During the 1800s, naturalists from around the world descended on Australia to collect specimens for museums and private collectors. Hundreds, if not thousands, of plant and animal specimens were shipped overseas. These collections were bought and sold many times over, and in some cases were so fragmented that it has taken years to piece them together. These collections are now providing a picture of the former distributions of many of Western Australia's species.

WHERE are THEY NOW?

by Clemency Fisher

In an earlier issue of *LANDSCOPE* ('John Gilbert's Australian Collections', Winter 1997), I discussed John Gilbert's unique and important Australian vertebrate collections. These were made between September 1838 and June 1845, before the London-born naturalist was tragically killed during the first Leichhardt expedition.

Gilbert's specimens are now scattered in museums all over the world. The crucial need to examine and document them is becoming more and more apparent as much of the information provided by the specimens reveal important clues for today's nature conservationists. For example, the little rat-kangaroo, known as Gilbert's potoroo, was rediscovered in 1993 in the same area from which Gilbert had originally collected them in the 1840s; none had been seen since the 1870s.

Previous page
Main: John Gould and H. C. Richter composed this watercolour of the pig-footed bandicoot, but it was not published until 1988.
Photo – NMGM, copyright 19th Earl of Derby.
Inset: The Liverpool Museum, built in 1961.
Photo – Clemency Fisher

Below: The common noddy. Several of these birds were obtained by Gilbert on his visit to the Houtman Abrolhos in 1843.
Photo – Babs and Bert Wells/CALM

HIDDEN TREASURES

So where are Gilbert's Australian specimens and those collected by other 19th-century naturalists? One way of finding these valuable collections is by searching published catalogues such as the 27-volume *Catalogue of the Birds of the British Museum*, written by several authors around the turn of the century, or Osbert Salvin's *A Catalogue of the Collection of Birds Formed by the Late Hugh Edwin Strickland* (1882)—specimens held in Cambridge University's Museum of Zoology. Another is Oldfield Thomas's published catalogue of the marsupials and monotremes in the then British Museum (Natural History) in 1888. Most of the Australian placental mammals there are listed in subsequent published accounts. With increasingly sophisticated computer documentation systems in use around the world, many museums can now tell with a fair degree of accuracy what specimens are in their collections, even if this information is unpublished. They can also give more accurate details about what material they have from a particular locality, or moment in time, than was ever possible before.

For other museum collections, however, the only way to find out what they have is to look for yourself. For natural history curators, an eccentric breed of human whose natural behaviour must somehow be genetically adapted to suit their jobs, the ultimate bliss is a few days getting away from their own museums—only to spend hours in semi-darkness, poring over long-dead, often grubby and always heavily aromatic specimens in someone else's collection. Heart-accelerating moments are felt when an original field label, hand-written by your favourite collector, is found tucked under a foot or a wing—or when an apparently blank label clearly shows writing under an ultra-violet lamp. In many cases, old collections have simply not been looked at for years—they are in small museums, off the beaten track, where nobody thought to check, or in drawers in a chest that had been stuck behind a filing cabinet since 1920 (a true story). A favourite memory is of a drawer sliding open to reveal a whole host of original Gilbert labels, positively waving to me from the dried fish to which they were attached.

Small university museums have treasures too. An attic store at Glasgow University houses a noddy collected by Gilbert. Gilbert's original label was stuck to the card with glue, and the Glasgow University label states only 'South Seas'. But if you look at Gilbert's own label carefully, it turns out to be one of the specimens from his famous trip to the Houtman Abrolhos, off the coast of Western Australia in 1843. For that

expedition, Gilbert was offered passage by Captain Scott, who purchased a wrecked ship on the notoriously storm-prone islands and was sending salvage boats to and fro. Gilbert himself was then stranded there by storms, writing to Gould later that 'we ran a very narrow escape, being hove to in a Gale of Wind for four days . . . we were all given up for lost'. Two common noddies, which Gilbert collected on 'South Island' (Pelsaert Island) a few days before the Glasgow specimen, are in Liverpool Museum and a series of his important seal and wallaby specimens from this dangerous excursion are in South Kensington and Liverpool.

THE BIRD COLLECTIONS

John Gould's primary collection of early 19th-century Australian birds was sold in 1847 to the Academy of Natural Sciences, Philadelphia. He had previously offered them for less than one pound each to the British Museum in London, which refused on the grounds that the museum had specimens of most Australian bird species already and that 1000 pounds would have been a huge sum to pay for what were considered at the time to be duplicates.

Although Gould told the Americans that this was his 'type' collection (birds that had been in front of him when he described new species to science, making them 'standards' for that species), many of his 'types' had already been sold to other museums, often private ones.

One good example of this was Gilbert's thickhead (more usually called Gilbert's whistler, *Pachycephala inornata gilberti*)—a form originally named after Gilbert by John Gould in 1844. The two Gilbert's thickheads in Philadelphia were formally recorded as 'types' by Academy staff who overlooked two specimens that Gould had sold to Lord Derby in July 1844, now in the Liverpool Museum. One is an immature bird and does not match Gould's 'type' description or his plate in *Birds of Australia* (volume 2, plate 71), but the other, a male collected by Gilbert '4 miles east of York' on 19 August 1843, looks very like the male in Gould's plate. Unlike the Gilbert's thickheads in Philadelphia, which along with the rest of the Gould collection had their original labels removed by philistine taxidermists

Above: Labels on a grey teal in the Hancock Museum collections, University of Newcastle-upon-Tyne. Little attention has been paid to conserving labels, which should be regarded as important archives.
Photo – Clemency Fisher

Right: Male and female Gilbert's thickheads in Philadelphia, which were catalogued without reference to the specimens in the Liverpool Museum. Gilbert's original labels were removed in 1847 and the only recorded locality on the Academy labels is 'West Australia'.
Photo – VIREO, Academy of Natural Sciences

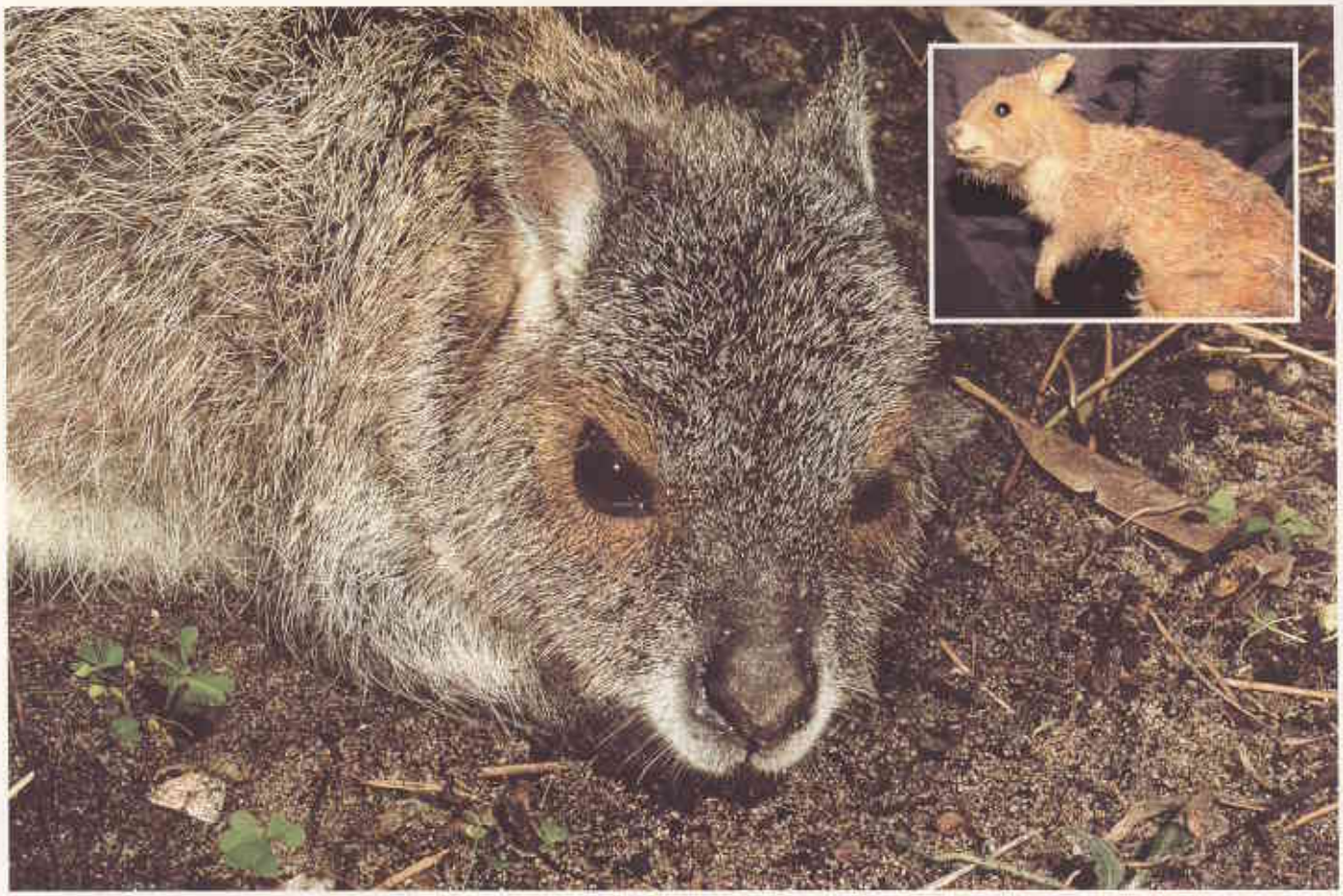
in 1847, the Liverpool specimen has unquestionable field data attached. For that reason, it is of greater scientific importance and now formally recorded as a 'type' specimen, together with the two Philadelphia birds.

Gould may have refused to give the British Museum his primary collection of birds, but he did give them a huge number of vertebrate specimens from his Australian collections. Many more of Gould's birds found their way to South Kensington when the British Museum bought Thomas Eyton's collections in 1881. Eyton was a Shropshire landowner, duck expert and fishing pal of Gould's, who had a private museum enriched by some of Gould's best material. In this way the British Museum acquired one of the 'types' of the western thornbill (*Acanthiza inornata*), described by Gould in 1841 from Gilbert specimens collected in the Swan River area. There are two other 'types' in Philadelphia.

The Natural History Museum now keeps its bird collections, numbering more than one million specimens, in a purpose-built store attached to an elegant building in Tring, Hertfordshire, a former home of the banker Walter Rothschild. Rothschild, a great amateur ornithologist, had his own huge bird collections. These were later sold to the American Museum of Natural History in New York, which also holds the extremely important Australian bird collection of Gregory Mathews.

Gould sold a number of his remaining Australian birds to the National Museum of Ireland, but these were never properly labelled or accessioned. The only way to identify them now is by picking out labels with rapidly scribbled names in red ink—these match Gould's writing. There are just a few of them that still have Gilbert's original labels attached. One, a rufous songlark, was collected at Northam, one of Gilbert's favourite localities.

One of the most fascinating mysteries surrounds some of the best of Gilbert's specimens, from the 1844–45 Leichhardt Expedition. No one knows how they came to be in the possession of a 'Miss Fox'—who gave them to the Royal Albert Museum in Exeter, Devonshire in 1944, one hundred years after they were collected—but this amazing collection of just twenty birds



Main: The spectacled hare-wallaby. Photo – Babs and Bert Wells/CALM
Inset: One of the types of Leichhardt's hare-wallaby, a subspecies of the spectacled hare-wallaby, was collected on the 1844–45 Leichhardt expedition, and is now in the Australian Museum, Sydney. Photo – Clemency Fisher

undoubtedly includes some zoological time-bombs. Unfortunately, yet again, the original labels were removed from all the specimens, presumably when they were mounted for exhibition.

THE MAMMAL COLLECTIONS

Gilbert and Gould's Australian birds have been found in almost every museum collection searched so far, but their mammal collections do not seem to have become so widely dispersed. Owners of private museums in Victorian times had much more of a desire for bird specimens, presumably because they were more colourful and were much more available. Most of the early 19th century Australian mammals ended up in public museums, like the 'types' of Leichhardt's hare-wallaby (a subspecies of the spectacled hare-wallaby, *Lagorchestes conspicillatus*), which are in the Australian Museum in Sydney. These are two of the few early Victorian specimens still remaining in Australia. Very little material from Australia was retained from this period—most of it was carted off back to Europe by colonial collectors. Some were kept in Australia by determined curators such as George Bennett (of the Australian Museum) and William John Macleay (who founded the Macleay Museum, now at the University of Sydney). There is a small but extremely interesting early Victorian collection of Australian birds and mammals at the Museum of Victoria in Melbourne. It even has a couple of birds from Charles Darwin's voyage on the *Beagle*. The museum also owns what is probably the best specimen of the extinct, and undoubtedly peculiar though charming pig-footed bandicoot (*Chaeropus ecaudatus*), which is only known from about twenty specimens.

The first pig-footed bandicoot was discovered by Major Mitchell in 1836 at the Murray River in New South Wales, with another found in the early 1840s by George Grey in South Australia. A further two were found by John Gilbert in swampland about forty miles north of Northam in Western Australia. One of Gilbert's specimens was in the Liverpool Museum, until destroyed when the public galleries were fire-bombed during the Second World War. The Natural History Museum has the Grey specimen and Gilbert's second animal in its collections at South Kensington. It was these three animals that John Gould and his assistant Henry Constantine Richter used as the models for their plate of the pig-footed bandicoot in Gould's three-volume folio edition of *Mammals of Australia*.

Happily, the original artwork, which guided lithographers when producing the final plate, still exists; Gould and Richter's watercolour is in Knowsley Library, near Liverpool, and Gould's working sketch was recently purchased at auction by the Natural History Museum. Gould and Richter did make another watercolour drawing of the pig-footed bandicoot, probably based on Grey's specimen, but Gould never published it. Yet more than one hundred years later, the sketch made the front cover of *Australian Zoologist*.

THE ART OF SCIENCE

The Natural History Museum recently bought Gould's original working sketch for the plate of the 'banded hare-kangaroo' (*Lagostrophus fasciatus*) in *Mammals of Australia*. Their mammal section looks after the models for this plate (Gould's 'type' specimens), which

were collected by Johann Preiss—sometime colleague, sometime rival to John Gilbert—in York, east of Perth and in the Wongan Hills. Gould and Richter also produced a watercolour version of the 'banded hare-kangaroo', which Gould sold to the 13th Earl of Derby. These specimens and illustrations are of crucial importance, as the mainland form of the banded hare-wallaby is now extinct, leaving in existence only a vulnerable population of the subspecies confined to Bernier and Dorre Islands.

It is of great interest to both art lovers and scientists that so many of John Gould's original works have survived, but what is even more important to natural historians is that most of John Gilbert's field notes still endure. These are scattered in libraries all over the world, and great efforts are now being made to publish them, or to at least make them freely available.

The Queensland Museum houses one of the most endearingly personal of these manuscripts—Gilbert's copy of G.R. Waterhouse's little volume on Marsupialia, which he had carefully cut up and re-pasted, adding comments of his own and inserting notes on new species as he discovered them. In November 1842, Gilbert and the Government Botanist James Drummond were en-route for the south coast of Western Australia when they stopped at

Top right: Gould and Richter's original watercolour for the plate of the pig-footed bandicoot in Gould's *Mammals of Australia*, published in 1863. Gould sold the picture to the 13th Earl of Derby, and it is still in the library at Knowlsey Hall.
Photo – NMGM, copyright 19th Earl of Derby

Centre right: A pig-footed bandicoot in the Museum of Victoria, Melbourne, was obtained at the Murray River, in south-eastern Autralia, by the Blandowski expedition in 1857.
Photo – Clemency Fisher

Below main: The banded hare-wallaby.
Photo – Babs and Bert Wells/CALM
Inset: Gould's detailed watercolour depicting the 'banded hare-kangaroo', the basis for the plate in *Mammals of Australia*, is also in the library at Knowsley Hall.
Photo – NMGM, copyright 19th Earl of Derby

the military station on the Williams River. Here, Gilbert was presented with specimens of two mammal species, both new to science: the red-tailed wambenger (*Phascogale calura*) and the fat-tailed sminthopsis (*Sminthopsis crassicaudata*). Although both these species are now recorded as being first discovered by Gilbert, they were actually donated to him by the military station's cat. Surprisingly, both specimens survived and are now in London's Natural History Museum. Gilbert made careful notes about both in his 'do-it-yourself notebook', embellishing these comments with a pen-and-ink sketch of the 'thick-tailed pouched mouse'.

PRESERVING THE PAST

It's easy to get the impression that the Victorian times were the 'heydays of natural history', where zoological specimens were commodities sold to devotees who today would most likely be collecting fine art, ceramics or videos. Collections were bought and sold and often fragmented in the process. But now that many of them have been located, after quietly lying in dusty drawers, what is their future?

Twentieth-century curators are generally torn between their responsibility to preserve existing specimens and their responsibility to acquire specimens that will later show just how our environment today is changing. It is a difficult balance, and it is no wonder that the stress-levels of today's curators are often fixed at hurricane force.

The recent promotion of the discipline of conservation (as in repairing objects) from an almost incidental part of museum work to an integral and crucial ingredient of day-to-day business, is typified by the recent opening of the National Museums & Galleries on Merseyside's Conservation Centre. This multi-million-pound project involved the complete rebuilding of an old Liverpool city centre warehouse, retaining only the original facade. Here, huge sculptures are winched in and laser-treated, chairs are mended, books are repaired, and the tiny labels attached to old bird specimens are cleaned, mended and encapsulated to ensure that the next generation of natural historians also get a chance to read them.

Most original field labels need this treatment and it is important that the job is given priority. Labels, such as the two on a grey teal at the Hancock Museum in Newcastle-upon-Tyne, desperately need repair. They are stained, brittle and badly curled and will soon disintegrate. This would be a shame, given that Gilbert's original label tells us that he (and the bird) were on Perth Flats on 22 May 1839—fine details that are missing in so many other cases.

The problem of specimens whose original labels have been removed applies particularly to the Academy in Philadelphia, but also occurs elsewhere. Specimens in large museums have often been handled so much that the labels have been torn off or badly damaged.

Left: A splendid fairy-wren.
Photo – Babs and Bert Wells/CALM

Below: Oxford University's immaculate specimen of the splendid fairy-wren was collected and prepared by Gilbert and still has his original field label.
Photo – Oxford University Museum

Even in small museums, bad storage and environmental conditions lead to deterioration in both specimens and labels. There are some merciful exceptions, such as Liverpool Museum, where access to the collections appears to have been so restricted until modern times that most of our Australian specimens and their labels have remained in good condition.

University Museums are particularly likely to suffer damage to their collections, as these are often used for teaching. However, probably the nicest Gilbert specimen I have ever found is at the Oxford University Museum of Zoology. At first sight, it appeared to be a brightly wrapped sweet, but it turned out to be a splendid fairy-wren (*Malurus splendens*) collected by Gilbert in Perth in 1842.

CLUES FOR THE FUTURE

Most of Gilbert's specimens at the Liverpool Museum still have their original collecting labels, complete with priceless field information. Although in many cases other museums have removed or lost Gilbert's field labels, the original information can still be re-united with specimens by matching them up with information from his extensive manuscripts.

Labels may give information that has been overlooked for a century or more. In Western Australia, the localities on museum specimens are being investigated by naturalists who are looking at the past distribution of rare species—or even ones regarded as extinct. For instance, a dibbler (*Parantechinus apicalis*) which has been on display for more than 80 years in the National Museum of Ireland (and which with other rare mammals such as a numbat (*Myrmecobius fasciatus*) was exchanged with the Western Australian Museum in 1913 for 'casts of the High Cross of Monasterboice'), was collected at Gracefield, near Kojonup, a long way north of its presently known area of distribution. Perhaps dibblers are no longer there, but the fact that they once were may make this a site where they can be translocated in future.

Gilbert's 150-year-old specimens not only provide distributional clues for modern naturalists; they are also providing the genetic material for many new and exciting projects. We can now determine exact relationships between species (even though the species may have been extinct for many years) by using the latest techniques of DNA analysis. As all conservation workers know, it is crucial to be absolutely clear about the exact identity of the species they are trying to conserve. Recent genetic studies are making the differences between Gilbert's potoroo (*Potorous gilbertii*) and its relative, the long-nosed potoroo (*Potorous tridactylus*), clearer. With the advent of techniques in 'ancient DNA', it should be possible to tell where the broad-faced potoroo (*Potorous platyops*) fits in too. Gilbert's original specimens of the two Western Australian forms are still present in museum collections, so access to genetic material for DNA testing is available.

There is still much searching to be done, particularly in the European museums, which have vast numbers of Australian specimens. Only in a few cases have the resources been available to study and publish information about these collections. The Rijksmuseum van Natuurlijke Historie in Leiden in the Netherlands, has many of Gould's and Gilbert's birds and mammals which are now properly listed. But curators at other European museums such as Paris and Berlin are still trying to come to grips with what they have—undoubtedly collections worth their weight in rubies in nature conservation terms.

So although the light at the end of the tunnel is becoming somewhat brighter, the tunnel itself is getting longer. And new side tunnels are continually opening up along the way!

Left: J.T. Tunny, collected a specimen of a dibbler in 1904-05, near Kojonup, a long way north of its presently known distribution.

Below: A specimen of WA's fauna emblem, the numbat, is on display at the National Museum of Ireland, Dublin, and was also collected by Tunny.
Photos – Babs and Bert Wells/CALM

Clemency Fisher is Curator of Birds & Mammals, Liverpool Museum, National Museums & Galleries on Merseyside, William Brown St., Liverpool L3 8EN, UK.
As part of her research into tracing John Gilbert's collections, she has visited Two Peoples Bay in the south-west of WA, and has been assisted by CALM staff, notably Alan Danks, in her search. Clemency can be contacted at the above address.

LANDSCOPE

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CALM's fight against feral cats gathers ground on Peron Peninsula with the development and testing of a cat bait. See 'Approaching Eden' on page 28.

Roadside vegetation often provides vital links between remnant habitats. See our story on page 23.

What attracted early pioneers to this barren corner of Western Australia? Find out in 'Eucla Pioneers' on page 35.

A new CALM book gives bushwalkers a host of short and longer walks in Western Australia's south-west. See page 10.

Fire is an important part of Western Australia's environment. Scientists continue to discover just how important. See page 17.

FEATURES

REGULARS

COVER

The splendid fairy wren was one of many birds collected by John Gilbert, whose collections of specimens have been fragmented over the past 100 years or so. Now, they are being tracked down in museums around the world, and a more complete picture of their original distributions is emerging from Gilbert's original notes and labels. See story on page 40.

Illustration by Philippa Nikulinsky

Executive Editor: Ron Kawalilak
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Marketing: Estelle de San Miguel ☎ (08) 9334 0296 Fax: (08) 9334 0498
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