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MARIE I. GEORGE

ET Meets Jesus Christ

A Hostile Encounter between Science and Religion?

THE COPERNICAN REVOLUTION brought with it the realization that there are other suns in the universe, which in turn paved the way to speculation that the planets orbiting them might be populated with intelligent beings. In no time at all, some began to wonder whether the existence of intelligent extraterrestrials (ETIs, to use the conventional acronym) was compatible with the Christian message. The political philosopher Thomas Paine (1737–1809) is perhaps the best known proponent of the incompatibility thesis. He was adamant that “the two beliefs cannot be held together in the same mind; and he who thinks that he believes in both has thought but little of either.”¹

Paine, of course, was eager to find reasons to discredit organized religion. Paine was not, however, alone in endorsing an either/or position in regard to belief in ETIs and Christianity. Philosopher William Whewell (1794–1866), a Christian believer, also embraced this dichotomy. Whewell reasoned that the specialness of the human race (and planet Earth) would be lost if there were other planets inhabited by intelligent life-forms:

The earth . . . can not, in the eyes of any one who accepts this Christian faith, be regarded as being on a level with any other domiciles. It is the Stage of the great Drama of God's Mercy and Man's Salvation. . . . This being the character which has thus been conferred upon it, how can we assent to the assertion of Astronomers, when they tell us that it is only one among millions of similar habitations?²

It has once again become increasingly popular to oppose a belief in Christianity to a belief in ETI existence. For instance, physicist Paul Davies maintains that "it is hard to see how the world's great religions could continue in anything like their present form should an alien message be received."³ And philosopher Willem B. Drees presents us with a dichotomy that suggests (paradoxically) that a loving response to extraterrestrials might require us to set aside traditional Christian beliefs: "But that is not to say that extraterrestrials are to be conformed to traditional theological schemes; Bethlehem does not have to be the center of the universe. It is more important to be open-minded, loving, responsible."⁴

Facile Solutions to the Compatibility Question

Of course, many do not agree that the existence of ETI is opposed to the Christian message. A couple of common approaches used to show that there is no incompatibility, however, fall short of their goal. One of them consists in noting that God is all-powerful and the universe an immense place, from which it is inferred that there would be nothing surprising about God populating other planets. The problem with this approach is that it passes over all the difficulties in reconciling the two beliefs, difficulties that led Paine and others to conclude that the two were incompatible. At a meeting held by the Pontifical Academy of Science on the ETI question, the science fiction writer Robert Sawyer criticized the response of one of the participants on this very score: "It was basically a spiritual as opposed to an explicitly Christian reply, and it

amounts to nothing more than saying that in this whole vast universe, sure, there might be other intelligences. The hard response would be to deal with the issue in explicitly Christian terms.⁷⁵ Talk about the size of the universe and what God is able to do fails to address the doubts about ETI existence that arise from the Christians beliefs in the Incarnation, Redemption, and lordship of Christ.

Another common move in the ETI-Christianity debate is to point out that the purpose for which Scripture was written is human salvation and to conclude from this that Scripture does not say anything that has bearing on the existence of other intelligent beings in the universe. The fact of the matter, however, is that Scripture does tell us about intelligent beings other than humans, namely, the angels and devils. But more importantly, God is certainly free to reveal to us how humankind's savior Jesus Christ relates to all created beings, purported ETIs included. God, if he so chooses, can also reveal to us how the redemption wrought by Christ fits into his plan for the entire universe. And indeed, Scripture does contain statements that extend beyond the confines of planet Earth. Thus, there is absolutely no reason to reject in advance the possibility that Scripture says something that has bearing on the ETI question.

Scripture and the ETI Question

The ETI-Christianity debate cannot be settled without looking at Scripture. Only in this way can we address the claims of the sort made by Thomas Paine:

Though it is not a direct article of the Christian system that this world that we inhabit is the whole of the habitable creation, yet it is so worked up therewith from what is called the Mosaic account of the Creation, the story of Eve and the apple, and the counterpart of that story—the death of the Son of God, that to believe otherwise, that is, to believe that God created a plurality of worlds at least as numerous as what

we call stars, renders the Christian system of faith at once a little ridiculous.⁶

There are a number of passages in Scripture that support the notion that the central event in the universe's history was the Incarnation, death, and Resurrection of Christ. The creation account in Genesis culminates with the creation of Adam and Eve, and at the time of their Fall God promises that the offspring of the woman would one day crush the head of the serpent, foretelling the Good News that the son of a woman would conquer the devil, freeing man from the sin and death the devil had ushered into the world. One could say this story is a story of importance only to us on Earth. A number of Scripture passages, however, indicate that it is the heart of the plan for the entire cosmos:

I, who am less than the least of all the saints, have been entrusted with this special grace, not only of proclaiming to the pagans the infinite treasure of Christ, but also of explaining how the mystery is to be dispensed. Through all the ages, this has been kept hidden in God, the creator of everything. Why? So that the Sovereignities and Powers should learn only now, through the Church, how comprehensive God's wisdom really is, exactly according to the plan which he had from all Eternity in Christ Jesus our Lord. (Eph 3:9–12)⁷

The one who rose higher than all the heavens to fill all things is none other than one who descended. (Eph 4:10)

He has let us know the mystery of his purpose, the hidden plan he so kindly made in Christ from the beginning to act upon when the times had run their course to the end: that he would bring everything together under Christ, as head, everything in the heavens and everything on earth. (Eph 1:8–10)

While there is doubtlessly a variety of views on these texts among the different Christian faith communities, the Catholic Church, for

one, has traditionally understood these texts to indicate that the reason for the original creation was the new creation in Christ. “Creation is the foundation of ‘all God’s saving plans,’ the ‘beginning of the history of salvation’ that culminates in Christ. Conversely, the mystery of Christ casts conclusive light on the mystery of creation and reveals the end for which ‘in the beginning God created the heavens and the earth’: from the beginning, God envisaged the glory of the new creation in Christ.”⁸

Now some might argue that it is not Christ as man, but only as the divine Word who plays a central role in all of creation. However, several passages in Scripture indicate that Christ—not only as God but also as man—is the central figure in the cosmos.

His state was divine, yet he did not cling to his equality with God, but emptied himself to assume the condition of a slave, and became as men are; and being as all men are, he was humbler yet, even to accepting death, death on a cross. But God raised him high and gave him the name which is above all other names, so that all beings in the heavens, on the earth and in the underworld, should bend at the name of Jesus and that every tongue should acclaim Jesus Christ as Lord, to the glory of God the Father. (Phil 2:6–11)

“You have put him in command of everything.” Well then, if he has “put him in command of everything,” he [God] has left nothing which is not under his command. At present it is true, we are not able to see that “everything has been put under his command,” but we do see in Jesus one who was “for a short while made lower than the angels and is now crowned with glory and splendor” because he submitted to death. (Heb 2:8, 9)

He [God] has put all things under his [Christ’s] feet, and made him, as ruler of everything, the head of the Church; which is his body, the fullness of him who fills the whole creation. (Eph 1:22)

Multiple Incarnations?

Paine appears to be quite correct when he says Christianity teaches that the central story of the cosmos is Christ's redemption of fallen man by his death on the cross. It does not, however, follow immediately from this that there is no room for any other sort of intelligent being in this story. After all, Christians believe that there are other such beings, the angels and devils. Just as Jesus Christ is Lord and head of the angels, he could in principle be Lord and head of other intelligent beings as well. Paine however raises the following objection against this being the case: "Are we to suppose that every world in the boundless creation had an Eve, and apple, and serpent, and a redeemer? In this case, the person who is irreverently called the Son of God, and sometimes God himself, would have nothing else to do than to travel from world to world, in an endless succession of deaths, with scarcely a momentary interval of life."⁹

It is undoubtedly true the Word of God could have become incarnate multiple times. Uniting his person to human nature certainly did not exhaust his infinite power, and so he can become incarnate over and over again.¹⁰ In addition, Paine's assumption that God would not leave fallen races unredeemed seems eminently reasonable in light of God's goodness and mercy, albeit some debate this point. Nevertheless, Paine's multiple redeemers are not the only solution for the redemption of fallen races. For Christ's sacrifice on the cross is infinite in its saving power, and thus could have made satisfaction for any number of fallen races. And in fact Colossians 1:18–20 indicates that Christ is the savior of all of the fallen: "As he is the Beginning, he was first to be born from the dead, so that he should be first in every way; because God wanted all perfection to dwell in him and all things to be reconciled through him and for him, everything in heaven and everything on earth when he made peace by his death [literally "blood"] on the cross."

Are Humans the Only Beings in Need of Salvation?

Simply acknowledging that Christ's sacrifice on Calvary could in principle save other fallen beings says nothing one way or the other about whether such beings exist. Further scrutiny of Scripture, however, turns up a passage that speaks against ETI existence:

As it was his purpose to bring a great many of his sons into glory, it was appropriate that God, for whom everything exists and through whom everything exists, should make perfect, through suffering, the leader who would take them to their salvation. For the one who sanctifies, and the ones who are sanctified are of the same stock; that is why he openly calls them brothers. . . . Since all the children share the same blood and flesh, he too shared equally in it, so that by his death he could take away all the power of the devil, who had power over death, and set free all those who had been held in slavery all their lives by the fear of death. For it was not the angels that he took to himself; he took to himself descent from Abraham. (Heb 2:10–17)

One might be inclined to take the line about the one sanctifying and ones who are sanctified being of the same stock to establish that there are no fallen ETIs. But the Greek text does not actually say “stock,” instead it simply says *henos* (one), and indeed some have interpreted this sentence to say that Christ and humans are from the same Father—which certainly could be said of ETIs.

The next lines are more telling, however. They say that the Word took on the same blood and flesh as humanity *since* the children were all of the same blood and flesh so that by his death he could set free all those who had been held in slavery. Clearly Paul means to extend what was promised to the descendants of Abraham to all human beings. The Jews were awaiting a messiah for the chosen people but

Paul emphasizes that the Word had become man because the human race as a whole (and not just the Jews) was descended from one set of first parents. But how could such a claim be extended to include nonhuman beings? It does not make any sense to say that the Word shared in human nature in order to free ETIs and humans from the slavery of sin and death *because* the children share the same blood and flesh, when ETIs have no share in that heritage.

Romans 5:15–19 supports this reading of Hebrews 2:14 insofar as it speaks of the correlation between sin coming into the world through one man (Adam) and salvation coming into the world through another man (Christ):

Adam prefigured the One to come, but the gift itself considerably outweighed the fall. . . . If it is certain that death reigned over everyone as the consequence of one man's fall, it is even more certain that one man Jesus Christ, will cause everyone to reign in life who receives the free gift that he does not deserve, of being made righteous. Again, as one man's fall brought condemnation on everyone, so the good act of one man brings everyone life and makes them justified. As by one man's disobedience many were made sinners, so by one man's obedience many will be made righteous. (Rom 5:15–19)

This passage repeats over and over the correspondence of one fallen human to one human redeemer. This one-to-one correspondence between fallen and redeemer would be lost if fallen ETIs were also to have Christ as redeemer. Moreover, Christ is not the new ETI, and a fallen ETI does not “prefigure the One to come.” The biblically affirmed parallel between Christ and Adam would be lost if there was some other race out there in need of Christ's redeeming grace.

Other considerations, as well, make it plain that Paine is not wrong to see that there are tensions between Christian belief and belief in ETIs existence. The more one looks at how carefully all the details of the central story of the universe, Christ's story, is fitted

to its human beneficiaries, the more the introduction of any other kind of material rational being appears as something that would be superfluous and out of place.

Scripture Seems to Indicate that We are Alone

If it is the case that Christ is the savior of all the fallen, and if he came only to save humans, and if God would not leave fallen material rational species unredeemed, it follows that there are no other fallen material rational species in the universe.

One could come back and say that ETIs are also human because they are rational animals. This is a fair point, but they still lack a biological unity with Earthly humans. We humans and these other rational animals constitute independent families. Even though the effects of Christ's death and resurrection could be applied to them, it then could not be said that they were saved by one of their own, and thus Christ's sacrifice does not offer a satisfying solution to the "divine dilemma" their case poses.

The divine dilemma generated by original sin is this: God in his mercy did not want the human race to be lost on account of original sin. Although God in his graciousness could simply have remitted the sin, mankind would not have fulfilled what justice demands by way of satisfaction. At the same time, no human being could ever make adequate satisfaction for an offense against the infinite God. It is only the God-Man, Jesus Christ, who is capable of making infinite satisfaction for this human debt. Applying this to the case of fallen ETIs, if they were saved by the God-man Christ, justice would not have been perfectly respected. That is, a member of the fallen ETI race—and not a member of Adam's race—would have to rightfully make reparation for the sin of that race for true justice to be served.

Yet another undesirable consequence that would follow if Christ was savior to ETIs can be gathered from the following passage from Hebrews: "It was essential that he should in this way become com-

pletely like his brothers so that he could be a compassionate and trustworthy high priest of God's religion, able to atone for human sins. That is, because he himself has been through temptation he is able to help others who are tempted" (Heb 2:17, 18). Perhaps the translation here of the Greek "opheile" as "essential" is unnecessarily strong; an alternate translation is "beneficial." Even then this passage provides a reason why the savior should be cut from the same cloth as the saved. For if he was not, they could make excuses for their bad behavior, claiming that Christ was made of sterner stuff than they, and so they could hardly be expected to resist the same temptations he was able to resist. Put in somewhat different terms, it would be difficult for ETIs to take as role model someone whose natural capacities were different than their own.

In a similar vein, it seems that one of the purposes of the Incarnation was so that we would no longer see God as someone distant but as someone who was our friend. One need not espouse cosmic racism or be oblivious to the suffering of animals to acknowledge that it would be hard, if not impossible, to fully appreciate the sufferings of a savior of an alien race and to feel the same degree of love toward him that we spontaneously feel toward a savior of our own race. Even if an ETI savior did not look all that different than us, still our inability to fully fathom an alien being's capacities for experiencing things and his reactions to them would make him a less than satisfying savior. The ideal savior both understands us as a result of his own experience, and can be understood by us in terms of our experience, rather than through extrapolation or guessing. This is what underlies the popularity of devotions addressed to Christ's Sacred Humanity, such as to the Sacred Heart and to the Holy Face.

Does Scripture Definitively Exclude ETI Existence?

At this point, it might appear that Paine was right after all in claiming that belief in ETIs is incompatible with belief in Christ. However, there are two reasons why one need not concede Paine's

point. First, none of the above speaks against the possibility that *unfallen* ETIs exist. Second, while a strong probable case against fallen ETI existence can be elaborated on the basis of Scripture, the only passage that could be taken to definitively eliminate them is Hebrews 2:14. Still, a Christian may choose to reject the above interpretation of this passage from Hebrews, for it is not an official teaching of any Christian religion. It may, in fact, be a correct interpretation, and if so, there is a necessary conflict between belief in *fallen* ETIs and Christian belief. But again, given that no church has endorsed the above reading of Hebrews 2:14, a believer who rejected this interpretation plainly could not be accused of heresy.

Perelandra

Many of us have been enchanted by C.S. Lewis's portrayal of the temptation of the first mother of another race on the fictive planet Perelandra. Less well-known is his essay "Religion and Rocketry" in which he entertains the notion that "man is the only lost sheep" among intelligent races, the others never having lost their primeval innocence. But how realistic is the notion of an unfallen race? We do not have much to go by to settle this question, but what we do have indicates this is unlikely. According to Christian belief, some of the angels fell, and angelic nature is a far more perfect nature than human nature. Any other material rational being would possess a nature inferior to the angelic nature. Thus, it seems more likely than not that some member of such a race would fall.

Another thing to be taken into consideration is that when beings possess an inherently fallible nature, it is reasonable to expect that at least some of them will fail at some time. Material beings such as ourselves need to acquire virtuous habits if we are to consistently choose the good. Before we acquire virtue we all too easily make bad choices. God could, in principle, create a race of material beings that would remain unfallen, but their existence would border on miraculous—like fire that did not burn. And even then,

one might still wonder whether God in his wisdom would choose to create a race in which the contrast between good individuals and bad individuals would be entirely absent.

One also could argue that unfallen ETIs fit poorly into God's plan for the universe which centers on Jesus Christ. After all, Christ would be neither their savior nor the most suitable role model for them nor their brother and friend in the way he is our brother and friend.

On the other hand, one could argue that ETI existence would add richness to the universe, which would then contain unfallen, in addition to fallen material rational beings. Moreover, even if the unfallen ETIs could not have as close a relationship as we have with our brother, Christ, they could have an intimate friendship with God (both before and after the Word's Incarnation) if he was present to them the way that he was present to Adam and Eve before the Fall. Or perhaps the situation could be somewhat like that of a mother with several children, one of whom is terribly sick. The mother would spend much more time with the sick child and do many things especially for him or her, not because she loved that child more than her other children, but simply because that child's condition required her additional attention.

It appears, then, that the existence of unfallen ETIs cannot be ruled out. At the same time, there are reasons for doubt.

Human Specialness

Another reason commonly given to support the notion that belief in ETIs is opposed to belief in Christ is that the discovery of ETIs would prove Christianity mistaken as to the special place it assigns to humans. In the words of Paul Davies, "Four hundred years ago, the Roman Catholic church burned Giordano Bruno at the stake for heresy. Among other things, he proposed the existence of an infinite number of inhabited worlds. Since this ran counter to the doctrine of man as God's supreme and special creation, Bruno was undermining a key tenet of the Christian faith at that time."¹¹

Davies is entirely mistaken about the “key tenet” Bruno was supposedly undermining. The existence of ETIs does not run counter to what Christians believed then or believe now about man “as God’s supreme and special creation.”

Humans are special because unlike nonrational beings we are created in the image of God. As a consequence nonrational beings are ordered to us as to an end. This would not change if ETIs were discovered. They too would be created in the image of God and nonrational beings would be ordered to them as well. There is an equality of dignity among those who share the definition of human regardless of disparity as to physical or intellectual ability, so if ETIs proved to be more intelligent that would not mean that nonrational creation is ordered more to them, any more than it is ordered more to more intelligent humans than less intelligent ones. Their discovery would not cause us to slip a notch when it comes to being a goal to which the rest of material creation is ordered.

Similarly, related doctrines taught by some Christian religions concerning the special creation of human souls and the special providence that is shown us would not change if ETIs were discovered, and indeed the doctrines would also hold true of ETIs in virtue of possessing a rational nature.

Humans are also special as being the agents that bring the universe to its final completion. This is first and foremost true because Christ, the savior of all, was a human being. Regardless of whether or not the Word has been incarnate more than once, it will remain the fact that a human being was the savior of all the fallen. Without the redemption wrought by Christ, the universe could not achieve its destiny of giving glory to God. Humans, by responding to Christ’s grace, contribute to the realization of this destiny.

It may be that we are also special as being the only race whose nature a divine person united to himself. Even if it does turn out that there are other races of rational animals, superior to us in intelligence and virtue, it still would not be surprising that we were favored in this way, and they were not, given that God uses the weak

to confound the strong—Christ was born in a stable, child of a poor couple, and it was said of him: “What good can come from Nazareth?” So it wouldn’t be surprising if ETIs, upon learning about the Incarnation, were to shake their heads in disbelief: “What good can come from planet Earth?”

The human race is certainly not special because of the exceptional wisdom and virtue of its members, for most lack these qualities. We must not forget that the reason that the Word became flesh was to save sinners. As C. S. Lewis puts it, “They [non-Christians] seem to think that the Incarnation implies some particular merit of excellence in humanity. But of course it implies just the reverse: a particular demerit and depravity. No creature that deserved Redemption would need to be redeemed. They that are whole need not the physician. Christ died for men precisely because men are *not* worth dying for; to make them worth it.”¹²

Does Scientific Research Provide Reason to Think ETIs Exist?

Our considerations above show that ETIs do not pose a threat to the various forms of specialness that Christianity attributes to humans, and that ETIs can fit into the Christian vision of the universe, albeit not very readily. The arrival of ETIs, far from causing the collapse of Christianity, would not even require a change in any of its central tenets. That being said, it is interesting to note that, contrary to popular belief, contemporary science does *not* support ETI existence.

In order for ETIs to exist, there must be a planet that is inhabitable, life must take hold on it, and it must evolve to the point of intelligence. What evidence do we have for determining the likelihood of each of these things?

The Origin of Life

For years the Miller-Urey experiments were brought forth as evidence that it was easy for life to begin. Stanley Miller (who worked

in Harold Urey's laboratory) passed a spark through reducing gases that he thought were likely to compose the Earth's early atmosphere. The result was numerous simple carbon compounds that when dissolved were concentrated into amino acids, simple acids, purines, and pyrimidines, which are constituents of living things. To conclude from this, however, that life arises easily is problematic from a logical point of view. There is a big difference between the formation of a few of the chemicals found in life as we know it and an actual living thing. Having the ingredients does not insure getting the final product (this is even truer when one only has some of the ingredients). Even the optimistic author of *Life Everywhere*, David Darling, acknowledges that scientists are a long way off from figuring out how life may have begun: "They've shown how *some* of the small molecular sub-units of life can be made under conditions that might have existed on the young Earth."¹³

If we do not know how life began here (assuming it did begin here), we are not in a good position to estimate how likely it is to have begun elsewhere. Some try to argue in an inductive manner that it is probably easy for life to arise under suitable conditions basing themselves on what happened on planet Earth. Life perhaps only took around 200 million years to appear, and perhaps as little as 10–20 million years.¹⁴ There are some, however, who regard this relatively short delay as evidence that life did not begin on Earth, but elsewhere. Francis Crick and L. E. Orgel are two of the better-known scientists who hold it likely that life was seeded from space.¹⁵

Our uncertainty as to whether life did, in fact, originate on Earth casts a shadow of doubt over any kind of generalization about the ease with which life arises starting from the case of our planet. And even if we were sure that life originated here, to reason inductively to the conclusion that life generally originates quickly, starting from one case, is plainly a hasty generalization.

As Ernan McMullin points out, various additional factors invoked in the extrapolation of how much life is out there in no way compensate for our fundamental ignorance concerning how readily

life originates.¹⁶ People will call upon the long periods of time to justify the population of other planets. If, however, the origin of life on these other planets is extremely improbable, the amount of time in question may still fall short of what would be necessary. Again, what we need to know, and do not know, is whether the origin of life on other planets is extremely improbable or not. Similarly, the large numbers of planets will also not result in hordes of ETIs if life originates only under very special conditions.¹⁷ Invoking the uniformity of nature, as ETI proponents often do, affords no help to their cause because again we do not know how likely it is for the conditions sufficient for life to arise to obtain—life may be uniformly absent in the universe with the exception of Earth.

How Readily Do Complex Life Forms Evolve?

It is plainly not enough for life to originate for there to be ETIs, it also must evolve to the very high level of complexity requisite for intelligence. Here, too, our present state of knowledge does not allow us to make a reliable estimate of how likely this complexification is to occur on other planets. It took about 2.3 billion years after life originated to get the first animals, about half of the life of the Earth. In any case though, a single instance is not an adequate base for extrapolation.

Moreover, it would be hard to deny that contingent events have had a role to play in the evolutionary history of our planet; at best we might be able to come up with the statistical chances on such events occurring, for example, how often a large meteorite will strike the planet, but even then the timing of these events might be crucial to how life evolves. What if the meteorite that helped usher the dinosaurs out had not hit—or what if it had hit much later—in both cases, we might not be here. People like Steven Jay Gould think the contingent elements in evolution are so great that it is highly unlikely that human(like) intelligence would evolve again on planet Earth, if one could go back in time and watch things evolve anew. But who really knows?

The Rare Earth Hypothesis

Turning to estimates made of habitable planets, some of the same sorts of problems arise estimating them as do estimating the probability of life originating and complexifying. One big problem, as Michael Crowe points out, is that a planet may be similar to Earth, without it being similar in those ways crucial for life to begin and complexify—we do not know yet what all the crucial factors are.¹⁸ Until then, finding Earth-like planets is not equivalent to finding planets where life is able to arise and evolve.

Of late, the Rare Earth hypothesis has enjoyed increasing popularity among scientists. This hypothesis proposes that features that make the Earth habitable are unlikely to be found on another planet. Probably the most cited feature is the Earth's unusually large moon.¹⁹ Without such a moon, the angle of the axis around which the Earth spins would wobble chaotically, and this would cause drastic changes in climate.²⁰ Rare Earth proponents maintain that the chances are very slim that other Earth-like planets have such a moon, and as a consequence these planets would lack a climate sufficiently stable to continuously support life.²¹ Another commonly cited feature of our solar system is that it contains a planet like Jupiter that "cleans our solar system of dangerous Earth orbit-crossing asteroids and comets."²² There is reason to think that Jupiter-like planets are not all that common.²³

Despite the growing body of literature in favor of the Rare Earth hypothesis, scientists are far from arriving at a consensus on this issue. Some, for example, argue that the moon is not necessary for life to develop on a planet and/or that such moons in any case are not rare.²⁴ Others question the importance of Jupiter in our solar system.²⁵ And some dispute the other evidence offered for the Rare Earth position. Until these debates are settled, realistic estimates of habitable planets cannot be made.²⁶

*The Drake Equation—a Mathematical Way of Saying
“Who Knows?”*

Probably most of us have come across the famous Drake equation into which one plugs various variables and out pops an estimate of the number of ETI civilizations.²⁷ When one realizes that two of values that need to be filled in are the number of Earth-like planets and the fraction of these planets where life emerges one realizes that “the Drake Equation is just a mathematical way of saying who knows?”²⁸

Science does not provide evidence that ETIs exist and, indeed, provides some evidence that the contrary might be the case. Historically biologists have on the whole been more skeptical than the physical scientists as to ETI existence, doubtlessly because they are more acutely aware that the question of the origin of life has no easy answer, and that once life does originate, that its subsequent development to the level of human complexity is far from certain. Nevertheless, at least one physicist of note argued on scientific grounds against ETIs existence. His name: Enrico Fermi.

The Fermi Paradox

In 1950, Fermi, during lunch, made calculations of how long it would take for our galaxy to be colonized by a superior ETI civilization, basing the calculations on typical suppositions concerning how common the ETIs were in the universe and how fast they could travel, given the state of their technology. After doing the math, Fermi concluded that they should be here by now. He then reasoned that given that they are not here, it follows logically that they do not exist.

Those who reject the Fermi Paradox—and maintain that ETIs do exist—propose a variety of reasons for why they have not yet communicated with us. Stephen Webb lists fifty of them.²⁹ The “excuses” range from all the ETIs have gone extinct to the cost of space travel is too exorbitant to they are here. Of course, the institute for the Search for Extraterrestrial Intelligence (SETI) favors the pos-

sibility that they are trying to communicate with us, but we as yet have not had the luck to detect their signals.

There is a lot of speculation involved both in the Fermi Paradox itself and in attempts to refute it. A good example of this is the explanation that gives as reason for ETI absence that it is not feasible for them to implement the technology available with the goal of travel to another planet. In the first place, one might wonder whether scientists who buy into the Fermi paradox are not overly sanguine in supposing that the requisite technology will exist in ETI civilizations. One of the more popular scenarios for the colonization of space was proposed by Barrow and Tipler. It involves “self-replicating universal constructor[s] with intelligence comparable to human intelligence” being launched to other stellar systems in every direction. Once the universal-constructor probes (called von Neumann machines) arrived in their new stellar system, they could construct more copies of themselves along with rockets to launch them, and the same process would repeat itself every time a probe got to a new planet.³⁰ Alternately, the probes could construct fertilized eggs and artificial wombs in which they could grow.³¹

It seems to me that ETI proponents are overly optimistic about the feasibility of galactic colonization. As Paul Davies notes,

Tipler’s assumptions about the feasibility of constructing von Neumann machines—in effect, living computers with super-human intelligence added—strike me as being exceedingly simplistic. We have absolutely no idea what obstacles of principle may exist to frustrate such attempts, let alone the practicalities. The same applies to space travel: the recent failure of the Mars Observer mission underscores how vulnerable technology is in space. The assumption that a man- (or alien-) made machine could operate flawlessly over millions of years in a hostile environment stretches credulity.³²

Although there may be more realistic alternatives to Barrow and Tipler’s scenario, it seems that any attempts to colonize space will

inevitably entail mistakes leading to disaster and frustration, putting at least a damper on future attempts, and possibly putting an end to them in some cases. Then again perhaps ETI technology is bound to eventually become so advanced that insuring ETI astronauts' safety would no longer be an issue. The issue can be further argued back and forth, but it should be clear that while the Fermi Paradox does cast serious scientific doubt on the existence of ETIs, it is far from being an open-and-shut case.

It is also too early to rule out the possibility that ETIs have forgone expensive and dangerous space travel and in its place adopted the cheaper means of contacting other intelligent life-forms via electromagnetic communication. We have not been listening for very long for such communication from space. The first attempt to do so was in 1960, when Francis D. Drake and his colleagues at the National Radio Astronomy Observatory listened for radio signals from two nearby stars (Project Ozma). Since then there have been more than sixty projects that search for radio transmissions in our galaxy that would have a telltale signature of intelligence.³³ The scientists who do the listening make reasonable assumptions about ETI transmission, but of course they could be mistaken, and this could explain why contact has yet to be made. It is generally thought that ETI transmitters would most likely choose radio waves because they are less susceptible to interstellar absorption and scattering than other frequencies.³⁴ The wavelengths preferentially searched for by most SETI projects were chosen according to criteria that we believe ETIs would also be aware of.³⁵ Assuming that we are looking in the right way, the search for extraterrestrial intelligence has not even been carried on for fifty years, and so it is premature to conclude that ETIs are not out there.

Webb astutely teams up the Fermi Paradox with the Rare Earth evidence to make a plausible science-based case against ETI existence. Without denying that speculation is involved in both of these considerations, it is interesting how the two point in the same direction.

The Anthropic Principle and “Wasted Space”

Another instance where science has come and knocked some of the wind out of the sails of ETI proponents concerns a teleological argument in favor of ETI existence that enjoyed a certain degree of popularity. The argument was there would be no point to the immense size of the heavens if Earth were the only place in the universe populated by intelligent beings. But then scientists realized that our universe had to be as big as it is to allow for the development of even one intelligent species. As Barrow and Tipler observe in their seminal work on the anthropic principle,

In order to create the building blocks of life—carbon, nitrogen, oxygen and phosphorus—the simple elements of hydrogen and helium which were synthesized in the primordial inferno of the Big Bang must be cooked at a more moderate temperature and for a much longer time than is available in the early Universe. The furnaces that are available are the interiors of stars. There, hydrogen and helium are burnt into the heavier life-supporting elements by exothermic nuclear reactions. When stars die, the resulting explosions which we see as supernovae, can disperse these elements through space and they become incorporated into planets and, ultimately, into ourselves. This stellar alchemy takes over ten billion years to complete. Hence, for there to be enough time to construct the constituents of living beings, the Universe must be at least ten billion years old and therefore, as a consequence of its expansion, at least ten billion light years in extent. We should not be surprised to observe that the Universe is so large. No astronomer could exist in one that was significantly smaller. The Universe needs to be as big as it is in order to evolve just a single carbon-based life-form.³⁶

In other words, the large size of the universe would not be overkill because it takes a universe that large in order to produce a single intelligent life-form. The size of the universe, then, gives us no clue

one way or the other whether we should expect to find one intelligent race or many in the universe.

ETI Proponents Who Resort to Personal Attack

As we have seen, those who propose to dismiss Christianity in light of putative ETI existence really do not have a case; the two are compatible. Thus, it is not surprising that many of the anti-Christian ETI proponents resort to fallacious reasoning. The most commonly employed fallacy is a form of personal attack that goes by the name of “circumstantial ad hominem.” What this fallacy amounts to is instead of addressing the argument that one’s opponent is proposing, one simply dismisses it on the grounds that the opponent stands to gain something if his conclusion is accepted. The typical form the argument takes is something like this: “You maintain that ETI does not exist, for if it did exist then you stand to lose, since your species would no longer be unique in the universe. Therefore your argument concluding that ETI life does not exist is incorrect.” Kenneth Delano employs this sort of argument: “With the jealousy of a spoiled only child, the human race is upset by the suggestion that it may have to share its cosmic domicile with others. To make their instinctive reaction seem less like childish resentment, many think of themselves as being ‘Defenders of the Faith’ in denying the possibility of intelligent beings existing on other worlds.”³⁷

Now, instead of attributing bad motives to one’s opponent and using that as an excuse to dismiss his or her argument, one should evaluate the argument and provide reasons for rejecting it. Even if the person was ultimately rejecting ETI life because it would be a blow to his or her ego if the human species was not number one in material creation, this is not a reason to ignore any arguments that the person has given. Sad to say, this gross fallacy is probably the one most frequently committed. Rabbi Barry Friedman asserts, “It would be an incredible conceit of egotism to think we’re the only form of life.”³⁸ Physicist Russell Stannard claims, “that although, for

all we know, intelligent life in the cosmos might be unique to planet Earth, that smacks of arrogance.”³⁹

The Greatness of Man, the Smallness of Man

While it would constitute a personal attack to dismiss a person’s claim to excellence on the ground that the person was conceited, it is not a personal attack to ask whether in fact his or her claim has merit. Thus, it is a fair question whether or not taking the position that ETI does not exist, or is unlikely to exist, implies a mistaken estimation of the eminence of the human race in the cosmos.

What is at the root of the doubts about the status of our race is the paradoxical smallness and greatness of man about which Pascal spoke so eloquently. Humans on the whole are moral mediocrities, in addition to which most lack very penetrating intellects and fail to acquire any great learning. On the other hand, we, unlike the rest of creation on Earth, have the capacity to understand the whats and whys of things in the material universe. Our ability to contain the entire universe in our minds was one reason for why the Greeks called man a “microcosm.” The Greeks were not alone in their appraisal of human capabilities. The biologist Christian De Duve, in response to the question “what is the meaning of the universe?” asserts that “it is found in the structure of the universe, which happens to be such as to produce thought by way of life and mind. Thought, in turn, is a faculty whereby the universe can reflect upon itself, discover its own structure, and apprehend such immanent entities as truth, beauty, goodness, and love.”⁴⁰ It is natural for human beings, as material beings, to be impressed by the sheer vastness of the heavens and number of the stars: “What is man that you are mindful of him?” exclaims the psalmist viewing the heavens. Nevertheless, when all is said and done, the stars are just big balls of fire, whereas we are beings who are not only able to see the stars but, in addition, can reflect on their worth.

Christianity, looking at man from a supernatural standpoint, also

recognizes his smallness and greatness. In the first instance, humans have a certain greatness because we are created in the image of God. The reason, however, the eternally begotten Son of the Father became man was not because humans were so wonderful. It was because we were sinners. The sin of Adam and Eve was followed by Cain's murder of his brother, and as the race continued to grow in number so did their evil ways. By the time of the flood, "Yahweh saw that the wickedness of man was great on the earth, and that the thoughts in his heart fashioned nothing but wickedness" (Gen 6:5, 6). Thus, Christ did not come because we were an exemplary race, but rather because "we were still helpless when at his appointed moment Christ died for sinful men. It is not easy to die even for a good man . . . but what proves that God loves us is that Christ died for us while we were still sinners" (Rom 5:7–9).

The ultimate greatness of humanity comes first and foremost from the unity of the person of the Word with a human nature. Secondly, and as a result of Christ's sacrifice, Christians are able to live Christ-like lives, "to become true images of the Son" (Rom 8:29)—and herein also lies our greatness.⁴¹ In the words of 2 Corinthians, chapter 1, verse 18, "And we, with our unveiled faces reflecting like mirrors the brightness of the Lord, all grow brighter and brighter as we are turned into the image that we reflect; this is the work of the Lord who is spirit." One human being in the state of grace is of greater value than the entire material universe—and this is Christ's work.

A person could concede that the value of the material universe does not compare with that of a single godly human, but still find it hard to believe that God would create this immense and beautiful universe for but a single mediocre species. Ultimately this is no stranger a notion than that the Son of God become a member of this same mediocre race and is directly connected to it. What reason would compel the Most High to mass produce multiple material races in his image, instead of creating one such race, unique and never to be repeated? Some suggest that if intelligent life arose in many places in the cosmos, rather than in just one, this would give us more reason to believe that a Cosmic Designer engineered

the universe to produce life. It would not, however, be contrary to God's wisdom if he chose to make the universe an instrument of producing one race that he intended to bring to perfection through the unique gift of the Incarnation, death, and Resurrection of his only-begotten Son. The sculptor who turns out one unique masterpiece is not a lesser artist than the artisan who mass produces statuettes from a mold. It is a source of amazement to look at the myriad stars in the sky and think that perhaps only one planet around one sun harbors intelligent life. But it is not inherently absurd that this be the case. God can certainly order the universe this way. I have argued on theological and philosophical grounds that he in fact has—which is not to deny, *pace* Paine, that Christians are free to adopt the opposite view without prejudice to their faith.

Notes

1. Thomas Paine, *The Age of Reason* (Buffalo, NY: Prometheus Books, 1984), 52.
2. William Whewell, *Of the Plurality of Worlds*, ed. Michael Ruse, rev. ed. (1853; repr., Chicago: The University of Chicago Press, 2001), 44, 45.
3. Paul Davies, *Are We Alone?* (New York: Basic Books, 1995), 54, 55.
4. Willem B. Drees, "Bethlehem: Center of the Universe?" in *God for the 21st Century*, ed. Russell Stannard (Philadelphia: Templeton Foundation Press, 2000), 69.
5. Michael McAteer, "The Truth is Out There," *The Star* (Toronto), Saturday, August 17, 2002, Life Section, K14.
6. Paine, *The Age of Reason*, 52.
7. All biblical quotations in this article are taken from the Jerusalem Bible translation.
8. *Catechism of the Catholic Church* (Bloomington, Ohio: Apostolate for Family Consecration, 1994), no. 280. See also nos. 2174 and 315.
9. Paine, *The Age of Reason*, 59, 60.
10. See Aquinas, *Commentary on the Sentences*, bk. 2, d. 31, q. 1, a. 2: "On Whether One Divine Person is Able to Assume Two Human Natures."
11. Paul Davies, "Biological Determinism, Information Theory, and the Origin of Life," in *Many Worlds*, ed. Steven J. Dick (Philadelphia: Templeton Foundation Press, 2000), 15.
12. C.S. Lewis, "Religion and Rocketry," in *Fern-Seed and Elephants*, ed. Walter Hooper (London: Fontana, 1975), 88–89.
13. David Darling, *Life Everywhere* (New York: Basic Books, 2001), 30.
14. See Simon Conway Morris, *Life's Solution: Inevitable Humans in a Lonely Universe* (Cambridge: University of Cambridge Press, 2003), 18, 73, 74.

15. See Francis Crick, *Life Itself: Its Origin and Nature* (New York: Simon and Schuster, 1981).
16. See Ernan McMullin, "Persons in the Universe," *Zygon* 15, no. 1 (March 1980): 69–89.
17. See Ernan McMullin "Life and Intelligence Far from Earth: Formulating Theological Issues," in *Many Worlds*, 166.
18. See Michael Crowe, *The ET Life Debate 1750–1900* (New York: Cambridge University Press, 1986), 552, 553.
19. See Peter D. Ward and Donald Brownlee, *Rare Earth* (New York: Copernicus Books, 2000) 50, 223–24, 234.
20. *Ibid.*, 266. See also Bruce Jakosky, *The Search for Life on Other Planets* (Cambridge: Cambridge University Press, 1998), 116.
21. See Christopher B. Kaiser, "Extraterrestrial Life and Extraterrestrial Intelligence," *Reformed Review* 51 (Winter 1997–98): 77–91.
22. Ward and Brownlee, *Rare Earth*, 240.
23. See Robert Naeye, "Are We Alone in the Universe?" *Astronomy* 24 (July 1996): 39.
24. See Darling, *Life Everywhere*, 96–98.
25. *Ibid.*, 107.
26. See Morris, *Life's Solution*, chap. 5.
27. Frank Drake and Dava Sobel, *Is Anyone Out There?* (New York: Delacorte Press, 1992), 52.
28. Jakosky, *The Search for Life on Other Planets*, 285.
29. Stephen Webb, *If the Universe is Teeming with Aliens, Where is Everybody? Fifty Solutions to Fermi's Paradox and the Problem of Extraterrestrial Life* (New York: Copernicus Books, 2002).
30. See John D. Barrow and Frank J. Tipler, *The Anthropic Cosmological Principle* (Oxford: Oxford University Press, 1986), 79.
31. See *ibid.*, 580.
32. Davies, *Are We Alone?* 72.
33. Webb, *If the Universe is Teeming with Aliens, Where is Everybody?* 100.
34. See George W. Swenson, Jr. "Intragalactically Speaking," *Scientific American* (July 2000): 44.
35. See Drake and Sobel, *Is Anyone Out There?* 43.
36. Barrow and Tipler, *The Anthropic Cosmological Principle*, 3.
37. *Ibid.*, 8.
38. Barry Friedman quoted by Todd Halvorson and Robyn Suriano, "Finding other life wouldn't shake most faiths," *Florida Today*, 1999, Online Special Report.
39. Russell Stannard, "Our Place in the Scheme of Things," *Research News* (December 2000): 22, reprinted from the *Tablet* 13 (May 2000).
40. Christian De Duve, *Vital Dust: Life as a Cosmic Imperative* (New York: Basic Books, 1995), 301.
41. See 1 John 3:2.