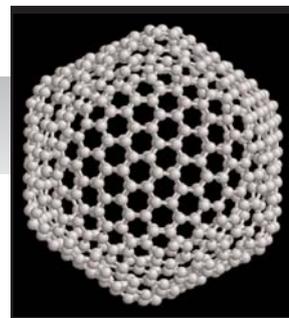


Science mutters



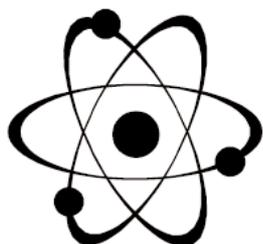
Back in February, Martin Luck started a debate over what was natural and what was not. This month, Lewis Dartnell takes up the baton.

Firstly, we should perhaps clear up the definition of “appears in nature”. Here, I take it to mean anything that can be produced without human invention (either biologically or abiotically), rather than the more strict sense of only things that have been evolved by living organisms.

The base of the bacterial whip-like ‘flagella’ are indeed good examples of wheels in nature, as is the rotating spindle of the enzyme ATP synthase, an energy-generating enzyme common to all life on Earth. There are other examples of wheels in nature “Simon Conway-Morris’ *Life’s Solution*” gives a few.

Buckminsterfullerene does in fact appear in nature and is involved in the evidence for an impact wiping out the dinosaurs. Impact shocks can form various buckyballs in a similar process to that originally used by Harry Kroto, the person who first discovered them. Radio astronomers are now looking for fragments of buckyballs in the interstellar dust clouds that condense to form new stars and planets. Such clouds are already known to be stuffed full of biologically-crucial organics like formaldehyde, and possibly also amino acids and sugars.

CFCs are thought to be a better example of a molecule unlikely to be produced by natural chemistry. Detecting it in the atmospheres of distant planets is even thought by some to be a solid indication of an industrial civilisation - intelligent ETs.



I agree with Martin that laser light is definitely an artificial phenomenon as there are no natural coherent light sources in the known Universe. Organisms are very

constrained in the radiation they can produce, and there is a good argument for why they do not use radio waves for communication, for example. But bioluminescence (production of visible light by organisms such as some marine bacteria and fireflies) is only a little way along the same electromagnetic spectrum. In fact, some of the molecules responsible for bioluminescence have been cloned and are now essential tools in the molecular biology lab - a good example of technology scavenging ideas from nature.

So my own suggested man-made object is the original A-bomb, fuelled by fission of uranium or plutonium nuclei rather than the hydrogen fusion of more modern nuclear weapons. Star’s burn with nuclear fusion, and the Earth’s interior is kept hot by nuclear

“CFCs could give us a clue to life on other planets”

decay of unstable isotopes of uranium, thorium and potassium. There is even the example of a uranium ore seam in Gabon

that went critical 1.7 billion years ago to operate as a natural nuclear reactor, moderated and kept stable by the water table. But no-where has there been a supercritical chain reaction resulting in an explosion. It takes a great deal of organisation to enrich the uranium and then only suddenly tip it over the critical mass for a violent detonation - something that surely can only be done by human technology.

What are your views? We’d like to hear them. Write to us and we’ll keep this “man-made only” list going.

Send us your thoughts. E-mail the *Null* and we’ll print your letters and comments. Send your ideas to letters@null-hypothesis.co.uk