

Title: Recuration of the Fulgoridae collection at the Manchester Museum

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Abstract

This article is a brief summary of a project which recatalogued the Fulgoridae collection at Manchester Museum. The collection of over 150 specimens of Fulgoridae (Lantern Bugs) were accessioned, photographed and databased. The project updated species information for several specimens as well as adding previously unknown information about the collector.

Keywords: Fulgoridae; Lantern Bug; Manchester Museum

Introduction

The Manchester Museum's Entomology department houses some two and a half million specimens and is considered the third or fourth largest in the UK (Logunov, 2012). The collection began with the Manchester Society for the Promotion of Natural History in 1821 and was first assembled by John R. Hardy (1844-1921) who was appointed as Senior Keeper and Entomology Curator in January 1908. (Logunov, 2012: 86-87).

The Manchester Museum's Entomology department contains several important collections including the C. H. Schill World Lepidoptera Collection, W. D. Hincks and J. Dibbs collection of world Coleoptera and the worldwide Dermaptera collection assembled by W. D. Hincks and Alan Brindle. Smaller, important collections of Odonata, Hemiptera and Neuroptera also exist. The British Hemiptera collection is well documented and within the Auchenorrhyncha, seven families, 134 genera and 311 species are represented in the British collection.

This paper will focus on the Manchester Museum's collection of Fulgoridae. The Fulgoridae make up a Family belonging to the suborder Auchenorrhyncha. They are known as "Lantern Bugs" because of the erroneous belief that the insect's large head process lit up when it was disturbed (Kirby and Spence, 1823: 508-509). There are about 130 Genera and over 687 species found word wide (see FLOW: Fulgoromorpha Lists on the Web).

It is estimated that less than 40% of the existing species remain to be discovered (see Poiron and Nagai, 1996: 9). Though little is known about their behaviour, Fulgoridae are important organisms, especially regarding their role as trophobionts (see Naskrecki & Nishida, 2007).

The Manchester Museum's Fulgoridae collection

The Fulgoridae collection at the Manchester Museum consists of over 150 specimens, including 28 Genera and 34 species (Table 1). Though small, the collection is important historically and represents species from all tropical ecozones of the world.

The collection is housed in 6 drawers (with an additional drawer, No. 38, housing 11 nymphs collected by Herbert Stevens). It is part of the World Auchenorrhyncha collection (accession number F3227) which is housed in two wooden cabinets containing 38 glass topped drawers. Each individual specimen has yet to be allocated with its own accession number, though this will eventually be done for all the entomology collections. As well as the pinned specimens, slide material of Fulgorid specimens also exists in the collection. The Fulgoridae collection has been photographed and databased on the electronic collections management system KE Emu (Manchester Museum, 2013).

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Tribe	Genera	Species	Specimens
Amyclini	0	0	0
Aphaeini	10	11	57
Diloburini	0	0	0
Enchophorini	1	3	3
Fulgorini	3	5	13
Lystrini	1	1	8
Paralystrini	0	0	0
Poiocerini	1	2	2
Zannini	1	2	2
Laternarini	11	10	70
Limoisini	0	0	0
Xosopharini	0	0	0

 Table 1. Specimens in the Manchester Museum collection by Tribe.

The development of the collection Herbert Stevens (1877-1964)

The majority of the specimens in the Fulgoridae collection come from Herbert Stevens (1877-1964), a tea planter and naturalist who lived in India. Most of the Fulgorid specimens in the Manchester Museum collection were collected between 1910-1914 at his tea plantation in Gopaldhara-Rungbong valley, Darjeeling District and other surrounding areas. In 1965 his collection of Fulgoridae which had originally been held at the Natural History Museum. Tring was begueathed to the Manchester Museum, along with 100 store boxes of Coleoptera, including cotypes and 620 papered specimens of Sphingidae. Stevens was a Fellow of the Zoological Society of London and the Royal Geographical Society. Though primarily an ornithologist, he collected many insects on his expeditions to the Sikkim Himalayas and neighbouring regions. His book, Through Deep defiles to Tibetan Uplands describes his experience as a naturalist and collector on the Kelly-Roosevelt Expedition. His bird collections are currently held at The Great North Museum in Newcastle, and the Natural History Museum, Tring.

James Cosmo Melvill

James Cosmo Melvill (1845-1929) was a naturalist born in Hampstead. He was the elder son of James Cosmo Melvill, Assistant Under-Secretary of State for India and grandson of Sir James Cosmo Melvill, K.C.B ,F.R.S., Chief Secretary of the East India Company. Though Melvill's primary interests as a naturalist were Conchology and Botany, he was also interested in Entomology, and donated the oldest specimens of Fulgoridae in the collection



Fig. 1. A specimen *Laternaria clavata* (Westwood, 1839) collected by Herbert Stevens.

(collected in 1886 in Ceylon-now Sri Lanka) to the Manchester Museum. His largest donation to the museum consisted of his exotic herbarium, containing 36,000 species of flowering plants, and 6000 species of non-flowering plants such as Liverworts, Mosses, Ferns and Algae. At the time of his death, he was one of the oldest members of the Linnaean Society.

Alan Brindle

Alan Brindle (1915-2001) was Keeper of Entomology at the Manchester Museum from 1961-1982. Before his role at the Manchester Museum, he was called up in 1942 to join the Lancashire Fusiliers and transferred to the intelligence section. While posted abroad in India, he collected numerous insect specimens in the 1940s including Coleoptera, Hemiptera and Hymenoptera. Brindle collected thousands of insect specimens throughout his career, and some of his most important collections are kept at the Manchester Museum, including the Hincks and Brindle Dermaptera collection, which consists of over 11,000 specimens.

Other Collectors: P. S. Nathan, R. N. Baxter and W. H. Clayton:

This collection also contains specimens collected by Peter Susai Nathan (accession number 2588 and collection date 1972) and R.N. Baxter (accession number 2870 and collection dates 1977

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Fig. 2. A small fulgorid nymph collected by Herbert Stevens.

and 1978). Seventy-three envelopes of papered specimens from Nathan have yet to be incorporated into the collection.

Also of note are Fulgoridae specimens donated by W. H. Clayton. All of the Fulgoridae specimens from this source were erroneously labelled, with 4 neotropical specimens being labelled as "found in China, Tibet" etc. It is unknown why all the labels on these specimens have wrong information. A possibility is that the specimens were from an amateur collector or dealer who misidentified the species as Chinese.

The newest specimens in the collection are from the Genus *Scamandra*, collected by A. Murray and were collected in Sulawesi, Puncak, Palapo in September 2007 and December 2008.

Collection recuration and expansion

The first step during the project was to make sure all the current data was accurate. Nomenclature was updated according to current taxonomic references such as the FLOW online database (http:// hemiptera-databases.org/flow). In addition, photographs of each species were taken and uploaded to the KE Emu collections management database. The next step was to make sure all the label data was accurate. The W. H. Clayton specimens in particular contained erroneous information. Species that were from neotropical regions were labelled "Chinese." It is unknown why all the labels from this donor contain incorrect information. One possibility is they were purchased from an insect dealer and the data was later added. Another possibility is that the specimens were from an amateur



Fig. 3. An engraving by Rösel von Rosenhof circa 1760-1770 in which a Neotropical species is listed as a "Chinese Lantern Fly." Image courtesy the Victoria and Albert Museum and used with permission.

collector or dealer who misidentified the species as Chinese. Apparently Clayton was not the first person to make this mistake, as *Fulgora laternaria* seems to have been labelled as an Asian species by people since the 1700s (see Fig. 3). It is possible it was confused with the Asian Genus *Laternaria* (formerly *Pyrops*). Mislabelling of museum specimens often disrupts scientific progress, as unless the specimen can positively be identified no further information such as geographical data about where it was originally collected can be gleaned from label information.

Some specimens had no labels or labels with locality and collector information but no information stating taxonomic information. Some specimens were also undetermined. Identification of undetermined specimens was carried out using guides by Porion and Nagai (Fulgoridae 1: An Illustrated Catalogue of the American Fauna (1994) pg 34-35 and Fulgoridae 2: An Illustrated Catalogue of the Asiatic and Australian Fauna (1996) pg 46-47). In addition, examination of the head processes of several lantern bug specimens established that, instead of one species in a particular Genus (Fulgora), there were actually several. For example, eight specimens were labelled as Fulgora laternaria (Linnaeus, 1758) but closer inspection of the head process determined that one of the specimens was actually Fulgora lucifera Germar 1821.

Through this method, the collection was found to be richer in species diversity than originally thought. Extra labels with the newly discovered information were then added to the original data. Several specimens were moved from "undetermined specimen" drawers to Genus specific drawers. Now only four specimens remain undetermined. The location data was then updated on the collections management database.

Summary

The collection contains no type specimens and, apart from some undetermined material, is probably not a strong resource with regards to taxonomic research. Instead, the collection's strengths are in specimens that detail geographical and historical data for localities where collecting is now forbidden.

During research for this article, more papered Fulgoridae were discovered in the collection in store boxes from P. S. Nathan (collection dates 1967-1972). The specimens were relaxed, set, identified and incorporated into the collection (Fig. 4). The specimens are all from India, where collecting is now strictly forbidden, even for scientific purposes.

Following recuration of the collection, Fulgoridae specimens were used in outreach sessions and exhibitions. The new permanent gallery at the Manchester Museum, *Nature's Library* features five specimens.



Fig. 4. Pinning specimens for incorporation into the collection.

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