

Bulletin of the Royal Entomological Society Autumn 2012 Volume 36 (4)

antenna



**MIMICRY, CURATION AND TRAVELS
FAR AND WIDE**

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COVER PICTURE

The photograph on the front cover of this issue shows a male specimen of the critically endangered Greek Red Damselfly, *Pyrrhosoma elisabethae* Schmidt, 1948. In 2009 it was reported that, "No more than 14 localities have yet been identified, at several of which it has subsequently become extinct." Corfu holds a globally important population of this species, and the specimen on the cover of this issue was found at a spring-fed stream on the island in June 2012. (See article by Peter Sutton in this issue, page 221).

Photo: © Peter Sutton

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Royal Entomological Society

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COPY DATES

For *Antenna* 38 (1) – 1st January 2013 (PS)

For *Antenna* 38 (2) – 1st April 2013 (GM)

Diary Copy date:

five days before *Antenna* copy date above.

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The following are the subscription rates due on 1st March 2012: Fellows £49; Members £44; Students £23; Fellows and Members over 65 £29. The journals of the Society are available to individual Fellows and Members at preferential rates via the Subscriptions Department at The Mansion House. *Antenna* is supplied free of charge to Fellows and Members not in subscription arrears. **Cancellation of Journal subscriptions must be notified to Subscriptions Department before the 31st October in the year preceding cancellation.**

Printed by Cravitz Printing Company Limited
1 Tower Hill, Brentwood, Essex CM14 4TA
email: cravitzprinting@btconnect.com

EDITORIAL



Photo: Dr M. Wood, University of Gloucestershire

Where did the summer go? Autumn/winter already and I can't remember what the sun looks like! But, hopefully, this *Antenna* will provide will provide a celebration of collections and entomological resources and travels wide and far.

In this edition Pete Sutton writes passionately about adventures on Corfu inspired by the Durrell family, while Anita and John Hollier recount the two year expedition of de Saussure to the West Indies and Mexico. The work of the pioneer conservator, Elizabeth Denyer is described by Sonja Drimmer and Dick Vane-Wright. The butterfly theme is then carried through to John Badmin's article about the UK national Lepidoptera collection being made into an electronic resource. And, who would have thought that Owl

butterflies were lizard mimics, see the fascinating article by Steve Martin on the work of David Stradling. Ideas that have been developed and explored further by Philip Howes in his forthcoming book which will be reviewed in a future edition.

Please submit articles, reviews or any other copy to *Antenna* via email to antenna@royensoc.co.uk. This enables submissions to be tracked and processed, and the copy bank to continue to be developed.

When submitting material please send the final copy to us, as an MS word file with low resolution pictures and figures embedded where relevant to the narrative. If you wish to discuss a submission, or seek advice on whether we would encourage submission of an article then we welcome short synopsis.

When submitting copy then we do require the figures and pictures to be sent separately as high resolution picture files, preferably JPEG or TIFF formats (see previous *Antenna's* for a note on picture resolution). And finally, please remember to submit a picture, contact details and a short (approximately 100 words) biography of yourself and co-authors.

Greg Masters

CORRESPONDENCE

Birds Nest Faunas – Errata

We are writing to correct an identification that appeared in *Antenna* 36(2). Having had an opportunity to examine the specimens in more detail, we can confirm that the supposed lice (Insecta: Phthiraptera) referred to as Ischnocera in *Antenna* 36(1) and Amblycera in *Antenna* 36(2), are actually beetle larvae. These are probably leiodid larvae (family Leiodidae, Superfamily Staphylinoidea), as identified with the assistance of Max Barclay and Roger Booth of the Coleoptera section at the Natural History Museum, London, UK. The misidentification of these specimens as Amblycera was due to an examination of a low resolution image; only with very detailed study at high magnification was it obvious that the specimens are not Phthiraptera. As Palma noted in his letter published in *Antenna* 36(2), parasitic lice are very rarely found away from the host and, if this does occur, their prevalence is much lower than the 55% noted in the original paper.

Anne Goodenough, Adam Hart and Vince Smith

Guidelines for submitting photographs

To maintain a high quality we suggest that submissions for *Antenna* be presented via e-mail or on CD. Files must be in a PC-compatible format preferably in MS Word.

Electronic images can be embedded in the Word document but we will also require separate electronic images. These images should be at least 300dpi at an image size that is either equal to, or greater than the expected final published size.

Please do not submit images that have been printed from a computer on a domestic inkjet or laser printer. Even if the camera is a good one and photo quality paper is used, the graininess is very hard to deal with. If plain paper is used, the prints are virtually unusable.

Photos taken on film should ideally be submitted as slides or as reasonable sized prints for us to scan or alternatively they can be scanned in by authors provided the scanner is capable of scanning at up to 1200dpi.

If an image is intended for the front cover then the photograph should be in portrait format (i.e. the shape of the final image) and will need to be quite a large file size (at least 5,000kb) or a good quality slide or print.

To give an idea as to what happens when the image is not of sufficient size, take a look at these two photographs. One is 300dpi and the other is 72dpi.



300dpi



72dpi

The Butterfly, Owl or Lizard

by Stephen J Martin
in memory of Dr. David Stradling FRES

Butterflies in the genera *Caligo* and *Eryphanis* are commonly referred to as Owl butterflies because people have long said that the two large and conspicuous eyespots on the undersides of their hindwings resemble an owl's face. Owl butterflies are often seen in zoos and tropical butterfly houses and should be familiar to all readers of *Antenna* as David Attenborough is shown holding one to illustrate image quality. The role of the conspicuous eyespots found on these butterflies has been the subject of much speculation and debate and was a subject close to entomologist David Stradling's heart. Over 25 years ago he suggested that maybe the owl butterflies were actually mimicking the head of lizards or frogs (Stradling, 1976). Since then his interest in these butterflies continued and he was finally able to show (in Trinidad) that their mimic model was also their main predator, a gecko lizard. This was recently published in *Living World*, the Journal of The Trinidad and Tobago Field Naturalists' Club (Quesnel & Stradling, 2012). Because of the limited distribution of this journal and the interesting back story to his initial work, David was intending to write an article about his beloved butterflies for *Antenna* and so share his findings with members and fellows of the Royal Entomological Society of which he had been a long-term member. However, over the summer David lost a long running battle with his illness. He will be sadly missed to all who knew and worked with him, especially those involved with his pioneering work with the Whitley Wildlife Trust and Paignton Zoo.

It would be a great shame if David's story died with him. Luckily, over the summer he recounted it to me and passed on the key images that he intended to use in the *Antenna* article, which, once seen, will mean that you will likely never view owl butterflies in the same light again.

His 'eureka' moment happened while working in the Trinidad & Tobago University museum where he was sorting through their butterfly collection. He had a box of pinned owl butterflies on his desk. As with all butterflies, they are mounted with their wings spread out horizontally but many of the Owl butterflies are also mounted 'upside-down' so that their impressive under-wing eye-spots can be seen. While working someone knocked on the door of his office, David placed his notebook on the glass cover of the collection box and dealt with the visitor. When he returned to his desk he noticed that his notebook was covering half of one of the butterflies, and suddenly he saw the head of a lizard imprinted into the wing of the butterfly. Everything else fell into place quickly. *Caligo*'s can never display both eyespots at the same time, so the 'owl face' is only ever seen in pinned museum collections, since they always rest with their wings folded (Fig. 1A). At rest the eyespots are always exposed

since they are only on the under-wings. Also, as the butterflies always rest on tree trunks of large branches, the imprinted lizard head is in the correct orientation. But as they say 'a picture counts for a thousand words' and although David published his initial ideas way back in 1976 in the first ever volume of *Ecological Entomology* (Stradling, 1976) he had decades until photoshop allowed him to superimpose the images of the local common gecko (*Thecadactylus rapicauda*) (Fig. 1B) onto *Caligo illioneus* (Fig. 1C). This illustrates just how close features of the lizard, such as the relative sizes and positioning of their eye-spot and ear-spot (tympanum), are mimicked by the butterfly. David believed that the *Caligo* and *Eryphanis* genera may have diversified across the rainforests of Mexico, Central, and South America matching a wide range of locally abundant lizards. So mimicking lizard predators may have driven speciation in these butterflies. Just how important





Fig. 1. A) A *Caligo illioneus* butterfly at rest showing its cryptic pattern conspicuous eyespots. B) is the gecko *Thecadactylus rapicauda* in profile an abundant predator of *Caligo* butterflies. C) is a computer superimposition of the butterfly and lizard. The level of mimicry is greatly enhanced by the secondary smaller 'eye-spot', representing the lizard's tympanum, in addition to the highlighted profile of the head and shoulder region. The tympanum in (Fig. 1B) is unclear because the gecko was photographed in bright light with direct flash rather than natural overhead lighting. For this reason the pupil of the eye is reduced to a slit and the 'concavity' of the tympanum lost.

the precision with which the model is mimicked remains unknown, but different owl butterflies show considerable variation in the detail of the patterns surrounding the eye-spots. Do they represent different models in different parts of their range? Only time will tell. It's just a pity David will not be around to continue to look past the obvious. However good the mimicry though, it seems unlikely that the more accurate name of 'Lizard butterflies' will ever catch on.

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- Stradling DJ (1976) The nature of the mimetic patterns of the brassolid genera *Caligo* and *Eryphanis*. *Ecological Entomology* 1, 135-138.
- Quesnel VC & Stradling DJ (2012) Evidence for the function of the eye-spots in the butterfly genera *Caligo* and *Eryphanis* (Lepidoptera: Nymphalidae: Morphinae: Brassolini). *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club* 2012, 12-19.

The Greek island of Corfu, with a view of the highlands from Mount Pantokrator. In the far distance is Durrell's famous Lake of Lilies - Lake Antiniotissa.



Durrellian Odyssey – An entomological journey to the island of Corfu

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I owe Lawrence Durrell a considerable debt of gratitude for two decisions that he made during his lifetime. The first was his decision to move to the Greek island of Corfu in the mid-1930s which paved the way for the relocation of the Durrell family in 1935. The second was his decision to encourage his younger brother, Gerald Durrell to write about his experiences as a young naturalist on the island. Both decisions were instrumental in the appearance of Gerald Durrell's trilogy of books about his time in Corfu, and it was the first of this trilogy, *My Family and Other Animals* (1956), that was to have a profound effect on my own life as a naturalist. I must confess that I did not read Gerald Durrell's books as a child, although I saw the whole series on the shelves in our town library as I sought to gratify my insatiable appetite for

illustrated books about insects. However, another book among that number, which exemplified the Durrells' hands-on approach to the study of nature, was to have an equally important effect on my development, beginning with a collection of dried aquatic insects in an old cutlery case that made the clothes in my wardrobe smell of fish. It was *The Amateur Naturalist* by Gerald and Lee Durrell (1982). It was this book, with its photographs of insects that could be found in different habitats, and its detailed descriptions of how to collect, look after and study small creatures, that fired my imagination, spurred me on to investigate new habitats and their occupants, and had my parents living in fear of what they might encounter when they entered my bedroom.



Figure 1. Gerald and Lee Durrell with *The Amateur Naturalist* (Photograph reproduced with kind permission from the Durrell Collection)

It was therefore the Durrells, through their collective influence, who were responsible for the majority of screams that came from our small townhouse, the mud that blocked the plugholes from clothes that I was asked to wash myself, and the cries of, "You've gone too far this time!", when grass snakes and large predatory diving beetles appeared in the goldfish pond.

Having overlooked Gerald Durrell's books of words as a boy, I was unaware of his unerring ability to walk his audience through the stunning Mediterranean scenery of Corfu, or the fact that those words could illustrate the wildlife of this, greenest and lushest of the Ionian islands, more richly than any picture. It was not until I was finally introduced to *My Family and Other Animals* in the form of the captivating BBC adaptation in the late 1980s, that I began to realise what I had been missing, and watching this enchanting story about the formative years of one of the world's most inspiring conservationists became a regular Sunday evening event. One sequence in particular, in which a convict that the young Gerald Durrell had befriended helped him to catch a freshwater terrapin at one of Corfu's beautiful and ephemeral Spring lakes, galvanised my decision to visit the island one day and see its riches for myself. Little did I realise, at the time, that it would become something of an all-consuming passion.

My first visit to Corfu, in 1994, did not disappoint, and introduced me to the invertebrates and reptiles of the island that would provide an excuse for

all future visits. In the meantime, I began to immerse myself in the literature of Gerald (1956, 1969, 1978), and then Lawrence Durrell (1945), who painted an intimate picture of Corfu and its inhabitants. This, inevitably, introduced the polymath Dr Theodore Stephanides who would complete the circle regarding my studies of the invertebrate fauna of Corfu. It is no surprise that the studies of this remarkable man made their way

into *The Bulletin of Entomological Research* (from its 41 Queen's Gate headquarters) and I have been astonished by the fact that so many pathways of knowledge, from the completion of a modern checklist for the Odonata, to the investigation of water beetles, and even the study of the freshwater crab, *Potamon fluviatile*, must all proceed through his original work on the freshwater biology of the island (Stephanides, 1948), or risk error.

However, it should be noted that without a major stroke of luck, this situation might have been very different, since the Durrells' and Stephanides' were both affected by the insanity of world events at the end of the 1930's. Stephanides, in the *Epilogue* to his book, *Island Trails* (Stephanides, 1973), after describing how his books, scientific collections and most of his notes, had gone up in smoke during wartime attacks on a Corfu town, goes on to write about his (and our), good fortune:

"The manuscript of my *magnum opus*, *A Survey of the Freshwater Biology of Corfu and of Certain Other Areas of Greece*, was saved by a happy chance and was published in 1948 by the Hellenic Institute of Freshwater Biology."



Figure 2. The Greek polymath, Dr Theodore Stephanides: scientist, medical practitioner, astronomer, naturalist, author, poet, and friend and mentor to the young Gerald Durrell. (Picture reproduced from *Island Trails* © Theodore Stephanides, 1973).

In his own, inimitable style, he goes on to write:

"I have never heard of it becoming a best seller in spite of the fact that it contains, among other good things, a suggestive account of the sexual aberrations of the water-flea *Cyclops bicuspidatus* Claus var. *lubbocki* Brady."

Gerald Durrell provides a further insight into the character of Stephanides in his introduction to the above book, *Island Trails*:

"Theodore had and has all the best qualities of the Victorian Naturalists: insatiable interest in the world he inhabits, and that ability to illuminate any topic with his own observations and thoughts. This, coupled with a puckish sense of humour, a prodigious memory and an ability to pack forty-eight hours into twenty four, makes up a very extraordinary man."

He goes on to exemplify that 'insatiable interest' as Theodore, 'the most unwarlike of men', was bombed and machine-gunned as he retreated across Crete with the Allied Army in World War Two:

"...who but Theodore would relate how, when the Stukas dived and machine-gunned the road, he flung himself face downwards in a ditch and was 'interested to note' two species of mosquito larvae he had not 'previously encountered'?"

It is very clear that Theodore Stephanides' guiding influence accelerated the development of the young Gerald Durrell as a naturalist, and the extent of his influence is indicated in the dedication written to Stephanides in *The Amateur Naturalist*:

"This book is for Theo my mentor and friend, without whose guidance I would have achieved nothing."

Stephanides' interest in aquatic life led to a number of important discoveries. In addition to producing his seminal work on the freshwater fauna of Corfu and parts of mainland Greece, three species of microscopic water organisms are named after him: *Cytherois stephanidesi*, *Shizopera stephanidesi*, and *Thermocyclops stephanidesi*¹.

His interest in the smaller aquatic fauna also allowed him to become something of a recognised expert in the field of microscopy, culminating in his book *The Microscope and the Practical Principles of Observation* (Stephanides, 1947). Stephanides went on to conduct important research for the anti-malarial unit founded by the Rockefeller Foundation in Salonica. His work on the influence of the anti-malarial fish *Gambusia affinis*, in particular, highlights his knowledgeable approach regarding the consequences of disrupting the ecological balance, and he warns against the injudicious use of an organism which can do more harm than good through its "wholesale destruction of the Entomostraca and aquatic insects" (Stephanides, 1964). (Stephanides had previously offered sage advice regarding anti-malarial measures in his pre-war work on the mosquitoes of Corfu (Stephanides, 1937) concerning the erroneous assumption that larger bodies of water (which were generally drained or treated with larvicidal substances fatal to natural predators of mosquito larvae) were largely responsible for harbouring the offending larvae.)

The work of Theodore Stephanides therefore laid the foundation for future naturalists to study the aquatic fauna of Corfu, and my own work on the island, as well as the work of others, has exemplified the importance of using his study as a first point of reference. On at least two occasions, for example, literature has been put forward describing new records for the island, only to find that Stephanides had previously described the species of interest in his work. One of the problems that undoubtedly led to this state of affairs (other than an assumption that it must surely be outdated) is the rarity of the 1948 publication, which now, apparently, resides in only seven academic

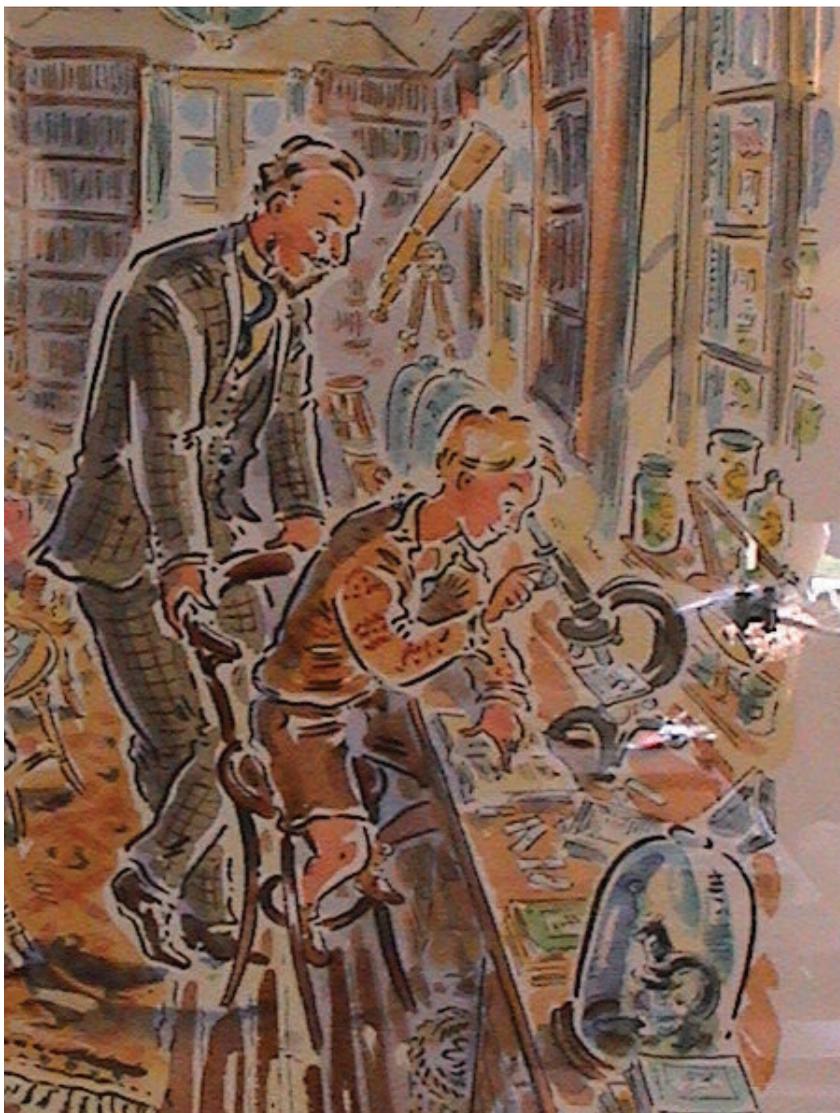


Figure 3. Theodore Stephanides in his study with Gerald Durrell, by the artist Paul Cox (Reproduced with kind permission from the Durrell Collection).

¹ In keeping with his broad-ranging interests, a crater on the moon in the South Eastern Highlands of the Sea of Serenity is also named after Stephanides, and is unofficially known as Stephanides (Romer-A).



Figure 4. The author and Dr Lee Durrell with Dr Stephanides' work on the freshwater biology of Corfu (Copyright: Colin Stevenson).

institutions worldwide. When I tried to locate a copy for my own studies of the freshwater life of Corfu, I was unable to obtain a transcript until, in February 2012, I was very kindly given access to Dr Stephanides' work by Dr Lee Durrell at the Durrell Wildlife Park in Jersey. It was a great privilege to hold in my hand Gerald Durrell's copy of *A survey of the freshwater biology of Corfu and of certain other regions of Greece*, signed to his friend by Dr Stephanides himself, and to read from its pages the vibrant picture of Corfu's pre-war freshwater fauna (Figure 4).

In addition to the freshwater life of Corfu, I have spent much time studying other groups of invertebrates and vertebrates, and it is not difficult to

understand why Gerald Durrell became so absorbed in the rich and diverse fauna of Corfu. There has not been a single visit where I have not encountered a new species of note on this remarkable island. What has continually surprised me is the fact that I have been able to make regular contributions to our knowledge of the island's entomological fauna, having previously assumed that a more or less continuous stream of naturalists would have built up a comprehensive picture of the species that inhabit the island. On the contrary, many groups have had poor coverage, and even groups that have been studied by some of Europe's finest entomologists have failed to complete the picture of species

diversity for the island. This, of course, is related to the time and resources that these groups or individuals have been able to dedicate to the island, and the fact that generally speaking, they have examined Corfu as but a small part of a much bigger picture regarding the fabulous biodiversity of Greece. This situation has allowed me, through productive collaboration and considerable support from those involved with the study of invertebrate life on Corfu, to first construct, and then revise, comprehensive taxonomic lists for the Rhopalocera (Sutton: 2009b, 2012d), Odonata (Sutton:2009c), Orthoptera and allied species (2009d) and some aspects of the Carabidae, *i.e.* Cicindelinae, Carabinae, Scaritinae, Brachininae (Sutton, 2012f). Other coleopteran groups studied to a lesser (*i.e.* recorded) or greater (*i.e.* taxonomically evaluated) extent, include the larger Dytiscidae (Sutton, 2012c), Cerambycidae (Sutton, 2009d, 2010) and Scarabaeidae (2009d, 2009f, 2010, 2012e).

The checklists provided have been annotated, illustrated, and referenced, and generally provide a history of how the modern list has been progressively built up over the course of time, with appropriate acknowledgements to previous workers.

These studies have shown that there is still much scope for continuing work, be it finding new species for the island *e.g.* *Tropidopola graeca* Uvarov 1926 (Figure 5; Sutton, 2012g) or the Great Banded Grayling *Kanetisa circe* Fabricius 1775 (Figure 6; Sutton, 2009b).



Figure 5. Newly recorded for Corfu, 21.iv.2011, the grasshopper, *Tropidopola graeca* (Sutton, 2012g).



Figure 6. Newly recorded for Corfu in 2002, the Great Banded Grayling, *Kanetisa circe* (Sutton, 2009b)



Figure 7. A species in its own right? *Dytiscus mutinensis* Pederzani, 1971 (Sutton, 2012c)



Figure 8. The Mole Cricket *Gryllotalpa* sp., the identity of this (or these) species in Corfu remains unknown. Distribution maps (Willemse, 1984) suggest that it is likely to be *Gryllotalpa kimbasi* (Sutton, 2009e).

DNA studies to aid the taxonomic determination of species e.g. *Dytiscus mutinensis* (Pederzani, 1971), (Figure 7; Sutton, 2012c); *Gryllotalpa* sp. (Figure 8, Sutton, 2009e), or the elucidation of habitat requirements to assist the conservation of increasingly threatened species e.g. for the Greek Red Damsel *Pyrrhosoma elisabethae* Schmidt, 1948 (Figure 9).

These studies have also revealed the influence of climatic change, through the recent arrival of new species that are currently increasing their geographical range in response to climatic amelioration e.g. the Plain Tiger *Danaus chrysippus* (Linnaeus, 1758); Violet Dropwing *Trithemis annulata* (Palisot de Beauvois, 1807) (Figure 10); and the Black Pennant *Selysiothemis nigra* (Vander Linden, 1825) (Figure 11).

Recent visits to Corfu have continued to provide valuable information about life on the island, culminating in a second edition of the *AES Bulletin* dedicated to the entomological fauna of Corfu, which appeared earlier this year. These well-illustrated special editions (August 2009 and April 2012) now provide a fairly comprehensive account of what an entomologist can reasonably expect to find regarding the groups covered, with the on-going promise of an island that continues to reveal its secrets. By way of example, for many years I have been searching for the Greek Red Damsel *Pyrrhosoma elisabethae* (Figure 8 and cover picture) with little success. Regular requests for information (e.g. Sutton, 2012b) understandably, failed to produce any positive response for this great rarity. Little is known about its specific habitat requirements e.g. "Poorly known: found in richly vegetated streams" (Dijkstra and Lewington, 2006). As luck would have it, I finally caught up with this species in June this year, whilst searching for freshwater blennies and eels in a stream that my son and I had found by chance, and we watched in awe as this scarlet damselfly materialised from the bankside vegetation and danced above the sun-spangled water. The cool spring-fed stream was indeed well vegetated (Figure 12), and teeming with dragonflies and damselflies in spite of the good number of fish and frogs present. It was not long before we found a female specimen of the form *melanotum* (Figure 13).



Figure 9. The critically endangered Greek Red Damselfly, *Pyrrhosoma elisabethae* Schmidt, 1948. In 2009 it was reported that, “No more than 14 localities have yet been identified, at several of which it has subsequently become extinct.” (Boudot *et al.*, 2009).



Figure 10. The Violet Dropwing *Trithemis annulata* (Palisot de Beauvois, 1807) which was first recorded in Corfu in 1994 (Lopau, 1999).



Figure 11. The Black Pennant *Selysiothemis nigra* (Vander Linden, 1825) first recorded in Corfu on 28.v.2007 (Sutton, 2009c).



Figure 12. Spring-fed stream holding a population of the Greek Red Damselfly, *Pyrrhosoma elisabethae*, Corfu.



Figure 13. Female Greek Red Damselfly *Pyrrhosoma elisabethae* f. *melanotum*.



Figure 14. Larva of the Great Silver Water Beetle *Hydrophilus piceus*.



Figure 15. Lesser Silver Water Beetle *Hydrochara caraboides*.

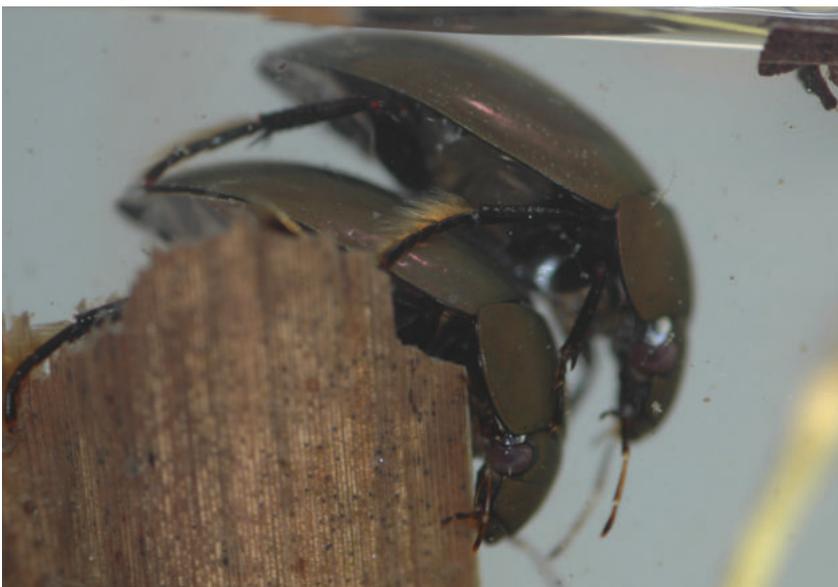


Figure 16. A pair of Lesser Silver Water Beetles *Hydrochara caraboides*.

Similarly, regarding another species that I had not encountered, and having seen an entry in Theodore Stephanides' freshwater tome that read:

Hydrous (Hydrochara) caraboides L.,
Ditches, pools. Rare. Spring.

I encountered this species whilst searching for the larvae of the Great Silver Water Beetle *Hydrophilus piceus* L. (Figure 14), and managed to pick up a pair from a pond near Ermones (Figures 15 & 16).

There have been many other surprises, particularly on the orthopteran front. The spectacular lemon-yellow form of the Great Green Bush-cricket *Tettigonia viridissima* (Figure 17) was discovered hunting on an Oleander bush early one evening at Agios Georgios to the south of the Korission Lagoon, and the immense Greek Magician *Saga hellenica* (Figure 18) was found in the Garrigue on the hills above Durrell's famous Lake of Lilies, Lake Antiniotissa, in the north-west of the island.

In conclusion, while there have been some fairly dramatic changes to the island of Corfu over the last 50 years, the magic of Durrell's Corfu still exists, and for those who wish to explore the island, there are still some extraordinary finds to be made.

I have no doubt that the island will continue to be a source of study and wonder for many years to come.

Acknowledgements

My effectiveness as an entomologist would have been considerably diminished, and in some cases, made impossible, without the generous and unwavering support that I have received from others. Firstly, I am indebted to those previous workers (as indicated in the respective reference sections of each paper) who progressively built the foundation of knowledge upon which my own contributions have been made.

Secondly, while acknowledging that I am solely responsible for all errors, I have been actively assisted by the following, who have generously shared their expertise to ensure that what I have produced is as accurate as it can be: David Baldock, Stamatis Ghinis, Matt Rowlings, Rob Parker, Peter Russell and Vladimir Vrabec (Rhopalocera); Vincent Kalkman, K-D. Dijkstra, the late Wolfgang Lopau (Odonata); Robert Angus, Garth Foster,

Hans Fery, Lars Hendrich (aquatic Coleoptera); Peter Hodge (Carabidae, Buprestidae and Cerambycidae); Martin Rejzek (Cerambycidae); Luc Willemse, Judith Marshall, Karim Vahed and Vladimir Vrabec (Orthoptera); Max Barclay, Conrad Gillett, Erik Arndt and Spyros Sfenthourakis (Carabidae); Eugene Maurakis and Peter Hogarth (*Potamon fluviatile*). My sincere and grateful thanks to one and all.

A special thank you must also go to Dr Lee Durrell for kindly allowing

access to the work of Dr Theodore Stephanides and allowing me to use additional photographic material and artwork from the Durrell collection; Colin Stevenson for photography at Les Augres Manor and kindly providing the image used in Figure 4; Val McAtear for constant support with research at RES headquarters; Leonidas Collas for kind support and media translation; Yulli Poulimenou and Dr Anthony Stevens for kind storage of tanks, snake gloves, nets and various other essential equipment

between visits; and Dr Spiros Giourgas, who has been an indispensable asset to my studies on the island of Corfu.

Finally, I should like to remember three entomologists who were lost to us during the course of these studies: Peter Taylor, who made a significant contribution to our knowledge of the Rhopalocera of Corfu; and Fer Willemse and Wolfgang Lopau, without whom our understanding of the Greek Orthoptera and Odonata would be considerably less advanced.



Figure 17. Yellow form of the Great Green Bush-cricket *Tettigonia viridissima*, Agios Georgios.



Figure 18. The Greek Magician *Saga hellenica*, Lake Antiniotissa.



Figure 19. (From left to right) the author, Dr Spiros Giourgias, and Leonidas Collas, Secretary General for the Hellenic Society for the Protection of Nature.

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Henri de Saussure's expedition to Mexico and the West Indies (1854-56)

Anita Hollier and John Hollier



Figure 1. Portrait of Henri de Saussure by Horace de Saussure

ARTICLE



Anita Hollier is the archivist at CERN and a qualified translator. She is interested in the history and philosophy of science.



John Hollier is assistant scientist in the department of arthropods at the Museum of Natural History in Geneva. He is currently working on a type catalogue of Henri de Saussure's Orthoptera.

In November 1854, Henri de Saussure (1829-1905) left his home in Geneva, Switzerland, bound for Mexico and the West Indies. Like Wallace and Bates a decade earlier, Saussure was inspired to travel to South America by the writings of Alexander von Humboldt. Unlike them, he was formally educated in entomology and came from a very well connected family (Hollier & Heads, 2012), so his preparation for the trip included correspondence with the great man himself. Humboldt provided letters of introduction and asked him to make a particular study of the volcanoes of Mexico and to bring back rock samples for analysis in Europe.

The expedition was co-financed by Saussure's friend and travelling companion Henri Peyrot, who regarded it more as an adventure than a scientific mission. François Sumichrast, a naturalist from the canton of Vaud, accompanied Saussure as his scientific assistant. The fourth member of the party was the Saussures' family gardener Marc Grosjean, who was to



Figure 2. Sketch of a horse made by Saussure during the expedition (Bibliothèque de Genève, AdS 286/3).



Figure 3. Drawing of a young woman made by Saussure during the expedition (Bibliothèque de Genève, AdS 300/7).

act as factotum and whose initial distrust of all things foreign is reminiscent of his fictional counterpart Sam Gamgee in 'The Lord of the Rings'.

Saussure documented his trip in a series of letters home (Roguin & Weber, 1993), giving an entertaining insight into the problems they encountered and also a very clear indication of his mounting frustration as things did not go according to plan. After more than 30 years of independence and now in the throes of a civil war, Mexico was no longer the country that had called forth such glowing descriptions from Humboldt 50 years earlier. Saussure experienced many difficulties, and it took an iron determination to push the project to a successful conclusion. His offensive comments about Negroes and 'lazy, good-for-nothing Mexicans' have laid him open to criticism for racist attitudes (Rozat Dupeyron, 2002-3). In fairness, though, it should be pointed out that these letters were not intended for publication, and that he could be equally scathing about Europeans and, indeed, almost everybody with whom he came into contact, including his own companions. 'If only,' he despairs in a letter to his mother 'there were two more of me to travel with me!' One gets the distinct impression that letters home were a useful vent for his feelings.

The party spent a month in Cuba, and there Saussure met the distinguished naturalist Filipe Poey who was a founder member of the French Entomological Society, founder of the Havana Natural History Museum and the first professor of zoology at the University of Havana. Poey corresponded with Saussure after the latter's return to Switzerland, and sent many specimens, some of which were named after him by Saussure. While in Cuba, Saussure carried out a pioneering investigation of the cave fauna of the island, visiting the Cotilla Caves near Havana and a cave near Matanzas where he recorded blind myriapods (the first to be discovered). As usual, Peyrot exasperated his friend by shouting 'Ooh look, an insect!' rather than doing anything useful about capturing it.

Saussure soon turned his attention to volcanoes, as Humboldt had requested, climbing Popocatepetl (5,426 m) and El Jorullo (1,330 m), and almost reaching the top of Pico de Orizaba



Figure 4. Isopods collected on the expedition.

(5,636 m), the highest mountain in Mexico. Most of his scientific instruments were already broken, but he was able to send Humboldt useful information concerning the presence of lava flows (tactfully saying that they were harder to spot in Mexico than in Europe though, typically, he had written to his aunt that one could hardly miss them and that he wondered whether Humboldt had ever been there at all!) He published several articles on the formation of Mexican volcanoes, considering even the largest of them to have been formed by accumulation rather than upheaval (Saussure, 1858). Humboldt's idea that the convex plain around Jorullo had been formed by inflation from below was already contested (Lyell, 1830), and Saussure was able to add further evidence against it (Saussure, 1861).

Throughout their travels, the party sent back specimens of all sorts to Saussure's former professor, François-Jules Pictet, for what was later to become the Natural History Museum of Geneva. Saussure also found time to interest himself in the local political situation, acting as special correspondent for the *Journal de Genève* with articles describing the ongoing Mexican civil war and charting the fortunes of the deposed President Santa Anna. Unfortunately, the letters contain few details of Saussure's collecting, but the Museum holdings are testimony to his industry. It is possible that he kept an entomological notebook, although apparently none survives. The labels on the specimens, and the localities given in the early descriptions, are normally very general (often simply "Mexique", sometimes also with an indication of being from the temperate or hot regions), but in some later works Saussure gives very precise information about his captures such as "I have taken 4 of this species in the valley of Mexitlan, and the var. in Cordoba" (Saussure, 1875: 267).

Saussure left Mexico in March 1856 without visiting all the places he had originally intended because the civil war, regional uprisings and the casual banditry occasioned by the breakdown of authority made travelling too difficult. It was also dangerous, and on at least one occasion it was only Saussure's horsemanship that enabled him to escape from an armed band (a story upon which he dined out in Geneva many times). Sumichrast chose to remain in Mexico and devoted the



Figure 5. Sketch of the Pico d'Orizaba made by Saussure during the expedition (Bibliothèque de Genève, AdS 286/3).



Figure 6. Syntypus of *Stagomantis toteca* Saussure, 1861, collected on the



Figure 7. Syntype of *Stipnochlora couloniana* (Saussure, 1861).

rest of his life to studying the local fauna. He intended to leave temporarily for Guatemala in 1861 due to the political situation, writing to Saussure that he had lost his job and all his savings, and that Mexico was currently habitable only by millionaires and thieves, but he was prevented by fever, poverty and war. He eked out a living from teaching, farming and supplying specimens to museums in Europe and the USA. His main interests lay in reptiles and birds (*Passerina rositae* – the rose-bellied bunting, or Rosita's bunting – was named for his wife), but he also discovered many new species of insect, most of which were described by Saussure. He was born in Yverne (Vaud, Switzerland) on 15 October 1828, married on 30 August 1870, and died of cholera, along with one of his four daughters, at his home in Tonala (Chiapas, Mexico) on 26 September 1882.

Saussure returned to Switzerland in the spring of 1856, visiting the United States en route, after an absence of some 18 months. He married Countess Louise de Portalès in September of the same year, and the eldest of their nine



Figure 8. F. Sumichrast from *Adventures of a Young Naturalist*, Lucien Biart 1871 (edited and adapted by Parker Gillmore) (New York, Harper and Brothers).



Figure 9. Syntypes of *Heliastus sumichrasti* (Saussure, 1861) collected by Sumichrast.

children, Ferdinand (born on 26 November 1857), went on to achieve fame as one of the fathers of 20th-century linguistics. Saussure was impressed by Ferdinand's brilliance, but concerned that the child was too introverted and uninterested in outdoor pursuits, and his well-meaning attempts to push him away from linguistics towards 'real' science tend not to find favour today (Joseph, 2012).

On his return, Saussure began to work on the material he had collected. His publications for the next decade include not only taxonomic works on the mammals and birds, crustaceans, myriapods, orthopteroid insects and wasps he had collected, but also geographical and geological works including his volcano exploits, accounts of caves and mines, and an overview of the hydrology of Mexico (Saussure, 1862). The map included in the latter was also printed separately, and was used by the French army during their military intervention in Mexico (1861-7).

As a result of his contacts in Paris, Saussure was asked to contribute the Orthoptera (1870-74) and Myriapoda (1872) sections of the *Mission Scientifique au Mexique et dans l'Amérique Centrale* that accompanied the ill-fated French military expedition

in Mexico. His interest in the region continued, and major works include his treatment of the American wasps (1875) and the first Orthoptera volume of the *Biologia Centrali-Americana* (1893-1899), written with the assistance of Alphonse Pictet and Leo Zehntner (both of whom were associated with the Geneva Museum). Saussure became a member of the board directing the Geneva Natural History Museum. He used his vast network of contacts, including Poey and Johannes Gundlach encountered in Cuba, José Nieto and Auguste Sallé in Mexico and Edward Norton whom he met in the United States, to obtain the specimens that make the Geneva collections some of the most important in the world. Saussure donated his own collection to the Museum in 1903, not long before his death in 1905.

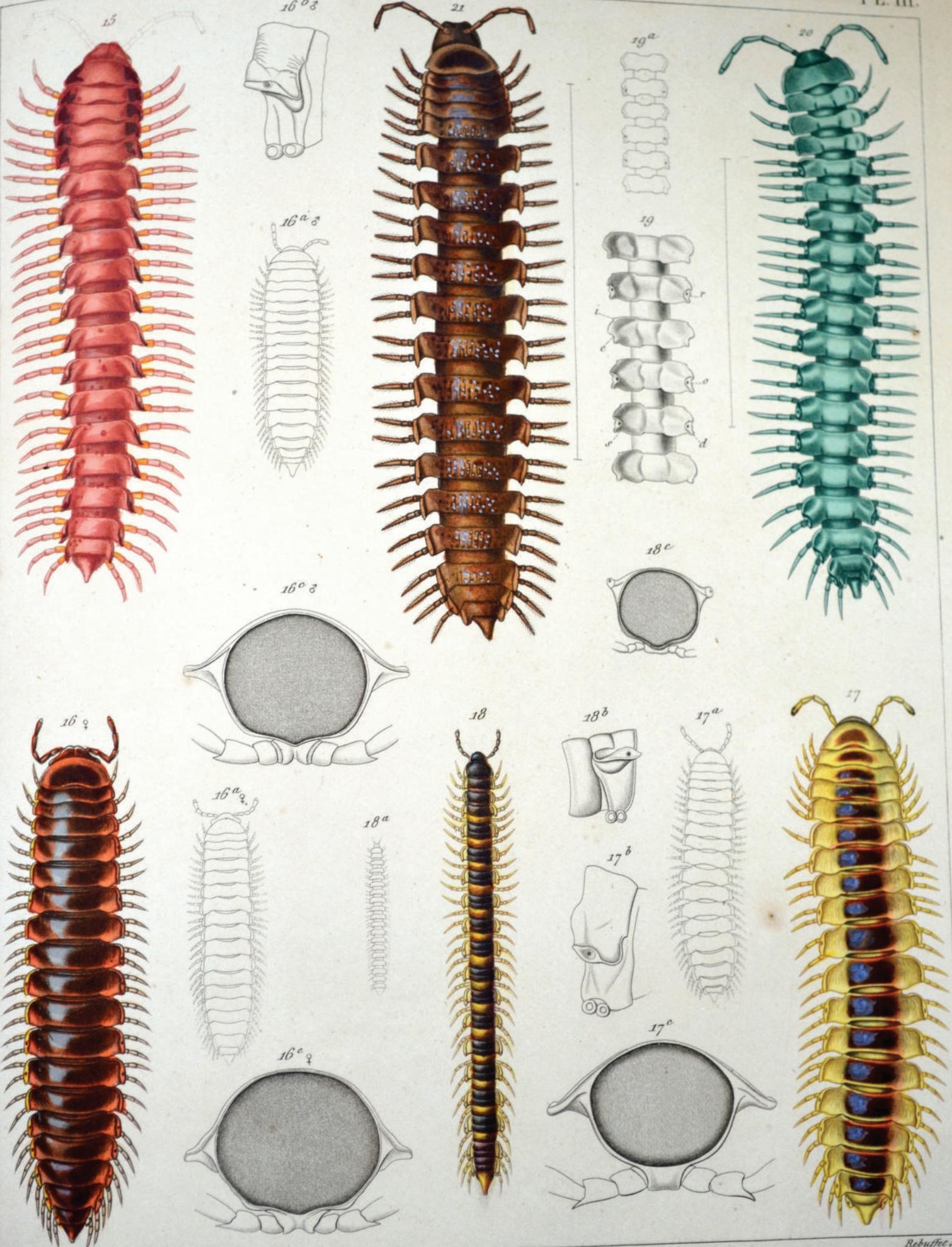
Acknowledgements

We owe a huge debt to Claude Weber and the late Louis de Roguin, whose painstaking work made available much of the information used here. Bernd Hauser also provided some interesting comments. Thanks are due to the Bibliothèque de Genève for scanning some of the illustrations and granting permission to publish them.

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Figure 10. Plate of Myriapoda from Saussure, 1860. (Next page)



Lanet et Nicolet del.

Rebuffet sc.

15. POLYDESMUS carneus. — 16. P. fraternus. — 17. P. tepanecus. — 18. P. coarctatus.
 19. P. viridis. — 20. STRONGYLODESMUS cyaneus. — 21. STENODESMUS mexicanus

Summary of Henri de Saussure's expedition itinerary

Saussure and his companions left Geneva in November 1854, travelling via Southampton. After a brief stay in the West Indies, he reached Mexico in March 1855. His exploration concentrated on the Trans-Mexican Volcanic Belt, and parts of the eastern Sierra Madre and southern Central Plateau, travelling west from Veracruz to El Jorullo, back to Mexico City and north to Tampico, before returning to San Andrés Tuxtla and Veracruz. He left Mexico via the USA a year later, in March 1856.

18 - 21 December **1854. St Thomas (US Virgin Islands).**

24 - 27 December. **Jamaica** - Kingston.

29 December 1854 - 12 January **1855. Haiti** - Jacmel, Port au Prince.

15 - 19 January **St Thomas.**

29 January - 22 February. **Cuba** - Havana, Guanabacoa, Santa María del Rosario, Matanzas, Limonar.

3 - 13 March. **Mexico** - Veracruz.

15 - 21 March. Cordoba.

22 March - 17 April. Orizaba, Tuxpan, Ciudad Serdán (San Andrés Chalchicomula), Pico de Orizaba, Perote, Cofre de Perote, Tepeyahualco, Cerro de Pizzaro.

19 April - 21 May. Puebla, Cholula, Tlaxcala, Tecola, Popocatépetl.

24 May - 21 June. Mexico City, Chapultepec.

22 June - 13 July. Cuernavaca, Yautepec, Coahuixtla, Temixco.

14 July - 2 August. Mexico City, Toluca, Nevado de Toluca, Ixtlahuaca, El Oro

3 August - 6 September. Angangueo, Taximaroa, Cerro San Andrés, Jaripeo, Morelia, Ario de Rosales, Patzcuaro, El Jorullo, El Oro.

10 September - 2 October. Mexico City.

3 - 13 October. Real del Monte, Pachuca, Regla.

14 October - 10 November. Potrero, Mezitlán, Zacualtipan, Hormiguero, Jalpan, Huisnopal, Atlapexco, Capadero, Pánuco.

11 - 25 November. Tampico.

28 November - 30 December. Tamiahua, Tuxpan.

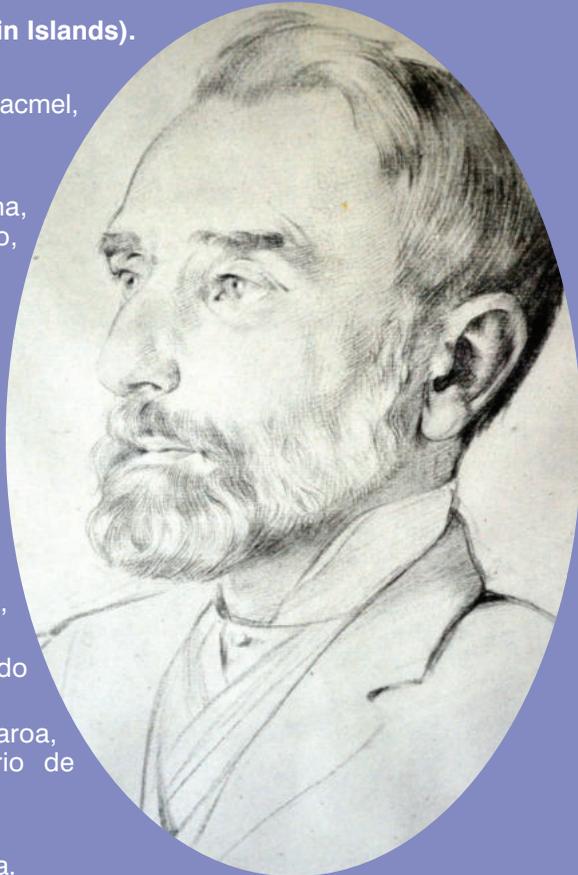
1 - 14 January **1856.** Paplanta, Jaloapan, Teziutlán, Perote, Tepeyahualco.

15 - 24 January. Jalapa.

26 January - 7 February. Mirador, Huatusco, Coscomatepec.

9 February - 7 March. Cordoba, Veracruz, San Andrés Tuxtla, Cerro San Martin.

11 March. **USA** - New Orleans, Washington.



Elizabeth Denyer's paintings of William Jones' British butterflies: their discovery and significance

Sonja Drimmer¹
and **R.I. Vane-Wright²**

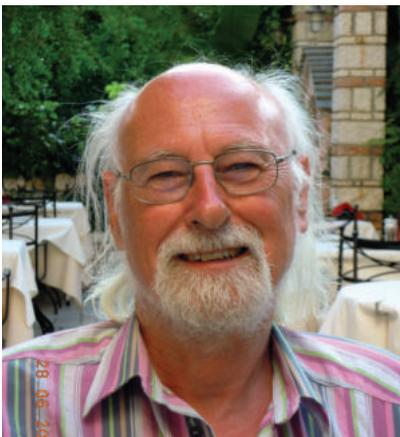
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In 1824 Elizabeth Denyer (1765/6–1824) of 9 Cheyne Row, Chelsea, bequeathed two works to the British Museum – an illuminated 15th-century book of psalms, and a volume of original paintings of British Lepidoptera. She made the butterfly and moth paintings at the suggestion of William Jones of Chelsea. The discovery of the Psalter and her insect paintings in the British Library – where they have long been catalogued but never researched until now – promises new insights into William Jones and his butterfly collection, suggests a significant link between entomology and antiquarianism, and reveals Elizabeth Denyer as a pioneer conservator.

ARTICLE

Dick Vane-Wright has a special interest in previously unpublished 18th century British watercolour paintings of Lepidoptera, including the very important work of William Jones.



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The Denyers of Chelsea – and their connection with William Jones

The Denyers were a wealthy family of Chelsea, known for their benevolence and piety. Elizabeth – or Eliza as she called herself – was born in 1765 or 1766, the only child of Martha (ca 1731–1795) and John Denyer (ca 1730–1806). John Denyer's occupation remains unknown, but he was chairman of the Chelsea Armed Association (Royal Volunteers) and spent the last 20 years of his life in comfortable retirement (Faulkner, 1829; Dilke, 1888; Hastings, 1910; Godfrey, 1913). During this period he amassed a valuable collection of medieval manuscripts, incunables, sixteenth-century printed Bibles and theological treatises. It was in his capacity as a collector that John Denyer fostered contacts with a number of

Noctua Sponsa*Noctua fraxina*



Vignette of Elizabeth Denyer's parents, included in Denyer (1800: folio 54r). To date no image of Eliza has been found – surprising insofar as she was notable enough to have a road named in her honour – Denyer Street, London SW3. Running between Mossop Street and Draycott Avenue, Denyer Street is now more notable for 'Boris Bikes' and the rather hideous Peter Jones warehouse (no relative of William) than entomologists – although the nearby "Admiral Coddington" was frequented by at least one thirsty lepidopterist well into the 1970s. (© The British Library Board.)

like-minded scholars, such as the well-known collector and historian of typography William Herbert (Myers, 2004). Perhaps, as fellow residents and scholars of Chelsea, Denyer and Jones developed a friendship. They were certainly familiar enough that, in 1804, Jones and his wife Sarah stood as witnesses to John Denyer's will (National Archives, Public Record Office, Probates, 11/1436: Will of John Denyer).

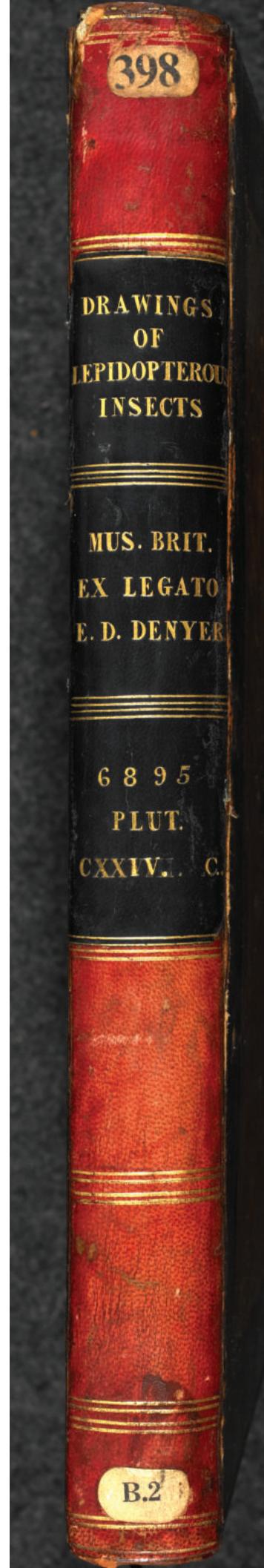
The earliest evidence for contact between the two families appears 12 years earlier. Eliza Denyer did not merely take an interest in her father's book collection; she was also actively involved in its conservation and repaired a number of his damaged volumes, an activity for which she achieved some renown in her day. It was during one of her major conservation campaigns that Denyer probably first collaborated with William Jones. In 1792, a mutilated manuscript of Psalms, originally made in London *ca* 1425, was brought to Denyer to repair. According to a note written by John Denyer on an added leaf in the volume (Denyer, undated):

This manuscript was presented in July 1792 by Mr Joseph Parker of

Exmouth to Miss Eliza Dennis Denyer of Chelsea (mutilated) who perfected the manuscript and illuminations with the Assistance of Mr William Jones who presented the frontispiece and several of the vignettes (fol. 2r).

Jones' scholarship in languages (Bryan, 1869) appears to have come into use here, where Eliza Denyer included both Hebrew and Latin on the new frontispiece title-page for the damaged book. The precise nature of Jones' contribution to the 'vignettes' is more difficult to extrapolate from the language of the note above; he may have provided advice on more technical aspects, such as the creation of pigments and the technique of laying gold down on the page. Within the Jones archive in the Oxford University Museum of Natural History (OUMNH) is a book that he copied in full, entitled "Directions for Illuminating MS Transcribed from a MS of 1710 by Mrs Elstob". In light of other documents in the archive that

Spine of Elizabeth Denyer's *Paintings of Lepidopterous Insects*, Chelsea, 1800. London, British Library, Additional MS 6895. (© The British Library Board.)





Details from folio 51r in Denyer (1800), depicting *Aricia artaxerxes* (Fabricius, 1793) from the William Jones collection – of which they can be considered iconotypes (see text). (© The British Library Board.)



Details from folio 40r in Denyer (1800), depicting *Maculinea arion* (Linnaeus, 1758) from the Jones collection. (© The British Library Board.)

contain instructions for producing pigments, it seems reasonable to assume that Jones developed an interest in the medieval origins of the craft in order to improve his capacity to reproduce naturalistically faithful representations of insect specimens.

Elizabeth Denyer's Lepidoptera paintings

The next collaboration between Jones and Denyer occurred at some period up to 1800, and is much more in line with the entomological pursuits for which Jones is known. It resulted in a paper codex of paintings by Denyer of British Lepidoptera, a book that has gone unpublished and essentially unnoticed since its bequest by Denyer to the British Museum in 1824. Thanks to the British Library, the contents of this whole work can now be viewed via the Internet (Denyer, 1800).

The volume is preceded by a title page, "Insects of the Lepidoptera Class Collected in the Environs of London Painted from Nature by Eliza Dennis Denyer M.DCCC" as well as a preliminary note that reads: "The following figures were painted from insects in the Cabinet of William Jones Esqr. of Chelsea – they were collected within a few Miles of London (except

a few.) they are the whole of the Papilio's as yet discovered in Great Brittain [sic]. Together with the largest of the Sphinx's with a few of the Bombyx's and Noctua's most remarkable for Size and Beauty." Following this note is a complete index of the named species depicted in the volume, expanded to a bionomic table for the butterflies only, then 46 plates of British butterflies (with a total of 181 individual images), a vignette of Eliza Denyer's parents, 12 plates of British moths (25 images) and, finally, several blank but numbered pages, possibly intended for future additions.

Northern Brown Argus, Large Blue, Large Copper, and Scarce Copper

As the authors of this note intend to prepare a full account of the butterflies illustrated by Denyer – significantly, they purport to represent a list of all British species known to Jones by 1800 – we only draw attention here to four species of Lycaenidae that have long been of particular interest.

The Northern Brown Argus, *Aricia artaxerxes* was first named by Fabricius in 1793. The type locality was given as "Anglia", but is conventionally considered to be Arthur's Seat, the

250m peak of Holyrood Park, close to the centre of Edinburgh – at which locality the species is now extinct. The formal description refers to two illustrations of this insect in *Jones' Icones* (volume 5, plate 63, as now bound at OUMNH). Fabricius studied the *Icones* during a visit to Jones' home in Chelsea, in August 1787. Whether or not Fabricius also saw the actual specimens in Jones' collection is unknown, but it seems likely that he did. According to Lewin (1795), the original specimens were in the Jones Collection – and the Elizabeth Denyer images, presumably made during or shortly before 1800, confirm this. However, a recent search of the surviving Jones Lepidoptera collection, and the British and type specimen collections all held at OUMNH, failed to reveal any Jones material of this species. Although a search should be continued (including at the Linnean Society), at this point it appears that the original material has been lost or destroyed.

Jones' original paintings must be regarded as 'iconotypes' for *Hesperia artaxerxes* Fabricius, 1793. However, if we make the reasonable assumption that Denyer's images were also made from the original type series, then they have similar heuristic value to the Jones



Detail from folio 19r in Denyer (1800), depicting *Lycaena dispar* (Haworth, 1803) from the Jones collection. At that time this species was misidentified by British lepidopterists as *Papilio hippothoe*. (© The British Library Board.)

of this nominal species is under consideration. An iconotype is not equivalent to a primary type specimen; it is merely taken to be a *pictorial representation of the type specimen* from which it was prepared (with the added complication that the artist could always have made an interpretative, composite image, based on more than one specimen). So, in this case, we now have, in effect, multiple iconotypes.

The famous Large Blue, *Maculinea arion* (Linnaeus, 1758; type locality probably Sweden), was first published as a member of the British butterfly fauna by Lewin (1795). However, as discovered by Perceval (1983) and recounted by Salmon (2000), Henry Seymer had described and illustrated this species many years earlier (in about 1777, according to Perceval, 1983), in his personal annotated copy of *The Aurelian* (Harris, 1766; plate reproduced in Salmon, 2000). Although the Denyer paintings are more recent than Lewin's book, it is possible that British material of this species had come into William Jones' possession before the species came to the attention of Lewin. Vane-Wright & Hughes (2005: 41) cite a Henry Seymer diary entry dated 16th August 1776 in which he records receiving two specimens of *Papilio arion* from the Duchess of Portland. Both Seymer and the Duchess died in 1785, and soon after their respective collections were separately dispersed through major sales. In light of the inclusion of both the Large Copper and the Scarce Copper in the Denyer paintings, it seems quite likely that the ultimate source of the Large Blues in Jones' collection would have been the Duchess of Portland's, either direct from her sale, or indirectly via the

Seymer sale. Whether or not Seymer had other sources for the Large Blue is unknown, but his British Lepidoptera collection was extensive – in 1776 it contained some 696 species, significantly more than the 530 species he then counted in the collection of the Duchess (Vane-Wright & Hughes, 2005: 272).

The Large Copper, *Lycaena dispar* (type locality Cambridgeshire), although named by Haworth in 1803 as a new species, had been known from Britain for more than 50 years earlier, but misidentified as another species, *Papilio hippothoe* Linnaeus, 1761 (type locality Sweden) – and it is under this name that Denyer illustrates a female Large Copper from the Jones collection. Again, Henry Seymer is potentially involved, as he also referred to and illustrated the Large Copper, as “hippotoe”, in his annotated *Aurelian* of ca 1777 (Perceval, 1983; Salmon, 2000). Lewin (1795) suggested that Seymer had obtained Large Coppers from Huntingdonshire and passed his material to the Duchess of Portland. However, as Perceval (1983) and Barker & Vane-Wright (2007) have shown, at least some if not all of Seymer's Large Coppers came from Cambridgeshire (now taken to be the type locality). Jones illustrated this species in his *Icones*, and the female is illustrated by Denyer. Her illustration is very similar to the female specimen ex Jones presented to the OUMNH by Drewitt (1929), and it is conceivable that the Jones material of this species was obtained following the Duchess of Portland and Seymer sales, and may well have originated in either case from Seymer.

The Scarce Copper is arguably the most interesting butterfly illustrated by Denyer – to which the possible but unproven provenance for *Maculinea arion* and *Lycaena dispar* of Henry Seymer discussed above is potentially relevant. *Lycaena virgaureae* (Linnaeus, 1758; originally described from Europe and [North] Africa) has not been found in the British Isles within living memory. Its supposed status as an extinct resident (e.g. Allan, 1956) has long been and continues to be debated (e.g. Salmon, 2000). As established by Perceval (1983, 1995), the first person to refer to this species as British was not Harris (1775), as often claimed (Harris misapplied *virgaureae* to the ubiquitous Small Copper, *L. phlaeas*) but Henry Seymer, ca 1777, in his personal annotated copy of Harris (1766) already noted above. Salmon (2000) reproduced the plate with Seymer's painting of the butterfly – a single male shown underside.

Although Seymer regarded *L. virgaureae* as rare in Britain, he stated that it was less rare than *L. dispar* – an observation that Perceval considered significant, insofar as it was clear that Seymer had more than one British *L. dispar* in his collection, and so he presumably had seen more Scarce Coppers than that. Whether or not Seymer had specimens in his own collection is unknown, but seems likely. However, as pointed out by Perceval (1995: 108), at the time of her death in 1885 the Duchess of Portland is known to have had two males and two females purported to be *L. virgaureae*. The next to refer to this species in print was again the comprehensive but ill-fated Lewin (Dunbar, 2010: 47) who illustrated it, and claimed to have experience of this species in nature himself (Lewin, 1795: 86, pl. 41, figs 1,2).

Perceval (1995) goes on from Lewin to list several more notable authors and collectors who claimed to have seen or collected this species in England. However, he also notes that, following the pronouncements of Westwood (*in* Humphreys & Westwood, 1841), the claim that this was an indigenous species came under increasing doubt. With apparent puzzlement, Perceval (1995: 109) states that “The possibility of extinction did not seem to occur to them”. What Perceval may not have been aware of is that before the end of the 18th century the idea of extinction was almost undreamt of, as the works



Male and female Large Coppers (*Lycaena dispar*) from the William Jones collection now preserved in the Oxford University Museum of Natural History. The female (right) is plausibly the specimen used by Elizabeth Denyer (1800) to make her image of “*Papilio hippothoe*”. (© OUMNH.)

of God were perfect and could not be lost in such a way (Brooke, 1991). It was only with the emergence of ideas of evolution from about 1800 onwards, not firmly established until the publications of Darwin and Wallace some 60 years later, that the idea of extinction became commonplace. So the doubts expressed by Westwood in the 1840s are perfectly understandable – but they have probably coloured the debate ever since, right down to the present.

So the significance of the Denyer illustrations of *L. virgaureae* from the British collection of William Jones is twofold. First, they add Jones to the list of senior figures in British lepidopterology who, at the end of the 18th century, seemed to have no doubt that the Scarce Copper was a native British species. However, his lack of data (see next section) on the habits and ecology of this butterfly clearly indicate that he had no personal knowledge of *virgaureae* in life. Perhaps he had mislabelled continental material? – but, as Perceval (1995: 108) cogently pointed out, travelling to and collecting butterflies in nearby mainland Europe at the end of the 18th century was not likely to be good for your health!

The second point is that this finding also strengthens the possibility that the collections of the Duchess of Portland and/or Henry Seymer, both dispersed in 1786, were the source of *Maculinea arion*, *Lycaena dispar* and *L. virgaureae* in the Jones collection. The female *L. dispar* illustrated by Denyer is a good match for the ex Jones female in Oxford, and a fair match for the female illustrated by Seymer. Jones’ own figure of *L. dispar* in his *Icones*, which work has the notional date of 1783–1785 (but see discussion in Vane-Wright, 2010), was evidently made from Drury’s collection, suggestive that Jones acquired the material used by

Denyer in the period 1786–1800, consistent with a ‘Portland’/Seymer origin. Although Drury’s collection was not finally dispersed until after his death in 1804, as a dealer as well as a collector, Drury has to be another possible source of one or more of these rarities. And it must also be admitted that the Denyer image of the underside of male *virgaureae* and the Seymer image of the same do not match well enough to consider them representations of the same specimen – but, as noted above, the Duchess supposedly had at least two males, and Seymer likely had one or more also.

William Jones’ Bionomic Tables

Among the William Jones manuscripts in the OUMNH are some early bionomic tables, succinctly presenting basic known facts about the habits and ecology of the British species of butterflies, including flight season, general habitat, and larval hostplant. Such an approach seems to have been novel at the time, reminiscent of Jones’ pioneering character matrix in his only published paper, on the classification of world butterflies (Jones, 1794). This tabular approach, whether taken from Jones or merely ‘reinvented’, has a long history in British lepidopterology, starting in print with Haworth (1802). However, what is striking here is the range of ecological data tabulated in the Denyer (1800) volume, suggestive but almost 200 years in advance of the work of Fritz Bink (e.g. 1992) on life history strategies in butterflies, an approach based on Southwood’s (1977) idea of an “ecological periodic table” (Bink & Siepel, 1986). Denyer’s table, which we presume must have been laid out according to Jones’ precise instructions, has eight columns: page [where the species appears in the volume]; species epithet [“Latin

names”]; common name [“English names”]; hostplant [“caterpillars food”]; voltinism [“how often breed”]; overwintering stage [“how pass the winter”]; flight period [“when appears the fly”]; and general habitat [“haunts in the winged state”].

We intend to make a thorough analysis of this table in a future work, and so it is premature to say much here. But one immediate insight it does give concerns those species for which Jones either had first-hand knowledge, or good data were already available, in contrast to those for which little was known other than, say, flight period and general habitat, or those for which almost nothing was known by Jones – this last group giving an idea of those species he had acquired from old sources or from others.

Thus all traits are filled in for the familiar Brimstone (*Gonepteryx rhamni*), but for the “white admirable” (*Limenitis camilla*) the hostplant (honeysuckle) was apparently unknown to Jones. In contrast, for “hippithoe” (*Lycaena dispar*) there are no trait entries at all – and not even a common name. In slight contrast, *virgaureae* has one trait entry (a univoltine species) and a common name – the “Large Copper” [sic!]. This rather confirms the view, expressed by Seymer and considered relevant by Perceval, that at that time *virgaureae* was more familiar to British entomologists than *dispar*. For *Maculinea arion*, on the other hand, something is filled in for every trait except “caterpillars food” – hardly surprising for this particular species! And there are no entries at all for a species listed only as “*paniscus*”. This refers to *Caterocephalus palaemon* (Pallas, 1771), the Chequered Skipper, first discovered in Britain by Charles Abbot in Bedfordshire on 8th May 1798. Abbot wrote about his discovery



A fine photograph of the Scarce Copper, *Lycaena virgaureae*, photographed in Lithuania in June 2006. Images of this species in Denyer (1800), made from a specimen or specimens in the William Jones collection said to have come from Great Britain, add weight to the claim that this was formerly a resident British butterfly. If so, it appears to have become extinct in the UK during or by the end of the 19th century. Photographer: Algirdas. (© Wikimedia Commons.)



Details from folio 50r in Denyer (1800), depicting *Lycaena virgaureae* (Linnaeus, 1758) from the Jones collection. Curiously, Denyer misspelled *virgaureae* as 'Virgamiae'. (© The British Library Board.)

in a letter to the Linnean Society on 12th August 1798, and again on 1st November 1798. This butterfly was first published as British by Donovan (1799: 7, pl. 254), as *Papilio paniscus* Fabricius, 1775 (a synonym of *palaemon*), but without a common name (Collier & Emmet, 1989: 53; Salmon, 2000). This neat correspondence incidentally helps to confirm the correct date for Denyer's work as 1800.

Entomologists, Antiquarians and Denyer's Pioneering Conservation

The two recently rediscovered volumes addressed in this paper evince a

common ground in the early history of entomology and medieval manuscripts study, disciplines that would appear to have little affiliation with one another. Yet important figures in both fields cultivated a scholarly interest in the two as mutually beneficial pursuits. Henry Noel Humphreys (1807–1879), for example, was the author of texts on British Lepidoptera as well as one of the most significant early manuals on the technique and history of medieval manuscript illumination (Humphreys, 1849; Backhouse, 1968; Hindman et al., 2001). In his introduction to this manual, Humphreys listed the qualities that any good illuminator should possess, which included knowledge of both botany and “[e]ntomology, too,

with its train of glittering flies, and painted caterpillars; those gorgeous worms, that in the tropics shine like creeping jewels, must have formed one of his pursuits” (Humphreys, 1849: 63).

Similarly, John Obadiah Westwood (1805–1893), the first Hope Professor, was both a scholar in manuscript illumination and penned one of the first major studies on medieval palaeography (Hindman et al., 2001). John Harris (1767–1832), the son of Moses Harris (1730–1788), likewise was an amateur entomologist and a dedicated student of medieval manuscripts: both he and his son of the same name worked as facsimilists and produced illuminated versions of medieval statutes and the Magna Carta (Gaines, 1969–70; Weimerskirch, 1993; Freeman, 2004).

Many others followed these dual pursuits, although the brief roll call above is significant for the importance to both disciplines of the figures it names. The question that arises from this phenomenon is whether it emerged purely from polymathy or coincidence. Or, does the convergence of interests in entomology and medieval manuscripts study have something more important to say about the early history of the two fields?

A far more extensive study is required to answer this question, but one particular phenomenon suggests that the study would yield enlightening results. When medieval manuscript illumination first began to attract the attention of antiquaries in the late eighteenth century, their approach to the subject was one that will be familiar to entomologists: pioneer antiquaries referred to the paintings they encountered in manuscripts as ‘specimens’ (Hindman et al., 2001), which they would often cut out from their original medieval manuscript pages, rearrange into categories and mount into albums in their own private collections (Munby, 1972; Beckwith, 1987; de Hamel, 1996; Wieck, 1996). It was this very behaviour that resulted in the ‘mutilated’ manuscripts that Eliza Denyer restored. Rosemary Sweet (2004: 285) has pointed out that, in its early days, “an active commitment to the preservation, let alone restoration, of monuments or antiquities was by no means axiomatic to the profession of antiquarianism”.

Eliza Denyer was an extremely early practitioner of conservation and

restoration, endeavours which only became popular several decades into the nineteenth century. At this stage we can only speculate as to the origins of her ideas on the matter, but perhaps her associations with Jones nurtured her intuition that culture, like nature, requires pastoral care to prevent its loss.

What next?

We intend to make a complete analysis of all species illustrated by Denyer and the data attached, to extract any new knowledge pertinent to understanding

the state of British lepidopterology at the turn of the 18th century. The manuscript also raises some 'motivational' questions, such as why did Jones get Denyer to make these paintings? Is there any link or parallel between Jones' tutelage of Eliza Denyer and his apparently similar relationship with Ann Latham, daughter of the celebrated ornithologist John Latham (Jackson et al., 2013)? And did Jones' familiarity with medieval manuscripts have any bearing on his entomological studies or ideas? This may help to make better sense of

some of the items included in the Drewitt archive of Jones manuscripts held at Oxford (Smith, 1983).

Acknowledgements

The authors would like to thank Darren Mann and James Hogan for their enthusiastic help with access to the OUMNH insect collections and Jones archives, and to Jovita Callueng, Kathleen Doyle and Sarah Biggs at the British Library. John Tennent very kindly read the penultimate version of the manuscript at short notice.

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The UK National Lepidoptera Collection goes electronic

The national collection of British Lepidoptera has been housed in the Life Sciences Department, Entomology Section at the Natural History Museum, London for many years. Interested lepidopterists have been able to study the collection on request when visiting the Museum, though relatively few in fact have done so. One of the main aims facing the Cockayne Trust Fund Committee, which oversees the maintenance of the collection, has been to make the collection more generally accessible to visiting entomologists and at the same time explain the nature and extent of the collection so that everyone interested in the study of the British insect fauna appreciates its full scientific value. It is by far and away the biggest collection of British Lepidoptera material available for scientific study.

Some notable changes to the collection have taken place over the past few years. Indeed a lot of progress has been made behind the scenes at the Museum. First of all though it is worth explaining how the collection came into being. The National collection is referred to as The Rothschild Cockayne

Kettlewell Collection, or simply 'RCK' for short.

Lord Lionel Walter Rothschild (1868-1937) built a private museum at Tring, Hertfordshire, to house his zoological collections, which from the beginning were very rich in Lepidoptera. On his death, his Museum and outstanding collections were left to the Trustees of the Natural History Museum, then titled the British Museum (Natural History). At that time, his worldwide collection of Lepidoptera was estimated to contain at least two and a half million specimens.

Dr Edward Alfred Cockayne (1880-1956), a physician by profession, was an enthusiastic lepidopterist throughout his life and published more than 200 papers and notes in entomological journals. His particular interests lay in the study of life histories, variation and genetics of Lepidoptera. He described and named numerous varieties of British Lepidoptera including gynandromorphs, intersexes and mosaics and the original described specimens reside in his collection.

John Badmin

Royal Entomological Society
Representative
The Cockayne Trust Fund Committee

Dr Henry Bernard Davis Kettlewell (1907-1979) studied medicine at Cambridge and spent a large part of his spare time studying Lepidoptera. He published extensively on British moths often on less well-known species and subspecies. His flair for experimental study brought him into contact with Edward Cockayne and E. B. Ford, and led to his increasing interest in the genetics of British Lepidoptera. In 1946 he emigrated to South Africa, and at the same time presented his already fine collection, including specimens from his experimental breeding programmes to the Natural History Museum. Later he returned to the UK, to take up a Nuffield Research Fellowship at Oxford where he began his pioneering research on industrial melanism in Lepidoptera.

Following retirement in 1947, Cockayne donated his collection to the Rothschild Museum at Tring. He then began the mammoth task of amalgamating the Cockayne and Kettlewell collections with the Rothschild collection to form the National Collection as we know it today. The combined collection comprising more than 500,000 specimens was eventually housed in the Life Sciences Department, Entomology Section at the Natural History Museum, London. With approximately 2,500 species of Macro- and Micro-lepidoptera on the British list this equates to 200-400 specimens of each of the more common and widespread species. Approximately 20,000 new specimens were added to the collection during the past year.

So, how have we brought the collection into the 21st century and made it more accessible? First of all the entire collection has been re-housed in modern insect-proof cabinets, maintained under strict temperature and humidity controlled conditions and drawers lined with cork have been replaced with ones lined with plastazote, a material much kinder to fragile, set specimens. Then about a decade ago it was agreed to begin digitally photographing representative specimens from the collection and to upload these onto the Museum's main website for all to see. We have gone digital! The first phase of this project dealt with butterflies and provides approximately 1700 images illustrating geographical, seasonal, genetic and major individual variations. The main image gallery comprises an alphabetical

listing of native species by common name beginning with the 'Adonis Blue *Polyommatus bellargus* (Rottemburg, 1775)' and ending with 'Wood White *Leptidea sinapis* (Linnaeus, 1758)'. The images, of both sexes, are based on set specimens so that fore- and hind- wings can be seen with an option for undersides in critical cases. Close-up inspection is one click away and the modern species name, authority and description are then provided. Up-to-date nomenclature was prepared by D.J. Carter, L. Hernandez-Triana, R.I. Vane-Wright and G. Martin.

Two search options are offered:- 'Taxon' or 'Specimen'. The simplest search is for individual species (i.e. Specimens) using either common or scientific names. For a more interesting analysis, the Taxon option allows the user to search at suborder, family, subfamily, genus or species level. A search for *Pieris* for example brings up three species on screen for comparison:- *P. brassicae* (L.), *P. rapae* (L.) and *P. napi sabellinae* (Stephens), whereas a search for Pieridae quickly reveals a group of eight species. Varietal forms can be searched for by locality (country or county) and it is interesting to see a specimen of *P. bellargus* ab. *albofimbriata* Gillmer collected from north Kent where I live, by L.W. Newman in May 1933. This butterfly has disappeared from most of its Kent localities over the past 70 years, apart from its strongholds near Dover (Philp, 1993, 2004), but has now been re-introduced at a number of sites along the North Downs, most probably at one where Newman captured this unusually coloured individual many years ago. Some forms or 'abs' of lycaenids and other butterflies are temperature-induced and I wonder whether anyone has contemplated plotting the distribution and frequency of these from the collection to see if there is any link with geography or climate. Increasing temperatures across southern Britain in recent decades have resulted in a northern expansion in the range of several species and the same should apply to temperature-induced phenotypes. Some research on Orange Tip butterfly *Anthocaris cardamines* (Verity) and climate change based on RCK collection is nearing publication.

The second phase, recently finished, deals with the larger moths and provides approximately 2000 images of typical specimens and a selected number of common forms. The main

image gallery comprises an alphabetical listing of species by common name beginning with African cotton leafworm, *Spodoptera littoralis* (Boisduval), a major cotton pest to many, but better known locally by British entomologists under the delightfully euphemistic name of Mediterranean Brocade, followed by The Alchemist *Catephia alchymista* ([D. & S.]). The photo-gallery concludes with the Yellow-tail *Euproctis similis* (Fuessly).

Approximately 20 species, both male and female, are shown per page (though there is an option to view 40 or more simultaneously). A zoom facility allows the user to focus in on details of the wing patterning as before. Searching for the noctuid moth known as 'The Uncertain' poses a little uncertainty, but is soon resolved! The moth is called 'The Uncertain' using the definitive article as are many other species in common parlance such as 'The Satellite' and 'The Chestnut', but has to be searched for as the 'Uncertain' and then all is revealed. Surprisingly it will not appear on screen if you use its familiar scientific name of *Hoplodrina alsines* (Brahm) as listed in Skinner's *Colour Identification Guide to Moths of the British Isles* (3rd revised edition, 2009) as the nomenclature has been updated and it is listed as *Hoplodrina octogenaria* (Goeze). Nomenclature for the larger moths was prepared by G. Martin, D.J. Casey and K. Harman.

The Taxon search facility is ideal for comparing similarly patterned species, such as the geometrid 'Carpet moths' of the genus *Xanthorhoe*: 22 specimens appear on screen together almost instantly, with zoom facility optional. These include specimens of the typical form of the Garden Carpet *X. fluctuata* (L.) and form *thules* (Prout) found commonly in the northern isles and parts of Scotland and Silver-ground Carpet *X. montanata montanata* ([D. & S.]) typical form and the race found on



Garden Carpet *Xanthorhoe fluctuata*.



Lepidoptera collections manager, Geoff Martin, inspecting the National RCK Collection in the Angela Marmont Centre for UK Biodiversity. Inset: examples of British lycaenids.

the Shetland Islands *X. m. shetlandica* (Weir). Specimen order can be arranged either by Bradley (2000) or European species number (Karsholt & Razowski, 1996), the latter being the default option. Information on the individual specimens is provided, for example, specimen no. 503782 of *X. m. shetlandica* was originally collected by E. Cannon in 1908, assimilated into the Rothschild collection and bequeathed to the Natural History Museum under the code B.M 1939-1. Its Bradley number is 1727 and European checklist number 8255. It's all there.

The geometrid 'Pug' moths or LBJs as they are known ('little brown jobs' in birding parlance) are among the most difficult, so-called large moths to identify as adults. Most belong to the genus *Eupithecia* and a Taxon search quickly brings up 60 taxa on screen. Output format allows the user to view a gallery of 20, 40, 120 or 240 images per screen or a list of taxa. Having all the taxa on screen at the same time allows for an easy comparison between species in this otherwise confusing genus. What is especially useful though is the one click magnification facility so that any specimen e.g. Valerian Pug *E. valerianata* (Hübner) or Slender Pug *E. tenuiata* (Hübner) appears on screen at x10. i.e. with a 20 cm wingspan, large enough for any definitive identification unless you just happen to have a worn specimen in front of you! This is certainly the case in my experience having run a Rothamsted light-trap in my garden continuously for more than 25 years. There is the added benefit of the reassurance that all the specimens have been correctly identified, a feature not so readily apparent on the internet!



Slender Pug *Eupithecia tenuiata*.

The success in photographing and uploading digital images of the butterflies and then the Macrolepidoptera onto the Museum's website led to the decision to begin the third and final phase in 2011 of photographing the Microlepidoptera, so that entire British Lepidoptera fauna



Mirella Gondeck has been responsible for photographing the entire British Lepidoptera fauna which is available online for viewing.

is available on line for viewing. Mirella Gondeck (NHM) has been doing all the photography. This phase is largely complete and uploading of species images (a large process in itself) began in late summer. When this is complete (very soon) the website will host more images of British Lepidoptera than any other UK mothing site. It is proposed to upload a greater number of images of the more variable species and genitalia preparations of known critical groups. The website has proved very popular and currently receives an average of 6500 hits per month. Access to the website is via: <http://www.nhm.ac.uk/research-curation/research/projects/cockayne/index.html>

The second approach to making the national collection more accessible has been to assemble a synoptic collection of British Lepidoptera in the Museum's Angela Marmont Centre for UK Biodiversity. The centre is situated on the ground floor of the museum and is devoted to the study of the British fauna and flora. The Lepidoptera collection is now available for viewing and can be studied at leisure in the adjoining laboratory area. Microscopes are available for studying specimens of the smaller species. Experts are also present to offer advice if needed.

The Cockayne Committee hopes that more entomologists will make use of the national collection for scientific study. Members of the committee welcome donations of new material from individuals and from major collections. Although British caught specimens of nearly all of the species recorded from the British Isles are held within the RCK collection, new species are continually being added to the UK list owing to species expanding their range, climate change and increased trade of agricultural produce leading to occasional escapes.

By the very nature of the collection, many specimens date from well over a century ago and it is the aim of the Committee to acquire material from more recent time periods, on a more regular basis, so that any changes in species' morphology over time can be monitored more effectively. We know from the studies carried out by Hill *et al.* (1999) and Anderson *et al.* (2008) in the UK that species such as the Speckled Wood butterfly *Pararge aegeria* (Godart) and Garden Tiger moth *Arctia caja* (L.) have changed their body size and wing shape as they disperse to new habitats, most probably as a consequence of climate change. New techniques in genomic DNA

analysis, a rapidly developing science, should allow us to monitor changes in genotype frequency or obtain proximate measures of physiological adaptations in species in ways we have been unable to do before, with purely set material.

Several species with long-established local distributions in the UK have shown range expansions in recent periods and it is far from clear whether the more widely distributed individuals are descendants of resident populations or are the result of occasional influxes of individuals from the continental mainland. This is an area where the collections could prove insightful. For example so far as is known no morphological or molecular studies have been carried out with specimens of the Comma butterfly *Polygonia c-album* (L.) collected from across the UK. Its distribution has undergone huge changes over the past 200 years. In the early nineteenth century it covered most of England and Wales with scattered populations in Scotland, before showing a series of declines achieving rarity status across most of Britain by the early part of the twentieth century. In the 1910s, it was limited to the counties along the Welsh border and a few isolated populations in south-east England. Periods of re-expansion and decline have occurred through the latter part of the twentieth century and today the butterfly has recolonised most of its former range and is continuing to extend its range northwards. Several factors, none entirely satisfactory, have been proposed as explanations for the Comma's dramatic changes in status. Most early entomologists regarded hop as the species' main foodplant, and this

entered a decline at the same time as the butterfly, with the collapse of the hop-growing industry in many areas of England, along with the introduction of new management techniques and better insecticides. It is possible that individuals of *P. c-album* in the nineteenth century belonged largely to a distinct hop-feeding haplotype and this has now been mainly replaced by haplotypes with preferences for other foodplants such as nettle and wych elm *Ulmus glabra*. Molecular techniques could be developed to test this hypothesis using specimens from the national collection. This will not be the complete answer though, as the decline of the butterfly in parts of southern England pre-dated some of the agricultural changes (Asher *et al.*, 2001). The take home message, though, is the collections are there to help you.

There is also an urgent need to obtain better representative material from regions around the UK, particularly from Wales and central Scotland. Donated material is continually being added to the Rothschild Cockayne Kettlewell collection. A selection of recently donated material and the contributor's names are given in box opposite to illustrate the range and extent of material that is kindly given to us. We thank all of those individuals for their contributions.

The Cockayne Trust Fund committee is always looking at ways to enlarge and improve the quality of the National Collection, and of better ways of presenting the collection to the public. If you have any suggestions on how we can improve our service, please let me or another member of the Committee

Some of the contributions to illustrate the quality of the collection.

A male *Lymantria dispar* (L.) from Max Barclay.

Comsopterix orichalcea Stainton from Scotland from Keith Bland.

A specimen of a South African adventive, a *Cryptolechia* species from P. Bryant.

28 bred examples of scarce and migrant species from Sean Clancy.

London specimens of *Cryphia algae* (F.), *Pechipogo plumigeralis* (Hübner) (and larvae) and a male *Lymantria dispar* from T. Freed.

1st mainland UK specimen of *Dryobota labecula* (Esper) and a specimen of *Pericallia ricini* (F.) (adventive) from Barry Goater.

14 Microlepidoptera from the UK from Robert Heckford.

Mompha jurassicella (Frey), second record for Surrey, from Martin Honey.

28 Microlepidoptera from John Langmaid.

200 British Microlepidoptera from Mike Majerus.

Cumbrian specimen of *Eugraphe subrosea* (Stephens) from M. Parsons.

Dorset example of *Costaconvexa polygrammata* (Borkhausen) from Robert Petley-Jones.

Nemapogon falstriella (Haas), new to UK, from Neil Sherman.

First British specimen of *Gagula partita* (Guenée) from Dean Walbridge.

5000 British Macrolepidoptera from Brian West.

3000 Lepidoptera (Britain, Ireland and Channel Islands) from Alan Wheeler.

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Society News

Council Matters May 2012

Council considered the need to update the Charter and Bye-Laws of the Society. This is an issue that has been on the back-burner for a number of years and it was felt that a small group should be formed, including legal advice where necessary, to review and propose amendments that reflect current practice. The target would be to present draft amendments at the 2013 AGM.

The Registrar reported on an approach on behalf of Dr Lesley Goodman's Trustees. The Society is fortunate to administer the RES Goodman Award for insect behaviour and physiology. The essence of the approach was to transfer the remaining balance of Dr Goodman's estate to the 'Goodman' designated fund.

Council Matters June 2012

Council approved the nomination of Dr Peter Barnard to Honorary Fellowship of the Society in recognition of his outstanding contributions to British entomology. In the absence of Dr Tilley, the Registrar gave an update on progress with National Insect Week. He commented that H.R. H. The Prince of Wales will make an appearance at the 'Bioblitz' at Clarence House, during which he will endorse National Insect Week.

The President, Prof. Stuart Reynolds, gave an update on progress towards the European Congress of Entomology, which the Society is hosting in 2014. A number of practical issues were considered (logos, delegate numbers, accommodation, etc.) and priorities to address these identified.

The Registrar reaffirmed the Council's desire that every effort would be made to keep the conference cost-neutral.

The President wholeheartedly thanked the retiring Council members: Prof. Paul Eggleston, Prof. Nina Wedell and Dr Luke Tilley. On behalf of Council, the Honorary Secretary thanked the retiring President for his 'energy and commitment' to the Society as well as his 'tact and courtesy'. Similarly, Prof. Reynolds offered his sincere thanks to the Council, Officers and staff of the Society for supporting him during his Presidency.

Meeting Reports

ENTO' 12 Conference Report

by **Samuel A. Logan**
Newcastle University



From the 18th – 21st July 2012, ENTO '12 - the Royal Entomological Society's annual conference was held in the newly built Lord Ashcroft Building at Anglia Ruskin University, Cambridge. The theme this year '*Insects in a Human Dominated World*' attracted over 160 delegates, 75 of which gave oral presentations. In total about 60 universities and organisations from across the UK, Europe, and as far afield as America, Malaysia, and Australia was represented. The convening team was Dr Alvin Helden, Dr Peter Brown, Dr Deborah Clements, and Alex Dittrich.

The delegates were welcomed by Anglia Ruskin's (ARU) Deputy Vice Chancellor Professor Alan Sibbald, and newly-appointed Royal Entomology Society President Professor Jeremy Thomas OBE. The three day conference was opened with a memorial lecture given by Dr Helen Roy (Centre of Ecology and Hydrology) for the late Professor Mike Majerus, aptly titled '*Wonderful Life: the legacy of an inspirational evolutionary biologist*'. The talk really set the scene for what was overall a very enjoyable, interesting and on one or two occasions, rather heated conference.

The plenary lectures were given by Dr Andrew Liebhold (US Forest Service), and Professor Steffan Dewenter (University of Würzburg). The invited speakers were Dr Chris Jiggins (University of Cambridge), Dr Francis Schaffner (University of Zurich), Dr Robert Wilson (University of Exeter), Dr Patrik Nosil (University of Sheffield), Dr Marc Kenis (CABI), Dr Lusía Carvalheiro (University of Leeds), and Kris Wyckhuys (CIRAD-UR Hortsys). Two parallel sessions ran simultaneously over the three days and, as one would perhaps expect at a conference with the above theme,

included General Entomology, Biodiversity & Conservation, Social Insects & Pollinators, Invasive Species, Biological Control, Pest Control, Insect & Human Health, and Agriculture & Forest Entomology among others.

Other chairs included Prof. Lin Field (Rothamsted Research), Jolyon Medlock (Health Protection Agency), Dr Tom Oliver (CEH), Prof. Roger Butlin (University of Sheffield), Dr Peter Brown (Anglia Ruskin University), Catherine Horsley (CEH), Dr Simon Leather (Imperial College London), Dr Helen Roy (CEH), Dr Keith Alexander (Ecological Consultant), Dr Matt Heard (CEH), Matt Shardlow (BugLife), Dr Keith Walters (FERA), Craig MacAdam (BugLife), Dr Patrick de Clercq (Ghent University), Dr Richard Harrington (Rothamsted Research), Prof. Nina Wedell (University of Exeter), Prof. Rod Blackshaw (Plymouth University), and Dr John Sloggett (Maastricht University).

As this was my first conference, I was unsure exactly what to expect. Therefore at the beginning I was trying to establish my place among the other delegates, and as a first year Ph.D. student, I initially thought that this might be somewhat challenging. However after the first few talks, some informal banter, and particularly following the session on ecological genetics (my own research area), I immediately realised that these events, whether specifically relevant to one's own research or not, can and often do, lead to future opportunities for early stage researchers.

The first day of the conference was kicked off by Dr Helen Roy's memorial talk. Although I had only met Prof. Mike Majerus once during my time spent at Anglia Ruskin, I remember immediately thinking his interest and excitement was rather infectious. I particularly enjoyed the talk which consisted of among other things, several humorous stories including a particular encounter with a wood ant nest, and the ladybird top trumps card game as well as tales about office health & safety issues. What clearly came across was the admiration and respect that Dr Roy had for Prof. Majerus, not only as a biologist, leader, and as one of her peers but clearly as a very fond and well remembered friend. Indeed from the comments and remarks from many other attending delegates, those feelings

were consistent right across the whole of entomology.

Perhaps the highlight of the conference, for most people was the first day's session titled '*Rachel Carson's "Silent Spring": its origin and impact*', chaired by Dr Alan Stewart (University of Sussex). The first talk, by Prof. Stuart Reynolds (University of Bath and former RES president), addressed the key theme of this particular session and perhaps the entire conference. Discussing Rachel Carson's book *Silent Spring* (now enjoying its 50th anniversary) Prof. Reynolds gave an enlightening synopsis of the book's impact and how it offered a real paradigm shift towards modern conservation. Pointing out some of the pressures farmers were under at the time and the subsequent problems that followed. With the global population rising, governments, farmers and food growers are still under an enormous amount of pressure to feed everyone. Food safety and security is therefore without doubt an important issue of the future as well as the present.

The parallel morning sessions were 'Genomics', chaired by Prof. Lin Field, and 'Insects and Human Health', chaired by Jolyon Medlock. The invited speaker for the former was Dr Chris Jiggins, speaking on the adaptation and speciation of the *Heliconius* genome, hybrid patterns, and mimicry. The invited speaker for the latter was Dr Francis Schaffner, speaking on invading mosquitoes in Southern and Central Europe, and the potential risk of mosquito borne diseases, arboviruses, and parasites. The two sessions covered a mix of topics and showed the breadth of current research being carried out within each area.

The afternoon sessions were 'Interactions of land use and climate change', chaired by Dr Tom Oliver, and 'Ecological genetics', chaired by Prof. Roger Butlin. The sessions included talks from invited speakers Dr Robert Wilson, addressing the abilities and responses of species to changing climate, range shifts, and habitat fragmentation, and Dr Patrik Nosil, who discussed his work on speciation processes in stick insects at the genomic level. The former session also had a talk by Dr Denis Rogers, winner of the 2012 Best Paper in Insect Conservation & Diversity. The evening sessions, 'Invasive species' and 'Social Insects & Pollinators' were chaired by Dr Pete Brown and Catherine Horsley

respectively, and included talks by invited speakers Dr Mark Kenis who addressed the ecological impacts of invasive insects, and Dr Luisa Carvalheiro who discussed the impacts of the loss of pollinators, and the changing nature of plant/insect associations over half a century in the UK and Europe.

The first day's formalities concluded with the President's wine reception in the evening, which went down very well, as did the BBQ that followed, and thankfully we did not get too wet in between the odd shower. Most of the delegates decided to attend the pub quiz hosted by Amy Dittrich, with high expectations of being asked several if not all entomology-related questions. Indeed after the first question '*In what year was the society founded?*' was asked I'm sure everyone settled quickly, however I wonder how many actually knew '*What two invertebrate orders connects the 1960 summer Olympics boxing light heavyweight gold medallist with entomology?*' I'll leave you learned folk to work that one out for yourselves. The tiebreaker on the other hand, '*How much rain has fallen in Cambridgeshire in the last week?*' was clearly not intended to be answered accurately by anyone. Inevitably the latter question did ultimately determine a winning team and after hearing some of the other questions asked that night, may I just congratulate all the teams for their determination and passive participation.

The second day kicked off with a plenary lecture from Dr Andrew Liebhold (US Forest Service), who talked about the issues and concerns of global insect invasions, largely caused by the efficiency and ease of transporting goods around the globe. Focusing on invasions and disease in North America, Dr Liebhold emphasised the extent of destruction and severe consequences invasive non-native insects can do to local populations of native vegetation and forest ecosystems. Although increasing trends of globalisation and foreign trade may encourage economic growth, benefit, and opportunities to those countries involved, it is certainly clear that this trade leaves a detrimental ecological and biological footprint, which if not properly regulated can also lead to economic loss. Dr Leibhold continued by highlighting potential avenues that may be taken to alleviate

and possibly control invasions including quarantine, inspections, and eradications.

The following sessions focused on a mixture of specific and general entomology, and included talks from the 2012 winner of the Marsh Award for Early Career Entomologist Dr Jenni Stockan (James Hutton Institute) and the 2010-2011 winner of the Alfred Russell Wallace Award Dr Ben Longdon (University of Cambridge). There was no afternoon sessions as this time gave way to the field visits. Although the weather was perhaps not ideal for entomology field trips, the excursion to Wicken Fen National Nature Reserve went ahead as planned, and although the delegates (at least those who were prepared) donned rain jackets, umbrellas and wellies, all participants seemed to enjoy the day out, and thoroughly thought the area was a rather special and unique habitat. Those who chose not to venture out in the elements were treated to a visit to University of Cambridge's Zoology museum and Insect room. The break between lectures seemed to be welcomed by all but after a few cups of coffee everyone seemed eager to continue.

The evening talks were given by Dr Luke Tilley on National Insect Week, followed by the Prof. Stuart Reynolds President's address. Dr Tilley impressed us all with the amazing success of this year's National Insect Week. With more people involved this year than ever before and with a larger number of events taking place right across the UK, children and adults of all ages, participated in bug hunts, moth trapping, mini-beast safaris, and competitions. This year even had a VIP visit from HRH Prince Charles, who helped out with a bioblitz in the gardens of Clarence House. As well as providing a huge amount of enjoyment to everyone that gets involved, the outcome of these events is of course to encourage a new wave of entomologists, and as many of us know how influential experts can be, and how keen children can be, events such as these often leave a lasting memory, and could lead to a lifetime passion. Indeed Dr Tilley personally recalled how a lecture from a certain RES member was one of the inspirations that led him to a career as an entomologist. Listening to his talk and chatting over a social beverage, it was easy to see his passion for enlisting new

recruits and thus ensuring the future of entomology.

The President's address concluded the evening's talks. Prof. Reynolds spoke about the changing face of entomology giving an interesting account of certain highs and lows of the last 50 years, which of course coincided with Rachel Carson's book. His estimations of the number of insects in relations to humans were truly extraordinary, but reassuring us that his figures were accurate, it is rather surprising why there has not been much more work carried out on our six legged spineless friends.

The 'wine and dine' session of the conference dinner concluded the day's proceedings. As well as a very enjoyable meal, and what sounded like unlimited wine refills, the delegates freely mingled and chatted about everything insect related. The RES Marsh Awards were presented to the winning candidates, and their contributions to the field rightfully recognised. While some of the more 'distinguished' members/delegates were happy to call it a night after the dinner, several of the 'newer' contributors to entomology felt it appropriate to get to know one another further and subsequently a number of them continued their insect-related conversations over a few real ales in one or two of the more lively Cambridge bars. Indeed some were fortunate enough to have run into one of Cambridge's own, and keen naturalist, Mr. Rory McGrath, who coincidentally has a rather strong passion for insects.

The final day may have started off with a few cloudy heads, but after a breakfast and coffee, the plenary lecture was given by Dr Ingolf Steffen-Dewenter about another very relevant and current topic. Global change is presently affecting many organisms, in particular insect biodiversity. The results of which leads to a reduction in habitat quality, total habitat loss or fragmentation, and increased pressure on natural and semi-natural habitats due to farming intensification, however not all organisms response in the same manner. Dr Steffen-Dewenter explained the importance of terrestrial insects and the role they play within their ecosystems as well as the larger role they provide through ecosystem functioning and services. Focusing attention onto how species deal with environmental change and understanding species traits is a crucial

area, particularly for agricultural insects which are affected by constant habitat changes. He concluded by saying that the loss of such important ecological components will eventually be noticed by us all; however conservation efforts and restoration management of agro-ecosystems may be an answer in securing the future for many threatened insect populations.

The following parallel sessions included talks appropriately covering a wide range of topics in areas such as biodiversity & conservation, pest and biological control, and general entomology. All in all some very interesting and thought provoking lectures, highlighting again the diverse scope of interest within the field of entomology. The proceedings and this year's conference drew to a close with several well-deserved acknowledgements and the presentation of prizes to students. Although my own research area is not specifically insect related, I was none the less impressed at the level of research being carried out in this field. Chatting to other Ph.D. students about their good and on occasions not so good experiences, of what other conferences/workshops were coming up, listening to their talks, and in particular paying close attention to their posters was very useful (admittedly I was taking notes). The whole experience has certainly prepared me better for my own poster presentation at a conference coming up later in the year. Contrary to what I was expecting, not all conversations I had with other delegates were about insects; indeed it would appear that entomologists actually aren't a bad lot at all. Who'd of thought?



Verrall Night 2012

2nd March 2012

Professor Helmut van Emden & Dr Archie K. Murchie

The 2012 Verrall lecture was delivered by Prof. Ilkka Hanski (Hon FRES) of the University of Helsinki on the topic of the 'Glanville fritillary butterfly: ecology meets evolution'. The lecture was very kindly hosted by the Natural History Museum and Prof. Hanski was welcomed by the Keeper of Entomology, Dr Andrew Polaszek.

Prof. Hanski explained that he had used the Glanville fritillary to study microevolutionary dynamics and the interplay with ecology. In particular, how microevolution influenced the viability of populations and recolonisation of habitat patches. His study area was the Åland Islands, an archipelago in the Baltic Sea, and the only place in Finland where the Glanville fritillary is found; land changes leading to its extinction elsewhere [Similarly, in the UK, the Glanville fritillary is mainly restricted to the Isle of Wight]. Prof. Hanski and generations of students had surveyed the dry meadows in the islands for larval nests, building up a detailed picture of the butterfly's distribution over a 20 year period. There was no trend in overall population abundance: extinctions and colonisations cancelled each other out but there was quite a bit of 'to-ing and fro-ing'. Prof. Hanski explained how he and collaborators had studied the influence of the *Pgi* gene which codes for the glycolytic enzyme phosphoglucose isomerase. This enzyme is part of the metabolic pathway supplying energy to muscles. *Pgi* is a highly variable and polymorphic gene and through a series of detailed studies, Prof. Hanski's group showed that changes in allele frequency altered CO₂ production, flight metabolic rate and the ability of the butterflies to establish new populations within this highly-fragmented island landscape. This is a prime example of the reciprocal interplay between allele frequency and population fitness, with

many ramifications for species conservation.

The second part of Prof. Hanski's lecture concerned inbreeding and extinction. There is a small isolated island called Pikku Tytärsaari in the Gulf of Finland about 30 km from the Estonian coast. Records show that the island had a population of Glanville fritillary back in 1936. However, as the island is Russian, access had not been permitted in the past. Prof. Hanski expressed his delight that once gaining access to the island, Glanville fritillaries were still present. In a small isolated population inbreeding is unavoidable. Prof. Hanski's group therefore compared the fitness of the Pikku Tytärsaari Glanville fritillaries with those of the Åland Islands. Although still present, the Pikku Tytärsaari were not doing well. Over a number of criteria (egg production, egg viability, larval survival etc.), their fitness was about 30% that of the reference population. Flight metabolic rate was also much lower, although possibly this

might have been a local adaptation to a restricted habitat. The positives though were that there was an immediate recovery in both metabolic rate and egg viability if crossed with the Åland fritillaries. Furthermore, mutational meltdown had not occurred – the population was still present after 75 years isolation, albeit with much reduced fitness.

Prof. Hanski's Metapopulation Research Group is world-renowned and their work on the Glanville fritillary has become a model example in population biology. It is hugely encouraging to see how detailed ecological studies, coupled with genetic analyses and modelling have been integrated together to produce so much work of relevance to conservation biology. Prof. Hanski's presentation of the Verrall lecture is especially appreciated because not only did he have a ridiculously early morning flight from Helsinki but he was also suffering the after-effects of a bout of flu.

Archie Murchie



Figure 1. Left to right: the President, Prof. Stuart Reynolds, with Prof. Ilkka Hanski (2012 Verrall lecturer) and Keeper of Entomology, Dr Andrew Polaszek.



Figure 2. Attendees at the Verrall Supper. (L to R) Dr Mark Shaw, Prof. Donald Quicke, Dr Gordon Port and the RES President, Prof. Stuart Reynolds. For the keenly observant, three generations of the RES tie are on display.

The Society's Verrall Lecture is of course so called and held in South Kensington to link it with the very much older tradition of a dinner for entomologists held in London and known colloquially as the "Verrall Supper". The dinner was founded in 1887 by George Verrall, whose day job was Clerk of Newmarket racecourse, but who was also a distinguished dipterologist and member of the Entomological Club. The Club had carried on the tradition, and organises the event as a service to British

entomologists. In Verrall's time it was quite unusual to be paid to practice entomology, and so one could argue that professional entomologists are now most welcome at an event originally designed mainly for the amateur! For those not familiar with the Verrall Supper, I should perhaps explain that those who attend are encouraged to join the "Verrall Association of Entomologists" on a continuing basis. The annual subscription is optional in amount, but with the aim that the costs of hiring the venue and the supper can

be covered by the funds of the Association. The formal title of the event is indeed "The Annual Meeting of the Verrall Association of Entomologists".

The bar provision before the Supper again worked smoothly – it has been a successful solution of the recent queuing problems to have an extra beer barrel sited at the separate wine bar. The 90 minutes before the supper was spent in networking and the annual "Beat the seat-booking system" parlour game.

The meal itself opened with a very tasty smoked chicken salad or vegetable terrine with asparagus, with a marinated canon of lamb in a red wine sauce or aubergine cannelloni as the main course. Opinion of the lamb was definitely polarised between "deliciously tender" and "perhaps the knives are blunt?" Surprisingly also, some folk were convinced it was beef! The desert was a tangy lemon posset with all the illegals! Those who were prepared to risk it greatly enjoyed helping out those who were not. I was especially lucky – there were two of the latter close by!

Once coffee had been served, Clive Farrell (the Chairman for the evening) asked us to stand and drain what was left in our wine glasses in the two traditional toasts: The Queen, and our founder George Verrall. The evening was actually the 125th anniversary of



Figure 3 (left). The conversazione around the bar before the supper. Figure 4 (right). The supper in progress.



Figure 5. The presentation to Prof. Van Emden (retiring organiser). (L to R) Prof. Helmut van Emden (recipient), Mr Clive Farrell (Chairman and co-presenter), Prof. Jeremy Thomas (co-presenter and speaking).

then reported on the deaths notified to the Club of past regular “Verrallers” since the previous supper. This year these were Mr Gregory Bentley (lately Registrar of the Royal Entomological Society), Mr Chris Furk (ex FERA at York and a past Hon. Secretary of the RES) and Dr Derek Lott (a well-known specialist on Staphylinidae at the Leicester Museum). As traditional, we stood in silence in their memory.

It is a great pleasure to see overseas entomologists who are visiting the UK attending the Verrall, and this year the Chairman welcomed Professor Hanskii from the University of Helsinki and Dr Shimuzu from Japan. Prof. Hanskii had delivered the Royal Entomological Society’s Verrall Lecture earlier in the evening, and Dr Shimuzu is visiting the Natural History Museum. As usual, they were asked to stand when their names were called to receive genuine applause from the regulars.

Unfortunately this year we were not able to announce any postgraduate recipients of “Kim’s scholarships” for attendance and travel, for the simple but perhaps surprising reason that we

had received no nominations! Supervisors, please note.

Finally, Clive embarrassed me with fulsome praise for my 40 years as organiser of the event. I thought it a marvellous gesture that the Club were initiating a bursary scheme named after me, with the aim of supporting the attendance at the Verrall of postgraduate students. He and Jeremy Thomas then embarrassed me further with a presentation from the Club members of six superb clarets I otherwise only can dream about, including two bottles of my very favourite past wine experience, Ch. Lynch Bages. And that wasn’t all – after these items designed to be emptied, I was also presented with something empty designed to be filled, an engraved tankard!

I could only reply that my term as Verrall Member of the Club had been a real pleasure and made me very many entomological friends. I assured everybody that I was positively wishing to give up the job or needing to do so because of failing faculties, but that the election of a new Club member had

given me the opportunity (which does not often arise) of passing the mantle on to Simon Leather with plenty of time to give him any support he might need in his first few years.

All this made my last Verrall as organiser an especially happy event, and I am really grateful for all the good wishes expressed that evening and in messages from others unable to attend. It was also a great joy to me that my wife Gillian F.R.E.S, whose support I have valued greatly, was able to join the members of the Club at the top table. I wish Simon as much pleasure and reward from the job as I have enjoyed.

A postscript – There was yet one more presentation to me, made at the next meeting of the Club at the end of April. A nice photo of me at the Verrall (naturally with a glass of red wine in my hand) had been framed, with personal messages from my colleagues in the Club on a wide mount around the photo. Something seriously to treasure.

Helmut van Emden

Professor Richard Charles Bullen Hartland-Rowe 1927 - 2012

Well-known and at times eccentric entomologist, working in the field in Uganda, Botswana and Canada. Professor Emeritus at University of Calgary. The *Typhlodromus hartlandrowei* was so named by the British Museum in his honour.

The well-known and at times eccentric entomologist Richard Hartland-Rowe was fascinated by insects from an early age. His sister recalls him happily lying in fields in Devon observing insects carefully in the grass, and this passion for the natural world was to stay with him throughout his long life. He was a researcher, an educator, a writer, and he held senior academic roles during his long and varied working life. His curiosity was an abiding characteristic, one that sustained him in his work in different parts of the world; notably Africa and later Canada.

He was born in Bristol, later growing up in Devon. His mother was a professional cellist, accompanying silent films in cinemas in South Devon when there was no better work available. His father had been a pilot in the Royal Flying Corps in the Great War, and died when Richard was a young boy. Hartland-Rowe, however, could not be described as a military man. He narrowly missed being court martialled during National Service for consistently dirty boots, and during a passing out parade of trucks he slipped into reverse whilst the rest drove regally past the audience. He eventually did support the war effort constructively, by feeding mosquitoes being used for malaria research with his bare forearm daily.

He was educated at Christ's Hospital, West Sussex, and on leaving school worked as a lab assistant at Imperial College. London life meant that he could also immerse himself in his other passion, music. He often attended with score in hand, and heard many of the leading artists of the early 20th century, including first performances of works by Benjamin Britten and Michael Tippett, particular favourites. At Exeter University he met his future wife Marian, a mathematician who later became an artist. They married in 1952, spending their honeymoon on the banks of Lake

Victoria in Uganda, with their car headlamps on at night and trained over the lake to attract insects for subsequent study. In Uganda he worked at Makerere (then the 'University College of East Africa') where he first published work on *Povilla adusta* (the wood-boring and tubiculous mayfly nymph).

In 1958 he donated a nest of social spiders to the Department of Zoology, British Museum (Natural History) that he had found in Bucasa Range near Kampala, Uganda. It contained a hitherto unknown species of mesostigmatid mites, which were named *Typhlodromus hartlandrowei* in his honour.

He remained in Kampala, where his two oldest daughters were born, until 1959, when he took up an appointment at the University of Alberta, Canada in the Department of Zoology in Calgary, where he stayed for the following 20 years.

In 1984, he was named Professor Emeritus in recognition of his significant contribution.

In the late 1960s he became one of the world's first environmentalists, and an early champion of "green" issues. He was particularly fascinated by the functioning of the ecosystem and studied, in particular, the impact of pollution on insect and animal life. He was for this reason particularly suited for the research he completed for the government of Alberta, when they were first looking into the possibility of the Rainbow pipeline and Tar Sands production. His research on these topics is often cited even today.

In 1979 he returned to Africa, working for the Canadian Development Aid organisation (CIDA) at the University of Botswana in Gaborone, Botswana. Having signed up for an initial two-year contract, he and Marian ended up staying in Botswana

for the following 13 years. He involved himself with enthusiasm and interest in the work of the university, taking up the role of Dean of Science as well as remaining fully involved with a significant teaching role across the student group.

On leaving the University, and CIDA, he remained in Botswana and was employed from 1987 until 1993 as a consultant entomologist for Shashe Silk (Pty) Ltd. The years he spent living in Shashe in the north of Botswana, following his scientific curiosity whilst simultaneously working for a project that had the potential to increase the resources available to the local population with whom he worked closely, were extremely happy ones.

He retired in 1993, living for some years in England and Italy, before he and Marian moved permanently to the east coast of Canada.

Throughout his life he sustained a love for music, about which he was both passionate and knowledgeable. He played the piano and the cello, and, always open to new musical experiences, in his 80s attended a composition class and produced a piece of music using the sounds of water, 'Drips and drops'. Perhaps as a scientist should, he always went straight to the simple core of any music he heard and could be heard humming the bass-line like a bumble-bee.

For those around him, his love and respect for the natural world was a key feature. He enjoyed the possibly apocryphal words of Haldane, ('God was inordinately fond of beetles') perhaps because he felt he knew why.

He died after a short illness. He is survived by Marian, his three daughters, and six grandsons.

Richard Hartland-Rowe, entomologist, was born on 19th June 1927. He died on 19th August 2012, aged 85.

OBITUARY

Professor Robert René Killick-Kendrick

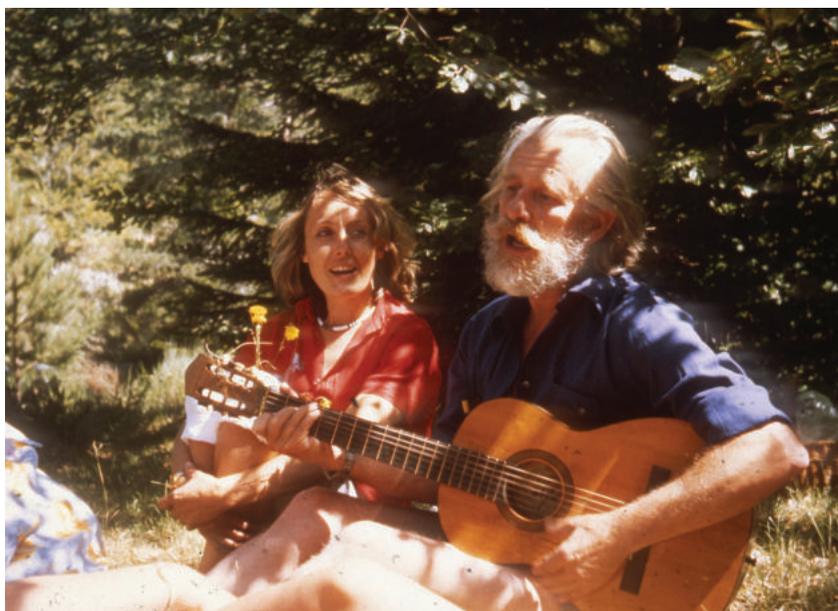
MPhil PhD DSc FRES (Honorary)

20th June 1929 – 22nd October 2011

Phlebotomine Fan, Leishmaniac and Parasitologist

Bob Killick-Kendrick was also known affectionately to my family as “cockle” Bob due to one of my children’s early attempts to indicate that this delightful man’s demeanor was worthy of an honorary role as an “Uncle” during a memorable visit to one of Bob’s mammoth field-work gatherings in the Cevennes in Southern France. Such events demonstrated his world-wide collaborative links with so many scientists, like his notable friend Professor J. Rioux of Montpellier University, who shared his enthusiasm for the study of the protozoan parasite *Leishmania* and in particular, their Phlebotomine sand fly vectors. At one such gathering to study this insect’s ability to disperse, the participants in the study comprised 19 different nationalities. Not only was this a huge undertaking, but as usual, under Bob’s guidance it was an experience not to be missed and involved numerous releases of marked insects of various colours and their recapture at a wide range of locations, all named after the London Underground stations. Each station was manned by staff with “walkie talkies” and involved strange nocturnal conversations like “one blue female sighted at Tottenham Court, come in Golders Green, over”.

Bob was a man of wide ranging talents, with a career that began as a technician at the age of 17 in Weybridge, UK, in a Ministry of Agriculture and Fisheries Laboratory. Following a period of military service, where apart from some Army Medical Corp training he assured me “useful” time was spent in painting coal white for an inspection during a snowy period. Next he helped train army doctors who were studying in The London School of Hygiene and Tropical Medicine, where he became a laboratory technician in Parasitology and was assigned to the Field Station at Winches Farm. He left the UK in 1955 to join a group working with Professor David Godfrey in Nigeria, where he spent a fruitful eight years investigating



Bob, with Mireille, strumming on his guitar in Laumede Field Station, The Cevennes, Southern France.

African trypanosomiasis or sleeping sickness and subsequently settled in The London School of Hygiene and Tropical Medicine as Chief Technician and later Senior Technical Officer. In 1969 Bob followed the recently retired Professor PCC Garnham to Imperial College at Silwood Park and successfully completed his PhD three years later. At this point Bob became a member of the Medical Research Council’s External Scientific Staff rising from Scientist to Senior Scientist. After his ‘official’ retirement Bob became Professor and Leverhulme Scholar at Imperial from 1994 -1997 and retained the Imperial affiliation as Senior, then Honorary, Research Fellow after moving to France in 1997.

During the period at Silwood Park along with his second wife Mireille, Bob established what can only be described as a Centre of Excellence in the study of sand flies. These diminutive relatives of their larger cousins the mosquitoes were, and are still, less well understood but in no small part due to Bob’s efforts this most fascinating family of insects have

attained some well-deserved attention. As in every stage of his career Bob went at his endeavours with a truly admirable enthusiasm and it can be said that he was one of those remarkable individuals who ate, slept and dreamt his subject, to the point that his knowledge of phlebotomine sand flies was outstanding. Most importantly, he loved to share that depth of information with anyone who wished to join in his excitement in its pursuit. As a consequence, he was much sought out by his peers and especially by a wide cohort of students, who were inspired by his willingness to engage in discussion. His innovative ideas were discussed at all hours of the day and at numerous nocturnal events in locations such as in leafy tropical forests, or the prickly sandscapes of deserts, or wine glass in hand, overlooking the moonlit Oak and Chestnut Forests of his beloved Southern France, where he finally settled in retirement.

I first met Bob, to work with in the field, when he visited The Instituto Evandro Chagas, Belém, Brazil at The Wellcome Leishmaniasis Unit run by

his long-term friend Professor Ralph Lainson FRS. I was there studying with Ralph and Jeff Shaw who are parasitologists and I was a new incumbent with the role of medical entomologist to the Unit. Bob was keen to learn the various techniques we had been using in Brazil and among other things this involved frequent bouts of standing half naked in the local forests carrying out what were euphemistically designated "human landing catches". Armed only with a pair of pooters (manual aspirators, which we later learnt translated in Portuguese as "Prostitutes") and a torch each, we would stand silently in the pitch black tropical forest until one of the pair or threesome would declare with some urgency a hissed "lower right shoulder blade". On would come the torches and more often than not one's colleagues would declare that there was no sign of a sand fly, often resulting in acrimonious denial by the victim and then delighted scratching of the offended part of the anatomy.

Bob quickly realized that sand fly capture was not a pastime for deep thoughtful men like those hunting the Higgs Boson Particle, so some amusement was needed. During the first week of hunting he became fascinated with a very silent and small ghostly white sand fly, at the time unidentified, glorifying in a code number and whose identity remained obscure. Very shortly, this nocturnal spectre became transferred by Bob into an attractive song "That Old White sand fly that you love so well tickles up and down your spine, down and down it goes loving the skin that it's in" etcetera, to the tune of "That Old Black Magic" as first made famous by Glen Miller. Needless to say the human landing catches were instantly transformed into fiercely contested evening competitions to improve on the lyrics and the gales of laughter that accompanied our silvatic karaoke must have confused and scattered the local armadillo populations, who probably speculated on what these strange pale, scantily clad humans were doing in their normally tranquil forest glades.

By 1991 Bob was without doubt settled in a leading role in the Leishmaniac community and was to establish a long running series of Symposia on sand flies, which started that year in Rome to commemorate the tricentenary of the first description of a sand fly by Filippo Bonanni. These

meetings known as the International Symposia on Phlebotomine Sand Flies (ISOPS) have subsequently been held over a period of 20 years in Venezuela, France, Brazil, Tunisia and Peru and Turkey.

One could not fail to admire the innovative nature of Bob's work and much of what he achieved produced ground breaking advances in the discipline. However, like all very clever people, he sometimes tried what was a great idea and which regrettably proved frustratingly unproductive. One episode that sticks in my mind was in 1985 when he was inspired by observing amateur remote-controlled model airplane enthusiasts at the weekends. As a result, he sought to apply this technique to attempts to sample the air-borne Dipteran fauna in the Commune of Roquedor in the Cevennes in Southern France. With the help of two UK enthusiasts they used an aircraft dubbed 'The Majestic Major', which was adapted with remote-controlled cylindrical pods and nets fitted beneath the wings which could be opened in flight to sample the air and its contents. Over a total period of 3 hours and 2 minutes of flight, on six dates in July, 9 insects were captured between 10 and 30 metres above the ground of which 6 belonged to the Diptera including Sciaridae, Cecidomyiidae, Chloropidae, Chironomidae and Ceratopogonidae. Agonisingly, not a single sand fly graced the nets and a lesser man would have conceded defeat and walked away. However, Bob in whom hope sprang eternal wrote the whole episode up in this august journal in 1986 (see *RKK 1986, Antenna 10, 8-11*). In the concluding paragraph he stated "We think we can do this with collecting nets on a radio-controlled model aircraft. The preliminary collection suggested that this may also be of use in studies on other insects where sampling is at the comparatively low heights of 10-50m".

Bob was also acutely aware of the health burden represented by the transmission of *Leishmania* which affects, in the case of the visceral form, over half a million new cases per year worldwide. As a consequence, he was keen to make a contribution to any new developments in control. He was, therefore, quick to evaluate any new potential in control strategies such as the insecticide (deltamethrin) impregnated dog collars produced by

Hoechst Roussel Vet under the commercial brand of Scalibor® ProtectorBands. The first indication of the possible widespread use of this technology came from China in 1990 when Guanghua *et al.* bathed dogs in water containing deltamethrin and subsequently showed that *Phlebotomus chinensis* were largely inhibited from engorgement on treated dogs. In 1996 Bob and colleagues tried this technology for the first time in the Cevennes, France but used the commercial collars and showed that their use protected them from 96% of bites from sand flies for up to 34 weeks post-treatment. The results were most encouraging and indicated that their widespread use might reduce infections to dogs and in other locations diminish risk of infection in humans as well. Further publications on this topic by Bob and others have shown similar promise in Brazil, Spain, Italy and Iran.

At the last ISOPS meeting held in Turkey six months before his death, Bob gave a Keynote Lecture entitled "Twenty years of ISOPS: sand fly science and reminiscences". He praised developments in the discipline between 1991 and 2011 in many of which he had been personally involved. However, he nonetheless finished on a cautionary note: "But all is not well. We are falling behind in field research on the biology of sand flies in nature. If this trend continues, aspects of the behaviour of sand flies that could be relevant to targeted control may remain unknown . . . Our future is bright, but not without problems in times when support for research is becoming increasingly scarce." His message to us and to our sources of support is worthy of attention and we ignore it at our peril.

In conclusion, Professor Robert Killick-Kendrick was a remarkable individual who will be missed for his scientific enthusiasm and many endearing traits. I am sure all phlebotomine fans and leishmaniacs will join in reiterating our sincerest condolences to Mireille and other family members, and in saying that we have all lost an irreplaceable friend whose inspiration and science will long endure.

Richard D Ward

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Book Review

‘Speak, Memory’ – a world of entomological recollection

Butterflies & Other Insects. My Enduring Impressions.

By Phillip R. Ackery. 2012. Forrest Text (in association with the Natural History Museum, London), S n y Nant, Cardigan, viii + 193 pp, 258 x 200 mm (with 62 colour plates and 7 half-tones, all in the text). Softback (ISBN: 978-0-9564692-2-9). RRP £40.00. Printed and bound by the Blissett Group, London; available from Forrest Text.



This enchanting book by Phillip Ackery draws on his life and times as an entomologist working at London's Natural History Museum, from where he retired in 2006. After early days assisting the notable dipterist Harold Oldroyd, Phillip underwent a reversal of the usual trend seen among most entomologists, and 'progressed' (regressed some would say!) to work on butterflies. After many years in that role, during which he distinguished himself as a most able researcher, cataloguer, historian and curator, Phillip eventually assumed the mantle of Manager responsible for all of the Museum's Lepidoptera collections. Comprising some 8 million moths and butterflies, they accounted for almost one third of all insect specimens held by the museum, and more than half of the collections space occupied by the then Department of Entomology – now subsumed within the museum's new Life Sciences Department (Mound, 2012). In writing about his particular journey through what is now a lost world, the experiences and skills he obtained, as researcher, cataloguer, historian and curator, are all much in evidence, but spiced through and through by numerous anecdotes and recollections – all adding up to the author's "enduring impressions".

The book is divided into three main, roughly equal sections. The first, "An Insect Vocation", is very much about names and diversity – how names have been given to insects, their meanings, and how collections have documented the great multiplicity of insect species. By tracing butterfly names and collectors from the 17th century to the 20th, the author creates a history of insect taxonomy in microcosm, all linked by quirky tales about some of the more remarkable characters involved – from Sir Hans Sloane to Vladimir

Nabokov *via* James Petiver, Carolus Linnaeus, Pieter Cramer, William Chapman Hewitson, Henry Walter Bates and Lionel Walter Rothschild, among numerous others. This miscellany includes an inspirational juxtaposition of the 1919 *News of the World* account of Jimmy Joicey's (first?) appearance in court for bankruptcy – according to the judge as a result of his "infantile taste" for butterflies – and the infamous contestation almost two centuries earlier of Eleanor Glanville's will, on the grounds that butterfly collecting was *prima facie* evidence of insanity! A little further on is a great quote from Bates, ending with the line "I was obliged, at last, to come to the conclusion that the contemplation of Nature alone is not sufficient to fill the human heart and mind."

Under "Butterflies and Moths" are accounts of particular groups (e.g. danaines, parnassians, heliconians) on which the author carried out a great deal of curation and original research (e.g. Ackery 1975, 1987, Ackery & Smiles, 1976), on the hunt for life histories (in which, in addition to the obligatory Maria Sibylla Merian, insightful accounts of Margaret Fountain and Arthur Miles Moss are included), followed by chapters on hawkmoths, the story of silk, and the peppered moth. The last of these gives the author free rein to contrast the character of E.B. Ford (a bicycle-riding misogynist who was "always impeccably dressed") with N.B.D. Kettlewell – who evidently spent each summer racing about East Anglia in a fast car and was married to a "stunning society girl". Under "silk" we learn that Queen Mary forbade anyone of insufficient rank from wearing this upperclass-only fabric in public, on pain of a ten pound fine and three months in prison! The author's great skill is weaving together all these unlikely and seemingly incompatible details to create a tapestry that has something of the pace, if not of Kettlewell's *Alvis*, at least a John Buchan novel.

The third main section is "An Insect Miscellany". Here we find evidence of the author's first insect role, working among the numerous fly specialists, and many forensic and medical entomologists the Museum once employed. There are mini-chapters

on maggots and murder, quinine and malaria, fleas and plague. However, Phillip's wider historical and curatorial interests are never far from the surface, and the section soon broadens into idiosyncratic accounts of honey, museum pests, cockroaches, crickets and grasshoppers, dragonflies and beetles. Delightful in their contents and juxtapositions, all the accounts are fascinating and packed with information otherwise half forgotten – or, in many cases, previously unknown to me (at least) and, I would hazard, unknown to most of us.

The illustrations form another major feature of the book. In contrast to modern entomological publishing (including *Antenna*) where stunning digital photographs of live insects, museum specimens and micrographs are liberally applied, here is a cornucopia of venerable paintings and lithographs reproduced from books and journals in the museum's library. While probably two thirds are of Lepidoptera, including wonderful examples from works by Albin, Bates, Butler, Cramer, the Felders, Fontaine, Fruhstorfer, Hewitson, Joicey, Moss, Oberthür, Rippon, Romanoff, Rothschild and Scudder, to mention but a few, the last major section gives scope for, amongst others, a fine plate of two calyprate flies from "Colyer & Hammond", a wonderful *Anopheles gambiae* by Terzi, Hooke's flea, plates from Kirby's English bees and Hanitsch's *Malayan Blattidae*, Hollick's *Lepisma* for Lubbock, Hudson's remarkable tree weta, five longicorns from an early Entomological Society *Transactions*, a superb mole cricket from David Ragge's *Grasshoppers, Crickets and Cockroaches of the British Isles*, and an amazing, previously unpublished, ultra-realism image by Mark Russell of the weevil *Baris cuprirostris*. Anyone doubting the aesthetic values of insects, or the ability of the best entomological artists down the centuries to capture these qualities, would surely be impressed by this set of more than 60 full-page illustrations.

Like all books, *Butterflies & Other Insects* is not without its flaws. From which of the eight H.W. Bates sources listed in the bibliography does the wonderful quotation given above come from? We are left to guess if we do not already know. The numerous and often fascinating quotations throughout are not linked directly to the bibliography in any way. I can imagine why – endless Harvard-style citations would disrupt the narrative flow – but surely some economical system of superscripts and endnotes could have been devised to overcome this frustrating limitation? On page 34 there is a nice statement from Robert Pyle about what Nabokov had to say of himself in *Speak, Memory* – but there is no citation of that famous autobiography (in this context, ironically entitled *Conclusive Evidence* in its US edition), or anything by Pyle, listed in the sources. Actual errors seem rare indeed. The only significant one that I picked up is in the legend to a Fowler plate depicting British Dermestidae, in which the hide beetle *Dermestes undulatus* is referred to as "the death-watch beetle"—despite that infamous member of the Anobiidae being correctly referred to elsewhere in the text as *Xestobium rufovillosum*.

However, this is not an academic work to be the subject of punctilious nit-picking. It is a very personal and so, so enjoyable account of entomology from the eyes of one who, until he was taken on by the NHM as a 'likely lad' straight from school, never had any interest in entomology at all. As such it is a wholly refreshing experience to read. All is adult, no nerdy hang ups about 'abs', 'vars' and what-have-yous from school days. Best of all, Phillip's dry and wry sense of humour is never far from the surface – so much understated, quintessentially English.

Apart from an extensive bibliography ("sources"), and the customary taxonomic and general indexes, the book ends with a single paragraph entitled "Exit". This serves not only as a grand full stop but is also a disclaimer challenging all our memories, spoken or otherwise: "Putting it together has been enjoyable but disquieting. Stories happily held in our minds for 20 years don't survive verification . . . perhaps it never was quite as we remember . . . memories based on both myth and fact . . . until reality and wishful thinking merge in pleasing confusion."

Pleasurable certainly, but not confused. But be warned, subversive thoughts steal into the mind as you are carried along by Phillip's deceptively accessible style. The author gently mocks not only himself, but all of us involved with insects, and perhaps the very fabric of "entomology". I love this book – and I think most historically-minded entomologists lucky enough to get it in their Christmas stockings will love it too. At £40.00, a bit pricey perhaps? But priceless. Buy it – unless you are just a dyed-in-the-scale nerd.

R.I. Vane-Wright

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and DICE, University of Kent, Canterbury CT2 7NR.

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Diary

Assistant Editor: Duncan Allen (e-mail: antennadiary@gmail.com)

Contributions please! Your support is needed to make this diary effective so please send any relevant items to the diary's compiler, Duncan Allen, E-mail: antennadiary@gmail.com. No charge is made for entries. To ensure that adequate notice of meetings, etc. is given, please allow at least 6 months' advance notice.

Details of the Meetings programme can be viewed on the RES website (www.royensoc.co.uk/meetings) and include a registration form, which usually must be completed in advance so that refreshments can be organised. Day meetings usually begin with registration and refreshments at 10 am for a 10.30 am start and finish by 5 pm. Every meeting can differ though, so please refer to the details below and also check the website, which is updated regularly.

Offers to convene meetings on an entomological topic are very welcome and can be discussed with the Honorary Secretary.

MEETINGS OF THE ROYAL ENTOMOLOGICAL SOCIETY 2013

Jan 17 **Electronic and Computing Technology Special Interest Group**

Venue: Flett Lecture Theatre, Natural History Museum from 13.00 to 17.00

Convenor: Dr Mark O' Neill (mao@tumblingdice.co.uk)

Five talks are planned for the afternoon with speakers from Tumbling Dice Ltd, University of Newcastle, Royal Botanic Gardens Kew and the Natural History Museum. These presentations will include an overview of an exciting citizen science project which is using the Daisy to identify Hong Kong butterflies from imagery captured by the public using digital cameras and smart phones. The speakers from Kew and Newcastle University will be talking about their experiences with a motion sensitive video capture system which can be used to record the activities of pollinators such as bees and hover flies in unprecedented detail. The speaker from the Natural History Museum will be describing how the Daisy species identification system is being used within the museum as a research tool. Lastly, Dr O'Neill will give an account of a novel computational infrastructure which is based on active software agents for building large-scale emergent ecological models, for example, the interactions of colonies of eusocial insects like bees and wasps with their environment.

Feb 4-5 **Postgraduate Forum**

Venue: Linacre College, Oxford

Convenor: Ms Claire Dooley (claire.dooley@linacre.ox.ac.uk)

This event is aimed at giving young researchers a platform to present their work to their peers in a friendly, intimate environment. Submissions to present work at all progress levels are welcome, from initial hypothesis formation and proposed approaches to finalised data sets.

Mar 6 **Verrall Lecture by Professor Michael T. Siva-Jothy**

Venue: Flett Lecture Theatre, Natural History Museum

Bed Bugs: An emergent problem and an excellent model

In the last two decades bed bugs have re-emerged as a major economic pest in the developing world. Although they spread no disease, they have had huge economic impact in the USA, particularly in the hospitality industry. Michael will present empirical research on bed bug ecology, behaviour and physiology that was primarily driven by the need to understand the role of sexual selection in driving adaptation in this insect. This work has subsequently become important in defining effective control strategies, but the insect's unique biology also provides an opportunity to address currently important questions in pure biology.

June 5 **Society Annual General Meeting**

July 7 **2013 INSECT FESTIVAL**

Venue: Yorkshire Museum & Gardens, York

Sep 4-6 **Ento'13 National Meeting and International Symposium**

The Evolution of Insect Mating System: 30 Years of Thornhill and Alcock

Venue: University of St. Andrews

Convenors: Dr David Shuker and Prof. Leigh Simmons

2014

Aug 2-8 European Congress of Entomology
Venue: York

Diary of other Meetings

2012

Nov 13 Aberdeen Entomological Club
Bugs and the Victorians – John Clark, University of St. Andrews
Venue: The James Hutton Institute, Aberdeen
Contact: jenni.stockan@hutton.ac.uk

Dec 11 Aberdeen Entomological Club
Conservation of rare Burnet moths (Zygaenidae) in Scotland – Mark Young, University of Aberdeen
Venue: The James Hutton Institute, Aberdeen
Contact: jenni.stockan@hutton.ac.uk

2013

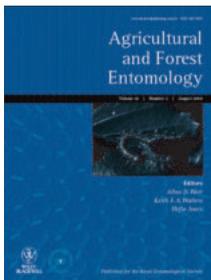
Jan 8 Spiders as indicators of environmental change – Mike Davidson
British Arachnological Society
Venue: The James Hutton Institute, Aberdeen
Contact: jenni.stockan@hutton.ac.uk

Feb 12 Aberdeen Entomological Club
Glasgow's buzzing - Suzanne Bairner, Buglife
Venue: The James Hutton Institute, Aberdeen
Contact: jenni.stockan@hutton.ac.uk

Mar 12 Aberdeen Entomological Club
Upland insects – Nick Littlewood, The James Hutton Institute
Venue: The James Hutton Institute, Aberdeen
Contact: jenni.stockan@hutton.ac.uk

Oct 6 AES Annual Exhibition and Trade Fair 2012
Kempton Park Racecourse, Sunbury-on-Thames, TW16 5AQ, UK.
This is an AES event.
<http://www.amentsoc.org/events/listings/0561/>

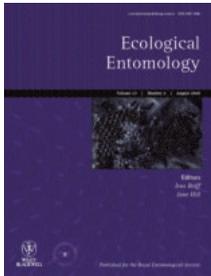
Publications of the Royal Entomological Society



Agricultural and Forest Entomology provides a multi-disciplinary and international forum in which researchers can present their work on all aspects of agricultural and forest entomology to other researchers, policy makers and professionals.

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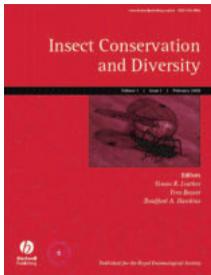
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Ecological Entomology publishes top-quality original research on the ecology of terrestrial and aquatic insects and related invertebrate taxa. Our aim is to publish papers that will be of considerable interest to the wide community of ecologists.

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2013 print and online prices: UK £1,258, Euroland €1,599, USA \$2,327, Rest of World \$2,713



Insect Conservation and Diversity explicitly associates the two concepts of insect diversity and insect conservation for the benefit of invertebrate conservation. The journal places an emphasis on wild arthropods and specific relations between arthropod conservation and diversity.

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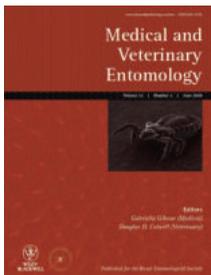
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Insect Molecular Biology has been dedicated to providing researchers with the opportunity to publish high quality original research on topics broadly related to insect molecular biology since 1992. *IMB* is particularly interested in publishing research in insect genomics/genes and proteomics/proteins.

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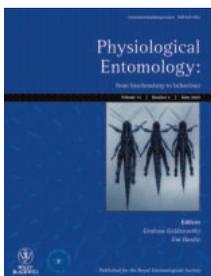
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Medical and Veterinary Entomology is the leading periodical in its field. The Journal covers all aspects of the biology and control of insects, ticks, mites and other arthropods of medical and veterinary importance.

2013 print or online prices: UK £636, Euroland €811, USA \$1,178, Rest of World \$1,375

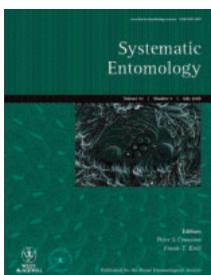
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Physiological Entomology is designed primarily to serve the interests of experimentalists who work on the behaviour of insects and other arthropods. It thus has a bias towards physiological and experimental approaches, but retains the Royal Entomological Society's traditional interest in the general physiology of arthropods.

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2013 print and online prices: UK £673, Euroland €859, USA \$1,248, Rest of World \$1,456



Systematic Entomology encourages the submission of taxonomic papers that contain information of interest to a wider audience, e.g. papers bearing on the theoretical, genetic, agricultural, medical and biodiversity issues. Emphasis is also placed on the selection of comprehensive, revisionary or integrated systematics studies of broader biological or zoogeographical relevance.

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Subscriptions and correspondence concerning back numbers, off-prints and advertising for the seven principal journals of the Society should be sent to the publishers, Wiley-Blackwell Publishing Ltd, 9600 Garsington Road, Oxford OX4 2DQ. (customerservices@blackwellpublishing.com)

Antenna (Bulletin of the Society). Free to Members/Fellows. Published quarterly at an annual subscription rate of £40 (Europe), £42 (outside Europe), \$70 (United States). This journal contains entomological news, comments, reports, reviews and notice of forthcoming meetings and other events. While emphasising the Society's affairs, *Antenna* aims at providing entomologists in general with a forum for their views and news of what is going on in entomology. Subscriptions and advertising enquiries should be sent to the Business Manager at The Mansion House, Chiswell Green Lane, Chiswell Green, St. Albans, Hertfordshire AL2 3NS and any other enquiries to the Editors.

Handbooks for the Identification of British Insects. This series now covers many families of various Orders. Each Handbook includes illustrated keys, together with concise morphological, bionomic and distributional information. A full list of Handbooks with order form is available. See website www.royensoc.co.uk

Symposia. Nos. 1-3 were published by the Society; Nos. 4-10 by Blackwell Scientific Publications; Nos. 11-17 by Academic Press and No. 18 by Chapman & Hall, No. 19 by Kluwer, No. 20, 21, 22 and 23 by CABI.

THE WIGGLESWORTH MEMORIAL LECTURE AND MEDAL AWARD 2016

To be received at:

The 25th International Congress of
Entomology in Orlando, Florida, USA
25-30 September 2016

The Royal Entomological Society, on behalf of the Wigglesworth Fund, is pleased to announce that the period for submitting nominations in respect of the Award is now open and will remain open until 31 August 2014.

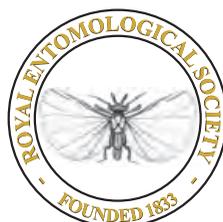
Nominators' attention is drawn to the following statement from the Fund's terms of reference:

"The Award is made in recognition of the great contribution of Sir Vincent Wigglesworth to Insect Biology and the example that he set in the performance of his work. Nominees shall be persons who will be regarded by the Royal Entomological Society's Trustees as having made a significant and eminent contribution to Entomological Research. The nominee's contribution will be work of an outstanding nature that best reflects Sir Vincent Wigglesworth's standards of personal involvement in all aspects of research."

Nominators will please submit a comprehensive C.V. of their nominee, which shall include a list of publications and a formal statement by the nominator indicating the importance and relevance of the nominee's work and how that work adheres to the principles outlined in the above statement. Additional letters of support for a particular nominee may be attached and, indeed, are encouraged.

The person selected as the 2016 Lecturer will have their costs for attending the I.C.E., to give the Lecture and receive the Medal, met from the Fund.

Nominations should be submitted
c/o the Registrar,
The Royal Entomological Society,
The Mansion House, Chiswell Green Lane,
St Albans, Herts, U.K., AL2 3NS



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THE WIGGLESWORTH AWARD

for outstanding services to
the Science of Entomology



2004 Award
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Kenneth George
Davey



2008 Award
Winner,
James William
Truman



2012 Award
Winner,
Steve Simpson