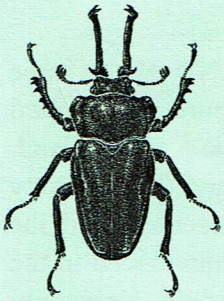
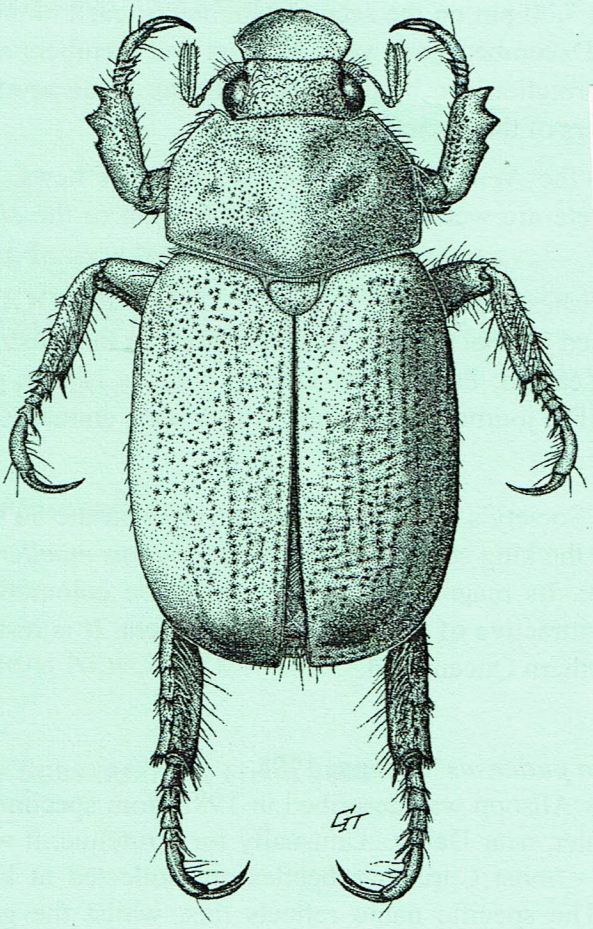


ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC

NEWS BULLETIN



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The **ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC.**, since its inception in 1923, has promoted the development of pure and applied entomological research in Australia, particularly in Queensland. Membership is open to anyone interested in Entomology. The Society promotes liaison among entomologists through regular meetings and the distribution of a *News Bulletin* to members. Meetings are announced in the *News Bulletin*, and are normally held in the Goddard Building, University of Queensland at 7.00 pm on the second Monday of each month (March to June, August to December) each year. Visitors and members are welcome. Membership information can be obtained from the Honorary Secretary, or other office bearers of the Society.

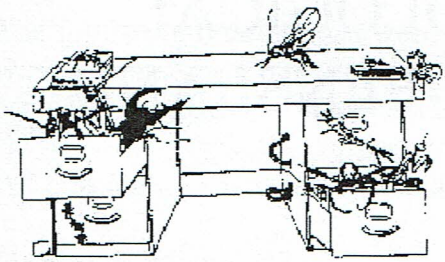
Contributions to the *News Bulletin* such as items of news, trip reports, announcements, etc are welcome and should be sent to the *News Bulletin* Editor.

The Society publishes **THE AUSTRALIAN ENTOMOLOGIST**. This is a refereed, illustrated journal devoted to Entomology in the Australian region, including New Zealand, Papua New Guinea and the islands of the South Western Pacific. The journal is published in four parts annually.

EMBLEM: The Society's emblem, chosen in 1973 on the 50th anniversary of the Society, is the king stag beetle, *Phalacrognathus muelleri* (Macleay), family Lucanidae. Its magnificent purple and green colouration makes it one of the most attractive of all Australia Coleoptera. It is restricted to the rainforests of northern Queensland.

COVER: ***Wambo puticasus* Allsopp, 1988**

Wambo puticasus Allsopp was described in 1988 from specimens collected at Lake Broadwater, near Dalby. Unusually for a ruteline, it was collected in a pitfall trap – most Christmas beetles are collected at light or from feeding trees. The specific name reflects this, whilst the generic name honours the shire in which it was collected. Geoff Thompson did the drawing, the original of which is a prized possession of Peter Allsopp.



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THE ENTOMOLOGICAL SOCIETY OF QUEENSLAND

GENERAL MEETING:

Held in Room 257, Goddard Building, The University of Queensland, 18 April 2006, 7.00 pm.

Attendance:
Peter Allsopp, Sassan Asgari, Richard Bull, Chris Burwell, Murdoch De Baar, Rod Eastwood, Elizabeth Exley, Gary Fitt, Graham Forbes, Klaus Gottschaldt, Mark Hunting, Ken Jackson, Frank Jordan, Ross Kendall, Fred McDonald, Geoff Monteith, John Moss, Helen Nahrung, Matthew Purcell, Margaret Schneider, Owen Seeman, Enid Selvey, Hilton Selvey, Natalie Spiller, Kyran Staunton, Geoff Thompson.

Visitors:
Michelle Baker, Antonia Burwell-Rodriguez, Robyn Jackson, Cheryl Lawes, Jane Ogilvie, Andrew Ringsmith, Katie Schuler.

Apologies: Gio Fichera, Peter Mackey, Don Sands.

Minutes:
The minutes of the last General Meeting were circulated in the *News Bulletin* Vol. 34, Issue 1. It was moved that they be accepted by John Moss, seconded by Matthew Purcell.

Elections:
The following nominations were received under the old constitution, and were announced at the last General Meeting and circulated in the *News Bulletin* Vol. 34 Issue 1:

Mr Kyran Staunton	Miss Belinda Walters	Ms Anna Marcora
Drs Robert Raven & Barbara Baehr		Mr Frank Jordan

The following nominations were received under the new constitution and were accepted by Council:
Mr Alen Sundholm Dr Hans Löbel Mr Mike Moore

All nominations were elected unanimously by show of hands.

Honorary Membership:
Council has received and considered the nomination of Dr David Hancock for Honorary Membership of the Society. He was elected unanimously by show of hands. David's taxonomic work on fruit flies and butterflies has made important contributions that are well recognised throughout the world. However, the Society was especially mindful of his service as Editor of the *Australian Entomologist.*

Main Business:
The main business of the meeting was a presentation by Geoff Thompson, entitled "Digital Insect Illustration and Imagery: A Queensland – Smithsonian Scholarship in the USA".

NOTICE FOR NEXT MEETING

Monday 8th May 2006 at 7pm
Room 139, Goddard Building
University of Queensland, St Lucia

Ant association and speciation in Lycaenidae (Lepidoptera): Consequences of novel adaptations and Pleistocene climate changes
By speaker Rod Eastwood

MAIN BUSINESS:

DIGITAL INSECT ILLUSTRATION AND IMAGERY: A QLD-SMITHSONIAN SCHOLARSHIP IN THE USA

BY GEOFF THOMPSON

Introduction

I have been illustrating insects, using traditional techniques, since 1975. Usually I use pen and ink on scraperboard but I also work in watercolour.

People often ask why we still illustrate. There are a number of reasons but one major one, lack of depth of field in microphotography, has recently disappeared with the development of high-depth-of-field systems such as Automontage and Microptics. Automontage works using a series of source images taken down a microscope. These must be taken, numbered in sequence, at decreasing or increasing focal depths, i.e. from top to bottom or bottom to top. The program then lines up the images, calculates the area of maximum overlap and combines all the sharp elements into one sharp, montaged image. Microptics is a rival, single-shot system that uses a high-intensity flash through fibre optics in combination with lenses designed to give maximum depth of field, attached to a high-quality digital camera. Both these systems were very expensive until Automontage released its Essentials software. In 2004 Queensland Museum Entomology purchased a basic imaging system using Automontage Essentials and with time and care we can produce good publishable images.

Illustrations still have advantages over these high-depth-of-field photographs. They act as a rapid information delivery system, allowing the viewer to count tarsal and antennal segments, compare lengths of various segments of appendages without foreshortening and see clearly all identifying features at a glance. The illustrator can look at these important features under different lighting conditions, often from several specimens, correct for viewing-angle and twisting distortions, repair damage, uncurl appendages and show all this in one image.

Until recently there has been no professional organisation of scientific illustrators in Australia. So when my wife, Caroline Fewtrell, bought a computer six years ago, home email access changed my life. I became very active in the US-based Guild of Natural Science Illustrators, mainly through their Listserv email discussion list. I was also able to write several articles for their newsletter and contribute an illustration to the second edition of the "bible" of scientific illustration, *The Guild Handbook of Scientific Illustration* edited by Elaine R.S. Hodges. All this was done by email from home.

In 2003, on long-service leave, I was able to attend their conference in Denver, Colorado, where I met J. Marie Metz. I knew that Marie illustrated digitally, incorporating information from high-depth-of-field microphotography. This meeting and subsequent correspondence laid the ground work for my 2005 Queensland - Smithsonian Fellowship, mostly working with Marie at USDA's Systematic Entomology Laboratory, within the National Museum of Natural History, Smithsonian Institution, Washington DC.

The purpose of my fellowship was to share and enhance my skills in scientific illustration and microphotography, see and evaluate high-depth-of-field microphotography systems, participate in the 2005 Guild of Natural Science Illustrators Conference, in Bar Harbor, Maine, as well as making a positive contribution to illustration and research within the Smithsonian Institution.

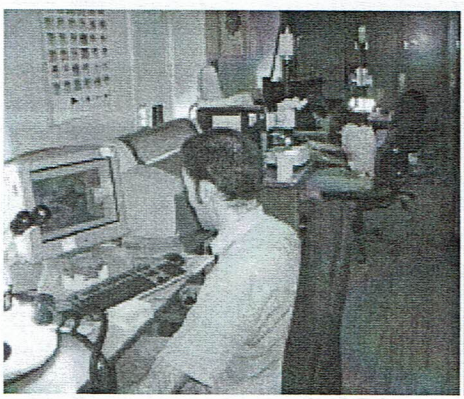
Preliminary Visits to Museums in Los Angeles, San Francisco and Boston

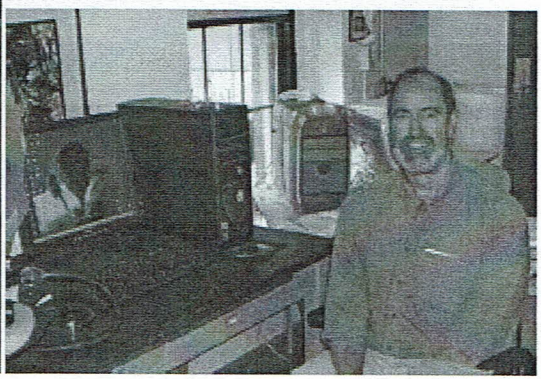
On 28 July 2005, Caroline and I flew to Los Angeles via Auckland arriving, because of the international dateline, on the same day local time. We took a taxi to the Los Angeles County Museum to see its Tutankhamen exhibition at 5:00 pm. This is a controversial museum exhibition because of its cost to the institutions that take it. That said, the objects themselves are fantastic and I felt rendered any such controversy inconsequential.

The next day we flew to San Francisco where we were met by Guild of Natural Science Illustrators Membership Secretary, Katherine Gyorfi and her husband Lance who took us straight to the California Academy, in its temporary home in Howard St. Fellow GNSI member Diane Sands, Naturalist Centre Librarian, had arranged a special tour for us. I had originally planned this visit on the following Monday but Brian Fisher and his staff were leaving to run "The Ant Course" the following week. I was anxious to see his unit's well-known Automontage imaging system and discuss imaging techniques with his staff. Things were very rushed, due to preparations for the course and initially the meeting was to be cancelled. I did however talk to him briefly and saw the Automontage system being used by April Nobile. To my amazement they were unaware of the 3D display applications of the Automontage program and were most impressed when I demonstrated this function. I also visited other museums in the Oakland area demonstrating the Automontage system and emphasising its display potential, particularly its 3D function.

Oakland Museum, California has very similar architecture to Queensland's Cultural Centre.

On the following Wednesday we flew to Boston MA, arriving late in the day and staying with friends, Howard and Alicia Silver. The next day I visited Philip Perkins at the Museum of Comparative Zoology, Harvard University. I delivered loan specimens and demonstrated Automontage's 3D function. I was also able to watch various staff using a number of Automontage imaging systems. I spent Friday with Gary Alpert at MCZ, Harvard. I was able to use his top-of-the-range Automontage imaging system and demonstrate to him various editing and 3D functions of the software, of which he was previously unaware.





Technicians using Automontage systems, Museum of Comparative Zoology, Harvard University. Gary Alpert at his automontage system, Museum of Comparative Zoology, Harvard University.

On Saturday we flew to Bar Harbor, Maine, in preparation for the GNSI conference there the following week, 8–12 August. Bar Harbor is a small town surrounded by the Arcadia National Park, an area of great natural beauty by the sea.

I presented a one-hour talk on Automontage Essentials. The talk was well received and about 50 people attended. I attended many talks, evening functions and field trips. I also did a colour theory workshop, which was helpful in my later computer rendering at the Smithsonian Institution. This, my second conference with the Guild of Natural Science

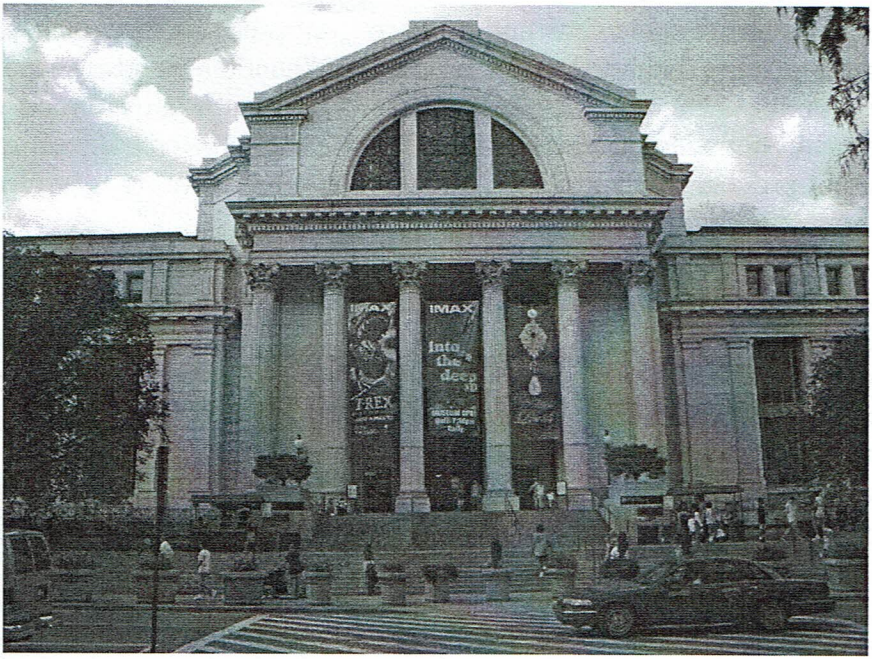
Illustrators, gave me a good chance to network with other scientific illustrators from all over the world. I met for the first time with Anne Llewellyn, lecturer in natural history illustration from Newcastle University and with Francis Fawcett, an insect illustrator from Cornell University, whose work I have admired for many years. I was also able to renew contact with many skilled colleagues, including renowned illustrators, Trudy Nicholson, Elaine R.S. Hodges, J. Marie Metz (with whom I would be working during the bulk of the fellowship) and with my former intern, Diana Marques from Portugal. The conference was an inspiring and rewarding experience. After the conference we took a week's leave with the Silver family on a lake in Maine.

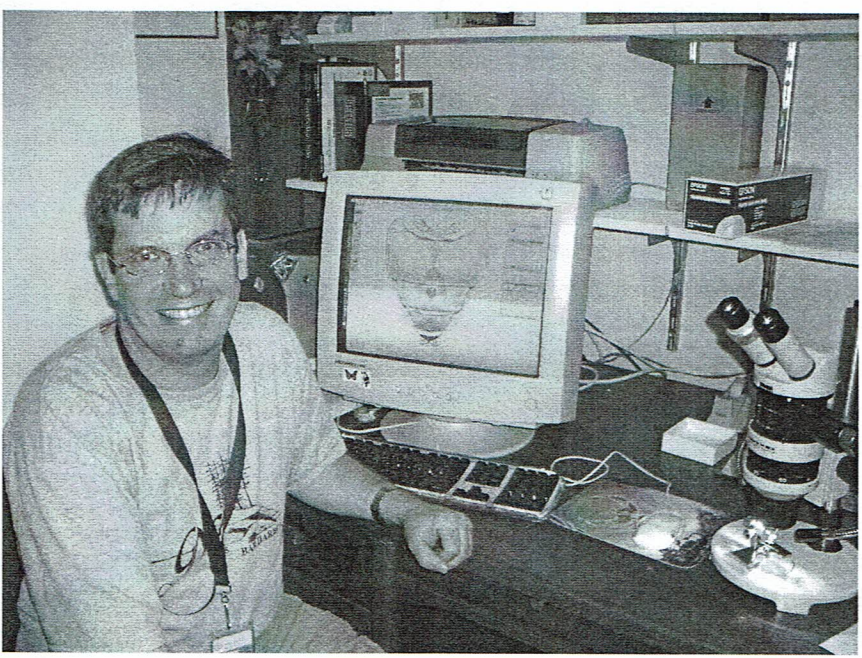
Core Fellowship, working with Marie Metz, Washington DC.

On Sunday 20 August we flew from Portland, Maine, to Washington DC in time to settle in with our hosts for the next seven weeks, Trudy and Mike Nicholson. Trudy is the world's best known master of scraperboard in the field of scientific illustration. I have been using this medium for thirty years and it was a great privilege to live in her house and swap knowledge and techniques. During our stay I was able to help her improve her scanning techniques to ensure better reproduction of her illustrations in this digital age.

On Monday 22 August I started 13 weeks intensive work with Marie Metz, Scientific Illustrator at the US Department of Agriculture's Systematic Entomology Laboratories (SEL). SEL is situated within the Smithsonian Institution's National Museum of Natural History (NMNH), on the National Mall, along with many other great museums and galleries. Marie is at the cutting edge of digital scientific insect illustration. I was there to learn her unique computer illustration techniques and see how digital photographic information can be used in combination with those techniques to improve speed and accuracy.

My first task was to learn how to create a vector outline in Adobe Illustrator, following a pencil outline drawn, as I usually do, using a microscope with an attached camera lucida. I had not used this program





(From top to bottom) The National Museum of Natural History where I worked for 13 weeks. At my computer inside NMNH working on a Hover fly outline.

before and it took some time and practice to master this different way of drawing, placing anchor points and using "handlebars" to shape the curves joining them. All component parts of the vector outline need to be completely bounded areas, to allow them to be selected during the rendering process in PhotoShop. After a week or so Marie was pleased with how quickly I became proficient.

I was able to practice on syrphid fly thorax and abdomen outlines for the project Marie was working on at the time. Marie had to keep producing work on a tight schedule so the fact that I was able to help on her current project, while learning, helped compensate for the time spent teaching me. Marie was able to take my completed vector outlines and render them in colour using Adobe PhotoShop. I completed outlines for four species using her pencil sketches, plus an extra one from scratch.

I next had to learn how to render in PhotoShop. I had used this software program before but mainly to manipulate photographs, not to render from scratch. To start leaning this complex program Marie asked her intern, Katie Schuler, to show me how to cut out a photographed image from an unsuitable background and to redraw hairs and setae over a toned-down copy layer of the original photograph. Since hairs and setae taper in thickness and intensity this method is usually faster than trying to select these elements of the picture and extract them from an uneven background. A skilled illustrator can produce almost an exact copy of the photographed hairs using the toned-down model. It takes skill and patience to master this technique and it was good training for me.

Marie also gave me several all-day training sessions and had me looking over her shoulder, taking notes, while she rendered during this part of my training. She works in groups of layers often totalling 50 or more.

So the process is extremely complicated and was more difficult to master than I had anticipated. Marie showed me her special trick for rendering insect eyes quickly and easily. She also gave me copies of her eye screen and of her own specially developed PhotoShop brushes, each of which had taken her many days to develop. Because of my thirty years of

experience illustrating insects by hand, I did not have to learn how to draw and shade, only to master a different medium. Otherwise it would not have been possible to achieve what I did in the time available. I was able to interact with Marie as an equal when discussing actual drawing and imaging problems and we learnt a lot from each other.

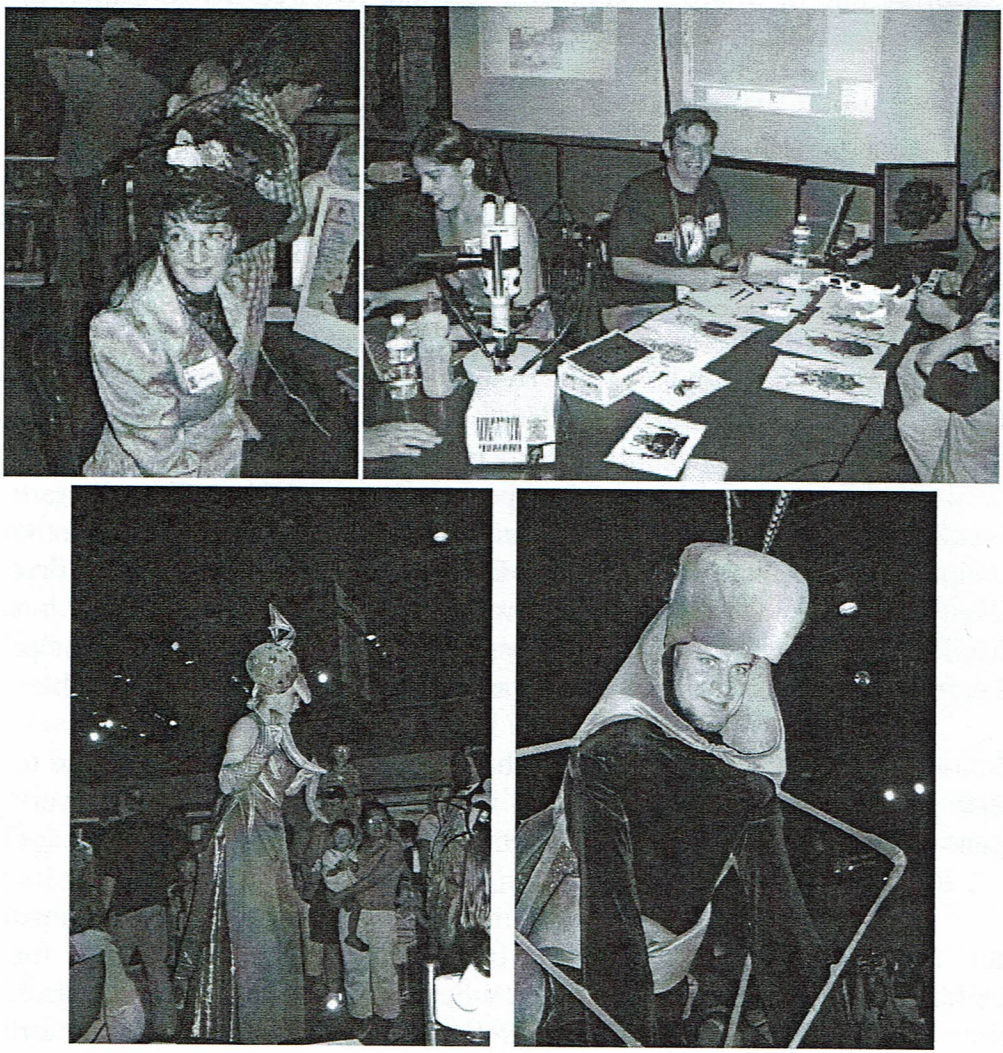
During one of Marie's rotations a scientist required her to draw tiny leafhopper genitalia. Marie decided to use the Microptics imaging system to get images that could then be altered in PhotoShop to produce illustrations more quickly and accurately. I assisted Marie in setting up these slides in jelly and in taking the necessary photographs. I was then able to observe the process of altering the photographs, using the same Photoshop techniques I was learning, to produce the final illustrations for publication.

Finally I was ready to start rendering an illustration from scratch. I was assigned to Entomologist, Tom Henry, who selected two species of Hemiptera, from the family Miridae for me to draw. I was able to draw the outlines in pencil, scan them and import them into Illustrator. I then produced a vector outline and imported that into PhotoShop, before breaking it up into component paths that could be used to select all the main structures in the drawing. Because I was learning the first illustration took about a month. I was mostly able to work alone but Marie was always there, just across the room, when I needed help. Learning this technique at a distance would have been almost impossible.

Marie helped me with refining and shadow techniques towards the end to give the illustration more definition and strength. Tom Henry was very pleased with the result and other scientists were also impressed.

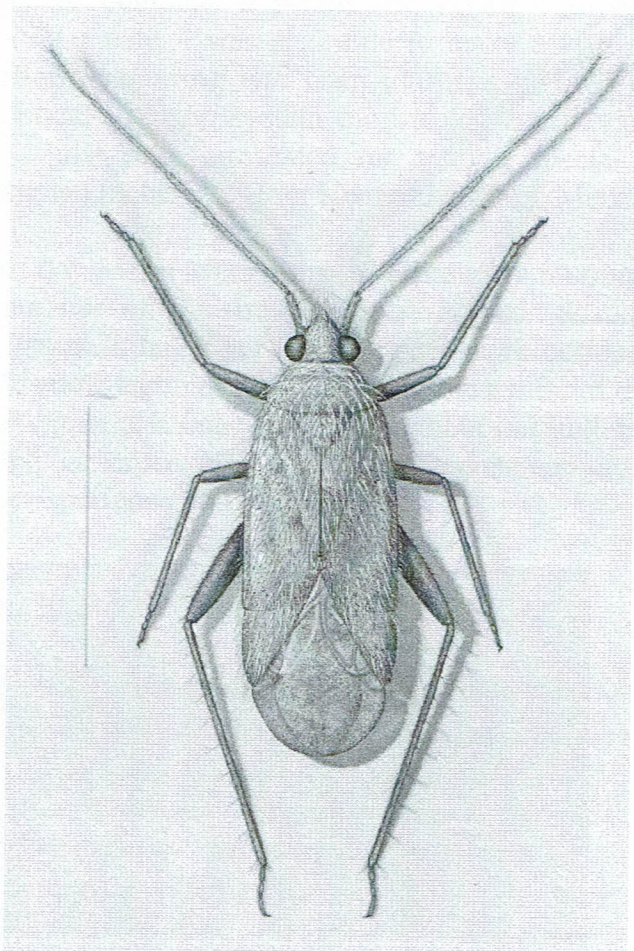
During my training I was also involved in helping with preparations for Bug Fest, The Smithsonian Institution's insect celebration for children. I helped fix last-minute problems with signs and with such things as wording for a T-shirt. I also helped plan the insect illustration component of the display and presented on the day, Saturday, 17 September. Marie dressed up as illustrator, Beatrix Potter, to introduce our display; I demonstrated traditional scraperboard techniques and

showed our 3D insects; Diana Marques demonstrated computer illustration techniques; Katie Schuler supervised young people drawing with microscopes and camera lucidas and other volunteers supervised children drawing from butterfly specimens. Between 15 and 20,000 people came through Bug Fest in just six hours and the illustration stand was rated one of the most popular.



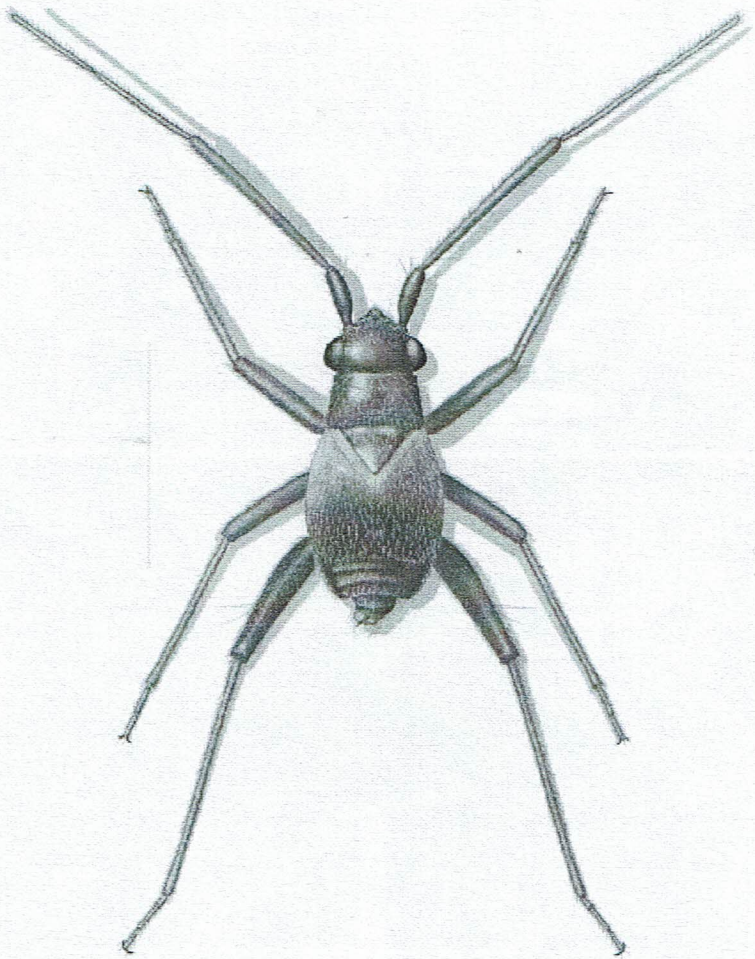
Bugfest images (Clockwise left to right). Marie Metz as Beatrice Potter. Myself demonstrating traditional techniques and 3D images alongside my former intern Diana Marques, from Portugal, who is demonstrating digital techniques. Phasmid dress-up. Praying mantis dress-up.

Half way through our stay in DC, on 7 October we moved over to Cheverly to stay with entomologists Warren and Jil Steiner. This meant that we were closer to the metro and could attend night time meetings of the Washington Entomology Society, the local chapter of GNSI and the Botanical Society, of which Warren was president. On 18 October I gave a modified version of my talk on Automontage to the Washington DC chapter of GNSI.



A new species of true bug, Hemiptera, of the Family Miridae. This was my first full dorsal view illustration rendered from scratch using digital techniques. The scale line is 1 mm.

After completing my first full dorsal illustration I started on the second species. This species is possibly the smallest member of the family Miridae on the planet, being a little over 2 mm long. I now felt confident using the digital medium, but, though I was able to work faster, the work was still fairly slow because I was still learning.

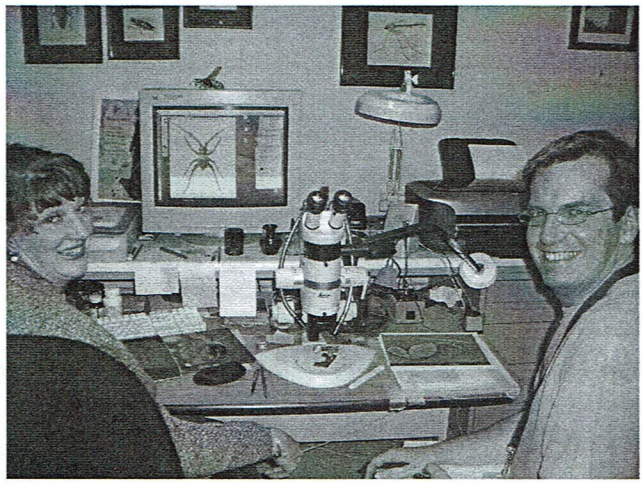


A new species of the genus *Tytthus*, Family Miridae. My second full dorsal view illustration rendered digitally from scratch. The scale line is 1 mm.

During this period I started experiencing what turned out to be angina pain while walking. On Thursday 27 October I was admitted to George Washington University Hospital. After various tests I had a stent inserted. I lost a total of five working days to illness. My travel insurance covered all medical expenses.

I was able to return to work and complete my second full dorsal illustration. The remaining time would not allow completion of a third, but I was able to complete a pencil and vector outline for Marie to complete at a later date. I was also able to make a visit to Microptic's Richmond offices (requiring two train journeys of over two hours) to assess their optical imaging system more fully. At the end of my stay SEL's CEO, Alma Solis, presented me with a special certificate of appreciation signed by herself, Tom Henry and Marie Metz.

On my last day Marie Metz gave me some extra training in her newly developed method of illustrating over altered Scanning Electron Microscope images. It had been a privilege to work beside her, watching her develop this new technique and she gave me a tutorial disc to help me master the technique at a later date. Throughout our collaboration Marie was exceedingly generous, holding back no secrets and giving me all the benefits of her experience and hard work.



Marie Metz demonstrating her new SEM techniques to me.

During my period with Marie I was asked to help train Katie Schuler, an intern from the Corcoran College of Art and Design, who came in every Friday. Initially Katie trained me in her cut-out technique previously mentioned. Later I trained her in the new techniques I had learnt each week from Marie. Marie is an experienced teacher and my training Katie meant that I made sure I had really learnt the techniques each week. Towards the end of my fellowship I trained Katie in some traditional techniques. Katie decided to come to Brisbane and do a semester's study at Griffith University's College of Art, South Bank. This has been arranged through my contact with QCA lecturer Jonathan Tse. Katie comes into the Queensland Museum during this semester's study and does intern work, as she did with Marie. She has now been here three months and is currently working on cicada drawings for QM Associate, Prof. Tony Ewart.

Outcomes and Achievements of the Fellowship

All the major goals of the Fellowship were achieved. The most important was my mastering of a range of digital illustration skills and techniques. This proved more difficult than I had anticipated but Marie Metz and Tom Henry were both pleased with the level of skill I achieved. I felt that I was working within the medium and was able to solve most problems myself. Mastery of these techniques will allow me to develop my own digital style and also allow me to manipulate images to make illustration faster and more accurate in the future. At present the technique is slower than my traditional methods but this should improve as I become more practiced. I had to acquire these skills in order to be able to apply them to altering and illustrating over other images in the future. The skills have already speeded up many simpler tasks, applied in often unexpected ways.

The knowledge I acquired also allowed me to watch and understand as Marie developed new cutting-edge techniques beside me. With the help of Marie's tutorial, I should be able to apply these new techniques in the future.

I was able to contribute to the illustrations produced by Marie Metz within the USDA's Systematic Entomology Laboratories and produced two full dorsal illustrations myself, using my newly acquired skills. These illustrations are scheduled to be published in colour fairly soon. Since my return I have applied these techniques in a number of projects including a recently completed full-colour dorsal view of a new genus of mirid from New Caledonia.

My experience as an insect illustrator was put to good use, in the laboratory, in day-to-day problem solving, training of intern Katie Schuler and in the very successful Bug Fest festival for children. Katie arrived in Brisbane in February and is doing further intern work with me while studying at Queensland College of Art.

I was able to see both high-depth-of-field imaging systems working in several different locations across the USA. I was also able to demonstrate certain very useful features of the Automontage system that people who had used the program for many years were, until then, unaware of. My assessment of both these systems will inform future purchases.

I presented a talk at and participated in the Guild of Natural Science Illustrators' annual conference at Bar Harbor, Maine, reinforcing my ties with this wonderful group of incredibly skilled people from all over the world. I also presented my talk to Washington DC's local chapter of GNSI and attended meetings of the Entomological Society of Washington and the Botanical Society of Washington, plus a field trip run by the latter society.

I met up with Suhanya Raffel, another 2005 Queensland-Smithsonian Fellow from the Qld Art Gallery and we were able to exchange visits behind the scenes in the Smithsonian Institutions where we were working. We both attended a Wollemi Pine planting ceremony by Catherine O'Sullivan, Chair of the Queensland-Smithsonian Fellowship selection panel, during her visit to Washington DC. We also joined her in visiting some museums and at a dinner with Smithsonian International Collaborations Director, Francine Berkowitz.

Living and working in Washington DC allowed me to visit a large number of museum and art gallery displays during my stay. I am sure the range of display styles, good and bad, will allow me to present an informative talk to Queensland Museum staff. I have already given talks about my fellowship experiences and anticipate talking to various other groups as time goes on. I also plan to train other illustrators in the techniques I learnt as opportunities arise.

Washington DC is a museum person's paradise. The skills I acquired, the objects and displays I saw and the friends and professional contacts I made will continue to have a profound effect on my professional and private life for many years to come.

Acknowledgments

I owe the Queensland Government a great debt for awarding me this fellowship and to the Queensland Museum for allowing me to take it up. My supervisor, Geoff Monteith and all the staff at Queensland Museum Entomology were all a great support during the application process and especially in covering for me during my absence. In addition the free accommodation provided by friends and colleagues Trudy and Mike Nicholson, Warren Steiner and Jil Swearingen, Lance and Katherine Gyorfi and Howard and Alicia Silver was invaluable. J. Marie Metz was a generous colleague and teacher during the core period of the fellowship and helped in many other ways. Tom Henry was a most friendly and helpful scientist to illustrate for. Katie Schuler also taught me some techniques. Angela Appleford of Qld Premier's Dept International Collaborations was unfailingly helpful throughout the application process and early stages of the project and other staff of that department, particularly Peter Blondell and Catherine Sheedy have also been helpful in the later stages of the project. Francine Berkowitz of Smithsonian Institution's International Collaborations and her staff were also of invaluable help. Referees Sybil Curtis, Elaine R.S. Hodges, Tom McRae and John Hooper were all most helpful. My wife, Caroline Fewtrell, supported and helped me throughout the trip.

PhD Offer

Prof. Myron Zalucki, Dr Jim Hannan and Dr Bronwen Cribb have a joint project funded for 3 years by the Australian Research Council to develop a generic model system expressing behaviour of caterpillars interacting with the micro- and macro-architecture of plants.

Applications for the model will include spatial ecology of foraging caterpillars, optimisation experiments for insecticide spray application, and the development of novel genetically transformed plants for insect control.

We are looking for someone who might like a position working with the team such as a PhD (or even voluntary work at any level). If you would like to know more please contact Myron Zalucki at M.Zalucki@uq.edu.au

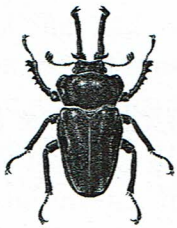
Notes from Newcastle

By Paul Bambach

On a recent outing around the shores of Fennel Bay on Lake Macquarie, NSW, I came across established colonies of the butterfly species *Ogyris amaryllis amaryllis* and *Delias aganippe* breeding on Casuarina parasitized by the mistletoe *Amyema cambagei.*

Both species were in abundance and I was able to locate the larval and pupal development stages of both species.

There is no risk to these colonies as the habitat is secure.



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Yours sincerely
Matthew Purcell (Hon. Treasurer)

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STUDENT:	Students and others at the discretion of the Society Council	**$18pa**

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PO Box 537, Indooroopilly 4068, Qld.

Back cover gives contact details of individual council members.

NOTICE OF NEXT MEETING

The next meeting of the Society will be held at 7pm on Monday 8th May in Room 139, GODDARD Building, University of Qld. The main business will be a talk by Rod Eastwood "Ant association and speciation in Lycaenidae (Lepidoptera): consequences of novel adaptations and Pleistocene climate changes". Refreshments will be served before the meeting at 6:30pm in the tea room, Level 2 of the Goddard Building (to the right of the main stairs), with a gold coin donation required. No donation is required to attend the talk alone.

VISITORS ARE WELCOME

DIARY DATES 2006

Meetings held usually every 2nd Monday of the Month

8 May	Rod Eastwood	Ant association and speciation in Lycaenidae (Lepidoptera): consequences of novel adaptations and Pleistocene climate changes
13 Jun	Notes & Exhibits	Student Prize Award **TUESDAY!!!**
July	**No meeting**	
14 Aug	Owen Seeman	
11 Sep	Scott O'Neill	

HONORARY LIFE MEMBERS OF THE SOCIETY

R.A.I. Drew E.M. Exley D. Hancock D.S. Kettle
R.F. Harslett R.P. Kleinschmidt E.J. Reye