



'Omega Centauri', a big cluster of 1 million stars in our own Milky Way galaxy

But there's a *lot* more out there. Just as our Sun is one insignificant star in our Milky Way galaxy, so the Milky Way is one insignificant galaxy among billions of others! There are clusters of galaxies – we live in the very imaginatively named 'Local Group'. But just wait until the galactic estate agents get on the job, however – I'm sure they'll dream up something much more poetic and romantic than 'Local Group'! The largest member of that group is the Andromeda Galaxy, which is just visible to the unaided eye as a little misty patch. But that little misty patch is actually about 200,000 million stars, each on average as bright as the Sun! It appears so faint simply because it's 2.5 *million* light years away. That means that the light from it which we are seeing now started its journey towards us 2.5 million years ago, when our primitive ancestors were just learning to walk upright!

There's another even bigger cluster of galaxies in the constellation of Virgo, and along with it and a few others, we are all members of the so-called *Virgo Super-Cluster*. Then there are even bigger groupings – huge webs of superclusters of galaxies in effect, and so on... In fact, in very round figures, there are about twice as many galaxies in the universe as there are stars in our own galaxy – about 300,000 million. Some are a lot smaller than our Milky Way, others are a lot bigger. On average they each contain about as many stars as our Milky Way galaxy.

So the estimated number of stars in the universe is about 150,000 million multiplied by about 300 thousand million! That's '45' followed by 21 zeros! That seems a bit excessive if it was all done just for our benefit here on Earth, doesn't it?

All those groupings – as far as our most powerful telescopes and radio telescopes can see – make up the 'Observable Universe'. How big is it? Bigger than you can even start to imagine! The most distant objects we have detected are about 12,000 million light years away, imaged by the Hubble Space Telescope in the so-called 'Hubble Deep Field'. Remember, a light year is about 5.9 million million miles, to the nearest round figure. That works out at about 70,000,000,000,000,000,000,000 miles. And there's probably even more – that's just the bit that we can see!

Once again, it seems all a bit OTT just to have one little planet called Earth capable of bearing human life.... Of course, we may not be alone! –but I'll come back to that later.

That's quite impressive to start with, I'm sure you'll agree. But there's another angle. Human civilisation began about 8,000 years ago – or it has yet to begin, depending on your point of view! The first hominids appeared 1-2 million years ago, and the first mammals about 70 million years ago. The very first primitive life on Earth appeared about 3,000 million years ago. And the Earth itself was formed about 4,600 million years ago. That seems an awful waste of time if thinking human beings only appeared within the last 20,000 years or so – or as recently as about 6,000 years ago according to Archbishop Ussher of Armagh.

But the universe itself is much older than that – about 13.6 billion years old, according to the latest estimates. That's 13.6 thousand million years! Give or take a hundred million. So, if it's all there just for our benefit, there was *rather a lot* of time wasted, when nothing much was happening, before we came along! About 99.9999% of the age of the universe was a waste of time, if it was all for our benefit!

A useful analogy is to compare the entire age of the universe up to now, to the 24 hours in a single day. On that compressed timescale, the first humans did not appear until 1 second to midnight! And when Jesus appeared, in whatever form or role, it was a tiny fraction of a second to midnight. Once again, that seems rather an awful waste of time! What exactly was 'The Creator' doing for all the rest of the time????

So, we live in an unimaginably vast universe, populated with billions of galaxies, and stars beyond counting, and it's older than we can even start to comprehend! All for our benefit? – Surely not!

But what if we are not alone? Perhaps a 'Creator' has indeed been busy over all the countless millennia, populating planets going around myriads of other stars in our galaxy, and others! We can make a good guess at how many stars there are in the universe, but how many of them might have inhabited planets going around them?

We think that most stars have planetary systems of some sort. And indeed we have now detected over 200 planets going around other stars. Simplifying things greatly we guess that between 1 in 10,000 and one in 100,000 stars might have planets with conditions suitable for the development of intelligent life. And if we assume that in about one in a million stars there is a planetary system on which intelligent life has *actually developed, and is still in existence*, that still gives about 150,000 other intelligent civilisations in our galaxy alone!

But remember the huge distances, and the time factor! Nothing can travel faster than the speed of light – 186,000 miles per second, or almost 6 million million miles per year. If they are distributed at random throughout the galaxy, there might be none within a few hundred light years of us! Travelling such distances is currently out of the question for us now, and for the foreseeable future. Even if we could actually travel at nearly the speed of light, we would have to accelerate up to that speed, and similarly we would have to slow down at the other end, in each case without having G-forces that would kill us! That gives total journey times of well over a hundred years, each way. So maybe that's why they haven't visited yet.

Let's just assume for now that there is intelligent life elsewhere in the universe – how does that affect the 'Creationist' position? Well, for a start it rather makes a nonsense of all the Christian religions, which argue that the whole universe ➤