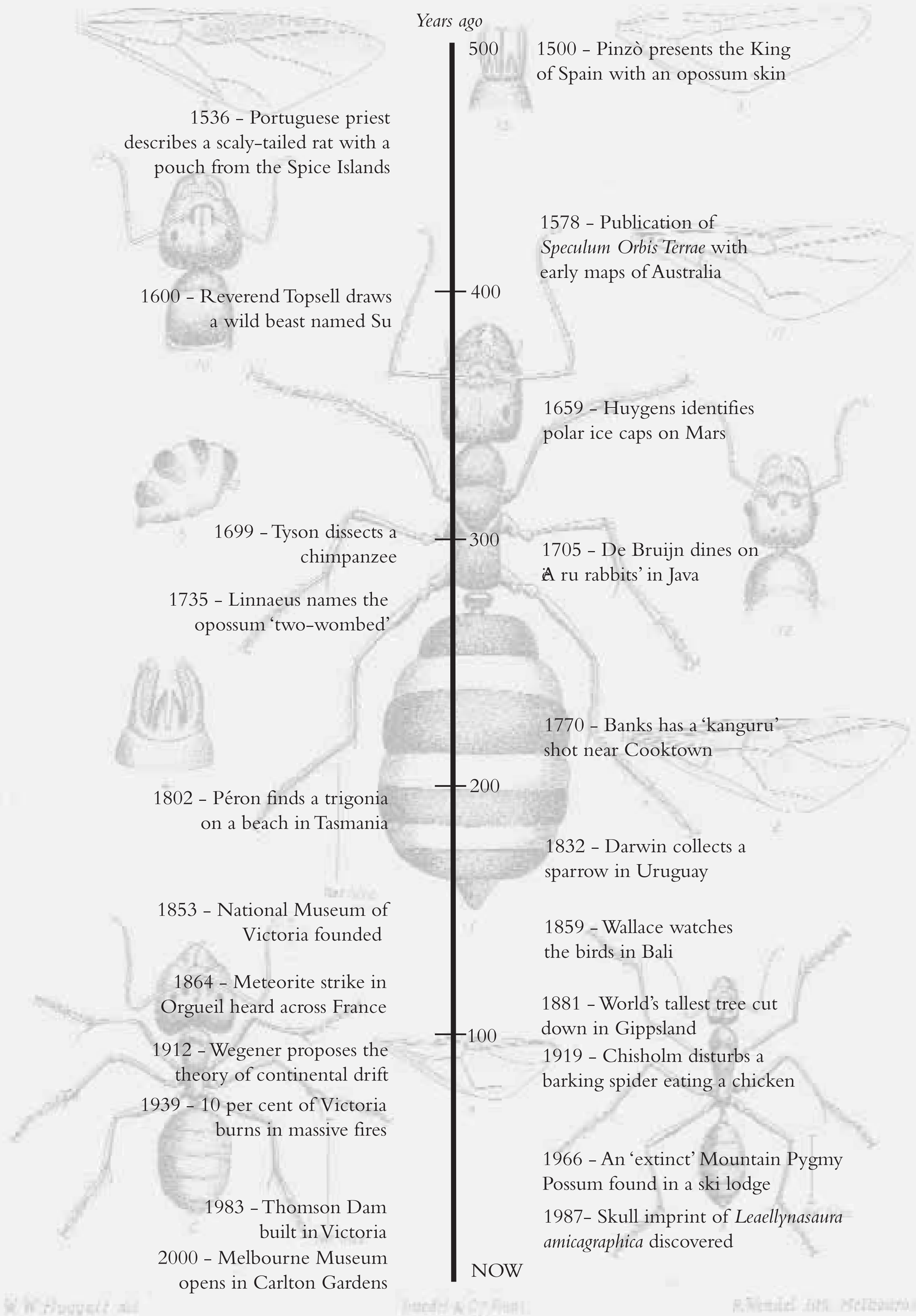
Cambridge University Press
978-0-521-86620-0 - Continent of Curiosities: A Journey Through Australian Natural History
Danielle Clode
Excerpt
More information

Part 1

VISIONS FROM THE OLD WORLD: THE LAST 500 YEARS


Years ago
500
400
300
200
100
NOW
1536 – Portuguese priest describes a scaly-tailed rat with a pouch from the Spice Islands
1600 – Reverend Topsell draws a wild beast named Su
1699 – Tyson dissects a chimpanzee
1735 – Linnaeus names the opossum ‘two-wombed’
1802 – Péron finds a trigonia on a beach in Tasmania
1853 – National Museum of Victoria founded
1864 – Meteorite strike in Orgueil heard across France
1912 – Wegener proposes the theory of continental drift
1939 – 10 per cent of Victoria burns in massive fires
1983 – Thomson Dam built in Victoria
2000 – Melbourne Museum opens in Carlton Gardens
1500 – Pinzò presents the King of Spain with an opossum skin
1578 – Publication of *Speculum Orbis Terrae* with early maps of Australia
1659 – Huygens identifies polar ice caps on Mars
1705 – De Bruijn dines on ‘A ru rabbits’ in Java
1770 – Banks has a ‘kanguru’ shot near Cooktown
1832 – Darwin collects a sparrow in Uruguay
1859 – Wallace watches the birds in Bali
1881 – World’s tallest tree cut down in Gippsland
1919 – Chisholm disturbs a barking spider eating a chicken
1966 – An ‘extinct’ Mountain Pygmy Possum found in a ski lodge
1987– Skull imprint of *Leaellynasaura amicagraphica* discovered

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1 CURIOUS COLLECTIONS

Great Pampa-Finch (*Embernagra platensis*), collected in 1832
in Maldanado, Uruguay, by Charles Darwin.
Ornithology Collection, Musuem of Victoria.

WHEN I WAS A CHILD, the exhibition halls of our natural history museum seemed endless, with row upon row, cabinet after cabinet, of rocks, shells, stuffed and pickled animals, strange bones, enormous eggs and bizarre agglutinations. Little did I know, as I toured the cool, dark halls of our local museum, tugging on my grandmother's arm, that these public displays barely even scratched the surface of museum collections. I could not have imagined that only a fraction of the vast collections housed in museums are ever displayed. I did not realise that the small, succinct explanatory notes are but a minuscule synthesis of the vast body of scientific literature born of museum collections.

It was many years before I gained a closer insight into the hidden nature of museums. By then I had turned my childhood passion for nature into a career as a biologist. But increasing familiarity has done little to diminish the awe and fascination which museums are capable of inspiring – not so much their exhibition halls, but the scientists and collections behind them. Beyond the lofty spaces of the museum exhibition spaces buzzing with crowds of excited children, behind the impenetrable transparency of the glass display cases, beside the brightly lit panels of interesting facts there exists a parallel world. This is a world of windowless, winding corridors – a world of darkness, death and some very strange smells. This is a quiet world of endless collecting, gradual sifting and patient preparation. Here lie unacknowledged treasures – skulls, skins, fossils and feathers – their true value rarely revealed by their spidery labels. Yet each of these individual objects exists within a rich and vibrant tapestry of knowledge and understanding about the world we live in. Even the most inconsequential specimen can play a part in a story which spreads from local personalities and events to theories that have changed the way we see the world – from historical curiosities to contemporary environmental crises.

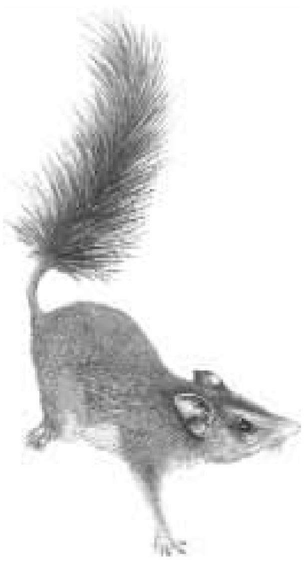
This is the world I'd like to explore in this book, and I hope the stories related will provide an insight into the secret back rooms of both museums and biology. There are, of course, limitless stories I could have drawn on. Choosing which ones to focus on and which to leave out has been a difficult task, but the ones that are left I hope illustrate both the breadth and depth of the influence that museum specimens, collections and scientists have in the broader field of biological science. The eleven specimens which inspired the following stories link to issues as diverse as the European discovery of Australia, indigenous knowledge, old-growth forests, water use, palaeontology, brain physiology, evolution, creationism, biogeography, conservation, climate change, exploration and discovery. Some stories have a local and contemporary focus while others stretch

Visitors to the new museum building at the University of Melbourne, by Frederick Grosse. State Library of Victoria.

forwards into the future and back to the beginning of life itself. Others extend far beyond Australian shores to Europe, America, Asia and beyond, into outer space.

Small wonder then, that if my feet ached after circumnavigating the exhibition spaces, it was nothing compared to my aching head after a day behind the scenes among the 15 million or so specimens in Museum Victoria's natural history collection with their curators. Every specimen has a story – where and how it was collected, who by and what it meant at the time. Every object is part of a bigger narrative – how the species evolved, interacted with other species, how they are distributed, have expanded, contracted and disappeared.

One such object lay in my hand on my first visit to the ornithology collection. It was just a small brown bird, a soft ball of fluff hardly distinguishable to the untrained eye from a sparrow. It was, in fact, a Great Pampa-Finch (*Embernagra platensis*), one of the 160-odd species of seed-eating Emberizine finches found on the grassy savannahs of South America. What made this particular specimen intriguing was that it had been collected in 1832 in Uruguay, at the time when the *Beagle* sailed along the South American coast on its way to circumnavigate the world via the Galapagos Islands, Australia and New Zealand. The reason this particular bird is handled with such reverential awe by biologists is that the tag on its leg identifies the name of its collector – Charles Darwin (1809–1882). This sense of connection with the past is something only collections like those in museums can provide.



Brush-tailed Phascogale (*Phascogale tapoatafa*), one of Australia's marsupial carnivores (*Dasyuridae*), whose ferocity belies its small size.
J. Allan.

THE NEED TO CLASSIFY

Give any small child a container of buttons and you will see that a collection demands classification. Humans have an intrinsic desire to seek patterns in their world. The ability to formulate conceptual categories allows us to understand complex and seemingly ever-changing phenomena. But classification has some startling consequences when applied to collections of plants and animals. The patterns of nature are not only aesthetic, but are also a silent testimony of the history and origins of life on Earth.

Imagine a collection of interesting mammals. From Australia – a Brush-tailed Phascogale (*Phascogale tapoatafa*), a Sugar Glider (*Petaurus breviceps*) and a Greater Bilby (*Macrotis lagotis*). From North America – an Antelope Jack Rabbit (*Lepus alleni*), a Western Harvest Mouse (*Reithrodontomys megalotis*) and a Northern Flying Squirrel (*Glaucomys sabrinus*). And from South America – a Mara (*Dolichotis patagonum*), a Woolly Opossum (*Caluromys lanatus*) and a Vampire Bat (*Desmondus rotundas*).

Imagine that they are classified according to how they live. Gliding or flying, air-borne mammals might be placed in one drawer, while the arboreal mammals which spend their lives entirely in vegetation might be placed together in another. Terrestrial mammals, which typically live and rest on the ground, might logically be placed in a third drawer. But this classification by habitat also correlates with a classification by body structure. All of the gliding/flying mammals have membranes which allow them to 'fly'. The arboreal creatures all have adaptations for climbing – strong claws, flexible arm and leg sockets, prehensile or balancing tails. And all of the terrestrial animals have elongated legs and balance on their toes (digitigrade feet) allowing faster locomotion. Organising the mammal collection by habitat reveals a lesson in adaptation.

ADAPTIVE	GEOGRAPHIC GROUPING		
GROUPING	Australian	South American	North American
Flying	*Sugar Glider*	Vampire Bat	Squirrel Glider
Tree-dwelling	*Phascogale*	*Opossum*	Harvest Mouse
Ground-dwelling	*Greater Bilby*	Mara	Jack Rabbit

Reading the table horizontally shows the adaptive grouping; the vertical reading shows the geographic grouping. The physiological grouping into marsupial or placental is shown with the marsupials in italics.

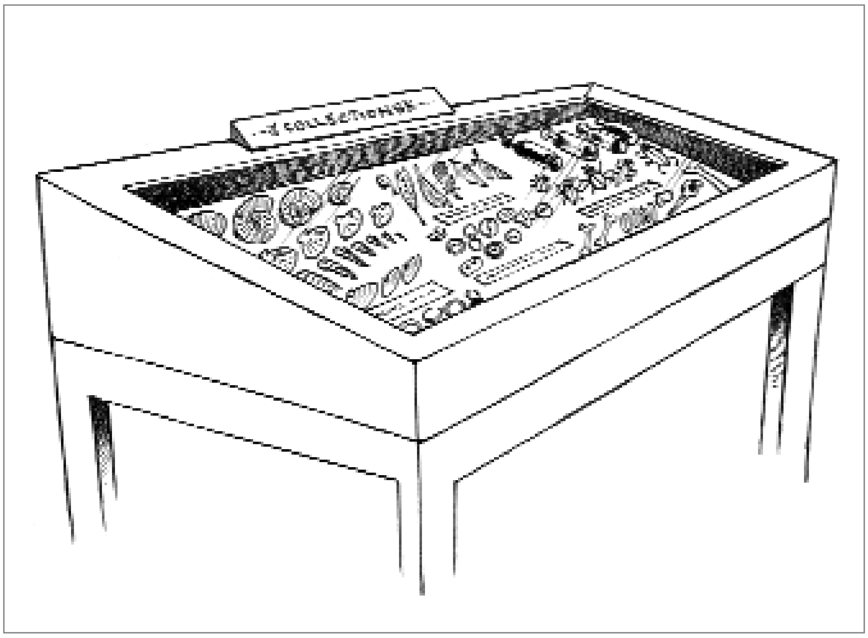
Alternatively, the mammal collection could be organised by fundamental body structures, such as the reproductive system. This system of classification reveals a clear dichotomy – marsupials in one drawer and placental mammals in another drawer. This classification cuts across the adaptive features of the previous system and redistributes the specimens into completely different groups. But again, another unexpected pattern emerges – most of the marsupials are Australian species (with the exception of a South American opossum) while most of the placental specimens are American. In fact, the marsupials seem to be a feature of the older, more isolated land masses of the southern hemisphere (Australia and South America), while the placental animals appear to be a feature of the large interconnected land masses of Africa, Eurasia and, until relatively recently, North America. Biological patterns start to suggest geological histories of the land masses they come from – the beginnings of biogeographic theory.

The fastidious curator might, at this stage, decide to reorganise the collection entirely along geographic lines, with group membership determined by the continent of origin. Bearing in mind the findings of our earlier classifications, the curator might be surprised to notice that each continental grouping seems to contain just one member of each of the ecological groupings we began with. The Australian group contains one gliding possum, one arboreal phascogale and one terrestrial bilby. The North American group also contains a glider (squirrel), an arboreal harvest mouse and a terrestrial rabbit. The South American group contains a bat, an arboreal opossum, and a terrestrial mara. Although the animals are quite unrelated to one another, each region has developed similar animals to fill particular niches.

What began as a simple attempt to decide which specimens belong in which drawers of a cabinet has revealed several things: that geography underlies differences in basic physiological history; that adaptive distinctions from basic physiology are driven by the demands of different habitats; and that fundamentally different stock on different land masses appear to converge through the pressures of similar habitat and life strategies to look superficially similar. The patterns of nature are the fundamental observations of all evolutionary biology and these patterns led geneticist Theodore Dobzhansky to declare that 'Nothing in biology makes sense except in the light of evolution.'

There is something ineffably significant about seeing with your own eyes a bird collected by Darwin during the formative years of his evolutionary theory – or the skull of a giant 12-metre goanna (*Megalania prisea*) which stalked the Australian landscape within human history – or the silky skin of a Lesser Bilby (*Macrotis leucura*) which barely survived European activities in Australia long enough to be identified by science. Museum specimens link us physically, culturally and intellectually to our past. They are objects endowed with a special resonance and authenticity that technology and interpretation can augment and enhance, but never replace. Perhaps this is why spaces crammed with the paraphernalia of the past can be so engaging compared to the sometimes over-designed and interpreted spaces of many modern museums. Just as the detritus and heirlooms of daily life beloved of local history museums reveal the world of our grandparents, natural history specimens reveal the natural world as it is, as it once was, how we used to see it, and how it might be in the future.

We are all capable of astonishing leaps of imagination and creativity to link these unfamiliar objects into our known world. Sometimes we are fortunate to travel in the company of a knowledgeable guide – a grandmother who remembers Aunty Beryl buying one of those orange juicers for 2s. 6d. or an uncle whose knowledge of steam engines is unparalleled. I count myself as fortunate indeed to have passed briefly through the back rooms of Museum Victoria in the company of many



A display case of objects from Museum Victoria.

collection curators. An offhand comment about a specimen is enough to elicit a whirlwind of connections and coincidences. A pretty shell might spiral into a discussion of geographic variation associated with water depth and ocean temperatures, or offer a view from the first large-scale oceanic survey in Australian waters, or an insight into the life of an extraordinary, but almost unknown, collector. In the hands of their curators, the mundane, the rare and the dazzling, all become keys to other worlds.

It is the self-appointed mission of scientists to navigate through unfamiliar objects, facts, discoveries or observations and attempt to pull them into some kind of coherent pattern. For the museum scientist, the objects in their collections are tangible facts – the physical manifestation of the physicist's data, the chemist's reaction, the mathematician's formula or the zoologist's observation. The objects in a natural history collection, and how they are interpreted, offer a unique insight into the scientific mind and the scientific process.

Today, biological research is conducted in a vast range of institutions, from universities to government research organisations to private industry. But museums, the founding institutions of biological science, remain important contributors to scientific debates. Carefully tending and adding to their priceless and invaluable collections built up over centuries, museum curators provide the historical backbone to scientific research, in which it is all too easy to forget work conducted fifty years ago in favour of that conducted within the last five years. Ongoing developments in evolutionary biology, in particular, are often founded on the fundamental, but time-consuming, work of taxonomists and museum collections.

The type of research conducted in a modern museum differs greatly from the research that first led to their foundation in previous centuries. When Melbourne's museum first opened, many of Victoria's birds and mammals were still poorly understood and the museum provided the only opportunity for the public to compare these species with those from overseas. Today, there is less demand for collecting new vertebrates, although discoveries of reptiles, fish and invertebrates continue to be made. The original collections are now important indicators of the past diversity and abundance of many threatened species and form a baseline for conservation research. While the less charismatic creatures of the world have always found a home in museums, the need to document and understand them is even more urgent today. One of the most active areas of museum-based research is the expansion of marine, freshwater and terrestrial invertebrate collections in collaboration with conservation programs and environmental studies.

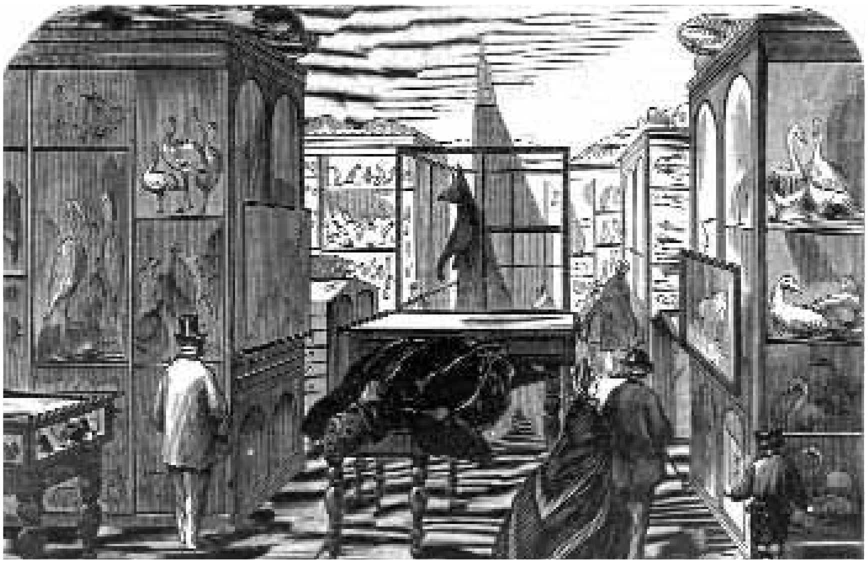
Frederick McCoy (1823–1899), Director of the National Museum of Victoria, 1858–1899.

VICTORIA'S MUSEUM

The institution now known as Museum Victoria began its life as the Museum of Natural and Economic Geology in 1854, one of the first museums to be founded in Australia. In 1856 the professor of natural science at the University of Melbourne, Frederick McCoy, moved the collection to the university and in 1858 was appointed director of the National Museum of Victoria, a position he was to hold for over forty years.

McCoy employed an aggressive strategy for increasing the museum's collections. His third occupational hat, as palaeontologist to the Victorian Geological Survey, provided a steady stream of fossil material to the museum's collections. Alternately petitioning the government for money, purchasing specimens in advance, wheedling exchanges and pestering suppliers, McCoy built one of the finest natural history collections in the southern hemisphere. McCoy was joined by a taxidermist, John Leadbeater, in 1859 (followed by William Kershaw in 1864), but the bulk of the work of identifying, cataloguing, displaying and managing the collections fell to McCoy.

In 1887 Walter Baldwin Spencer (1860–1929) joined the University of Melbourne staff as the first professor of biology. As one of only a few professional biologists in Victoria, Spencer's



The interior of the National Museum of Victoria.
State Library of Victoria.