Letters

tion to what I have learned in my own long association with atheist colleagues:

- 1. Atheists whose beliefs develop out of protest and who are angry with what is wrong with the world. Ivan Karamazov, from *The Brothers Karamazov*, is an example. "He carried around a notebook in which he copied down every instance of innocent suffering that he heard of ... The accumulated anecdotes served up an unanswerable indictment against the existence of God: because this is the way the world is, there cannot be a God."
- 2. Atheists who struggle with intellectual honesty. It usually begins with an idea of God that is formed from bits of reading, misinformation, movies, talk shows, and perhaps professors with certain agendas. So an intellectually discriminating atheist can be accepted as an ally in skeptically rejecting all the popular, half-baked stupidities named "god" that abound in our time and invited into conversations that explore what the best minds thought, and think, about God. Failure of Christians to live out Jesus's ideal, contribute greatly to his type of atheist.
- 3. Atheists who say in their hearts, there is no god. (Ps. 14:1: The fool says in his heart, "There is no god.") These are people that may even appear religious, go to church occasionally, participate in ritual, and so forth. But they live their lives centered on self: independent, autonomous, lord of all reality, manipulating people to achieve their desires, power hungry. A subset of this category would be atheists who can be classified as people of *acedia*, those with spiritual apathy, who do not care if God exists.
- 4. Atheists who have chosen to deny God because of a moral issue. Often the issue is a secret habit, desire, sexual sin, or betrayal, and rather than acknowledge one's sin and confess, it is easier to block the source of morality, the God who has given a universal moral standard by which to judge ourselves. Another reason for their atheism could be the absence of a good father in their formative years.² Often these people become militant, as if shouting and posturing will eliminate the conscience—which it often does. It is more appropriate to call such atheists, antitheists or god haters.

Notes

¹Eugene Peterson, Where Your Treasure Is (Grand Rapids, MI: Eerdmans, 1985), chap. 8.

²Paul C. Vitz, *Faith of the Fatherless: The Psychology of Atheism* (Dallas, TX: Spence Publishing Company, 2000).

Kenell Touryan ASA Fellow

Clapping with One Hand

Articles and letters on methodological naturalism and uniformitarianism in the March and June 2013 issues of *PSCF* have been very helpful. I see clear consensus that a Christian can do science without adopting metaphysical or philosophical naturalism (nor materialism, agnosticism, or atheism), can believe in miracles that preclude scientific investigation, can believe that "natural laws" display God's order, and can believe that all of the world's things and events—regular or exceptional, designed or not—ultimately depend on the Creator.

Bruce Gordon ("In Defense of Uniformitarianism," *PSCF* 65, no. 2 [2013]: 79–86) notes that quantitative science can help distinguish cases of design from nondesign, but I agree with Jordan Mallon and Kathryn Applegate (Letters, *PSCF* 65, no. 2 [2013]: 144) that this works only when the designer, though unidentified, is constrained by natural laws. Why? One cannot estimate the probability of something without assuming that it is subject to the natural laws of the universe. Therefore, the likelihood of explanations involving supernatural design cannot be compared quantitatively to alternative explanations. One is left trying to clap with one hand.

Well, can we clap our one hand against a wall? Gordon cites suggestions from intelligent design (ID) theory proponents that natural explanations can be compared instead to some minimum threshold probability. The suggestion is that if all nondesign explanations are currently deemed less probable than the lowest conceivable "universal probability bound" based on the number of particles and/or events in the universe, then we should scientifically conclude that intelligent design must have been involved.

There remains a problem with this proposal, however. Even if we grant that a universal probability bound can be estimated to some meaningful degree of accuracy, we cannot presume that we have already even imagined all natural (nondesign) explanations, let alone assessed their true probabilities. Highly tentative probability estimates for preliminary explanations are useful in science, but only when compared to estimates *for competing explanations*.

Those probability estimates are likely to change by *many* orders of magnitude as additional evidence accumulates, but comparing them at least provides "checks and balances" against our ignorance, similar to how independent governmental branches limit the damage that misguided officials might otherwise do in civic life. We might lack any good (reasonably probable) explanations at this time, and might simply need to keep patiently searching!

Paleoanthropologists *compare* the probabilities that curious stones could have been shaped without design (through erosion, tumbling, fracturing, etc.) to the probabilities that humans could have designed them for some purpose. Forensic scientists *compare* the probabilities of a nondesigned death (by accident or illness) to the probabilities of the particular individual dying by design (suicide or murder). These scientists reach a conclusion only when the estimated probability of one scenario becomes sufficiently high.

Even the search for extraterrestrial intelligence (SETI) works the same way. Just as currently unexplained functional or "specified" complexity in living cells is not yet—by itself—positive evidence of intelligent design, an unexplained pattern in radio waves apparently coming from deep space would not be - by itself - positive evidence of extraterrestrial intelligence. The probabilities that any known natural (pulsars, etc.) or terrestrial (humandesigned) source could generate the mysterious waves might be vanishingly small, yet SETI researchers would still compare those, not to a universal probability bound, but to an actual estimate of the extraterrestrial design scenario's probability. They would calculate the latter by assuming that intelligent embodied extraterrestrial agents would have to evolve and generate the waves within reasonable energy constraints, and that the waves would have to travel from the distant source at the known speed of light within reasonable time constraints given the known age of the universe.

Science is limited indeed, but it is not the only way of knowing. One may have reasons from beyond science, for example, to believe that the sex of one's next child will be predictable (or even designed) from God's perspective, while still accepting that from a scientific perspective such individual events are nondesigned and random, predictable only in the aggregate by the laws of probability. Likewise, ID theory's unidentified designer(s) certainly can be supernatural, but only if such uncon-

strained ID theory is understood as metaphysics rather than science.

Charles F. Austerberry ASA Member Assistant Professor of Biology Creighton University Omaha, NE 68178

Seeing with Both Eyes

I thank Charles Austerberry for his comments, and *PSCF* for allowing me to respond.

Austerberry finds arguments for transcendent design problematic because "one cannot estimate the probability of something without assuming that it is subject to the natural laws of the universe." I agree that relevant natural regularities must be held fixed for probabilistic calculations to be made, as would all ID theorists.

What ID theorists are assessing is *not* the probability of God having done something, but the probability of undirected nature having produced a complex specified structure given a fixed backdrop of natural regularities. When and if this probability can be demonstrated to be effectively zero using the undirected causal resources of the material universe, other explanations must be sought. And, barring a presumptive metaphysical naturalism, they are available. Dropping naturalistic vocabulary and stating things theistically, design inferences distinguish between God's ordinary providential activity (maintaining natural regularities) and certain extraordinary providential activity (discrete injection of complex specified information).

More precisely, if we partition the sample space of causal explanations into mutually exclusive and jointly exhaustive classes of nonintelligent (undirected material) causes and intelligent causes—or, isomorphically, ordinary versus extraordinary providence—then if the probability of undirected material explanation is sufficiently close to zero, the probability of intelligent causation is close enough to one to be embraced. We do not distinguish between embodied and transcendent intelligent causes because design mathematics is *indifferent* to this distinction, just like the calculation of quantum probabilities is indifferent to metaphysical interpretations of quantum theory.

Moreover, calculating the universal probability bound is uncontroversial, with results ranging from a stringent $1/(2.6 \times 10^{92})$ through $1/10^{120}$ to the quite