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Article

Antony Flew's Question and Its Answer: How to Perceive God?

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Antony Flew's parable states that God is a hypothesis that cannot be verified scientifically. So what has theology to do with reality? Here I argue that religion ultimately originates from religious perceptions that require participation and are holistic, including embodied cognitions, integral sensations, emotions, and feelings. Such perceptions are nonscientific because they are not objective. However, they are essential in every human life and have changed it for many contemporaries. Prime examples from the Bible illustrate the argument. Science and theology start from different perspectives and experiences. Much of the current dialogue, taking place on a rational and objective plane, falls short in two ways: (1) it is implicitly physicalist, and (2) it ignores the roots of religion. A shift from ontology to epistemology is necessary. To make theology understandable in a modern worldview, the emphasis needs to change from discussing the nature of God to examining how humans experience God.

The highlight of my introductory physics course on special relativity some decades ago was the story of how Albert Einstein discarded the luminiferous aether, the postulated medium for the propagation of light.[1] The aether hypothesis was introduced and became popular in the nineteenth century when new optical experiments suggested describing the propagation of light by a wave equation. Aether was thought to be the universal medium in which the light waves oscillate. However, no trace of this hypothetical substance was ever observed and the famous experiment by Albert A. Michelson and Edward W. Morley published in 1887 clearly showed that something was seriously wrong with the concept.

Hendrik A. Lorentz and Henri Poincaré, two eminent theoreticians of the time, tried to save the aether theory by introducing different times in the moving system and the stationary aether. Einstein then boldly formulated special relativity in which electromagnetic fields oscillate in vacuum, and where there is no special frame of reference needed given by some aether. Aether fell to Occam's Razor, the maxim to assume the simplest explanation. We students were told to never forget that physics should deal with only observable entities.

Today this approach to reality is unchallenged in the frame of physics. Einstein's exploit also affected other fields of science and influenced epistemology in general. It boosted philosophical positivism, claiming that (positive) facts are the only source of all human knowledge. Logical positivism into which it developed in the 1920s became one of the most influential movements in twentieth-century philosophy. Its central thesis is that the only statements that are meaningful are those based on objective observations that can be empirically verified. Metaphysical interpretations are not considered to be significant and are rejected.

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The Parable of the Invisible Gardener

Individual fields of natural science still operate successfully according to such positivist principles. Positivism is present also in the general public because our current worldview is significantly influenced by science. Positivism surfaces particularly with regard to the truth of theology. An instructive example is the satirical Parable of the Invisible Gardener by the British philosopher Antony Flew.

> Once upon a time two explorers came upon a clearing in the jungle. In the clearing were growing many flowers and many weeds. One explorer says, "Some gardener must tend this plot." The other disagrees, "There is no gardener." So they pitch their tents and set a watch. No gardener is ever seen. "But perhaps he is an invisible gardener." So they set up a barbed-wire fence. They electrify it. They patrol with bloodhounds. But no shrieks ever suggest that some intruder has received a shock. No movements of the wire ever betray an invisible climber. The bloodhounds never give cry. Yet still the Believer is not convinced. "But there is a gardener, invisible, intangible, insensible to electric shocks, a gardener who has no scent and makes no sound, a gardener who comes secretly to look after the garden which he loves." At last the Skeptic despairs, "But what remains of your original assertion? Just how does what you call an invisible, intangible, eternally elusive gardener differ from an imaginary gardener or even from no gardener at all?[2]

The parable suggests that God cannot be proven by scientific means. Its implicit conclusion is that religious beliefs cannot be verified by scientific evidence and are nonsensical. Scientific evidence requires objectivity, which means that the evidence needs to be the same for all scientists, independent of the observer—whether believer or skeptic. A further requirement for a scientific fact is repeatability. It must not be a one-time occurrence but a general phenomenon. Finally, and especially in physics and chemistry, scientific phenomena must be quantitatively measureable. The quantitative nature allows a description by exact laws and mathematical modeling. The way the story is told, also suggests that there is no place for God in reality. If God existed, he has no influence. His existence can be neither proved nor disproved. One may as well ignore the concept of God as done with the luminiferous aether.

John M. Frame responded to Flew's conclusion in terms of a general criticism of positivism that empirical observation always requires prerequisites.[3] Belief in God is a commitment, and commitments are unfalsifiable. Frame then goes on to point out that disbelief, committed to ignore evidence, is also unfalsifiable. Granted, it may be objected to his argument, that commitments unrelated to evidence and out of touch with everyday life become ideologies. Where the discussion should go is to the experiential basis of religion.

A Continuation of the Parable

Here we ask what religion has to do with reality. Is the reality investigated by science all of what humans perceive? Maybe the investigators in the parable looked for God in the wrong place or in the wrong way. Their story, for example, could continue in this manner:

> Because they were so absorbed in experiments and analyses, and also because of their familiarity with the place, the researchers were no longer able to see the beauty of the garden. The day of leaving, the Skeptic wandered in a reflective mood through the garden and found himself standing unexpectedly before a magnificently blooming red rose. It stood large and alone in a meadow. The Skeptic was captivated by the luminous color, the delicate form of the petals, and their contrast to the thorny stalk. The flower reminded him of something long forgotten. It warmed his heart, and he felt an inner connection with the plant. The thought struck him that it was part of a whole that included not just the garden, but him as well, and that in the end he, too, was part of an all-encompassing beauty. He went on to ask himself if his perception was self-delusory. Is beauty just an illusion, a trick of synapses in the brain? Yet he felt something undeniable, a sense of happiness that continued to resonate within. Later, as he left the garden, even his colleague noticed the change in him. "We have investigated everything except the beauty of the flowers," said the Skeptic. The other answered: "Beauty is not measurable or provable. […] Beauty is neither an assumption nor a statement, but rather an overwhelming experience. We should have known that it is the same with beauty's creator, who is only recognizable if we, full of wonder, allow ourselves to be embraced with his goodness. […] Surely he was in the garden, but we were too busy with our measurements to perceive him.[4]

The beauty of a rose is not an objective fact of reality and thus not a matter of scientific scrutiny. The Skeptic in the story has seen photons reflected from the petals every day, but did not become aware of the rose until his last day. The special circumstances of the imminent departure, the feeling of losing a paradise, the relaxation of having accomplished work, new perceptions of the garden as a whole, an unconscious smell, or childhood memories have combined to a sensation that made him resonate with the objective properties of the flower. His reaction was certainly subjective, but not without external reason. The beauty was real to him as it had an effect on him. He participated in a perception that was direct and before he could even reason about it. Some aspects of the perception were objective and scientifically verifiable, such as the intensity and wavelength of the light, the refraction in the ocular lenses of his eyes, the function of the retina, and the activity of the brain. Yet beauty cannot be measured quantitatively.

Participatory Perceptions

Perceptions are externally related influences that have become part of our consciousness. Different kinds of perceptions together constitute our window onto reality. They include but are not restricted to scientific measurements and observations. In fact, most experiences in life are not of the scientific type, consisting of objective, quantitative, and repeatable measurements; rather, they are subjective perceptions in which we participate. Participatory perceptions include prereflective experiences of beauty, love, grief, hate, empathy, inspiration, fascination, motivation, amazement, and so forth. They are the everyday experiences that shape our life. The continuation of Flew's parable is meant to show that the reality perceived by humans is larger than what science is based on.

- Are non-objective perceptions just human illusions as some positivists claim? Such an assertion would make human existence an illusion, which I cannot take seriously.
- Will non-objective perceptions be explained one day by quantum mechanics and by chaos theory as some hard-core physicalists claim? There seems to be an insurmountable gap between mechanistic theories on one side and what is experienced in non-objective perceptions by the human consciousness on the other side. How can perceptions in the first-person perspective ever become third-person facts?
- Physics will undoubtedly develop further. Major parts are still missing, such as a quantized gravitation theory or the nature of dark matter. Will participatory perceptions be explained with a not-yet-available new physics in the far future? This remains an unimaginable hypothesis that cannot be evidenced at present and in the near future.

Another, and more pragmatic view, suggests that "there is more than physics." The statement has a long tradition and has become an issue in the recent science-religion dialogue.[5] The existence of something may be a metaphysical assumption or the conclusion of a philosophical argument. In science, the existence, for example, of a star is secured by an objective, repeatable observation. The observation then is interpreted by a theory based on previous observations and interpretations. The new observation thus becomes integrated into an increasing network of knowledge. Measurement and theory follow each other cyclically. Can the method and language shaped by science—in particular, physics—be applied to the part of reality that cannot be explored by science?

A claim for "more than physics" must be more than a hypothesis in a scientific worldview. The basis should be the experience that humans *do perceive more than physics*. Thus epistemology and cognition must precede ontology. Humans become aware of some reality in participatory perception, and they interpret it in a mental process in which the perceived is construed by metaphors, using imagination, instinct, or intuition. Participatory perceptions enlarge our cognition of reality.

How can humans perceive what science cannot? The excess in perception is possible through a way of cognition that is not objective and that is ultimately inapt for scientific inquiry and interpretation. I avoid referring to this perception as subjective and prefer the term "participatory." This perception has a clear subjective element, but it is based on an object (red rose). Yet the subject participates and plays an essential role.

Perceptions exceeding physical measurements may include "embodied cognitions" discussed in recent psychology.[6] An embodied cognition is the result of

interplay between sensory stimuli of the body and the emotions and feelings of an individual. It is not an exclusive activity of the brain, but involves various parts of the body. Embodied perceptions are well known and alluded to in popular expressions such as "gut feelings." They describe a situation in which objective perceptions and rational deliberations leave a person undecided, but in which holistic considerations of a wider field of experiences, including the body, are convincing. Antoine de Saint-Exupéry provocatively claimed: "It is only with one's heart that one sees clearly. What is essential is invisible to the eye."[7] Human perceptions involve not only the classical sensory organs such as eyes and ears, but also feelings, moods, emotional tensions, mystical experiences, environmental conditions, previous occurrences, or many of them together. It is a cognition in which the human being participates in an integral way.

Of course, the lack of objectivity immediately raises the question of reality. What is real? In view of Flew's parable, one may require that reality has an effect. Yet this effect may be subjective, as, for example, of being touched by the beauty of a flower. Participatory perceptions are therefore open to critique and may turn out to be imagination. Without critical reflection they soon become subjectivistic. The reliability of participatory perceptions is not as secure as in scientific (objective) measurements. One may argue that reality lasts, but illusions do not. Similar experiences in the past or future may enhance the reliability.

Figure 1 illustrates the basic separation between the two domains of objective (scientific) and non-objective (participatory) perceptions. Participatory perceptions involve brain activities and other bodily processes that can be studied objectively. However, they imply a conscious human self that has an irreducible perspective. The various participatory perceptions also overlap among themselves. Religion is related, for instance, to arts in the music of some primitive cultures.[8] Note that figure 1 distinguishes the constituting perceptions, but not their

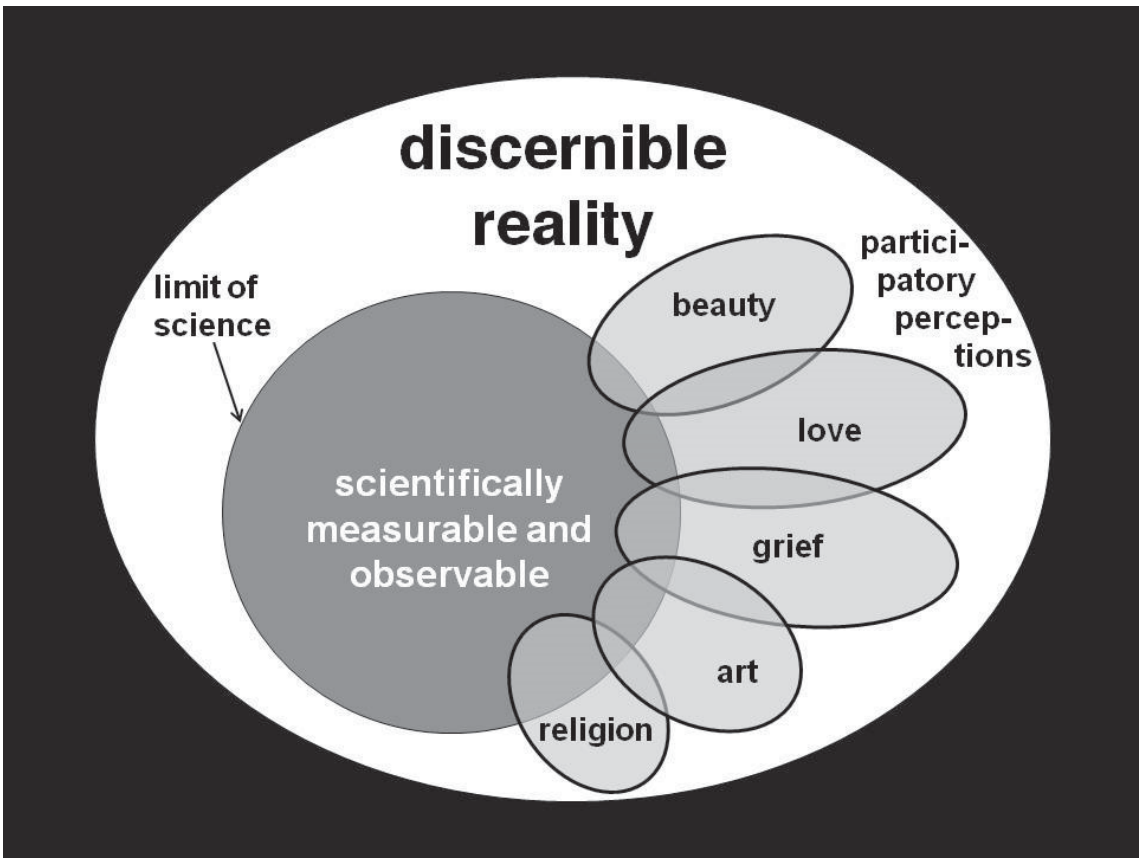

Figure 1. Schematic representation of perceptions. *White*: discernible reality; *dark gray*: perceptions selected by natural sciences (measurements and objective observations); *light gray*: non-objective perceptions accessible by participation and only partially by science (adapted from Arnold O. Benz, *Astrophysics and Creation: Perceiving the Universe through Science and Participation* [New York: Crossroad Publishing, 2016], 102).

subsequent interactions, such as the amazement or horror provoked by a scientific result when the science is popularized.

It is clear from what was said above that theology must be related to the experience of reality to be appreciated by today's science-minded skeptic in a modern worldview. Are the constituting experiences of religion rooted in objective science such as physics or, as suggested in figure 1, in participatory perceptions of "more than science"?

Physical Basis for Theology?

Modern science started in the sixteenth century with a new methodology. Nature was not interpreted from fundamental, preconceived ideas, but it was carefully studied by experiments, such as Galileo Galilei's free fall measurements, or by new tools, such as telescopes and microscopes. The fascinating discoveries were considered as revelations of the Divine and read as a second book of creation, as suggested already by Augustine of Hippo (354−430). Nature's amazing properties were interpreted by the graciousness and wisdom of the Creator. For the physico-theological researchers of the seventeenth century, the scientific perception of nature provided plenty of evidence for God. However, the surprising insights became more and more attributed to natural occurrences, such as in Darwin's theory of evolution. Every new scientific explanation of the world by natural causes was a blow to such theology based on science.

The idea of searching for the Divine in nature through reason and scientific inquiry is still alive today. Some authors claim to have found scientific evidence for supernatural phenomena in the form of an "intelligent design."[9] It is vigorously rejected by the scientific community as an aberration from the standard methodology. Theological arguments based on natural science may answer our amazement and yearning for meaning, but they are not conclusive in rigorous scientific terms.

A different approach, building theology on experience from modern physics, is based on quantum mechanics. Its uncertainty revolutionized the deterministic view of Newtonian physics. According to quantum theory, the future is open and not predictable within a certain range. The usual Copenhagen interpretation implies that reality does not even exist in microscopic dimensions until it is observed. In the twentieth century, it became generally accepted that the universe cannot be described as mechanical clockwork. This new space of indeterminate reality led to a significant theological development. Is there a place again for God in the physical world? Does God act in this world through quantum uncertainty?[10] Ian Barbour envisioned divine action taking place in a holistic way consistent with physics, such as quantum nonlocality.[11] The physicist-theologian John Polkinghorne sees "a much more promising line of inquiry [in] the subtlety of behavior enjoyed by complex dynamical systems,"[12] referring to unpredictability of the future known in chaos and complexity theory. Should the scientists in the parable have studied quantum mechanical or chaotic processes of the Garden?

Postulating divine action with benefit of the new physics has been criticized from the outset. Peter Hodgson pointed out that in the usual statistical interpretation, "quantum mechanics is irrelevant to the question of God's action in the world,"[13] because the statistical average is deterministic and leaves no room for divine freedom on a macroscopic scale. One may object here that quantum mechanics may still serve as a metaphor for uncertainty or for the openness of the future. However, in a good metaphor, a complex concept or experience is described figuratively by another, simpler, and well-understood phenomenon. The intricacies of physical theories make them far removed from the usual metaphors and their use requires popularization in an imprecise nonmathematical language. Thus, new physics is not really useful for metaphors, but it may pretend a false authority.

More-fundamental criticism arises from a philosophical perspective. Is physics the right starting point? Can theology build on modern physics? These questions express the suspicion that such attempts originate from the widespread but covert positivistic attitudes in modern worldviews. Taede Smedes criticizes today's science-religion dialogue based on arguments derived from the new physics as a "category mistake."[14] More critically, Lydia Jaeger challenges "the physicalist assumption that physics provides a true and complete description of nature's causal web,"[15] and concludes that physics does not

provide the basis for theology. Christian hope for a new creation in the future cannot be based on science.[16]

The interpretation of scientific results by divine interaction appeared to be self-evident considering that creation suggests a divine origin[17] of everything. However, if the experiential foundation of theology is sought in results of science, the focus is on gaps of scientific understanding, such as quantum uncertainty, chaotic unpredictability, time before the Big Bang, cosmic fine tuning, or missing biological links. In the public at large, gaps are still commonly considered to be the nexus between science and religion. Modern atheists claim the absence of such gaps and conclude the non-existence of God, as also implied by the parable of the Invisible Gardener. On the other hand, there is a strong movement in modern theology—in particular, since Karl Barth and his followers—claiming that science and scientific questions have no direct connection to theology.[18] Theology cannot be reconciled with science in scientific categories. That would base religion on science; this would lead to a dead-end street.[19] This does not mean, however, that there should be no connections between science and theology. A theological perspective on nature is possible and necessary.

Religious Perceptions

Here it is argued that religion originates from participatory perceptions. Religion appeared early in human history. Archeological artifacts and religious music, dancing, and rituals of today's uncivilized tribes give evidence of a rich religious life. These social phenomena express individual perceptions that are "embodied," and in which participation is essential. The archaic testimonies express a variety of religious perceptions that has not diminished since. William James describes, in his classic treatise, a dazzling diversity of religious experiences in America at the turn of the twentieth century, including examples not only of mysticism, revelation, conversion, and saintliness, but also of pathology. James already notes the "primacy of feeling in religion, philosophy being a secondary function."[20]

First, the general openness of the mind for religion-like perceptions may be characterized most commonly as spirituality. It includes all forms of contemplation and meditation, the feeling of emptiness, mountain-peak experiences, nature mysticism, and experiences of union and fullness. Spirituality requires a person willing to be open to a wide range of embodied cognitions. Such experiences are not necessarily considered "religious" by the person concerned. "Religious" here is a possible interpretation based on tradition and previous experiences.

Second, religious spirituality specifically connotes a relation to a reality transcending the person. It includes, for instance, sensing divine providence, experiencing answers to prayers, and being blessed with health, food, or life. Some people feel addressed by words, be it a poem or a passage from the Bible. It is such religious spirituality that is most commonly referred to as "religious experience."

Third, religious perceptions may be explicit experiences of God in visions, epiphanies, or revelations. Many descriptions of this kind of experience can be found in the Bible. Consider as an example the narrative of the Burning Bush:

> *Then Moses said to God [in the fire of a bush], "If I come to the people of Israel and say to them, 'The God of your fathers has sent me to you,' and they ask me, 'What is his name?' what shall I say to them?" God said to Moses, "I am who I am."*[21]

The text does not allow for a physical explanation by acoustic waves in the form of human speech that came out of a fire. In fact, the preceding sentences insist that the bush was not consumed by the fire, thus excluding any simplifying physical interpretation. The story sounds odd to a modern worldview. How could information be transferred without propagating waves? My interpretation is that it was a participatory perception as introduced above. It is reported to us in the form of a legend. In modern psychological terms, the occurrence may be called a "vision." It is reminiscent of a similar perception of a visionary fire reported by Blaise Pascal.[22] A vision is an experience that has a lasting effect in life. It is like an inner eye that perceives a dimension of reality that is normally hidden.

The self-revelation of God (Adonai) in the Burning Bush is fundamental in Judaism and Christianity. What is remarkable is that God does not define himself as the one who creates flowers in a jungle garden, started the Big Bang, fine-tuned the universe, or

hides in quantum uncertainty. He just is. He will be experienced directly in first-person perspective, for instance, when life in the desert becomes hard and his presence is urgently desired, as was the case on the flight from Egypt.

Here is another example from the narrative of the disciples from Emmaus:

> *When he [risen Christ] was at table with them, he took the bread and blessed and broke it and gave it to them. And their eyes were opened, and they recognized him. And he vanished from their sight. They said to each other, "Did not our hearts burn within us while he talked to us on the road, while he opened to us the Scriptures?"*[23]

Again, this may be interpreted as a legendary description of a vision. The remarkable content is the way the Divine was experienced. It is described as "a burning heart," much reminiscent of an embodied cognition and obviously a perception in which the men participated.

The two biblical texts describe extraordinary experiences in the context of ancient worldviews. As they are participating perceptions, they have left no objective trace and can be described only metaphorically: the perception of God is (1) like a talking bushfire, and (2) like a burning heart. Even in those times, religious perceptions were not everyday experiences. Both incidents are related to crucial incidents in history: the first, to the exodus from Egypt; and the second, to the foundation of Christianity.

Today, religious perceptions rarely surface beyond personal privacy. They are widely taboo in the general public and may be suspected as pathological. The more recent occurrences may be more mundane than and not as striking as the biblical examples. Yet, if biblical religious experiences were declared unique, they could not be related to present-day reality. Without some link to our experienced reality, they would become incomprehensible. It is relevant to rediscover paradigmatic experiences of the past, depurated and chastened by time. Biblical records may help for orientation and as examples, if they can be made appealing to a world dominated by scientific assumptions. Therefore it is necessary to discuss contemporary religious experiences in a broad context of cognition that includes the past.

Science-Religion Dialogue

The dialogue with theology started nearly simultaneously with the emergence of modern science. In the past, the dispute was mostly on a plane given by objective observations and rational arguments about chance and necessity. On such a plane, scientific and theological interpretations of reality may come into conflict. In the case of Galileo Galilei about the astronomical worldview, for example, the religious authority first dominated, but lost in the long run. Although we know today, contrary to what Galilei claimed, that the sun is not the center of the universe, it is generally agreed that this is a scientific question to be answered by science. As science starts out from a limited part of reality and religious perceptions are not objective and thus not part of science, religion has no part in scientific models and explanations. Theology may still interpret scientific results in metaphoric terms, but then it plays a more philosophical and reflective role. For instance, the universe may be interpreted as a gift.[24] Furthermore, theology may answer fundamental questions such as the meaning of the universe or why there is something and not nothing. The orientation provided by religion can be the starting point for ethics.

However, such a philosophical theology is not what religion originally was about. The two biblical examples given above narrate direct prereflective experiences of reality in human life. If theology wants to remain of practical importance, it must have a relation to participatory religious perceptions. Traditional cultures and religions are rooted in such experiences. They may not have the glamor of a moon landing or a Nobel Prize, but they have changed the lives of many contemporaries.

If the science-religion dialogue is to reach scientists, it has to leave the objective plane and insist that theology is more than dogmatic assumptions or unprovable claims. Theology is not just another interpretation of scientific results in a different language. It must be clear that the underlying perceptions are different. What is needed in the current science-religion dialogue is a return to religious perceptions and a new start. For a scientist, religious perceptions are bewildering and difficult to grasp. On the other hand, theology in the modern worldview is an exciting new territory to be explored in dialogue.

The scientific worldview needs to be assessed in the theological context and the theological implications of science must be pondered, overcoming Barth's distancing.

While the theological side must go back to its plethora of human experiences, science must not exceed the limits given by its observational bias. This new dialogue is different than before and may be incomprehensible for some of today's scientific atheists stuck in controversies of the past. However, it is better to be not understood at all, than to be misunderstood. ✧

Acknowledgments

I would like to express appreciation to the anonymous reviewers of the journal and the Editor-in-Chief for their fair and very helpful suggestions.

Notes

[1]Paul A. Schilpp, ed., "Albert Einstein: Philosopher-Scientist," in *Library of Living Philosophers*, vol. 7 (London: Cambridge University Press, 1949).

[2]Antony Flew in *New Essays in Philosophical Theology,* ed. Antony Flew and Alasdair MacIntyre (New York: Macmillan, 1955), 96. After an earlier version by John Wisdom in "Gods," *Proceedings of the Aristotelian Society* (1944).

[3]John M. Frame, "God and Biblical Language: Transcendence and Immanence," in *God's Inerrant Word: An International Symposium on the Trustworthiness of Scripture,* ed. John W. Montgomery (Minneapolis, MN: Bethany Fellowship, 1974), 10.

[4]Arnold O. Benz, *Astrophysics and Creation: Perceiving the Universe through Science and Participation* (New York: Crossroad Publishing, 2016), 64–65.

[5]Andreas Losch, "Our World Is More Than Physics: A Constructive-Critical Comment on the Current Science & Theology Debate," *Theology & Science* 3, no. 3 (2005): 275–90.

[6]Francisco J. Varela, Evan Thompson, and Eleanor Rosch, *The Embodied Mind: Cognitive Science and Human Experience* (Cambridge, MA: MIT Press, 1991); and Robert A. Wilson and Lucia Foglia, "Embodied Cognition," in *The Stanford Encyclopedia of Philosophy,* ed. Edward N. Zalta (2016), https://plato.stanford.edu/entries/embodied-cognition/. For an extension into the animal world, see Jesse James Thomas, *Embodiment, How Animals and Humans Make Sense of Things: The Dawn of Art, Ethics, Science, Politics, and Religion* (Indianapolis, IN: Dog Ear Publishing, 2018), 54–60.

[7]Antoine de Saint-Exupéry, *The Little Prince*, trans. K. Woods (New York: Reynal and Hitchcock, 1943), chap. 21, 82.

[8]Thomas, *Embodiment, How Animals and Humans Make Sense of Things*, 177.

[9]Michael J. Behe, *Darwin's Black Box: The Biochemical Challenge to Evolution* (New York: Free Press, 2006), 252.

[10]Robert J. Russell, "Quantum Physics in Philosophical and Theological Perspective," in *Physics, Philosophy, and Theology: A Common Quest for Understanding*, ed. Robert J. Russell, William R. Stoeger, and George V. Coyne (Notre Dame, IN: University of Notre Dame Press, 1988), 343–74.

[11]Ian G. Barbour, "Indeterminacy, Holism, and God's Action," in *God's Action in Nature's World: Essays in Honour of Robert John Russell*, ed. Ted Peters and Nathan Hallanger (New York: Ashgate, 2006), 116.

[12]John Polkinghorne, *Science and Providence: God's Interaction with the World* (London: SPCK, 1989).

[13]Peter E. Hodgson, "God's Action in the World: The Relevance of Quantum Mechanics," *Zygon: Journal of Religion and Science* 35, no. 3 (2000): 505–16.

[14]Taede A. Smedes, "Taking Theology and Science Seriously without Category Mistakes: A Response to Ian Barbour," *Zygon: Journal of Religion and Science* 43, no. 1 (2008): 272.

[15]Lydia Jaeger, "Against Physicalism-Plus-God; How Creation Accounts for Divine Action in Nature's World," *Faith and Philosophy* 29, no. 3 (2012): 295–312.

[16]Arnold O. Benz, *The Future of the Universe: Chance, Chaos, God?* (New York: Continuum, 2001). See also Arnold O. Benz, "Theology in a Dynamic Universe," *Zygon: Journal of Religion and Science* 36, no. 3 (2001): 560.

[17]Immanuel Kant distinguishes the rational origin from the origin by time (causality). The rational origin denotes the conditions of the possibility, e.g., of star formation. For the realization of this possibility, a framework of conditions is necessary. In *Religion within the Limits of Reason Alone* (Chicago, IL: Open Court, 1960), 34.

[18]Karl Barth (1886–1968) strongly rejected the ideas of natural theology, into which physico-theology had evolved, by stating that "there can be no scientific … aids in relation to what Holy Scripture and the Christian Church understand by the divine work of creation" in *Church Dogmatics* III.I: *The Doctrine of Creation* (New York: T&T Clark, 1986), 11.

[19]Willem B. Drees, "Gaps for God?," in *Chaos and Complexity: Scientific Perspectives on Divine Action,* ed. Robert J. Russell, Nancey Murphy, and Arthur R. Peacocke (Vatican City State: Vatican Observatory Publications, 1996), 223–37.

[20]William James, *The Varieties of Religious Experience* (New York: Longmans, 1902), xi and 431.

[21]Exodus 3:13–14, from *The Holy Bible*, English Standard Version (ESV) (Wheaton, IL: Crossway, 2001).

[22]Blaise Pascal, "Memorial," in *Great Shorter Works of Pascal,* trans. Emile Caillet and John C. Blankenagel (Philadelphia, PA: Westminster Press, 1948).

[23]Luke 24:30–32, ESV.

[24]Benz, *Astrophysics and Creation*, 151 and 178.