

*H.A. Schneider*



# NEWS BULLETIN

ENTOMOLOGICAL SOCIETY  
OF QUEENSLAND



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## THE ENTOMOLOGICAL SOCIETY OF QUEENSLAND

### 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 11th August, 1980 at 8.00 p.m.

### ATTENDANCE

P. McFadyen (President), D. Anderson, T.H. Cribb, J. Conran, E. Dahms, G. Daniels, A. Gildea, J. Grimshaw, C. Hagan, M. Harris, A. Hill, M. Keeratikasikoran, J. King, R. McFadyen, D. Merritt, G. Monteith, M. Muller, R. Piper, R. Raven, B. Sabine, D. Sands, B. Sorby-Adams, J.C. Le Souëf, H. Standfast, L. Thomas, T. Wright, S. Williams, D. Yeates.

### VISITORS

G. Gordh, J. Graff, C. King, M. Le Souëf.

### APOLOGIES

P. Boreham, I. Fanning, I. Galloway, K. Harley, B. Kay, D. Kettle, E.N. Marks, L. Moxon, E. Reye, M. Schneider, R. Wylie.

### MINUTES

Minutes of the last meeting held on the 12th May were circulated in News Bulletin Vol.8 No. 4. It was moved Rachel McFadyen, seconded Geoff Monteith that the minutes be accepted.

### ELECTION

The following nomination was received at the last meeting and was circulated in News Bulletin Vol.8 No.3, Mrs Beverley Angus for ordinary membership. Mrs Angus was elected to the Society by a show of hands.

### GENERAL BUSINESS

The President reported on the success of the Vth International Symposium on the Biological Control of Weeds. Exactly 100 delegates from 15 countries attended the symposium which was held in Brisbane from the 22nd to the 29th July, 1980.

Delegates included Entomologists, Plant Pathologists, Nematologists and people who work with fish.

The high proportion of overseas representatives was very rewarding.

### MAIN BUSINESS

The main business of the evening was an address by Mr. Harry Standfast of CSIRO, Long Pocket, entitled:-

# Vectors of Bluetongue virus in Australia

The results I will present tonight are the outcome of a joint study by Alan Dyce of CSIRO McMaster Laboratory in Sydney and Mike Muller and myself of the Long Pocket Laboratories. In the interest of clarity I will present the story chronologically rather than break it into the traditional three major sections usually found in discussions of Arbovirus natural history:- the virus, the vertebrate host and the vector.

The story has its origins in the "Beatrice Hill Project" which was a continuous study of insects attacking livestock and the viruses they transmit. The collections were carried through two complete wet seasons and the intervening dry season. Ninety-one isolations of virus were made and one of these viruses isolated in March 1975 was shown to be not one of the viruses held at Long Pocket, so it was forwarded to the Queensland Institute of Medical Research, where it was shown to be a virus new to Australia. It was then forwarded to the Yale Arbovirus Research Unit (The World Reference Centre for Arboviruses). We were advised in October 1977 that this virus was indistinguishable from bluetongue, a virus which affects sheep, cattle, goats and deer in Africa, parts of Asia and the Americas but hitherto unknown in Australia.

Serological studies at Long Pocket showed that the virus was widely distributed in northern Australia with a high incidence in the "top end" of the Northern Territory.

In the search for a vector or vectors, priority was given to screening the species of Culicoides which attacked livestock at Beatrice Hill, for their ability to support the growth of bluetongue virus. Beatrice Hill was chosen because the results of the previous study there indicated we could be certain of collecting at least 1000 Culicoides per day. In the course of the experiments a new restraining device was developed to hold sheep and the standard truck trap was extensively modified to improve its collecting efficiency and to screen out unwanted larger insects. The technique used to feed Culicoides on sheep was similar to that developed by Mike Muller for feeding C. brevitarsis on cattle.

Results of the 1978 experiments indicated that six species were capable of being infected with virus when fed on viraemic sheep. These were C. brevitarsis; C. actoni, C. (Avaritia) sp. No. 5, C. peregrinus, C. schultzei and C. suzukii.

The next step in the search for a vector was to transmit the virus from sheep to sheep using those insects shown to be positive in 1978. These experiments were undertaken in early 1979 using a newly built arthropod proof animal accommodation in Darwin and collecting insects at both Beatrice Hill (55 km from Darwin) and the Upper Adelaide River Experiment Station (98 km from Darwin). Insects were collected in light traps fitted with light sensitive switches which switched them on at sunset and with 7 mesh/cms screens to keep out larger insects. To separate healthy insects from weak or damaged specimens the collections were placed in containers sealed with funnels and cardboard hot food cartons. The device was held under a fluorescent light and only those insects capable of migrating to the illuminated cartons were used in the experiments. Culicoides collected in this manner were held for three days at 27°C and 80% R.H. The insects were starved for 24 hours prior to exposure on viraemic sheep. The blood fed insects were sorted to species and held for 10 to 12 days at 27°C prior to re-exposure on susceptible sheep. Virus was successfully transmitted from sheep to sheep by C. (Avaritia) sp. No.5.

Discrepancies in results of group specific and serotype specific serological tests, indicated early in 1978, that there was more than one serotype of bluetongue virus active in Australia. In a search for other serotypes, cattle at a number of sites in the Northern Territory were bled weekly and the blood submitted for virus isolation. Two new serotypes of bluetongue virus were isolated: CSIRO 154 (related to serotype 6) and CSIRO 156 (serotype 1). It was now necessary to include these two new serotypes in our vector study programme as workers in the USA had shown that the same insect populations had different susceptibilities for different serotypes.

A number of modifications were included in the 1980 study. A new updraught light trap modelled on the one described by DuToit in 1943 was used. This trap protected the catch from rain and greatly reduced the number of non-target species collected. The traps were sited over penned cattle. At each collection site a separate group of traps collecting into alcohol were deployed to provide a sample of the numbers of insects and the species present through the three months of study. At Beatrice Hill a trap which separates the catch on an hourly basis was used to give an indication of the time of entry of insects into the trap. In summary the results have shown that numbers of most species taken in miniature light traps are markedly depressed by the full moon, with the exception of C. austropalpalis. From early March onward when weekly loss of moisture due to evaporation, exceeded gains due to precipitation, the composition of catches changed markedly, with C. peregrinus showing a ten-fold decrease in population as the country dried out.

The processing of individual Culicoides for virus isolation has established the following infection rates for CSIRO 19 (Bluetongue Serotype 20) C. (Avaritia) sp. No.5 - 62%; C. suzukii - 5%; C. actoni - 2%, and C. brevitarsis - 0.4%. Using these figures and the following assumptions we attempted to establish the minimum numbers of each species required for a successful transmission of virus. Assumptions were:- 10% of cattle were circulating virus when the insects fed; the insect required 10-12 days for virus growth before it became capable of infecting a fresh host; the probability of an insect surviving 12 days was 0.14; 65% of animals fed on were susceptible to the virus, and the bite of one infected insect would give rise to an infection in a susceptible host. Using these figures we arrived at the following values:- C. brevitarsis 26,780; C. actoni 5,350; C. suzukii 2,140 and C. (Avaritia) sp. No.5 173.

With the exception of C. brevitarsis all of the species listed above are restricted in distribution to areas of Australia with a summer rainfall greater than 1000 mm per annum. C. brevitarsis appears to be a very inefficient vector and although it has a distribution which includes a large area of Australia in which sheep are grazed, the fact that it breeds in cow dung and prefers to feed on cattle, greatly reduces the chance of it being a significant vector of bluetongue in sheep rearing areas of Australia.

A further point of interest is that we have been unable to demonstrate multiplication of virus in insects with a purely Australian distribution (C. marksii, C. bundyensis), all of the insects which support the virus have a wide distribution in areas to our north and have an association with introduced cattle and water buffalo.

## DISCUSSION

Mr. Le Souëf What period do you refer to as the full moon?

Mr. Standfast The time when the moon was full at sunset. It was a week after the moon was listed as full in the calendar i.e. the phase of the full moon as referred to by astronomers.

Mr. Le Souëf What wattage were the traps?

Mr. Standfast 10 watts.



Mr. McFadyen Is the photocell device a local product or did you construct it yourself?

Mr. Standfast Our own construction. If you are interested we would be happy to show you the plans.

#### VOTE OF THANKS

Marlene Harris proposed a vote of thanks for an interesting and informative account of current investigations into bluetongue virus. The vote was carried by acclamation.

There being no further business the President closed the meeting and invited all to supper.

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#### THE Vth INTERNATIONAL SYMPOSIUM ON BIOLOGICAL CONTROL OF WEEDS

The Vth International Symposium on Biological Control of Weeds was held at Bardon Professional Centre in Brisbane, from July 22-29. It was attended by 100 delegates; half from Australia and the remainder from a total of 14 countries. There were 7 addresses by invited speakers, opening sessions on Exploration & Discovery, Principles & Application, Quality Control in Rearing, Use of the Grass Carp in Aquatic Weed Control, Use of Pathogens, and Evaluation. There were 36 contributed papers and 15 research reports.

On the weekend there were visits to the Sherwood laboratory at the Department of Lands Biological Section and the Long Pocket Laboratories of CSIRO, and a coach tour to Gatton and Toowoomba, returning via Cunningham's Gap, during which delegates were shown several examples of weed biological control in action.

The first session, on Exploration & Discovery, attracted several contributed papers, with some conflict between A. Wapshire, P. Room and others, propounding theoretical approaches, and those presenting results of actual surveys, in which theory appeared to play little part. J. Myers suggested it was time to test theories against results obtained in the last 20 or so years.

The session on Principles & Application was shorter, but there were interesting papers on the need for an international approach, the problem of conflicting interests, the effect of weed biology on biological control, and stress on the plant as a factor. There were also 3 papers on aquatic weeds in this session.

In the session on Quality Control in Rearing, the invited addresses on Genetics and on Disease were of considerable interest. In the contributed papers J.M. Cullen outlined problems rearing the moth *Bradyrhoea gilveolella* on skeleton weed and P. Dunn described methods used in California to ensure released insects are not diseased.

The session on the Use of Grass Carp was opened by 3 invited papers, on the current status of the use of the grass carp, on its use in irrigation and drainage canals in Egypt, and on the views of the Australian fisheries staff on the grass carp. There were 2 contributed papers, on the food preferences of the carp and a review of its use in Arkansas.

The session on the Use of Pathogens was also brief, with 5 contributed papers, 3 on *Puccinia* spp, one on *Fusarium* attacking *Hydrilla*, and a review of the European programme for the use of pathogens to control Australian weeds. There was then a long and valuable session on Evaluation, with several contributed papers on the methods used by different workers. These included sequential photography, monitoring the fate of individual eggs, and experiments on the effect of defoliation.

The last session consisted of reports, dealing with Parthenium insects in Mexico, Echium insects and organisms on Convolvulus in Europe, and results of releases against tiger pear, prickly pear, Harrisia cactus, ragwort, Emex, water hyacinth and alligator weed in Australia, Cordia in Malaysia, skeleton weed in Idaho, and puncture-vine in California.

During the symposium, there were films on water hyacinth in the USA, biological control of weeds in Canada, and Harrisia cactus in Qld, and the historic 1930's film of the campaign against prickly pear in Australia was shown at the end of the last day. The Symposium was closed with a business session in which it was decided that the next Symposium will be held in Canada in 3 or 4 years time. P. Harris gave the closing address in which he commented that the chief preoccupation of weed biocontrol workers appeared to be increasing problems with regulations. As the decision-making committees become larger and less scientific, the problem worsens, and Dr. Harris suggested the formation of a committee to convene a high-powered conference to discuss suitable regulations with the administrators involved. Dr. Harris endorsed J. Myers' call for testing of the various theories suggested, using data already available from previous biocontrol attempts, and he questioned whether the elimination of diseases from introduced insects might also eliminate essential symbionts.

The Symposium as a whole was well-attended and well-organised, and delegates found the Bardon centre an excellent site. The various coffee and lunch breaks and the "happy hour" at the end of each day gave delegates an opportunity to meet informally, as did the excursions over the weekend. During the sessions, there was the usual problem of some speakers over-running their time and it was unfortunate that the programme was not available before registration, as this gave very little notice to speakers on the first day.

The invited addresses and contributed papers are to be published as the Proceedings, which should be ready in January 1981 and can be purchased from CSIRO Publishing Division, Melbourne.

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

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## Early days of the Entomological Society

Whilst browsing through antique journals, as entomologists often do, someone came across an entry in The Scientific Australian, April 1923.

The entry is summarised here.

### The Entomological Society (a new scientific society started in Brisbane)

On March 16th 1923, a meeting of entomologists, and others interested, was held in Brisbane to discuss whether an entomological society could be formed in Brisbane. The gathering included many notables, such names as, A. Burns, H. Hacker, Mr. & Mrs. J.C. Hamlin, Dr. Hamlyn-Harris, G.H. Hardy, L. Hitchcock, F.G. Holdaway, J. Mann, R. Illidge, A. Perkins, M.L. Pottinger, Prof. Priestley, J.H. Simmonds, Dr. Jeffris Turner, Preston Day, Dr. Goddard, Capt. R.B. Pike, Dr. W. Sweet, J.D. Storey, H. Longman, Miss M. Walker. The following sent their apologies, Dr. Eland Shaw, C.T. White, L.E. Cooling, H. Tryon, A. Girault, J. Weddell and W. Summerville.

Mr. G.H. Hardy drew to the meetings attention the many benefits to be had by producing a periodical devoted to entomological topics, and while this should be an Australia wide soc-

iety, he pointed out that Queensland, with its large interest in entomology, was well placed to initiate the formation of such a group.

The meeting decided on the formation of a local society, with, as one of its chief objectives, the later formation of an Australian Entomological Society. Dr. Goddard was elected temporary chairman and Mr. Hardy temporary secretary.

NOTE:- Of those mentioned above two are still alive, Messrs R. Burns and J. Mann, whilst the death notice of a third, Mr. J.A. Weddell, appeared only recently.

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JOHN ARTHUR WEDDELL  
October 1902 - July 1980

After a state school technical education the young John A. Weddell joined the staff of Central Technical College as a Laboratory Attendant in 1917 with a pay of 12/6d. per week. He studied part time for the Junior and Senior examinations and in 1922 joined the staff of the Department of Agriculture and Stock as an assistant to the entomologists. Further formal education was prevented by Henry Tryon (Govt. Entomologist at the time) who felt that field experience and work within the department's laboratories was a far better grounding for the work of a government entomologist than that afforded by a University Course.

In November 1928 Mr. J. Weddell passed an examination set within the department. On the basis of this success he was appointed entomologist - then Senior Entomologist and eventually moved into a more administrative role as Technical Administration Officer. In this latter capacity he was responsible for the planning of new laboratories and offices in country towns as well as the development of the complex at the Long Pocket site, Indooroopilly.

His services were considered so essential to the Department that his request for a reference to join the RAAF during the II World War was refused. However he did leave and returned to the Department in December 1943. His retirement was postponed several times so that he did not retire until 1969.

He became a member of the Professional Officers Association in 1941 and rapidly rose to the rank of President. He was very active in this organisation until 1953, a formative period so far as the structure of the Association is concerned. For his contributions to the Union he was awarded a life membership of the POA.

As well as his roles listed above he was also an 'Inspector' under the apiaries act and 'protector' under the fauna protection act. In the passing of John Arthur Weddell, entomology loses one of the "old school" workers, whose expertise was gained through practical experience rather than by degrees.

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CALENDAR OF ENTOMOLOGICAL SOCIETY OF QUEENSLAND EVENTS

- Sept. 8 "Application of Modern Techniques in Descriptive Taxonomy of Insects." Bob Taylor
- Oct. 22 A joint meeting with Australian Institute of Agricultural Science and Plant Pathology Society. "Developing of Plant Resistance to Pests and Diseases."
- Nov. 10 No title as yet. Angela Arthington.
- Dec. 8 Notes and Exhibits meeting.



SURVIVAL OF CHRYSODEIXIS (PLUSIA) ARGENTIFERA (GUENÉE) ON FLUE-CURED TOBACCO  
AND OTHER SOLANACEOUS PLANTS

By Roger Broadley

It has been noted by several workers that C. argentifera eggs and young larvae are found predominantly on the lower leaves of mature, flowering flue-cured tobacco plants (Nicotiana tabacum L.). Green (1970) and Alam (1972) have reported that there is an increasing alkaloid (mainly nicotine) gradient from the lower to upper leaves of mature plants i.e. lower leaves have less alkaloid than upper leaves. The possibility then arises that C. argentifera females might select lower leaves as oviposition sites, in order to avoid exposing newly hatched larvae to leaves with high alkaloid contents. Survival of unfed, first instar larvae on the top ten leaves (five per leaf) of two mature tobacco plants was therefore investigated. Only 16% of larvae did not reach the second instar suggesting that C. argentifera larvae are either tolerant of high alkaloid levels or possess a detoxifying mechanism.

The following solanaceous plants were also found to support C. argentifera larvae: Nicotiana debneyi, Nicotiana exigua, Nicotiana gossei, Solanum torvum, Solanum capsicoides (= aculeatissimum), Solanum nigrum, and Lycopersicon esculentum. Physalis minima and Nicandra physalodes were unsuitable hosts.

R.H. Broadley,  
Qld Dept Primary Industries,  
Toowoomba Q. 4350

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A MYSTERY SOLVED

In the last Bulletin V.8(4) we posed the question: "Who was F.R.T. Frey?" Since then a letter has been forwarded to the Editor informing us that there was a mistranslation of the text, and F.R.T. Frey was in fact AUSTRIAN. The two names must be similar in Chinese as well as in English! Even more information is provided, Frey apparently went to China in 1930 and is still there and now a big-wheel in their medical hierarchy.

SO; you can all stop wondering now.

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ANOTHER CORRECTION

In the July Bulletin a couple of notes were attributed to Mr. E. Reye - this was a misunderstanding on the part of the editor. What he actually wanted was no title at all and it should have read Eric J. Reye.

Sorry, Eric.

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ABOUT PEOPLE

Wendy Forno (CSIRO), who is working at Curitiba in Brazil, collecting insects for the biological control of aquatic weeds, came to Brisbane on a multi-purpose visit. These included, a holiday, to visit the Symposium on Biological Weed Control, and consult with people at the University of Queensland, where she is doing her Ph.D. On the way out to Australia she visited the USDA laboratories at Stoneville, Mississippi.

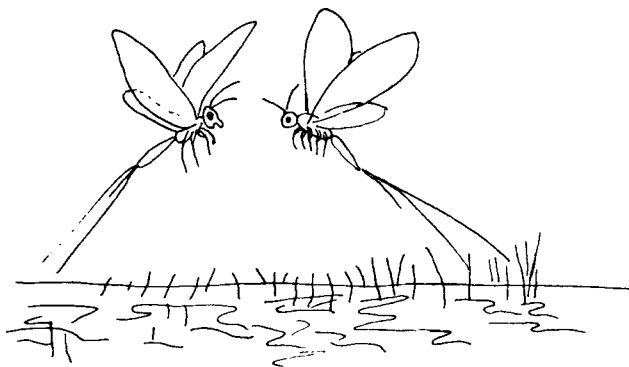
Dr. Neil Gough (D.P.I.) Mareeba, was in Brisbane recently, on his vacation, to visit his parents and renew acquaintances. He found time, also, to call in on the workers at the Long Pocket Laboratories.

Harry Standfast's work on the vectors of Bluetongue virus formed one of the CSIRO exhibits at the Brisbane Exhibition "Eckka". Also on show was a display on the paralysis tick and the biological control of water weeds. However, the models of mini-mokes bearing truck-traps were a winner with the younger visitors.

Dr. Ian Galloway has now returned to his own office, at D.P.I. Indooroopilly. Ian has been touring overseas for some four months, but has returned and sorted through most of the backlog of mail, so is ready to start identifying microhymenoptera again.

Dr. Merv. Bengston (D.P.I.) Indooroopilly, flew to Japan at the beginning of August to attend the XVI International Congress of Entomology in Kyoto. From Japan he will fly over the North Pole to England, where he is visiting several research laboratories in southern England. Then, on to Paris, Basle and finally to Israel for meetings with the Ministry of Agriculture, before returning to Australia in mid-September.

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And another thing; you'll find that once you let on your a May Fly insurance companies just don't want to know.

# Maggot raiders destroy Millions

From The Guardian (Britain) July 17th 1980

Police were yesterday investigating raids on two north of England maggot farms in which millions of bluebottles were wiped out.

The farm owners blamed rival maggot breeders and offered a Five Thousand Pounds reward for information leading to the raiders' conviction. And a senior police officer said: "We are working on the theory that this is industrial sabotage."

Maggots are used as bait by fishermen.

The raids on the maggot farms at Conisbrough, South Yorks and at Darlton, near Newark, Notts, bore striking similarities. Alsatian guard dogs were given drugged meat, insect spray was used to kill off millions of bluebottles and maggots, and refrigerators which keep the maggots at the correct temperature were smashed.

The owner of the farm at Darlton, Mr. Philip Bland, said: "Every single bluebottle was dead - literally millions of top quality maggot producers."

Mr. Bland, who exports maggots to Germany and Belgium, estimates that he will be out of business for five weeks at a loss of Ten Thousand Pounds a week.

Mr. Don Savage, chairman of Maggot Farms (Yorkshire) Ltd, at Conisbrough, said: "We believe this is the work of someone in the trade who hired a gang of professional criminals."

This interesting bit of newsprint was forwarded to me by Paul Farrar who is presently working in Lancaster, England.

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## TERMINATION OF MEMBERSHIP

Further to the list appearing in last month's Bulletin, the following unfinancial members have had their membership terminated by council.

S.L. Allman  
G. Burns  
L. Cherry  
D.J. Franzen

F.A. Gibson  
J.E. Hammond  
G.G. Tiffany  
H.J. Whittaker

Council also acknowledges receipt of the resignation of R. Mew from the Society.

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## XVI INTERNATIONAL CONGRESS OF ENTOMOLOGY

As you may well be aware many of our members attended the Congress in Kyoto - for those who did not attend I hope to be able to run a small report in the next Bulletin.

REPORT ON A MEETING OF AUSTRALIAN SCIENTIFIC SOCIETIES  
AND NATIONAL COMMITTEES - CANBERRA 23rd JULY

This meeting was called by the Academy of Sciences. A sixth of the approximately 400 scientific societies in Australia were invited as well as representatives of the 30 National Committees plus one international committee, CSIRO, Department of Science and the Environment and ASTEC. The purpose of the meeting was to discuss the difficulties faced by Australian scientific societies in these days of rising costs and budget cut-backs, with a view to mutual support among the various affected groups. Dr. Eric Sinclair attended on behalf of the Entomological Society of Queensland.

Important points raised by the meeting were:-

Society Health - The larger societies (more than 2,500 members) seem to be relatively well off, especially those with strong links with private enterprise and industry (e.g. Engineers, Computer Scientists). Though large, ANZAAS is in serious difficulties due to its heavy commitments to conferences and its journal SEARCH. Formal publications seem to be the greatest drain on society funds, maintenance of libraries being another. Secretarial costs are another major cost and there was some discussion of the possibility of sharing these facilities.

NOTE: A plea was made for a greater number of contributions to the "Australian Journal..." Series (e.g. Aust. J. of Biol. Sciences etc.), although short of Editorial staff an influx of contributions is seen as the best way of countering a recent IAC recommendation that Government funding be dropped.

Conferences - Because of lack of common vacation time between Universities, there is a considerable clash of conference timetables. Federal support for congresses has fallen from about 40% pre 1975 to about 5% now. Some societies felt that conferences could be run at a profit, but others felt that this would affect the attendance of delegates from poorer countries.

National Committees - These are set up by the Academy of Sciences to propose and encourage activities in Australia in their own field, in inter-disciplinary areas, and in matters of public policy. They also maintain overseas links through the International Council of Scientific Unions. Committees generally consist of a chairman, 5-6 members, an ex-officio member, several representatives of societies and possibly a number of sub-committees.

Although most delegates attending thought these committees sounded like a good idea, there was a general feeling that they had been relatively ineffective to date. Some rationalisation is needed here, since the National Committee for Biological Sciences covers an enormous field - while one delegate suggested that there were some 120 fields of endeavour not covered by the current 30 committees.

In conclusion, the Academy undertook to consider the points raised, and more specifically to approach the Government again in the question of publication funding.

In view of the good attendance and participation a similar meeting will be convened next year, though whether our society will be one of the percentage invited is unknown.

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Dr. E. Sinclair,  
D.P.I. Entomology,  
INDOOROPILLY,  
Q. 4068.

GIVE ME MORE!

Yes, I have received a little trickle of material to put in the Bulletin, and I thank those who contributed. There is still an urgent need for more. So, before spring leaps on to the scene and everybody starts rushing about collecting Insects again, how about dusting off typewriters and sending in a short note for the Bulletin.

Otherwise I shall be forced to fill up awkward spaces with drawings of spiders - this is a takeover!

Judy

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For those who missed seeing this tid-bit of information as it appeared in "The Australian":-

OLDEST LIFE CONFIRMED  
from United Press: Washington

Australian and American scientists have evidence of the oldest biological cells yet found on earth - the remains of tiny, bacteria-like creatures that lived more than 3500 million years ago.

Discovery of the so-called "cellular mummies" in two sets of rocks from Western Australia was announced on Friday by the National Science Foundation, which jointly supported the work with the National Aeronautics and Space Administration and the University of California.

Although the same scientists recently reported finding rock formations of a similar age in Australia that were probably built by similar micro-organisms, those cabbage-shaped rock layers did not contain traces of the creatures themselves.

Previous studies established that relatively advanced forms of cellular life appeared 2300 million years ago.

Professor J. William Schopf, of the University of California in Los Angeles, who heads the team of scientists, said the interiors of the old single-celled organisms have long since been filled in by silica and their mucous exterior coats turned to tar by the chemistry of aging.

But individual organisms could still be distinguished under a microscope.

"I wonder if N.A.S.A. found these deposits when they called to collect the remains of their Skylab?" (Ed.)

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## OFFICE BEARERS 1980

### PRESIDENT

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

### HONORARY TREASURER

Ms. M. A. Schneider,  
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Mr. B. Sabine,  
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Dr. E. Sinclair,  
Entomology Branch,  
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Meier's Road,  
Indooroopilly, Q. 4068.

## NOTICE OF NEXT MEETING

The next meeting of the Entomological Society of Queensland will be at 8.00 p.m. on Monday, September 8th in Room 323 of the Hartley Teakle Building, University of Queensland.

The main business of this meeting will be an address by Dr. R.W. Taylor of CSIRO, Canberra, entitled:-

### "APPLICATION OF MODERN TECHNIQUES IN DESCRIPTIVE TAXONOMY OF INSECTS"

Bob is a graduate of the University of New Zealand and Harvard University. He is on the staff of the Australian National Insect Collection (CSIRO, Canberra) which he joined in 1966. He is Curator of Hymenoptera (Formicidae) and works on the systematics, biology, biogeography and evolution of ants. His interests take in speciation theory and its application to Australian insects in general.

## 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.