

Life Stories by John Cartmell

Presentations to the Exploring Science Group 2024 - 2025

In January I embarked on what is to be a series of six explanations of life for the **Exploring Science** interest group. I normally offer up to half a dozen 'possibles' presentations for Anne each year and she picks two or three from my list. This time I suggested a series of six to be presented over two years and the January, May, and September 2024 Science group meetings were agreed for the first three of the series. The concept is to look at the time-line between the origin of life and today's humans—and pick six stepping stones along that line. At each stop I hope to bring the latest scientific understanding of what happened. Hopefully this will refresh the probably now very outdated story we were offered at school (or university). Our understanding of this area of science has been overturned multiple times in recent years through increased knowledge of now-extinct creatures and now by application of DNA information to find the true links between creatures.

Many of our findings turn our traditional names into nonsense. Birds (which are dinosaurs) need be called reptiles (and so should mammals) unless we re-think how we apply the word 'reptile'. The best plan would be to drop it altogether but it's still in use for school examinations! You might also be very confused in deciding whether whales should be regarded as having hooves with odd or even toes now that we know their nearest relatives are hippos! Despite all that, I'm keeping technical terms to a minimum and will offer simple explanations of the very latest scientific findings. Each of the presentations will be a one off—they won't depend on having seen a previous part of the series but I do hope that you might want to know 'what happens next ...'.

The six **Life Stories** (the overall title) will feature the origin of life, first complex cells, different forms of animals, early mammals and dinosaurs, the major groups of mammals, and the evolution of humans. In each case I focus on what isn't commonly known or where our understanding is changing because of recent research findings. For instance, I will look at the synapsids (early 'proto-mammals') to show that they 'ruled' the Earth before the dinosaurs appeared, and suggest that mammals kept dinosaurs out of their domain (i.e. of being small)—something that may have been the cause of extinction for all dinosaurs (excepting birds) 66 million years ago. And it's possible that dinosaurs were responsible for mammals now having a surprisingly short life span.

In each of the Life Stories I hope to identify some aspects of our ancestry that has affected our present condition. Some that spring to mind are our eating, hearing, seeing, longevity, and the essential mother to child link of bearing a live child and breastfeeding. Going back much further than the first mammals might be our aesthetics and also our link to the earliest complex cells that not only gives us our energy but also enables us to identify our maternal line for family historians and archaeologists researching our history and pre-history. I will introduce the group to scientists of the past and of today who have run critical research and who write for a general audience. I want to offer the stories of both what happened and how we discovered what happened. For the fourth Life Story I also hope to look at how palæoartists and films have shaped our understanding of what extinct animals were

like. We are today what evolution pushed our ancestors into being thousands, millions, or even billions of years ago.

What else? Well because I'm advertising this so far ahead it gives you the chance to ask questions in advance. If there is anything that you would want to see answered about how evolution has shaped our past then send me an e-mail (johncartmell@me.com) and ask. If I can I will include the answer in the most appropriate Life Story.

Life Stories

1. Beginnings the origins of life presented 19th January 2024
2. Being together first complex cells 17th May 2024
3. Our template major animal phyla 20th September 2024
4. Mammals & dinosaurs the first of both groups early 2025
5. Forms of mammal living groups spring 2025
6. Being human last 5-7 million years autumn 2025

I hope you enjoy the journey and the stories.

I'm considering producing a video version of each Life Story sometime after presenting them live to the science group. They would cover roughly the same subject area as the live presentation but will inevitably include a good few differences from feedback, later discoveries of mine, and what's possible/best for the different form of presentation. If you would like to be part of a small audience for any one of them then please let me know.

John Cartmell