

# Beetles, Finches and Barnacles

## the zoological collections of Charles Darwin

From beetles collected while he was an undergraduate student at Christ's College, to specimens sent back to the UK while on the voyage of HMS *Beagle*, the University Museum of Zoology, Cambridge houses many specimens collected by Charles Darwin. A new, permanent exhibition of a number of these specimens has been launched for this bicentenary year of Darwin's birth.



This guide includes information about the specimens in the museum's collections, and a gallery plan illustrating where elements of this exhibition can be found. Further and more detailed information about the Darwin collections of the University of Cambridge can be found in the new publication 'A Voyage Round the World: Charles Darwin and the Beagle Collections in the University of Cambridge', edited by Alison Pearn and published by Cambridge University Press.

*"when we regard every production of nature as one which has had a history; when we contemplate every complex structure and instinct as the summing up of many contrivances, each useful to the possessor... when we thus view each organic being, how far more interesting, I speak from experience, will the study of natural history become!"*

*(extract from The Origin of Species)*

### **The Darwin Collections of the University Museum of Zoology, Cambridge**

On December 27th 1831, at the age of 22, Charles Darwin set sail aboard HMS *Beagle* bound for South America. During the five year surveying voyage, Darwin collected many specimens of animals, plants, rocks and fossils. The observations he made were important in the formulation of his theory of descent with modification, and many feature in his revolutionary work 'The Origin of Species', published in 1859. Some of the material collected on the *Beagle* voyage is now housed in the University Museum of Zoology, Cambridge.

During the *Beagle* voyage, Darwin sent specimens back to Britain, in particular to his mentor, Professor of Botany John Stevens Henslow. Some of this material later came to the museum via the Cambridge Philosophical Society. On his return to Britain, Darwin sent *Beagle* specimens to experts to study. Leonard Jenyns described The *Beagle* fish, and these specimens

came to the museum after his death. The Galapagos finches, collected on the *Beagle* voyage by Harry Fuller, came to the museum by a convoluted route, the eight birds he collected first being given or sold to Dr Armstrong of the Haslar Museum, part of the Royal Naval Hospital in Portsmouth. On the closure of the museum in 1856, seven of the eight finch specimens went to Sir William Jardine. In 1886, the collection was sold by auction, and Cambridge ornithologist Alfred Newton purchased them for the museum. The eighth finch came to the museum via Hugh Edwin Strickland.

Other Darwin material, including the box of British beetles, a diverse collection of invertebrates collected on the *Beagle* voyage, and the barnacle material studied by Darwin for his taxonomic work on the Cirripedia, came to the museum via Darwin's third son, Francis.



University Museum of Zoology,  
Cambridge  
[www.zoo.cam.ac.uk/museum](http://www.zoo.cam.ac.uk/museum)



UNIVERSITY OF  
CAMBRIDGE  
800 YEARS  
1209 - 2009

*Darwin*

The Darwin Festival  
5-10 July 2009 | Cambridge  
[www.darwin2009festival.com](http://www.darwin2009festival.com)

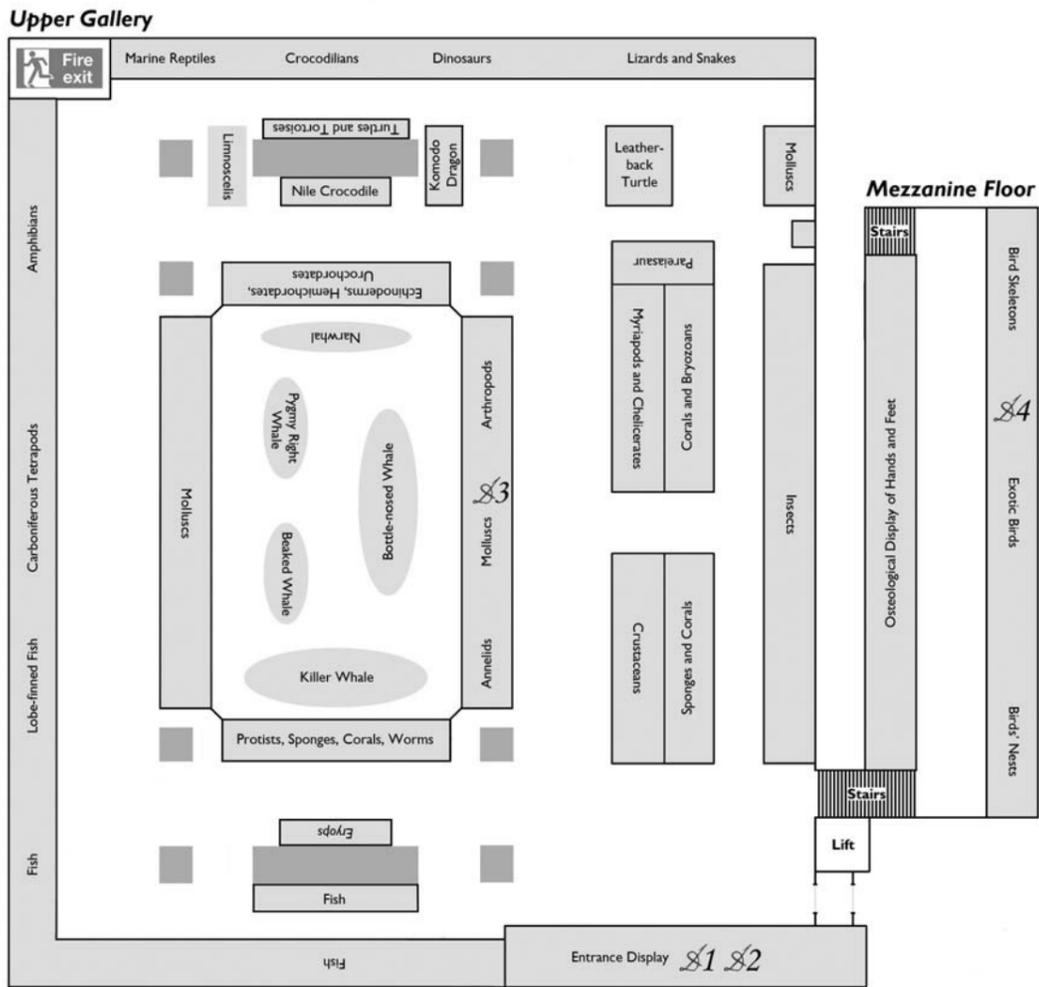
# 81 Darwin's Rhea

Darwin's Rhea (named *Rhea darwini* by John Gould in 1837, but later synonymized with *Rhea pennata*, a name given in a description of the species in 1834) is a flightless bird Darwin recorded reports of while in Rio Negro in 1833. The overlap of the geographical range of this endemic species with that of the more widespread and larger *Rhea americana* was of interest to Darwin.



# 82 Seychelles Tortoise

The Seychelles tortoise (*Testudo elephantina*) is closely related to the famous Galapagos Giant Tortoises, and gives an idea of the size of these huge creatures. Galapagos Giant Tortoises are endemic to the islands. They have evolved there and are not found elsewhere. Furthermore, tortoises from different islands show different adaptations, such as different shaped shells.



# 83 Cape Verde Octopus

In the museum collections are two octopus specimens collected by Darwin on St Jago, one of which is on display. Darwin wrote of "the most marvellous power of changing its colours; equalling any chameleon" in a letter to Henslow in may 1832. In reply,

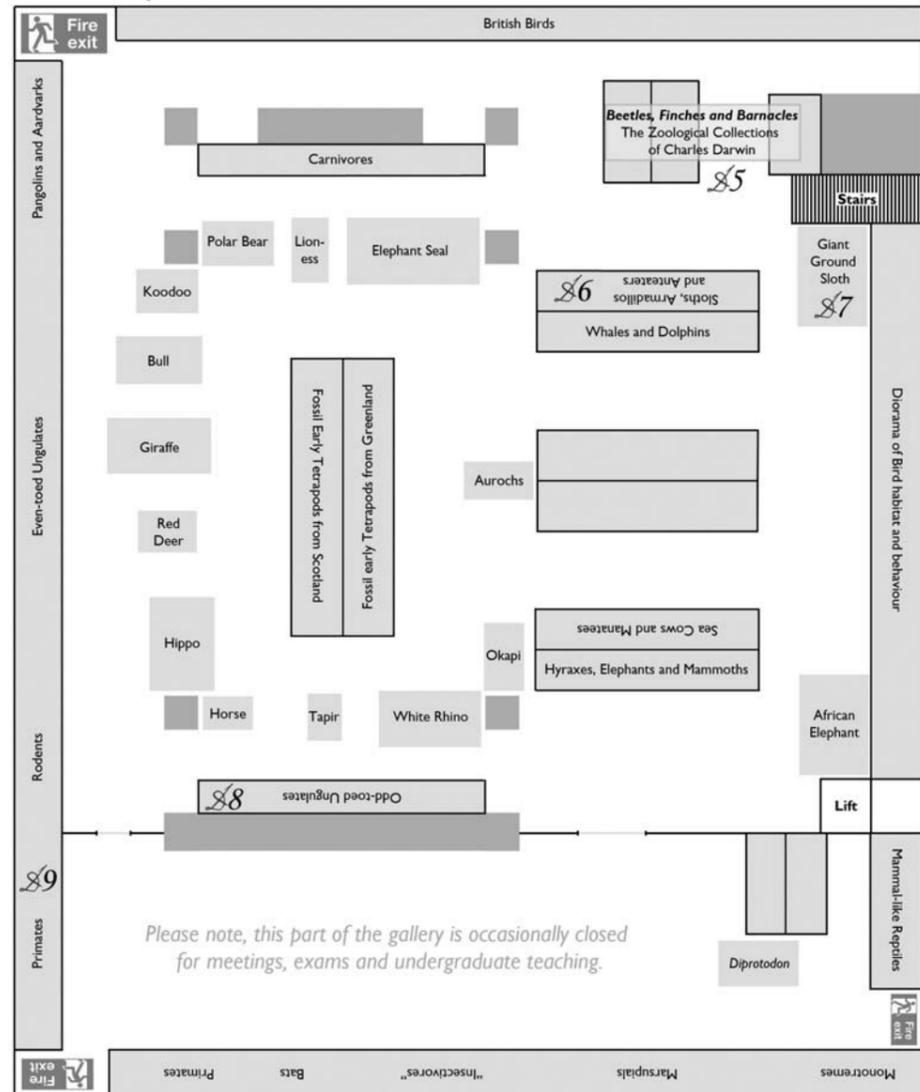
Henslow wrote "I myself caught an octopus at Weymouth this summer and observed the change of colour whenever I opened the tin box in which I put it...The fact is not new, but any fresh observations will be highly important."



# 84 Argus Pheasant Feathers

Darwin's collections of feathers was donated to the museum by his son George. The plumage of the male Argus pheasant is featured in 'The Descent of Man' to demonstrate

sexual selection, combining the observations of the perfectly shaded "ball-and-socket effect" ocelli and their position when the male is displaying where they are easily seen by the female.



# 86, 87 & 88 Glyptodon, Megatherium and Toxodon.

Darwin was impressed by the large, bony shield and huge fossil bones he found in several parts of La Plata, South America. The similarities between these bones and those of living sloths and armadillos were especially striking, despite the enormous size of the fossil bones in comparison to the living forms. He did not believe these fossils to represent direct ancestors of living forms:

"It may be asked in ridicule, whether I suppose that the *Megatherium* and other allied huge monsters have left behind them in South America, the sloth, armadillo and anteater, as their degenerate progeny. This cannot for an instant be admitted."

(extract from *The Origin of Species*)

These fossils were used as examples to show that the observation of the succession of the same types in the same areas could be explained by the theory of descent with modification.



# 85 Beetles, Finches and Barnacles - The zoological collections of Charles Darwin

The major part of the new Darwin exhibition of the University Museum of Zoology is housed in these cases in the lower gallery. Here you can find specimens of fish collected on the *Beagle* voyage, slides of barnacles prepared by Darwin when describing the group, Galapagos finches, and a box of beetles Darwin collected as an undergraduate student at Cambridge University.



The beetles were originally housed in a cabinet, from which they were removed for arranging and renaming by nineteenth century entomologist G. R. Crotch.

Beetle collecting was a favourite pastime of Darwin's while he was an undergraduate student, an activity

he was introduced to by his cousin and keen amateur entomologist William Darwin Fox, who also studied at Christ's College. Darwin corresponded with Fox throughout his life, his letters often turning to 'insectology'.

"I have a great number of insects at Cambridge for you...Whenever I take any thing good, you may rely upon it, that you are always uppermost in my mind: I shall not soon forget my first entomological walks with you..."

(Letter from Darwin to Fox, 15th July 1829, available online at the Darwin Correspondance Project.; www.darwinproject.ac.uk)



While on the *Beagle* voyage, Darwin collected many animals, and on display here are a selection of the fish he collected and sent to Leonard Jenyns, an old friend of Darwin's, for description. These were donated to the museum on Jenyns's death.

Ornithologist John Gould was the expert called upon to study what are perhaps the most famous of the *Beagle* specimens: the finches collected on the Galapagos Islands. These have since become the poster image for adaptive

radiation, with different beaks in the different species reflecting differences in their diets. However, the Galapagos finches are not mentioned in *The Origin of Species*, and it has been suggested that rather than the finches shedding light on the theory of natural selection, Darwin was able to interpret the significance of the adaptations of these finches in the light of his new theory.

The other major collection on display are the barnacle slides used by Darwin in his description of the

group. Between 1846 and 1854, Darwin studied specimens he had collected, and those from collections around the world, for his monograph on the living and fossil Cirripedia. This publication would prove his credentials as a zoologist and taxonomist, but whether this was the primary reason behind this work, or whether he was biding his time before publicly testing his new ideas about species is unclear.



## D9 The Descent of Man

Despite having made notes on the way his theories related to the evolution of humans, Darwin omitted this highly controversial issue from *The Origin of Species*. Instead, the subject is covered in his book of 1871 *The Descent of Man, and Selection in Relation to Sex*, the

aim of which he stated was:

“...to consider, firstly, whether man, like every other species, is descended from some pre-existing form...”

(extract from *The Descent of Man*)

At D9 is a display of the great apes, including a human skeleton to highlight the similarities between them.

## Darwin exhibitions and events around Cambridge

2009 sees the bicentenary of the birth of Charles Darwin, and the 150th anniversary of the first publication of *The Origin of Species*. Many of the Darwin collections held within the University of Cambridge are being made accessible for the general public, and special events and exhibitions hosted to celebrate this man and his revolutionary ideas:

### **Darwin the Geologist**

at the Sedgwick Museum of Earth Sciences

A permanent exhibition telling the story of the rock specimens that Darwin collected on the *Beagle* voyage and how he analysed and used them in his early scientific work.

Opens Tuesday 7th July 2009

for further details, visit [www.sedgwickmuseum.org](http://www.sedgwickmuseum.org)

### **Endless Forms: Charles Darwin, Natural Science and the Visual Arts**

at the Fitzwilliam Museum

Science meets art in this ground-breaking exhibition, which explores the fascinating relationship between the revolutionary theories of Charles Darwin and nineteenth-century art.

Tuesday 16th June - Sunday 4th October 2009

for further details, visit [www.fitzmuseum.cam.ac.uk](http://www.fitzmuseum.cam.ac.uk)

### **A Voyage Round the World. Charles Darwin and the Beagle Collections in the University of Cambridge**

at Cambridge University Library

Cambridge University Library houses the world's major archive of Darwin manuscripts, books and letters. This exhibition reunites manuscripts and natural history specimens from the University's collections, many of them never before seen in public, and shows how Darwin's experiences on the *Beagle* played an essential role in the formulation of his theories throughout the rest of his life.

Monday 6th July - Wednesday 23rd December 2009

for further details, visit [www.lib.cam.ac.uk](http://www.lib.cam.ac.uk)

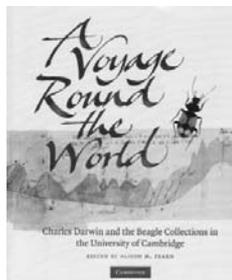
### **Charles Darwin: On Land and At Sea**

at Christ's College

A wide-ranging exhibition in the Old Library, focusing on the student Darwin, containing letters, unique archival documents, and specially commissioned artwork. At Christ's College you can also see Darwin's student rooms fully restored to their appearance in his day, and sculptures of Darwin as both a young and old man in the college grounds.

On until Thursday 12th November 2009

for further details, visit [www.christs.cam.ac.uk](http://www.christs.cam.ac.uk)



### **New Publication: A Voyage Round the World** edited by Alison M. Pearn

This book has been published to mark the particular connections between Charles Darwin and the University of Cambridge, and includes the stories behind the many Darwin collections it houses. It is a fascinating read and beautifully illustrated, with insights into the life and work of Darwin and the importance of the *Beagle* voyage on his scientific ideas.

Published by Cambridge University Press, 2009

“Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.”

(extract from *The Origin of Species*)