“The Evolution of Biodiversity”

Rachel Warnock and Alex Dunhill

Bristol University

Two research students from the Earth Sciences Department of Bristol University gave in this joint lecture some extraordinary insights into the evolution and demise, of much of life on earth throughout geological time.

Alex Dunhill began with what is known as the “Cambrian Explosion” when over 500 million years ago, there was an incredible profusion of strange creatures. He explained why the range and number of fossils is limited - it is hard to become fossilised! That explosion has shown the rapid rise in life forms, as more and more species evolved. But since then several “Mass Extinctions” have occurred: one, about 300million years ago wiped out 70% of all life forms. Then it was the survivors that evolved. The dinosaurs emerged, then came and went in another “Mass Extinction” 65 million years ago and a new range of species, including the mammals emerged.

Alex was tracing the evolution and demise of plant and animal species, and charting the ways in which the biodiversity of life on earth has risen and fallen. That the record of fossil forms is both sparse and incomplete is a major problem.

In contrast Rachel Warnock takes a different approach. She is working back through time using the concept of the ”Molecular Clock” which with science’s knowledge of the structure of chromosomes postulates that mutations occur at a regular rate. The number of changes found can be used to indicate when they evolved from a common ancestor. Thus we and the chimpanzees parted company 6.5 million years ago. If we visualise evolution as some sort of “Tree of Life” her work is clarifying when some of the branches and twigs on that tree occurred.

Those members of the audience with knowledge of the development of biodiversity through evolutionary processes were humbled to see these young students finding new ways to unravel some of the mysteries of life through “Deep Time”. For others it was an inspiring insight into research in progress.

Given on Wednesday 11th April at the Royal Agricultural College