

Schneider



NEWS BULLETIN

ENTOMOLOGICAL SOCIETY
OF QUEENSLAND



PRICE 40c

Registered for Posting as a Periodical Category B.

VOL. 8 NO. 3

TABLE OF CONTENTS

	<u>PAGE</u>
General Meeting	22
General Business	22
Main Business -	
Taxonomy of Australian Spiders	
<i>a historical account</i>	23
- Dr. V.E. Davies	
Calendar of Entomological Society of Queensland Events	28
About People	29
Obituary notice	30
Poem	31
Fee rises!	32
Cartoon	32
Final warning	32

The issue of this Document does NOT constitute formal publication. It should not be reviewed, abstracted or quoted from without the consent of the Council of the Entomological Society of Queensland. Authors are alone responsible for the views expressed.

GENERAL MEETING

Minutes of the General Meeting of the Entomological Society of Queensland Inc., held in Room 323 of the Hartley Teakle Building, University of Queensland on Monday 12th May, 1980.

Attendance: P. McFadyen (President), P. Boreham, B. Cantrell, J. Conran, T. Cribb, E. Dahms, V. Davies, I. Fanning, R. McFadyen, J. Grimshaw, C. Hagan, M. Harris, M. Hockey, D. Holdom, W. Jorgensen, J. King, M. Keeratikasikorn, D. Kettle, G. Monteith, D. Morgan, L. Moxon, R. Piper, R. Raven, E. Reye, M. Schneider, E. Sinclair, B. Sorby-Adams, B. Stone, R. Teakle, G. Thompson, K. Williams, G. White, T. Woodward, R. Wylie, D. Yeates.

Visitors: H. Evans, M.A. Evans, D. Foley, J. Graff, C. King, J. Lamy.

Apologies: I. Galloway, B. Kay, E. Marks, V. Salinitri, K. Walker.

Minutes: Minutes of the last meeting held on the 14th April were circulated in News Bulletin Vol. 8 No. 2. It was moved B. Cantrell and seconded M. Schneider that the minutes be accepted.

Nomination: The following nomination was received:-

For associate membership -

Desmond Foley, nominated M. Schneider
Entomology Department, seconded C. Hagan.
University of Queensland.

In accordance with Society rules, the election will be held over until the next meeting of the Society.

Elections: The following nominations were received at the last meeting and were circulated in News Bulletin Vol. 8 No. 2:-

For associate membership:-

Mr. J. Conran
Miss B. Sorby-Adams
Mr. T.H. Cribb
Mr. L.G. McDonald
Mr. G. Paris
Mr. A. Gildea
Miss S. Williams

For country membership:-

Mr. J.T. Brooks

They were elected to the Society by a show of hands.

Main Business:

An address by Dr. Valerie Davies, curator of Arachnids at the Queensland Museum. This talk was illustrated by a number of slides of spiders and their taxonomists.

Taxonomy of Australian Spiders

- a historical account

By Dr. V.E. Davies

Because of its size and location, embracing almost all possible climates and topographies, Australia has a vast assortment of spiders, at least half of which are still to be described. Take for example, one group of spiders, the 'amaurobiids'. By 1970 there were 13 genera in 2 families described from Australia. Compare this with New Zealand where Forster has recently described over 80 genera in 12 families. The amaurobiids are particularly well represented in Australia; they usually spin bluish sheet webs of some sort, though a few no longer spin webs but depend on spiny legs to capture prey. There has been wide radiation within this group of spiders. They are found in both sclerophyll and rain-forest, along the coast, on the reef, on high mountains, in litter, on low herbage, on shrubs and trees and sometimes occupying insect holes on these. Besides the amaurobiids, we know we have many spiders to describe and to group these into taxa we shall have to apply some method of phylogenetic analysis and classification. I shall talk about 3 aspects of taxonomy:

1. History of Spider collecting and taxonomy in Australia
2. Pre- and Post-Darwinian theories of Classification
3. Application of one of these theories, cladism, to spider phylogeny.

The first Australian spider to be described was the northern jewel spider, *Gasteracantha fornicata* by Fabricius in 1775. The spider was collected during the time that Captain Cook's Endeavour was beached for repair at Cooktown in 1770. It was probably collected by either Banks or Solander. This was the only description to precede the settlement of Port Jackson in 1788. Shortly afterwards, in 1789, White, who was surgeon-general to the settlement produced his 'Journal of a Voyage to New South Wales'. In this he described two spiders, one a small unrecognisable spider, and the other a very large parasitoid or huntsman. Unfortunately, he did not name either spider.



Gasteracantha fornicata

In 1799 Labillardière, a botanist who was with the French admiral, D'Entrecasteaux on his voyage, described a large golden orb-web spider, *Nephila edulis*, the second spider to be described from Australia. In 1802 the Frenchman, Baudin, with naturalists Peron and Lesueur, visited Australia and collected extensively. Unfortunately little of this material has been described. However the mouse spider, *Missulena occatoria* and a ground living spider *Storena cyanea* described by Walckenaer in 1805 were probably from this collection. He later (1837) described about 20 more spiders from Australia. In 1826 W.S. Macleay described 4 spiders in Capt. Philip King's 'Survey of the Inter-tropical and Western Coasts of Australia' (1818-1822). Three of these spiders are still recognised (*Uloborus canus*, *Linyphia deplanata* and *Olios morbillosus*); the descriptions are very brief (no more than 3 lines) and no localities are mentioned. As far as I know, no spiders have been identified as belonging to any of these species since their description. So far, I have been unable to find out whether the types still exist.

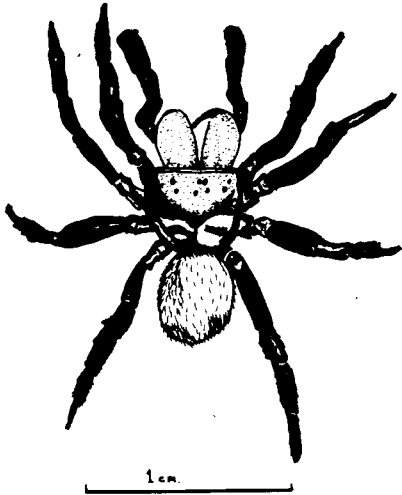
The period from 1850-1900 is known, especially in Europe, as the Golden Age of Araneology. It was certainly Australia's Silver Age - the Golden is just beginning, we hope. At this time Museums of Natural History were being set up all over Europe. Godeffroy, a wealthy German merchant and ship owner set up his museum in Hamburg and sent out collectors wherever his ships went. Of these collections, Amalie Dietrich and Edward Daemel are noteworthy for their collections of Australian plants and animals. Amalie Dietrich was already well recognised in Germany as an independent collector of plants. Between 1863-1873 she collected along the Queensland coast at the ports of Brisbane, Rockhampton, Mackay and Bowen. This was much more intensive collecting than that done by the various voyages of exploration. Daemel made 3 trips to Australia between 1852-1875 and as well as collecting at the ports along the Queensland coast penetrated inland to Peak Downs and Gayndah and spent eight months at Somerset C.Y. in 1866. He also collected at Sydney, West Australia and Bass Strait. The spiders that these two collected form the basis of Ludwig Koch's (1871-81) great taxonomic work 'Des Arachniden Australiens', which was completed and had a supplement added by Eugen Keyserling (1881-1889). It is a beautifully illustrated work and is still, today, the standard work on Australian spiders.

A third collector of note, an Italian, Luigi Maria D'Albertis spent some months collecting at Somerset in 1874 while waiting for transport to Yule Is. and New Guinea. He was collecting and selling specimens to his friend from school-days, Marquis Giacomo Doria, who had given one of his family's villas to the city of Genoa as a Museum - Museo Civico di Storia Naturale. D'Albertis was delayed at Somerset during the wet, when he made extensive collections which included many spiders. These spiders (47 spp.) were described in 1881 by Teodor Thorell, a Swedish friend of Doria's who was living on the Italian Riviera because of his poor health (he lived some 20 years after this). His descriptions though lengthy are inadequate and not illustrated. Today, Thorell's spiders form one of the few almost inaccessible collections in Europe. The Museum in Genoa is short of staff and money. The collection is for the most part in large jars according to geographical region e.g. Austro-Malesi. As it is not sorted into families, retrieval of specimens is very difficult. The flood of 1970, when labels were washed from bottles and jars broken, accounts for the loss of some specimens.

A further voyage in 1875, the Chevert Expedition to New Guinea was led by Sir William Macleay, wealthy squatter, politician and museum collector (he was a cousin of W.S. Macleay who described 4 spiders collected during King's Survey). Spiders brought back from Cape York on this expedition were described by H.B. Bradley (1877, '78). It may be noted that Cape York is the type locality for 70 spp. of spiders - most are also found in New Guinea.

During these early years collections of spiders were sent to England where they were described by Rev. O.P. Cambridge and a few by R.I. Pocock, who was at the British Museum of Natural History from 1885-1903. After this he went to the Zoological Gardens and became more interested in Mammals which was a great loss to araneology. Spiders were also

described by Eugene Simon in Paris who was to become the world's greatest araneologist. He described more than 200 spiders collected on a German expedition to South West Australia in 1905. Spiders from a further German expedition in 1910, led by Leonhardt to Central Australia were described by Embrik Strand (1913) in Berlin. The types of all these spiders, where they still exist, are of course in European Museums.



Mussulena occatoria

is a great pity that funds from Australian Biological Resources Study, though they have contributed greatly to the collecting of specimens, are not being directed to the training of young taxonomists.

Theories of Classification may be divided into those of the Pre-Darwinian and those of the Post-Darwinian periods. Aristotle (384-322 B.C.) is regarded as the father of classification. His was an identification scheme based on single characters. Some of his groups e.g. Vermes have been split into several phyla, others, for lesser groups, e.g. Diptera, Coleoptera, still stand.

Natural History survived the Dark Ages with world-wide exploration leading to an enormous increase in the known kinds of animals and plants. In 1758, Swedish naturalist, Linnaeus often called the father of taxonomy, published his 'Systema Naturae' using the binominal method for naming animals (he had previously introduced it for plants). Prior to this, in 1757 Clerck had used the binominal method for 68 species of spiders and so to him goes the honour of describing the first animal, which was an orb-web spider, Araneus diadematus. Linnaeus described 51 spp., in some cases the same spiders as Clerck. From Aristotle to Linnaeus variation was considered trivial. Their Natural System was the plan of Creation - their theory, Essentialism.

Between 1893 and 1920 W.J. Rainbow, an Englishman who became Entomologist at the Australian Museum, Sydney, contributed much to the knowledge of Australian spiders. He described about 200 spp. and observed their webs and behaviour. In 1911 he published 'A Census of Australian Araneidae' where he listed about 1200 spp. Included among these were about 100 spiders described by H.R. Hogg from specimens in the British Museum. Hogg had spent about 20 years in Melbourne between 1873-1892.

Since 1926 Emeritus Professor V.V. Hickman, professor of zoology at the University of Tasmania until 1959 and foremost Australian araneologist, has described many spiders, most of which were from Tasmania and some of which led to the establishment of new families. His publications span more than 50 years; he is in his 86th year. More recently Barbara York Main, Perth has revised and re-defined some of the trap-door genera.

People are now interested in spiders in Australia, especially in their behaviour and ecology but they continually find that the spiders are not described. The Australian and Queensland Museums are the only museums (in Australia) where taxonomic studies of spiders are being pursued even though less than half our spiders are described. I believe that it

The theory of Nominalism considered that all groupings are artifacts of the human mind and that classification of living things is essentially similar in principles to classification of inanimate objects. The basic fallacy of this theory is misinterpretation of the causal relations between similarity and relationship e.g. two brothers are not identical twins because they are similar; but they are similar because they shared the same zygote i.e. because they are identical twins.

Later (1800-1850) came the theory of Empiricism. The empirical taxonomists delimited taxa on a totality of characters with a posteriori weighting of characters e.g. correlation with other characters. A new orderliness of nature was discovered but they did not try to give meaning to this. They 'supported hierarchical arrangement of categories on the basis of degree of similarity'.

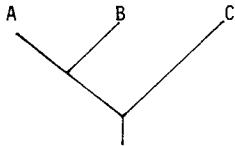
In *The Origins of Species*, Darwin (1859) proposed an evolutionary interpretation i.e. hierarchical structure was due to relationship and natural groups exist because the members have descended from a common ancestor. Taxonomists no longer had to make taxa - evolution had done this for them!

Evolutionary taxonomists (empiricists who now had a reason for the orderliness of nature) of the late nineteenth century, and indeed until recently, attempted to illustrate this by their search for 'missing links' and in the construction of branching phylogenetic trees. The search for facts to substantiate the phylogenetic trees led to a hectic period of research in comparative systematics, morphology and embryology. These descriptive studies laid the necessary foundation for functional and experimental branches of biology whose flowering began in the late 19th century. Taxonomy ceased to be a popular bandwagon by the end of the century and fell into disrepute during the early part of the twentieth century.

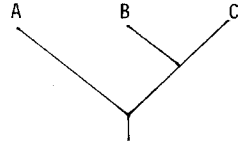
In the 1920's and 30's it was seen how population samples from different portions of the geographic range of a species differed. The study of intra-specific population became the objective of population systematics - what Huxley (1940) called the 'new systematics'. It led to a re-evaluation of the species concept from the typological to a more biological approach in taxonomy.

Since the 1960's there have been four new trends in taxonomy. (1) The introduction of computers made numerical taxonomy (which was a revival of the pre-Darwinian nominalism) practical. Here equal weight is given to all characters and taxa are made on a basis of degree of observed similarity. This usually leads to a classification similar to one based on evolutionary approach because 2 organisms will be more similar the more closely related they are by descent. (2) The introduction of biochemical techniques e.g. enzyme genetics and with it the realization by molecular biologists of the importance of understanding the phylogeny of organisms as a basis for understanding the evolution of macromolecules. (3) Studies in comparative ethology have also stimulated an interest in taxonomy. (4) The most important and most fashionable trend is the revival of Hennig's (1950, 1966) theory of taxonomy, Cladism. This stresses the importance of the branching points in evolution and classifies organisms on recency of common descent. Here, the study of phylogeny is the search for the 'sister group'. It is clear that similarities or characters in common do mean something but that such concepts are in some way too diffuse to function as reliable criteria of phylogenetic relationship. The cladists believe that if the similarities rely on primitive (plesiomorphic) ancestral characters they are insignificant because they could be expected to be present. However agreement in advanced, derived (apomorphic) characters speaks in favour of a closer relationship between two groups. Cladograms are synapomorphy schemes, which may have an evolutionary interpretation. Cladograms say nothing about ancestors.

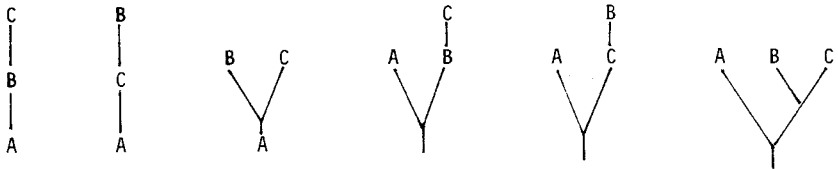
Unlike a phylogenetic tree the cladogram says only that A and B are more closely related to each other than either is to C.



or that B and C are more closely related than either is to A



from this latter cladogram we can construct 6 possible phylogenetic trees:-



The only evidence we have that B and C are each others closest relatives is that they share a uniquely derived (synapomorphic) character state that they do not also share with A.

Character analysis involves 2 processes: (1) The recognition of transformation series of homologous 'character states'. (2) Determination of polarity (primitive - derived sequence) of these transformation series; to determine this, out-group comparison and ontogeny are used (this requires knowledge of the closest relative of the entire group under consideration).

When examining the status of any given 'character state' there are 3 possibilities, it is primitive (symplesiomorphic) derived (synapomorphic) or a parallelism. Tables are drawn up mapping the characters for each group. The data is then used to construct cladograms, which are interested series of 3-taxon statements.

The application of cladistics to give a phylogenetic classification of the main spider groups has been quite revolutionary. The 3 recognised sub-orders of spiders are:-

- s.-o. Liphistomorphae - primitive, segmented trap-door spiders (S.E. Asia, China and Japan).
- s.-o. Mygalomorphae - trap-door spiders (world-wide)
- s.-o. Araneomorphae - 'True' spiders.

Because liphistimorphs look like and behave like mygalomorphs (some of which retain traces of segmentation) most classifications have placed these 2 sub-orders closer to each other than to araneomorphs. However Norman Platnick, curator of arachnology American Museum of Natural History has recently shown that the characters that are used to place the liphistiomorphs and mygalomorphs together are primitive, all of which would have been possessed by ancestors. He was unable to find a single, derived (apomorph) character that they had in common. On the other hand he found, what he considered were, apomorph characters linking mygalomorphs to araneomorphs. He came up with this classification (which, interestingly enough had been advanced by Pocock in 1892 but was never given credence by later taxonomists):

- s.-o. Mesothelae (= Liphistomorphae)
- s.-o. Opisthothelae
- infraorder Mygalomorphae
- Infraorder Araneomorphae

Of course this may be falsified by the discovery of an apomorph character linking liphistiomorphs and mygalomorphs.

For the next few years, until a new methodology comes along. I think we shall be arranging our taxa along cladist as well as evolutionary lines with perhaps less intuition. More importantly, I hope we shall see a great increase in the number of species described, as these are the building bricks of any phylogeny.

Discussion

- John Conran: How do you determine the difference between 'apomorphic' characters which have arisen due to recent common ancestry from those which are a result of parallel evolution?
- Dr. V. Davies: When comparing taxa, if it is found that A shares several apomorphies with B and at the same time shares considerably fewer, or just one with C then 'parsimony' will dictate that the relationship is more likely to be between A and B and that the shared characters between A and C are parallelisms.
- M. Schnider: Have any numerical taxonomic analyses been done on any spider groups and the results compared with those obtained by more traditional analysis?
- Dr. V. Davies: Yes, 17 Lycosa spp. were treated this way in England. The results did not produce a 'reasonable' grouping and the method of programming was rather suspect.

Vote of Thanks

Judy Grimshaw proposed a vote of thanks. She thanked Dr. Davies for "fleshing out" some of the names and dates we see adjacent to a spider's specific name, remarking that if more of this were done it would offset taxonomy's "boring" image, much in the way that watching Keith Michelle in "The Life of Henry the VIII" had offset the effects of a high school history course mainly consisting of names and dates. The vote was carried by acclamation.

The President then closed the meeting and invited all present to supper.

Calendar of Entomological Society of Queensland Events

- June 9 Notes and exhibits meeting.
- August 11 General meeting, "Vectors of Bluetongue in Australia" - H.A. Standfast.
- September 8 "Studies on the living fossil ant Nothomyrmecia" - Bob Taylor
- October 22 A joint meeting with Australian Institute of Agricultural Science and Plant Pathology Society "Developing of Plant resistance to Pests and Diseases".
- November 10 Angela Arthington - no title as yet.
- December 8 Notes and exhibits again.

ABOUT PEOPLE

Paul McFadyen (President) and his wife Rachel, both of Lands Department, have recently returned to Brisbane from a grand tour of many research institutes in the Northern Hemisphere, visiting Imperial College London, etc. Whilst in Ottawa the Canadian Agriculture College was able to suggest a useful means of controlling red spider mite in glass-houses - by spraying the plants with a mixture of a well known laundry detergent!

Rachel spent two weeks in Trinidad renewing acquaintances, whilst Paul gathered more data on Groundsel bush control in Florida. They also visited Hawaii. Among all this activity Rachel found time in February to give birth to a boy, now named David John, another new member for the Society!

Marlene Harris and Pat Marks (QIMR) have returned to Brisbane from a field trip to Northern Queensland. Their work involved collection of mosquitoes for their Culex annulirostris study, to this end many collections were made based on three centres, Mareeba, Forest Beach and Ayr.

Harry Standfast (CSIRO) Long Pocket, has now returned from Darwin with lots of new data. Harry has been developing techniques for the experimental transmission of bluetongue virus, from pick up by the mosquito to its subsequent infection of a new vertebrate host. Later in the year Harry has promised to reveal more of this interesting and complicated story in an address to the Society.

Dick Drew (D.P.I.) Indooroopilly, having returned from the Australian Entomology Society Conference in South Australia, is now on his way to New Guinea. Dick is doing some quarantine work, by looking at the insects in Southern New Guinea, i.e., those insects most likely to "emigrate" to Australia.

BULLETIN ARTICLES

Contributions to the News Bulletin are welcome at any time. I (the publications convenor) am always desperately short of material with which to fill these pages. It would be fantastic to be inundated with short articles, neatly typed on A4 paper (single spaced with double spacing between paragraphs, a left-hand margin of 1 cm and a right-hand margin of 5 mm).

A few line drawings to go with the text would help brighten the scene even more (photographs cost us more to reproduce).

Looking forward to hearing from you.

Judy.



OBITUARY: Ian Murray Mackerras, M.B., Ch.M., D.Sc., F.R.A.C.P., F.R.C.P.A., F.A.A.,
F.R.E.S., M.I.D.

19 September 1898 to 21 March 1980

Best known to younger entomologists as the editor of "The Insects of Australia". Known to scientists of my generation as one of the great Australian biologists, with a breadth and depth of knowledge seldom found in the narrow specialisation of today. With only one small page it is not possible to produce a detailed catalogue of his works, so I will have to fall back on my impressions of a man, who has been an inspiration to me for the past thirty years.

Gassed and temporarily blinded while serving with an artillery unit in France in the 1914-18 war, he returned to Australia to distinguish himself at Sydney University, where he became the first Macleay Fellow. He worked on sheep blow fly; buffalo fly; cattle tick and as an aside, mosquito taxonomy. He was engaged in research into ephemeral fever when he left to join the Second A.I.F. in 1940. His work on Malaria and Scrub Typhus, for which he was mentioned in dispatches, undoubtedly saved many lives in the campaigns in Burma and the South Pacific.

He was a past President of this Society and the founding President, and later the first Honorary Member, of the Australian Entomological Society. He is probably best known in Queensland as the founding Director of the Queensland Institute of Medical Research. His knowledge of microbiology and entomology greatly contributed to the scientific success of that organisation, while his humanity and interest in people endeared him to the staff. His uncanny ability to seemingly instantaneously pick a weakness in a manuscript, whatever the subject, sent many back to rewrite papers until they could meet his exacting standards. He unstintingly gave his time and often his financial support to encourage young staff members.

As well as his many works on taxonomy and zoogeography, he leaves in Australia a generation of scientists greatly enriched from having known him.

Mr. H.A. Standfast,
CSIRO, Long Pocket Laboratories,
Brisbane.

A Wetlands Saga

based on *Jabberwocky* in *Through the Looking Glass*

previously published in *Operculum* 3(3).

*Twas brillig and the slithy toves
Did gyre and gimble in the waves.
All mimsy were the tall mangroves
And the Zostera beds outrabe.*

*Beware the big Mud Crab my son
The jaws that bite, the claws that catch!
Beware the Mud Skippers, and shun
The soft Rhizophora patch.*



*He took his field sheet board in hand:
Long time a new species he sought—
So rested he by a Ceriops tree,
And stood a while in thought.*

*And as in uffish thought he stood,
The Sandfly swarm with tongues of flame,
Came whiffing through the tulgy wood,
A-humming as they came!*

*One, two! one, two! and up and through.
The aspirator went snook-a-snack!
He inhaled them all, and to the lab
He want a gasping back.*



*And hast thou found a new species?
Put it to print my clever boy!
O frabjous day! Callooh callay
He chortled in his joy.*

*Twas brillig and the slithy toves
Did gyre and gimble in the waves.
All mimsy were the tall mangroves
And the Zostera beds outrabe.*

J. Grimshaw

Apologies to Lewis Carroll & E.J. Reye

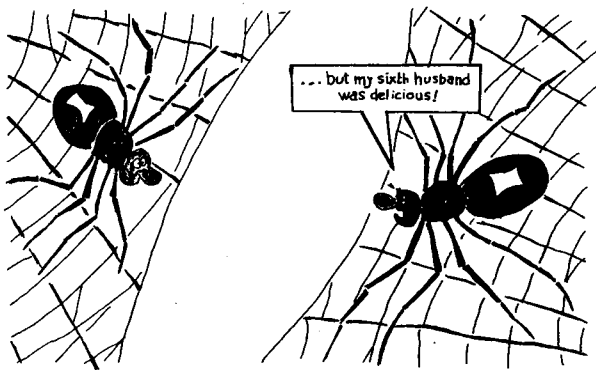
Fee Rises Predicted for Next Year

At a recent council meeting the effect of inflation on the society's funds was discussed and the consequent need to raise fees in an attempt to offset inflation's effects. However, because of our changed Bulletin printing techniques it was decided that the rise need only be small.

The fee for ordinary members will rise by \$1.00 to stand at \$10.00 in 1981, whilst the students fee will rise to \$5.00. Country membership will be unchanged at \$8.00.

At present each member costs the Society around \$7.00 in Bulletins, the council expects that this rise will keep the wolf from the door for another couple of years.

The Spider World's Answer to Henry VIII



Final Warning

For those members who have overlooked paying their membership fees, this is your last chance. RUSH to pay your membership fee now before the surcharge is added. If you forget again your next Bulletin will be THIN. What a horrible fate.

OFFICE BEARERS 1980

PRESIDENT

Mr. P. McFadyen,
Dept. of Lands,
Alan Fletcher Laboratory,
Sherwood, Q. 4075.

HONORARY TREASURER

Ms. M. A. Schneider,
Dept. of Entomology,
University of Queensland,
St. Lucia, Q. 4067.

Mr. B. Sabine,
Entomology Branch,
Dept. of Primary Industries,
Meier's Road,
Indooroopilly, Q. 4068

SENIOR VICE-PRESIDENT

Mr. E. Dahms,
Qld. Museum,
Gregory Terrace,
Fortitude Valley, Q. 4006

HONORARY SECRETARY

Ms. M. Harris,
Q'land Inst. of Med. Res.,
Bramston Terrace,
Herston, Q. 4006.

COUNCILLORS

Dr. R. McFadyen,
Dept. of Lands,
Alan Fletcher Laboratory,
Sherwood, Q. 4075.

JUNIOR VICE-PRESIDENT

Mr. R. Wylie,
Dept. of Forestry,
Meier's Road,
Indooroopilly, Q. 4068.

PUBLICATIONS COMMITTEE CONVENOR

Ms. J. F. Grimshaw,
Entomology Branch,
Dept. of Primary Industries,
Meier's Road,
Indooroopilly, Q. 4068.

Dr. E. Sinclair,
Entomology Branch,
Dept. of Primary Industries,
Meier's Road,
Indooroopilly, Q. 4068.

NOTICE OF NEXT MEETING

The next meeting of the Entomological Society of Queensland will be held at 8.00 p.m. on Monday, June 9th, in the 2nd yr. Laboratory - Room 402 of the Hartley Teakle Building, University of Queensland, St. Lucia, Brisbane.

This will be a notes and exhibits meeting.

Those members intending to contribute must notify the secretary and are reminded that a copy (typed) of their "note" is needed for printing in the next Bulletin.

Supper will be served after the meeting and visitors are welcome.

THE SOCIETY

The Entomological Society of Queensland is an association of over 300 people with a professional or amateur interest in Entomology. It is dedicated to the furtherance of Pure and Applied Entomological Science and, since its inception in 1923, has promoted liaison amongst entomologists in academic, private and governmental institutions. It has a concern for the conservation of Queensland's natural resources. Further information is available from the Honorary Secretary at the address given above.

MEMBERSHIP

Membership is open to anyone interested in Entomology and entitles the member to attend monthly Society meetings, held on the second Monday night of the month and to receipt of the News Bulletin. There are three classes of subscription membership:

Ordinary: persons residing in the Brisbane area (\$9.00 p.a.)

Country: persons residing outside Brisbane (\$8.00 p.a.)

Associate: persons not in receipt of a full salary (\$3.00 p.a.)

THE NEWS BULLETIN

The monthly News Bulletin reports on the Society's monthly meeting, keeps members informed of Society events and news, and provides a vehicle for debate and discussion. Contributions in the form of articles, notes, letters, news clippings and photographs are always welcome, and should be sent to the Convenor of the Publication Committee at the address given above. The deadline for contributions is the Wednesday following the monthly Society meeting.