



## **Darwin and Inheritance**

*Galapagos & Nature's Variety*

### **PETER CAPALDI:**

But Darwin's genius had been to ask the difficult question about the complexities of biological change. He had been born into a world that believed every living thing was the handiwork of an all-knowing creator. How else could you account for the wonderful complexity of life? Or for the fact that each creature is so marvellously adapted to the environment in which it lives? Any other explanation was too improbable for words. But Darwin was trying to unravel the improbable - to discover natural laws that would explain the world around us. Mount Improbable, Richard Dawkins has called it.

### **RICHARD DAWKINS:**

You have to picture Mount Improbable as a huge great precipice, absolutely sheer and on the top of it is sitting the most complicated piece of living organisation you can imagine, for many people it would be an eye. And the metaphor of leaping from the bottom of the cliff to the top of the cliff corresponds to that eye coming into existence spontaneously by sheer luck and obviously it can't be done, you cannot leap from the bottom of the cliff to the top. But if you go round the other side of the mountain what you find is a slow gradual ascent and it's very easy to get from the bottom of the mountain to the top just by putting one foot in front of the other so long as you've got enough time.

### **PETER CAPALDI:**

This idea, that life could evolve, slowly but surely, through natural selection into the complex forms we know today, is as powerful now as it was a hundred and fifty years ago. So how was it that Darwin got into such a muddle when he tried to understand the way inheritance might work? Imagine the young Charles Darwin, 22 years old and off on the adventure of a lifetime as Naturalist on the Beagle. It was from this experience that his ideas began to take form. During those five years in which he quite literally travelled the world he was confronted with the overwhelming variety of nature of new species undreamed of ... but more than that, he began to be aware of the variations to be found within species. His attempts to explain the nature of this variation, and its causes and consequences, were to occupy him for the rest of his life. On the Galapagos, a group of islands some five hundred miles to the west of Ecuador, he came across his famous finches, though at the time he didn't realise that they were all finches at all.

### **ROBERT PRYS-JONES:**

Well I think Darwin must have found it extremely confusing. There is a group of birds here, some of which look very similar to each other with just differing beak sizes, but others of which really look rather different. There are birds here that look like warblers, not like finches at all. There are birds which look like American blackbirds, ichteryds, so I think initially Darwin really wouldn't have appreciated that there was a large number of closely related forms at all.

### **PETER CAPALDI:**

On his return, Darwin handed the birds to the artist and ornithologist John Gould, who quickly identified them as a number of new finch species. The germ of a great idea was forming. Perhaps the birds had evolved from a common ancestor.

### **ROBERT PRYS-JONES:**

The logical explanation for this group of really closely related forms occurring in this isolated island group is that there must have been a common ancestor which has diverged in a number of different ways within recent geological time and become species. So species weren't eternally fixed entities. They could arise in recent geological time.

**PETER CAPALDI:**

The Galapagos Islands, the remains of intense volcanic activity, rose up from the sea around five million years ago - not long, as it turns out, in evolutionary terms. So, in that time could one species really have evolved into several? The idea that a species might change and new creatures evolve was not only shocking to those who believed in a divine creator and a perfect creation, it was just as puzzling to the Victorian scientists who were busy exploring and trying to make sense of the world.