



A chance collision creates complex life

Transcript: Video clip from *Human Universe*, episode two.

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A long time ago, two or three billion years ago, the Earth was populated only by single-celled organisms, two great kingdoms of life - the bacteria and the archaea. And, it has to be said, things were pretty dull. There was nothing that we might call complex and, in fact, very little happened. Those two single-celled things just stayed the same for billions of years.

But then one day, quite by accident, everything changed. What many biologists believe to have happened is that a bacterium got inside an archaean and for some reason wasn't digested. Instead, a symbiotic relationship began. The bacterium may have been protected by the archaean, while the archaean got access to the energy generated by the bacterium.

Once that cell had access to the vast amounts of energy, the potential that the internal bacterium gave it, then basically all hell broke loose. And that energy allowed the cell to begin to work in larger colonies, to begin to build complex living things.

So the mitochondria in your cells today are the descendants of that chance collision billions of years ago.