

The Oxford dodo

The dodo is the most famous of all the creatures to have become extinct in historical times. The remains of the dodo at Oxford are one of the greatest treasures of the Museum.



The skull of the Oxford dodo

The dodo was discovered by Europeans in 1598. It was a flightless bird that lived on the island of Mauritius in the Indian Ocean. Although the dodos were easy to catch, their meat was not that tasty; their rapid decline was probably due less to hunting, and more to the fact that the dogs, cats, rats and pigs, introduced to Mauritius, destroyed the dodos' eggs and habitat. By 1680 the bird was extinct. The dodos were a curiosity, and some were brought to Europe by wealthy collectors. One of these birds was exhibited in John Tradescant's London museum. His collections were later left to Elias Ashmole and so came to Oxford, where now only the mummified head and foot remain. Although minimal, these specimens represent the most complete remains of a single dodo, and are of great value to scientists today.

What is 'Learning more'?

'Learning more' presents a series of articles about the Museum and its collections. It is designed for older students, teachers, researchers, and anyone who wants to find out more about particular aspects of the Museum's work and its history.

This article introduces the Oxford dodo, currently held by the Museum's zoological collections.

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What did the dodo look like?

Most people believe that the dodo was a fat, ungainly bird, but as it has been extinct since the late 1600s, nobody really knows what the dodo looked like. The 'dodo' skeletons in other museums are made up from the bones of several birds, and even the Oxford specimen is incomplete, so there is very little definite evidence. Contemporary paintings are therefore very interesting.



The dodo is the most famous of all the creatures to have become extinct in historical times. It was immortalised in *Alice's Adventures in Wonderland*, and was a favourite for Dodgson who had a stammer: Do-do-dodgson.

Before cameras, newly discovered animals could only be painted; the artists that recorded them often had no knowledge of natural history, and were more interested in the fashion for depicting plump or colourful animals than recording their true likeness. Many of the older dodo paintings were based on the few birds brought to Europe. Others may well have been drawn from badly stuffed specimens, and in some cases they were simply copied from earlier paintings.



Copy of the "George Edwards" painting

George Edwards' 1759 painting is particularly colourful, and shows the dodo surrounded by other birds. It is very similar in appearance to Tenniel's *Alice* drawing (above).

Oxford's painting

The painting in the Museum was presented to the Ashmolean in 1813 by W. H. Darby. It dates from 1651, and was produced by the Flemish artist, Jan Savery. His uncle, Roelandt Savery, painted many images of the dodo, and it seems likely that Jan copied from one or more of these paintings. The animal illustrated appears to have downy feathers and a relatively large head, features usually associated with younger birds, but, as Jan's uncle had been known to depict the dodo with webbed feet, there was obvious confusion about the birds' appearance.



Oxford's painting
A few dodos were brought alive to Europe in the early 1600s. Confined without exercise and given the wrong food, they became obese. This may explain Jan Savery's depiction of the bird in 1651.

Fat or thin?

The best information about the dodo might be expected to come from the people who saw the bird in its native habitat. Unfortunately, most of the written accounts tell us more about 17th century attitudes to nature and the writers' own concerns than they do about the dodo itself. Images produced by some of the first Europeans to visit Mauritius in 1598 showed very thin birds. In a scene from Admiral Van Neck's account, a rather athletic dodo is striding off into the distance. This is in marked contrast to the fatter, European representations.



The dodo depicted in an illustration from the first Dutch exploration of Mauritius in 1598; note that it is much slimmer here than in later paintings.

A new reconstruction

Recent research has challenged the traditional depiction of a fat, ungainly dodo. Measurements of the Oxford specimen and the hundreds of bones amassed in the Natural History Museum and the Cambridge Zoology Museum, have been used to calculate how much weight the bird could have carried. This suggests that the 'fat dodo' would have been too heavy for its skeleton to support and would have collapsed. A new reconstruction of the dodo is much slimmer and looks more similar to the earliest drawings of the bird (bottom left).



The 'slimline' dodo
A model of the 'slimline' dodo on display in the main court. Research has shown that this model is a much closer representation of the dodo than that of Savery's painting (far left).

The dodo in the Museum

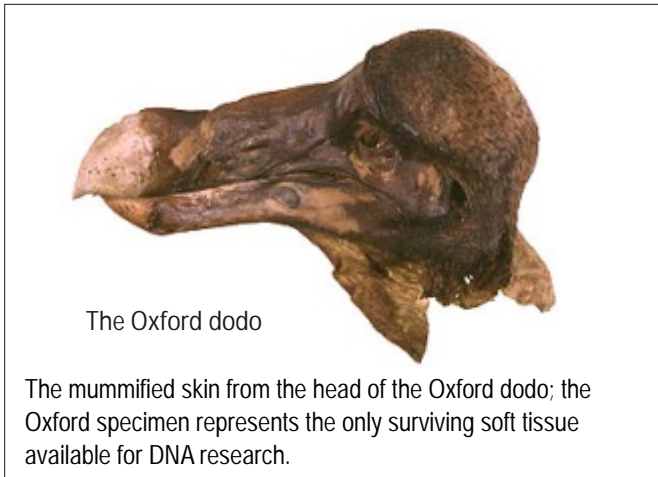
The Museum is home, not only to the Oxford dodo, but also to the famous Savery painting of 1651 on display on the western wall of the gallery, and a copy of the later, more colourful depiction of 1759. Casts of the Oxford dodo, the 'slimline' model, and a cast of a composite skeleton are on display in the main court.



Dodo DNA Research

A team from Oxford University and the Natural History Museum, London, has shed light on the genetic origins of the dodo, and has suggested possible ways in which this species of bird came to be isolated on the island of Mauritius.

Despite being the emblem of extinction, the evolutionary history of the dodo is poorly understood. Like many other birds confined to islands, the dodo underwent extreme evolutionary change; with very little evidence to work with, scientists have struggled to elucidate the relationship of the dodo to other birds; it has been linked with everything from parrots, pigeons, and shorebirds, to birds of prey.



Recently, researchers from Oxford's Ancient Biomolecules Centre, Oxford's Department of Zoology, and the Natural History Museum in London have been able to retrieve tiny fragments of DNA from the Oxford dodo. Since it is the only surviving specimen with soft tissues, the Oxford dodo is crucial for studies of this kind.

The dodo DNA (taken from the leg bone) was compared to gene sequences from the solitaire, an extinct 'dodo-like' bird from neighbouring Rodrigues Island, and 35 species of pigeon and dove, as well as other bird groups. The DNA showed that the closest living relative to the dodo and solitaire was the Nicobar pigeon, from southeast Asia; the next nearest relatives were found to be the crowned pigeons of New Guinea, and the unusual tooth-billed pigeon of Samoa.

The results

DNA research has shown the dodo is closely related to pigeons and has finally resolved the question of the dodo's ancestry; without the Oxford specimens this would have been impossible.



Further implications

Professor Alan Cooper, former director of the Ancient Biomolecules Centre, described how the dodo and its relatives became distinct from each other:

'The genetic differences suggest that the ancestor of the dodo and solitaire separated from the Southeast Asian relatives around 40 million years ago, and sometime after this point flew across the Indian Ocean to the Mascarene Islands. The data suggest that the dodo and solitaire speciated from each other around 26 million years ago, about the same time that geologists think the first (now submerged) Mascarene Islands emerged. However, Mauritius and Rodrigues islands are much younger (8 and 1.5 million years respectively), implying that the dodo and solitaire used the now sunken island chain as stepping-stones. Furthermore, the isolation of Rodrigues Island suggests that the solitaire, at least, may have still been able to fly as recently as 1.5 million years ago.'