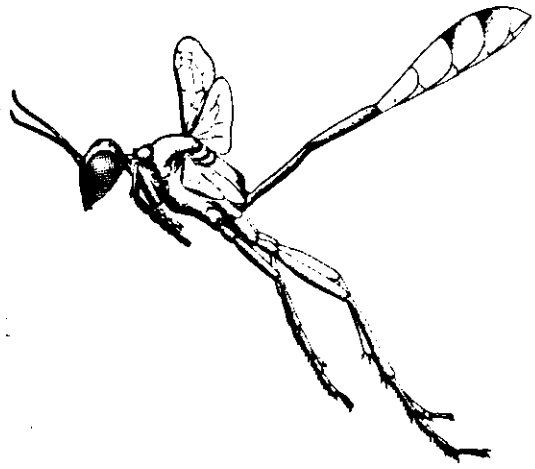
SPHECOS



Number 10 - October 1985

A Forum for Aculeate Wasp Researchers

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Editor's Mumblings

Here we are with issue 10, a landmark of sorts. It ushers in a somewhat new look for Sphecos. Gone is the fancy saddle stitch binding - the professional look if you will. Sphecos has become a victim of the budget crunch. The USDA's Systematic Entomology Laboratory (SEL) simply can no longer afford the cost of reproducing the newsletter. Many of you may not be aware of how past issues have been produced. Numbers 3 through 9 were printed by a private firm at a cost of 500-600 dollars per issue. That cost was paid by SEL. Until now, mailing costs have always been free to SEL - paid for by US government money. Recently however, all government agencies (SEL included) have been told that they will be charged for all mailing expenses. In the case of Sphecos, that will amount to several hundred dollars per issue (the newsletter goes to over 400 people). Our laboratory can not afford to pay nearly $1000 for an issue of Sphecos.

Issue 10 was reproduced by a USDA duplicating department at no cost to SEL. I am writing this before the end result is on my table, but I know from Chalcid Forum and Symphytos, both of which are reproduced by the same department, that the end result will not be as attractive as past issues. The government duplicating office uses a xerographic process to produce multiple copies. That means that drawings, and especially photographs, will not reproduce well. Thus photographs will be out of the question for future issues. Therefore, please do not include photos with articles sent to me for inclusion in Sphecos. Overall these changes will be largely cosmetic - the content of Sphecos will still be the same - it just won't be as pretty as it used to be.

One of the possible roles that I envisioned for Sphecos long ago, was the exchange of viewpoints among readers on various controversial issues - a forum where interested parties could express their thoughts, pro and con. This role has yet to be realized, so with this issue I have launched the FORUM (see p. 10). I have a few favorite topics of my own that I expound on with colleagues now and then (excessive use of subspecies, excessive generic splitting, excessive use of subgenera where species groups would suffice, etc.), and I have chosen the last one as a topic in this first forum. Also, Chris Starr has submitted a paper on a subject of interest to him: social dominance. We hope that these two contributions will stimulate some of you to write articles for the FORUM on these subjects, and/or to submit essays on other topics that you would like to see debated. Let's generate discussion, controversy, debate, etc.!! In a letter to me Chris listed four possible topics for the FORUM along with the names of people that he feels could or should contribute. These are: 1) What are the central questions in solitary wasp behavior today? (Dave Peckham, Al Hook, Jim Carpenter, Frank

Kurczewski, Nancy Elliott); 2) What are the central questions in social wasp behavior today? (Stefano Turillazzi, Seiki Yamane, Soichi Yamane, Joan Strassmann, Starr, Bill Overall); 3) What problems most need to be resolved in wasp systematics today? (Woj Pulawski, Jim Carpenter, Menke, Dick Bohart, Karl Krombein, Dennis Brothers); 4) Why, after all, do you care about wasps? (alternative - What's so special about wasps anyway?) (Erik Nielsen, Howard Evans, etc.). To this list I can add: the subspecies concept, its use and abuse; and subfamilies vs. families (Dick Bohart, Karl Krombein, Woj Pulawski, Frank Parker, Menke, etc.).

I'd like to thank Terry Nuhn for entering some of this issue's material on the word processor. However, I ended up typing the lion's share myself (several days work) and I'm sorry if you readers find too many typos. Once more thanks go to Ludmila Kassianoff for some Russian translations.

Research News/Help Needed

R. M. Bohart (Dept. of Entomology, Univ. of California, Davis, Calif. 95616) writes: "In April-May 1985 Larry French and I visited the Hungarian Natural History Museum in Budapest to study the marvelous chrysidid collection of A. Mocsary. That prolific worker published many papers from 1879 to 1914, with his 1889 world monograph a highlight. The collection is in good condition and well arranged. Curators Dr. Papp Jenö and Mr. Zombori Lazlo were extremely helpful. Retired curator Dr. Moczar L. visited several times and answered many questions. For the benefit of prospective visitors, our experience was that hotel prices were moderate, food was inexpensive except in tourist "joints", travel by cab or public transportation was surprisingly cheap and available. Weather during April-May was mild." Dick and Lynn Kimsey will be in Leningrad for two weeks in September studing chrysidid types housed there and will give us a report on their experiences for Sphecos 11.

Sumit Chakrabarti (5, North Kaugachi, P.O. Shamnagar, Dist. 24 Pgs., West Bengal, 743127 India) writes "My current research interest lies with the sphecid wasps, especially Sceliphron (S.) laetum maindroni, Chalybion (Ch.) spinolae, and Chalybion bengalense from the Indian peninsula. I plan to correlate such studies with other wasps of the families Sphecidae and Eumenidae."

Judith A. Collins (Entomology Dept., Univ of Maine, Orono, ME 04469) writes: "I am a graduate student in Entomology at the University of Maine at Orono and am working towards my MS in Forest Entomology. I an currently completing my research on eumenid wasps as natural predators of the spruce budworm in Maine. My major advisor is Dr. Daniel Jennings of the Northeast Forest Experiment Station, USDA. I hope to complete my thesis work by April, 1985."

James C. Allen (1413 Curry Rd., Schenectady, N.Y. 12306) writes: "For the past seven years I have worked for Vespa Labs. I have become one of the largest collecters of vespids working for them over the years. My publicity has increased due to newspaper articles and radio talk shows. Collecting all eusocial wasps in the Schenectady, Albany, Troy area. I have available to any one interested, frozen nests and male, worker, queens, of Dolichovespula arctica [parasite of D. arenaria], D. arenaria, D. maculata, Vespula concobrina, V. vidua, V. flavopilosa, Vespula germanica, V. maculifrons, V. vulgaris. Nests and insects can be shipped with adaquate dry ice with on day delivery time. I do not want to charge anything for specimens, just enough for expenses. Probably the average cost would be $20-30 range for dry ice, Purolator, and styrofoam. I hope some of the wasp workers can use some of my nests and larvae as I have two freezers full and would would very much like to see them put to some use rather than thrown out as I will do to all but a few nests of each species next July to make room for next seasons collecting. I am doing dissections of male genitalia of all the vespids on the planet. I have acquired all but a few of them, and I am sure some of the other wasp workers can help me. I don't need frozen ones of course."

M. H. Hansell (Dept. of Zoology, The University, Glasgow G12 8QQ, Great Britain) writes: "I am currently engaged in work on the building material and the mechanical properties of nests of wasps of the Stenogasterinae, Polistinae and Vespinae. I have a reasonable collection of stenogasterine nests but would appreciate more and am particularly anxious to get more for both large and small colony Polistinae. Because I am interested in how the nests are made, I wish not only to obtain nests themselves but also spirit preserved or even dry specimens of adult workers so that I can look at mandible size in relation to overall body size and the size of glands producing salivary matrix for the nest material. I am also looking at the effect of pupal cocoon silk on comb strength and so nests with past pupal cells are especially useful and spirit preserved mature larvae are also welcome."

Raimond V. Hensen (Rijksmuseum van Natuurlijke Historie, Postbus 9517, 2300 RA Leiden, The Netherlands). writes: "I have nearly finished my manuscript on Prosceliphron, and I am now continuing with a revision of Chalybion s.s., which Dr. J. van der Vecht had already started. The Aethiopian region seems to be particularly rich in undescribed species in this genus; in the Oriental region I am facing the old problem that no males are available for a number of species, probably tropical forest-species, in which the males just fly around the treetops, out of reach of conventional collectors. Additional material from all the Old World regions would be very welcome. In accordance with Art. 75 of the Code I wish to tell you that I intend to select neotypes for some of the Chalybion species, at least for Pelopoeus flebilis Lepeletier 1845, which is probably a senior synonym of targionii Carr. (of or walteri Kohl), and the type is definitely lost. Sphex chrysis nitidula Christ, S. ferum Drury and S. smaragdina Christ are also cases in which a neotype might be designated, but I am not yet sure that the types are lost."

Dr. E. O. Grechka (Komsomolskaya, 18, fl.23, Kherson, 325025, USSR) finished her postgraduate course under the supervision of Vladilen E. Kipyatkov at the Department of Entomology, Leningrad State University, two years ago, and is now in Kherson, Ukrainian SSR. Her doctorial thesis was on regulation of seasonal life cycle and caste differentiation in Polistes gallicus L.

Jay Rosenheim (Dept. of Entomology and Parasitology, Univ. of California, Berkeley, Calif. 94720) writes: "I am studying the behavior and ecology of Ammophila at Sagehen Creek Field Station in the Sierra Nevada Mountains of California. Six species have been found to cohabit a single nesting area; I have been attempting to elucidate the basic biologies of these species with the long-range goal of examining resource partitioning and interspecific competion. The role of specific and non-specific parasitoids, including the chrysidid, Argochrysis armilla, in shaping the species composition at Sagehen Creek is being investigated. One of the wasps that I watched, Ammophila azteca, proved to be quite flexible behaviorally, and Prof. Bohart mentioned to me that you felt that it might represent a group of similar species. I feel fairly confident that based upon ethological characters alone, A. azteca appears to represent one variable species."

Margery G. Spofford (Coll. of Environmental Science and Forestry, Illick 104, State Univ. of New York, Syracuse, NY 13210) writes: "I completed my M.S. in 1983 and am currently a Ph.D. candidate under the direction of Dr. F. E. Kurczewski. My research centers on the unique and intricate realtionships between cleptoparasitic flies (Diptera: Sarcophagidae, Miltogrammini) and over 40 species of solitary sand wasps (Hymenoptera: Sphecidae and Pompilidae) in New York, Pennsylvania and Michigan. Most ethologists are convinced that many of the wasps' behavioral patterns reflect the activities of their associated flies. I plan to categorize the flies' behavioral associations and describe and evaluate the compensatory activities of the wasps. I hope my research will help elucidate the evolutionary pathways and perhaps decipher the phylogenies of both the wasps and flies. I would appreciate hearing from anyone who

has behavioral information and/or associated specimens (on loan, of course) of wasps and flies."

K. Tsuneki (Asahigaoka 4-15, Mishima, Japan 411) writes: "Our HYMENOPTERISTS COMMUNICATION reaches now No. 20. It includes 'Wasp collecting journey to Mindanao' by Tano et al. and 'Biological observations of Alysson pertheesi Gorski' by T. Nambu, but all in Japanese. My first study of Japanese Tiphia is finished. It has gone to press (SPJHA, No. 31, pp. 1-90). My second study will soon begin. This is certainly a difficult group, as Krombein says."

Seiki Yamane (Dept. of Biology, Kagoshima Univ., Korimoto, Kagoshima, 890 Japan) writes: "The first draft of a paper on the Taiwanese Polistinae will soon be completed by my brother, Sôichi, and me. Some new taxa will be described in it."

Jim Carpenter (alias Duncan YoYo) (Museum of Comparative Zoology, Harvard University, Cambridge, Mass.) says: "I'm now well into generic revision of the entire Vespidae based on cladistic analyses of each of the subfamilies. As I mentioned in Sphecos 7, I'm approaching the Eumeninae by zoogeographical regions as the most practical means of grappling with this massive group. My paper with Jeff Cumming on the nearctic genera should appear shortly. I've begun work on the neotropical genera, simultaneously working on Jack van der Vecht's catalog of the species. There will be considerable changes in generic assignments when all this is finished! Work on Polistinae is still proceeding; I have a cladogram for the genera, but would like to include the subgenera in the publication and haven't finished them yet. The final product will involve considerable sinking. Finally, I've just begun work on the Masarinae. National Science Foundation is funding field and museum work in South Africa and Australia, as well as museum work in Europe, so this should be my most thorough project to date.

As if vespids weren't enough, I also made a foray into Chrysidoidea. This was a cladistic analysis of the families, done at the Smithsonian while I was a postdoc (and received the coveted Ghorphade award). My interest was aroused by reading a translation of Rasnitsyn's 1980 book; I disagreed with most aspects of his aculeate treatment. The USNM had the most extensive chrysidoid collection I had ever been privileged to see, and Arnold Menke (the Mud D'aub) let me rampage through it. A paper on the subject will shortly appear.

Arkady Lelej (Institute of Biology and Pedology, Far Eastern Scientific Center, Vladivostok 22, 690022 USSR) is now studying the Ceropalidae and Pompilidae of the Soviet Far East. One paper on ceropalids is in press, as are two papers on 7 genera of Pepsinae.

Laszlo Moczar (c/o Dr. J. Papp, Hungarian Natural History Museum, H-1088 Budapest, Baross u. 13, Hungary) is revising the bifid Ceropalidae of the world and would appreciate loans of material.

Bob Matthews (Dept. of Entomology, Univ. of Georgia, Athens, Georgia 30602) has begun to revise the sphecid genus Microstigmus and would appreciate loans of material.

Jorge F. Genise (Museo Argentino de Ciencias Naturales, Av. Angel Gallardo 470, (1405) Buenos Aires, Argentina) is currently revising the argentine species of the family Tiphiidae. His completed papers on the neotropical Anthoboscidae and Bradynobaenidae are now in press.

Alexander V. Antropov (Zoological Museum, Moscow State University, Herzen Street 6, Moscow 103009, USSR) is working on a revision of the palearctic Trypoxylini (Trypoxylon and Pison). He would like to borrow material of these two genera especially from north Africa, the Mediterranean area including islands, and the Middle East, Central and East Asia, but is interested in seeing any palearctic specimens. Alexander also requests

help with the following problems: "can anyone tell me the location of type specimens of Trypoxylon hannibalis Gribodo, 1894 (Miscellanea Ent. 11:23), and Pison iwatai Yasumatsu, 1935 and P. strandi Yasumatsu, 1935 (both Annot. Zool. Japon. 15:231-234)?? The last two seem to be missing from the Entomology Collection at Kyushu University in Fukuoka according to Dr. Hirashima."

Bill Stubblefield (59 Winter Street, Belmont, Mass. 02178) writes "I have been able to spend a good bit of time on the San Rafael Desert (southern Utah), and I'm working on a paper on the nesting behavior and male territoriality in Philanthus parkeri, but will not be able to finish before I have to leave in a few days. Terry Griswold has determined the prey which includes 5 species of Perdita (including 2 undescribed ones), a Dialictus, and a Pluto. A confirmed wasp voyeur, I have logged more than 13 hours watching males on territories, but I never saw a female get anywhere close. Although I have only a few observations, it appears that P. parkeri has a distinct response when a wasp predator enters its territory. Instead of quickly aborting an approach flight and returning to a perch as happens when most things enter the territory, P. parkeri flees the area altogether for a matter of a couple of minutes when the intruder happens to be an asilid or a female P. basilaris. I wish I could stay this summer and try to find out more about this predator escape behavior by getting out my fly rod and introducing freshly killed specimens and various models into male territories.

My central plan and fervent hope is to get an NSF grant to allow 2 or 3 full field seasons on the San Rafael to work on Philanthus. I have already located nesting sites for 7 species, but have only very limited data for most of them. With 14 of the 33 North American species, the San Rafael is a Philanthus paradise! The proposed grant would be a joint effort with Jon Seger who, he assures me, is now writing our first report on P. sanbornii which will deal with our prey data for 5 different years (more than 3,000 prey items representing more than 100 species of wasps and bees, plus a couple of Stratiomyiidae). As I have once again joined the honorable ranks of the unemployed, I will finally have plenty of time to work on wasps during the coming year, and I plan to finish my work on P. parkeri and P. sanbornii in addition to submitting the NSF proposal this fall. The core of the proposal will be to keep to vehicles in the field throughout the wasp season from late April into October in order to document the behavioral ecology of as many species as possible at a variety of sites representing different habitats and different assemblages of Philanthus species.

J. Gervet (C.N.R.S. - I.N.P. 6 - 31, chemin Joseph-Aiguier, 13277 Marseille cedex 9, France) sends the following plea for help: "Chers Collègues, Nous sommes contactés par un Hopital faisant état de troubles sévères (notamment neurologiques) frappant des sujets ayant consommé des larves de guêpes frites, friandises en certains pays. En dehors d'hypothèses évidentes (insecticides ...) nous ne savons pas que répondre à cette demande et serions reconnaissant à tout collegue qui pourrait nous renseigner sur des cas analogues dûment constatés, et si possible, soignés avec succès.

Mick Day (BMNH) has submitted a petition to the ICZN that deals with the sticky problem of Heterogynidae Rambur vs Heterogyninae Nagy. Watch for this exciting article at your favorite library shelf.

Arnold Menke continues with the New World Pison. One section of the genus, the typical subgenus, is proving to be extremely difficult. Some of the species in it differ only slightly and associating sexes is going to be a problem. In fact it may be impossible in some cases. Male genitalia appear diagnostic but I have many more females than males. I have received material on loan from a few Sphecos readers, and am anxious to receive more from anyone having neotropical Pison.

Jung-Tai Chao (National Museum of Natural Science, Development Office, Box 17-126, 250 Kuo-Kwang Road, Taichung, Taiwan 400, Republic of China) completed his Ph.D. at the Univ. of Georgia, and returned to Taiwan. He is planning on continuing his vespid studies.

Monica Raveret-Richter (Dept. of Entomology, Cornell University, Ithaca, N.Y. 14853) is pursuing a Ph.D. under the direction of George Eickwort. She is studying the foraging behavior of vespid wasps.

Ole Lomholdt (Zoologisk Museum, Universitetsparken 15, DK 2100 Copenhagen, Denmark) writes that his "miscophine opus is being printed at the moment" [August]. It should be published by the time you receive this issue of Sphecos.

Mark O'Brien (Museum of Comparative Zoology, Univ. of Michigan, Ann Arbor, Mich. 48109) writes "I spent August 3-10 at the Huron Mountain Club once again, and had some great results. I now have behavioral data for both Ammophila evansi and mediata. Although they are both in the azteca group, they appear to act more like urnaria. A. evansi is found on rocky mountain slopes, nesting in organic soils, while mediata is found in Jack Pine areas, nesting in sandy or gravelly soil. [I have collected evansi mainly in boulder strewn areas such as mountain ridges, or along rivers here in the greater Washington DC area - Menke]. Both provision with a single large caterpillar. I'll have all this and more written up this fall and submitted for publication. I had hoped to work on Mellinus this time, and spent 20 + hours in the field, assisted by my wife, and all we saw was one female flitting about on some low vegetation. Meanwhile we caught lots in the malaise traps. Maybe they are produced by spontaneous generation in vapona-filled jars?"

Karl V. Krombein (Smithsonian Institution, Washington DC. 20560) has finished a revision of the Ceylonese Gastrosericus, a work coauthored with Woj Pulawski. It will appear in the Smithsonian Contributions to Zoology. Karl and Jack van der Vecht are presently working on a revision of the Ceylonese and south Indian Bembix and they expect to have it completed by the end of 1985.

Address Changes

Bill Stubblefield: 59 Winter Street, Belmont, Mass. 02178.
Laszlo Moczar: c/o Dr. J. Papp, Hungarian Natural History Museum, H-1088 Budapest, Baross u. 13, Hungary.
Sandy Shanks (formerly Gingras): Division of Plant Industry, California Dept. of Agriculture, 1220 N Street, Sacramento, Calif. 95814.
Chris Nagano: Entomology Section, Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, Calif. 90007.
Pier Luigi Scaramozzino: c/o Servizio Sperimentazione e Lotta Fitosanitaria, Regione Piemonte, C.so Grosseto 71/6, 10147 Torino, Italy.
Qabir Argaman: Dept. of Plant Protection, P.O. Box 78, Bet Dagan, IL-50240 Israel.
Allan Hook: Dept. of Zoology, Univ. of Texas, Austin, Texas 78712-1064.
George Gamboa: Dept. of Biological Sciences, Oakland University, Rochester, Michigan 48063.
Monica Raveret-Richter: Dept. of Entomology, Cornell University, Ithaca, N.Y. 14853.
Marcia Litte: Silver Birch Lane, Lincoln, Maine 01773 (probable only, unconfirmed)
Gail L. Motyka: Dept. of Entomology, American Museum of Natural History, Central Park West & 79th. Street, New York, N.Y. 10024.
Mike Arduser: c/o Dr. Jim Hunt, Dept. of Biology, University of Missouri-St. Louis, 8001 Natural Bridge Road, St. Louis, Missouri 63121.
Robert W. Longair: Dept. of Environmental Biology, Univ. of Guelph, Guelph, Ontario, Canada N1G 2W1.
Paul H. Williams: Dept. of Entomology, British Museum (Nat. Hist.), Cromwell Road, London SW7 5BD, England.
Jung-Tai Chao: National Museum of Natural Science, Development Office, Box 17-126, 250 Kuo-Kwang Road, Taichung, Taiwan 400, Republic of China.

Missing Person

Does anyone know the current address of Peter Miotk of West Germany?

Sphecos, No. 10:7, (1985)

Obituary

O. W. RICHARDS (1901-1984)
(see also Antenna 9(2):60)

Professor O. W. Richards, FRS, who died on November 10th at the age of 82, was head of the Department of zoology and Applied Entomology at Imperial College, London, from 1953 to 1967 and one of the most distinguished entomologists of his generation.

Owain Westmacott Richards was born on December 31st, 1901, the second of four sons of H. M. Richards, MD. He attended Hereford Cathjedral School and in 1920 entered Brasenose College, Oxford, where he was an Exhibitioner and Senior Hulme Scholar.

In 1924 he was elected Christopher Welch Scholar and over the next three years, helped by the resources of the Hope Department, he laid the foundations of his quite remarkably broad and deep knowledge of entomology. In 1927 Richards left Oxford to become research assistant to J. W. Munro at Imperial College and remained there for the rest of his professional life.

His main contributions were to evolutionary theory, ecology and taxonomy. The Variation of Animals in Nature, which he and G. C. Robson published in 1936, was an impressive critique of the over-facile arguments for natural selection then current. In ecology he considered that a primary objective should be the study of factors controlling the population density of individual species, and much of his work between about 1932 and 1960 was on the population dynamics of a variety of British Insects.

Taxonomy occupied Richards for nearly 60 years; he was an acknowledged authority on the sphaerocerid flies, but his most extensive work was on the systematics and biology of aculeate Hymenoptera, culminating in his magnum opus of 1978, the Social Wasps of the Americas. In all he was the author or joint author of over 180 papers and six books, including two extensively revised editions of the entomologist's bible, Imm's General Textbook of Entomology. Other notable books were: his 1962 A Revisional Study of the Masarid Wasps, his popular 1953 book Social Insects, and two parts of the Handbooks for the Identification of British Insects: Hymenoptera, Introduction and Key to Families (1956, revised 1977), and Scolioidea, Vespoidea and Sphecoidea (1980). Some of his taxonomic papers were book length monographs among which were: "The American species of the genus Trypoxylon" (1934), "The British Bethylidae" (1939), "A revision of the genus Mischocyttarus" (1945), "The Australian social wasps" (1978), and "A revision of Belonogaster" (1982). His 1951 paper "Observations on the social wasps of South America" co-researched and co-authored with his first wife, Maud J. (Norris) Richards, contained more information on the biology (excluding morphology and nest form) of tropical social wasps than had been published in all of the previous centuries. It is still the standard reference on neotropical social wasps, since it contains not only original observations on a huge number of genera and species, but also outlines original techniques for the analysis of wasp societies, and makes many still timely interpretations. Richards last two papers, published posthumously, appeared in 1985 (see Recent Literature).

Richards was in turn Secretary, President and Honorary Fellow of the Royal Entomological Society of London and a President and Honorary Member of the British Ecological Society. He was elected to the Royal Society in 1959 and was President of the 13th International Congress of Entomology at London in 1964.

An acutely analytical mind, an immense capacity for work, an ability to maintain active interest in topics on which he could sometimes only work intermittently, and a talent for pursuing general concepts while attending to minute detail, were some of Richards' leading characteristics.

He travelled widely in connection with his research, working in Australia, Tanzania, and especially in Guyana and Brasil where he took part in the Royal Society Mato Grosso Expedition. Much of this travel was done after his retirement and while he continued to enjoy facilities in the Entomology Department of the British Museum (Natural History).

As an Honorary Associate of the BM(NH), he was offered work space in the

Hymenoptera Section of the Department of Entomology. He donated to the Museum his collection of 69,000 Hymenoptera and 14,000 Diptera, mostly of British or European provenance. Over the ensuing years, he incorporated much of this material into the Museum collection, and devoted himself to concluding work on those groups which had become his major interests - the social wasps and other Vespidae, the bumble bees, and excursions into various groups of Sphecidae and the Dryinidae and Bethylidae.

In his last years, it is no surprise to find that the philosophy underlying his work and the manner of its presentation are typical of the generation to which OWR belonged, and amongst which he was a leading contributor. It was an age of integration of biological concepts with taxonomic practice, with development of multinomials in an attempt to reflect biological and zoogeographic complexity of species whilst at the same time inhibiting the excesses of "stamp-collector" taxonomy. Biology and taxonomy have co-evolved further during his lifetime. It is thus to be expected that his most recent contributions have an apparent idiosyncracy which is a reflection of that generation gap; the rigour and thoroughness of the modern taxonomist and his commitment to the users of his productions, have developed beyond the standards acceptable pre-war. There is also a tendency to the occasional lapsus calami which is the inevitable corollary both of confidence and of advancing years.

Despite this, his major recent contributions exhibit profoundly his intellectual strengths; the capacity for continuous, repetitive, some would say boring, hard labour to assemble a mass of data from literature and observation. The plain fact, of course, is that OWR was never bored by such work. The manner of presentation of the results was the area in which, philosophically, he represents a period in taxonomy; this should be borne in mind by those who may criticise this aspect of his work, and in particular the difficulty of using his identification keys. Nevertheless, his ability to review and synthesize masses of information was a function performed almost unconsciously; indeed, may have been part explanation for the lesser interest he gave to the final publication rather than the initial manucript.

O. W. Richards was essentially a very shy man. Entomologists who had been his students would be passed, without even a flicker of recognition, amongst the collections of the BMNH, and many have been incensed or embarrassed to be so treated. But had they approached him to seek his advice, discuss some problem or otherwise establish contact on a legitimate plane, then the reaction experienced would have been different indeed. A great fund of knowledge was freely available; specimens or papers would be consulted, the enquirer would be dragged helplessly along in the wake of exploration of avenues of research. Then, topic exhausted or further lines of study established, the whirlwind would subside; the interview would be at an end; O. W. Richards would withdraw shyly into himself again, and the enquirer should be about his business. Those who were privileged to know O. W. Richards on a more personal level were relatively few, for despite his scientific distinction and the great respect in which he was held, he was a very modest person, enjoying the company of young people and at his best among his family, friends and close colleagues.

Well read, accurately informed, a man of wide culture and varied interests, he was capable equally of almost boyish humour and incisive, sometimes devastating, comment.

In 1931 Richards married Maud Norris, herself an eminent entomologist. She died in 1970, and in 1972 he married R. B. Benson's widow, Joyce Benson (née McLuckie) who survives him with the two daughters of his first marriage.

(based on an obituary published in The Times, London, that was written by Gareth Davies and N. Waloff, and augmented by Mick Day and Mary Jane West Eberhard.)

RECOLLECTIONS OF O. W. RICHARDS

by
Howard E. Evans
(Colorado State University, Fort Collins, Colorado)

Once is a while, if one is lucky, he has an opportunity to become acquainted with someone he has admired for many years. Twice, while I was visiting the British Museum,

O. W. Richards and his wife graciously entertained me at their home in a London suburb. And twice I was privileged to spend some time with Richards in the field. The first occasion came about when we both happened to be guests of Bill and Mary Jane Eberhard at their former home in Cali, Colombia. Professor Richards (only a few times, much later, did I summon the courage to call him Owain) was trying to associate nests with particular species of social wasps. We had spotted a nest some 40 feet high in a tree bordering an orange orchard, and he was keen on collecting some of the wasps. There was no hope of climbing the tree, so we picked up oranges and threw them at the nest, hoping the wasps would attack us so that we could copture some. Since neither of us was much of a baseball or cricket player, it took a good many oranges before we hit it. Eventually we were indeed attacked, and we netted a short series of a species Richards later described as Synoeca septentrionalis. Fortunately there was no one around to observe the strange techniques of two wasp authorities!

On the second occasion we had (by prior planning) booked into the Fitzpatrick Hotel in Kuranda, Queensland. (Alas, the hotel has since been deomolished; as I recall beds were $2 a night and gin and tonics 22 cents.) I had spotted a large nest of Ropalidia romandi cabeti in a small eucalyuptus tree, and Richards wanted to harvest it. Since there were several branches passing through it, we went out late one night and cut most of them, arousing the wasps only moderately. The following night we went out at midnite. I climbed the tree with the clippers, Richards held a plastic sac below, and Mrs. Richards held the flashlight. I'm note sure what went amiss, but we missed the sac and the nest fell on the ground and disgorged an army of irate wasps. We rushed the nest into the sac and into the trunk of our car, whre it was left for 24 hours, wasps being killed by the heat of the next day. We were in no condition to dissect it right away anyway, as our fingers were so swollen from stings that we could hardly move them. Of course we took it philosophically, both having been stung so many times that our blood was half venom anyway.

But at first we were a bit distressed, and it was disconcerting to find, when we returned to our hotel at one A.M., that everything was locked up and barricaded in response to trouble with the aborigines. We yelled, but were unable to arouse anyone, and thought we might have to spend the night in our car nursing our wounds. But Richards spotted a fire ladder on the side of the building, ending about ten feet above the ground. Although I was a good many years younger than he, I confess it was he who scrambled up the wall, grasped the ladder, and ascended to the second floor to wake the proprietor.

During these two episodes, Richards was gathering data for his monographs of the American and of the Australian social wasps, respectively. Both were labors of love, done for the joy of discovery and the desire to make these wonderful insects more accessible to others. As readers of Sphecos will agree, wasps attract the best of people. Richards was the very best, a prince of sphecologists. We will not see his likes again.

IN THE FIELD WITH O. W. RICHARDS

by

R. M. Bohart

In April 1965 Frank Parker, my wife, and I met O. W. Richards and his first wife Maud in Las Cruces, New Mexico. Then we traveled in two cars north into central New Mexico. The avowed purpose of the trip was to collect Pseudomasaris, particularly phaceliae Rohwer. The Richards were excellent travelling companions and allowed us to make the choice of collecting sites. The first stop was along the shore of the Rio Grande River 12 miles north of Las Cruces. Fortunately, P. phaceliae was present in fair numbers. Owain (as I took the liberty of calling Richards) did not impress me by his collecting expertise. Frank Parker and I did quite well and gave some of our captures to Owain. Frank also located Pseudomasaris nests under rocks on the river bank. The rest of the trip was highlighted by Richards' habit of afternoon tea. We passed up many convenient city parks to end up on rather forbidding hillsides, where a

"Primus" stove, tea and cookies appeared from the Richards' trunk. Once, a curious bull and some cows joined the party and caused some momentary confusion. Owain eyed the bull sternly and the animal retreated. Mrs. Richards divulged that Owain insisted on afternoon tea during his travels all over the world, even once in his hospital room during a rare period of illness. Owain had some positive opinions which he readily expressed. For instance, if jelly or honey was on the table when meat was served, he had difficulty eating. "Never have meats with sweets!" I look back fondly on the New Mexico expedition.

Forum

SOCIAL DOMINANCE ?

by
C. K. Starr
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Leo Pardi's description of social dominance among colony-founding females of Polistes gallicus has for many years been a key part of our basic sociobiological education. We rightly regard it as a classic, for it opened up a whole new field of investigation in primitively social insects, parallel to an important area of vertebrate behavior studies. Many papers have been written about dominance hierarchies in social wasps since that time, so it might well appear that we have made substantial progress. Three main lines of inquiry radiate from the original treatment:

1. Generalization of the phenomenon, first to other Polistes and then to genera of wasps with comparable colony structure: Mischocyttarus, independent-founding Ropalidia, Belonogaster (maybe) and Parischnogaster.
2. Identification of the ultimate cause of submissiveness. West-Eberhard was the first to propose a kin-selected basis for the subordination of some females to some others, and it has since been shown that foundress groups do in fact tend to consist of sisters. The attempt to measure inclusive fitness of subordinates has not been especially successful, but it seems justified to expect that it will be.
3. Identification of proximate causes of submissiveness. The main candidates are poor initial ovarian development (= reproductive inferiority) and small size. The strength of the correlation between the two is not yet established. The role of the ovaries in determining dominance rank remains open to question, as results for P. gallicus from Pardi's lab and from Deleurance do not agree. This badly needs to be resolved. On the other hand, the finding that large size correlates well with high rank in P. gallicus (Pardi's lab) and P. annularis (Sullivan & Strassmann), while Raposo-Filho has failed to show the same for Mischocyttarus extinctus, seems to indicate a real difference between species, rather than a contradiction. Recently, there has also been investigation of the relationship between exocrine gland and dominance.

Despite all this, I cannot overcome a feeling that the appearance of progress is in large measure illusory. In some fundamental ways the accumulating body of results rests on a very weak base. There seems to me to be two serious problems.

First, the concept of dominance in use in any particular social-wasp paper is usually ill-defined. This would not be a matter for concern if we all meant the same thing and it were well known, but this is not the case. It is not too much to say that some authors show a very sloppy idea of what dominance is all about, and many others are rather vague about it. I don't recall having seen an explicit discussion of this since chapter 15 of The Insect Societies.

The really important thing is that social dominance is not an attribute of an individual or even of two individuals, but a realized relationship between them. To talk of an animal as "very dominant" or generally "submissive", except in relation to a particular other animal, is nonsense. In addition, the key behavior in the ontogeny of

the relationship is not that of dominating at all, but of submitting. A wasp may go around for hours with high posture and lunging at others, but until someone else submits to her she is not dominant. Even winning fights does not make for dominance if the losers do not learn to yield. It is possible for two animals each to submit to the other, but not possible for two to dominate each other. I believe it was the primatologist Thelma Rowell who for this reason remarked that dominance hierarchies should really be called "subordinance hierarchies".

For further discussion of what social dominance is and isn't, I refer to Bernstein (1981). The main paper by Bernstein is followed by commentary from 26 others, presenting an array of views on the subject.

Second, although dominance has been inferred in many species of wasps since P. gallicus, there has not been one single attempt to demonstrate and describe it with comparable rigor. This is not to say that every investigation of dominance in a new species should be as fundamental as Pardi's, but it is odd that in 40 years nobody has looked at any species closely enough to really be sure that it is acting like P. gallicus. Some of the inferences of a similar phenomenon are on extremely weak grounds. To be sure, a few authors (e.g. Itô and others in Japan) have been so bold as to say that they can detect nothing of the sort in their wasps, but many more feel obliged to see a linear dominance hierarchy wherever they look. The null hypothesis, that P. gallicus is unique in this respect, is almost certainly wrong, but it has yet to be proven wrong. To begin with, behavioral catalogs must be more explicit. Especially, the extreme of naming some undescribed or vaguely described pattern as "dominance behavior" and leaving it at that is unacceptable.

These two problems, the concept of dominance and the demonstration that it exists, can be brought together in the question of the immediate object of dominance. High rank implies priority with regards to something (e.g. mating, egg-laying, food, a favored resting place), and I see very little attempt in wasp studies to identify the objects of priority. To know who submits to whom without a fight is very important, but it still does not say what the winner has gained. This is not the same as knowing the ultimate cause of either dominance or submissiveness, though it is certainly closely related to it. It is more to be sought in the ontogeny of the relationship, which is what has been most neglected. In fact, I'm not sure "social dominance" can be usefully defined without reference to ontogeny, though function and immediate object should certainly be left out of the definition.

Lest there be any misunderstanding, let me say that I consider dominance studies central to the social biology of independent-founding wasps and very much admire much of what is being done. It is at least arguable, though, that real progress in this area is hindered by insufficient attention to the fundamentals.

Bernstein, I. S., 1981. Dominance: the baby and the bathwater. Behav. Brain Sci. 4:419-457.

SUBGENERA vs. SPECIES GROUPS
Or, are there too many subgenera?

by

Arnold Menke

Jim Carpenter and I had a little fun with bee lovers in our note on Nuclearbombus printed in Sphecos 9:28, Antenna 9:2, and in the Bull. Ent. Soc. Canada, p. 130. Although basically written for amusement, the article reflects my personal "negative" attitude toward the tendency for proliferation of subgenera in well studied wasp and bee groups (not to mention other insects). Hypersubgenerization is a good word for this phenomenon. As everyone is aware, subgeneric names compete with generic names in terms of zoological nomenclature. Thus, they must be accounted for. I think everyone will also agree that zoological nomenclature is already overburdened with names, the majority of which are from the Insecta. Why add to the horrendous mass of names via

additional subgenera when species groups would suffice in many instances? Well, one answer to that question is that taxonomists like convenient "handles", and subgenera are regarded as such. However, species groups serve equally well as "handles". The problem some people have with species groups is that they are not formal enough to suit them. Presumably some authors get considerable personal satisfaction from naming subgenera - the fabled "mihi itch". However, species groups inherently have much greater utility: being informal they can be divided, reconstituted, amalgamated, etc., without affecting zoological nomenclature.

Another aspect to the use of subgenera that I object to is that within any given genus, or from genus to genus, they are often not of equivalent rank. In other words, some subgenera are more distinct than others; or the subgenera within one genus may not be of comparable rank with those in a related genus. Thus, doesn't it make more sense to use subgenera sparingly, i. e., only for major divisions within a genus - groups that could almost be set off as separate genera? And then use species groups for all of the lesser, remaining assemblages?

There is another aspect to the use of too many subgenera that needs to be recognized. If generic names are well established and associated with natural (i.e., monophyletic) groups, there should be no need to fragment them into more genera. This destroys the information content associated with the name, and promotes an unstable nomenclature. Unreasonable and excessive use of subgenera in an established genus ultimately encourages such generic splitting. Eventual random elevation of these subgenera to genera because they are regarded as "distinctive" usually creates paraphyletic groups whose information content is questionably useful.

I'd now like to use an example to illustrate how ridiculous the recognition of subgenera can become (my opinion of course). There are about 33 species of yellowjackets in the world, and by and large I think most taxonomists would agree that they represent a fairly homogeneous, monophyletic group. The history of their classification has been nicely summarized in chronological form by Robin Edwards in his 1980 book Social Wasps. Suffice it to say that most authors, until fairly recent times, have treated these wasps as members of the genus Vespula. However, the modern trend has been to split the species between two genera: Dolichovespula and Vespula. This can be defended (apparently) on morphological grounds (Dolichovespula has a broad malar space). Dolichovespula was originally proposed as a subgenus. Now, depending on the individual "expert", the genera Dolichovespula and Vespula each may contain up to three subgenera! Some recent authors have gone even further - they have elevated some of these subgenera to genera! This is a natural tendency of course, especially for groups that become well studied. In effect, taxonomists become so wrapped up in "their group" that they lose sight of the overall picture. To use a well worn expression: "they no longer can see the forest for the trees". To put it another way, taxonomists get so close to their "pet" group that they fail to appreciate how minimal the differences are between the subgenera (or genera) that they recognize in comparison with related groups. In fact, some of the yellowjacket subgenera (or genera if you will) are recognized simply to contain the socalled "parasitic" species. Some authors feel that parasitic species cannot be in the same genus as their hosts - a philosophy I regard as irrational. In my opinion, genera must be based on morphological characters of both sexes. The tendency of taxonomists to pidgeon-hole every possible group as a genus or subgenus obscures evolutionary relationships instead of clarifying them. As Ehrlich and Murphy (1983) stated it in their paper on butterfly genera, "many (if not most) of the changes in thoroughly studied groups do not reflect new understanding of relationships."

So now some Europeans use Paravespula as a genus for the non-parasitic species, and Vespula for the parasitic ones. One result of this is a loss of information content. When an author uses the name Vespula what does he or she mean: Vespula in the old sense (33 + species); Vespula in the more restricted sense, i.e., Vespula vs. Dolichovespula; or at the extreme, restricted only to the few parasitic species? To me it is ludicrous to recognize more than two genera, Dolichovespula and Vespula (I would prefer to treat the former as a subgenus of the latter). Yet, once the trend of elevating their subgenera to genera is started, it acquires more and more followers.

In closing I'd like to say that there is a practical side to classifying organisms. Generic names should convey something to the broad audience, not just to taxonomists intimately familiar with the creatures involved. Vespula s.l. (and perhaps Dolichovespula) does this. The reader knows you are talking about yellow jackets. But Paravespula? If a name does not convey a lot of information, it does a disservice to the scientific community - communication becomes ambiguous.

[Thanks go to Dave Wahl and Eric Grissell for their input.]

Ehrlich, P. R. and D. D. Murphy, 1983. Butterfly nomenclature, stability and the rule of obligatory categories. Syst. Zool. 32:451-453.

NUCLEARBOMBUS FALLOUT

Several people sent in their reactions to Nuclearbombus - these are produced here for your digestion since they relate to my article on subgenera - edit.

Paul Williams (Dept. of Applied Biology, Univ. of Cambridge, Cambridge CB2 3DX, England) responded thusly: "I read your letters to Sphecos and Antenna with amusement. I think we all agree that 'species groups' exist and that labels for them are useful to specialists. However the use of formal subgeneric names for these labels should not be permitted to excuse a confusing proliferation, with the ensuing waste of effort in identifying synonymies rather than insects. Their disadvantage is particularly acute when it is not always made clear whether subgeneric names are being elevated to generic status (cf. Vespinae)."

"I am trying hard to spot the forest. I have a paper that appeared in the April issue of Systematic Entomology in which I made a preliminary attempt at an estimate of the phylogeny of bumble bees. This was based on characters of the male genitalia, which were selected because I believe that they are most likely to follow the simple divergence model of evolution assumed by the cladistic method. Several people have suggested that my estimates for the numbers of species in many subgenera are conservative, so perhaps I may even be considered guilty of 'lumping'! I suspect from the material I have seen, that many previously recognized species, especially from Asia, probably represent only minor colour variation."

"But your central point concerns the plethora of subgeneric names. This is illustrated by Table 1 from my paper, which includes many of them (I had not been informed that Digressobombus was finally accepted at the time of going to press). The list is formidable, unnecessarily so, but this is the problem with a group that has already received so much attention. In my paper I stated that for purposes of the preliminary analysis, I would try to maintain the stability of this system which is in wide use among specialists. The result is shown in Figure 9, in which the number of subgeneric names has been reduced from 50 to 33 [a small step for a bumble bee taxonomist, a big step for bumblebeedom! - edit.]. Others need not worry if they require only an identification as 'Bombus sp.' once the local fauna has been rigorously established. So I hope I'm on your side!"

"I am genuinely interested to learn of approaches to improving the performance of such a system for presenting information usefully. I would appreciate comments very much."

"P.S.: Please don't bombus without warningus. We're still working on Extraterrestrial Antibombus that will intercept Nuclearbombus in flight.... SAC & PHW".

Kees van Achterberg (Rijksmuseum van Natuurlijke Historie, Leiden, Holland) says: "I fully agree with your proposal about 'Nuclearbombus'; in general the whole systematics of Apidae (e.g. Apoidea, Bombidae, etc.) is inflated without good reason."

Sphecos, No. 10:14, (1985)

Working towards a useful subgeneric classification in Bombus: a viewpoint

by
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I was sorry to see Menke and Carpenter (1984) 'describe' another subgenus of Bombus in Sphecos. There are many fine minds in Europe, North America, and Japan, who have done much to clarify the subgeneric relationships of Bombus (Rasmont 1983, Williams 1985). The conflicting systems that recognize two, three or more than eight genera suggest the relationships between some groups are subtle. Accurate recognition of some species has proved tricky and some species are still not exactly resolved even in Europe where the species have been studied most intensively (Pekkarinen 1979, Plowright and Stephen 1981, Delmas 1981, Rasmont 1983).

Studies of less traditional or accessable characters on a limited part of the 260 or so species of bumble bees are beginning to shed more light on the subgeneric relationships. Even the relatively insignificant proventriculus has at least three more characters (Macfarlane 1976, unpublished data) that show up further differences between the subgenera. Studies need to be extended on tongue structures (Michener and Brooks 1984), chromosome numbers (Owen 1983), surface sculpture of the eggs (Salkeld 1978), larval morphology (Cumber 1949, Stephen and Koontz 1973), and biochemical analysis (Pamilo et al 1981, Obrect and Scholl 1981) so there is more basic information for analysis in revising the subgeneric classification. Besides nothing or very little is known about caste control and comparative details of the biology of species in over a third of the subgenera which account for about a fifth of the species. This applies particularly to primarily 'alpine' subgenera from South America, the Himalayas and China, e.g., Alpigenobombus, Funebribombus, Orientalibombus, Pressibombus, Rufipedobombus, Robustobombus and Rubicundobombus. Biological records of other American or Asian subgenera, e.g., Brachycephalibombus, Coccineobombus, Senexibombus and Tricornibombus is also scanty. The sentiments expressed by Menke and Carpenter (1984) against subgenera proliferation are easy to sympathize with and perhaps some day a genius can produce a welcome and succinct synthesis that lowers the number to a more manageable amount for ready identification, and reduces the less clearly defined subgenera to species groups. Williams (1985) and others like myself hope a better subgeneric classification will improve predictions when our colleagues from less developed countries seek advice on the biology and prospects of economic development of these endearing bees. Your readers who are investigating the taxonomy of social wasps might find these studies on bumble bee taxonomy will give them some insights into the more profitable lines of investigation. Any of your readers who like biochemical analysis, SEM studies, etc., or who work in Asia or Central and South America can help fill in gaps in our knowledge to assist the bemused bumble bee taxonomists.

In the spirit of Menke and Carpenter (1984) I would like to propose a equally simple rival classification. Here from 'down under', where the air is as clear of nuclear threats as possible, the practical solution to this dilemma seems obvious. The species of Bombus should be placed in just two subgenera.

1. Buzzybombus - the species that are used commercially in plant breeding, e.g., in Europe (Luzny 1962, Pinchinit et al 1978, Pouvreau and Marilleau 1980), or on farm or orchard crops (Macfarlane et al 1983, 1984, Donovan and Macfarlane 1984, Macfarlane and Griffin 1985) so far only in New Zealand.

2. Fuzzybombus - species not yet used commercially by mankind.

Clearly the subgeneric status of Bombus will have been resolved when all species are put in Buzzybombus, because by then we will have gone beyond understanding them in the current fuzzy way. Therefore please spare a thought for the next bumble bee you see, because she is probably misunderstood.

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Sphecos, No. 10:16, (1985)

Scientific Notes

WASP VENOM AND PUPAL CUTICLE OF HOST CATERPILLARS

by
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Several years ago, in mid-August, at Mountain Lake Biological Station in the Appalachian Mountains of western Virginia, I found a large papilionid larva on the ground in a cleared area--an unlikely place for it to be. Although alive, it seemed partially paralized and though able to move slightly was unable to crawl. In a few days, hard pupal cuticle formed beneath the paler, soft larval skin. But an oval area about 5 mm long, on the ventral surface close behind the metathoracic legs, remained soft and pulsated faintly from time to time. A couple of weeks later, the insect died, and I dissected it to see whether the rhythmic movements seen at the soft ventral area were due to parasitoids of some sort. None were found, so I concluded the larva had been paralized by an aculeate wasp, that the soft area surrounded the site of a paralyzing sting, and that the pulsations were from the dorsal vessel.

Later, in 1971, I was observing activities of one or more females of Monobia quadridens nesting in bamboo wind-chimes of my porch, in Lawrence, Kansas. In early September, the wasps had begun their nesting by opening nest cells of a megachilid, Osmia lignaria, the had been made in the bamboo tubes much earlier. It was a case of uncommonly violent, competitive nest supersedure, in which the wasps dragged out the pharate adult bees and dropped them from the vertically oriented tubes. The Monobia then made its own cells, which were provisioned with green pyralid caterpillars. When some of the wasp's cells were later opened, it was discovered that some of the caterpillars had pupated and had brown, hardened cuticle. Each of these, however, had an oval, soft, green area on the ventral surface just behind the metathoracic legs. Again I supposed that this area was where the caterpillar had been stung by the Monobia wasp and that the venum somehow had prevented the formation of pupal cuticle near the point of the sting.

Subsequent examination of more mature cells revealed that the larvae of Monobia had consumed the paralized caterpillars while the pupated ones appeared at first intact. Upon closer inspection, I found that the Monobia larva had gained entrance through the soft spot on the venter and had consumed most of the contents, leaving hollow pupal shells.

If a wasp that mass-provisions its cells with caterpillars at a time (season) when those caterpillars are nearing pupation, and if the paralysis from the venum does not inhibit pupation and the formation of hard, thick pupal cuticle, the larvae of the wasps might be unable to obtain enough nourishment from the provisions to complete their own development. If, however, the venum was sufficient to prevent formation of pupal cuticle in at least enough of the prey surface to allow penetration of the head of the wasp larva, then the contents of pupated caterpillars would not be lost to the wasp larva. It is easy to hypothesize that the venom of such wasps evolved so that it would not only paralyze the prey but would include some chemical fraction that would locally inhibit vormation of hard pupal cuticle.

This hypothesis seems to me worth further investigation. One might well begin with Monobia quadridens--a common enough species--and extract venom from the female wasps. One then could determine what caterpillars are utilized as prey by M. quadridens, collect these late in their last larval instar, and experimentally inject the venom at various places just prior to pupation. Other species of wasps could similarly be investigated (for it seems certain that the large papilionid caterpillar was not prey of a wasp the size of Monobia quadridens). Someone with an interest in the venoms of aculeate Hymenoptera might want to look into the biochemistry of what I have described. A physiologist interested in cuticle formation might find this an attractive question for research. In either case, the help of a competent entomologist who knows the wasps and their prey would be essential.

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THE PREY OF LAPHYRAGOGUS TURANICUS GUSSAKOVSKIJ (Hymenoptera: Sphecidae)

by

Vladimir L. Kazenas

(Zoological Institute, Akademgorodok, Alma-Ata 32, USSR)

Some years ago I was in Tadzhikistan where I collected digger wasps. One day I was on the river Wahsh near the village of Garawuti. Suddenly I saw a light colored wasp in the air. It was a female of Laphyragogus turanicus, and it was bringing prey to its nest which was in dry sand. After it left the nest, I attempted to dig it up, but the sand was very friable and I couldn't follow the tunnel. At about 10 cm down in wet sand I found two cells. There were 2 moths in one and 4 in the other. My collegue in Alma-Ata, A. B. Zhdanko, determined the prey as males and females of the pyralid genus Crambus. Up to now nothing has been published on the biology of this sphecid genus. The lepidopterous prey of Laphyragogus is unlike anything in the Larrinae and Astatinae, and it indicates a high biological specialization in this genus. Also, it substantiates that the Laphyragoginae is an independent subfamily of digger wasps. [Vladimir: did you obtain any larvae? - edit.]

MATERIALS USED IN BLOCKING CELLS OF NEST BY CHALYBION (CH.) BENGALENSE (DAHL.)

by

Sumit Chakrabarti

(5, North Kaugachi, Feeder Rd., P.O. Shamnagar, 24 Pgs., W. Bengal, India.)

During the last 5 years (1979-1984) I have observed nesting of Chalybion (Ch.) bengalense at Shamnagar (31 km away from Calcutta). The wasp never builds its own nest but uses empty cells of Sceliphron spp., Chalybion spp., tubular holes in the wall, plug-point, etc. After provisioning a cell with spiders the wasp uses different materials to block the mouth of the cell. I noted the following:

Mud: At first the wasp uses mud to block the cell. Two or three layers of mud are deposited. From two sources it collects mud. Generally the wasp digs clay from a wet mud patch near its nesting site. Sometimes it digs mud from the open edges of the mud cells where it is nesting. It should be noted that before the wasp uses the following materials, initially a mud plug is always made.

Bird droppings: Chalk-white excreta of birds are collected by the wasp. But sometimes detritus of the droppings are also used. I saw the wasp collecting faeces of the house sparrow (Passer domesticus).

Cow dung: A thick layer of cow dung is used in plugging. During collection the wasp rejects large pieces of detritus from the cow dung.

Resinous material: Sticky resinous secretions are used in plugging. The source (most probably plant) is not yet observed.

Garbage: Dirty materials having small pieces of stick, hard mud and sand granules are used.

Rotten plant material: In a garden uprooted banana plants (Musa paradisiaca) were kept in a corner. I observed the wasp collecting fleshy rotten material from the inner core of the stem and depositing it as a cell-blocking plug.

Discussion: Chalybion (Ch.) bengalense prefers to use mud and bird droppings in blocking the cell. Occasionally only mud plugs are used with nothing deposited on it.

Remaining materials are rarely used. Use of vertebrate faeces in cell-blocking was noted by Maxwell-Lefroy (1907, Insect Life, Agr. Res. Inst., Pusa, New Dehli, India). Jayaker and Spurway (1963, J. Bombay Nat. Hist. Soc. 60:748) recorded the wasp using bird droppings and the faeces of pet tortoises (Testudo eleyans) and chuchunder (Suncus murinus). Now I am observing the aspect in every detail.

WASP-WHISTLING

by
W. L. Overal
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I have been in the field with entomologists who sniffed ants, tasted termites and polished ticks on their sleeve. Each justified his questionable behavior, inviting me to join him in his quirk. Now it is my turn to say why I whistle at Polybia nests, even small and drab ones. Perhaps some one can explain why the wasps don't like my whistling.

In 1977, Mrs. Anne Brian-Jones showed me her pet Polybia sericea which would come when whistled at. The nest was about 4 m above the ground in the garden of the Goodyear Rubber Plantation at Sao Francisco do Para, near the city of Belém. The gardener, whom I did not meet, had earlier presented what he called his "trained wasps". Naturally, I had to see this for myself. When I whistled (a shrill C above middle C), wasps ran out of the nest and covered the nest envelope. Upon louder whistling, they displayed with raised wings and then flew. I left hurriedly, but impressed.

From many repetitions over seven years, I concluded that this response to my whistling is general in Polybia sericea, P. rejecta, and P. occidentalis. Polybia chrysothorax and Epipona tatua sometimes behave in this manner. The case of P. sericea is most clear-cut: talking does not disturb them, but they can be whistled into a stinging frenzy.

Whether the stimulus is air-borne sound or vibration of the nest is a moot point, but it is not obvious how a phragmocyttarous nest envelope can act as a resonator for sound reception, especially when covered with wasps. I suspect that air-borne sound (whistling in the wind) is the stimulus.

Jeanne (1970) showed that bats attack nests of P. sericea, and Windsor (1976) reviewed the many reports of birds preying on Polybia colonies, adding specific observations on the grey-headed kite, Leptodon cayanensis, as a predator of P. occidentalis and P. barbouri. Naumann (1970) noted that Protopolybia sedula in Panama responded to some sounds, such as human voices and bird calls. With a frequency generator he found that the strongest responses were provoked at 8000 hz, while flight was elicited in the range of 4000 to 8000 hz. These frequencies are components of many bird and mammal vocalizations. Could my whistling stimulate defensive behavior in Polybia colonies by mimicing the calls of predators?

This explanation would seem to founder on the peaceable relations between the yellow-rumped cacique, Cacicus cela, a colonially nesting oriole, and P. rejecta. Even carnival-loving Brazilians complain of the noise of these birds, but the wasps remain tolerant. That toleration is a learned behavior (habituation) for P. rejecta, an aggressive species, was apparent when I hooked up an electric buzzer to the branch near a large (80 cm) nest. Buzzing the wasps (turnabout?) from a safe distance of 10 m, I observed the initially massive response of the wasps decline every 5 minutes with each successive stimulus, until after 2 or 3 hours both the wasps and I became inured to this practical joke .

Uté, a Kayapó Indian from the Gorotire Infigenous Reserve on the Fresco River in Pará State, explained the nesting of the orioles with P. rejecta as a defense of these birds against some raptor whose name I did not catch. His story had enough anthropomorphism to make Aesop blush, and my normal incredulous look must have spurred him to prove his point in dramatic fashion. He half-whistled, half-whooped the call of

a hawk and brought down upon us a swarm of wasps from a previously unaroused colony some 6 or 7 m from us. I was stung three times on the head while the wasps overlooked their true tormentor. Without a doubt, wasp whistling does have its risks, but I have yet to give up. I am learning to imitate bird calls.

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BIRD PREDATION ON A SOCIAL WASP'S NEST

by
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Martin sent the following early observation by Captain Charles Stuart Cochrane taken from his "Journal of a residence and travels in Colombia" (2 vols., 1825). Martin says that "Cochrane was no naturalist, so the 'hawk' could be some species of shrike-like bird." The excerpt is from vol. 2, p. 239 - when crossing Rio Quello on road from Bogota to Ibaque.

"When on the point of fording the river a curious incident occurred: I observed a small hawk, flying with a branch of a tree in his mouth which he dropped on the bank near me, and commenced eating. I immediately rode up to see what he was devouring, and discovered that it was a wasp's nest, formed in the forked part of a small branch of a tree; the hawk had, by constant pecking, broken the branch with his beak, and had then flown with his prey to the river, where he had well dunked them, for the poor wasps appeared half drowned; and then, as they commenced crawling out of their cells, the hawk ate them one by one."

LIST OF PARASITOIDES OF POLISTINE WASPS

by
Shun'ichi Makino
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When I began to study the biology of social wasps several years ago, it appeared to me that it was hardly possible for parasitoides to invade their colonies, and that the latter were free from parasitism. This impression, possibly arising from my overestimation of the vigilance or defensive ability of workers, turned out to be quite wrong indeed. I found that the lists of parasitoids (and commensuals) of vespines and polistines, such as Spradbery's (1973) and Nelson's (1968), were quute long. Since then I have been interested in the biology of these parasitoids, especially in their tactics to sneak into nests of the hosts, and in the extent to which they cause the loss of productivity upon the host colonies.

The list presented here is a revised form of the table accompanying a short review of biology of parasitoids of polistines (Makino, 1983b) published in the newsletter of the Society of Population Ecology of Japan, with some additions to and corrections of the original. As for parasitoids accompanying Polistes species in the United States, Nelson (1968) gave a detailed, useful list, but, as far as I am aware, lists dealing with parasitoids on a world-wide scale have not been published, so this list may be interesting to Sphecos readers.

I should here make clear the criterion I adopted in deciding whether or not a certain species should be included in this list. In principle, this list contains only primary parasitoids (predatory parasites) of polistines. Obvious commensuals and hyperparasitoids are excluded; but some species, especially moths, that are difficult to determine whether they are parasitoids or commensals are included if they are recorded to be found on active colonies of the hosts. Some parasitic wasps (torymids and chalcids) that may be hyperparasitoids are included because their biologies are not known. Mutillids are quite doubtful parasitoids of polistines, when we consider their habits, but are also included for the same reason.

In order to save space, only a part of sources of information are listed. Readers who want to get further information should consult the references contained in the authors cited.

I know, of course, that this list is far from complete. If any reader knows of parasitoid records missing from my lists, I would appreciate hearing from them. please Moreover, a large part of the tropical polistines have not been studied for their biologies, so there will be many more parasitoids on the earth than are compiled here, Horatio. "It is important to accumulate data on the enemies of the wasps (Richards, 1945)", to understand the latter better.

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Sphecos, No. 10:22, (1985)

List of parasitoids of polistines

Species	Host	Source
HYMENOPTERA		
1. Trigonalidae		
Nomadina cisandina	*Polybia dimidiata*	Schulz, 1907
Nomadina cisandina	*Stelopolybia angulata*	Jeanne, 1970
Nomadina sp.	*Stelopolybia angulata*	Richards, 1978a
Seminota marginata	*Apoica pallida*	Richards & Richards, 1951
Seminota marginata	*Polistes versicolor*	Richards & Richards, 1951
Seminota sp. nr. *depressa*	*Polistes canadensis*	Jeanne, 1979
Pseudonomadina biceps	*Ropalidia flavobrunnea lapiniga*	Yamane & Kojima, 1982
Bakeronymus typicus seidakka	*Parapolybia varia*	Yamane & Terayama, 1983
2. Ichneumonidae		
Sphecophaga vesparum burra	*Polistes* sp.	Nelson, 1968
Sphecophaga vesparum burra	*Polistes metricus*	Nelson, 1968
Pachysomoides fulvus	*Polistes apachus*	Nelson, 1968
Pachysomoides fulvus	*Polistes cubensis*	Nelson, 1968
Pachysomoides fulvus	*Polistes fuscatus*	Nelson, 1968
Pachysomoides fulvus	*Polistes metricus*	Nelson, 1968
Pachysomoides fulvus	*Polistes annularis*	Nelson, 1968
Pachysomoides fulvus	*Polistes fuscatus variatus*	Nelson, 1968
Pachysomoides fulvus	*Polistes fuscatus variatus*	Nelson, 1968
Pachysomoides fulvus	*Polistes fuscatus pallipes*	Nelson, 1968
Pachysomoides fulvus	*Polistes pallipes*	Nelson, 1968
Pachysomoides fulvus	*Polistes rubiginosus*	Nelson, 1968
Pachysomoides fulvus	*Polistes fuscatus pallipes*	Nelson, 1968
Pachysomoides fulvus	*Polistes fuscatus apachus*	Nelson, 1968
Pachysomoides fulvus	*Polistes canadensis*	Nelson, 1968
Pachysomoides fulvus	*Polistes exclamans*	Strassmann, 1968
Pachysomoides stupidus	*Polistes annularis*	Nelson, 1968
Pachysomoides stupidus	*Polistes exclamans*	Nelson, 1968
Pachysomoides stupidus (as Pachysomoides stupida)	*Polistes erythocephalus*	Nelson, 1971
Pachysomoides flavescens (as Pachysomoides fulvescens)	*Polistes cubensis*	Nelson, 1968
Pachysomoides iheringi	*Polistes canadensis*	Jeanne, 1979
Pachysomoides iheringi	*Polistes versicolor*	Townes & Townes, 1966
Pachysomoides vespicola	*Polistes melanosoma*	Townes & Townes, 1966
Toechorychus albimaculatus	*Polistes canadensis*	Jeanne, 1979
Toechorychus abactus	*Mischocyttarus indeterminabilis*	Townes & Townes, 1966
Toechorychus cassunungae	*Mischocyttarus cassununga*	Townes & Townes, 1966
Toechorychus cassunungae	*Mischocyttarus indeterminabilis*	Townes & Townes, 1966
Toechorychus sp.	*Mischocyttarus styx*	Richards, 1978a
Toechorychus sp.	*Mischocyttarus cooperi*	Richards, 1978a
Toechorychus sp.	*Mischocyttarus flavicornis nigricornis*	Richards, 1978a
Latibulus argiolus	*Polistes gallicus*	Guiglia, 1972
Latibulus argiolus	*Polistes "biglumis"*	Makino, 1983a
Latibulus argiolus	*Polistes snelleni*	Makino, 1983a
Latibulus argiolus	*Sulcopolistes semenowi*	Guiglia, 1972
Latibulus siculus	*Polistes gallicus*	Guiglia, 1972
Latibulus siculus	*Sulcopolistes sulcifer*	Guiglia, 1972
Arthula formosana	*Ropalidia fasciata*	Itô, 1983

Arthula flavofasciata	Polistes yamanakai	Townes, Momoi & Townes, 1965
Arthula flavofasciata	Polistes mandarinus	Townes, Momoi & Townes, 1965
Arthula flavofasciata	Polistes takasagonus	Townes, Momoi & Townes, 1965
Arthula sp.	Polistes humilis humilis	Richards, 1978b
Arthula sp.	Ropalidia plebeiana	Richards, 1978b
Mesostenus gladiator	Polistes gallicus	Guiglia, 1972
Ephialtes extensor	Polistes gallicus	Guiglia, 1972
Camptotypus apicalis	Belonogaster juncea colonialis	Keeping & Crewe, 1983
Camptotypus apicalis	Belonogaster petiolata	Keeping & Crewe, 1983

3. Eulophidae

Elasmus polistis	Polistes exclamans	Burks, 1971
Elasmus polistis	Polistes annularis	Burks, 1971
Elasmus polistis	Polistes fuscatus	Burks, 1971
Elasmus polistis	Polistes metricus	Reed & Vinson, 1979
Elasmus japonicus	Polistes jadwigae	Iwata & Tachikawa, 1966
Elasmus japonicus	Polistes "biglumis"	Makino, 1983a
Elasmus japonicus	Polistes snelleni	Makino, 1983a
Elasmus schmitti	Polistes gallicus	Guiglia, 1972
Elasmus schmitti (as Elasmus invreae)	Polistes omissus	Guiglia, 1972
Elasmus biroi	Polistes opinabilis	Burks, 1971
Elasmus lamborni	"vespid nests"	Burks, 1971
Tetrastichus nidulans	Polistes biglumis bimaculatus	Guiglia, 1972
Tetrastichus nidulans	Polistes gallicus	Guiglia, 1972
Pediobius ropalidiae	Belonogaster spp.	Richards, 1969
Pediobius ropalidiae	Polistes spp.	Richards, 1969

4. Chalcididae

Brachymeria discreta	Polistes instabilis	Nelson, 1968
Brachymeria sp.	Brachygastra augusti	Richards, 1978

5. Torymidae

Monodontomerus minor	Polistes exclamans	Nelson, 1968
Amoturoides breviscapus	Ropalidia plebeiana	Richards, 1978a

6. Mutillidae

Dasymutilla castor	Polistes fuscatus	Nelson, 1968
Pycnotilla barvara var. brutia	Polistes sp.	Mickle, 1928
Tropidotilla littoralis	Polistes sp.	Mickle, 1928

NEUROPTERA

1. Mantispidae

Trichoscelis varia	Polybia ruficeps ruficeps	Richards, 1978a
Trichoscelis sp. ? varia	Polybia jurinei	Richards, 1978a
Trichoscelis varia (as Symphrasis varia)	Polybia occidentalis scutellaris	Parfin, 1958
Trichoscelis varia (as Symphrasis varia)	Polybia sp. ? rejecta	Parfin, 1958
Mantispa sp.	Polybia sp. ? rejecta	Parfin, 1958

DIPTERA

1. Tachinidae

Koralliomyia portentosa	Ropalidia marginata	Belavadi & Govindan, 1981
Koralliomyia sp. ? portentosa	Ropalidia marginata	Crosskey, 1976
Koralliomyia sp.	Ropalidia marginata jucunda	Crosskey, 1973
Koralliomyia sp.	Polistes sp.	Crosskey, 1976
Envespivora decipiens	Ropalidia sp.	Crosskey, 1976
Envespivora decipiens	Polistes sp.	Crosskey, 1973
Anacamptomyia bisetosa	Belonogaster junceus	Richards, 1969
Anacamptomyia nigriventris	Polistes humilis humilis	Richards, 1978
Anacamptomyia nigriventris	Polistes sp.	Crosskey, 1973
Anacamptomyia rufiscens (as Roubaudia rufiscens)	Belonogaster sp.	Roubaud, 1910
Anacamptomyia rufiscens (as Roubaudia rufiscens)	Icaria sp.	Roubaud, 1910
Anacamptomyia africana	Polistes marginatus africanus	Fitzgerald, 1940
Anacamptomyia sp.	Belonogaster juncea juncea	Keeping & Crewe, 1983
Anacamptomyia sp.	Belonogaster petiolata	Keeping & Crewe, 1983
Anacamptoymia sp.	Ropalidia socialistica	Hook & Evans, 1982
Polybiophila fitzgeraldi	Polybia occidentalis	Richards & Richards, 1951
Polybiaphila sp.	Mischocyttarus flavicornis nigricornis	Richards, 1978a
Ophiron sp.	Polybia juruana	Richards, 1978a
Telothyriosoma polybia	Polybia rejecta	Richards & Richards, 1951

2. Sarcophagidae

Sarcophaga polistensis	Polistes apachus	Nelson, 1968
Sarcophaga sp. nr. bullata	Polistes exclamans	Nelson, 1968
Sarcophaga sp. nr. bullata	Polistes annularis	Nelson, 1968
Sarcophaga sp. nr. bullata	Polistes metricus	Nelson, 1968
Macronychia conica	Polistes gallicus	Guiglia, 1972

3. Phoridae

Megaselia scalaris	Polistes canadensis	Richards & Richards, 1951
Megaselia scalaris	Stelopolybia testacea	Jeanne, 1970
Megaselia sp. nr. scalaris	Mischocyttarus labiatus	Litte, 1981
Megaselia aletiae	Polistes exclamans	Nelson, 1968

LEPIDOPTERA

1. Pyralidae

Chalcoela iphitalis	Polistes carnifex	Nelson, 1968
Chalcoela iphitalis	Polistes exclamans	Nelson, 1968
Chalcoela iphitalis	Polistes instabilis	Nelson, 1968
Chalcoela iphitalis	Polistes major	Nelson, 1968
Chalcoela iphitalis	Polistes metricus	Nelson, 1968
Chalcoela iphitalis	Polistes annularis	Nelson, 1968
Chalcoela iphitalis	Polistes fuscatus	Nelson, 1968
Chalcoela iphitalis	Mischocyttarus basimacula	Rau, 1943
Chalcoela iphitalis	Mischocyttarus sp.	Nelson, 1968
Dicymolomia pegasalis	Polistes annularis	Nelson, 1968
Dicymolomia pegasalis	Polistes crinitus	Nelson, 1968
Dicymolomia pegasalis	Polistes bellicosus	Nelson, 1968

Dicymolomia pegasalis	Polistes pallipes	Nelson, 1968
Dicymolomia pegasalis	Polistes fuscatus variatus	Nelson, 1968
Dicymolomia pegasalis	Polistes rubiginosus	Nelson, 1968
Dicymolomia pegasalis	Polistes exclamans	Nelson, 1968
Dicymolomia pegasalis	Polistes fuscatus	Nelson, 1968
Dicymolomia pegasalis	Polistes metricus	Nelson, 1968
Hypsopygia postflava	Polistes jadwigae	Inoue, 1982
Hypsopygia mauritialis	Polistes jadwigae	Matsuura, 1977

2. Tineidae

Tinea fusipunctella	Polistes annularis	Nelson, 1968
Tinea latebricola	Polistes canadensis	Nelson, 1968
Tinea carrariella	Polistes annularis	Nelson, 1968
Tinea carrariella	Polistes exclamans	Nelson, 1968
Taeniodictys servicella	Polistes crinitus	Nelson, 1968
Antipolistes anthracella	Polistes crinitus	Nelson, 1968
Antipolistes anthracella	Polistes cubensis	Nelson, 1968

3. Cosmopterygidae

Anatrachyntis sp.	Polistes chinensis antennalis	Miyano, 1980
Pyroderces orphnographa	Belonogaster spp.	Richards, 1969

4. Gelechiidae

Epithectis sphecophila	Polistes canadensis	Meyerick, 1936

Pet Peeve Department

All of us have opinions on various subjects, some minor in nature. Here is a new section of Sphecos where you can air your pet gripes or whatever. As an example of what I mean I offer the following:

As many of my colleagues here at the U.S. National Museum know from my reviews of their manuscripts, one of my pet peeves involves what I regard as a misuse of the word "erect" in connection with the establishment of new genera or subgenera. One commonly reads "I am erecting this genus for .....". Whenever I see such statements in manuscripts sent to me for review I tell the author that buildings and other structures are erected, and that that thing between your legs may become erect, etc., but in connection with new taxa it is far better to use words such as establish, propose, or describe.

Rayment's Drawings

The whereabouts of Tartlon Rayment's original drawings remains an enigma (see Sphecos 9:19). George Eickwort sent in the following information: "In response to the footnote in Rodd's biography of T. Rayment (Sphecos 9:19), I inquired of the Cornell University Library System if T. Rayment's original drawings were in the library. Indeed, the catalog does indicate that the drawings were deposited at Cornell in 1951, acquisition no. SF 526/R26. After a thorough search, they could not be located and are 'officially missing' and presumed stolen."

Russian Translation

Rasnitsyn's 1980 book on the "Origin and evolution of Hymenoptera" is in the USDA's translation program. How long it will take is unknown, but I will keep you posted - edit.

Newsletter News

Ichnews, long dormant, has been resurrected by Paul Marsh, Systematic Entomology Laboratory, USDA, c/o U. S. National Museum, Washington DC 20560, and Mike Sharkey, Biosystematics Research Institute, Ottawa, Canada K1A 0C6. Issue #7 appeared in July. Somewhat reconstituted, Ichnews now includes braconids and related -ids. Those interested in "itchneumons" and their kind should contact Sharkey or Marsh.

Ron McGinley, Dept. of Entomology, Smithsonian Institution, Washington DC 20560 and Charles Michener, Univ. of Kansas, Lawrence, Kansas are about to lauch "Bee Buzz", a newsletter devoted to, you guessed it, forked hair apoids. Based on the mail I have received from frustrated newsletterless bee workers, this news should be widely welcomed in the bee community. Ron and Mich are to be congratulated on their new endeavor - they will need plenty of support.

The order Hymenoptera is fast becoming well covered by newsletters, and the entomologists at the Smithsonian are playing a leading role in their production. The only major groups still without newsletter support are the ants and the cynipoid wasps. The ant situation may change however. James C. Trager, Dept. of Entomology, Univ. of Florida, Gainesville, Fla. 32611, has told me that he is contemplating starting up a newsletter for ant workers. Let's hope he follows through with this.

Trivia

The notorius wasp, Aha ha, may gain additional fame for another reason. I have been told recently that it may be the shortest scientific name ever concocted for an animal. Perhaps fans of Trivial Pursuit in our readership will come up with a shorter one.

Trager Response To Nuhn

James Trager (Dept. of Entomology, Univ. of Florida, Gainesville, Fla. 32611) sent in the following remarks after reading Terry Nuhn's insert in Chris Starr's article in Sphecos 9:24: "It is too early to say with certainty whether I reject Brown's synonymy of Paratrechina troglodytes with the older myops. It is true that I object in principle to synonymies based on as few specimens as Brown had before him at the time he did the synonymy because, in my recent revision (Sociobiology 2) of the U.S. Paratrechina, I referred to the "myops group". This is because I wished to include the Puerto Rican microps in my discussion and was not meant to be taken to implicitly resurrect troglodytes, which I suspect will remain in synonymy. Just for the record, P. pearsei from Yucatan, is now known from several collections, all in caves, and I've recently seen an undescribed P. sp. from a cave in Texas. Ed Wilson (Psyche, June, 1962, pp. 62-72) reviewed other records of cavernicolous ants.

Collecting Techniques

DRYINID COCOONS WASHED ASHORE DURING THE HIGH WATER SEASON

by
Martin Sorg
(Zoologisches Institut der Univ. Köln, Germany)

Recently Dr. Martin Boness (Leverkusen, Germany) presented me his dryinid collection to study. This is, to my knowledge, some of the richest dryinid material collected by one person. Dr. Boness used quite an uncommon technique to obtain these rarely collected wasps (Boness, M. 1975. Arthropoden im Hochwassergenist von Flüssen. - Bonn. Zool. Beitr. 4(26):383-401.).

The collecting areas are the rivers Rhein, Wupper and Ahr in northwest Germany. The collection contains more than 300 specimens of nearly 15 species. The genus Aphelopus with up to five species now represents the major part. The material offers in many cases the first dates for distribution of certain dryinids in northwest Germany.

After searching out a locality where deposition corresponding with the river-course takes place it's quite simple to sift the substrate and pick out cocoons. Dryinid cocoons are of course only part of the material collected in this way (Boness 1975), and for certain "Parasitica" this technique is also useful.

Apart from the general method and its efficiency this shows an interesting aspect of dispersal by apterous dryinids or other insects with similar waterproof cocoons.

PAN TRAPS - A SIMPLE DEVICE FOR CATCHING LARGE NUMBERS OF ACULEATA

by
Göran E. Nilsson
(Banérgatan 5A, S-752 37 Uppsala, Sweden)

After having read a number of collecting reports in Sphecos, it struck me that very few collectors seem to make use of pan-traps (at least very few mention such traps).

The pan-traps I use are yellow plastic dishes (about 100 mm deep and 190 x 150 mm) that once contained ice-cream. They are easy to bring along since they may be piled inside each other. Photo-trays are well suited but rather expensive.

Once you have picked a spot where you expect wasps to live, you fill the dish with water, add a few drops of detergent, and leave it there. The traps should be emptied within three days, otherwise your specimens may lose their colour, become rotten, and fall apart. If the traps are placed in very hot areas, evaporation and increased rate of decomposition forces you to empty the traps more often. The traps are easily emptied by straining off the water and placing the material in ethanol (e.g. by pouring the ethanol through the strainer in the reversed direction) or, by the use of a pair of tweezers, just pick out the specimens you want.

My impression is that most wasps (of both sexes) may be caught by these traps. In pan-traps placed in central Sweden, I have caught wasps of the following genera: CHRYSIDOIDEA: Bethylus, Anteon, Prenanteon, Cleptes, Chrysis, Omalus, SCOLIOIDEA: Tiphia, Myrmosa, POMPILOIDEA: Priocnemis, Caliadurgus, Dipogon, Auplopus, Arachnospila, Agenioideus, Anoplius, VESPOIDEA: Vespula (s.l.), Ancistrocerus, Symmorphus, Eumenes, SPHECOIDEA: Dolichurus, Podalonia, Ammophila, Pemphredon, Ceratophorus, Diodontus, Passaloecus, Stigmus, Spilomena, Cerceris, Gorytes, Nysson, Mellinus, Astata, Tachysphex, Nitela, Trypoxylon, Crabro, Ectemnius, Entomognathus, Lindenius, Rhopalum and Crossocerus.

Bees are also easily caught by pan-traps, but hairy species may be in need of some combing.

Although yellow is the most commonly used (and probably in most instances the best) colour for pan-traps, it might be beneficial to try some other colours if you are interested in catching only one or a few species (see e.g. Kirk, W.D.J. (1984) Ecologically selective coloured traps, Ecol. Ent. 9:35-41).

[Lubomir Masner, Agriculture Canada, Ottawa, Canada and editor of Proctos, has developed pan trapping to a very high degree. Perhaps he will share his knowledge and techniques with the readers of Sphecos in issue 11 - editor]

"Thats Incredible" Department

Mark O'Brien says that Henry Townes was recently heard referring to spider wasps as "pompilids"! Next thing you know, he'll be calling "Serphidae" Proctotrupidae.

Sphecos, No. 10:28, (1985)

Funnies From Chalcid Forum

Chalcid Wars (Chapter 9)

Long long ago in a museum far far away the
rebel cladist camp fought for it's life
against the evil forces of the
dark lord Grossimilaritius.
Fleeing the slimy fog bound planet Homoplasium,
our hero Luke of Apotypy and his beautiful princess
Lay-ya are pursued by a squadron of dreaded
Paralellismos in their T-wing trichotomies
relentlessly blasting away with their reverso-beam.

As we resume our story, Luke and Lay-ya are up
a minimum length tree surrounded by a horde of deadly
CI's who cannot be polarized by Luke's reciprocal
illumination sword. Suddenly on the horizon looms
the most dreaded creature in all the universe:
Please-e-o-more-phee the Hut.

(Heironymus anonymous 85)*

To be continued??

* alias Mike Schauff

Ashmead Club News

We continue to dabble into the life of our illustrious namesake. Wilst Gordon Gordh was in Washington recently, he and I went to the hall of records in Washington DC and dug up Ashmead's death certificate. Our Bill spent his last 4 months at the "Government Hospital for the Insane" (otherwise known now as St. Elizabeths) where he died on October 17, 1908 at the age of 52. Cause of death was listed as "cerebral gumma" accompanied by "purulent cystitis and exhaustion". Those possessing a Webster's unabridged dictionary or its equivalent can find out just what our boy had been up to. He was cremated. Gordon and I are now attempting to discover what happened to his ashes.

(A. S. Menke)

Collecting Reports

MADAGASCAR

by

Raimond V. Hensen
(Rijksmuseum van Natuurlijke Historie, Postbus 9517, 2300 RA Leiden,
The Netherlands)

In May/June last year I made a private collecting trip to Madagascar, with André Aptroot. We were not aware of the circumstance that that time of year is not very good for Aculeates, and we caught only about 1200 specimens. Nevertheless we had a great time, and that's the most important.

We arrived when the worst cyclone of the century was just destroying some of the major roads and towns of the island (they may have ± 10 cyclones annually, but this one was really bad). As a result of that, transportation proved to be rather difficult; sometimes we had to wait several days before a taxi-be showed up (a taxi-be is a very slow bus or car, which may contain up to 4 persons per m^3). Once we took some sort

of aircraft, which happily only broke down after it had landed, and once we went in a leaky coaster, which only kept floating through continuous pumping by crew-members and passengers. Nevertheless we managed to see most parts of the island, including the arid south around Tuléar, with its miraculous vegetation of Baobab's, Didierea's and Aluaudia's, and its richness in sphecid wasps, particularly Larrines. The central highlands are completely deforested but one may still catch a lot of endemic aculeates here, like Tachytes argyropis, Chalybion madecassum, and Sceliphron fuscum. Next we went to the tropical rainforests at Périnet, where we caught some spectacular green Belonogaster and Ropalidia. The humid East coast was not very rich in wasps, but still yielded some interesting Dasyproctus, Larrini, and more species of Ropalidia and Belonogaster. We went further north along the coast, and came finally to the exotic small island Nosy Be. The Malagasy winter had begun by then, and wasps were becoming scarce, and so we were obliged to spend the last days of our stay just like ordinary tourists: diving in the coral reefs and enjoying the exquisite scenery of white beaches, blue sky and green coconut palms.

JAMAICA
by
Jim Carpenter

In late March of 1984, I spent two weeks collecting in Jamaica in the company of Norm Woodley (Worm Noodley). He's a dipterist at the USNM and the trip was his idea, but he was really after orchids! It was our first time in a West Indian forest, and as a guide to likely collecting localities we used the paper by Peck and Kukalova-Peck, 1975, "A guide to natural history field localities in Jamaica", published in Studies on the Neotropical Fauna 10:105-116. Most of the sites which they mentioned that actually visited were still intact, although prices quoted in the paper should be ignored!

We arrived in Montego Bay from Miami, the gateway for tourists. This traffic was getting heavy again, after a falloff due to the political disturbances several years before. We rented a car and got out of town as fast as possible, to Negril on the westernmost tip of the island. The drug salesmen thinned out as we got away from Montego Bay (tourist trade), but the hotel we stayed at was opposite the site of a reggae concert. I like the music, but they didn't bring on any good bands until about 4AM. We had gone to bed, but there was no sleeping until they finished! The next day we collected at Southwest Point in xeric scrub in the morning. We drove along dirt roads through highly disturbed brush (goats all over the place) with considerable bloom, but there was very little flying. I did get a nice series of Parancistrocerus bacu, and even a Stictia or two. Then we drove to Mandeville in the southern center of the country. That was a fascinating trip, through "The Jamaican's Jamaica" as a brochure said. There were no tourists, and people at the roadside stands were surprised to see us. They were friendly, though, and would turn down the music and stop dancing long enough to take care of us when we stopped. Mandeville is in bauxite country, at an elevation of 2000', so it was pleasantly cool. We spent some time in the "Cockpit Country" to the north ("District of Look Behind"). This is a rugged limestone area with some tracts of moist lowland to middle elevation forest left, preserved in part by the impassibility of most of the terrain (although squatters and goats are all over the fringes of the district). After this, we went to the north coast, to Discovery Bay (Columbus is said to have landed at "Xaymaca" there). We stayed at the Discovery Bay Marine Laboratory, and even though the north coast is tourist country, this was sort of a gap between Montego Bay and Ocho Rios, so there weren't many hotels etc. in the area. We collected in both disturbed areas, and in lowland forest that was probably relatively intact, as it was on such jagged Karst even goats avoided it. Where did the trees send roots? Wasping was pretty good, with various sphecids including Ammophila (very probably apicalis - ASM), and vespids (Pachodynerus nasidens and Polistes crinitus of course, but also Pachodynerus jamaicensis). I also did some screen-sweeping for micros (which I gave to Mike

Schauff, who probably still has them just sitting on his desk).

We then drove south again, to Kingston. We stopped at Mt. Diablo on the way. The Pecks mentioned a "high degree of floral endemism" at 2500-3000' and it sounded great. Unfortunately, it was an overcast, rainy day, so very little was flying - I saw three pompilids all day. I resorted to sweeping, but it was too wet, so I was forced to collect flies and nabbed some stratiomyids. This group is Norm's specialty, and these were about the only ones we got on the trip, so naturally I gave him several earfuls about that - too fixated on orchids (at least it wasn't bad for those). The wildlife consisted mostly of mongooses, which are pestiferous all over the island.

We used Kingston as a base while we collected in the southeast of the island, and stayed at a fine old English hotel, the Mayfair, in one of the "exclusive suburbs" of Kingston. Indeed, the governor's palace was nearby. This part of town was hassle-free, but we drove through some of the shantytowns looking for the government map office, and Trenchtown didn't look so good. We went into high elevation forest in the Blue Mountains just north of town, to Hardwar Gap (4000'). The coffee was great, but the collecting wasn't. This is cloud forest, with a lot of tree ferns, Podocarpus, and epiphytes everywhere. But we were wet through by constant rain, and needed coats against the cold. It was interesting to experience, and the drive was fun (I was driving, and Norm might disagree!), but after one day we stayed at middle and low elevations. We went into the John Crow Mountains in the extreme southeast, and Cornpuss Gap where this range meets the Blue Mountains. This last is 2100', and took a two hour walk over a deteriorated colonial road to reach. About a half hour's walk from the place we stopped, the forest changed dramatically, from agriculture/charcoal burner disturbance to relatively intact cloud/palm forest. As the Pecks mentioned, the bird life here is the richest on the island, and the plant life certainly the most diverse we saw. We only made one trip to it, as the drive along the A4 to Port Morant entailed a number of people yelling "whitey", which is one explanation for tourists staying in enclaves on the north coast. We also did a fair bit of collecting in the coastal scrub/thorn - with all the Acacia and cactus, it reminded us of Arizona.

Before we left, we decided to spend one evening in touristland, at Ocho Rios. We drove from Kingston via Spanishtown and through the center of the island. There was some interesting collecting south of Ocho Rios, along the road before it went into an abandoned riverbed where a reserve called "Fern Gully" was located. This is a tourist attraction, where they can get a feel of rainforest (medium-diameter trees [what DBH Jimbo?] loaded with epiphytes, dense fern understory). Besides insects and orchids, Norm "collected" a lot of ticks! (Scrambling through too many active pastures). There were some Campsomeris and Myzinum.

Ocho Rios was a real zoo, the biggest resort area outside of Montego Bay, as several hi-rise hotels attested to. I don't know why so many American tourists go to Jamaica; in general they don't venture out of the hotel-cum-nightclubs to experience any local culture - they can get the same thing in Florida. Jamaica is big enough that it hasn't succumbed to the "Carribbean syndrome" of total degradation of the local culture by tourism that you see in place like Barbados. But this is related to another problem: there are too many people for this small island. The people pressure is not something that Jamaica's economy is about to be able to deal with, and so environmental degradation due to marginal agriculture etc. will continue, but the most extensive ecological changes have already occurred after two centuries of large-scale exploitation. So the island will be rewarding for collectors, and not just for the fauna. Everyone should like the rum and the reggae [I hate reggae mon - ASM], which as the rasta say, are both irie.

Sphecos, No. 10:31, (1985)

HATO MASAGUARAL, VENEZUELA
(or the adventures of the Mud D'aub and Duncan YoYo)

by
Arnold Menke and Jim Carpenter

We spent the month of May, 1985, collecting hymens in the Venezuelan llanos at a cattle ranch (= hato) and private wildlife preserve owned by Tomas Blohm. The Hato Masaguaral, as it is called, is located 44 kms. south of the town of Calabozo. Senor Blohm is a dedicated conservationist, and has established housing on his ranch for the use of scientists interested in studying the fauna and flora of the llanos. So far the vertebrates have received the most attention, and we were probably the first entomologists to conduct extensive surveys at the Hato. The ranch is an ideal place to pursue studies of the llanos biota (or savanna) since Tomas has not stripped away the natural vegetation. In fact he pumps water to creat marshes for water birds, ponds for alligators and crocodiles, capybara, and so forth. His ranch is like an oasis surrounded by considerable crop land (rice is a common veg crop in the area). The Hato Masaguaral is a naturalists paradise, although living there, especially in the rainy season may not be.

The ranch is about 7000 hectares, and encompasses a variety of habitats. The savanna is characterized by islands (called matas) formed by palm trees, associated strangler figs and shrubs, scattered across the grassland. Much of the land is flooded during the rainy season, with a caiman in every water hole, and vehicular travel even with a 4 wheel drive jeep becomes nearly impossible. During the dry season (which begins to end in April/May usually), the sandy earth becomes baked, cracked, and dusty, and the vegetation deciduous. However, due to the sessation of regular burning of the savannah, the matas are beginning to closeup on Masaguaral and many of the hatos in the llanos, forming scrubby forests. The savanna dominates the ranch, but the Rio Guarico flows through the eastern portion. Associated with it is a gallery forest. This is where most of the insect diversity occurs. It is a semi-deciduous to evergreen forest, with a low canopy averaging around 10-15 meters high. The understory is rather open reflecting the dry sandy nature of the llanos in general. Vines, shrubs and herbaceous growth dominate the ecotone between the gallery forest and the savanna, and this is where we concentrated our collecting.

Travel to the Hato Masaguaral was funded by a Smithsonian grant to Menke. The Smithsonian has had a long relationship with Tomas Blohm and his ranch, and many SI scientists, mostly vertebrate and plant people, have studied there over the years. However, Tomas makes his ranch available to anyone with legitimate research interests, and in fact, non SI people predominate. There were 15 to 21 visiting scientists at the Hato while we were there, and only 4 (ourselves included) had affiliation with the Smithsonian. Steve Zack and Joe Haydock were studying wrens; John Robinson and Rick Sullivan were observing Cebus monkeys in the mosquito infested gallery forest; David Kirk spent long days baking his brains in the sun observing vultures; Doug Brust spent his nights monitoring iguanas; Stu Strahl with his entourage of assistants, vehicles, and whatnot, was studying hoatzins from 30' towers; etc., etc. As mentioned earlier, Tomas has built several houses for use by visiting scientists. These provide shelter from rain and biting creatures, but not from the heat and humidity! Temperatures hovered in the 90's most of the time, and while pinning insects at night, our arms dripped from perspiration! The buildings have electricity, a 12 volt system dependent upon wind to run a fan driven generator. There is not much wind in the rainy season so electricity can be a problem during that period. We brought along a Honda generator to provide light for noctural insect pinning, as well as black light collecting. Some nights the flourescent lights that we used for our work table attracted so damn many tiny beetles and other insects (literally thousands), that we often had to turn them off and do our pinning in the morning. In the morning the table was littered with dead creatures. It got so bad the last two weeks that we ceased night work altogether. Black lighting was ok at first due to recent rain, but tapered off near the end of May due to lack of rain and we ceased trying.

Our gracious hosts were Dameon and Gabriella Rumiz, whose house we shared. They are studying howler monkeys, and are supported by the Smithsonian, in return for which they take care of the jeeps and other SI equipment on the ranch. Our house was frequented by Tita and Isabella, two pet howler monkeys raised as babies on the ranch. They were a lot of fun, but we had to be sure that the door was always closed to prevent monkey mayhem indoors. Beyond the fence surrounding the house were many pigs, the most impressive of which was Monica and her consort, Norman. Jim immediately became a pig fancier and was always picking up mangoes and feeding them to Monica who rapidly learned the dulcet tones of his voice, "here pig, pig, pig.....". Jim's pockets were often bulging with mangoes. Troops of howlers were plentiful on the ranch and our first night there was an experience in animal cacaphony. One troop routinely spent the night in a huge tree near the house once a week. That meant a lot of racket, especially about 5:30AM. Of course there were those damn roosters at 4:30AM!! Tomas, who is a crocophile, has studied the 5 or so species in Venezuela for many years. He has built special walled ponds on the ranch to house them for study purposes. While we were there, his pair of Orinoco Crocodiles, an endangered species, became parents - only the second time Tomas has accomplished this.

"Normally" the rainly season starts in April and is well along by May. However, when we arrived May 2 there had only been one heavy rain in April, and the landscape was still very dry. Our initial forays for wasps were disappointing, and this was due in part to the lack of rain. Some deciduous plants had not even leafed out - it was the equivalent of early springtime. After a few days of exploring in our trusty Toyota jeep, we discovered the best area for wasping was the gallery forest fringe which was traversed by several dirt "roads". Various wasps were nesting in the sandy road surfaces. During our month on the ranch we experienced only 2 good soaking rains. Collecting always picked up dramatically after each one, then gradually tapered off. Each day new wasp creatures appeared which tended to bouy our spirits in between rains. We ran two of the large, double ended malaise traps every day, moving them periodically to sample new sites. They were up day and night and thus often produced quantities of moths and even a few frogs. We had to empty them in the morning and usually again in the late afternoon. Generally the traps produced a lot of interesting stuff. Yellow pan traps were set out also but were not as productive as hoped.

The wasping itself was very good. It was a little unusual by the conspicuous absence of some very common tropical genera. For example, in the Vespidae, we didn't see any Polistes or Mischocyttarus!! Polybia (ignobilis, sericea, occidentalis) and Stelopolybia multipicta dominated the social wasps, with Apoica pallens highly visible at our blacklights. Other polistines found were Brachygastra lechequana and Parachartergus colobopterus - rather low diversity. Eumenines were better, with some 14 genera and 23 species. Most common were Stenodynerus colombaris, Pachodynerus (3 species) and Montezumia (2 species), all nesting in the gallery forest roads. Carpenter dug the nests of all these species, and added a colony of the Parachartergus, so we accumulated some useful behavioral data in addition to the specimens. Other eumenines taken were: Zethus (4 species), Alphamenes campanulatus, Cyphomenes schremmeri and anisitsii ssp ornatissimus, Omicron criticum, Pachymenes sp., Montezumia bequaerti (very common), M. nigriceps, Euodynerus sp., Hypalastoroides sp., Hypancistorcerus sp., Leptochilus tropicanus, Cephalastor sp. (2), and Parancistrocerus sp.

As to sphecids we did quite well, but the genus Sphex was conspicuously absent (perhaps too early in the season). Prionyx thomae, Ammophila gracilis and centralis (!!), Podium (2 or 3), and Sceliphron rounded out the Sphecinae. Previously (1976, 1981) Menke found Ammophila centralis in the xeric northwestern parts of Venezuela (Lara, Aragua, etc.), and the discovery of this Central American wasp in the Orinoco basin was quite unexpected. We caught this species during our last week and only managed to take 2 females. What other surprises lurk among our as yet only cursorially studied material, and how extensive is the range of centralis in the Orinoco drainage? Why is it there? Several psenines were taken, notably Pluto smithii. A few specimens

of an Astata were captured inside the gallery forest. Among the larrines we took Larra, several species of Tachytes, one of which was extremely abundant and became to be regarded as a trash species in the malaise traps, Tachysphex, Trypoxylon (many species), a very few Pison (very disappointing), Solierella, and Bothynostethus (2 or 3 species). Crabronines were scarce except for Oxybelus of which several species were taken. In the Nyssoninae we took a "Nysson", a "Gorytes", and various bembicines such as Bembecinus (several species, one of which was extremely abundant on the road with males commonly forming 'mating balls'), Bicyrtes, Stictia, Rubrica, and Microbembex. Two species of Trachypus were collected and many Cerceris spp.

As far as other aculeates go we took tiphiine and myzinine Tiphiidae; many mutillids, especially females; Chrysididae; Bethylidae and a few Pompilidae. We even managed to pin up some bees for McGinley et al. The so called Africanized bee is on the ranch and some of the vertebrate people told us horror stories of being chased by them. Tomas took us up to one nest in his enclosed jeep, but the bees remained unperturbed. They did not attack the jeep.

The Hato Masaguaral is truly a fun place to stay. The opportunity to see so much wildlife in one place, and to observe and talk with other kinds of scientists was a wonderful experience.

NORFOLK AND PHILIP ISLANDS

by

Ian Naumann

Norfolk Island is a small (8 x 5 km) oceanic island, formed by volcanic action at most 3 million years ago. It lies in the south-west Pacific Ocean about half way between New Zealand and New Caledonia, and enjoys a subtropical climate - humid, with no extremes of temperature. Much of the natural vegetation of Norfolk Island has been cleared or overwhelmed by introduced guava (Psidium), African Olive (Olea africana) and Lantana. However, some areas of relatively undisturbed forest survive - rainforest dominated by the giant Norfolk Island pine (Araucaria heterophylla).

Nearby Philip Island (about 2 km in diameter) is an example of the worst outcome of human intervention with nature. Goats and rabbits were introduced to Philip in the early 1800's when Norfolk Island was a penal settlement (the convict era buildings and ruins are a major tourist attraction). The goats and rabbits destroyed the vegetation cover of Philip Island almost entirely, and almost all soil was eroded away. Today a little soil and remnants of the original flora and fauna survive in a few valleys. Most of Philip Island is a lunar landscape rising precipitously from the Pacific Ocean. Having done their worst, the goats are extinct on Philip Island and the rabbits nearly so. The Australian National Parks and Wildlife Service has trapped, shot and poisoned the rabbit population in recent years so that the original vegetation is making a shaky comeback.

During the Autumn and Spring two parties of taxonomists from the Australian National Insect Collection, Canberra, each spent three weeks on Norfolk and Philip Islands surveying the insect fauna. All usual trapping methods were used (malaise, pan, flight intercept, pitfall and light traps; berlese and winkler extraction of soil and litter; sweeping and usual hand collecting techniques).

The wasp fauna of the islands is typically depauperate. Sawflies, scolioids and pompilids are absent. There are only two species of bees and five sphecids (4 Pison and 1 Liris). However, there were plenty of small things to keep me busy during my three weeks on the islands in October-November. Scolebythidae were taken under bark.

Mallia Pendant Fallout

The reproduction of this old piece of jewelry in Sphecos 9:5 generated comments from three readers. These are offered below.

Jean Leclercq (Fac. Sci. Agronomiques de l'Etat, B 5800 Gembloux, Belgium) writes:

(1) J'ai aussi reçu de Grèce, une carte illustrée en couleur identique à celle qu' Ed Callen a communiquée. Elle fait partie d'une collection de cartes à usage pour les touristes, éditée par "Hannibal" (31 Kifissodotes street, Ano Petralona, Teleph. 3453941, Athènes 309, Grèce). Mais sur la carte que j'ai, on ne suppose pas que ces deux insectes stylisés sont des "Hornets" (Vespa), mais on imprime que ce sont des abeilles, cela dans 4 langues : "melissôn" en grec, "Gold bee" en anglais, "Abeille en or" en français, "Bienen" en allemand! On précise aussi "17th cent. B.C.".

(2) J'ai aussi un article qui explique bien le problème d'identification posé et rappelant notamment l'avis d' O. W. Richards, admet qu'il s'agit probablement d'un Vespoïde, mais pas d'une Vespa, plutôt d'une Polistes. Cet article a été signalé dans Sphecos 5:51 (1982)(c'est grâce à cela que je le connais !), c'est: LaFleur, R. A., R. W. Matthews and D. B. McCorkle, Jr., 1979. A re-examination of the Mallia insect pendant. Am. J. Archaeology 83:208-212. Les auteurs sont do l'University of Georgia, le second Robert W. Matthews est le sphécidologue connu (adresse dans le Directory, 1984, p. 22).

(3) Je saisis l'occasion pour attirer l'attention des collègues intéressés par les insectes dans l'Antiquité grecque sur l'excellent livre de Liliane Bodson (1978): "Hiera Zooia - Contribution à l'étude de la place de l'animal dans la religion grecque ancienne", Acad. R. Belg., Mém. Classe des Lettres (2) 63(2): 210 pp. (Insectes: pp. 9-43). Liliane Bodson continue très activement ses recherches, voici donc son adresse: Département de Philologie Classique, Faculté de Phislophie et Lettres, Université de Liège, 4000 Liège.

Mick Day (Dept. of Entomology, British Museum (Natural History), Cromwell Road London SW7 5BD, Great Britain) writes: "Doubtless many readers will have rushed to put pen to paper in response to the postcard from Ed Callan. Richards, O. W., 1974: Antiquity 48:222, pl 26; and Davenport, D. and Richards, O. W., 1975: Antiquity 49:212-3 give the subject an airing. OWR (1974) says that the postcard is clearly incorrect to identify the insects as bees, because they are clearly not bees. Scholarly opinion at the time had been adjusted to accept that hornets were the objects depicted, but old stocks of postcards presumably remain to be cleared. OWR took issue with the identification as hornets and, on the basis that any entomologist could see that the first tergum depicted fitted the description of no extant hornet, then the subject must be Polistes. Prof. Davenport weighed in (1975) with a short travelogue in which he obliquely hinted that because, when in Crete he had seen lots of Vespa orientalis and few if any Polistes .....? However, he had not, in fact, caught any Vespa to check. OWR, given the right of reply in the same text, says that Davenport's Vespa were probably Scolia flavifrons. Hood (1976 Tribute to an Antiquary) gave a definitive and exhaustive view, however opting for bees as the more plausible objects on cultural grounds. LaFleur, R. A., Matthews, R. W. and McCorkle, D. B. (Am. J. Arch., 1979) give a detailed and scholarly re-appraisal of the pendant, supporting Richards with more detailed arguments. J. B. Free, in 'Bees and Mankind' (1982) gives a photograph of the pendant 'of two interlaced bees beneath a crown and holding between them a circular piece of comb taken from a cylinder hive'. This is presented in the context of a historical review of beekeeping."

"During three visits to Greece (mainland 1979, Rhodes 1981 and 1984), I have been struck by the imposing, brash, swaggering presence of Vespa orientalis. This is a brightly-coloured John Wayne among insects, and in 1984 in Rhodes it was ubiquitous. It came to any freshwater, where presumably Minoan Cretans would have gathered for identical purposes. My daughter Ceinwen took a shower with one, which resulted in a foot like a balloon for three days, and gave me a bad back from carting her around. Polistes? What is Polistes? Certainly not the beasts that the grandsons of the local beekeeper spent all day beating to death with brushes of twigs at the entrances of the beehives. If the objects are vespid, they cannot be other than V. orientalis, the species that the beekeeper identified as GREEK σφήξ, Sphexa (strange that Pliny refers to Vespa as insects which build nests of mud - maybe Vespa is Sceliphron or Delta, and

Sphex should be Vespa? Good job these chaps are all pre-1758!). The idea that Polistes is represented on the pendant because it is aggressive and dominant is incompatible with the notion that it is a frequenter of houses and easily observed."

"I find it wholly credible that our artist of 3,500 years ago was not a whizzo-entomologist - that he did not observe the difference between Vespa tergum I and Polistes T-I - and gave the animals he represented only one pair of wings. If the insects were reproduced from life, one should note that the seven abdominal segments insist that the specimens are both male, with implications for all the arguments adduced by previous authors. But I would not seriously so argue; the pendant is art, not science; all interpretations based on social Hymenoptera are feasible."

"Where, then, is the intrinsic evidence to reject the opinion that the insects represented are bees? Quite frankly, there is none. All the attributes of Polistes listed by LaFleur et al apply to bees as well. Surely modern entomologists must be just a little aware of the outstanding importance of honey and wax in ancient civilisations? Hives and bees are depicted in rock paintings of great antiquity. Ancient Egypt gives us complete murals showing that bees were kept, not just plundered."

"Thus, there are certainly older renditions of Hymenoptera - but I seriously question whether that in Sphecos 9 is a wasp at all. The postcards at Mallia have been reprinted, and say a hornet is depicted. Perhaps we should break it to them gently?"

THE MALLIA INSECT PENDANT:
A select chronological bibliography

by
Bob Matthews
(Dept. of Entomology, Univ. of Georgia, Athens GA 30602)

Dimensions: 4.6.cm. high, 4.9 cm. wide. Date: ca. 2000 B.C.

Cook, A. B.
1895. The bee in Greek mythology. JHS 15:1-24.
Ramsay, W. M.
1923. Asiatic elements in Greek civilisation. John Murray, London. Ch. 7.
Demargne, P.
1930. Bijoux Minoens de Mallia. Bull. Correspon. Hellénique 54:404-421. (first publication of the piece)
Evans, Sir Arthur
1935. The palace of Minos. vol. 4.1, p. 74f.
Ransome, Hilda M.
1937. The sacred bee. Houghton Mifflin, New York.
Bossert, H. T.
1937. The art of ancient Crete. Zwemmer, London. p. 32, 220, and fig. 381.
Deubner, O.
1937. Mordwespen. Arch. Anz. p. 308-310.
Pendlebury, J. D. S.
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Demargne, P.
1945. Fouilles exécutées a Mallia: exploration des nécropoles. Etudes Crétoises 7:54-56, pl. 66.
Matz, F.
1956. Kreta, Mykene, Troja. Kilpper, Stuttgart. p. 69, 75, 269, pl. 55.
Karo, G.
1959. Greifen an Thron. Grimm, Baden-Baden. p. 38, fig. 10.
Higgins, R. A.
1961. Greek and Roman jewellery. Methuen, London. p. 64, 111, 131.
Hutchinson, R. W.
1962. Prehistoric Crete. Penguin, Baltimore. p. 68, 196, fig. 8, 37.

Spanakis, S. G.
1965. Crete: a guide to travel, history and archaeology. Sfalianakis, Heraklion. p. 151. (object now in case 101, ground floor, Heraklion Mus.)
Zafiropulo, J.
1966. Mead and wine. (trans. P. Green). Schocken, New York. p. 39-42.
Higgins, R. A.
1967. Minoan and Mycenaean art. Praeger, New York. p. 44, 47, 199, fig. 39.
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Matt, L., S. Alexiou, et al.
1968. Ancient Crete. Praeger, New York. p. 141-143, 148.
Hawkes, J.
1968. Dawn of the gods. Random House, New York. p. 52.
Evans, H. E. and M. J. W .Eberhard.
1970. The wasps. Univ. of Michigan, Ann Arbor. (best study of wasp behavior; for Polistes see ch. 4)
Branigan, K.
1970. The foundations of palatial Crete. Routledge, London. p. x, 149-150, p. 13 fig. c.
MacDowell, D. M., ed.
1971. Aristophanes: wasps. Clarendon Press, Oxford. p. 11 and notes on 420, 1071-1075 and 1102-1121.
Renfrew, C.
1972. The emergence of civilisation. Methuen, London. p. 287, pl. 18, 4.
Buchholz, H. and V. Karageorghis.
1973. Prehistoric Greece and Cyprus. Phaidon, New York. p. 108-109, 111, fig. 1296, 1356. (with additional bibliography)
Richards, O. W.
1974. The Cretan 'hornet' pendant. Antiquity 48:222, pl. 26
Davenport, D.
1975. The Cretan 'hornet'. Antiquity 49:212-213. (with response by O. W. Richards, p. 213).
Hood, S.
1976. The Mallia gold pendant: wasps or bees? in: Tribute to an Antiquary, Essays presented to Marc Fitch by some of his friends. ed. by Emmison and Stephens.
LaFleur, R. A., R. W. Matthews and D. B. McCorkle, Jr.
1979. A re-examination of the Mallia insect pendant. Amer. J. Archaeology 83:208-212, pl. 29.
Kitchell, K. F.
1981. The Mallia "wasp" pendant reconsidered. Antiquity 55:9-15.

New Books Of Interest

Howard Evans says that Cornell University Press is reprinting his 1963 book Wasp Farm in paperback this September. Last year the University of Chicago Press reprinted has book Life on a Little-Known Planet, and in 1983 the Smithsonian Institution published Australia, an introduction to the natural history of the country written jointly with his wife, Mary Alice. Soon to appear is his most recent book, The Pleasures of Entomology, also by the Smithsonian Institution Press. How do you do it Howard? One should note that Howard's writing takes some strange twists. For example, have any of our readers seen his 1984 paper titled "An adaptive stable strategy in Winterbottom's Ground Beetle" published in The Journal of Irreproducible Results? The subject of this incredible account is Idiocarabus winterbottomii, a species with fat brachypterous males and midge-like, fully winged females.

Zoological Catalog of Australia, Vol. 2
Hymenoptera: Formicoidea, Vespoidea, and Sphecoidea
1985, Bureau of Flora and Fauna, Canberra, 381 p.

Available from: Mail Order Sales, Australian Government Publishing Service, G.P.O. Box 84, Canberra, A.C.T. 2601, Australia. Price: $39.00 (U.S.) which includes postage and handling.

Anyone who has studied a group on a world basis knows how unusual the Australian fauna is, and how critical a thorough knowledge of it is if a meaningful classification is to be achieved. This new catalog brings together under one cover a summary of what has been published on the Australian representatives of the three superfamilies listed above. Obviously the insects of Australia have not been thoroughly surveyed, and won't be for a long time. This catalog should, however, help stimulate more intensive collecting and revisionary work.

I examined the section on Sphecidae carefully since this is my specialty. Genera are not treated alphabetically, but follow the same sequence used in Sphecid Wasps of the World. But mysteriously, no subfamily or tribal headings were used. The catalog would be easier to use if the genera were simply arranged alphabetically. All names are fully documented (citation of original description, type locality, and type depository). Distribution, biology and various taxonomic matters are also covered. Overlooked by the cataloger was the fact that Liris is masculine (see Menke and Bohart, 1979, Proc. Ent. Soc. Wash. 81:111-124.). The literature survey cutoff date for the catalog is not specified, but 1983 papers are included. Listed under "incertae sedis" is a name not found in Bohart and Menke: Alysson tomentosum Macleay, 1826. This testifies to the general thoroughness of the catalog.

Collections

MUSEUM OF COMPARATIVE ZOOLOGY
by
Jim Carpenter

The Entomology Department of the Museum of Comparative Zoology is just completing the third year of an NSF collection improvement grant. This was written by my predessor, Ron McGinley, and involved intensive curation and renovation of major parts of the collection. My first year at Harvard was, appropriately enough, the year for Hymenoptera (exclusive of ants, thank God). We hired Scott Shaw as visiting curator of Hymenoptera, even if he is a braconid worker (well, there was no way I was going to wallow in ichneumonoids). He and I organized the curatorial effort, an we believe it was very successful. We liked Scott so much, in fact, that we just hired him as the new collection manager to replace the departing Al Newton (a coleopterist - hymenopterists have now thoroughly infiltrated this bastion of beetledom). Anyway, the MCZ funded visiting specialists to aid Scott and me. These included Bill Brown (we had to make some gesture toward ants); Howard Evans, who worked up our bethylids and pompilids, both of which we have a lot of; Charles Porter, who waded through our neotropical ichneumonids (some 20,000 specimens, most of which he collected); Bill Mason, who id'ed microgastrines and generally lectured us about wing venation, apocritan relationships, etc.; and Mike Schauff, who discovered that we actually had a chalcidoid collection. Apoids had already been done (including sphecids, right edit.? [correct, ASM]) so we just have some parasitic groups and sawflies to go. We have more parasitics, especially ichneumonoids and proctos, than is generally realized, but I'm pleased to say that they pose no threat to the dominance of the MCZ collection by aculeates, even excluding ants. I suppose because we don't have many sphecids some wasp workers might think our holdings aren't so extensive, but I assure you such is not the case. Of course, since just about every other wasp worker is a sphecid freak

(beats me why), they might be right. We're strongest in the two great unknowns of waspdom, vespids and pompilids, followed by bethyids. We have good representation in some other chrysidoid groups (all three species of Scolebythidae! also pretty good chrysidids) and a few fringe families like rhopalosomatids. Scoliids, mutillids, and tiphiids are fair. We're starting to accession wasp specimens in a major way again for the first time in a decade, so I encourage aculeate workers to write for general loans in additon to types.

ON PHILIPPINE INSECT/ARACHNID COLLECTIONS AND LOCALITY NAMES

by
Chris Starr
(De La Salle University, Manila)

Quite a few insect/arachnid taxonomists desiring more philippine specimens for their revisions have been writing me for loan material, and of course I'm glad to oblige when I can. My purpose here is to note a few things of interest to anyone seeking and utilizing philippine material. A majority of those writing to me work on wasps, so Sphecos seems a good place to put all this on record. In this very dull note, I'll comment quite generally on five collections on insects and arachnids, and then give some aids in interpreting locality labels.

The foremost collection in the country is at the Los Banos campus of the University of the Philippines (Museum of Natural History, University of the Philippines, College, Laguna 3720). It's not the strongest in all groups, but in most Hymenoptera and overall it clearly is. From what I hear UPLB administration support is poor and severely limits what they're able to do. The museum is of such long-standing, though, that at least its survival seems assured. Tradition can get you past a lot of rough spots. For most groups, the Bishop Museum in Honolulu seems the best place to seek philippine meterial, and I would say UPLB is the next to contact.

In second place is the Visayas State College of Agriculture (Biological Museum, Visayas State College of Agriculture, ViSCA, Leyte 7127-A), where I worked for two years. Though still much smaller than UPLB's museum, its holdings are quite nicely complementary in geographical emphasis. The collection of ants is perhaps not the largest in the country, but it certainly seems the best, and the same might be said for stenogastrines, jumping spiders and possibly some others close to my heart. The ViSCA museum enjoys good administration support, by far the best of any such collection in the country. On the other hand, it is still new and not yet solidly established so that I regard its continuity as far from assured. Its future hinges, in my view, on the question of leadership.

The University of San Carlos collection (Biological Collections, University of San Carlos-TC, Cebu City 6401) is well managed and otherwise of high quality, but rather small and not primarily a research collection. Administration support is poor, and anyone asking to borrow specimens might reasonably be asked to contribute toward mailing costs. The main factor keeping it all together and slowly growing seems to be Dr. Henry Schoenig, a mosquito-specialist who has been in the Philippines for more than 40 years and must have explored these islands more widely than any other entomologist. Bearing in mind that the San Carlos collection is not really set up for specimen loans, it still has some good stuff and should be contacted.

Most of you probably think of the philippine government as just another vicious dictatorship, but that's not accurate. It's a vicious dictatorship which happens to be run by a bunch of inept amateurs, just about the most directionless, rinky-dink outfit I've seen in power. This is well illustrated by its neglect of the National Museum. This results not from any policy, but from a chaotic lack of policy, let alone a working philosophy of government. The state of the National Museum is nothing less than a national disgrace, dispite the best efforts of its staff. The insect collection must be seen in this context. It is small, in fair shape, about what you would expect

from the budget and working conditions. As a research collection it does not appear effective, and it is certainly not what you might expect from a biotically-rich country of 50 million people.

The collection at De La Salle University has only begun since I got here in late 1983, so it's still small, and is mostly insignificant outside of my particular interests (social insects, some solitary wasps, jumping spiders). In addition, we are close to UPLB, so that much of my weekend collecting is a duplication of what they have. This should not discourage anyone form writing to me about specimens, but please keep your expectations very modest. The future of our collection is entirely uncertain, especially as I have nobody to replace me if I leave in the next year or two.

In plotting distributions from locality labels from the Philippines, I see three problems: a) changes in the breakdown of provinces at various times in this century; b) inconsistencies of spelling, and c) the lack of a convention for specifying localities.

The first of these is the least serious and will probably do nothing more than slow you down a little. Province boundary lines rarely shift (the only case I notice is that part of what was Laguna is now in Quezon), neither do names of fixed areas change. The number of provinces keeps increasing, though, through splitting (a process familiar enough to taxonomists, I should think). In the last 25 years the total number has gone from 50 to 74, mainly through splits in the old provinces of Agusan, Cotabato, Davao, Lanao, Mountain, Samar, Sulu and Surigao, each into between two and four new provinces. Cotabato is now split into Maguindanao, North Cotabato, South Cotabato and Sultan Kudarat; Mountain into Benguet, Ifugao, Kalinga-Apayao and Mountain; Sulu into Basilan, Sulu and Tawi-Tawi. The other five splits are much simpler, because the new names all include the old. For example, Agusan is now Agusan del Norte and Agusan del Sur. It is best to use maps of a gazetteer no more than 10 years old, and these changes must be taken into account when using Baltazar's catalog of philippine Hymenoptera (1966, Pacif. Ins. Monogr. no. 8: 488 pp.).

The philippine alphabet is patterned on the spanish alphabet, with some improvements. The vowels are the same. There are no diacritic marks. The diphthongs are aw, ay, iw (rare), oy and uy. The consonants are b, k, d, g, h, l, m, n, ng, p, r, s, t, and w. If this alphabet were used consistently in place names it would be marvelously simple, but in many cases the older spanish spelling is retained, or the name may be spelled either way. The city named after Miguel Lopez de Legazpi, for example, can be either Legazpi or Legaspi. And I know a village in Panay called Alojipan; the curious thing about this is that the name is after the local word for "centipede", so that it should be either Alohipan of Aluhipan. It would not surprise me if it often gets spelled these ways too. The spanish diphthongs ao and au are frequently alternatives of aw (e.g. Mindanao). The following transliteration table of consonants will suggest alternate spellings if you have trouble looking up some places.

Spanish	Philippine
c (=qu)	k
c (=z)	s
ch	ts
f	p
g (=j)	h
gu	g
h	-
j	h
ll	ly
ñ	ny
qu	k
v	b
x	ks
z	s

The spanish ng is actually two sounds, rendered in philippine languages as ngg. For example, the spanish word for "sleeve", manga, and philippine word for "mango", mangga, are pronounced the same. English loan words may also undergo a spelling shift in ordinary language, but I have never seen this in place names. Naga City, for example, rather than Naga Siti. Another source of variation is that the distinction between e and i is not very great, much less than between o and u.

There are three fairly solid levels of political divisions within the Philippines, and locality labels should reflect this. The country is divided into 74 provinces. Each province is divided into municipalities, roughly equivalent to north american counties or townships. A municipality is conveniently named after the town which acts as its administrative center. And a municipality is divided into baranggays. I've used the word "village" above as about the same as baranggay, but this is not quite accurate. First, a baranggay is not an informal assemblage, but a nationally recognized political unit with elected officials. Second, every place is part of a baranggay, even if it's in a city. This makes the country's approximately 40,000 baranggays much more useful than mere villages for present purposes. I make up my labels approximately in the american or canadian fashion, like this:

Province: Baranggay, Municipality

If the locality is the municipal town itself I leave out the baranggay, and if the baranggay is especially large I may specify a particular part of it, but these are uncommon. The province and municipality always come first and last, respectively. I find this to be a good system and would like to see it in general use in the Philippines.

HYMENOPTERA TYPE MATERIAL IN RARELY VISITED COLLECTIONS

by
Karl V. Krombein
(Smithsonian Institution, Washington, DC 20560)

I have had opportunities since 1965 to visit some collections that are rarely visited by systematists during their systematic research. The following lists of types may be helpful. I have not checked the lists against original descriptions to ascertain whether a type depository might be mentioned. One must remember that type did not necessarily mean holotype to some earlier authors. My footnote in Alfieri's posthumous The Coleoptera of Egypt (vol. 5, Mem. Soc. Ent. d'Egypte, p. vii, 1976) is pertinent:

"Many specimens bear a red type label (this is true also of some Alfieri specimens in other collections obtained through exchanges). It should be noted that Alfieri used the word type in a broad sense. Sometimes it denoted a holotype, sometimes a cotype, at other times a topotype or homotype, or perhaps just a specimen that had been compared with the original description of a species. Authentication of the true holotypes will require careful comparison of the specimen and its label data with the original description, and with all specimens that might have belonged to the original type series".

Hymenoptera type material in Al Azhar University, Cairo

In 1965 I negotiated the purchase of the Alfieri synoptic collection of Hymenoptera, Coleoptera, Lepidoptera and various minor orders. Alfieri placed in this collection types, uniques and one or two representatives of all other species. His general collection consisted principally of Coleoptera, and he sold it later to Al Azhar University. When I visited the university in 1974 during my editing of Alfieri's Coleoptera MS, I was astonished to discover that it contained the numerous species of Egyptian Pompilidae described by Priesner from the Alfieri Collection. We shall never know now why Alfieri did not put this material in his synoptic collection when Priesner

returned it. This creates a severe handicap for anyone making revisionary studies of Old World Pompilidae. University policy at that time was that there would be no loans from the Alfieri Collection.

Pompilidae

Ceropales opacior Pr. - female cotype
Ceropales deserticola Pr. - male cotype
Ceropales sabulicola Pr. - female type and cotype
Cryptocheilus coeruleipennis Pr. - female type
Cryptocheilus niloticus Pr. - female and male cotypes
Cryptocheilus minor Pr. - male type, 3 female cotypes
Pseudagenia bizonata Wlkr. - male allotype
Pseudagenia arnoldi Pr. - male type
Pompilus (Sericopompilus) arenicola Pr. - female and male types, 7 female and 6 male cotypes
Pompilus (Ageniopompilus) fasciatellus Pr. - female type
Pompilus (Ridestus) masrensis Pr. - female cotype
Pompilus (Arachnospila) mimus Pr. - female type
Pompilus (Arachnospila) mareoticus Pr. - female holotype
Pompilus (Arachnospila) calidellus Pr. - female type
Pompilus (Galactopterus) alfierii Pr. - holotype
Pompilus (Nanoclavelia) aegyptorum Pr. - 2 female cotypes
Pompilus (s. g.?) arcanus Pr. - male type
Pompilus (s. g.?) astutus Pr. - female type
Pompilus (s. g.?) croceus Pr. - female type and cotype
Pompilus (s. g.?) waltli specialis Pr. - male cotype
Pompilus (s. g.?) signatipennis Klug - male holotype
Pompilus (s. g.?) murinus Pr. - male holotype
Pompilus (s. g.?) tomentosus Pr. - male holotype
Anospilus compactus Pr. - female cotype
Leuchimon petiolatus Pr. - female holotype
Leuchimon haupti Pr. - female holotype
Leuchimon mochii Pr. - female type
Evagetes (Tachyagetes) rarus Pr. - female type
Evagetes (Tachyagetes) aegyptiacus Pr. - type
Evagetes (Dasyagetes) indutus Pr. - male allotype, seven female cotypes
Evagetes (Exagetes) cinerellus Pr. - male cotype
Evagetes (Epagetes) genalis Pr. - female holotype
Anoplius tenuicornis Pr. - male type and cotype
Episyron ferrantei Pr. - female holotype
Episyron flavipes Haupt - female type
Pompiloides deceptor Pr. - female holotype, male allotype, 4 cotypes
Pompiloides simulans Pr. - female holotype, female cotype
Paracyphononyx ater Pr. - male holotype, female allotype, 2 male cotypes
Micropompilus braconoides Pr. - male holotype
Chronopompilus rabinovitchi Pr. - male holotype
Telostegus adulator Pr. - male holotype
Telostegus sabulicola Pr. - male holotype
Telostegus masrensis Pr. - female holotype
Paraferreola anomala Pr. - female holotype
Platyderes elegans Pr. - female holotype
Platyderes pygmaeus Pr. - male holotype
Gonaporus alfierii Pr. - 3 female cotypes
Xenaporus devius Pr. - female holotype
Xenaporus tenellus Pr. - ?male cotype
Schistonyx brevicornis Pr. - female allotype and female cotype

Schistonyx minor Pr. - female holotype

Types of Hymenoptera in Ministry of Agr. Collection
Dokki, Cairo, Egypt

Proctotrupoidea

Megacolus desertorum Priesner
Scelio crassiceps Priesner
Scelio poecilopterus Priesner
Scelio difficilis Priesner
Amblyconus aegyptiacus Priesner

Eumenidae

Ancistrocerus serenus Soika (from Helwan)
Euodynerus (Xanthodynerus) castrorum Blüthgen (labeled "TYPE"; from 6th Tower Suez Road)

Colletidae

Colletes fuscicornis Noskiewicz ("TYPUS"; Gebel Elba, Wadi Hadrat)

Megachilidae

Anthidium denticulatum Alfken

Anthophoridae

Anthophora extricata clavipes Priesner
Anthophora galalensis Priesner
Anthophora elbana Priesner
Anthophora tridentella Priesner
Anthophora selecta Priesner
Anthophora shagrensis Priesner
Anthophora tarsalis Priesner - female type, male type
Anthophora torensis Priesner

Types of Chrysidoidea in Museo Civico di Storia Naturale, Genoa, Italy

Bethylidae

Scleroderma luteicolle Kief.
Scleroderma castaneum Kief.
Scleroderma nigrum Kief.
Ecitopria proxima Kief.
Ecitopria fusca Kief.
Odontipygis flavinervis Kief.
Parasierola gestroi Kief.
Parasierola flavicoxis Kief.
Parasierola nigricoxis Kief.
Goniozius brevicornis Kief.
Epyris parvus Magr.
Epyris minimus Magr.
Rhabdepyris armatus Kief.
Rhabdepyris albipes Kief.
Mesitius carcelii var. haemorrhoidalis Magr.

Mesitius erythrothorax Marsh.
Pedinomma rufescens var. holochlora Marsh.
Perisemus dubius Kief.
Pristocera damascena Marsh.
Pristocera antennata Magr.
Pristocera cariana Magr.
Pristocera ruficornis Magr.
Pristocera erythrura Kief.
Homoglenus tripartitus Kief.
Holepyris africanus Kief.
Epyris foveatus Kief.
Epyris interruptus Kief.
Epyris armatitarsis Kief.
Epyris spiniscapus Kief.
Epyris spinitarsis Kief.
Epyris breviscapus Kief.
Epyris gracilipennis Kief.
Epyris pilosipes Kief.
Epyris striatus Kief.
Epyris geniculatus Kief. - cotype
Epyris feai Kief.
Epyris tridentatus Kief.
Perisemus coniceps Kief.
Perisemus mandibularis Kief.
Perisemus gestroi Kief.
Holepyris pedestris Kief.
Holepyris dubius Kief.
Mesitius somalicus Masi
Holepyris rufipes Kief.
Allepyris ruficrus Kief. - Neotype
Cephalonomia benoiti Guiglia
Pseudisobrachium somaliense Benoit
Scaphepyris rufus Kief.
Dissomphalus brevinervis Kief.
Discleroderma tuberculatus Kief.
Mystrocnemis africanus Kief.
Prosclerogibba magrettii Kief.
Laelius anfractuosus Benoit
Epyris egestus Benoit
Rhabdepyris guigliae Benoit
Rhabdepyris decipulum Benoit
Holepyris biskranus Benoit
Mesitius paenepunctatus Benoit
Neopristocera guigliae Benoit
Apenesia punctatus Kief.
Apenesia proxima Kief.
Apenesia laevis Kief.
Apenesia nigra Kief.
Apenesia substriata Kief.
Pseudisobrachium laticeps Kief.
Pseudisobrachium distinguendum Kief.
Pseudisobrachium intermedium Kief.

Dryinidae

Gonatopus planiceps Kief.
Gonatopus albosignatus Kief.

Gonatopus bilineatus Kief.
Gonatopus bifasciatus Kief.
Gonatopus gracilicornis Kief.
Gonatopus dentiforceps Kief.
Platygonatopus ugandanus Benoit
Digonatopus guigliae Benoit
Anteon xerophilus Benoit
Aphelopus inexpectatus Benoit
Platygonatopus albolineatus deserticus Benoit
Dryinus brachycerus Kief.
Dryinus niger Kief.
Gonatopus cilipes Kief.
Gonatopus breviforceps Kief.
Gonatopus longicornis Kief.
Gonatopus unilineatus Kief.

Segregated Hymenoptera types in the National Museum, Box 854, Colombo, Sri Lanka

Nitela henrici Turner - 2 paratypes - Colombo, Ceylon - on bamboo bored by scolytids
Scolia azurea subsp. michae Betrem - holotype male, allotype female, 2 female and 1 male paratypes
Campsomeris rubromaculata subsp. pseudindica Betr. - female holotype
Scolia ignota Betr. - female holotype, male allotype
Scolia aureipenniformis Betr. - 2 male paratypes
Scolia hydrocephala Micha - female plesiotype
Scolia paradeniyensis Betr. - female, male paratypes
Scolia trivandrumensis Betr. - female paratype
Scolia obscuropunctata Betr. - 4 male paratypes
Scolia ceylonicola Betr. - female holotype, 2 female paratypes
Mutilla melanota Turner - 2 female cotypes
Mutilla desiderata Turner - female cotype
Mutilla wickwari Turner - female cotype
Mutilla fletcheri Turner - female cotype
Mutilla fumigata Turner - female cotype
Pompilus canifrons Smith - female cotype
Pompilus pedestris Smith - varieties: having no red markings in legs - female type (NB, not even a syntype)
Tiphia oswini Turner - male cotype
Mutilla willeyi Wickwar - female type, described by Wickwar in Spolia Zeyl. 5:115-124, 1908
Mutilla indostana (Smith) - female type, collected in 1904; male not labeled type, collected in 1904 - also described by Wickwar, 1908, Spolia Zeyl. 5:115-124 (these are not even syntypes).

More Errata: Sphecid Wasps Of The World

A. S. Menke

It keeps dribbling in - will it ever stop? Usually I get this stuff from Woj Pulawski, but now others (E. Budrys, Q. Argaman, etc.) are sending me corrections. I do appreciate getting this material because eventually a revised edition will be produced, and all of these changes will be incorporated.

p. 38, LC, L 17: 1807 is correct date, not 1808.
p. 69, LC, L 17: 1807 is correct date, not 1808.
p. 127, LC, L 3 from bottom: mandarinus is correct

p. 162, LC, L 4: breviventris is a synonym of beckeri. Transfer to p. 161, RC, and place after L 4 from bottom
p. 162, LC, L 10: China is correct, not Mongolia
p. 162, LC, L 14 from bottom: Tadzhik is correct, not Kazakh
p. 162, LC, L 16-17: change Mongolia to Kamtshatka
p. 162, LC, L 35: Tadzhik is correct
p. 162, RC, L 21: Turkmen SSR is correct, not Kazakh
p. 162, RC, L 25: add: s. USSR
p. 164, LC, L 6: 1932 (Mimesa) is correct, not 1937 (Psen). Add se USSR: Ussuri to distribution
p. 164, LC, L 29: fulvitarsis is a synonym of unicolor. Transfer to RC, after L 2
p. 166, LC, L 39: change entry to: "orientalis Gussakovskij 1934" of Yasumatsu, 1942.
p. 179, LC, L 19-20: brachycerus is a synonym of crassicornis Gribodo; place these entries after L 27
p. 179, RC, L 8: moricei is a synonym of oraniensis. Place after L 15.
p. 182, LC, L 4: transfer fabricii to p. 181, RC, and place after L 17.
p. 191, LC, L 23: taiwanensis is correct
p. 212, LC, L 39: apostata is out of alphabetical order. Place ahead of aschabadensis.
p. 237, RC, L 6-7 from bottom: delete "docilis F. Smith "
p. 245, LC, L 36-37: delete "which was cited erroneously as a male, see Larra carbonaria"
p. 246, LC, L 10: iriomotensis is correct
p. 272, RC, L 29: transfer ssp. yaeyamanus to p. 275, LC, and place after L 35 as subspecies of nigricolor.
p. 291, RC, L 1: flauipes is correct spelling
p. 291, LC, L 10-12 from bottom: flavipes is not a homonym, delete "nec Fabricius, 1781". Correct species name with synonymy is as follows:
flavipes (Fabricius), 1793 (Tiphia); nw Africa (V)
rufipes Latreille, 1812
humeralis Dufour, 1853
Place species entry after L 4 from top of column.
p. 336, LC, L 25: 1856 is correct
p. 345, RC, L 18: 1894, not 1896
p. 363, RC, L 19: 1924 is correct
p. 364, LC, L 8: 1924 is correct
p. 364, LC, L 20: 1924 is correct
p. 368, RC, L 29: 1924 is correct
p. 400, RC, L 38: cheesmanae is correct
p. 449, RC, L 8: Dusmet y Alonso is correct
p. 469, RC, L 34: 1807 is correct date
p. 470, RC, L 10, 15, 18: 1807 is correct date, not 1808
p. 491, RC, fig. 161: reverse names after A & B, A = Argogorytes, B = Clitemnestra
p. 526, RC, L 11 from bottom: hebraeus is a synonym of annulatus. Transfer to LC and lace after L 41.
p. 526, RC, insert after L 13 as synonym: continuus Marquet, 1881
p. 526, RC, insert after L 18 from bottom as species: fulvicornis Dahlbom, 1845; Egypt. Put in index also.
p. 527, LC, insert after L 4: ornatus Lepeletier, 1845. Place in index also.
p. 527, LC, L 18 from bottom: pygidialis is a synonym of annulatus. Transfer to p. 526, LC, and place after L 41.
p. 527, LC, L 5 from bottom: gaditanus is correct
p. 527, LC, L 3 from bottom: De Beaumont 1953:196 removed ornatus from this synonymy. It should be listed as a species from "Gallia" and placed after L 34 preceded by a dagger symbol to indicate that it is a junior homonym. Add: nec Lepeletier, 1845.
p. 527, RC, L 27: transcaspicus is a subspecies of bizonatus. Transfer to p. 526, RC, and place after L 4.p. 531, LC, L 44: add (March) after 1934
p. 531, LC, insert after L44 as synonym: japonicus Yasumatsu, 1934 (April) (Stizus)
p. 576, RC, L 38: 1926, not 1914

p. 582, LC, L 36: horus is correct
p. 586, LC, insert after L 6 as synonym: euphorbiae Marquet, 1881
p. 588, RC, L 25: 1807 is correct, not 1808

Profiles

MICHAEL ARDUSER

My passion for aculeates dates back to 1979, when I began collecting and watching wasps and bees in northern Michigan. It soon developed into a serious affliction; I was often observed hitch-hiking through the state with a net, a Schmidt box and Gray's manual. The police ignored me after a while.

I'm currently a Missouri resident. My wife, who is a millionaire, supports me. Over the next several years I plan to collect feverishly throughtout the state, concentrating on the Ozark areas, and the Boston and Ouachita Mountains to the south. The majority of these specimens will be placed in the incipient museum in the Biology Department of the University of Missouri-St. Louis. Immediate plans are: a distributional study of Missouri Polistes and vespines (with the aid of Jim Hunt); and a study of the species of plants that Colletes inaequalis collects pollen from in the Ozark area.

EDUARDAS BUDRYS

I was born in Vilnius, Lithuanian SSR, in 1961. I became interested in biology while in school. After 1976 I "specialized" in collecting Aculeata and observing their behavior. From 1979 to 1984 I studied at the Faculty of Biology of the Leningrad State University, in the Department of Entomology. During the summer of these years I studied nature, and collected insects on the banks of the White Sea, in the mountains of Georgia, in the steppes of Kazakhstan, in the deserts of Turkmenia, and on the Pacific shores and forests of South Primorye (Soviet Far East). I worked especially on the taxonomy of the Psenini. A result was my paper "New and little known species of Mimesa Shuck. from Middle Asia and Kazakhstan . . ." which is now in press. I have also prepared keys to the species of Psen and Psenulus and hope to have them in press soon. At the moment I am working as a post-graduate in the Laboratory of Systematics on Insects under the supervision of Dr. V. I. Tobias. I am studying the taxonomy of palearctic Pemphredoninae. My other interests are comparative morphology of Sphecidae and evolutionary processes of the Aculeata.

SUMIT CHAKRABARTI

Born at Shamnagar near Calcutta on March 12, 1964. I completed my school life in my village. During my childhood I had a keen interest with insect life. When I was a boy of 14, the mud nests of hunting wasps attracted my attention. I started to observe wasps building nests and collected different mud nests. The paralyzed spiders in the cells of the nests were strange to me. Finally I got the answer when I saw a wasp stinging a spider on its abdomen in my garden. In those days I had no specific interest in wasps. Spiders and other insects, like the bagworm, the spittlebug, the water strider, etc. were keenly observed by me. At that time I had no one to advise me, but my parents gave me enthusiasm presenting books on insects, sharing my observations, helping in preparation of notes, taking photographs, etc. Incidently a science club was established in my village, and I joined as a naturalist. Then I concentrated on the study of solitary wasps and continued to make study reports. In 1981 I took admission with Hons. in Zoology, in a college of the University of Calcutta, and found that my past observations were not in vain. I gathered information from the college library, and contacted hymenopterists at the Zoological Survey of India for wasp identifications. One of my beloved teachers asked me to make a study

report on what I observed during the past few years. He arranged a table for me in the college laboratory where I studied wasps during my recess periods. Last year I came to know about the newsletter Sphecos, and communicated with the editor. Now I have several pages noted on the biology of Sceliphron species and Chalybion species (Sphecidae), and a few eumenids. This year I received the B. Sc. degree from the University of Calcutta, and am seeking admission for post graduate studies elsewhere in India.

ENRIQUE RUIZ CANCINO

I was born in October 1957 in Cd. Victoria, Tamaulipas, Mexico. I studied agronomy with a specialty in parasitology at the Faculty of Agronomy (UAT) in this city. My research involved searching for parasitoids of Anastrepha ludens (Dipt.: Tephritidae) which infests Sargentia greggii. Two braconids of the genus Doryctobracon were discovered.

My M.S. studies were at ITESM in Monterrey, Mexico. My thesis was titled "Genera of Ichneumonidae of some localities on northeast Mexico. Over 100 genera were included. I now work at the Faculty of Agronomy as a teacher and researcher. Corn pests such as Spodoptera frugiperda, Heliothis zea and Diatraea grandiosella occupy much of my time, but I find time to collect diverse groups of wasps and bees. I am beginning to classify different genera of Ichneumonidae, Vespidae, Braconidae, Sphecidae and Pompilidae.

Next year I may begin my Ph.D. studies at ITESM in Monterrey. My thesis will be about the ecology and systematics of different wasps in this region of Mexico.

Recent Literature

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