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Fly on the Wall: A new insect gallery for the Royal Albert Memorial Museum & Art Gallery

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Abstract

As part of a multi-million pound redevelopment RAMM has a brand new gallery dedicated to its beautiful and scientifically valuable insect collections. The development of the gallery and techniques used to display these fragile creatures is described as well as some insect-related highlights from RAMM's ethnographic and costume collections.

Introduction

When Prince Albert died in 1861 Sir Stafford Northcote, a Devon MP and one of the Secretaries for the Great Exhibition, proposed that a memorial to Albert should be erected in Exeter. The Devon and Exeter Albert Memorial Museum opened in 1868 and later became known as the Royal Albert Memorial Museum (RAMM). Over the years RAMM has had numerous alterations and additions but in December 2007 RAMM closed its doors to undergo a multimillion pound redevelopment funded by Exeter City Council and the Heritage Lottery Fund. It aimed to merge modern architecture with John Hayward's 1861 gothic design. Ralph Appelbaum Associates (RAA) were appointed as Lead Exhibition Designers to work with the collections team to develop a highly integrated strategy for the new Museum which would give a much broader and larger audience deeper access to RAMM's collections. RAMM reopened to the public in December 2011 and successfully fought off hot competition from museums around the country to win the Art Fund Prize and the title of 'Museum of the Year 2012'. The redevelopment has taken 10 years from conception to completion.

Previously at RAMM

The displays in the old natural history galleries contained large dioramas of taxidermy mammals and Victorian cases of birds and beasts arranged largely geographically. The insects however, were conspicuous by their absence – the 'Butterfly Corridor' on the ground floor was the only area where insects were on display (fig. 1). This area was essentially a view into one of the museum's stores where the exotic butterfly cabinets were kept, along with a variety of taxidermy and skeletons. Drawers from this collection were selected for display at the front of the viewing area and the selection was changed from time to time. Whilst one visitor described the Butterfly Corridor as showing the '*brilliance of lovely, old, mysterious museum galleries*', it did not show off the collections to their full extent, nor was it a suitable, environmentally controlled space for such important collections. The redevelopment sought to address both of these problems and it was this collection of exotic butterflies that inspired the creation of a gallery dedicated to the insects that has come to be known as 'Fly on the Wall'. It was decided that the exotic butterflies should be the focal point of this gallery.

The Exotic Butterflies

Although the Museum opened in 1868 but the first record of any exotic butterflies being received was not until 21 April 1904 when a number of West African butterflies were presented by a Doctor Grey. Over the next few years several more donations were made. In December 1930 a donation of 56 butterflies was made by a man who would, over the next 30 years, have an incredible impact on RAMM's insect collections. His name was Major Arthur Bertie Gay.

Originally the tropical butterflies were on open public display in one of the natural history galleries – the public were free to browse through the various cabinets they were kept in at their leisure but c. 1936 the collections were removed from public areas for their safekeeping. Sadly, it is doubtful if any of the earliest specimens still survive in the collections. Today RAMM has over 43,000 exotic butterflies stored in 34 30-drawer cabinets. Each and every drawer has been conserved by the conservation team before being placed

in the new purpose built on-site storage area known as *More in Store*. This collection does not contain moths, or specimens collected in the UK; these are kept at RAMM's new propose-built off-site store known as the Ark (this new storage facility was a crucial part of the redevelopment).



Fig. 1. The Butterfly Corridor. Image courtesy of Anthony Roach.

With thanks to past curators

RAMM's exotic butterfly collection contains a wide diversity of species and varieties, and hence is one of the finest in any regional museum in the UK. This is largely thanks to the dedication and generosity of two past curators: Major Arthur Bertie Gay, the man who donated 56 tropical butterflies to the museum in 1930, and Anthony Adams. Major Gay was born in 1896 to Major General Sir Arthur William Gay of Lapford, near Exeter. He served with the Royal Artillery during the First and Second World Wars and was well decorated for his service. Gay was a keen natural historian, whose encyclopaedic knowledge of butterflies and birds from all over the world earned him a position at RAMM as an assistant curator in 1936 with direct responsibility for all the natural history collections. He worked in this post for over 20 years. One of Gay's first duties as Assistant Curator was to organise the many separate collections of exotic butterflies into a single consolidated collection using a copy of *The Macrolepidoptera of the World* (Seitz, 1924).

Gay was a man of independent means who purchased from his own pocket a considerable number of rare specimens for the collections, as well as 14 of the cabinets they are stored in today. In addition to forming his own collections, Gay was responsible for obtaining specimens and collections from many other naturalists, including GK Hebbert, LD Symington, Dr RV Solley, Capt GC Woodward and F Blanchford, and thousands of specimens from the Trustees of the British Museum (now the Natural History Museum, London). At one time the collection contained 27 type specimens and 34 co-types. However, it was considered that, with one exception, that these scientifically very important specimens should be transferred to the Natural History Museum, London. Major Gay had presented 27 of these co-types to RAMM himself. Major Gay died at the age of 63 on 17 March 1959 at The Royal Devon and Exeter Hospital. He had no living relatives, and the money left to the Museum in his will was used to purchase further cabinets to house the consolidated collection. It came to the attention of Anthony Adams, the then Curator of Natural History, that Gay's grave did not have a headstone. Upset by this neglect of such a worthy man, Adams paid for the headstone. Adams continued Gay's work and by 1976 all the major collections including Blanchford and Woodward had been consolidated.



Fig. 2. The author laying out insect specimens prior to installation.
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Redisplaying RAMM: *Fly on the Wall*

The room which now houses the *Fly on the Wall* gallery was once office space. RAA's vision was that the gallery should be dedicated to RAMM's impressive collection of non-British butterflies and moths as they are 'among the most majestic of insects. Their vivid colours and striking patterns are mesmerising both in nature and in museum collections. Transient, fluttering and fragile, or adept flying machines, these wonderful creatures are one of the highlights of RAMM's natural history collections' (RAA Design Report, 2004) RAA worked with RAMM's curators to decide on other themes within the gallery such that the exotic butterflies were one of six main topics that the gallery would address. The remaining five include:

- Insect anatomy: what is it that defines an insect? What makes them different from other arthropods? What makes a beetle different from a bug?
- Insect lifecycles: an exploration into the process of metamorphosis and what makes it so extraordinary.
- How insects live, survive and function.
- Insects and people.
- Insect sounds.

Once RAA and curators had chosen specimens and designed the gallery, the next decision was how to mount the 550 insects that had been selected for display. Pinned insects are easy to display when mounted on something soft such as *Plastazote* or paper-covered cork, but it was decided that we would use frosted *Perspex* in the new cases – something pins cannot simply be pushed into. To assist with ideas on how to mount the specimens, RAMM's technical team visited the Darwin Centre at Natural History Museum, London, to seek inspiration from their new displays. The butterflies in the Darwin Centre had been mounted on drilled and polished *Perspex* rods, the large beetles have been fixed to *Perspex* plates using bent rods of the same material to act as claws and prevent swivel. This is an elegant solution as the mounts are barely noticeable, but it took the NHM team six months to prepare these displays. The displays they created are beautiful, and importantly (and miraculously) dust free, but six months was a luxury that we did not have.

An ingenious solution involving a *Dremel* electric drill, some pliers and hypodermic needles was developed by the technical staff at RAMM (fig. 3). Hypodermic needles, just like entomological pins, come in a range of different widths which allowed Adrian to select one into which the pin would fit snugly and securely but without damaging it. He then used the *Dremel* and with a special attachment to drill perfectly straight holes into the *Perspex* back board. The hypodermic needles were then glued into these holes, and the pins pushed into the needles. If the insect was lopsided and prone to swivel, or in the case of the female Queen Alexandra's Birdwing butterfly very heavy, the needle could be crimped to make sure that the pin stayed securely

in place. This clever method means that the specimens can be dismantled from the display without damage to their original pins, yet mounting the insects on the board was not simply a case of drilling a series of holes in a straight line. Adrian had to make careful measurements for each one and adjust the position of the hole according to the position of the pin and size of the insect. The other benefit of using the needles as opposed to just drilling holes was that the height of the insect above the board could also be easily adjusted by shortening the needle. The work took six weeks to complete.



Fig 3. Adrian preparing insect mounts.
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Animal Hospital

Some of the insects in the collections are approaching one hundred years old and as they age they become increasingly brittle. And even with the most care in the world, mishaps occur: wings come off, bodies break and legs go missing. Andrew Hughes, Senior Conservator at RAMM, had to conserve and repair several specimens before they went on display. One of the most common problems was loose or detached wings caused by the vacuum effect when entomological drawer lids are taken off. Repairs were made using methylcellulose which is the main constituent in many wallpaper pastes. It is a weak adhesive that is water soluble so if in the future we decide to reverse the repairs this is easily done. Where body parts required extra support, Andrew used Japanese tissue to reinforce weak areas. In some cases body parts had been missing for some time. Some were not noticeable without close inspection; others such as the leg of a large cockroach were very obvious (fig. 4). Andrew used tissue paper, methyl cellulose and acrylic paint to create a false limb which is barely noticeable. Each specimen that was conserved was assigned an individual lab number, photographed and the treatment recorded on lab cards. The lab number was added to the specimen label and collections databased allowing the lab card to be digitised and added to the collections database at a later date.



Fig. 4. Cockroach with new right hind leg.
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The gallery opens...

After much hard work and attention to detail the *Fly on the Wall* gallery opened on December 14th 2012 and has since received in excess of 280,000 visitors (fig. 5). It is particularly popular with school parties and art students, but has also received much attention from community groups and providers such as Age UK and Magic Carpet which is a Charity that works with vulnerable adults. However, it is the visitors themselves which pose the greatest threat to the collections on display. The vibration caused as the public, particularly large school groups, moving through the gallery has the potential to damage the fragile specimens, but not a single limb or antenna has become detached in the nine months that we have been open!



Fig 5. Fly on the Wall gallery completed. © 2012 Royal Albert Memorial Museum & Art Gallery, Exeter City Council.

Other threats to the insects are much easier to manage. The gallery lights are ‘cold’, a maximum of 50 lux and emit zero UV light and the blinds at the windows are required to reduce the natural light entering the gallery. The cases, expertly constructed by the Benbow Group, allow less than 40% of the air in the case to be exchanged with the surrounding environment. This not only reduces the temperature and humidity flux within the cases but indicates that the cases are suitably sealed that variegated carpet beetle and other museum pests cannot enter. All the specimens were frozen prior to their installation to ensure that they were not already harbouring any collection-hungry larvae. Although there is no environmental control in this gallery, sensors inside and outside the cases have shown the conditions to be stable. Thus these specimens, which form an integral part of RAMM’s historic collections are as protected from damage as we can make them. As a result there are no plans at present to replace specimens in the displays as this would be a very time consuming process.

There was not enough space to write a label for each and every insect, so with the help of volunteers, placement students and RAMM’s Digital Media Officer we are creating various solutions to this problem; including a handbook to the gallery and QR codes that link to relevant pages on the RAMM website. Both will use information from our collections database and photographs of the actual specimens on display.

Insects for the observant

Visitors to RAMM may notice other insect-related objects in the new galleries, particularly from the ethnography collections. Among these are some dance rattles from modern day Swaziland. They are made from the cocoons of the enormous African moon moth (*Argema mimosae* Boisduval, 1847) (fig. 6). These rattles are known as emafahlwane. They were made in the late 20th Century and are worn around the ankle by girls, women and tangoma (spiritual healers both male and female) when dancing. The cocoons have been fixed to hand-made sisal string and neatly backed with fabric. Goatskin was used prior to imported European material.



Fig 6. Emafahlawane (dance rattles) from modern Swaziland made from the cocoons of the African moon moth.
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Iridescent beetle elytra (hard cases that protect a beetle’s flight wings, most often of the jewel beetle family Buprestidae) have frequently been used as decoration in jewellery and costume. The Victorians were particularly keen on them; only last year the National Trust completed the restoration work on a piece of costume from their collections. This stunning beetle-wing dress was worn by Victorian actress Ellen Terry when she played Lady Macbeth in 1888 and is now back on display at Ellen Terry’s former home of Smallhythe Place in Kent. The silk and beetle wing bag which is now on display in RAMM’s *Finders Keepers?* gallery (Fig 7) was made a few years before Ellen’s fabulous dress in about 1850. Many high quality pieces embroidered with beetle-wing cases were produced in India. They went on to influence decorative fashions in Europe. Objects from the ethnographic collections also incorporate beetle wings. One of the rarest is a ceremonial apron (tayo-cunchi) that would have been worn at initiation ceremonies. It dates to the late 19th century and possibly comes from Yanomamo, Venezuela. It is made with bird wing-bones, seeds, monkey’s teeth and has a beetle wing case fringe at the bottom. Called ‘*Mother of the Sun*’, beetle wings are still used by many Caribe-speaking and Tukano peoples for sound and visual effect.



Fig. 7. Silk and beetle wing bag.
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The natural history galleries underwent extensive changes during the redevelopment. Whilst some of the large animals such as the rhino have returned to the stores, the redevelopment has given the opportunity to showcase many of the collections that were previously hidden from public view. Ingenious display solutions from RAMM’s technical team have ensured that these attractive and scientifically valuable specimens are safeguarded even when on public view. The new gallery and other insect related objects in the museum are already popular with school children and artists and it is anticipated that they will be the subject of talks, tours and workshops in the coming years.

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Useful contacts for the project

Benbow Group: www.benbow-interiors.co.uk
Dremmel: www.dremmel.com