

## “IN WISDOM YOU MADE THEM ALL...” (2)

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Is there intelligent life in other parts of the universe? People have for centuries considered the possibility, dreamt about it and written stories about it. They did not seriously start looking for such life, however, until the astronomical advances of the twentieth century. Since then, the Search for Extra-Terrestrial Intelligence (SETI) has become big business. Many scientists are involved in it and some millions of amateurs have joined the quest. This continues in our days, in spite of the fact that today the chance of success does not appear to be nearly as great as was once thought.

### *SETI*

The search for intelligent life beyond the earth has, as we noted, received a boost from the Copernican Principle of mediocrity. According to that principle the earth, the solar system, and we ourselves are not exceptional but typical, run-of-the-mill, and the product of an unplanned, evolutionary process. Since the laws of nature are generally held to be the same throughout the cosmos, it follows that developments which have taken place on earth are likely to have taken place also elsewhere. All that is needed for the development of intelligent life like ours, scientists reasoned, is an earth-like planet orbiting a sun-like star, and SETI enthusiasts expected that there were millions of these in our galaxy alone. The only problem was to locate such planets and make contact.

The search focused initially on planets in our own solar system, with Mars as the favourite. It was unsuccessful, and subsequent space exploration made clear that extra-terrestrial intelligence, if it does exist, must be sought elsewhere in the galaxy, or even beyond it. This means that actual visits to inhabited planets are out of the question. The distances are too great for human beings with their limited lifespan. Contact has to be established by means of radio signals. Science journalist Fred Heeren writes that scientists believed that signals sent into space since the middle of the last century, for example by television and FM broadcasts, should have served the purpose. As one expert suggested, programs like *Jack Parr* and *I Love Lucy* will have been among the first to spread into space. “Within thirty light-years,” that scientist remarked in the 1990s, “there are some dozens of stars. And if they got the word thirty years ago, they would be sending a reply back to us. And those who are only fifteen light-years away will have sent a message back fifteen years ago, which should just about be reaching us today.”

### *Why is there no message?*

Only, it did not happen. The world is still waiting for replies, and today scientists are considerably more cautious in their predictions. They admit that the Milky Way may not be quite as full of intelligent life as they had expected. They also remember that civilizations do not last forever. Much like organic life, they tend to flourish, decline, and die; and one has

to wonder what may have happened to possible civilizations in our galaxy during the ten billion years of its existence. Would not the overwhelming majority have disappeared? Would any survive? There is also the fact that inhabitable planets in our galaxy may be thousands of light-years away, so that earth-dwellers must wait for millennia before an answer can be expected. And if we go outside the Milky Way, we are talking of planets that are millions and even billions of light years removed in space and time. Even if we received radio signals from them, could we assume that the civilizations still exist today?

Another problem for SETI enthusiasts is that space civilizations have not made contact with our planet, or even colonized it. If older, more mature and longer-lived civilizations indeed exist, one may assume that their science is well advanced, that their technology has progressed beyond ours, and that their engineers have developed propulsion techniques that come closer to reaching the speed of light. "Figuring on a cruising speed of 10 percent that of light," Heeren writes, ". . . astronomers say it would take just five million years for one colonizing group to reach every star system across the Milky Way's 100,000 light-years." The question is, of course, whether such propulsion systems are physically possible. Not nearly every expert believes so. And in any event, there are no signs of visits or colonizations by space aliens.

### *The religious factor*

In spite of the accumulating evidence that extra-terrestrial intelligence may be hard to find, enthusiasm for the enterprise remains great, and ever more advanced technology is being used in the search for radio signals. The cause of this perseverance is not just the desire for scientific advances, although that element is present. But there are other motivations. Some hope to find a habitable planet that we can escape to if and when the earth freezes up, or is hit by a meteorite, or if we ourselves blow up our planet or destroy our environment. Colonization in space might be the way to prolong our species' life. There is also the hope that aliens can teach us a thing or two about the art of living. Some SETI enthusiasts assume that older civilizations will be ahead of us not just in technology but also in practical wisdom. They like to think of extra-terrestrials as benevolent and morally superior to us, and therefore willing and able to help us deal with the type of thing that can make life on earth so miserable: crime, terrorism, war, as well as illness and poverty.

And then there is the matter of cosmic loneliness. The late Carl Sagan, one of the best-known SETI astronomers, famously described our planet as "a lonely speck in the great enveloping cosmic dark." It is an echo of the complaint by the seventeenth-century mathematician Blaise Pascal, who in contemplating the new model of the universe exclaimed, "The eternal silence of these infinite spaces frightens me." Pascal was a Christian, who knew that God exists, even though it was no longer possible to locate His dwelling place. The feeling of being abandoned is much stronger among moderns who have lost that faith. It is sad but not surprising that they seek for Father-figures in cosmic space, the only unexplored area left in the universe.

Meanwhile the bankruptcy of Christianity is assumed. Those who are searching for space divinities are sure that the discovery of intelligent aliens will have a devastating effect on the Christian faith. For one thing, they reason, it will manifest the untrustworthiness of the Bible, since Scripture does not speak of intelligent life beyond the earth. It will also show Christian arrogance in believing in a God who has offered a plan of salvation to humanity alone, and not to other intelligent species.

These types of argument bother some Christians as well. Christian apologist C.S. Lewis dealt with them already half a century ago. He answered the taunt of Christian arrogance by remarking that Christ's incarnation does not imply particular merit or excellence in humanity. "Christ died for men precisely because men are *not* worth dying for; to make them worth it." Lewis did not expect that extra-terrestrial life will be found, but neither did he want to set limits to God's power. Should intelligent life indeed be discovered on other planets, he writes, we should consider the following: (1) unlike humans, aliens may not have fallen into sin; and (2) if extra-terrestrials, or some of them, have fallen, God may have used different remedies for them. In this connection Lewis refers to Romans 8:21, where we read that "creation itself will be liberated from its bondage to decay." This would include intelligent beings beyond the earth, if there are any.

#### *A fine-tuned universe*

Confidence in the existence of earth-like planets harbouring intelligent life has declined since Lewis's time. The problem is not only the disappointing results of the search itself. More ominous is the accumulating scientific evidence (provided by both Christian and non-Christian scientists) against the all-important Copernican Principle. More and more it appears that the earth is exceptional after all, and exceptionally fitted for life; that it even seems to have been designed for it. And what goes for the earth goes for the solar system, the galaxy, the universe itself. None of them appears to be the result of an unplanned process.

The discoveries began in the twentieth century and the evidence against the Copernican Principle is by now overwhelming. There is first of all the exceptional "fine-tuning" of the universe: the fact that the laws of nature appear to be designed for the purpose of accommodating life. Should the laws and other features be altered even to the smallest degree, a life-sustaining universe would be impossible. Giving only a few examples out of many, physicist Karl Giberson writes: "Make gravity one percent stronger or weaker and the sun won't shine properly; change the electrical force just a bit and organic molecules won't form; make the universe expand just a little faster and there won't be any solar systems. And so on. All of the various features of this universe appear to have been optimized for life." He adds, "All this would occasion no surprise if it turned out that the laws of nature somehow have to have their current form, if there were some reason why gravity has its particular strength, electrons their mass, the photon its energy, and so on. But, as nearly as anyone can tell – and they seem to be able to tell quite nearly – there is no reason why the various features of our universe are the way they are, and not some other, equally plausible, way."

### *And a rare planet*

A similar type of fine-tuning can be observed locally, that is, on the level of the earth and its solar system. There is, for example, the nearness of the moon, as well as its exceptional size and gravity. It is large and heavy enough to stabilize the earth's rotation and prevent its axis from tilting too far into the direction of the sun or giant planet Jupiter. The earth's axis is tilted at 23.5 degrees, which gives us our seasons, assuring a relatively limited range in temperatures. The moon also helps raising ocean tides and currents, which again play a role in regulating climate. In these and in various other respects the moon's life-supporting function is exceptional compared to other planet-moon systems that have been observed.

The earth's situation appears optimal for the existence of life also because the planet enjoys protection from asteroids, comets, and other "near earth objects" from space. There are large numbers of such objects threatening us, and depending on their size their impact could be devastating. Although the danger remains, other planets, including Jupiter, Saturn, and Mars, form a protective shield around the earth, safeguarding our planet from ongoing bombardments. They serve as "cosmic vacuum sweepers," drawing killer rockets to themselves and so diverting them from planet earth. Fred Heeren quotes a scientist as saying that without a giant neighbour like Jupiter, for example, "comets would strike Earth between 100 and 10,000 times more frequently than they do, meaning 'that we wouldn't be here'."

There are various other data supporting the "rare-earth hypothesis." For example, the earth is located at the proper distance from the sun. If it were further away, its temperature would be closer to that of Mars with its perpetual deepfreeze; if it were closer, it might suffer the scorching heat of Venus. In either case, complex life would be impossible. Other necessities of life which the earth provides (unlike other planets in our system) are liquid water, an oxygen-rich atmosphere, and a protective magnetic field. Our sun, in turn, is at the right distance from the overcrowded centre of the galaxy, where cosmic radiation is too high for life to exist. The sun also has the proper mass, making it possible for its planets to orbit at a safe distance – neither too close to their star nor too far away from it. Although more massive than many other stars, the sun is not so massive that it would produce excessive amounts of radiation and thereby make life impossible. It is also a very steady source of energy. If energy output was not constant – if there were great increases or decreases – the consequences could again be deadly for the existence of complex life. In brief, the earth's sun is far from being an "average star."

### *Astronomy and the Bible*

Astronomers refer to these various factors as "anthropic coincidences" (from *anthropos*, Greek for "human being"), since they suggest the "human-friendliness" of the earth, the solar system, the galaxy, and the cosmos itself. Going directly against the Copernican Principle, the discoveries have caused considerable embarrassment among many scientists. Some try to disprove them, but others agree that the evidence is too strong to be ignored. In

his *A Brief History of Time* Stephen Hawkins admits, “It would be very difficult to explain why the universe should have begun in just this way, except as the act of a God who intended to create beings like us.” And Nobel prize-winning scientist Arno Penzias writes, “The best data we have are exactly what I would have predicted, had I nothing to go on but the five Books of Moses, the Psalms, the Bible as a whole.”

Christian scientist Francis S. Collins, who quotes these men, suggests that Penzias may have been thinking of Psalm 8: “When I consider your heavens, the work of your fingers, the moon and the stars, which you have set in place, what is man that you are mindful of him?” It is true, as Collins also reminds us, that we should not overestimate the religious significance of the recent findings. Scientific theories are subject to change, and in any case, no scientific evidence can ever provide us with proof of the existence of the God of the Bible. Nevertheless, in an age where these theories are so frequently used against the Christian religion, it is good to be reminded of the need to distinguish between science proper and its ideological uses. The case of the rise and threatening demise of the Copernican Principle is as good an example as any.

Note: I have written this series at the suggestion of some of our principals, who expressed concern about the growing influence of a radicalized environmentalist movement nurtured by the assumptions of the Copernican Principle. For further reading on the topic I suggest the following: Francis S. Collins, *The Language of God*, 2006; Michael J. Denton, *Nature's Destiny*, 1998; Guillermo Gonzalez and Jay W. Richards, *The Privileged Planet*, 2004 (note also the DVD under the same title); Owen Gingerich, *God's Universe*, 2006; Fred Heeren, “Home Alone in the Universe?”, 2002; C.S. Lewis, *The Discarded Image*, 1964; *Idem*, “Religion and Rocketry,” 1958; Peter D. Ward and Donald Brownlee, *Rare Earth*, 2000. (Most but not all of these works are by Christian authors.)

