling atlases on the Pompilidae and the Crabroninae of The Netherlands.

Arkady S. Lelej (Inst. of Biology and Pedology, Far Eastern Scientific Center, Vladivostok-22, 690022, USSR) reports: "I am now studying the evolution, distribution and systematics of Mutillidae and am revising the Pompilidae of the Soviet Far East."

W. R. M. (Bill) Mason (B. R. C., Canada Agriculture, Ottawa, Canada K1A 0C6) says: "I spent Dec. '85 and Jan. '86 collecting in S. Africa, mostly in the tropical lowlands of E. Transvaal (Kruger Park area) but also in the Drakensberg and eastern Cape (Grahamstown). I've never seen such a high proportion of mutillids in a fauna."

Robert W. Matthews (Dept. of Entomology, Univ. of Georgia, Athens GA 30602, USA) is working on a revision of the Neotropical Microstigmus. He would appreciate any nest or specimens of Microstigmus from anywhere in the Neotropics for inclusion in his revision.

David McCorquodale (Dept. of Zoology, Australian National Univ., Canbarra, ACT, 2601, Australia) is investigating communal nesting in Cerceris antipodes and prey use by Cerceris spp. in south-east Australia.

Alessandro Mochi (via Ombrone 12/B, 00198 Rome, Italy) went collecting in Sardinia from June 2 - 16, 1986. He collected about 500 specimens, mainly Sphecidae and Vespidae. The collecting was marred by bad weather, including a cold wave, wind and rain. The material still needs to be prepared.

Christopher D. Nagano (Entomology Section, Nat. Hist. Mus., 900 Exposition Blvd., Los Angeles, CA 90007, USA) tells us: "I am interested in the conservation of endangered arthropods and their habitats." His current projects include the development of a "RED DATA BOOK" on endangered insects in California and their habitats, and the biogeography of insects of the California Channel Islands.

John M. Nelson (Dept. of Biology, Oral Roberts Univ., Tulsa, OK 74171, USA) is progressing, "but in very slow motion", on the following projects: Larval morphology, particularly in regard to species separation in the Polistes fuscatus complex; adult variation and subspecies in fuscatus; and nesting biology of the Oklahoma species of Polistes. He adds: "In regard to the fuscatus group, we need complete nest populations with both sexes to look at species variation within colonies."

Göran E. Nelson (Dept. of Zoophysiology, Univ. of Uppsala, S-75122 Uppsala, Sweden) is collecting as much as possible to increase the knowledge of the distribution and habitats of Swedish Aculeates (including bees).

Martin Obin (USDA/ARS, 1600 SW 23rd Drive, Gainesville, FL 32601, USA) is investigating the evolution of nestmate and kin recognition from nest orientation in pre-social Hymenoptera, nest marking and chemical defence in the Sphecidae, and alternative nesting strategies in Sceliphron and Chalybion.

Mark F. O'Brien (Museum of Zoology, Insect Div., Univ. of Michigan, Ann Arbor, MI 48109-1079) is collecting the Aculeate Hymenoptera fauna of the Huron Mountain (Mich.) area, studying the behavior of Tachysphex and Ammophila, and otherwise making assorted serendipitous discoveries.

Michael D. Owen (Dept. of Zoology, Univ. of Western Ontario, London, Ontario, Canada N6A 5B7) is looking at the seasonal changes in hymenopteran venoms, the neurochemistry of Apis (and other insects as appropriate), and the ultrastructure of hymenopteran venom gland cells.

Laurence Packer (UCCB, P.O.Box 5300, Sydney, N.S., Canada B1P 6L2) is studying the social biology of Halictus ligatus and Augochlorella striata. He would appreciate verification and/or

identification of members of any aculeate families - specimens from sand dune areas of S.W. Ontario. He made collecting trips in Mexico during the winter of 1984-85, in S.W. Ontario during the summer of 1986, and on Cape Breton Island from the fall of 1986 onwards.

Guido Pagliano (Corso Corsica 6 - 10134 Torino, Italy) is writing a monograph on the Philanthinae and the Tiphiidae of Italy.

Timothy Palmer (RFD 4, Box 576, 8 Facteau Ave., Plattsburgh, N.Y. 12901) observed a Vespula vulgaris nest transmutated into a V. flavopilosa nest.

Tadeusz Pawlikowski (Dept. of Animal Ecology, Inst. of Biology, Copernicus Univ., 87-100 Torun, Poland) is studying the distribution of the Vespinae (or all Vespidae) in Poland (UTM); vespid communities in agricultural landscapes of central Poland; and the nesting biology and population dynamics of the most frequent Vespinae of Poland (Vespa crabro, Paravespula germanica, P. vulgaris, Vespula rufa and Dolichovespula saxonica).

Tom Piek (Dept. of Pharmacology, Univ. of Amsterdam, Academic Medical Center, Meibergdreef 15, 1105 AZ Amsterdam, The Netherlands) is looking at the pharmacology of the philanthotorcins and their synthetic analogues, and the pharmacology and chemical identification of kinins from scoliid venoms. He has been collecting large numbers of scoliids in the south of France (for their venom), giving him the opportunity to describe several new facts on colour differences as well as morphological differences.

Jerry A. Powell (201 Wellman Hall, Univ. of California, Berkeley, Calif. 94720) says: "I am attempting to trace changes in the wasp community at the former Antioch sand dunes (Contra Costa Co., CA). There is rough documentation of collecting records during the 50+ years of exploitation by man. These records span 1929-1982 and include more than 600 collecting dates. I am interested in learning about any collections other than the California Academy of Science and Univ. of Calif., Davis, that house specimens from Antioch, Contra Costa Co., CA. I am especially interested in older records (1930's and 1940's), particularly for small wasps (and also Halictidae and Anthophoridae)."

Wojciech J. Pulawski (Dept. of Entomology, Califoria Acad. of Sci., Golden Gate Park, San Francisco, CA 94118) reports: "My revision of the North American Tachysphex is now in press [congratulations Woj!!] and I am now revising Gastrosericus."

Alex Rasnitsyn (Palaeontological Inst., USSR Acad. Sci., Profsoyuznaya str. 113, Moscow 117868, USSR) is working on the following projects: 1. The Phylogeny of Hymenoptera - a concise version for Oriental Insects ("thanks to Prof. V. Gupta for the stimulation"), 2. An analysis of Baltic amber assemblages of Hymenoptera (based mostly on the Moscow and Warsaw collections and published lists) with a comparison with the assemblages from the resin of living conifers, and 3. Descriptions of Hymenoptera from the Lower Cretaceous period of East Transbaicalian (for a future collective book on the late Mesozoic nonmarine biocenoses of the East Transbaicalian). He recently made a paleontological trip to central and southern Mongolia for two and a half months in July-September, 1986. Living insects, including Aculeata, were also collected, which are to be passed on to the Zoological Museum of Moscow State University. A few fossil wasps (Early Cretaceous) were found.

Anthony Raw (Inst. de Biologia, Univ. Federal da Bahia, Ondina, Salvador Ba., Brazil) is surveying the habitat prefences and geographical distributions of Brazilian social wasps, and preparing descriptions of new species of social wasps, particularly from Brazil.

Hal C. Reed (Dept. of Biology, Oral Roberts Univ., Tulsa, Oklahoma 74171, USA) is employing trapping schemes for the southern yellowjacket, V. squamosa, and doing a morphologicalanalysis of the caste structure in paper wasps (Polistes).

David B. Richman (Dept. of Entomology and Plant Path., Box 3BE, New Mexico State Univ., Las Cruces, NM 88003, USA) says: "At the present time my main work is with range insects, especially grasshoppers, range caterpillars and insects attacking range weeds. I hope to spend more time on Hymenoptera (as well as other predatory or parasitic arthropods), especially those species which attack economically important insects in New Mexico. My Ph.D. training was primarily in the field of spider systematics and behavior. As we are just organizing the NMSU extention entomology collection, I could use help with all categories. Dr. Don Manley has determined all of our mutillids. I could especially use reprints on sphecids and pompilids and any help in identifying these two families plus possibly bethylids."

Ivone Rezende Diniz Rocha (Universidade de Brasilia, Dept. de Biologia Animal, 70910 Brasilia - D.F. Brazil) is currently involved with the following projects: a revision of Synoeca, the influence of fire in the cerrado on the entomological fauna, and maintaining and developing the insect collection of the zoology laboratory in Brasilia University. Ivone would appreciate seeing any specimens of Synoeca.

Arturo Roig Alsina (Museo Argentino de Ciencias Naturales, Angel Gallardo 470, 1405 Buenos Aires, Argentina) is working on a revision of the genera previously included in Chirodamus Hal. (six genera are recognized in the American fauna). He writes: "I would appreciate any specimens that would run to Chirodamus in Townes' 1957 key to the Nearctic genera of the Pepsini."

David W. Roubik (Smithsonian Tropical Res. Inst., APO Miami 34002-0011) has a book in press entitled "Ecology and Natural History of Tropical Bees", Cambridge Series in Tropical Biology, Cambridge Univ. Press, (Oct. 1987) (covers wasp natural enemies of bees to an extent); and is co-editing a book on Sumatran Hymenoptera with Ohgushi and Sakagami, covering ecology and evolutionalry history (1988). He would like to see any literature citations on tropical chrysidids that are parasitoids of bees.

Enrique Ruiz C. (Tordillo 2308, Frac. Valle del Huajuco, Monterrey, N.L. 64820, Mexico) reports: "Using the collection of three museums and of my own collection, I am studying the species of Vespidae in the states of Tamaulipas and Nuevo Leon and their geographic distributions, the genera of Sphecidae and Pompilidae of Tamaulipas and Nuevo Leon and their distributions, and collecting Apocrita."

Charlotte T. Samuel (P.O. Box 255, 70730 Seremban, Malaysia) writes: "For the past few years I have been engaged in a study of the factors affecting the colony size of the stenogastrine wasp, Liostenogaster flavolineata. The results of this study are being published in a Ph.D. thesis which will be submitted for examination in July of 1986."

Stephen Schembri ('Pearl', Ujal Il-helsien, Zebbug, Malta) reports: "I am working on 'A list of the Sphecidae of the Maltese Islands' and the species list has already seen an increase by approximately 50%. The Hymenoptera fauna of the islands is very poorly known, with few or no publications (not even lists) of the local species. What literature that exists is either outdated or needs confirmation. Since not even a reference collection exists, I hope to build one myself. Obviously this will be limited to a few groups I am able to study. I plan to tackle more groups in the future, but I rely entirely on specialists who would be willing to determine material and discuss taxonomic problems. When we eventually know what species occur in a group, a paper can be published. In this way, and little by little, a more complete picture of the Maltese Hymenoptera can be built. I have published some work on Maltese Vespidae and Mutillidae and 'donated' my records for a list of Maltese Chrysididae."

Justin O. Schmidt (1961 W. Brichta, Tucson, AZ 85745, USA) is looking at the defensive strategies of sting insects with particulsr emphasis on venoms as an adaptation. He is also studying the comparative biochemistry and physiology of aculeate venoms, the evolution of sociality, and the male lekking pheromones of Philanthus. He always needs identifications, and would appreciate any

word of stations, key contacts and collaborators, and good tropical locations for collecting large numbers of aculeates.

Xenia Scobiola-Palade (Muzeul de Istorie Naturele "Grigore Antipa", Sos. Kiseleff 1, 71243-Bucuresti, R.S. Romania) is conducting investigations on the Hymenopteran fauna from the Delta of the Danube and from Dobrogea (R.S. Romania).

Ewa Skibinska (Inst. Zoologii PAN, 00-679 Warszawa, Wilcza 64, Poland) writes: "During the last two years I collected Sphecidae and Vespidae in the Gorce Mountains (which are not high - 900-1200m) and this year I started collecting material in the central and northern part of Poland in coniferous forests. Insects are quantitatively caught by means of Moericke's traps suspended in tree crowns. In addition some insects are caught by a sweep net. I have finished my work on the aculeate communities in the deciduous forests of the Mazovian Lowland. Now I will be investigating the sphecid and vespid communities of coniferous forests in various regions of Poland."

Norman J. Smith (1730 S. Maple, Fresno, CA 93702, USA) is working on the systematics of Ammoplanini and accumulating Spilomena for future work. He says: "I would like to receive ammoplanine specimens and I will also identify ammoplanine material."

Martin Sorg (Zool. Inst. der Univ. Köln, I. Lehrstuhl Experimentelle Morphologie, D-5000 Köln 41, Weyertal 119, West Germany) is working on some bethylid taxa of Australia and New Zealand, on the genera Eupsenella and Cephalonomia and on fossil bethylids. He would like to borrow bethylids from anywhere!

Margery G. Spofford (104 Illick, S.U.N.Y. College of Environmental Science and Forestry, Syarcuse, NY 13210) reports: "I am completing my dissertation on the cleptoparasitic behaviors of the miltogrammines (Diptera: Sarcophagidae) in association with pompilid and sphecid wasps (with emphasis on the coevolution of these groups). This is an ongoing project without an end! The writing has come to a screeching halt with the good summer weather. The behavors of the miltogrammines are so plastic that each day brings new information. I hope eventually to study in different regions of the US to obtain a more comprehensive view of the neacrtic miltogrammines. It is neigh impossible to locate descriptions of behaviors and associations of the miltogrammine flies with the wasps except through laborous searching of hymenopterous publications. If anyone comes across some obscure references to the flies, PLEASE drop me a line. I also would appreciate any information on the behaviors and rearings of these flies by sphecid or pompilid researchers."

Philip Spradbery (CSIRO, P.O. Box 1700, Canberra, ACT 2601, Australia) is working on these current projects: The infuence of the queen pheromones on social organisation, the identification of the source of the pheromone (?glands) and its synthesis and identification, recruitment of queens to colonies and the phenomenon of overwintering perennating colonies, and the potential distribution of Vespa germanica in Australia using the CLIMEX computer model.

Lionel A. Stange (P.O. Box 1269, Gainesville, FL 32601, USA) is studying the Zethus of Venezuela and of the Caribbean Basin. In 1985, he visited Mexico from February through March, the Dominican Republic in May and again in September, the western U.S.A. in June & July and California in August. In 1986, he spent February in Venezuela, and May & June back in the Dominican Republic.

Robert Staub (Todistr. 25, Ch 8344 Baretswil, Switzerland) is investigating the social behavior of Polistes biglumis bimaculatus.

Alain & Colette Strambi (C.N.R.S.-LNB.5, B.P.71, 13402 Marseille Cedex 9, France) Alain writes: "Wasps are presently only a small part of my field of interest (besides cricket behaviour and reproduction). I hope to turn again to Polistes endocrinology: interactions between hormones

(juvenile hormone and ecdysteroids) and dominance behaviour, most probably in cooperation with other european teams."

Tadashi Suzuki (Dept. of Biol., Fac. of Sci., Tokyo Metropolitan Univ., Fukazawa, Setagaya-ku, Tokyo 158, Japan) is looking at the ecology and sociology of temperate zone wasps, and at the photoperiodic effects on the production of males by the foundress queens.

Bo. G. Svensson (Dept. of Entomology, Uppsala Univ., Box 561, S-751 22 Uppsala, Sweden) notes: "Except for several projects on bees, I study the sex ratios and parental investment in solitary wasps."

S. Turillazzi (Dip. Biologia Anim. e Genetica, Univ. Firenze, via Romana 17, 50125 Firenze, Italy) is currently conducting studies on the social biology of stenogastrine wasps, especially regarding social organization, colony cycle, mating behavior of males, morphological and histological surveys, etc.; on the social biology of Sulcopolistes; and on Polistes wasps regarding especially nest foundation in Italian species, colonial communication, etc. He adds: "I am interested in receiving as many specimens as possible of stenogastrine wasps. I made a trip to Malaysia in 1985 collecting especially stenogastrine wasps and their nests". Of special interest is the following discovery: "Prof. Pardi recently found a very interesting paper in Latin by Stefano Disderi, reporting observations made on Polistes gallicus. The paper is published in the Memoires de l'Academie Royale des Sciences de Turin in 1813."

Peter van Ooijen (Westerkade 21, 3511 HB Utrecht, Holland) is studying the species and subspecies boundries for several pompilids, reviewing the Turkish Pompilidae, and has been investigating with Raimond Hensen the faunistics of the Turkish Sphecidae, with descriptions of some new species, in a soon to be published paper. [see: Hensen, R. V. and P. D. J. van Ooijen, 1987. Notes on Turkish Tachysphex Kohl (Hymenoptera: Sphecidae). Ent. Ber. 47:12-16.] He adds: "As pompilids are (in the Palearctic) never collected in great numbers, any material would be quite welcome."

René Veenendaal (Groenhoven 422, 1103 LL Amsterdam ZO, The Netherlands) is studying the nesting behavior of Ammophila sabulosa (L.) in the laboratory. He writes: "I need help in the identification of 1) Chrysididae: species of the Chrysis ignita group (from the Netherlands) and 2) Pompilidae: species from Africa (Ethopian region)."

Marius S. Wasbauer (Insect Identification Lab., California Dept. of Food and Agriculture, 1220 N. St., Sacramento, CA 95814) is starting work on the North American brachycistidine genera (other than Brachycistis).

Alan J. S. Weaving (Albany Museum, Somerset Street, Grahamstown, 6140 South Africa) is looking at the nesting behaviour, prey selection and habitat preferences of ammophiline wasps. He would like to see specimens and/or distribution data of Ammophila, Parapsammophila and other ammophilines, including data on habitat if possible.

Bob Wharton (Dept. of Entomology, Texas A & M Univ., College Station, Texas 77843) is trying to repeat a rearing of Ampulicomorpha (Embolemidae) in order to get more details on larval development.

Abraham Willink (Instituto Miguel Lillo, Miguel Lillo 205, (4000) Tucuman, Argentina) is studying the zoogeography of Neotropical Insects, especially as related to Aculeate Hymenoptera. He is also revising the euminid genera Hypodynerus and Pachodynerus, and is interested in other Neotropical Eumenidae, Vespidae and Sphecidae. He would appreciate specimens of Hypodynerus and Pachodynerus for study.

Heinrich Wolf (Uhlandstrasse 15, D-5970 Plettenberg, West Germany) is pursuing revisions of the genera Agenioideus and Tachyagetes (Pompilidae).

Xiao Gangrou (Forest Research Inst., Chinese Academy of Forestry, Beijing, People's Republic of China) is working on the identification and classification of Bethylids and their use in biological control. He tells us: "I need specimens of Bethylidae and the literature about them."

Seiki Yamane (Dept. of Biology, Faculty of Science, Kagoshima Univ., Kagoshima, 890 Japan) is investigating the behavior and life history of Ropalidia fasciata in Okinawa, the phylogeny of vespine wasps of the world, and the systematics of the Indonesian Vespoidea. He needs to see more specimens of Oriental Stenogastrinae (Vespidae). He adds: "In 1985 I made a two-month collecting trip to Sumatra and got several thousand specimens of Aculeata (mainly Formicidae and Vespoidea). Sipora Island of the Mentawai group was one of the most interesting places for collecting. I am now preparing a note on the vespoid fauna of the island."

Help Needed

Raymond Wahis (Faculté des Sciences Agronomiques de l'Etat, Zoologie générale et Faunistique, 5800 GEMBLOUX, Belgique) writes: "I am revising the Australian Pompilidae of the genus Auplopus Spinola (=Pseudagenia Kohl, Fabriogenia Banks). I have studied types of all the old species described by Fabricius, Smith, Cameron, Turner, Saussure, Banks and Evans and very valuable material from different sources: the British Museum, London; the Australian National Insect Collection, Canberra; the National Museum of Victoria, Melbourne; the University of Queensland, Santa-Lucia; the Western Australian Museum, Perth; the Queensland Museum, Fortitude Valley; the Bernice P. Bishop Museum, Honolulu; and the private collections of Howard E. Evans (Fort Collins) and E. Callan (Canberra).

"I found a great number of new species (more than twenty) but the study of this group remains very difficult for different reasons; for example, in many cases, it is practically impossible to associate the sexes. Accordingly, I need more material and would appreciate loans from anyone who has specimens. Because Auplopus builds multicellular nests using mud, series of specimens from a nest or caught in a Malaise trap are especially appreciated.

"I have also discovered a very singular new genus (without a jugal lobe on the hind wings) quoted in "Insects of Australia, 1970:930, fig. E" as an "Unidentified Pepsini". Although I have seen only about thirty specimens, I have found fourteen species of which 12 are new; the other 2 have been described by Turner (1910 & 1912) as Pseudagenia una and P. fabia. Material of this group is especially needed."

Sumit Chakrabarti (Kaugachi, Shamnagar, 24 Pgs., West Bengal, India 743127) requests reprints on the biology and behaviour of Sceliphron sp. and Chalybion sp.

Franco Borgato (200 Rue de la Loi, 1049 Bruxelles, Belgium - Delegation, Senegal) needs literature about the identification of Aculeates, and suggestions concerning a modern way to arrange his collection.

Hans Larsson (Swedish Univ. of Agricultural Sciences, Dept. of Plant and Forest Protection, Box 44, S-23053 Alnarp, Sweden) needs literature on the Malagasy aculeate fauna.

Alain Roy (975 rue de l'Eglise, St. Polycarpe, Que. CP 382, J0P 1X0 Canada) says: "I would like to recive some help with identifications and literature because I am just a beginner." He is interested in Pompilidae, Sphecidae and Vespidae.

Robert B. Parks (10335 Restful Ct., Santee Calif. 92071) writes: "I would greatly appreciate identifications of the following: Dasymutilla, Eumenidae, Ammophila, Podalonia, Tachytes and Crabroninae."

Barry Scott Nichols (7004 Ethan Allen Way, Louisville, Ky. 40272, USA) needs "INFO!!! (papers, newsletters, etc., and also KEYS on aculeates). The Univ. of Louisville needs these badly, and so do I. Any sent to me are appreciated!"

R. T. Simon Thomas (Mythsteelaan 32, 8074 PZ Nunspeet, The Netherlands) would like to see specimens of Philanthus triangulum (F.) from Africa. After examination, all specimens will be returned.

Kumar Ghorpadé (P.O. Box 2564, Bangalore 560025, India) says: "I would be very interested in collaborating with wasp specialists (not "stamp collectors") in increasing our knowledge on the Indian fauna. I could provide them with fresh material (and help them with types, etc., held in Indian Instt.) in return for identifying and publishing these collections in COLEMANIA. I may also consider seriously an exchange arrangement - wasps in return for Syrphidae (& some other flies). Finally, I would be very interested in considering manuscripts on wasp research (from any part of the world or on any species) for publication in my journal COLEMANIA; and monographic supplement AYYARIA."

Wyrand R. B. Heitmans (Laboratory of Experimental Entomology, Univ. of Amsterdam, Kruislaan 302 / 1098 SM Amsterdam, Netherlands) writes: "I'm interested in live material of Sphecidae. I would like to complete 'my list' of people who successfully rear(ed) aculeates (along with their hosts or prey) for at least three generations (excluding honey bees and stingless bees). I have had quite a lot of good results in rearing Ampulicinae and some rather sad experiences with Dutch Dryinids. Some Dutch aculeate workers (Piek, Simon Thomas & Veenendaal) usually have problems in that males will not inseminate young virgins or that the females refuse to copulate (no insemination - no daughters) (specifically European species of Philanthus, Ammophila, Crabro and Cerceris). Are there any people who successfully cope with these problems, are there (new) techniques to be applied and are there any species (outside Europe?) which do not show the problems described? Information, examples and literature is welcome."

Alessandro Mochi (via Ombrone 12/B, 00198 Rome, Italy) is seeking specialist(s) to identify material collected in Africa, specifically Sphecidae and Pompilidae, and can provide relevant literature.

Mark F. O'Brian (Mus. of Zool., Ins. Div., Univ. of Michigan, Ann Arbor, MI 48109-1079) says: "I'd be grateful if anyone competent at identifying tiphiids of the genus Tiphia would determine a bunch from Northern Michigan."

Guido Pagliano (Corso Corsica 6, 10134 Torino, Italy) need help in identifying some Thynnidae (about 500 specimens) from South America. [Lynn Kimsey should be interested - ed.]

Martin Sorg (Zool. Inst. der Univ. Köln, I. Lehrstuhl Experimentelle Morphologie, D-5000 Köln 41, Weyertal 119, West Germany) writes: "I would be glad to get a copy of a translation of the following papers (preferably into English or German)":

RASNITSYN, A.P.
1980. The origin and evolution of Hymenoptera. - Trudy Palaeontol. Inst. 174: 1-190. (in Russian)
MALYSHEV, S.I.
1949. Pathways and conditions of evolution of the vespoid Hymenoptera. - Dokl. Akad. Nauk. SSSR, 65(4): 557-570. (in Russian)
TOBIAS, V.I.
1965. Data on the family Fedtschenkiidae. - Zool. Zh., 44(5): 706-715. (in Russian)
ZALESSKII, YU.M.
1958. Morphological and functional causes of folding of the wings in primative winged insects. - Zool. Zh., 37(6): 845-854. (in Russian)"

People In The News

Katsuji Tsuneki indicated on his questionnaire that he is retired and no longer active. We hope that the latter statement is incorrect!

Dr. P. L. G. Benoit has retired from the Musée Royal do l'Afrique Centrale. He can be reached at his home address: F. Peeterslaan 13, B - 1150 Brussel, Belgium.

Jacques Hamon, Assistant Director-General and Chairman of the Headquarters Programme Committee of the World Health Organization, retired from his position on December 31, 1986.

Ron McGinley became Chairman of the Entomology Department at the Smithsonian Institution in May, 1987. Depending on one's point of view, congratulations, or sympathies are in order!. Ron's leadership is already being felt in the area of long and short term goals for curating the Smithsonian's insect collection.

Frank Parker is leaving his post in Logan, Utah, where he has been Research Leader of the Bee Biology and Systematics Lab of the USDA, to accept a USDA position in San Jose, Costa Rica. There he will be working on screw worm. Frank will be moving to San Jose later this year. Congratulations FDP!

Chris Starr has been awarded a postdoctoral fellowship by the Smithsonian Institution where he will be working under Karl Krombein. Chris arrived in Washington on June 29. He will be working on the systematics of the Stenogasterinae. Congratulations Chris!

Jack van der Vecht has been on a long trip that began in March with a visit to Costa Rica where he remained two and a half months with Mary Jane West Eberhard collecting wasps. In June Jack flew to Gainesville, Florida in the company of Henry and Marjorie Townes. He spent about a week at the American Entomological Institue before flying on to Washinton DC. Jack spent a week with Karl Krombein and studied some Sri Lankan eumenids. Unfortunately, he became ill while at the Smithsonian and had to fly home to Putten. We all hope he is fully recovered now. It was great to see him again after all these years.

Colin and Marta Vardy were seriously injured in a car accident just after landing in the Canary Islands last Christmas. After several operations, Colin returned to work part time in May. We hope that both will be fully recovered soon.

Lynn Kimsey has received a grant from the National Science Foundation to work on the Thynninae of South America. She will soon be moving to the Museum of Comparative Zoology, Harvard University, Cambridge, Mass., where she will conduct her research.

Arnold Menke flew out to San Francisco for a weekend in May. There he joined two bee persons, Tom Zavortink and Sandy Shanks, in the famous 12 km run across the San Francisco Peninsula - "The Bay to Breakers". With over 100,000 people participating, the race is correctly called "the largest race in the world". While in San Francisco Arnold conferred with Woj Pulawski about their upcoming joint backpacking expedition in August up the Middle Fork of the Kings River (Kings Canyon National Park) and back down the South Fork - some 80 miles.

W. R. M. (Bill) Mason will be associated with the American Entomological Institute (Henry Townes) (3005 S.W. 56 Ave., Gainesville FL., 32608) during the winter months (October through March), and with the Biosystematics Research Centre, Ottawa, Canada, during summer months.

Address Changes

Junichi Kojima: Department of Biology, Faculty of Science, Ibaraki University, Mito 310, Japan.

Chris Starr: Dept. of Entomology, U.S. National Museum, NHB-165, Washington DC 20560 (through June, 1988).

SPHECOS 14, p. 17, (1987)

Obituary

HANAN BYTINSKI-SALZ
(24 June 1903 - 25 October 1986)

by
Qabir Argaman
(Plant Protection Dept., P.O. Box 78, Bet Dagan 50250, Israel)

Professor Hanan (formerly Hans) Bytinski-Salz was born on June 24, 1903 in Karlsruhe, Germany. His father was a lawyer. Bytinski-Salz studied at the universities of Berlin and Freiburg. He began his entomological research at the Kaiser Wilhelm Institute for Biology in Berlin, under Professor O. Mangold, in the field of experimental embriology and cytogenetics of Lepidoptera hybrids. He received his Ph.D. degree in 1929. As a result of his research, he proved the dependence of pupal diapause and development on hormonal influences, and the fertility of hybrids, within species of a species-group, in which all occur as vicariant species in separate areas of distribution. In the meantime, he built up one of the largest private collections of palaearctic Macrolepidoptera: 65,000 specimens including over 1,000 types. In 1931 he held a position as assistant at the German-Italian Institute for Marine Biology at Rovigno d'Istria, Italy. Later he worked under various grants at Yale University, USA; at the John Innes Horticultural Institution in London, England; and at the Zoological Department of the University of Padova, Italy. He settled in Israel in 1939. Here he realized that the Lepidoptera were the best known group of insects in this country, due to many amateur collectors, so he started to collect many other groups of insects, but after several years he concentrated on aculeate Hymenoptera, Coleoptera and Macrolepidoptera. During his first years in this country - the years of the Second World War - Prof. Bytinski-Salz could not find a position, and endeavoured to support his family by selling some of the small amount of jewelry of his wife, Paula. Only in 1944 did he find a position teaching biology at the Kibbutz Teachers Seminary. The next year he became the entomologist at the Agricultural Experiment Station at Rehovot. There he developed a poisonous bait against the oriental hornet (Vespa orientalis), a serious pest of apiculture. When the State of Israel was founded in 1948, Prof. Bytinski-Salz became senior entomologist of the Department of Plant Protection and subsequently head of the Plant Quarantine Service at the Ministry of Agriculture. Here he developed the small collection of agricultural pests that was there. This collection was established in 1920 in Jerusalem by the Agricultural Directorate of the Palestine Manditory Government, and during the War of Independence it was saved by its curator, Mr. P. Jolles, and transferred to Tel Aviv-Yafo. It became the collection of the Plant Protection Department. It was under the curatorship of Prof. Bytinski-Salz up to 1960, and later of M. Sternlicht. In 1963 the collection was moved again, this time to the Division of Entomology of the Volcani Centre of the Agricultural Research Organisation at Bet Dagan. From 1960, with the establishment of the Tel Aviv University, Prof. Bytinski-Salz was appointed professor of zoology. There he taught entomology, histology, embriology, sexuality, paleontology and evolution. At that period of his life he was nicknamed 'The Walking Encyclopedia', and owing to his easy going, good nature, kind and helpful attitude toward others, and fine sense of humor, Prof. Bytinski-Salz was liked and respected by all who knew him. He has selflessly aided every entomologist with his help and advice. In acknowledgement of his qualities, more than one hundred new species bear his name. He published about eighty scientific papers, mostly on the taxonomy and genetics of Lepidoptera, describing more than one hundred new species and forms, from the entire Palaearctic Region. Other publications dealt with the zoogeography of the Mideast, Ethiopian faunal elements in Israel, lists of insects associated with various indigenous trees (such as Acacias), geographical variation and sex ratio of Leucospis gigas (a chalcidoid), lists of insects and mites accidently introduced into this country dispite the quarantine, chromatophore studies in frogs, faunistic and taxonomic studies of sphecoids in Israel, a faunistic study of Vespoidea in Israel, and so on. He was head of the Zoological Society of Israel, member of the Faunistic Committee of the Israeli Academy of Sciences, a Fellow of the Royal Entomological Society of London and of the

Società Entomologica Italiana, listed in the Directory of Aculeate Wasp Workers, and a member of many other societies. In 1983 at the age of eighty, Prof. Bytinski-Salz donated his private collection and library to the Tel Aviv University, where it became an important component of the newly established National Collection of Insects and Arthropods. At the same time he made a financial donation to the Israel Journal of Entomology. Then he was affected by pneumonia. He continued to work at home on the fauna of the buprestids of Israel, sitting down for many hours close to his microscope, thinly dressed, so that when a second attack of pneumonia occurred, it became fatal. He died on October 25, 1986.

For readers of Sphecos, there is a special interest in his unique collection of aculeate Hymenoptera. It is nearly complete for the Near East, and also contains numerous types received in exchanges. Many publications by foreign scientists are based on material from this collection. Excluding ants and bees, the aculeate wasps have been studied, among others, by some of the most eminent specialists of the present century, and their types or labelled specimens would be subsequently used for revisionary purposes. For instance, bethylids have been studied by Richards; scoliids by Betrem; pompilids by Haupt, Priesner, Wolf and Moczár; tiphiids by Guiglia; chrysidids by Linsenmaier and Bohart; mutillids by Invrea, Suárez, Nonveiller and B. Petersen; sphecids by Verhoeff, De Beaumont, Pulawski and Bytinski-Salz himself (he described new taxa in Bembix, Stizus and Philanthus); and vespids by Giordani-Soika, Blüthgen and Gusenleitner. A sense of loss will remain with us all for many years.

During my visit to Israel in 1979, Prof. Bytinski-Salz related to me that his former job as taxonomist at the Plant Protection Department remained unfilled in the absence of any candidates, a fact that caused me to apply for this job. When I was appointed in 1981, he kindly helped me through identifications of beetles, moths and other stored product pests intercepted in quarantine, as there was no collection or scientific library. He was a type of all-around entomologist that is nowadays very difficult to find. In fact, he is a good example of what an entomologist really should be.

More On REF, A Bibliographic Reference Manager

Peter van Ooijen (Westerkade 21, 3511 HB Utrecht, Holland) sends the following: "After reading Coddington's review of REF (Sphecos 13:24), I would like to make some remarks as author of the software package. Jonathan Coddington seems to know more about REF than I do myself, I clearly remember that I wrote it in Turbo Pascal and not in BASIC as Mr. Coddington states.

"The main problem with REF according to Mr. Coddington is the format in which references are to be presented to a journal. REF will produce output in the input format, and here the GIGO principle (Garbage In : Garbage Out) can be applied. It's good to have programs like PAPERBASE that can handle up to 60 different formats, but I believe it would be a better idea to reach some kind of standardization in the near future, something like the World List for periodicals. Anyway I refuse to start programming again every time a new format pops up.

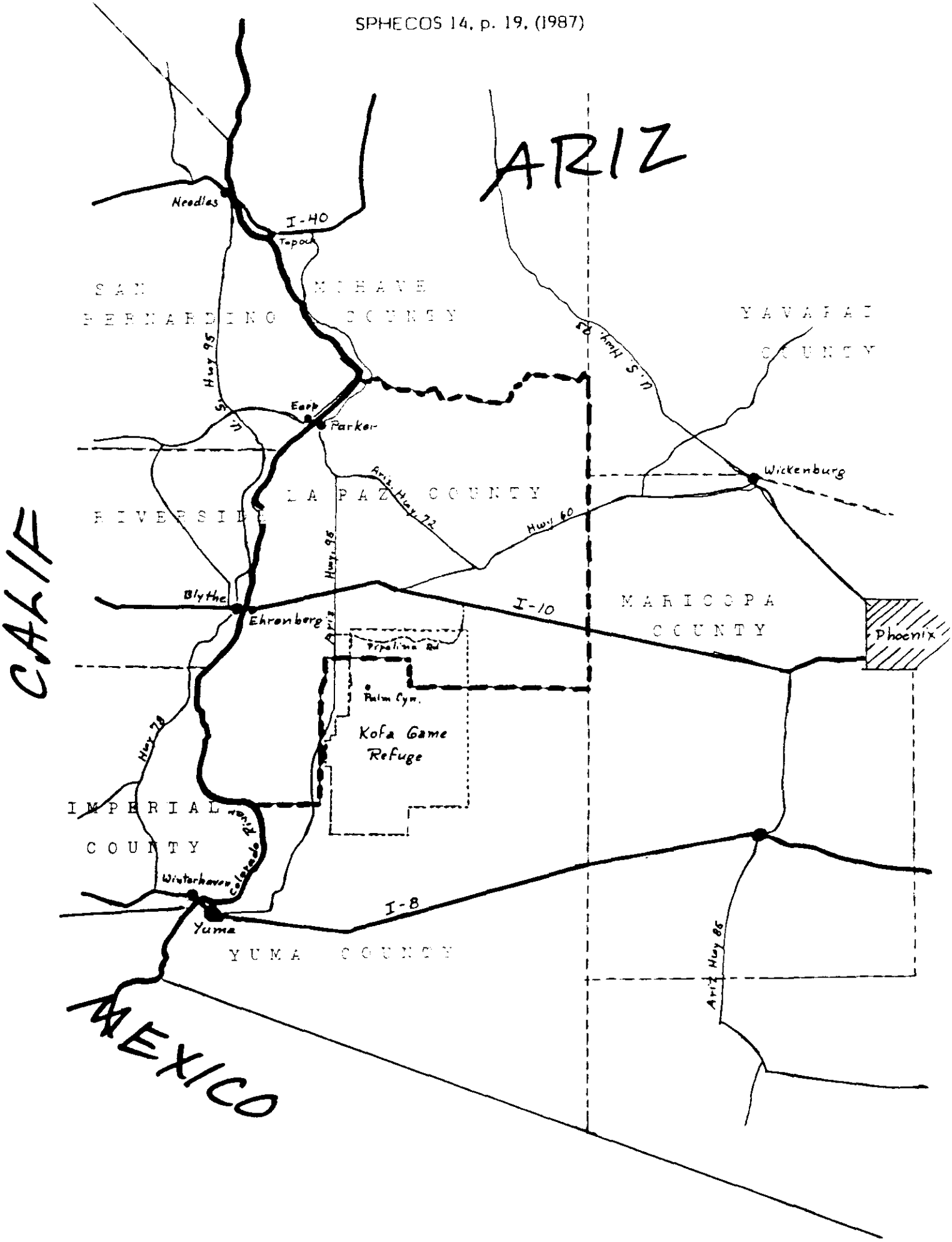
"I am sorry the files are not in ASCI format; fast data-base access is in serious conflict herewith. The included utilities convert the REF-format to a sorted ASCI text.

"REF was originally intended to be a fast DataBase Manager, but as it turns out, most people, including Mr. Coddington, prefer a sophisticated and dedicated word-processor. The manual is fully revised and REF has been made shareware so that you can copy it freely. Should you be interested, there is a copy with Arnold Menke at the National Museum of Natural History in Washington, DC. If, after trying REF, you decide to keep it, please pay Gecko $50. Should you want to order it directly from Gecko (Westerkade 21, 3511 HB Utrecht, Holland), just send $50 plus $10 for shipping."

New County In Arizona

Roy Snelling sent in the following tidbit:

"Is everybody out there aware of the fact that there is a NEW COUNTY in Arizona? Yup. Newly established La Paz County took a large chunk away from Yuma County. For reasons known only to politicians (may their teeth rot and their hair fall out and fleas infest their beds!), the new county lines are very irregular (see map below)." [Heh, heh - I suppose now everyone will go through their Yuma County collections and determine which insects were collected in La Paz County and relabel accordingly?? - edit.]


ARIZ
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MOHAVE COUNTY
YAVAPAI COUNTY
U.S. Hwy 95
U.S. Hwy 93
Earp
Parker
Wickenburg
RIVERSIDE
LA PAZ COUNTY
Ariz. Hwy 72
Hwy 60
Hwy 95
Blythe
Ehrenberg
I-10
MARICOPA COUNTY
Phoenix
Ariz
Pipeline Rd
Palm Cyn.
Kofa Game Refuge
Hwy 78
IMPERIAL COUNTY
Colorado River
Winterhaven
Yuma
I-8
YUMA COUNTY
Ariz Hwy 85

II CONFERENCE ON THE TAXONOMY AND BIOLOGY OF PARASITIC HYMENOPTERA

Place: University of Florida, Gainesville, Florida, U.S.A.

Dates: Thursday, November 19 to Saturday, November 21, 1987.

Duration: Three days.

Sponsors: The University of Florida and the American Entomological Institute.

Sessions: Phylogeny, distribution and abundance of parasitic Hymenoptera
Taxonomy, faunal surveys and explorations for parasites.
Biology and host associations.
Biological control.
Rearing techniques and introductions of parasites.
Literature resources.

Gainesville is fast becoming a center of activity for parasitic Hymenoptera. The University of Florida has an active research program on parasitic Hymenoptera. It also has a strong commitment to Biological Control. The American Entomological Institute in Gainesville has one of the finest collections of parasitic Hymenoptera. The two institutions are collaborating and sponsoring the Second Conference on Parasitic Hymenoptera.

The first such conference was held in January 1983 when information on the present state of knowledge was presented and directions for future needs were discussed. The second conference aims to present and discuss recent advances on the taxonomy and biology of parasitic Hymenoptera and their utilization in the biological control of insect pests.

I invite you to participate in the conference and present a paper on some aspects of your research interests. I also need some lead papers for the various sessions. Once I know the response and the papers that are likely to be presented, I will explore the possibility of publication of a conference volume in which a selection of the presentations may be published soon after the conference.

A brochure giving details about registration, submission of the abstract, and accommodation will be ready in April 1987 and shall be mailed to all those who are interested in participating. Please let me know by the end of February, 1987 if you hope to participate and the topic of your presentation.

Virendra K. Gupta
Convener

Address: 3005 S. W. 56th Avenue, Gainesville, Florida 32608.
Telephone: (904) 392-9279.

Please circulate.

XVIII INTERNATIONAL CONGRESS OF ENTOMOLOGY

VANCOUVER, CANADA

July 3-9, 1988

Sponsored by the Entomological Society of Canada, the XVIII International Congress of Entomology will be held in Vancouver, British Columbia, July 3–9, 1988. Facilities for the Congress will be provided by the University of British Columbia. All scientific sessions will be held on the campus.

Scientific Program. The Scientific Program will include plenary lectures and symposia, section symposia, workshops and special-interest group meetings, as well as contributed paper and poster sessions.

The plenary lectures and plenary symposia will be sponsored by the Congress, but all other scientific program events must be self-supporting. Entomologists wishing to propose sectional symposia, special-interest group meetings or workshops should write to the Secretary-General, Dr. G. G. E. Scudder, with details.

Program contributions may be in either of Canada's official languages, namely English or French: there will be no simultaneous translation.

First Announcement. This First Announcement is distributed to institutions, societies, scientific journals and participants of the XVII Congress. Persons wishing to receive the Second Announcement Brochure should so indicate by writing to:

Dr. G. G. E. Scudder, Secretary-General
XVIII International Congress of Entomology
Department of Zoology
The University of British Columbia
Vancouver, B.C. V6T 2A9 Canada

Second Announcement Brochure. This will be forwarded direct to each respondent in June 1987. It will contain details of the program, registrations, accommodation, tours, etc.

Symposium to be held at 18th International Congress of Entomology in 1988

The International Congress that will be held at Vancouver, Canada next year will be the setting for a long symposium (more than one day?) titled "Biology of insect parasitoids from a phylogenetic perspective". Mike Sharkey, BRC, Ottawa, is the organizer. Twenty six (26!) papers will presented and all but two will be about Hymenoptera! Thus this will be a great event for any of you that plan to attent the Congress. A list of papers and speakers on Hymenoptera is given below for your edification (2 papers on Diptera omitted).

The phylogeny of the subfamilies of Braconidae, in relation to biology. C. van Achterberg.

A phylogenetic analysis of the subfamily Nomadinae. Byron Alexander.

Hymenopteran profiles in temperate and tropical latitudes. R. R. Askew.

Some evolutionary aspects of chalcidoid mating behaviour. J. van den Assem.

Patterns in the biology of Mutillidae and their relatives. Denis J. Brothers.

Population biology of hymenopterous parasitoids: diversity in unity. Ross H. Crozier.

The evolution of host associations and mode of parasitism in the Perilampidae. D. Chris Darling.

New insights for the phylogenetic reconstruction of Symphyta and the origin of Apocrita. Gary Gibson and Henry Goulet.

The relationship of biological facts to phylogenetic fantasy in the Torymidae. Eric Grissell [this should be a good one!]

Of eucharitids and ants: biological conservatism and morphological explosion. John M. Heraty.

Host specificity and evolution of the Telenominae. Norman F. Johnson.

Host, functional morphology and phylogeny of the Chrysididae. Lynn. S. Kimsey.

Convergent chromatic mimicry among some neotropical parasitic and aculeate wasps. Lubomir Masner.

Host range and the evolution of the Braconinae. Donald Quicke.

Paleontological succession of the hymenopterans. Alex Rasnitsyn.

Evolutionary history of braconid biology. Mike Sharkey

Adaptations of parasitic chalcid wasps to their hosts in the arctic. Eugeny S. Sugonyaev and N. D. Voinovich.

Correlations of host preferences with taxonomic classification in the Ichneumondae. Henry Townes.

The known types of embryonic development in endophagous Hymenoptera as strategies towards adaptation to parasitism. E. Tremblay.

The various strategies for host utilization among the parasitoid Hymenoptera. S. Bradleigh Vinson.

Phylogenetic relationships within the Ichneumonidae: implications and functional morphology. David Wahl.

Host relations as a means of defining opiine and alysiine Braconidae. Robert Wharton.

Comparative biology and phylogeny of the cyclostome groups of Braconidae: the polyphyletic origin of endoparasitism. James B. Whitfield.

Evolution of life history strategies in the Aphelinidae. James. B. Woolley.

Forum

PROTECTING INSECT COLLECTIONS FROM PESTS WHAT IS THE BEST APPROACH?

by
Qabir Argaman
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P.O.B. 78 Beit - Dagan 50250, Israel)

At the beginning of my job, there was no insect collection. Formerly, insects and mites intercepted in quarantine were mailed to a specialist who identified them but did not return the material, as this was not requested. From 1981 on, I gathered many specimens and I now have a small collection of about 5,000 specimens of grasshoppers, leafhoppers, bugs, moths, flies and beetles, and I plan to have it enriched with wasps. Maintaining the collection, however, is rather difficult in our subtropical climate, where either carpet-beetles or book-lice rapidly develop on any available organic matter, transforming it into a fine powder after two weeks or less. Small samples are being kept in a deep-freeze until they are identified, but prepared and labelled insects must be preserved with protecting chemicals. One of the most common methods was placing naphthalene crystals in the insect boxes. The advantage of this is well known and many old collections were saved through centuries using this chemical. However, there are also two unfavourable properties of naphthalene: first, this chemical contains small quantities of impurities, forming heterocyclic components of the so-called carcinogenic chemicals, and many of us spend a lifetime in the same room with our collections along with that eminent danger; and secondly, the cabinets where the collections are kept are filled with the odor of naphthalene, causing visitors to sneeze due to the allergy of its scent. During my visit to foreign institutions, I have looked for collection fumigants. There are usually three different methods: the classical way with naphthalene; a new one where no naphthalene is admitted but periodically the rooms are fumigated with toxic gases; and a third one, using a natural, estheric oil product, a plant extract, with a pleasant odor and with no allergic effects to human beings - but which have properties to repell harmful insects. I would like to hear the opinions and suggestions of others. I would like to know the names of non-carcinogenic substances that can be used to protest insect collections.

THE IMPORTANCE OF BEING A CLADIST

by
A. P. Rasnitsyn
(Palaeontological Inst., USSR Acad. Sci.,
Profsoyuznaya Str. 113, Moscow 117868, USSR)

Cladists are prevailing in the current discussion with anticladists (see Forum in Sphecos nos. 11 & 13), provoking me to enter on the side of the minority.

I have been following Willi Hennig's phylogenetic analysis methodology for two decades (my description of this method in: Rasnitsyn, A.P. 1969. Origin and evolution of the Lower Hymenoptera. Nauka Press, Moscow - was probably the first one in Russian), and I still know no better approach to the subject. During all that time I have been taking a sharply negative position concerning cladism, once again being, together with my co-author, possibly the first one to discuss the problem in my country (Ponomarenko, A.G., Rasnitsyn, A.P. 1971. On the phenetic and phylogenetic systems. Zool. Zhurnal, 50 (1):5-14). The reasons for so stable an "inconsistancy" may be of some interest to Sphecos readers.

The most important thing is that phylogenetic analysis and cladism (phylogenetic systematics of Hennig) are independent methodologies with different aims and terminology. Syn-, aut-, apo- and plesiomorphies, as well as homoplasy, are the terms of phylogenetic analysis, while mono-, para-, holo-, and polyphyly are relevant only in the framework of cladism (and other theories of taxonomy). Equally, phylogenetic analysis pursues the aim of learning about the succession of the divergence events and all the processes and circumstances taking place during and between the divergences, while cladistics has another task, that is to construct a system closely reflecting genealogy. Cladists claim that their system reflects phylogeny, but they are wrong. Their system is destined to reflect only a cladogram, i.e. a full succession of events of the divergence, but this is geneology, while phylogeny is a wider notion which includes additionally at least a scale of the differences acquired by the respective phyla during their history after their divergence.

Ignoring the latter half of the phylogeny, cladistics leaves space for alternative theories of taxonomy, and this space is not empty, of course. It is partially filled with phenetics which constructs its systems using only a scale of differences and ignoring the genealogy. The rest of the space between cladism and phenetics is filled with an ordinary, routine taxonomy called evolutionary systematics which tries to reflect both the geneology and the scale of the differences acquired (naturally, at the expense of exactness in reflecting both of these aspects of phylogeny).

Which approach is better? Cladistics has an evident advantage when compared to ordinary taxonomy since it presents an explicit algorithm (description of the procedure) on how to construct the cladistic system: take a cladogram and let each of its clades become a taxon, with those more inclusive receiving a higher rank.

I have failed to find a comparable description of algorithm of the evolutionary system, but this does not seem to be a decisive disadvantage of the approach because such an algorithm can be constructed (it has been constructed, in fact, in the 1971 paper referred to above): the taxon as a monophyletic continuum. Monophyly covers both holo- and paraphyly here, while the continuum means an uninterrupted chain, irrespective of being simple, branched or looped, which is constructed from elements (OTU of phenetics) where the similarity within any pair of neighbouring elements is higher than the similarity of any element of the continuum to elements of other continua.

The definition is eclectic in the artificial conjunction of phenetic (continuum) and phylogenetic (monophyly) principles, isn't it? Not at all. Continuum is proposed here as a constructing principle, while monophyly as a controlling one: at first we construct the continuum and then we try to falsify its monophyly. Usually we fail, but if we manage to do it, the optimal strategy seems to gather as much additional information as possible in order to reconsider the case on the broadest basis. Typically this procedure has resulted in falsification of either the evidence of polyphyly of the continuum or the hypothesis of the continuum itself. In the first case we are left with a monophyletic continuum, in the second one with two (or several) continua which prove to be only superficially similar. I do not deny a possibility of the existence of a polyphyletic continuum. I only think that we should find a reliable example prior to deciding what we are going to do with it. Nevertheless, it is a disadvantage of the method, indeed. There is an additional advantage as well: a cladistic system cannot be substantiated better than the respective cladogram (genealogy) is, and the latter is usually much more difficult to elucidate comparing the level of similarity. In contrast, the evolutionalry (trivial) system tries to use evidence from both the geneology and from similarity and, thus, is usually supported much better.

All of the above arguments do not seem to me decisive, however. To reflect or not to reflect on the scale of the differences acquired - that is the question, and its solution depends on what function the system is destined to fulfill. Cladistic systems are being constructed to reflect the genealogy, only genealogy and nothing but genealogy. Isn't that enough? By the way, a simple picture of the cladogram fulfills this function much better, but this is not the question. To my mind, there are other important functions. I should indicate three leading ones: to store the relevant information (each of us knows how much information is associated with the name Sphex), to prognose the distribution of the characters (we characterize the order Hymenoptera as having a haploid-diploid genetic system and do not worry that ever some of its superfamilies have never been studied karyologically), and to serve as an interdisciplinary language, so that each name may be

meaningful (to denote a group of reasonable similarity) to the most diverse points of view, including that of, say, biochemists, behaviourists, farmers, and artists.

All three functions imply a priority of the similarity. It should be taken as evidence in favour of phenetics and contrary to the reflection of geneology in the system. This is not the case, however. In this context, the similarity means a level identified on the basis of all the characters including those not explored yet. This knowledge is not obtainable, of course, so we have to construct the system based on indirect evidence. The known similarity (evaluated on the basis of the studied characters) is such evidence, and geneology is evidence as well. Otherwise, if the known similarity were the only reliable evidence, well grounded (not easily falsified), polyphyletic continua would be an ordinary thing, which is not the case. And, on the contrary, if the geneology were the only reliable evidence, the paraphylitic taxa (such as Sphecidae not including bees, Reptilia not lumped with birds and mammals, Protozoa without Metazoa, etc.) all would be easily falsified as continua, which is not the case either. That is why it seems to me very important to be neither a cladist nor a phenetist.

CAN ALL SPECIES BE DEFINED BY AUTAPOMORPHIES?

Last year, while enjoying the wonders of Sequoia National Park in California, Woj Pulawski and I dabbled briefly in some armchair philosophizing while sipping a few gin and tonics. Woj told me that there seemed to be one inherent problem with the cladistic approach to classification, at least at the species level. He pointed out that you can find autapomorphies (or unique, specialized characters) for most taxa, but that ultimately you end up with one taxon that has no autapomorphies. In other words it is definable only by plesiomorphic traits - a cladistic no no. Being a novice in cladistic methodology, I could only conclude that what he was saying sounded logical to me. I told Woj, however, that upon my return to Washington I would consult with some of the more learned cladophiles in the Smithsonian to find out how they handle this seeming conundrum. The opinions and thoughts of Jim Carpenter, Mary Mickevich, and Mike Schauff on this topic are offered below for your edification. A. S. Menke

Jim Carpenter (Museum of Comparative Zoology, Harvard University, Cambridge, Mass.): "About Pulawski's point, both theoretically and most of the time it doesn't arise as a problem. This is because most taxa have undergone mosaic evolution, and so are a mixture of both primitive and derived characters. Since they're all different mosaics, it's generally possible to find something unique to each taxon. But there are situations where you can't. At higher taxonomic levels, this usually occurs when you don't study enough characters, although you may study quite a few (I encountered this problem in my nearctic eumenine genera paper). But with species, you just may not be able to find autapomorphies because there just aren't enough characters (unless I suppose you do DNA sequencing or something fancy). I have this problem in Ancistrocerus - not all of the species can be so defined. In the case of this problem at the generic level and above I would say one should keep plugging away. But at the lowest levels, i.e., species, this is probably impractical. In Ancistroceris, I'm only worrying about defining species groups with apomorphies - the species seem to simply reshuffle the same characters. I guess that's about as well as I can do - maybe someone else will do better with morphology later, or else everything will someday be DNA sequenced (ha, ha)."

Mary Mickevich (Systematic Entomology Lab., USDA, Washington DC; and Depts. of Entomology, Univ. of Maryland and Smithsonian Inst.) has this to say: "First, let me begin by reviewing the definitions for plesiomorphy and apomorphy as I use them. Plesiomorphies are character conditions or states which are considered to be ancestral or primative and which define the ground plan for an entire set of terminal taxa (in Arnold's case, the species being studied). Apomorphies are differences in these ancestral character states which divide the terminal taxa into subsets and offer evidence for uniting these subsets into less inclusive monophyletic groups. Apomorphies can be of two kinds, synapomorphies and autopomorphies. Synapomorphies are

derivations which unite two or more taxa in the set of taxa being studied and should be used to define less inclusive taxa. Autapomorphies are derivations unique to a terminal taxon, that is, only found once in a data set and are used as defining features for the least inclusive taxon in the study (in this case, species).

"With these definitions in mind let us explore the nature of plesiomorphies. The most salient feature is that plesiomorphies were once synapomorphies for a more inclusive group. The next and most scientifically cumbersome point is that it is not obvious when any plesiomorphy was an inclusive group. Referring to Figure 1., we can see that the pleisiomorphies for the taxa A, B, C, D are the character states 1100, the primative states for the taxa A, B, C are 1110. We can also tell that the synapomorphy for the taxon [A, B, C] is the 1 in the third character by reference to the

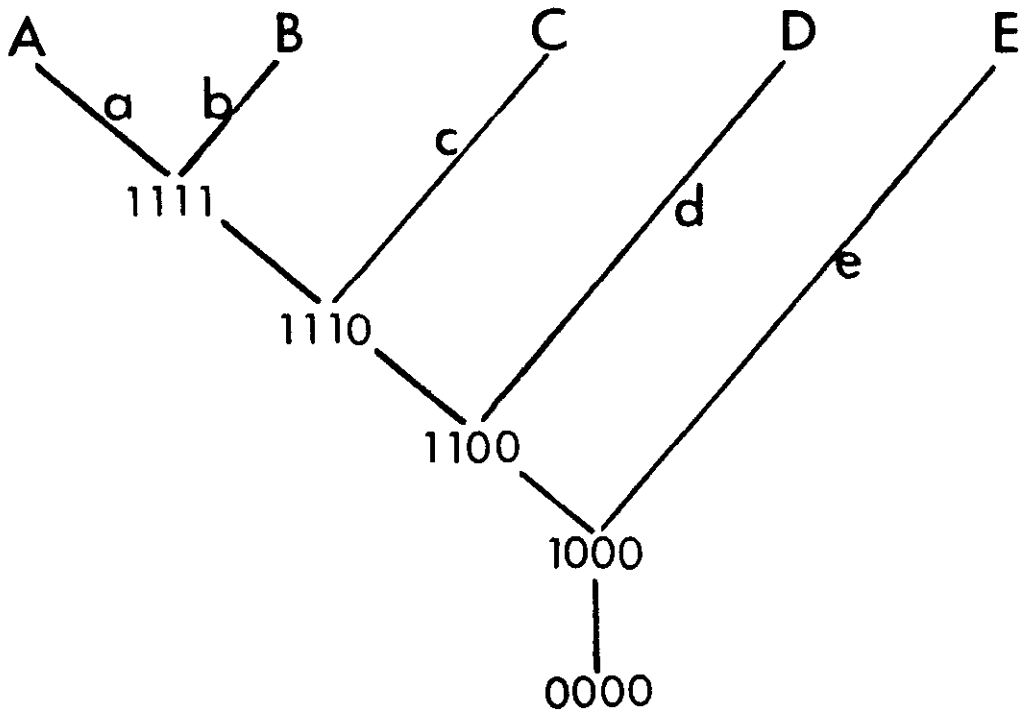

Figure 1. A tree for taxa A through E. The numbers labelling the internodes are character states for four characters. a, b, c, d, and e are autapomorphies, i.e, distinguishing features for the group A, B, C, D, and E.

tree and noting that the change in this character occurred when the taxon [A, B, C] evolved from the taxon [A, B, C, D]. The third character state, 1 is a synapomorphy for the group [A, B, C] but a pleisiomorphy for the inclusive taxa A, B, C, [C] and [A, B]. These concepts, plesiomorphy and apomorphy are relativistic , depending on a tree for interpretation. Because of their relative nature, the condition where a taxon has only plesiomorphies can not exist, for every plesiomorphy was once an apomorphy. The taxon would then become a member of the group defined by its most recently evolved apomorphy.

"However it is possible though highly unlikely to find taxa without autapomorphies. For example, fossil taxa from stratigraphic sequences can be possible ancestors (This happened to me when working on Chesapectin which is a fossil scallop), or for a particular set of characters no autapomorphies can be found in a terminal taxon. The question of classification of these taxa is an interesting point which serves to distinguish a cladist's thinking from that of the traditional taxonomist who may be either a pheneticist, an evolutionary taxonomist or an alpha taxonomist. The tree in Figure 1 has the unique characters with states a,b,c,d, and e as autapomorphies which are defining features for the terminal taxa A, B, C, D, E. In Figure 2 the autapomorphy d is absent

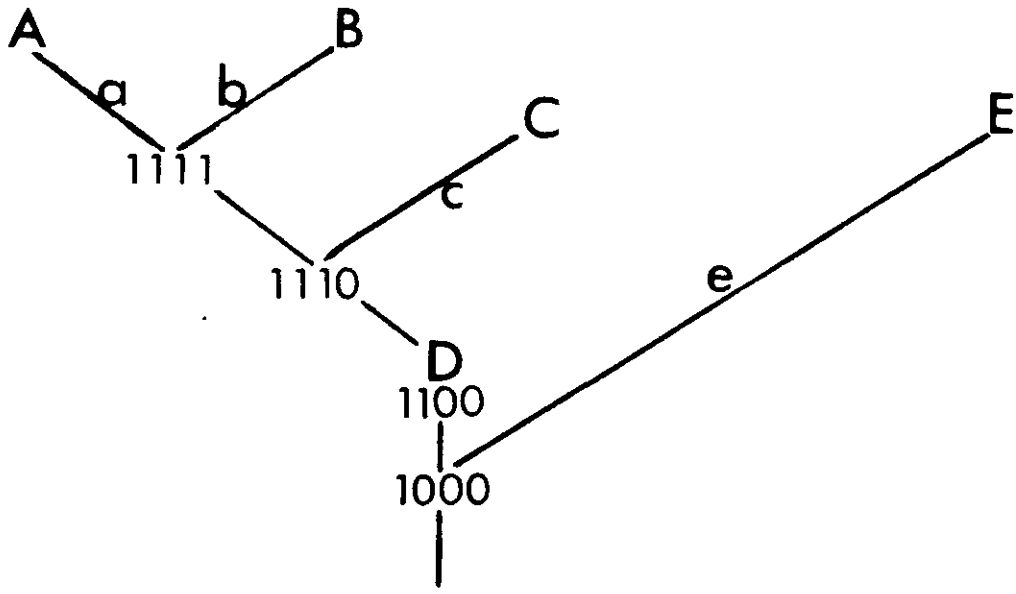

Figure 2

and the tree figured is the one for the data. Note that D is in an innernodal position. This is because the branch defined by d in Figure 1 is no longer present. The classification ordered by Figure 1 is the following:

[A B C D E] [F]
[A B C D] [E]
[A B D] [D]
[A B] [C]
[A] [B]

The classification ordered by Figure 2 is:

[A B C D E] [F]
[A B C D] [E]
[A B] [C]
[A] [B]

This would mean that it would be hard to place D in a complete and comparable Linnean heirarcy. This is not of consequence to a cladist who agrees with Swinson who in 1832 stated that the Linnean system is highly artificial and should be discontinued (In Arnold's case, the taxon would belong to a genus but not a species)."

Mike Schauff (Systematic Ent. Lab., USDA, National Museum of Natural History, Washington DC) says: "The question pondered by Menke and Pulawski is one that has been mentioned before and rightly so, since it is one which seems to afflict most everybody who works in insect systematics. As I understand it the problem of these undefinable taxa is taken by the clad-o-doubter [my term] to indicate some basic flaw in cladistic theory. I believe that the real problem lies in our inability to ferret out all the details of the evolution of our groups.

"Cladistics (phylogenetics) provides us with a set of principles and methods which are logical and which provide us with the means to produce sound classifications. It helps to tell us what kind of characters are useful (synapomorphy) and which groupings of taxa have a natural basis (monophyletic). It can not, however, find them for us.

"Evolution has a lot of ways (convergences, paralellisms, etc) to make things difficult

for us. On top of that there are problems that we more or less create ourselves: the group we are studying may not actually be monophyletic, we have overlooked a good character, and so on. Given these things, it is not surprising that we cannot always find all the answers. However, the fact that I can't define every last eulophid the first time I take a crack at it does not mean that there is something wrong with the concept of monophyly. If that were true I would now have to invent a new theoretical framework every time I do a revision.

"Finally, having worked closely with the esteemed editor of Sphecos for some time now, I should like to point out one thing: that something that makes sense to Menke after a few gin and tonics does not necessarily mean that it will make sense to anybody else. In fact, the opposite is more likely. That is, that if that were true then that would not make that all that likely." [Huh??!!, whaddysay? - edit.]

ANTENNAL SEGMENTS: A "MERE" MATTER OF FLAGELLATION

by
Arnold Menke FRES, R&LHS*, CISCA**, etc., etc.

I was intrigued by the discussions of antennal "segmentation" in the last issue of Chalcid Forum (8:8-10). In fact I was so moved that I composed the following diatribe for their next issue. Since the subject matter applies to other Hymenoptera also, I offer my blurb for the consumption of the readers of Sphecos:

After reading the pieces by Graham and Gibson in Chalcid Forum 8:8-10 I decided to throw in my two cents. Readers of Sphecos are already used to my fits of pique, otherwise described as my view of the rational world of insect taxonomy and procedure, so I may as well let the readers of this rag have a sample of my screed.

Anyone that has read Snodgrass' Insect Morphology should know that true segments have intrinsic musculature. On that basis, the antenna in Hymenoptera is only 3-segmented. In aculeates at least, the first of these is traditionally called the scape. It is usually larger and longer than the next segment, called the pedicel. The third segment in Hymenoptera is typically subdivided into segment-like units, and the entire structure is called the flagellum. In order to avoid using the incorrect word "segment" for these units, aculeate taxonomists usually refer to them as flagellomeres. Other terms are antennomeres or simply articles. Individual flagellomeres are numbered from I through XI or however many there are. Thus, for example, one can say that flagellomere II is twice as long as III, or that the last four flagellomeres are swollen and form a club.

It seems to me that Marcus Graham and Gary Gibson are doing things backwards in chalcid antennal descriptions. Instead of starting out by using basic antennal morphology (i.e., scape, pedicel and flagellum) and then describing the condition of each (in this instance the flagellum is the basic bone+ of contention), they simply try to describe what they see using a variety of terms or descriptors. Furthermore, Gary can't seem to decide whether he wants to call everything a segment or an antennomere. He even goes as far as calling the scape an antennomere! Seems to me that we should stick to basic morphology and describe the condition. In chalcidoids the basic problem seems to center on the condition of various components of the flagellum: whether some are tiny, ring-like units, or swollen club-forming units. Using a theoretical example, it is more correct to say: flagellomeres I-III ring-like (II sometimes barely discernable), IV-VI swollen, forming a club.

Funicula, funiculee!

* member, Railway & Locomotive Historical Society
** member, Cast Iron Seat Collectors Association

Comments on the above from the Ashmead Club:

+ "Contrary to aculeate nomenclature, there are no bones in the antenna" - Grissell
"This is too logical for chalcidoid workers, but I think you are correct" - Grissell
"Isn't the funicle the flagellum?" - Marsh
"What about funicular, funiculus, funiculum? A funicular is anything that ain't scape, pedicel, ring segment, or club!!" - Schauff

SNELLING ON ANTENNAE

by
Roy Snelling
(Dept. of Entomology, Natural History Museum of Los Angeles Co.
900 Exposition Blvd., Los Angeles CA 90007)

Arnold Menke sent me a copy of his screed on antennal segmentation. Presumably he did so because of his assumption that I have an opinion about very nearly everything. Far be it from me to disillusion him. I do think that hymenopterists should strive toward uniformity in naming morphological structures, but this will not happen quickly, for we are conservative.

The first segment is the scape, a term pretty generally accepted; the following segment is usually the pedicel. The following portion, of course, is the focus of the problem. Aculeate people generally refer to this as the flagellum (but to myrmecologists it, together with the pedicel, constitutes the funiculus!). Arnold objects to designating flagellar segments beyond the first as "segments" because they lack internal musculature; he desinates segment 3+n the flagellum and the individual components as "flagellomeres".

Well, I don't care for "flagellomere", because it is a hybrid word, a bastard, if you will: flagellum (Latin, dim. of flagrum, whip) + meros (Gr., part). Maybe "flagellitem" would be better. Or, "mastigomere", but not "flagellomere". We are advised to avoid linguistic bastardizations in names for taxa; that injunction should apply to morphological terminology as well.

The objection to "segment" that Arnold brings up is valid, but narrow. A segment is, after all, merely a piece or part in most dictionaries. This definition is generally accepted and understood. Since Arnold is content to use "thorax" for the mesosoma, even though it really is the the thorax + abdominal segment I, why should he balk at flagellar "segments"? I don't expect any of this to change Arnold's mind, though; he is determinedly inconsistent and illogical as I am (i.e. wholly irrational!). [Unfortunately, Roy, I have to agree that you have a point, but I still feel that use of the word thorax is unambiguous. But if I am being "narrow" in preferring "flagellomere" over "segment," you are being narrow in refusing to use the word thorax because of a similar technicality. Furthermore, if we should simply use a dictionary for our terms, as you seem to be suggesting, then why worry about true morphology at all? - A. S. Menke].

SNELLING'S REJOINDER TO WAHL AND CARPENTER

by
Roy Snelling

Wahl (SNELLING AND CLADISTICS, Sphecos 13:15) and I are not as far apart as he seems to think. His assumption (1) is on target for precisely the reasons expressed in the quote from Hennig (1966). No quarrel there. He is, however, wrong in assumptions (2) and (3). As far as (2) goes: Karl von Linné developed patterns of phylogenetic relationships, crude though they were, in the complete absence of evolutionary considerations. (3) This is soft; hierarchies are "artificial" in the sense that the taxa recognized at each level are much more uncertain than are species; they depend on where, and how, you care to "draw the line" and that is very much the matter of individual preference. There may be times when it is convenient to recognize paraphyletic taxa, in the opinion of some, to the dismay of others. His comment on "natural" is close to the mark, but he noted that "classifications that mirror the natural hierarchy of organisms" may be considered "natural." True enough. But. The presumed natural hierarchy is determined by the investigator (by whatever method he employs) and therefore he claims his classification to be "natural." Circular. One cannot prove, even though he may claim, that his proposed arrangement does, in fact, "mirror the natural hierarchy"; all classifications, in the absence of that essential certainty [see (1) above] are artificial. Wahl's last remark in his commentary on "natural" seems to be an implicit acknowledgment of that fact. Wahl's comment on "mental deficiencies" is, itself, amusing since he concluded: "not all cladograms are created equal." Caveat emptor!

Carpenter (SNELLING'S "UNNATURAL ACT," Sphecos 13:14-15): Arrogant? Of course. Anyone who has opinions and is willing to express them in print is arrogant. You are a member of

the same club, Jim! Jim's assertion that I "intended primarily to disparage cladists" is probably far off the mark. I intended nothing of the sort. My shot was directed against those who proclaim "natural" classifications and applies only to those individuals, cladists or otherwise; my remark was not against cladists as a class. While I admit to some reservations about some of the underlying assumptions of cladistics, I regard this method as a healthy, and a long overdue innovation that will yield many beneficial results. Setting aside Jim's prickly barbs as irrelevant, I am in general agreement except on the point of "natural." And, I am aware of the 200 year's precedent; that precedent was inaccurate 200 years ago, and remains so. "Natural," whether cladistic or intuitive, remains unprovable and a trap for the unwary or ignorant. Whose classification of the Vespinae is correct and "natural": Archer's or Carpenter's? Judging from Jim's comments, I would have to assume that both are, and that is "unnatural." But, this is very much in the spirit of the "endless task." The turtle makes no progress until he sticks his neck out.

Pet Peeve Department

TWO BEEFS ABOUT NAMES

Christopher K. Starr (Department of Entomology, U.S. National Museum, NHB-165, Washington, D.C. 20560) offers the following for your indigestion:

1. The various codes of biological nomenclature demand that a genus name consist of a single word, with good reason. It's wonderfully convenient always to know at a glance where the genus name begins and ends. I often wish we had a similar rule for people's surnames in publications. First, there are those pesky compounds formed from two or three surnames. This is a great nuisance if the whole surname is not held together with hyphens. Especially when it is in an unfamiliar language, are we really expected to get it right? The frequency of miscited compounds answers the question. Even John Maynard Smith, famous as he is, occasionally shows up as "Smith, J.M." My own practice is to hyphenate all such names, whether the author likes it or not, and I would like to see this become a general practice.

Second, what are we to do with those compound surnames starting with "of" or "from" in various languages? There seems to be an increasing practice of beginning with the main part of the surname for citation purposes, e.g. "Frisch, K. von" and "Buysson, R. du". I hope this becomes an established convention, again without regard to the author's own preferences.

Rules of nomenclature for people are impractical, unfortunately. Names are personal or family property, and people can spell them as they please". It is very
hard to be sympathetic, though, with those who get miscited because they make it hard to separate the genus and species of their names.

2. The value of author names with taxon names is well known. Often in behavioral and ecological papers, though, they are included mechanically, with no apparent understanding of their function. A referee of one of my papers even insisted that author names had to be appended to those of some well-known species as a matter of course, because they are a necessary part of the species names. Balls. In nontaxonomic papers it makes good sense to name the authors in introducing the main species and any others about which there might be ambiguity, but such ambiguity is very uncommon. To specify a given species as "described by so-and-so" or "in the sense of so-and so" contributes nothing whatsoever if there is no other sense. It is about as useful as automatically citing "(Darwin 1859") whenever natural selection is introduced.

Furthermore, I suspect that most biologists, in determining the author names to use in a non-taxonomic paper, are far from rigorous about it. I freely admit that this is true of myself. Unless the species is a key one, I simply look it up where I can - preferably in a revision or catalog, but in just about any paper or book if necessary - and take whatever author I find with it. As far as I know, this has not introduced any misinformation into the literature, but the apparent precision is sometimes not real.

To anyone who insists that the authors of species must always be named I ask "Why only species?" Is there any good reason that we should not also give authors for any genus mentioned, as well as families, orders, etc? If this reductio ad absurdum is not enough, let us also insist on constantly giving authors for such species as Escherichia coli, Cocos nucifera, Musca domestica, Gallus gallus, Canis familiaris and Homo sapiens. Finally, for the benefit of all journal editors, here is article 51 of the International Code of Zoological Nomenclature: "The name of the author does not form part of the name of the taxon and its citation is optional."

* Tom Lehrer tells a delightful story of a man named Hen3ry. The "3" was silent.

ON SPECIES NAMES AND AUTHORS

Chris Starr's "beefs" about names has prodded me into writing on two related subjects. One has to do with including authors with names in keys to species, the other with including the species name on figures used to illustrate diagnostic features.

Many of us write out identification labels for material as we key it out. How often have you run specimens through a key to species only to discover that the author of the taxon is not given? If the author name is not present, then we have to look elsewhere in the paper to find out who he or she is or was. That wastes time and adds an unnecessary frustration factor to the work. This is especially true if no page number is given after the name in the key. Inclusion of the page number where that taxon is treated in detail permits quick access to all information about the species. Too many papers are published in which keys lack authors names and a page reference to the description.

As all of us know, preparing the artwork used to illustrate our papers takes a lot of time and effort (unless you are among the lucky few that have someone that can do this for you). But it does not take much extra effort to include the name of the taxon with each figure number on a plate or figure. This little nicety saves me the trouble of reading through the figure captions to obtain the names of the creature parts displayed - names which I then write under each figure myself for future reference. There is also a benefit to putting taxon names on plates that may not be readily apparent. Having them there makes it much easier to write the captions. By and large you don't need to repeat the names in the captions! Thus your captions are briefer and easier to digest! Try it, you'll like it!

A. S. Menke

PROSOMA REVISITED

Jim Carpenter proclaims: "I've decided to take up the gauntlet you've [i.e. Menke, Sphecos 12:3] thrown down. I believe that your argument claiming that use of the term head along with mesosoma and metasoma is "absurd, or at least inconsistant" can be countered. As Kojima put it in the last issue of Sphecos [13:16], "the head is the head." The use of the same morphological nomenclature across insect oiders is intended to connote homology in Arthropoda. The composition of the primitive hexapod head is disputed, that is, the number of segments comprising it is unclear. But no one doubts that, however many segments there are, all the insects have the same number. Since the composition of the head is the same in all insects, use of the term head across the orders refers to the same thing. This is manifestly not true of the primitive thorax and abdomen in the Apocrita, and use of specialized terms for these is justified. In fact it would, ironically, be inconsistent to use the term prosoma, which is not used in insects. It is used in arachnids, for a very different tagma. Touche. And by the way, as Kojima also indicates, metasoma is preferable to gaster for general use, since the meaning of gaster is unclear. Ant workers use gaster for what is only part of the metasoma, but the term metasoma is unambiquous."

[Well really! The thorax is the thorax. When I talk about the thorax of a wasp there is no ambiguity - you hymenopterists (Carpenter, Kojima, et al) know that I am talking about the

"definitive" thorax in higher Hymenoptera, which is to say it includes the propodeum - the true first abdominal segment. Likewise, when I talk about the abdomen or gaster of a wasp, nearly all fellow workers know what I mean, although I admit that the definition of gaster as used in ants could cause ambiguity. That simply points out that we need to define the terms that we use in our papers. - A. S. Menke]

THESIS PUBLISHING, AGAIN

Chris Starr comments: "Roy Snelling (Sphecos 13:17) has complained of unpublished theses in systematics and suggested one solution. This serious problem is of course not restricted to one field, though Roy gave reasons why non-publication is especially irksome in systematics."

"The position in the literature of the thesis as a thesis seems increasingly devalued. This is seen in decreasing frequency with which they are cited., and I share the implied attitude that working scientists have no obligation to try hard to search out unpublished theses. I notice an apparent trend in policies of graduate schools toward increasing this devaluation, e.g. removing the rule against advance publishing, requiring the journal format, allowing reprints of advance-published parts to be bound into the thesis, requiring at least one publication before PhD graduation (Georgia), and no longer sending theses for microfilming (Harvard). Yet non-publication persists.

"Roy suggests that perhaps the degree should simply be withheld until the thesis is in press. That would certainly finish the problem on one level, but within the present system of graduate study it is grossly impractical. The thesis is usually the last requirement completed, and by that time the student is usually in a rather disorderly phase of attending to the legal niceties fo graduating, going into debt over those hidden costs which suddenly jump out, and preparing to assume a new job. Even if the thesis can be submitted as it is, the review process will still take its time. Although Roy is self-taught (a glorious distinction), he certainly knows all of this, and his suggestion need not be taken literally. Rather, it poses the question 'What can anybody do to abolish dead-end theses?'

"In my view, it's the major professor's move, even after graduation. Administrative policies can only go so far to encourage the right attitude. The professor (who has the second greatest stake in publication) is much better placed to explain, advise and, if necessary, coerce. It won't always work, of course, even with the best efforts. But I'm not convinced that everyone is really trying. It should be very easy to come up with arguments in support of the effort."

MORE ON DESCRIBING COLOR

George C. Wheeler (3358 NE 58th Ave., Silver Springs, Fla. 32688) adds: "Mrs. Wheeler and I appreciate your remarks abour "Describing Color" in Sphecos 13:17. We are in hearty agreement. In our book, "The Ants of North Dakota" (1963) we described all the species by the Munsell system of soil colors; we gave both the Munsell name and the Munsell formula. But as far as we know no other entomologist followed that practice. We followed the same procedure in our "Ants of Deep Canyon." But when we prepared "The Ants of Nevada" (1986) we used only the Munsell names but omitted the formulas. We concluded that if no one in entomology used the formulas, why should we bother? The formulas are burdensome to prepare (by us and the printer) and also hard to proof-read. The formulas, however, do make the color designations much more accurate."

Roy Snelling writes: "I tend to agree with you and have, in recent years, been working away from such terms as you object to. Of course, terms like yellow may also have several shades of meaning, too (if I may borrow your pun). Then, people who write in Latin-derived languages are going to use ferrugineo, nigro, testaceo, etc., so we can't completely forget our latin. Hey, I've a thought: the voters of California just passed a ballot proposition declaring English the official language of California. Let's require English to be the official language of Hymenopterology! Get rid of those awful foreign words once and for all."

MORE ON BEHAVIOR AND BEHAVIORS

Chris Starr offers the following: "Here are three fairly usual definitions:

BEHAVIOR: All relatively fast activities of organisms.
ACT: A particular unit of behavior, limited in space-time.
BEHAVIOR PATTERN: A type of act, differing from other such types, not limited in space-time.

"Robin's complaint (Sphecos 12:2) is that some of us are using behavior to mean behavior pattern, in addition to its usual meaning. He is right in all details, but in my view wrong in his main point. That is to say, I consciously call behavior patterns behaviors much of the time and will continue to do so. It's a very convenient short form, and I doubt that it is misunderstood. On the other hand, to use behavior to mean act would be a serious mistake and could very well introduce confusion. By analogy with taxonomy, an act is like a specimen, while a particular behavior pattern is like a taxon (approximately a species). Clarity of definition must be sought at all times. I find this more true in ethology than any other branch of biology. Any attempt to keep definitions unchanging, though, is futile and often very undesirable. In the present case, Robin deplores the broadening of the meaning of behavior, while I welcome it."

SIBLING GROUPS

Old Willi Hennig must have been a chauvinist at heart. How else does one explain the use of the term "sister groups" (Schwester-gruppen in Deutsch) by cladists? Why not "brother" groups? Better yet, let's take sex out of the whole business and call them sibling groups! A. S. Menke.

Errata In Sphecid Wasps Of The World

p. 127, RC, L 15: 1930 is correct.
p. 179, RC, L 22: Mongolia is correct (not Austria).
p. 265, LC, L 28: "(now in Liris)" is correct.
p. 369, LC, L 37: 1945 is correct.
p. 382, LC, L 25, 36, 40, 48, 49, 56: change 1944 to 1945.
p. 382, LC, L 48: midas is correct.
p. 400, RC, L 22: 1945 is correct.
p. 401, LC, L 5-6: delete "India: Kashmir" and insert: Pamir Mts., USSR.
p. 401, RC, L 9 from bottom: delete "India: Kashmir" & insert: Pamir Mts., USSR.
p. 403, LC, L 25: delete "s. India" & insert: USSR: Ussuri.
p. 427, RC, L 22: 1945 is correct.
p. 428, LC, L 44, 48: 1945 is correct.

Cuticular Hydrocarbon Taxonomy

Robin Edwards (Rentokil Ltd, Felcourt, East Grinstead, West Sussex RH19 2JY, England) would like to direct your attention to the following recent paper:

Lavine, B. and D. Carlson, 1987. European bee or Africanized bee? Species identification through chemical analysis. Analytical Chemistry 59:468A-470A.

"The authors extracted cuticular hydrocarbons with hexane, then used gas chromatography to separate the paraffins. Results were analysed by a pattern recognition technique called principal components analysis. The final results, as illustrated in their article, show good separation of the two races of bee." (R. Edwards)

New Books Of Interest

Immature Insects, vol. 1.
Edited by F. W. Stehr. Kendall/Hunt Pub. Co., Dubuque, Iowa. xiv + 754 p. (1987). $69.95. Available directly from the publisher: 2460 Kerper Blvd., Dubuque, Iowa 52001.

This long awaited volume has arrived, and at last hymenopterists have access under one cover to modern keys for the identificaton of immature life stages. The order Hymenoptera, pp. 597-710, was written by various specialists (H. E. Evans, D. A. Smith, W. W. Middlekauff, T. Finlayson, R. J. McGinley) under the coordination of Howard Evans. The keys are accompanied by many illustrations and there is considerable textual material including diagnoses, descriptions, biology, etc. Volume 2 will conclude the work and contain those insect orders not in vol. 1.

Insects of Southern Africa.
Edited by C. H. Scholtz and E. Holm. Butterworths, Durban. 502 p. (1985).

This book is essentially an introduction to insects of southern Africa. It contains plenty of illustrations (some color plates), illustrated keys to superfamilies, families and subfamilies, and general accounts for each of these. Included is a large chapter devoted to the order Hymenoptera that was written by a number of specialists. The Aculeata section was authored in part by Denis Brothers and partly by C. D. Eardley (Vespoidea, Sphecoidea, Apoidea).

Venoms of the Hymenoptera - Biochemical, Pharmacological and Behavioural Aspects.
Edited by Tom Piek. Academic Press, London. 570 p. (1986). $76.50. Available from the publisher: Foots Cray High Street, Sidcup, Kent DA14 5HP, U.K. as well as many book sellers.

Various chapters in this important book have already been listed in the "recent literature" section of past issues of Sphecos, but readers may not be aware of its scope. There are 10 chapters: Historical Introduction; Morphology of the Venom Apparatus; Methods for the Collection of Venom; Stinging Behaviour of Solitary Wasps; Chemistry and Pharmacology of Solitary Wasp Venoms; Pharmacological Biochemistry of Vespid Venoms; Chemistry and Pharmacology of Honey-bee Venom; Venoms of Bumble-bees and Carpenter-bees; Chemistry, Pharmacology, and Chemical Ecology of Ant Venoms; and Allergy to Hymenoptera Venoms. Within this volume the reader is provided extensive documentation of basic research on Hymenoptera venoms, an area of investigation that has mushroomed in the last 20 years.

A History of the Hope Entomological Collections in the University Museum, Oxford, with lists of Archives and Collections. Audrey Z. Smith. Clarendon Press, Oxford. xiii + 172 p. (1986). $29.95.

The insect collection treated by this fascinating little book is one of the older, and certainly more important ones in the world. The author has been associated with the Hope Collections for 50 years and obviously knows her subject very well. Ms. Smith tells about the beginnings of the collection and all of the people that have been associated with it over the years. Included are 17 plates, some in color, showing some of the personalities, artifacts, and so forth. Included among the plates is a sample of doodling by Westwood and a photograph of him holding a large walking stick. About the last half of the book consists of several appendices. Two are of special interest: appendix A treats manuscripts, drawings, letters and paintings in the archives; and appendix B contains a list and discussion of the many collections and their donors that comprise much of the Hope Collections. The dates of publication of some of Westwood's books are discussed on page 41 (An introduction to the modern classification of insects, Thesaurus Entomologicus Oxoniensis, and others).

A. S. Menke

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Actes du congrès Jean-Henri Fabre, anniversaire du jubilé (1910-1985).
Edited by Rassat, P., Y. Delange and O. Callamand. Paris: Le Léopard d'Or 208 pp. (pub. March 1987). Available from: Le Léopard d'Or, 8 rue Du Couëdic, 75014 Paris, France, for 220 FF + 30 FF for shipping.

Mainly through the efforts of Yves Delange of the National Museum of Natural History in Paris, recent years have seen a resurgence of attention to Jean-Henri Fabre (1823-1915) and new critical studies of his work. To those of us whose interest in Aculeates is mainly in their behavior and nesting biology, this must be a welcome development. Delange's (1981) much needed biography explores new ground and will certainly replace that of Legros (1913) as the standard treatment, at least in French. He followed this (1985) with a photo album of Fabre, his family and associates which will be the delight of all of us who love and admire Fabre. And Delange has been the main force behind the Fabre conference and exhibition held in May 1985 (Sphecos 9:16). The present volume is the proceedings of the conference.

The editorship is nowhere actually actually stated (my citation names the conference's secretariat), and this is symbolic of a very light editorial hand. The subject matter, style and major features of format are left to individual contributors. What one says about this is mainly a matter of taste, and I must admit that my own preference tends toward the opposite extreme.

Leaving aside material about the conference itself, the volume comprises 13 articles and two movie notices. Nine of the former and one of the latter have mainly to do with Fabre and the discipline of biology, while the rest have mainly to do with insects (including Sumit Chakrabarti on the nesting biology of Chalybion bengalense). The problem I forsee for this second group is an undeserved obscurity within a volume which will be classified as science history.

Of the articles on Fabre, Sphecos readers will likely find most useful those of A. L. Steiner on Fabre and solitary wasps, C. K. Starr on Fabre and systematics, Maurice Fontaine & Yves Delange on Fabre as a forerunner of physiological ecology, Jean Leclercq on his reception outside francophone countries, and I. A. Khalifman & Eugenia Vassileva (Khalifmana) on his continuing attraction and relevance.

Steiner is of course exceptionally well placed to treat his subject, and I only regret that his article is so short. He gives special attention to the variation and relative precision in stinging the prey.

I blushed to find that my own contribution is by far the longest, comprising 20% of the text. Following a brief critical survey of Fabre scholarship, I examine his attitudes toward classification, intraspecific variation and organic evolution and attempt to relate these to his general philosophic outlook and his views on the nature of theory.

While I found Delange's (1981) attempt to pose Fabre as an ecologist unpersuasive, Fontaine & Delange give a clear demonstration of his role in setting a presedent for the physiological-ecological attitude and approach.

Leclercq draws a great deal on the pages of Sphecos in evaluating Fabre's image outside of his own language. This is mostly through the testimony of individual researchers, and Leclerq is probably right not to attempt any ambitious conclusions.

With more than 50 years of watching insects and reading Fabre behind them, Khalifman & Vassileva give a personal and often fervent tone to their article. As a treatment of Fabre's scientific influence and relevance for today, it is complementary with Leclercq's, which concerns what scientists said and say about Fabre.

Christopher K. Starr

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1981. Fabre, l'homme qui aimait les insectes. Paris: Jean-Claude Lattès. 354 pp.
Delange, Y.
1985. Album de famille et lieux privilégiés de Jean-Henri Fabre. Avignon: Alain Barthélemy & Actes Sud. 109 pp.
Legros, G. V.
1913. Fabre, poet of science. London: T. Fisher Unwin. 352 pp.

THE SURREALISTS' ENTHUSIASM FOR FABRE

Interest in the Souvenirs Entomologiques of Jean-Henri Fabre goes well beyond the community of biologists, and among francophone intellectuals they are regarded as common property. Thus, when Marcel Proust referred in Swann's Way to "a species of hymenoptera observed by Fabre, the burrowing wasp", he did so with no special explanation, as one would cite a passage from Freud or Shakespeare. It must be admitted that much of the literary treatment of Fabre has been of a rather misty, sentimental sort (I am not referring to Proust) which has little to do with our own appreciation. Among one particular group of non-biologists, though, I find a widespread and quite sophisticated regard for Fabre which may surprise many of his scientific admirers.

Far from its usual image in North America as a long-dead parisian artistic tendency, Surrealism is an active, highly political, worldwide movement. One striking feature of all surrealists is a powerful interest in wild, uncuddly animals, approached on their own level. The affinity to Fabre is therefore obvious, and scattered references to him appear throughout the surrealist literature. Lately, though, there has been a big increase in this sort of appreciation, and I seem to have had something to do with it. A few years ago I wrote a piece on "Jean-Henri Fabre and his entomological emotions" for Arsenal, the journal of the American surrealists, and since then there has been a great deal of Fabre in my discussions with surrealists of various countries.

I think this is worth mentioning, as we meet here a group of people well outside the scientific tradition, who nonetheless read the Souvenirs with a keen and analytical eye much like that of professional biologists.

Christopher K. Starr

Collections

THE HYMENOPTERA COLLECTIONS OF H. RIBAUT AND H. NOUVEL

by
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(Translated by Rebecca Friedman Stanger)

These two collections were put together by former professors of the University of Toulouse. Having myself been an instructor in this University for many years, and having known the latter of these two collegues very well, it is possible for me to furnish information on the whereabouts of their collections.

H. Ribaut was a professor at the Faculte de Medecine de Toulouse. In addition to his professional activities, he accomplished a remarkable work in the area of insect and Myriapoda systematics. Notably, he was a reputable specialist of Homoptera and Heteroptera: his works, in particular the two volumes that he devoted to the "Faune de France" (Typhlocybidae in 1936: Jassidae in 1952), are well known and very much used for the fauna of the western Palearctic. After his death in 1967, his rich collection of Homoptera and Heteroptera, first kept by his family, was finally deposited at the entomology lab of the Museum d'Histoire Naturelle de Paris.

However H. Ribaut was equally interested in the Aculeate Hymeoptera, having made numerous collections in the southwest of France, especially in the Pyrenees around St. Beat (Haute-Garonne) where he frequently spent time during the university vacations. Between 1953 and 1959 he published, in collaboration with H. Nouvel, 10 papers on the Hymenoptera fauna of the Pyrenees, describing several new species. His Hymenoptera collection is now stored at the Museum d'Histoire Naturelle of Toulouse where, unfortunately, it is very difficult if not impossible to study it. Alas, the fate of many collections deposited in regional museums is subject to the whims or the good (or less good) will of their curators.

H. Nouvel, originally from Brittany, had first worked in Marine Biology. Named professor at the Faculte des Sciences de Toulouse in 1939, he became a specialist in the study of Dicyemides and Mysidace crustaceans. But with the frequent visits of H. Ribaut and the friendship they had, Nouvel began to interest himself in Hymenoptera, where progressively he would dedicate a large portion of his activities until his death in 1974. He dedicated all of his spare time during the summer to

collecting these insects, and to prepare whatever he was able to collect. He made a large number of collecting trips in the Pyrenees-Orientales, the southern most area of France, where the climate is mediterranean and a veritable paradise for European hymenopterists. In addition, a large number of his collections came from localities near the Mediterranean coast (Banyuls-sur-mer, Rousillon), and the eastern part of the Pyrenees (Font-Romeu, Alt. about 1700 m.). He also made several collections in the central Pyrenees (Cauterets, alt. about 1,000 m.), completing the collections made by H. Ribaut in this region. He also took an interest in the fauna of the Garonne (around Toulouse) and, to a lesser degree, the Atlantic coast in the department of Landes and Pyrenees Atlantique (formerly called Basses Pyrenees). A few smaller collections were made during visits to Brittany (Roscoff) and in the southeast of France. He was thus able to make up an important collection, completed even further with specimens brought to him from amateur entomologists from the Toulouse region.

Such as it was in 1974, the Nouvel collection was comprised of 400 insect boxes (19 x 26 cm.) stored at the general biology lab of the University Paul Sabatier (This University was made up by the union of the former Faculte des Sciences and the Faculte de Medicine of Toulouse). The largest part of this collection consisted of the Sphecidae (127 boxes), the Eumenidae and Vespidae (54 boxes), the Chrysididae (23 boxes), the Scoliidae (19 boxes), and the Mutillidae (12 boxes). Almost all of the specimens of these families were identified by himself and by more specialized colleagues. Other families, like the Apidae (41 boxes), the Tenthredinidae and closely related families (40 boxes), and the Pompilidae (25 boxes) were equally well represented, but only partially determined. Finally a lot of 32 boxes contained mostly diverse families, in which the Ichneumonidae represented 18 of those boxes, mostly all undetermined.

After H. Nouvel's death which almost corresponded exactly with his retirement, the upkeep of his collection ceased, as the general biology lab was not able to further assure it's conservation. H. Nouvel's family then had the great kindness to give me his collection, as well as the notes, works, and papers that went along with it. I must state that, under H. Nouvel's influence, I myself took an increasing interest in the Hymenoptera; moreover I was in contact with many regional amateurs who wished, as I did, not to see this collection of great reference go to a far away city. I thus accepted the generous proposition that was made to me, taking charge of this collection and keeping it at the entomology lab where I am currently working. Of course, this collection is at the disposal of any interested amateurs.

For about ten years now I have strived to continuously enrich the Nouvel collection and whenever possible, to update it. Upon reflection I decided to incorporate my own collections and those from other collegues into the original collection (each collector's name is on the locality label). For many of the families, such as the Sphecidae and the Pompilidae, I was forced to completely reorganize the collection, this time placing the insects in glass top boxes 39 x 26 cm. An approximate count of the number of specimens, as of Sept.-Oct. 1986, permits us to measure the importance of this collection:

Symphyta	3,000	Pompilidae	9,000
Sphecidae	19,000	Apoidea	9,000
Scoliidae	1,800		
Mutillidae	1,500	Other groups	
Chrysididae	3,800	Thysanoptera:	
Vespidae and		Terebrantia	3,800
Eumenidae	2,600		

A total of more than 50,000 insects.

These insects essentially come from collections made in France, especially southern France. Aside from the regions already mentioned in this paper, I have also collected in the departments of Aude, Herault, and Gard, as well as the Alpes de Haute Provence (formerly Basses Alpes) and Hautes Alpes. Moreover, as far as the Pompilidae are concerned, regional amateurs (Marc and Hubert Tussac, Isidore Dufis) had the great generosity to give me some or all of their collections made not only in France, but also in Spain, Portugal, and North Africa (Morocco and Tunisia).

Parallel to this enrichment of the H. Nouvel collection, I attempt to identify the new specimens myself or with the help of other specialists. I would therefore like to thank two French entomologists for their precious help, MM. H. Chevin for the Tenthredae and J. Harnon for the Sphecidae and Scoliidae, as well as other foreign entomologists, H. Wolf (Germany) and R. Wahis (Belgium) for the Pompilidae, B. Petersen (Denmark) for the Mutillidae, W. Perraudin (Germany) for the Chrysididae, S.F. Gayuto (Spain) for the genus Nysson (study now in progress), F.J. Suarez (Spain) for the Chrysididae, and from a few years ago, A.K. Merisuo (Finland) for the genera Passaloecus and Diodontus.

The collection's present "evolving" condition which I am handling, unites researchers' collections over a period of some forty consecutive years. For the diverse families previously cited, this collection represents a remarkable sample of the Hymenoptera fauna of the south of France, and for the Pompilidae from other territories of the eastern Mediterranean basin. There is no doubt that this collection will one day deserve to be put in a main National Museum.

A VISIT TO THE AMERICAN ENTOMOLOGICAL INSTITUTE

by

Arnold Menke

Last February I spent a week with Henry and Marjorie Townes at their new facility. Henry is nearly completely recovered from the serious illness of last year and looked great. He still works a full day (that means all day - more or less - plus after dinner till 9 PM or so). In between he takes time to weed the garden around his beautiful house. Henry has lots of expansion space: the AEI in contained in two large buildings, one of which is currently largely for storage. The insect collections, extensive Hymenoptera library, and offices are in the other. The offices are large and have excellent light due to the large windows. Henry's Institute and his nearby home are brand new of course, and they are situated on a large tract of forested land on the outskirts of Gainesville. Truly a beautiful setting for research. When a break from the microscope is necessary to rest the eye balls, one can wander through the woods on one of several trails contructed by John LaSalle and others. Current workers at the Institute besides Henry and Marjorie are Dave (the philatelist, Dr. X, etc.) Wahl who is on a two year NSF grant, Virendra Gupta, and Bill Mason. Bill spends the winters at AEI and the summers at Ottawa. Scientists from the nearby Florida State Department of Agriculture frequently drop by for a few hours.

Henry brought me down to Gainesville to curate the Sphecidae in his Institute. The family is contained in three cabinets and I managed to curate about three fourths of the Sphecidae while there. I found much wonderful material, nearly all of it fresh and clean because it is taken mostly by malaise traps utilizing alcohol. Over the years Henry has run traps at many different places in the world, but he also has hired others to run traps for him. Thus I found very interesting sphecids from places like Australia, Tasmania, New Zealand, Malaysia, New Guinea, South America, Taiwan, Africa, etc. Sphecids of the genus Nitela are generally uncommon in collections but Henry had long series of them thanks to malaise traps. I saw lots of fascinating crabronines from New Zealand, Australia, South America, and Malaya that someone like Jean Leclercq would find interesting. The Pemphredoninae was represented by many specimens in genera like Arpactophilus, Spilomena, Stigmus, Polemistus, Psenulus, and Diodontus (attention Naumann, Finnamore, Eighme!). There are beaucoup Trypoxylon from both hemispheres and among the species I examined were some really bizarre critters! I also found some very strange Pison from New Guinea and other places in Australasia. There were a lot of Lyroda from places like Malaya, Taiwan and

South America, and Woj Pulawski should borrow the Tachysphex from Australia/Tasmania and South Africa. There is also a peculiar Tachytes from Australia in Henry's collection, and he has some nice Sericophorus that Ole Lomholdt should study. The Ampulicinae is well represented, especially the genera Dolichurus and Trirogma. I could go one, but this gives a hint of what is hiding away at the AEI.

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE AT LEYDEN: HISTORY OF THE HYMENOPTERA COLLECTIONS

by
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The Rijksmuseum van Natuurlijke Historie (RMNH) was founded in 1820 by King Willem I of the Netherlands. One of the purposes of this National Museum of Natural History was to unite the existing "cabinets" of natural history at Leyden and Amsterdam, not the least the cabinet of the first director, C. J. Temminck (1778-1858). Another purpose was to educate naturalists to study toe largely unexplored richness of the Dutch colonies in the East Indies, the present Indonesia, as well as other colonies. A "Natural History Committee" was established to gather material, initially zoological as well as geological and ethnographical, on Java and the other islands of the Archipelago. The committee suffered a good deal of misfortune in the 30 years of its existence. Seven out of the twelve scientifically trained members died within six years after their arrival in the East Indies. Furthermore, several of the early shipments of zoological material material were shipwrecked. Nevertheless, the material that finally did reach the Netherlands proved to be so rich that the RMNH soon became one of the leading institutions in Europe.

Another source of important material was Japan, where the Dutch had a trade monopoly for several decades. In the first half of the 19th century, P. F. von Siebold was thus the only European allowed to collect in Japan, and he provided the RMNH with unique material.

Very little scientific work was done on the entomological part of the acquisitions. However, there was a brisk trade of insects between the RMNH and several other museums. The East-Indian material was much sought after, and the RMNH axquired material from all over the world in exchange. In this way, the Hymenoptera collections came to include material worked on by some eminent foreign hymenopterists, such as P. A. Latreille, P. L. van der Linden, and in particular, J. Klug from the Berlin museum. Many of the approximately 450 species of Hymenoptera sent by Klug were described by himself, and some of the specimens probably are types.

Scientific activities on the entomological collections, and not in the least place the Hymenoptera, assumed larger proportions under the curatorship of S. C. Snellen van Vollenhoven (1854-1873) and his successor C. Ritsema Czn. (1873-1916). Snellen van Vollenhoven was the first truly scientific entomologist in the Netherlands, and the president (and founding member) of the Dutch Entomological Society for more than 25 years. Both he and Ritsema had excellent scientific contacts with foreign entomologists. Through exchanges, the RMNH obtained hymenopterous material, undoubtly including types, from hymenopterists like H. de Saussure, J. O. Westwood, A. Costa, J. Pérez, A Mocsary, A. Schenck, O. Schmiedeknecht, G. Gribodo and F. Smith.

Collecting activities continued, and they remained, as far as insects are concerned, almost exclusively concentrated on the East Indies. After the dissolution of the Natural History Committee in 1850, a number of professional collectors were engaged by the Museum, such as A. Bernstein, C. B. H. von Rosenberg and D. S. Hoedt. Some of the more remote parts of the Archipelago were explored by these travelers, including the Celebes, the Moluccas and New Guinea. Furthermore, a number of physicians and apothecaries of the Dutch East Indian Army were trained at the Museum. Among these, F. W. A. Ludeking and J. Semmelinck are worth mentioning as good collectors of Aculeates, while at their posts on Sumatra, Java and Flores. Later, after $\pm$ 1880, the bulk of collecting activities were carried out by menbers of the Entomological Society who were employed in the East Indies, in particular M. C. Piepers, E. Jacobson and B. Hagen.

Only after the beginning of this century, did collections of Mediterranean insects become more extensive. Besides, the fauna of Surinam, one of the Dutch colonies in South America, was finally explored, and the Hymenoptera from these areas became a vital part of the Leyden possessions.

A number of important private collections of aculeate Hymenoptera must be mentioned as the main 20th century acquisitions, which are of special interest to Specos readers. Most important in size are the collections of J. van der Vecht and P. M. F. Verhoeff. The collection of Van der Vecht is one of the best in existence of Indonesian Aculeates, to which much other material was added by exchange, and by collecting activities in Europe during excursions, especially in Spain. One of the best existing collections of Mediterranean Aculeates is the vast collection of Verhoeff, which also contains good material from South Africa (where he posted his daughter to collect) and from the Netherlands. The collection of J. C. Betrem is important because of the numerous types of Scoliidae. The collection of M. A. Lieftinck contains besides several types, a fine collection of Indonesion Apidae s.l. The collections of J. P. van Lith, P. Benno, K. Vegter and S. J. van Ooststroom are smaller, containing Sphecidae, Larridae, and other aculeate groups, mostly from the Netherlands.

The collection is currently enriched yearly by several donators, e.g. by V. Lefeber. Recently, C. van Achterberg collected in Northern Celebes during the Wallace Project, and an expedition to Northern Borneo is being planned now.

For information on the RMNH collections, write to the curator: C. van Acterberg, Rijksmuseum van Natuurlijke Historie, Postbus 9517, 2300 RA Leiden, Netherlands.

GRESSITT CENTER DEDICATED

by
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The Bishop Museum's Department of Entomology was formally dedicated as the J. LINSEY GRESSITT CENTER FOR RESEARCH IN ENTOMOLOGY on 26 July 1986. The event was well attended by the local entomological community, as well as by two of the Gressitt daughters, Mrs. REbecca Lau and Mrs. Ellyn Brown, and by Dr. Felicia Bock and Ms. Audie Bock, sister and niece of the late J. L. Gressitt. Dr. Allen Allison, Bishop Museum Zoologist, officiated the ceremony, Drs. Alexander Spoehr and Edward Creutz, former directors of the Bishop Museum, gave addresses, and Dr. Felicia Bock gave the closing comments. Highlighting the dedication, a bronze plaque was unveiled citing the late Dr. Gressitt as a "Leader in taxonomy, biogeography, and biological exploration; noted founder of research centers and scientific publications; and preeminent builder of Bishop Museum's entomological collections." The plaque says of Gressitt that "He never faltered in climbing great mountains, of the earth and of the mind."

Under the direction of the recently appointed Chairman of Entomology, Dr. Scott Miller, the Museum is recommitted to the Department's mission of being a center for the study of the systematics, biogeography, and ecology of insects and related arthropods of the Pacific Basin and their source areas.

ACULEATE WASPS IN THE INSECT COLLECTION OF THE PROVINCIAL MUSEUM OF ALBERTA

by
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The aculeate collection (and the entomology program) at the Provincial Museum of Alberta began in 1983 with the acquisition of an invertebrate curator who was interested in aculeate wasps. The wasp collection in August 1983 consisted entirely of exotic material: 55 dusty unlabeled specimens. Since that time the collection has grown through active collecting and trading in bulk samples to 34,500 mounted and labeled aculeate wasps. Another 15,000 specimens have been acquired this year and await mounting and labeling. The acquisition rate for aculeate wasps over the life of the program is 14,500 specimens per year.

The collection is best represented with specimens from the Neotropical Region which reflects my research interests and travelling. The museum currently employs one full time curator (myself) in entomology and one full time technician. The provincial government usually provides a number of summer temporary staff at which time our lab is converted to a sorting and pinning factory.

Although our collection is small it contains representatives from all regions and is not overwhelmed with Nearctic material. The Nearctic component has remained a fairly constant 33% of the aculeate wasp collection. Future collecting is planned for southeast Asia to improve the area of weakest representation in our holdings. The following table provides a more detailed account of our aculeate wasp collection; loan requests are welcome.

	Nearctic	Neotropical	Palaearctic	Ethiopian	Oriental	Australian	Total
Plumariidae	-	14	-	-	-	-	14
Bethylidae	698	7039	120	194	64	353	8468
Sclerogibbidae	-	9	-	-	-	-	9
Chrysididae	699	158	40	23	1	-	921
Dryinidae	179	799	1	24	21	38	1062
Embolemidae	1	4	-	-	-	-	5
Chrysidoidea	1577	8023	161	241	86	391	10497
Tiphiidae	346	931	12	121	23	668	2101
Sierolomorphidae	40	2	-	-	-	-	42
Bradynobaenidae	6	-	-	-	-	-	6
Mutillidae	540	715	9	71	6	238	1579
Scoliidae	7	68	-	28	4	6	113
Sapygidae	15	-	-	-	-	-	15
Formicidae	937	2676	9	147	44	371	4184
Vespidae	1245	2671	2	19	2	14	3953
Pompilidae	2250	1156	94	160	15	501	4176
Rhopalosomatidae	4	59	-	-	-	-	63
Vespoidea	5390	8278	126	546	94	1798	16232
Ampulicidae	10	6	8	15	1	1	41
Sphecidae	729	140	1	25	-	1	896
Pemphredonidae	1046	927	24	17	4	49	2067
Astatidae	67	-	1	-	-	-	68
Larridae	878	890	53	138	50	36	2045
Crabronidae	1341	255	17	3	1	24	1641
Mellinidae	33	-	-	-	-	-	33
Nyssonidae	556	64	2	4	2	6	634
Philanthidae	334	77	2	1	-	2	416
Sphecoidea	4994	2359	108	203	58	119	7846
Aculeate wasps	11961	18660	305	990	238	2308	34552

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THE "A. MOCHI" ACULEATA COLLECTION

by
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The proper title should read "the Alberto (father) and Alessandro (son) collection", but from the beginning this was found too cumbersome and lengthy, especially for etiquette, hence the abbreviation for what proved to be an adventure of greater ambition and scope than originally foreseen.

Father, a physician, philosopher and naturalist of encyclopedic knowledge and vision worthy of a Renaissance scientist, initiated me to entomology when I was 12 years old, to broaden my interests and, I suspect, so to create closer bonds between generations which tend to drift apart. On both counts he proved fully successful, thanks also to a strain of "collectionism" which ran in the family: my ten years older and only brother developed a lifelong passion for philately which culminated in a remarkable collection of Chinese postal history and stamps.

Living at the time (the early thirties) in Egypt we started catching all sorts of insects, but after about one year the need for specialization became evident and Hymenoptera, particularly the Aculeata, was selected. Practical considerations as well as Alfieri, the curator of the Royal Museum of Entomology in Cairo, had to do with the choice. He had the best Lepidoptera and Coleoptera collections in the country, Efflatoun Bey had a most remarkable and beautifully prepared collection of Egyptian Diptera, while researchers in the Ministry of Agriculture were studying Acrididae, Hemiptera, Chalcididae and other families of economic importance to the country. Thus we were cleverly steered towards the study of Sphecidae, Chrysididae, Mutillidae, Scoliidae, Pompilidae and other Aculeata which abounded in the country, and gradually gathered considerable numbers of prepared and often determined material which, at least partially, forms the nucleus of a much larger collection of mainly Palaearctic and Ethiopian species.

The first real "expedition" which actually clinched our choice took place in the summer of 1933 when the family spent about two months on the island of Rhodes where Father was appointed a consultant to the thermal bath's station of Calithea. We collected actively, particularly Chrysididae which were later determined by Nadig and Zimmermann.

From then on, back in Egypt, we took avail of every free Sunday during April to June and again in the Fall to collect mainly in the surroundings of Cairo. The "A Team" at the time comprised also Mother, Antonia, and Abdu, the Nubian driver, both of whom contributed considerably to the day's takes, the latter at times adding species which the more scientifically disposed members of the family had missed. Unfortunately work, study and exams, social and other engagements, as well as occasional bad weather, especially desert wind storms, limited the days devoted to collecting, and the summer heat proved totally forbidding. I did, however, do some collecting on my own during vacations spent mainly in Switzerland and Italy.

The roads and transportation of the time seriously limited the range of our activities, nor was it possible to visit the outlying oasis which had only been superficially studied, providing most interesting material. Many of our favourite spots - Gebel Asfar, Esbet el Nakhl, Kerdassah, Wadi Digla and Wadi Hoff, just to name a few - have become fully urbanized and/or industrialized beyond recognition since then, and a recent attempt to return to a favourite place on the outskirts of the Fayoum had me almost "land" in a training base for helicopter pilots, prompting a hasty retreat.

We did, however, manage two trips to the Sinai, and in Wadi Mitla collected fabulous material such as two dozen Nectanebus fischeri of which at that time, dixit Alfieri, only single specimens were known to exist in the British and Cairo museums.

Much stress was laid from the beginning on the quality of the material and its preparation, with a certain bias on the aesthetic presentation which we found lacking in most of the museum collections. We began with light round cardboard disks for micros, rapidly shifting to transparent disks to facilitate examination. Not all agree with such a technique, which doubtlessly has its disadvantages (including the yellowing of the earlier celluloid disks and occasionally some mold

stains on the later plastic ones) but individual insects are well preserved and protected as proven by the very little damage incurred during the several difficult transfers of the collection, in part or in toto, from one shore of the Mediterranean to the other.

As much material as possible was collected and prepared. Many specimens were sent for study or were exchanged with European correspondents, including Dr. A. Nadig in Switzerland, Col. Hammer in Vienna and a number of others. Practically all Vespidae were taken over by Prof. A. Giordana-Soika of Venice who found and described a number of new species whose types he retained in the Museum's collection.

With the increase of available material, Father became interested in making determinations. In order to illustrate his publications, i.e. monographs on Egyptian Cerceris, Philanthus, Stizus and the description of the new genus Ammoplanopterus, he took lessons in painting, and at the age of 55 or so, though he had never taken a brush in hand before, produced some quite remarkable colour illustrations which, to me, are still among the best I have seen.

During the campaign in Ethiopia, my brother, by then a phjysician serving time in the army, was posted in Somalia and later in Harar (1935-38) whence, possibly through sheer boredom, he sent us our first material from the Ethiopian fauna which proved an enormous success. Father also paid a brief visit to Harar during that period and did some collecting, but his health was already on the decline and entomology took second place in our interests. In 1938 I left Egypt to undertake medical studies in Rome and just prior to Italy's entrance in the war my parents also left, believing this to be just a temporary move. The collection, by then some 30 wooden cassettes 30x45cm, was entrusted to the Cairo Museum for safekeeping and by necessity all our activity ceased during the war period of 1940-45 and long thereafter. We had, however, a streak of good luck when, early in 1946, my brother, by then in the Italian diplomatic service, managed to reclaim the collection (which Alfieri had "concentrated" into about 20 of our boxes) and brought it to Florence where my parents lived. How this near miracle took place I do not, to my regret, know in detail: the return of an Italian cruiser interned in the Salt Lakes of the Suez Canal provided the transportation and some money had certainly changed hands in the process...

Preoccupations of a different nature, including my first post as a physician in Switzerland, did not permit more than a cursory look at the insects to ascertain that they had arrived in good condition. It was only much later, Father meanwhile having died in February of 1949, that I discovered that Alfieri had removed much material, including all of the types we had slowly accumulated, including those described by Father in his publications and to my horror also that of Gonochrysis mochii described by Zimmermann. Where this material has ended up is unknown to me: it may still bi in the Museum's remnant collection in Egypt, but I suspect most of it was sold as part of the material disposed of by Alfieri, some of which, to my knowledge, was acquired by the Smithsonian, which would be a most fitting place for it. - [The Smithsonian Collection contains the following Mochi types of Sphecidae: Ammoplanopterus sinaiticus, Cerceris gynochroma, C. lateriproducta, C. priesneri, Philanthus sinaiticus, P. soikai, Stizus arnoldi and S. rufoniger - editor].

Collecting began again in earnest in 1952, when I was posted by the World Health Organization as Medical Officer with a Tuberculosis Control and Demonstration project in Damascus (Syria). In three years there I managed to gather and prepare more than 5,000 Aculeata from Syria and Lebanon, most of the Sphecidae being determined by Prof. De Beaumont of Lausanne (who had also studied our Egyptian material) and some by Prof. J. Pulawski, both of whom described a certain number of new species.

Since then I have tried to collect whenever an opportunity arose during the many voyages with the WHO, but soon found out that it is not always easy, when on an official assignment, to hit on the right season and to find the time, transportation, the right place plus the freedom to unfold the catching net and disappear into the bush incommunicado for the necessary number of hours. In point of fact I vividly recall a carefully arranged trip down from the Ethiopian plateau to the borders of the Dancali desert with a condescending colleague and a whole day at my disposal when I did not see one single specimen!

Conversely, times of trouble have proven beneficial. During the 1960 emergency arising from the transfer of authority from the Belgian Congo to what was later to become Zaire, I was assigned to Luluabourg, in the Kasai, to assist with the reorganization of the once excellent health services,

an almost impossible task under the then prevailing circumstances. This entailed waiting for days on end for the arrival of Red Cross teams and of emergency supplies and drugs at the local airport under almost warlike circumstances. Very quickly I became acquainted with every shrub and sandy patch around it and, perhaps more importantly, the rather unruly military of the Congolese Force Publique soon accepted my strange habits - so much so that I never had any trouble with them, which did not always prove to be the case with other, less entomologically inclined colleagues in the area.

Thus through the years I have been accumulating Aculeata from Switzerland, Italy, Egypt, Syria and Lebanon, Tunisia, plus scattered specimens from Greece, Turkey and Jordan in the Palearctic area. Some good exchange material was secured from Mavromoustakis in Cyprus. In Africa I collected from Sudan, Ethiopia, Kenya and Tanzania (specifically Zanzibar and Pemba Islands), the Central African Republic, Zaire, the Congo, and to a lesser extent from Yaoundé in the Cameroons and from the Ivory Coast near Abidjan. Rarely great numbers were collected, mostly what can be captured in one or two successful outings, at times repeated over the years. In Asia some quite interesting material from North and South Yemen was collected, plus what can be picked up, for example in a public garden near the main hotel in Dakka (Bangladesh), in Burma or in the Philippines (Zamboanga), plus some exchange material from Iran.

The African and Asian material all need to be determined, and so do practically all the Pompilidae. Otherwise the Palearctic fauna is fairly well in hand. Continuing professional involvement in public health, mostly in developing countries, does not leave time for study in depth and for publications, which I much regret. Sphecos has been extreemly helpful is establishing new contacts with specialists, and some of the material sent out is returning, often with satisfactory results.

After Egypt and Florence the collection was moved to Geneva where I was posted for about 20 years, and it is now in Rome where I have retired (at least nominally). It consists of about 120 boxes of the type described, plus a number of smaller cardboard ones, used mainly for "manoeuvres". I am often asked by lay visitors how many specimens are in the collection - it reminds me of the tourists who ask about the value of Tut Ankh Amon's golden sarcophage in the Cairo Museum! The pat answer is: who knows, 40 or 50,000?

Though I feel that this is probably quite an exaggeration, in reality I don't know, and consider it not to matter at all nor warrant the effort of counting - all the more considering the amount of material dispersed in all these years through exchanges, donations, etc. What I am rather proud of is instead the "quality" and how a fatherly concern has become the legacy and interest of a lifetime.

Looking back I now realize that what began as a limited taxonomic effort in Egypt has developed in time into a fairly representative collection covering the Mediterranean and Middle Eastern areas of the Palearctic fauna, as well as zones of Eastern and Central Africa. Then at times large series of the same species allow for a certain degree of geographic comparison of variations of distributions is areas which have been changing very considerably over the past 50 years. My objective now is to further this approach to the best of my abilities in the coming years, given the necessary health, energy and time.