


THE FINAL (MISSIONS) FRONTIER: EXTRATERRESTRIALS, EVANGELISM, AND THE WIDE CIRCLE OF HUMAN EMPATHY

by Eugene A. Curry 

Abstract. The possible existence of extraterrestrials has provoked more than five centuries of theological speculation on how these beings, if they exist, relate to God. A certain stream of thought present in these debates argues that the eventual discovery of aliens would obligate human Christians to evangelize them for the salvation of their souls. Current research into humanity's prehistory suggests that, if this ever actually happens, it will have been partially facilitated by humanity's remarkable capacity for interspecies empathy—an ability that seems to be genetic in nature and which stems from our species' ancient experience with dogs. In light of the above, recommendations are made concerning future potential exomissionary screening criteria and a concluding section touches on the role of animals in God's work.

Keywords: aliens; animals; astrotheology; compassion; dogs; empathy; evangelism; exomissionology; extraterrestrials; missions

Commentary on the intersection of extraterrestrial life and Christian theology is, by the very nature of the case, inescapably speculative. And, however speculative the wider field of “astrotheology” or “exotheology” may be, details of subdomains of that field—subdomains such as “exomissionology”—must be even more speculative. In such situations, each tentative and doubtful conclusion rests upon a wobbly stack of logically prior tentative and doubtful premises, and so certainty is impossible. Indeed, it may be that mere probability is impossible. Such liabilities can give the impression that those who indulge in such speculations are, to use Kendrick Oliver's phrase, engaged in an “evasion of earthly priorities for the sake of chasing phantoms of the sacred beyond the sky” (2013, 8).

Speculative interdisciplinary work can have genuine value, however. By examining old questions from new angles—even otherworldly angles—we

Eugene A. Curry is an evangelical pastor active in the Pacific Northwest of the United States. He lives in Longview, WA, USA; e-mail: eugeneacurry@yahoo.com.

can come to understand those old questions better (Madueme 2018). What is more, today's speculative possibility can become tomorrow's urgently pressing crisis. The church learned this lesson when the human residents of the southern hemisphere that Augustine had blithely dismissed as impossible were found to be quite real, quite numerous, and quite in need of the gospel (Augustine 1998, 710–11). By engaging with such speculative possibilities now, we can leave proverbial markers for future generations. And those markers, however imperfect and ultimately ill-informed, can make the crisis, should it eventually arrive, seem more familiar and less disorienting to faithful thinking than it might otherwise be.

It is with these caveats in mind that this essay ventures to present a conjectural hypothesis concerning future missions work. But while the hypothesis may be fanciful, it seems a plausible fancy, and one that may eventually prove to be more than that. Should Christians ever successfully share the gospel of Jesus Christ with extraterrestrials, such evangelization will be possible because of the role of dogs in our history.

ALIEN LIFE AND THEOLOGICAL QUESTIONS

Christians have wondered whether intelligent, embodied creatures occupy other worlds at least as far back as the fifteenth century, when Nicolas of Cusa theorized that God had created rational beings to inhabit the Sun, the Moon, and the distant stars (Crowe 1986, 7–8). Considered from a perspective informed by Christian faith, the possibility of extraterrestrials invites a string of conditional theological questions. *If* aliens do exist, are they spiritual creatures? *If* they are endowed with a spiritual capacity, are they perhaps estranged from the Creator in a way analogous to the “falleness” of humanity? *If* they are thus estranged, does God desire to reconcile with them? *If* God desires to reconcile with these aliens, would their salvation hinge upon Jesus of Nazareth—his death specifically? *If* the salvation of aliens does hinge on the cross of Christ, does the Great Commission obligate human Christians to bring the gospel to other worlds?

Theologians have debated each of these points through the years, and no one position can claim either airtight arguments or a scholarly consensus in its favor (see Wilkinson 2013; Peters et al. 2018). What is more, several of the questions in the sequence cannot be answered through armchair theorizing alone. One's theology and philosophy may incline an individual to lean in one direction or another, regarding certain possibilities as likely or unlikely, but some of the questions could only be decisively resolved through empirical observations. Still, among those Christian thinkers open to the possibility of extraterrestrial life, there is a stream of thought that is quite prepared to answer “yes” to all the questions in the sequence.

Yes, say evangelists as mainstream and noteworthy as Billy Graham, intelligent aliens would be spiritual creatures capable of worshipping God

(Peters 2003, 126). Yes, say theologians such as Robert John Russell of Berkeley's Graduate Theological Union, such creatures would likely have fallen into sin, "will experience a kind of moral dilemma that in many ways resembles the moral quagmire of human experience" (2018, 85). Yes, say faithful scientists such as George Coyne at the Vatican Observatory, if such beings have fallen from grace, God will desire their redemption, for "How could [God] be God and leave extraterrestrials in their sin?" (Coyne 2000, 187). And yes, say churchmen going back as far as William Vorilong in the fifteenth century and right through to today in people like John Jefferson Davis of Gordon-Conwell: if God desires the salvation of extraterrestrials, their salvation will be possible only through Jesus of Nazareth (Crowe 1986, 8–9; Davis 2002, 152–57). Indeed, while more controversial than other links in the speculative chain, Edmund Lazzari labels this affirmation of the uniqueness of Jesus and the universal efficacy of his atonement the position "most commonly held by contemporary theologians" addressing this topic (2018, 451).

Finally comes the practical matter: if all the previous questions are answered in such a way that extraterrestrials are to be saved from their sins by the life and death of Jesus of Nazareth, does that mean that human Christians have a responsibility to bring them the gospel message? Are humans to evangelize aliens?

Even having followed the chain of questions to this point, not everyone would answer "yes" here. The utterly vast distances that separate the Earth from other star systems, from other galaxies, other galaxy groups, and other galaxy superclusters are genuinely daunting. Realistically speaking, can we expect to be able to cross these enormous gulfs, even with future technological advances, to share the gospel one day? This issue has led some Christians to pull back from the brink of interstellar missions. Ted Peters is very careful, for example, to distinguish between the idea that the earthly Jesus is ultimately responsible for the salvation of aliens (which he accepts) and the separate idea that humans must needs share the story of Jesus with those aliens (which he rejects). As he says, "I do not deny other forms or events of divine self-revelation that could take place anywhere at any time. . . . I can almost forecast that God would make the power of creation and redemption known where creatures are beset with the sting of death and the horrors of sin. *When it comes to revelation*, this position is not geocentric" (emphasis added; Peters 2018, 298). That is to say, for Peters, while Jesus of Nazareth is the source of cosmic redemption, God will make this known to the residents of the cosmos in a way that is not "geocentric," presumably a way that does not require human participation.

How might such a thing happen? Speculative scenarios are easy to imagine. In the Book of Acts, God sent an angel to Cornelius to facilitate his meeting with Peter and his subsequent encounter with the gospel of Jesus. God could do something similar with "God fearers" on another world, only

this time commanding the angel to share the whole message of salvation. Or perhaps one could deploy a revised version of the Harrowing of Hell and the tantalizing passage in 1 Peter 4:6 about the gospel being preached “even to the dead.” Jesus himself proclaims his victory over sin and death to the spirits of humans and aliens alike in a shadowy realm beyond time and in which spatial relations simply do not apply (Cook 2012, 149). The possibilities are endless.

Nevertheless, for all the possibilities that we might imagine, it remains the case that, despite the real geographical isolation of certain places on Earth, God did not bring the gospel to remote human civilizations by way of direct revelation. The Hawaiians, the Japanese, the Inuit, the Sumi people of Scandinavia, the Aborigines of Australia—each of these groups and many more lived and died, generation after generation, waiting for the gospel to arrive. And when it finally did arrive, each group received the gospel as every other group had received it before them: from a Christian engaged in the missionary enterprise in one way or another. Indeed, in arguments concerning exomissiology, it is vitally important to be mindful of the slowness and unevenness of the missionary enterprise on Earth, lest one be led astray by overly optimistic notions of what God would and would not allow. Bombastic statements to the effect that “God has made the message of Christ’s saving work heard in all times and in all corners of our planet” (Bonting 2003, 600) are simply false.

If God, therefore, allowed his church to carry out the Great Commission here on Earth in its slow, plodding fashion despite the regional multigenerational ignorance of the gospel this entailed, why assume that the situation would be different with extraterrestrials? Really, while the distances, timescales, and numbers of generations left “unreached” may be *quantitatively* much greater when considering a mission to the stars, *in principle* it would seem no different than the historical situation that God permitted here on Earth (Wilkinson 2013, 165). To be sure, questions concerning “the fate of the unevangelized” would loom large in such a theological context, but such questions already loom large given both the historical and present reality of our earthly situation. Whatever tentative answers—whether hopeful or despairing—that we apply to fifty generations of unevangelized Maori could be applied to five hundred generations of unevangelized Alpha Centaurians—or to fifty million generations of some race living on the far edge of the universe.

This reality has led some Christian thinkers to go all the way, as it were, and speak of the Great Commission as something that would extend to the evangelization of extraterrestrials. For example, George L. Murphy, a Lutheran theologian-scientist, has written that “The writer of Ephesians wanted ‘the manifold wisdom of God’ to ‘be made known to the principalities and powers in the heavenly places’ through the church (Ephesians 3:10 RSV). The language is mythological but nevertheless suggests that

the Christian community is called to a cosmic mission. The church should be more enthusiastic about space exploration than it has generally been in the past” (2003, 183–84). Murphy is even more explicit elsewhere, writing that “This might call the church to a mission of proclamation of the gospel to any extraterrestrials we might encounter” (2001, 118).

Thomas Hoffman has gone so far as to develop an exomissiology over the course of his career. Having served both as a cross-cultural missionary in Eurasia and as a parish pastor in the American Midwest, Hoffman is enthusiastic in his support for pushing the church into space and making Christians of extraterrestrials. He offers a whole range of both theoretical and practical suggestions for how Christians might pursue this goal: for example, becoming more involved in the search for extraterrestrial intelligence, obtaining credentials in technical fields valuable in space exploration, engaging in the arts so as to make a cosmic mission a part of the mental landscape of the church, and so on (2004, 2014). In a way, Hoffman’s passion is breathtaking. He recommends that Christians begin training now for possible future contact, working together across denominational lines and in conjunction with secular organizations to advance the gospel cause. Mindful of the distances involved in exomissiology, Hoffman advocates for a return to a nineteenth-century missions mindset, one in which missionaries embrace their assignments knowing that they are essentially permanent, without realistic potential for a return home. What is old is new again, it seems.

This scenario—a full-fledged Christian mission to extraterrestrials—has not only captivated academics and clergymen but novelists as well. The evangelization of aliens appears in such works of literature as Ray Bradbury’s “The Fire Balloons,” James Blish’s *A Case of Conscience*, George R. R. Martin’s “The Way of Cross and Dragon,” Orson Scott Card’s *Speaker for the Dead*, Mary Doria Russell’s *The Sparrow* and *Children of God*, Michael F. Flynn’s *Eifelheim*, and Michel Faber’s *The Book of Strange New Things*. That many of these works have been critical and commercial successes indicates that the vision of human Christians reaching out to the utterly alien fires the imaginations not only of a handful of specialists and niche genre authors but appeals to a wide cross-section of the public too.

In light of the above, it is clear that there is a stream of Christian thought that, if given the opportunity, would support an effort to evangelize extraterrestrials. We might call such a stance the Cosmic Mission Perspective (see Figure 1). At each junction of theological possibility, proponents incline in a direction that makes the evangelization of aliens necessary (see Weintraub 2014, 139). This evangelization might begin with astrophysicist Edward Milne’s proposed interplanetary proselytizing radio transmissions but, as technology progresses, would likely come to involve direct missionary encounters—“space ship evangelism,” as Richard Coleman called it (Coleman 1978, 42; Spradley 1998). For

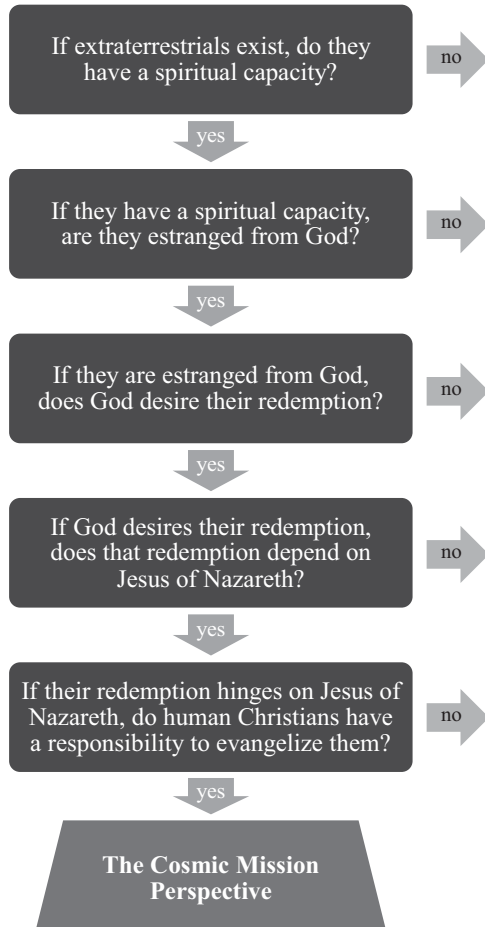


Figure 1. The Path to the Cosmic Mission Perspective.

individuals sympathetic to the Cosmic Mission Perspective, it seems that Romans 10:14–15 has a truly universal scope, and perhaps admits of an imaginative emendation: “How then will they call on Him in whom they have not believed? How will they believe in Him whom they have not heard? And how will they hear without a preacher? How will they preach unless they are sent? Just as it is written, ‘How beautiful are the radiation drives of those who bring good news of good things!’”

In short, should humans ever make contact with residents of other worlds, and should the empirical facts of the case not make it obviously unnecessary, it is safe to assume that some adventurous souls will attempt to share the gospel with them.

THE EXPANSIVENESS OF HUMAN EMPATHY

Turning from speculations about alien life far off in the distance, we come now to theories concerning human life far back in the past.

Consider that whatever strange interspecies society humans may enjoy in the future, we have enjoyed such society for quite a long time already: we live side by side with pets. Hamsters, goldfish, parakeets, and more reside in hundreds of millions of households worldwide. Within this context, compared against other pet species, dogs appear to be the most popular pet among them (Ugbomoiko et al. 2008, 1; American Veterinary Medical Foundation 2012; Australia Veterinary Association 2013; Herzog 2014, 300). What is more, not only are dogs the most common animal companion for people today, they have the distinction of being the first such partner humans knew in their confrontation with day-to-day life. Before cats, before horses, before oxen or fishing cormorants, dogs entered into a partnership with mankind, becoming the first domesticated animal in terrestrial history, many thousands of years ago (Pierrotti and Fogg 2017, 10).

Indeed, the relationship between dogs and humans is so old and so pervasive that it seems to have altered dogs' very nature. During their engagement with humans, the wolfish ancestors of modern dogs came to shrink in size, to effectively digest a different range of foods, and even to process serotonin differently (Wang et al. 2013; Pierrotti and Fogg 2017, 79). These changes resulted in a more social creature—a more effective partner and a more effective tool for humans beings.

And just as this partnership, coming to be so very far back in time, led to meaningful changes in the nature of dogs, it also led to changes in human nature. Anthropologists sometimes speak of the “co-evolution” of humans and dogs, a process in which the mutualistic relationship between the two species led to subtle alterations in both parties, not just the canines. John Bradshaw, an anthrozoologist at Bristol University, theorizes that just as dogs were “selected” for sociability with humans, humans were similarly “selected” for empathy toward dogs (2017, 279). Those humans who were genetically inclined to actually empathize with dogs—to care for them and even sacrifice for them—were more likely to have dogs available to them. That is, such people were less likely either to reject curious wolves-becoming-dogs or kill them when opportune. And those who had dogs available to them, especially in times of deprivation, had a crucial advantage in hunting and thus a crucial weapon with which to stave off starvation. Thus, generation after generation, the travails of Paleolithic life exerted their winnowing force on the human population, killing off both dog lovers and those more hostile to canines—only killing off the latter group at an appreciably greater rate. Consequently, dog lovers came to predominate. The pact between dogs and *Homo sapiens* proved so effective, in fact, that some specialists theorize it enabled our ancestors to

outperform entire varieties of archaic humans, ensuring our species' survival when our genetic cousins faded into extinction in the face of environmental challenges (Pierotti and Fogg 2017, 78–80; Shipman 2017, 228–29). As a result, as humanity emerged from its prehistory, the final product was an organism especially and strikingly willing to empathize with creatures not of its own kind, an organism with cross-species compassion stamped upon its very genetic code through the subtleties of evolutionary psychology.

The scope of this human faculty of empathizing with nonhumans is quite remarkable. Most obviously, through their relationship with pets, people have demonstrated an ability to care for not only dogs but also for cats, birds, lizards, snakes, rats, and many other species—many of which are traditionally classed as vermin (Hergovich et al. 2011). The comments and actions of conservationists show that humans can feel similar concern for the well-being for wild animals that live thousands of miles away from them. Humans are capable of feeling concern even for creatures for which we have no good evidence of their very existence; for example, Skamania County in Washington State passed a law in 1969 and then again in 1984 banning the killing of Sasquatches, just in case (Pyle 1995, 277–78).

What is more, the concern that humans can feel for nonhuman creatures is not only broad in scope but often very deep, motivating people to endanger themselves in order to safeguard a wide array of living things. Consider the classic case of protestors leaping into bullfighting rings, exposing themselves to danger at the proverbial hands of the very bulls they are trying to defend from matadors (e.g., Knox 2017). Indeed, people have made headlines sacrificing their own lives in attempts to rescue animals of all sorts, from calves, to massive whales, and even grizzly bears (Valley 1995; Haines 2003; Mele 2017). And for every high-profile case of humans knowingly facing danger for the benefit of animals, researchers have found that many more people quietly endure abusive relationships characterized by domestic violence for fear of what would happen to beloved pets were the abused to flee to safety (Newberry 2017).

EXOMISSIOLOGY AND THE LOVE MOTIVE

Set within the context of a possible future evangelistic mission to extraterrestrials, the remarkable nature of human empathy for nonhuman creatures is manifestly relevant. For just as humans have the capacity for solidarity when it comes to dogs, to grizzly bears, and so on, it seems that humans likewise have the capacity for empathy applied to extraterrestrials. The former director of the Vatican Observatory, Father José Gabriel Funes, spoke of the spiritual kinship between humans and possible extraterrestrials in a 2008 interview, declaring that an extraterrestrial would be “a brother” (Pullella 2008). The scope of human trans-species empathy extends this far, encompassing not only earthly nonhumans but

beings who, if they exist, do not share a common history, a common biology, or even a common world with mankind—the absolute “other.”

Just as the scope of human empathy reaches this far, the depth of it applies too. C. S. Lewis once wrote that, if humanity ever meets extraterrestrials, certain scenarios would require Christians to defend the aliens from our fellow humans. That is, Lewis spoke of realistic situations in which we would need to side *with* extraterrestrials *against* humanity, knowing full well the consequences of such a stance: “We shall be called traitors to our own species. We shall be hated of almost all men; even of some religious men. And we must not give back one single inch. We shall probably fail, but let us go down fighting for the right side. Our loyalty is due not to our species but to God. Those who are, or can become, His sons, are our real brothers even if they have shells or tusks. It is spiritual, not biological, kinship that counts” (Lewis 2017, 95–96).

While one can conceive of scenarios in which human beings would evangelize extraterrestrials without this visceral willingness to empathize with them—perhaps for duty’s sake or out of self-interest—undoubtedly this sort of emotional drive would help things along. To face the inconveniences and dangers of space travel, to engage with the disorientation of literally inhuman cultural norms day-in-and-day-out, potentially to have to leave all of one’s family and friends behind to die in the decades or centuries or millennia that will pass on Earth during a time-dilated interstellar journey, these are genuinely daunting challenges that will face any would-be exomissionary. To be able to meet such challenges seems unrealistic unless the missionary is to meet them, at least in part, for love’s sake.

Love is, after all, only the more poetic word for the empathy, solidarity, and so on, alluded to above. And love has rested at the center of the Christian understanding of evangelistic missions from the very beginning. Over and over again, the New Testament speaks of the love that motivated God-in-Christ to reach out to humanity and offer us salvation (e.g., John 3:16, Romans 5:8, Ephesians 2:4–7, II Thessalonians 2:15–16, and Revelation 1:5–6). And the figures of the New Testament church were quite clear about the importance of reflecting that love in one’s own experience, in connection with other people (e.g., Matthew 5:43–45, Matthew 22:37–40, I Corinthians 13, II Peter 1:5–7, and I John 4:21). This love motive has been profoundly influential in the history of earthly missionary work, sometimes rising to the level of the primary impetus—one particularly effective in promoting increased dedication to the missionary enterprise (Bosch 2011, 293–95; Skreslet 2012, 29). As Scott Jones of the United Methodist Church has written, “It is out of love for others as whole persons that Christians engage in missionary activities, including evangelism. Christian love is grounded in God’s love, and the love of Christ constrains—or in the words of the NRSV ‘urges us on’—to help transform the lives of others” (2003, 115). To cite a more forceful declaration of the same

sentiment, “If we truly love our neighbor, we shall without doubt share with him or her the good news of Jesus. How can we possibly claim to love our neighbor if we know the gospel but keep it from them?” (Stott and Wright 2015, 29).

That human Christians have been equipped to feel this love for “the other,” even for the extraterrestrial, is a profound potential benefit to future missions work among the stars. That we may have such a capacity because of the dimly guessed at role of dogs in our own development is a startling and wonderful idea. And that God may have woven the world together in just such a way to bring about this end is a cause for awe and worship.

APPLICATION

Should mankind ever learn that extraterrestrials actually exist, and should the details of the case make the Cosmic Mission Perspective appear probable, no doubt those already sympathetic to that view will send missionaries to our newly discovered neighbors. Any such mission will be a grand undertaking, one that will require enormous commitment and resources. Any personnel involved ought to be carefully screened, therefore, so as to select men and women particularly suited to the task at hand. In this context, many of Hoffman’s specific recommendations for exomissions seem quite good (2004, 332–35). But in light of the benefits that our expanded circle of empathy might offer such missions, it seems that one additional criterion ought to be deployed in the selection process: the requirement of a visceral, deep-seated love for nonhuman animals.

The focus on empathy for nonhumans specifically is important as research indicates that a person’s ability to empathize with people and his or her ability to empathize with nonhuman creatures are not a single phenomenon (Paul 2000). Rather, these two traits, while similar in effect, seem to spring from different neurological foundations (Franklin et al. 2013). And while Bradshaw argues that humanity’s long history with dogs has widened the circle of human empathy, he is also careful to note that a love for nonhuman animals is still not universal among human beings. Some people enjoy animals very much; others do not. Bradshaw regards the distinction as one rooted in genetic differences (2017, 304–305; see also Jacobson et al. 2012). Given this variety, potential exomissionaries should be screened to ensure that all personnel possess the relevant helpful genetic inheritance, that they possess an appropriately enlarged circle of empathy that can better include even aliens. This screening could be done with reference to established psychological diagnostic tools or, potentially, through direct genetic testing should the relevant genes ever be isolated.

Beyond genetic considerations, additional research indicates that past and present experience with pets increases a person’s ability to empathize

with nonhuman creatures (Auger and Amiot 2017). So, it would seem that exomissionary candidates should be screened for positive life experience with keeping pets too.

A FINAL THOUGHT

As has been said, animals have been partners to humans in several aspects of life. They have been companions, tools, weapons, and so on. Christians recognize this, and we recognize the rightness of honoring animals for their contributions to our lives. We further value them as a charge given to us, to be responsibly stewarded, and creations of God to be respected for his sake (Linzey 2000, 12). Indeed, the very act of searching among the stars for life reminds us of the value of life—all life—including the familiar plant and animal life here on Earth. It reminds us that, as Edward Echlin said, “We earthlings are beings in relationships, yes; but relationships that include other creatures. Our relationships extend beyond God and people to all that God has made and saved” (1998, 150).

But the role that dogs may have played in our own development calls us to consider a further view of animals. While not abandoning other perspectives, might we not also come to think of animals as partners alongside us in the work of God specifically? Theologically speaking, to be sure, human beings enjoy a special preeminence among terrestrial creatures due to our bearing “the image of God.” But our own preeminence does not require us to think that other earthly creatures have nothing to offer to the work of the Lord.

Looking to the scriptures, it is clear that the biblical authors felt that animals had collaborated with humans in meaningful ways to advance God’s plans in the world. Ravens fed Elijah in his exile; a great fish is said to have rescued Jonah in the midst of his extremity so that he might confront Nineveh; Jesus himself was carried into Jerusalem and, in a sense, toward the cross, on the back of a donkey (I Kings 17:1–6, Jonah 1:7–2:10, and Mark 11:1–11). If dogs really have affected us as this article suggests—and if those effects ultimately bear fruit in connection with exomissionology—then dogs’ contribution to the wider mission of God will not have been insignificant.

In any event, scenarios like the one sketched out here can serve as an impetus to reevaluate our current understanding of earthly nonhuman animals. It can help us to see them as partners—albeit lesser partners—in this wonderful adventure not only of life but even of faithful witness to the glory of God (see Bauckham 2002, 47–48).

Such a shift would plausibly help humanity to more consistently reflect the respectful regard that God has for all his creatures, even the humble among them (see Deuteronomy 25:4, Psalm 104, Proverbs 12:10, and Luke 12:6). Therefore, as we look to the heavens and idly wonder about

Funes's "brother extraterrestrials" that may linger among the nebulae, let us likewise be mindful of the dignity of St. Francis's "Brother Wolf" and his kin here at home (Brown 1958, 89).

REFERENCES

- American Veterinary Medical Foundation. 2012. "U.S. Pet Ownership Statistics." Available at <https://www.avma.org/KB/Resources/Statistics/Pages/Market-research-statistics-US-pet-ownership.aspx>.
- Auger, Béatrice, and Catherine Amiot. 2017. "Testing and Extending the Pets as Ambassadors Hypothesis: The Role of Contact with Pets and Recategorization Processes in Predicting Positive Attitudes toward Animals." *Human-Animal Interaction Bulletin* 5:1–25.
- Augustine of Hippo. 1998. *The City of God against the Pagans*. Translated by R.W. Dyson. Cambridge, UK: Cambridge University Press.
- Australia Veterinary Association. 2013. "Pet Ownership in Australia." *Australian Veterinary Journal* 91:N2–24.
- Bauchham, Richard. 2002. "Joining Creation's Praise of God." *Ecotheology* 7:45–59.
- Blish, James. 2000. *A Case of Conscience*. Reprint ed. New York, NY: Del Rey Impact.
- Bonting, Sjoerd L. 2003. "Theological Implications of Possible Extraterrestrial Life." *Zygon: Journal of Religion and Science* 38:587–602.
- Bosch, David J. 2011. *Transforming Mission: Paradigm Shifts in Theology of Mission*. 20th anniversary ed. Maryknoll, NY: Orbis Books.
- Bradbury, Ray. 2012. "The Fire Balloons." In *The Illustrated Man*, 112–35. Reprint ed. New York, NY: Simon and Schuster.
- Bradshaw, John. 2017. *The Animals Among Us: How Pets Make Us Human*. London, UK: Penguin Books.
- Brown, Raphael, ed. 1958. *The Little Flowers of Saint Francis*. New York, NY: Doubleday.
- Card, Orson Scott. 1991. *Speaker for the Dead*. New York, NY: Tor.
- Coleman, Richard J. 1978. "A Communique from Outer Space." *Journal of the American Scientific Affiliation* 30:41–42.
- Cook, Rob. 2012. "Would the Discovery of Alien Life Prove Theologically Embarrassing?" *Evangelical Quarterly* 84:139–54.
- Coyne, George V. 2000. "The Evolution of Intelligent Life on Earth and Possibly Elsewhere: Reflections from a Religious Tradition." In *Many Worlds: The New Universe, Extraterrestrial Life, and the Theological Implications*, edited by Steven J. Dick, 177–88. Philadelphia, PA: Templeton Foundation Press.
- Crowe, Michael J. 1986. *The Extraterrestrial Life Debate, 1750–1900*. Cambridge, UK: Cambridge University Press.
- Davis, John Jefferson. 2002. *The Frontiers of Science and Faith: Examining Questions from the Big Bang to the End of the Universe*. Downers Grove, IL: Intervarsity Press.
- Echlin, Edward. 1998. "Jesus and the Star Folk." *New Blackfriars* 79:146–53.
- Faber, Michel. 2015. *The Book of Strange New Things*. New York, NY: Hogarth.
- Flynn, Michael F. 2006. *Eifelheim*. New York, NY: Tor.
- Franklin, Robert G., Jr., Anthony J. Nelson, Michelle Baker, Joseph E. Beene, Theresa K. Vesco, Aurora Lenz-Watson, and Reginald B. Adams, Jr. 2013. "Neural Responses to Perceiving Suffering in Humans and Animals." *Social Neuroscience* 8:217–27.
- Haines, Joan. 2003. "Details in Death of Bear Researcher May Never Be Known." *Bozeman Daily Chronicle*, October 26.
- Hergovich, Andreas, Ina Mauerer, and Valentin Riemer. 2011. "Exotic Animal Companions and the Personality of Their Owners." *Anthrozoös* 24:317–27.
- Herzog, Harold A. 2014. "Biology, Culture, and the Origins of Pet-Keeping." *Animal Behavior and Cognition* 1:296–308.
- Hoffman, Thomas. 2004. "Exomissiology: The Launching of Exotheology." *Dialog: A Journal of Theology* 43:324–37.
- . 2014. "Sacred Space: A Beginning Framework for Off-Planet Church." *Journal of the British Interplanetary Society* 67:200–06.

- Jacobson, Kristen C., Christy L. Hoffman, Terrie Vasilopoulos, William S. Kremen, Matthew L. Panizzon, Michael D. Grant, Michael J. Lyons, Hong Xian, and Carol E. Franz. 2012. "Genetic and Environmental Influences on Individual Differences in Frequency of Play with Pets among Middle-Aged Men: A Behavioral Genetic Analysis." *Anthrozoös* 25:441–56.
- Jones, Scott J. 2003. *The Evangelistic Love of God and Neighbor: A Theology of Witness and Discipleship*. Nashville, TN: Abingdon Press.
- Knox, Patrick. 2017. "Horror as Animal Rights Campaigner Is Gored by Bull He Was Trying to Save after Leaping into French Ring to Protest Bullfighting." *The Sun*, August 28.
- Lazzari, Edmund M. 2018. "Would St. Thomas Aquinas Baptize an Extraterrestrial?" *New Blackfriars* 99:440–57.
- Lewis, C. S. 2017. "Religion and Rocketry." In *The World's Last Night and Other Essays*, 87–97. Reprint ed. San Francisco, CA: HarperOne.
- Linzey, Andrew. 2000. *Animal Gospel*. Louisville, KY: Westminster John Knox Press.
- Madueme, Hans. 2018. "Astrobiology and Other Strange New Things." *The Logos Academic Blog*, May 16. Available at <https://academic.logos.com/astrobiology-and-other-strange-new-things>
- Martin, George R. R. 2003. "The Way of Cross and Dragon." In *The Oxford Book of Science Fiction Stories*, edited by Tom Shippey, 454–71. Reprint ed. Oxford, UK: Oxford University Press.
- Mele, Christopher. 2017. "Whale Strikes and Kills Canadian Rescuer after He Helps Free It." *The New York Times*, July 12.
- Murphy, George L. 2001. *Toward a Christian View of a Scientific World: Fifteen Topics for Study*. Lima, OH: CSS Publishing.
- . 2003. *The Cosmos in Light of the Cross*. Harrisburg, PA: Trinity Press International.
- Newberry, Michelle. 2017. "Pets in Danger: Exploring the Link between Domestic Violence and Animal Abuse." *Aggression and Violent Behavior* 34:273–81.
- Oliver, Kendrick. 2013. *To Touch the Face of God: The Sacred, the Profane, and the American Space Program, 1957–1975*. Baltimore, MD: Johns Hopkins University Press.
- Paul, Elizabeth S. 2000. "Empathy with Animals and with Humans: Are They Linked?" *Anthrozoös* 13:194–202.
- Peters, Ted. 2003. *Science, Theology, and Ethics*. Burlington, VT: Ashgate.
- . 2018. "One Incarnation or Many?" In *Astrotheology: Science and Theology Meet Extraterrestrial Life*, edited by Ted Peters, Martinez Hewlett, Joshua M. Moritz, and Robert John Russell, 271–302. Eugene, OR: Cascade Books.
- Peters, Ted, Martinez Hewlett, Joshua M. Moritz, and Robert John Russell, ed. 2018. *Astrotheology: Science and Theology Meet Extraterrestrial Life*. Eugene, OR: Cascade Books.
- Pierotti, Raymond, and Brandy R. Fogg. 2017. *The First Domestication: How Wolves and Humans Coevolved*. New Haven, CT: Yale University Press.
- Pullella, Philip. 2008. "Vatican Scientist Says Belief in God and Aliens Is OK." *Reuters*, May 13.
- Pyle, Robert Michael. 1995. *Where Bigfoot Walks: Crossing the Dark Divide*. New York, NY: Houghton Mifflin Harcourt.
- Russell, Mary Doria. 1999. *Children of God*. New York, NY: Fawcett Books.
- . 2016. *The Sparrow*. 20th anniversary ed. New York, NY: Ballantine Books.
- Russell, Robert John. 2018. "Discovering ETI." In *Astrotheology: Science and Theology Meet Extraterrestrial Life*, edited by Ted Peters, Martinez Hewlett, Joshua M. Moritz, and Robert John Russell, 74–89. Eugene, OR: Cascade Books.
- Shipman, Pat. 2017. *The Invaders: How Humans and Their Dogs Drove Neanderthals to Extinction*. Cambridge, MA: Harvard University Press.
- Skreslet, Stanley H. 2012. *Comprehending Mission: The Questions, Methods, Themes, Problems, and Prospects of Missiology*. Maryknoll, NY: Orbis Books.
- Spradley, Joseph L. 1998. "Religion and the Search for Extraterrestrial Intelligence." *Perspectives on Science and Christian Faith* 50:194–203.
- Stott, John, and Christopher J. H. Wright. 2015. *Christian Mission in the Modern World*. Revised ed. Downers Grove, IL: InterVarsity Press.
- Ugbomoiko, Uade Samuel, Liana Ariza, and Jorg Heukelbach. 2008. "Parasites of Importance for Human Health in Nigerian Dogs: High Prevalence and Limited Knowledge of Pet Owners." *BMC Veterinary Research* 4:1–9.

- Valley, Paul. 1995. "For What Cause Did Jill Phipps Die?" *Independent*, February 3.
- Wang, Guo-dong, Weiwei Zhai, He-chuan Yang, Ruo-xi Fan, Xue Cao, Li Zhong, Lu Wang et al. 2013. "The Genomics of Selection in Dogs and the Parallel Evolution between Dogs and Humans." *Nature Communications* 4:1–9.
- Weintraub, David A. 2014. *Religions and Extraterrestrial Life: How Will We Deal With It?* Cham, Switzerland: Springer.
- Wilkinson, David. 2013. *Science, Religion, and the Search for Extraterrestrial Intelligence*. Oxford, UK: Oxford University Press.