

# Reference collections

## AND THE ART OF SCIENCE

David Ferguson

The 18th and 19th centuries saw the Royal Society and Linnean Society flourish, attracting like-minded members from all walks of life with interests in astronomy, plants, mammals, birds and insects. Amateurs as well as professional scientists attended to share their findings and observations. Australia buzzed with scientific expeditions and naturalists, the real 'hunters and collectors'. The specimens they collected and the artworks they

made to record them are often in foreign lands and overlooked, but some are still in Australia.

The societies had an ability to influence governments. Exploration and discovery were high on the societies' agendas, and most notable of these expeditions was that of Lt James Cook on HMS *Endeavour*, with Joseph Banks and Daniel Solander as trained scientists. The main objectives of going to Tahiti were to observe the transit of Venus (a solar eclipse) that was visible only in the Pacific, and to accumulate reference collections of the animals and plants. In

1770, from three landing points on Australia's east coast they collected 212 insects, later described in London by a visiting Danish scientist Johann Fabricius and published in *Systema Entomologicae* in 1775, these specimens are Australia's first reference collection.

From the early colonial period, Australia was visited and settled by many notable collectors, naturalists and artists. White, Lewin, Macleay, Gould and the Scotts are notable. Their collecting, observations and art formed a basis for a corpus of rare and important books on Australia's early natural history (1, 3).

The discoveries to come out of the Pacific excited 18th and 19th century Britain and Europe so much that the creation of house museums, cabinets of curiosities and conservatories of tropical plants brought much social acclaim.

In Sydney from 1788 to 1794, soon after its establishment, the first Surgeon-General of New South Wales, John White, was collecting the region's animals and plants. These were described and sent to London where artists such as Sarah Stone, Frederick Polydor Nodder, Charles Catton, Edward Kennion and the mysterious 'Mortimer' created artworks for the 64 plates used in his *Journal of a Voyage to New South Wales* published in 1790.

White was fortunate to be given supervisory custody of an accomplished Scottish artist, Thomas Watling, convicted for forgery in 1791. Watling painted White's specimens in Australia and so did George Raper, a midshipman and First Fleet artist under Captain John Hunter of HMS *Sirius*. By the end of White's tour of duty he had accumulated a reference collection of hundreds of natural history specimens and around 500 artworks. Many of the artworks were attributed to the 'Port Jackson Painter', whose identity remains a mystery. A large



Original artwork by the Scotts of *Cerura piscicauda* (Scott). Copyright Australian Museum, Sydney, series 193/30



a mystery. A large number of new species were described from The White Collection (4-9).

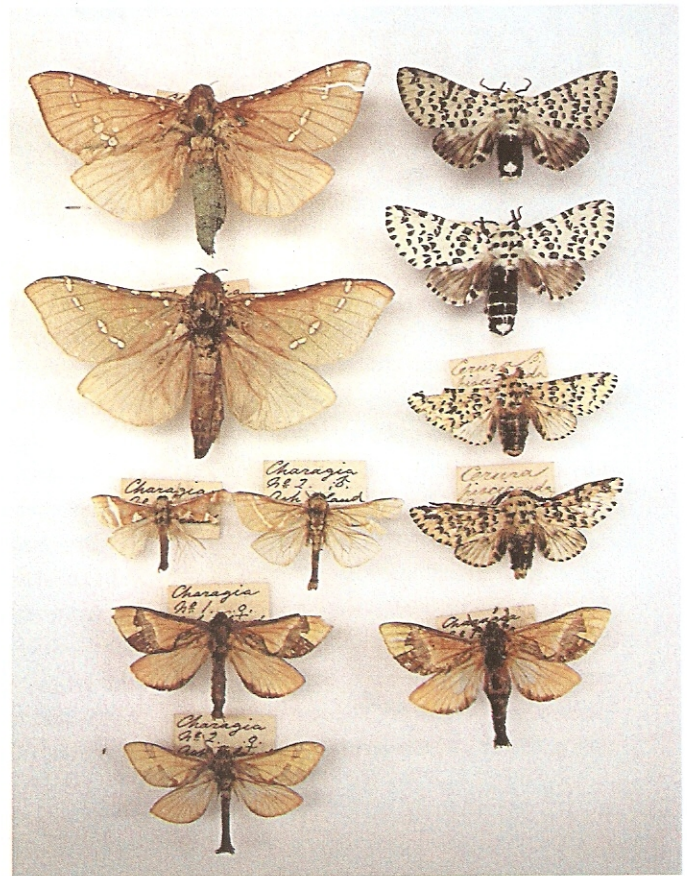
John Lewin, a collector and skilled illustrator of plants and animals followed White. He arrived in Sydney in 1800, supported by a British patron and naturalist. Lewin was to collect specimens and to observe and illustrate the birds and insects for two future publications *Prodromus Entomology*, *Natural History of Lepidopterous Insects of New South Wales* published in London 1805 and *Birds of New Holland* published in Australia in 1813 (10).

Alexander Macleay (1767-1848) was a very active member of both the Royal and Linnean Societies and an enthusiastic high-level civil servant based in London. Alexander no doubt eagerly accepted the position of Colonial Secretary in Sydney, and arrived in January 1826. He was a fanatical collector of natural history and had bought specimens from travellers and settlers. He arrived in Sydney with possibly the largest collection of insect specimens in private hands. Alexander set about building *Elizabeth Bay House* on a 54-acre grant and supported the formation of our first museum, the Australian Museum, in 1827.

Alexander's son, William Sharp Macleay, and nephew, Sir William John Macleay (1820-91), were also keen collectors. The three accumulated a massive holding of mammals, marsupials, birds, reptiles, amphibians, fish, insects specimens and ethnographic artefacts from Australia and the Pacific Islands. In 1888 the amalgamated collection was bequeathed to the University of Sydney, where it formed the basis of the Macleay Museum. Part of the Macleay insect collection is on display at *Elizabeth Bay House*. Alexander was a member of the Entomological Society of NSW (1, 14-15).

John and Elizabeth Gould arrived in Australia in 1838 for 18 months to paint plants, birds and animals for their books, a series sold by subscription. To accompany their work they created a large reference collection of animal and bird

Moth reference specimens collected on Ash Island by A. Walker Scott in the 1850s, the actual specimens used by Harriet and Helena Scott in their artwork. Four *Cerura pisci-cauda* (Scott) specimens are to the right. Australian National Insect Collection, Canberra. Image by David Ferguson



skins. Two books followed, *The Birds of Australia* (1840-48) and *The Mammals of Australia* (1845-63). Many new species were described from their collections of skins and the accompanying artworks (16).

Another member of the Entomological Society of NSW was Alexander Walker Scott, known socially as Walker. He graduated with a Bachelor of Arts degree from Cambridge University in 1821, and arrived in Sydney in 1822. Walker's father Dr Helenus Scott, a physician and botanist, worked for the East India Company and had been on the lookout for new opportunities for himself and his four sons. It is believed that after speaking to his friend Sir Joseph Banks, who had given a positive report about Australia, that the Scott family set sail from London in 1821. Before long, Walker met Harriet Calcott, a young lady born in the colony, with whom he had two daughters, Harriet and Helena (2).

Walker was granted 2,560 acres (1,036 hectares) on Ash Island in the Hunter River, Newcastle, NSW in 1829. There he established an orange orchard that

reputedly produced the best oranges in the colony. Walker's interest in natural history started in early childhood. In Australia, Walker set about recording in minute detail all aspects of the region's Lepidoptera. Being an excellent delineator and watercolourist, he created lively and accurate artworks, recording early biology through to adults flying around their food plant, often with a distant landscape (2, 11).

Walker educated his two daughters and trained them in watercolour, where they proved equally skilled. Walker allowed them to take full credit for the art. Helena wrote to a close friend, 'Oh! You cannot think how thankful I am that my dear father allows me to place my name to the drawings! It makes me feel twice as much pleasure while I paint them' (2).

Walker compiled his field work, which included descriptions of 18 new species and the accompanying artworks (plate 1), into a book titled *Australian Lepidoptera and their transformation, drawn from the life by Harriet and Helena Scott, with Descriptions General and Systematic* that he submitted for publication in





The Macquarie Chest, which featured in our February 2006 issue, contained many natural history specimens that were collected in the Hunter district about 1820. Courtesy State Library of NSW, Sydney

1851. Initially publication stalled, but it was finally published in London in 1864 (13). A further nine descriptions of new species were published in the *Transcripts of the Entomological Society of NSW* in the years after 1869. Walker's pinned specimens were of a high standard and some were acquired by the Macleay Collection. Some important specimens are now on permanent loan to the Australian National Insect Collection, CSIRO, Canberra (17) (plate 2). Walker became a trustee of the Australian Museum in two appointments from 1864 to 1879 (2).

Harriet (1830-1907) and Helena Scott (1832-1910) became known as the 'Scott sisters' in entomological circles as a result of their artwork, and became honorary members of the Entomological Society of NSW in 1868. Many scientists visited them on Ash Island. The Scott sisters became the preferred artists for scientific books being published at that time. They completed work for the *Monograph of Australian Land Snails* by J.C. Cox in 1868. Gerard Krefft commissioned images for *Snakes of Australia* published in 1869 and *Mammals of Australia* in 1871. These images were exhibited at the Sydney Intercolonial Exhibition of 1870. The Scott sisters designed Christmas cards with a floral theme for Turner & Henderson in 1879. (2)

Reference collections for the scientific study and description of species is vital to understanding the complexity of our natural world. Our state museums, universities, herbaria, CSIRO and other industry research centres have large holdings of reference specimens.

From the 18th century, descriptive biological artwork steadily changed. Images of White's specimens were mostly of the dead specimens, sometimes with some supportive information added. While Gould and Lewin were very accurate with colour and stance, they also included foliage or part of the habitat. Scotts' artworks included information on the early pre-adult stages, their associated plants, how the insect fitted into its micro-habitat and even the larger environment. Anatomical parts were often illustrated separately, to the side of the main image.

Hand-drawn biological art was made right up to recent times for scientific descriptive publishing. New publication standards accelerated by digital cameras and computer technology have made this type of art a discipline of the past.

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**David Ferguson** is a Canberra-based dealer in antiques and vintage furniture, collectables and ethnographic art from Australia and the Pacific region.