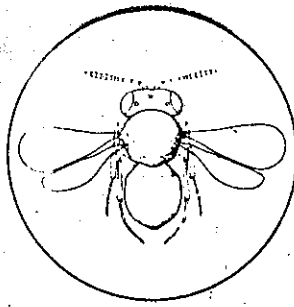


proctos



Proctotrupoid Newsletter
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TYPES & COLLECTIONS

The building up of CNC proctotrupid collection (1969-1976)

The present proctotrupid section of the CNC comprises about 80,000 specimens from all over the world. The material is identified down to genera and further sorted out according to main geographic regions. Only a smaller part of the collection is classified down to species level, the notable exceptions being the families Proctotrupidae and Heloridae (H. Townes det.), and some genera in Scallionidae and Platygastriidae (L. Masner & C.F.W. Muesebeck det.). There are relatively few primary types, mainly by Harrington, Masner, Muesebeck and Townes. The annual growth is about 10,000 specimens, mounted and sorted down to genera. The greater part of the material was either collected or purchased and is continuously processed, only a smaller part being stored in alcohol. Efforts are made to circulate parts of this material to specialists working in particular groups (genera) all over the world. Naturally, major emphasis is on the New World fauna and here again on its northern temperate zone, i.e. Canada and the USA.

The philosophy upon which the collection is being built revolves around several main points. It is generally accepted that a good collection is an indispensable tool in any biosystematic study. The proctotrupid wasps present one particular problem in this direction. As a very old group the proctotrupoids have naturally a wide distribution. To understand the evolution and interrelationships as well as the limits of individual genera it was strongly believed that we had to have a reference collection based on world fauna. This effort resulted eventually in representation of nearly all genera of the world, with some 500 valid genera recognized. To achieve this goal every possible way of acquiring material was employed. The material was received by direct purchases, exchanges, friendly (non-monetary) cooperation and eventually by major surveys launched in Canada and the USA.

A) Direct purchases. A substantial part of our material was acquired this way. An annual allowance for insect purchases enabled us to procure up to 20,000 unmounted specimens of miscellaneous parasitic Hymenoptera per year. Among the major suppliers were some leading professional collectors such as Frits Plaumann (Brazil), Luis Peña (Cuba), Moacir Alvarenga (Brazil), Hans Klapperich (Germany), P.B. Karunaratne (Ceylon) and others. Smaller deals were made with some other collectors. The main focus was on New World fauna although other parts of the world were also represented. Currently (1977-78) business contracts are signed with several collectors and more deals are under consideration. As a result of this the CNC has a very strong Nearctic and Neotropical representation. The regrettable restrictions imposed on exportation of Australian insects prevented us from building up this segment of our collection. No major named collection of Proctotrupeoidea has been purchased so far.

B) Exchanges. The Hymenoptera Section succeeded in exchanging several items for bulk unstudied material of parasitic Hymenoptera. The former Belleville reference collection, consisting mainly of specimens from various biological control projects, served as a source for assembling small reference collections. These were in turn offered to various institutes overseas. Another item being used in exchange are the pinning trays formerly used by the CNC, now gradually replaced by newer models. Presently we are also considering exchanging residuum materials (in alcohol) from localities well represented in the CNC. We are also ready to participate in an exchange program outlined by Henk Vlugg (see Circulating Collections).

C) Friendly (non-monetary) cooperation. Large amounts of material have been received through the kind cooperation of some institutes, among them notably the Commonwealth Institute of Biological Control.

This organization maintains several stations around the world and extensive materials were received from the West-Indies station (Trinidad), and minor collections also from the Indian station (Bangalore). The material from Trinidad was also collected in pan traps (see "Pan Traps" by G. Gibson). Several individuals in the USA (Gerd Heinrich, T.J. Becker) donated residua or rich material from Malaise traps. Rev. Anthony Watsham (Rhodesia) kindly supplied proctotrupid residuum from his chalcid collection. A large number of individuals donated proctotrupid material in exchange for other services extended (identification, advice, reprints etc.). More cooperation is greatly welcomed.

D) Major collecting programs were launched from 1970 on. Malaise traps, pan traps, plexiglass traps were set in a number of Canadian and US localities, preferably over a long period of time. The pan traps in particular proved to be of considerable worth. New types of traps and new programs are being currently considered for the forthcoming season (1977).

During the past seven years the CNC procto-collection has developed into a major reference collection of its kind. One impetus while building this collection was to help all serious students anywhere in the world. It is therefore emphasized once again that no effort will be spared to make any part of this fine collection available to any one of you. A list of genera with the amount of material in each geographic region has been prepared and will be sent to you upon request. Additional specimens may be retrieved from the stored material. Conditions, as usual, stipulate the return of the holotype, allotype, and up to 2/3 of the paratypes to the CNC. However, special arrangements may be considered also and conditions altered on an individual basis.

LETTERS TO EDITOR

"... also many thanks for PROCTOS - I think that it is an excellent idea" (John Early, May 1976).

"Incidentally, I was recently approached by some applied entomologists. From the list in PROCTOS I was able to suggest one or two people who might be able to help them with their specific problems. The Newsletter is really proving its worth" (Ian Naumann, June 1976).

"We like PROCTOS very much and are not ashamed to "borrow" some ideas for our ichneumonid newsletter" (Ian Gauld, June 1976).

"PROCTOS is very interesting and useful for me and stimulates me" (Yoshimi Hirose, June 1976).

A Circulating Collection (CC)

Dear Proctomen:

People who run traps in order to collect certain groups of proctos end up with a lot of miscellaneous Hymenoptera. If they work for an institution in which systematic research is done, all of the material collected from traps can be used. But if a private person runs such traps, he often does not need the residual material. What to do with it? One can throw it away (how wasteful!), or one can preserve it in vials of alcohol until someone happens along to make use of it. But there is still another way. One could put all residual material from one locality and date in an alcohol vial, and send it to a colleague to pick specimens of his interest. Then the latter would send the remaining material plus unneeded specimens from his own collecting, to the next person on the list, and so on. This system would provide an opportunity for all of us to obtain material from all over the world.

This idea would not be as simple as indicated above because people working in museums (and similar institutions) are usually not allowed to give material that is the property of their museum. On the other hand, if they had long series of certain species, they could operate in this cooperative scheme by exchanging on a one-to-one basis (if their directors would please close one eye) taking out of the circulating collections whatever was of interest to them and putting back into it the same number of specimens of other kinds that could be spared (which would represent, more or less, unneeded residual material to them).

Another problem might occur when the collection was received by a person interested in all Proctotrupeoidea, or when more than one person was interested in the same group (there would not be many examples of either of these cases). Such persons could theoretically keep everything of interest to some others, and that would end the usefulness of the circulating collection. Well, to start we would have to trust each other and hope that such people would leave interesting material for the other persons on the mailing list. There may be other problems of course, but in my opinion this idea is worth trying. If it does not work we can stop it.

If specialists in other superfamilies of Hymenoptera would like to participate in the same scheme, they would cooperate with us. The organizer of the Circulating Collections (CC) could send material of each of the other groups to the designated organizer for that specific group and receive from him in return the proctos collected by specialists of that group.

If any of you are interested in this idea, please write to me soon, giving me your comments and indicating whether or not you want to collaborate.

Henk J. Vlugg
Institute of Phytopathological
Research, IPO,
Binnenhaven 12,
Wageningen, Netherlands.

METHODICS & EQUIPMENT

The sculpture of the frons (and particularly that of the frontal depression) is often concealed by antennae which are closely attached to the forehead. To avoid the time-consuming task of remounting the specimen a technique can be applied in certain groups to speed up the process. A fine pin may be driven between the scape and frons, and the antennae gently pushed forward. Caution must be exercised not to overdo the tilt and this must be tried no more than twice. The ball-and-socket mechanism of the radicle and the corresponding part of antennal insertion is flexible enough to allow antennal movement with minimal risk even in older specimens. However, specimens affected by mould or fungus should not be tried, also very old material is likely to suffer damage in this experiment. Scelionidae appeared to be least affected by handling their antennae; this is very advantageous as the sculpture of frons is an important character in scelionid taxonomy.

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Yellow pan traps (Hoericke traps, Assiettes jaunes).

The following is the promised article (PROCTOS, 2/1/, 1976) on the use of pan traps in collecting proctotrupoid wasps. So far the results were beyond all expectations in arctic, temperate and tropical zones. Fred D. Bennett (C.I.B.C., Trinidad, W.I.) collected thousands of proctos (and other microhymenoptera) in six traps within one year. Patricio Fidalgo (Instituto Miguel Lillo, Tucuman, Argentina) is currently using pan traps to collect chalcidoids in Argentina. Paul Cochereau (formerly ORSTOM, New Caledonia), the pioneer in using pan traps for collecting microhymenoptera, sent us rich material from New Caledonia and New Hebrides. Dominique Duviard (ORSTOM, Abidjan, Ivory Coast) used pan traps in ecological studies of cotton fields. Bill Mason and Robin Leech (BRI, Ottawa, Canada) ran a few pan traps in tundra formation near Tuktoyaktuk (NWT), Hazen Lake (Ellesmere Is., N.W.T.) and Herschel Is. (Yukon) yielding rich material in overall depaupered arctic localities. The pit fall traps (actually a variety of pan traps) proved recently very efficient in surveys of rain forest floors in tropical Australia (I. Naumann, I. Galloway). Although pan traps catch almost all groups of Hymenoptera some groups seem to be quite dominant. Among the proctotrupoids the Scelionidae are most abundant, the chalcidoids are distinctly dominated by Mymaridae, Encyrtidae and Aphelinidae. The rare Amiseginae (Cleptidae); egg parasites of Phasmatodea, appeared very abundant in yellow pan traps in Trinidad (W.I.). On the other hand most strong flying groups of Hymenoptera seldom get caught in pan traps.

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PAN TRAPS

By Gary Gibson (BRI, Ottawa)

Ordinary aluminum cake pans about 9 inches square and 1 1/2 inches deep are the most commonly used container for pan traps, but any servicable waterproof container will do. It is filled to about one-half its depth with water to which a small amount of liquid detergent is added in order to reduce the surface tension. Excess soap can cause a film to form on the specimens to which dirt sticks, therefore, only a very small amount which causes a few bubbles to form when the water is agitated rapidly should be used. A small amount of formaldehyde may also be added if the time between servicing the trap is more than a couple of days. This will reduce decomposition.

The pan may be set in the ground with its top flush with the surface level, acting as a pitfall trap, however, this often results in much dirt being washed and blown in. Experience has shown that pans set just on the ground will collect even the smallest, wingless proctos, and the water will remain cleaner for much longer periods. A plastic barrier made from stiff wire and plastic bags may be placed lengthwise over the trap in the direction of the prevailing breeze to increase the volume of catch of wing blown and low flying insects. The trap should not be set in the direct line of sunlight as this will speed evaporation and heat the water so that bodies bloat and decomposition proceeds quickly. Where pans may evaporate dry between servicings, or where bloating proves to be a problem, the water may be replaced with a 50% water-ethylene glycol solution. This has the disadvantage in that it too may form an oily film around the specimens to which dirt becomes attached, and therefore the water-glycol solution should be replaced whenever it becomes dirty or "milky".

In servicing, the contents should be poured into an empty trap or some other container through a funnel made of very fine, supple mesh (about 50 meshes to the inch or ladies nylon stockings). If this mesh can be inverted the specimens can be quickly and easily washed off by pouring a small amount of liquid into one corner of the pan and inverting the mesh and submerging it into this. This small amount of liquid can then be taken back to the laboratory. The material should immediately be restrained, washed in alcohol, and stored in 95% alcohol.

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Principal references.

- Duviard, D. 1973. Spatial and seasonal distribution of Diptera, Homoptera and Hymenoptera in a moist shrub savanna. Ecological behaviour of wing insect populations in the savannas of Ivory Coast. I. OIKOS 24: 42-57. Copenhagen.
- Duviard, D. 1973. Etude, par les pièges à eau, de la faune entomologique d'un champ de coton en Côte-d'Ivoire Centrale (Foro-Foro). Ann. Soc. ent. Fr., 9(1): 147-172.
- Chauvin, R., Roth, M. & G. Couturier 1966. Les récipients de couleur technique nouvelle d'échantillonnage entomologique. Rev. Zool. Agric. Appl., No. 4-6: 77-81.
- Roth, M. & G. Couturier. 1966. Les plateaux colorés en ecologie entomologique. Ann. Soc. ent. Fr., 11(2): 361-370.

INTERNATIONAL TRAVEL

Zdenek Bouček & wife Tania arrived in Brisbane. Zdenek is dividing his time between Girault's collection and those of Ian Galloway and Ian Naumann. Working very hard (as usual) might result in book bigger than Girault's but positively better. One thing, Zdenek, while chasing lovely Chalcids in Australia...beware of Big Brother watching!

Paul Dessart enjoyed his American summer. Studying types in USNM before the Congress chaos erupted, then mingling with some other 3500 people attending the Congress, finally traversing the US by Greyhound bus to Riverside (Calif.) and all the way back diagonally to Ottawa to study in CNC. Anyone contemplating a tour of US, contact the expert, Paul is friendly.

Ian Gault & wife Pamela spent 4 months studying with Henry Townes in Ann Arbor (Mich.). They helped to organize a meeting (pre- and post-congress) of hymenopterists held at Henry's place. The Gaults also actively participated at the Congress in Washington, with Ian also studying types in USNM.

Henk Vlug & wife Laura also enjoyed an American-Canadian summer. Attending the Congress and then holidaying in Canada, they rounded up the trip (like Paul Dessart) via Montreal and New York.

The XV. International Congress of Entomology in Washington was a major meeting in 1976. Following proctomen attended: Dessart, Gault, Hedqvist, Masner, Muesebeck, Rao, Townes, Vlug. They met a number of colleagues-hymenopterists at the Symposium on Biosystematics of Parasitic Hymenoptera. Lubos Masner gave a report on world studies in Proctotrupeoidea. All reports delivered at the Symposium will be published soon in a leading journal (Gordon Gordh Editor). Numerous informal get-togethers were eventually highlighted by two splendid parties given by Arnold Menke and Gordon Gordh in their respective homes. Curiously enough more joint projects in future cooperation were agreed here rather than during the lecture time at the Congress. Hymenopterology seems to go very well with champagne and snacks.

EXPEDITIONS & SURVEYS

John Early and Prof. Horning left recently for a four months expedition to collect in subantarctic islands off New Zealand. John will be concentrating on diapiids in the littoral and supralittoral zones.

Lars Huggert has been collecting diligently all summer in Sweden and Finland.

Misha Kozlov spent the summer in Mongolia pursuing the last unknown proctos.

Stuart & Jarmila Peck (Carleton U., Ottawa) collected in lush tropical rain forests in Ecuador. They netted about 16,000 specimens of parasitic Hymenoptera, some of them real nuggets and diamonds! The CNC is more than grateful.

Alik Rasnitsyn returned back from Tajmyr Peninsula with some 200kg of amber nodules (estimated age - the end of Early Cretaceous!); so far some 40 specimens of Hymenoptera have been sorted out.

MININEWS

Aradophagus fasciatus Ashmead (Scelionidae) - a household insect? This handsome rare Holarctic scelionid was a subject of considerable interest for its mysterious biology. Ashmead (1893) mentioned two potential hosts, an aradid bug and a scolytid beetle, both found in large numbers along with Aradophagus under oak bark. However, neither of the two seem to be the real host. The scolytid can hardly qualify as its eggs are considerably smaller than the average size of Aradophagus. Ashmead believed that the aradids were the host. However, last summer Prof. G. W. Byers (U. Kansas, Lawrence) observed numerous individuals of A. fasciatus swarming on the window of his house in Lawrence. Wasps were confined to only one room yet the most meticulous indoor search failed to reveal any aradids. The only other household arthropods in that room were a spider (Theridion sp.) and a silverfish (Lepismodes), both very unlikely hosts. Aradophagus appeared about twice a year, from early July to about the first week in August, with a distinct peak in mid-July. The females were more dominant in the early period, the males in the later (!). George Byers will continue the search for the host but until then the question will remain a mystery. The main thing (at least from our point of view) is that some 50 specimens of A. fasciatus were generously donated to the CNC.

CanaColl's Report - The first student sponsored by a CanaColl grant (cf. PROCTOS, 1 (2): 3, December 1975) was Mr. R.C. Miller (Cornell U, Ithaca). Dick spent one week curating and identifying sphecoid wasps in the CNC. He brought with him a fine reference collection of sphecids not yet represented in the CNC in exchange for other CNC species. CNC urgently needs expert help to curate Apoidea and Scolioidea.

PROFILES....

Ian Gauld - 28, married, son Devren (8); hobbies - insect watching, eating (how about that beer & pizza in Washington? /Ed./); M.I. Biol. in Entomology; interests in British Proctotrupoidea and in Scelionidae of economic importance.

Yoshimi Hirose - 39, married, wife Yasuko, sons Sozo (7) and Araki (5); Dr. Agric. Sci.; hobby - reading detective stories.

Ian Naumann - 24, single (do not hurry, Ian! /Ed./); B.Sc. (Honours) U. of Queensland; no nickname (could not be shorter); hobbies - collecting old and rare books, entomology, playing cricket (a wicket-keeper), squash, and, as any Aussie is expected, tennis too.

NEW SUBSCRIBERS

Dr. K.J. Hedqvist (Stockholm, Sweden)

Prof. N.S. Rao (Aurangabad, India)

Prof. G. Viggiani (Portici, Italy)

NEW STUDENTS....

WELCOME ABOARD!

(See 1976 Directory)

Espinoza, H.N. - Scelionidae.

Johnson, N.F. - Nearctic Telenomus.

Levin, D. - Proctotrupoidea.

Mineo, G. - Larvae of Scelionidae.

Rao, N.S. - Professor Rao informed me in Washington about his intended comeback to proctotrupid studies; there is also a young Indian student under his guidance to make the entry into Proctotrupoidea.

CORRECTIONS

Masner, L. 1976 Revisionary notes and keys....(cf. Bibliography)

p. 42 in Shreemana, last sentence should read: "Skaphion absent, antenna fusiform in females,..."

p. 54 in Platyscelionini, bottom should read: "Metasoma equally segmented;....."

p. 71 in Trisacantha, mid-paragraph should read: "Metanotum tridentate, teeth either long...."

EDITOR'S CORNER

We still did not get pictures (photographs) of all subscribers of PROCTOS. This is also why the promised Tableau of Proctomen is only in preparation. Together with this issue of PROCTOS a gentle reminder will be sent to those who are resisting unveiling their handsome faces. For those who are ardent photophobes we will reserve special blank spaces on the Tableau; please specify how big a space is needed to accommodate your Top Secret.

PROJECTS IN PROGRESS

(*Non-members of PROCTOS)

- *Austin (The University of Sydney, Australia) Embryology of Nephila and Ariannes spiders, possible physiological and predator, protective functions of spider egg sacs. Idris & Ceratobaeus species involved.
- Bin Papers on Mantibarria and Protelenomus. Phoresy, adaptations.
- Dessart & Masner A new genus of Ceraphronidae from Rhodesia; the first ceraphronoid with falcate mandibles and cornute head.
- Early Two papers submitted on Antarctopria (Thesis).
- Galloway The types of Scelionidae in Australia; will appear in Qld. Journ. Agric. & Animal Sciences (December 1976).
- Gordh Editorial work on reports from Symposium on Biosystematics of Parasitic Hymenoptera (XV. Entomological Congress, Washington 1976).
- Grissell Ecological study on Sparasion spp. in Florida.
- *Hagen (University of California, Albany). MS on aquatic Hymenoptera.
- Holloway Taxonomy of Idris & Ceratobaeus spp., parasites of spiders in the Sydney area (cf. Austin).
- Huggert Revision of African Trichopria; completion of the revision of Palearctic Idris.
- Lofacono Study on Neotropical Caecopria.

Masner Leptoteleia, Oethecoctonus & Caloteleia of the New World; higher classification of the Spilomicrini; termitophilous Diapriidae; Baryconus of the Nearctic region; Bishop Museum Diapriidae (10,000 specimens) identified down to genera; Masner in Townes (1977) 1 n.gen. & 3 n.spp. of Proctotrupidae.

*Medler Insects of Nigeria (MS on Hymenoptera).

Mineo Larvae of Scelionidae; Gryon spp. in Reduviid eggs.

Muesebeck MS on Macroteleia submitted; revision of Nearctic Psilus in preparation.

Naumann Acanthobetyla & Pantolytoniyya of the Australian Ambositriinae MS finished; Platygastoides spp. from pit fall traps in Australian rain forests.

*Neff (Biological Research Centre, Bokrijk, Belgium) Biology of Telenomus nitidulus, parasite of Stilpnotia salicis.

*Torgersen (USDA, Corvallis, Oregon) Biology of Telenomus californicus, parasite of Orgyia pseudotsugata.

Townes Exallonyx part of the proctotrupid revision.

DESSART, P. 1975 Contribution à la connaissance des Ceraphronidae de Ceylan (Hymenoptera Ceraphronoidea). - Revue suisse Zool., 82: 101-156.

EBERHARD, W.G. 1975 The ecology and behavior of a subsocial pentatomid bug and two scelionid wasps: Strategy and counter-strategy in a host and its parasites. - Smiths. Contrib. Zool., No. 205: 1-39.

FABRITIUS, K. 1975 Aradophagus fasciatus Ashm. (Hymenoptera, Proctotrupoidea) o species rara presentata in Romania. - Studii si Comunicari, Muzeul Brukenthal, Sibiu, St. nat. 19: 235-236.

FABRITIUS, K. 1975 Proctotrupoide (Hymenoptera) noi pentru fauna Romaniei. - Studii si Comunicari, Muzeul Brukenthal, Sibiu, St. nat. 19: 231-234.

FABRITIUS, K. 1975 Bibliographia Suprafam. Proctotrupoidea et Ceraphronoidea (Hymenoptera). - Institutul Pedagogic Constanta, Biblioteca, 1975: 124 pp.

HUGGERT, L. 1976 A new genus and three new species of Platygastriidae from Zaire. With a key to the species of Iphitrachelus Walk. and supplementary descriptions of Leptacis spp. (Hymenoptera: Platygastriidae). - Ent. Scand., 7: 217-229.

RECENT PUBLICATIONS

The following is the list of publications either received as reprints or seen in various journals. Regrettably enough, reprints were not received in a few of the titles listed although our address is perhaps well known, particularly to PROCTOS subscribers.

- ANDERSON, J.F. 1976 Egg parasitoids of forest defoliating Lepidoptera. - Perspectives in Forest Entomology, Chapter 16, Academic Press, New York, 1976 (16): 233-249.
- BIN, F. 1975 A new species of Telenomus Haliday (Hymenoptera Scelionidae) reared from Hysteropterum flavescens Oliv. (Rhynchota, Fulgoridae). - Entomologica, 11: 183-187.
- BIN, F. 1976 Record of teratological Trichopria Ashm. (Hymenoptera, Diapriidae). - Entomologica, 12: 67-70.
- BIN, F. 1976 New host records in Baryconus Foerster (Hymenoptera, Scelionidae). - Entomologica, 12: 63-66.
- BIN, F. 1976 The types of Scelionidae (Hymenoptera) in the "Naturhistoriska Riksmuseet" in Stockholm described by Kieffer in "Arkiv för Zoologi", 1904. - Entomologica, 12: 71-74.
- COOPER, K.W. & P. DESSART, 1975 Adult, larva and biology of Conostigmus quadratogenalis Dessart & Cooper, sp.n., (Hym. Ceraphronoidea), parasite of Boreus (Mecoptera) in California. - Bull. Ann. Soc. r. belge Ent., 111: 37-53.
- DESSART, P. 1975 A propos de Dendrocerus bicolor (Kieffer) (Hym. Ceraphronoidea). - Bull. Ann. Soc. r. belge Ent., 111: 101.
- DESSART, P. 1975 Quelques Dendrocerus (Hym. Ceraphronoidea: Megaspilidae) du Chili. - Bull. Ann. Soc. r. belge Ent., 111: 262-269.
- DESSART, P. 1975 A propos du genre Neoceraphron Ashmead, 1893 (Hym. Ceraphronoidea Ceraphronidae). - Bull. Ann. Soc. r. belge Ent., 111: 248-261.
- DESSART, P. 1975 Deux nouveaux Ceraphronidae a antennes pauciparticulees (Hymenoptera Ceraphronoidea). - Bull. Ann. Soc. r. belge Ent., 111: 163-177.
- KOZLOV, M.A. & LÉ, S.H. 1976 A new Palearctic genus of the family Scelionidae (Hymenoptera, Proctotrupoidea) from Afghanistan. - Zool. Zhurn., 55: 143-145.
- MAHI, M.S. 1975 On a collection of Scelionidae and Platygasteridae (Hymenoptera: Proctotrupoidea) from India. - Mem. School Ent., St. John's College, Agra, No. 4: 63-80.
- MASNER, L. 1976 Revisionary notes and keys to world genera of Scelionidae (Hymenoptera: Proctotrupoidea). - Mem. Ent. Soc. Canada No. 97: 87 pp.
- MASNER, L. 1976 The Nearctic species of Iphitrachelus Walker (Hymenoptera, Proctotrupoidea, Platygastriidae), with a key to world species. - Can. Ent., 108: 1065-1068.
- RASNICYN, A.P. 1975 Early evolution of higher Hymenoptera (Apocrita). - Zool. Zhurn., 54: 848-860.
- SZABO, J.B. 1974 Neue Arten der Diapriiden aus der Sammlung des Naturhistorisches Museums in Wien, Osterreich. - Ann. Naturhistor. Mus. Wien, 78: 495-498.
- SZABO, J.B. 1974 Neue Arten und Gattungen der Diapriiden aus der Mongolei (Hymenoptera, Diapriidae). - Ann. Hist. Nat. Mus. Nat. Hung., 66: 353-358.
- SZABO, J.B. 1975 Neue Gattungen und Arten der paläarktischen Telenominen (Hymenoptera, Scelionidae). - Ann. Hist. Nat. Mus. Nat. Hung., 67: 265-278.
- VLUG, H.J. 1976 Synopeas talhouki n.sp. (Hym. Platygastriidae), a parasite of Odinadiplosis amygdali (Anagnostopulos) (Dipt. Cecidomyiidae) with notes on its distribution and biology. - Z. angew. Ent., 80: 262-266.

DIRECTORY 1976

A few names are still not included although known to the Editor. No positive responses have been obtained to warrant the inclusion of those names into 1976 Directory. (Editor)

* Changes
+ New Students

- * BIN, Ferdinando - Istituto di Entomologia Agraria, Facolta di Agraria, Universita di Perugia, Borgo XX Giugno, 06100 Perugia, Italia (Taxonomy of Scelionidae, esp. Telenominae, bibliography of Scelionidae).
- CARDALE, Josephine C. (Miss) - Division of Entomology, CSIRO, P.O. Box 1700, Canberra, A.C.T., Australia (Taxonomy of Hymenoptera; preparation of catalogue of Australian species).
- DESSART, Paul - Institut royal des Sciences naturelles de Belgique, Section Entomologie, 31, rue Vautier B-1040 Bruxelles, Belgium (Systematics of Hymenoptera, Ceraphronoidea).
- + ESPINOLA, H.N. - Chagas Disease Vector, Research Unit, UNIVEC, Apartado 2030, Las Delicias, Maracay, Venezuela, (Scelionidae).
- * FABRITIUS, Klaus - Institutul de Igiena, Dept. de Ecologie, 7000 Bucuresti - sect. 6, Str. Dr. Leonte nr. 1-3, Romania (Proctotrupoidea).
- FERGUSSON, Nigel D.M. - British Museum (Natural History), Cromwell Road, London S.W.7, England (All aspects of Proctotrupoidea study).
- GALLINA, Ariela - c/o Prof. L. DeSantis (Scelionidae).
- * GALLOWAY, Ian D. - Entomology Laboratory, Dept. Primary Industries, Meiers Road, Indooroopilly, Brisbane, Qld. 4068, Australia (Biosystematics of Scelionidae of Australia & South Pacific).
- + GARGARCZYK, Henryk - Institut Zoologii PAN, Warszawa, Wilcza 64, Poland (Diapriidae).
- GAULD, Ian D. - Commonwealth Institute of Entomology, Cromwell Road, London S.W.7 58D, England (Proctotrupoidea, Scelionidae of economic importance).
- * HEDQVIST, Karl-Johan - Swedish Natural Science Research Council, c/o Swedish Museum of Natural History, Department of Entomology, S-104 05 Stockholm 50, Sweden (Proctotrupoidea in general).
- HIROSE, Yoshimi - Division of Insect Natural Enemies, Institute of Biological Control, Faculty of Agriculture, Kyushu University, Fukuoka 812, Japan (Biosystematics of Scelionidae especially Telenomus and the allied genera).
- HOLLOWAY, G.A. - Entomology Department, The Australian Museum, 6-8 College Street, Sydney 2000, Australia (Taxonomy and biology of Proctotrupoidea).
- HUGGERT, Lars - Skolgatan 100, 902 46 Umea, Sweden (Taxonomical and biological problems in Proctotrupoidea, Chalcidoidea, and Cynipoidea).
- ITO, Ken - Entomological Laboratory, College of Agriculture, Ehime University, Tarumi 3-5-7, Matsuyama, 790 Japan (Scelionidae, taxonomic studies, behaviour, relationships with host; Platygastriidae).
- JACKSON, Dale - Department of Biology, The University of Akron, Akron, Ohio 44304, U.S.A. (Platygastriidae).
- + JOHNSON, Norman F. - 522 Dryden Rd., Apt. E2G, Ithaca, N.Y., 14850, USA, (Nearctic Telenomus)
- + KOLOMIEC, N.G. - Forestry Department, Institute of Forestry, Siberian Department, Academy of Sciences USSR, P.O. Box 45, 630082 Novosibirsk 82, USSR (Telenomus).
- + KONONOVA, S.V. - Institute of Zoology, Ukrainian Academy of Sciences, Lenin Street 15, Kiev 30, USSR 252650 (Scelionidae, esp. Telenominae).
- KOZLOV, Mikhail A. - 199164, Zoological Institute, Academy of Sciences, Leningrad, B-164, USSR, (Proctotrupoidea extant and fossil).
- LEVIN, David - 318 King Street North, Waterloo, Ont., Canada (Proctotrupoidea).
- + LOIACONO, Marta S. - Facultad de Ciencias Exactas y Naturales, Universidad Nacional de La Pampa, Avenida Belgrano, Miguel Riglos, Prov. La Pampa, Argentina (Diapriidae).
- MacGOWN, Matthew W. - 153 Clay Lyle Entomology Bldg., Department of Entomology, Mississippi State University, Starkville, Mississippi 39762, USA, (Taxonomy, biology, morphology of Platygastriidae, geographic and intraspecific variation in particular).
- MANI, M.S. - School of Entomology, St. John's College, Agra-282002 India (Proctotrupoidea, esp. Scelionidae).
- MASNER, Lubomir - Biosystematics Research Institute, Agriculture Canada, K.W. Meathy Building, Ottawa, Ontario, Canada, K1A 0C6 (All aspects of studies on Proctotrupoidea s.l., family Scelionidae in particular).
- + MINEO, Giovanni - Universita degli studi di Palermo, Facolta di agraria, Istituto di entomologia agraria, Viale delle scienze, 90128 Palermo, Italia (Larvae of Scelionidae, esp. Gryon spp.)
- MJESEBECK, Carl F.W. - Department of Entomology, U.S. National Museum of Natural History, Washington, D.C. 20560 USA (Proctotrupoidea in general).
- NAGY, Carol G. - Marine Research Institute, Agigea-Constanza, Romania (Taxonomy, biology and zoogeography of genus Teleas and of Gasteruptionidae).
- NAUMANN, Ian - c/o Department of Entomology, University of Queensland, St. Lucia, Brisbane, Queensland, Australia 4067 (Taxonomy and biology of Australian Diapriidae).
- OSBORN, A.W. - Department of Biology, Capricornia Institute of Advanced Education, M.S. 76, Rockhampton, Queensland 4700, Australia (Biology of Proctotrupoidea).

- + RAO, N.S. - Department of Zoology,
Marathwada University,
Aurangabad, Maharashtra,
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(Proctotrupeoidea of India,
esp. Platygastriidae).
- RASHINSKY, Alexander P. - Palaeontological Institute,
Leninsky Prospect 33,
Moscow V-71, 117071, USSR
(Palaeontology and evolution
of Hymenoptera).
- RIEK, Edgar F. - 19 Duffy Street, Ainslie,
Canberra, Australia 2602
(Biosystematics of Australian
species & phylogeny of the
group).
- SANTIS de, Luis - Facultad de Ciencias Naturales
y Museo, La Plata, Republica
Argentina (Taxonomy, incl.
fossils, and bionomics of the
group in broad sense).
- + SHAKHBAZBEKOVA, D.K. - Zoological Institute,
Azerbaijan Academy of Sciences,
Krylova 5, 370 073 Baku, USSR
(Scelionidae of Azerbaijan).
- SZABO, Janos B. - Institutum Hygienicum et
epidemiologicum
Universitatis Medicinae a
Simmelweis nominatae, Maria u.
40, Budapest 1085, Hungary
(Taxonomy, oecology, ethology,
coenology of Proctotrupid wasps).
- TACHIKAWA, Tetsusaburo - Entomological Laboratory,
College of Agriculture,
Ehime University, Tarumi-cho,
Matsuyama, Japan
(Proctotrupeoidea, Chalcidoidea).
- TOWNES, Henry K. - American Entomological Institute,
5950 Warren Road, Ann Arbor,
Michigan 48105 USA
(Proctotrupidae, Heloridae,
Roproniidae, Evanitidae,
Gasteruptiidae, Aulacidae).
- VALENTINE, Errol W. - Entomology Division, D.S.I.R.,
Mt. Albert Research Centre,
Private Bag, Auckland, New Zealand
(Applied biological control;
biosystematics of parasitic
Hymenoptera of New Zealand).
- VLUG, Henk J. - Institute of Phytopathological
Research (IPO), Section Entomology,
Binnenhaven 12, Wageningen,
Netherlands (Platygastriidae of the
world).
- WALL, Ingvar - BRD-7768 Stockach/Baden, 18 Hans-
Kuony Strasse, German Federal
Republic (Proctotrupeoidea/
Diapriidae, Proctotrupidae/
& Chalcidoidea/Torymidae,
Pteromalidae/ of Europe).
- YAMAGISHI, Kenzou - Entomological Laboratory,
Faculty of Agriculture,
Kyushu University,
Fukuoka, 812 Japan (Systematics
of Platygastriidae).

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