Darwin and Evolution
Shared ancestries

VOICE OVER
The world is a place of amazing Biological diversity.
Wherever you look on this planet you are met with a breathtaking range of species on land, sea, or down a microscope.

As people started to travel the world, and look in astonishment at this immense diversity, they began to collect specimens and bring them home, to study them, and try and understand the reasons for the differences between them.
Naturalists in the 19th Century were especially enthusiastic in their drive to understand this diversity.

And today we can still visit a superb location showing the best of the Victorians' efforts to find the answers.

Tring. Hertfordshire.
It was built in 1889 as a private Museum for the wealthy amateur naturalist Walter Rothschild.
Today it's an outpost of the Natural History Museum.
The beautifully prepared exhibits were the Victorian counterpart to today's wildlife spectaculars on the television; but do they still have a message for us?
By examining the specimens, we can pick out key principles of evolutionary biology.

The natural groupings of animals displayed here reflect their evolutionary relationships.

Take bears. The polar Bear. It's uniquely adapted to life in its frozen habitat.

And, although the Brown Bear is a member of the same group of species, it is markedly different in terms of habitat, diet, and many aspects of its appearance, such as head shape.

But Tring houses evidence of the genetic closeness of these two species – a rare, natural pale brown hybrid of the two.

Close and careful inspection of Trings' specimens reveals further evidence for more distant evolutionary relationships between species – and results in some fascinating insights.

What links…the hippopotamus, and…the dolphin?

Charles Darwin was among the first to recognise that underlying anatomical similarities, known as homologies, in animal groups of otherwise contrasting appearance, adapted to altogether different conditions, can reveal their shared ancestry in the distant past.

And in this example the relationship is revealed by close inspection of the skeletons of the animals.

The clearly identifiable shoulder blade of a pygmy hippopotamus, and the bones of its foreleg, down to the foot, ending in splayed digits.

The dolphin has a strikingly similar anatomical assembly of bones in its forelimb, despite its fin-like shape.

But, while some anatomically similar species have diverged in their appearance and adaptation, like the Dolphin and Hippopotamus, others, from only remotely related groups or taxa, can show striking evolutionary convergence.

Penguins and Dolphins share the sea, and both are superbly adapted to swimming, resulting in a similarly streamlined body shape. So comparative anatomy reveals both divergent and convergent patterns of evolution.