THEOLOGY, SCIENCE, AND POSTMODERNISM: RESPONDING TO STANLEY GRENZ

by Edwin C. Laurenson

Abstract. This article responds to Stanley J. Grenz's Templeton Lecture, "Why Do Theologians Need to Be Scientists?" published in the June 2000 issue of *Zygon* (Grenz 2000). In the first part I outline my reasons for finding the kind of theological reflections in which Grenz engages worthy of attention by noting my disagreement with the view that a sufficient response to theological issues can be formulated on the basis of an examination of our biological nature. I assert, in that connection, the autonomy of reason as a way of investigating and understanding the world. In the second part I respond directly to Grenz by explaining my disagreement with the postmodern critique of science upon which he relies and his adherence to Christian eschatology as an answer to the conundrums into which, he posits, we are drawn as a result of that critique. I note that I agree with Grenz, however, that the activity of valuing is necessarily a forward-looking Godlike endeavor that is not derivable from science. In the third part I suggest that we must be open to the investigation of the possible existence of an objective realm of value and that, in any case, rejection of the postmodern critique of science in many cases provides a sound basis for the disciplined resolution of factual questions that frequently lie at the base of disagreements about values.

Keywords: absolute unitary being; aesthetic-religious continuum; anthropic principle; autonomy of reason; Michael Cavanaugh; Christian eschatology; creation of a new being; Eugene d'Aquili; foundational; Godlike powers; Stanley Grenz; Thomas Hobbes; Thomas Kuhn; liberal individualism; mechanism and value; mind; Thomas Nagel; naturalistic fallacy; Andrew Newberg; objective realm of value; philosophical realism; postmodernism; science; solipsism; theology.

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The Biological Ethicist and the Autonomy of Reason

I knelt talking with Michael Cavanaugh and another friend from the Institute on Religion in an Age of Science and said I could not find the idea of multiple universes insignificant. Why, asked Cavanaugh, look to physics and its abstractions to tell us something about notions of God and the ultimate when the answer lies in what kind of creatures we are, in our biology and the evolution that made us?[1] I replied that what multiple universes mean to me is that everything could be completely different. I've never been able to take seriously the anthropic principle that our universe is somehow uniquely designed to produce life or any related notion that a different kind of universe could not produce life. It seems to me ridiculous to think we can so establish the fundamental potential characteristic of all possible universes that we can make that kind of assertion about different sets of laws and circumstances within which those laws would operate, regardless of the limitations of our imaginations.[2] So I do not regard this universe as real or ultimate and finally cannot think of any form of existence as real or ultimate, and, I said, that is as close as I can come to a concept of God.[3]

But I have since come to realize that my answer to Cavanaugh is different. My answer is that, although I strongly endorse the validity of our biological evolution out of—or rather as part of—a physically evolved universe, I nevertheless do not believe that what we apprehend with our minds is reducible to our biological capacities. Or, as Thomas Nagel puts it in *The Last Word*,

> The reliance we put on our reason implies a belief that even though the existence of human beings and of ourselves in particular is the result of a long sequence of physical and biological accidents, and even though there might never have come to be any intelligent creatures at all, nevertheless the basic methods of reasoning we employ are not merely human but belong to a more general category of *mind*. (Nagel 1997, 140)[4]

Because I do not believe that where my mind leads can be reduced to my biological nature, I do not believe that I can rely on an investigation of my biological nature alone to provide a basis for my encounter with the *mysterium*, or that it can render thoughts on the implications of concepts such as multiple universes irrelevant to religious exploration. But that is different from believing in God.[5] Before pursuing these concepts, however, I will first respond to Stanley Grenz.

The Scientist as Theologian

> The locusts are singing, the sun is red
> It's gotten so late somehow
> There's gonna be trouble, You know what they said
> We should have been home by now

The thunder is rolling, the sky is black
It's gotten so dark somehow
There's gonna be danger, God I wish we were back
We should have been home by now

No matter what they tell us, No matter what they do
No matter what they teach us, What we believe is true

No matter what they call us, However they attack
No matter where they take us, We'll find our own way back

If only tears were laughter, If only night was day
If only prayers were answered Then we would hear God say:

"No matter what they tell you, No matter what they do
No matter what they teach you, What you believe is true"

And I will keep you safe and strong And sheltered from the storm
No matter where it's barren A dream is being born

—Jim Steinman, "Home by Now/No Matter What," 1998

Stanley Grenz and Thomas Hobbes. "The postempirical understanding has led to the realization that the scientific enterprise is not simply the accumulation of facts that are 'out there' waiting to be discovered by neutral, dispassionate observers. Rather, scientists must (and quite naturally do) bring a type of faith to their endeavors" (Grenz 2000, 348).

Thomas Hobbes may not have been a social constructivist who denied altogether our ability to know the external world—even a philosophical genius cannot leap forward three hundred years—but he took the view that all of our categories, including those that we apply in our description of the natural world, are ultimately unreal, because only the individual object is real (the nominalist philosophical position). This was one of the bases for his view that moral and political judgments are arbitrary, expressions only of the self-interest and perspective on the person pronouncing them, from which he drew the conclusion that, for peace and harmony to prevail, it is necessary to turn the legislative function over to a single sovereign who will impose a set of judgments that all, for prudential reasons, should accept. Hobbes said that men should accept this imposition from a human authority because he did not believe that we can know the mind of God (Hobbes 1981, 102).

Stanley Grenz would like us to make a similar move, but he thinks we can know the mind of God.

> Does this insight require that we give up all sense of an objective universe "out there"? Are we left with nothing but our socially constructed worlds? Ought we then become complete cultural relativists? Not necessarily. . . . But the objectivity we can attribute to the universe is not that of a static reality existing outside of, and co-temporally with, our socially and linguistically constructed reality; it is not the objectivity of what some might call "the world as it is." Rather, the objectivity set forth in the biblical narrative is the objectivity of the world as God wills it. (Grenz 2000, 351)

Although it is perhaps possible to be a postmodernist and yet not feel a need to make this kind of appeal to authority (or to force in the absence of authority),[6] it is a natural move if one holds the Hobbesian view and yet feels a need for a final, unappealable grounding *someplace.* It is not attractive, however, if one does not, as I do not, accept the validity of the postmodern critique of science.

The Overestimation of Thomas Kuhn. A funny thing happened on the way to the assessment of postmodern critiques: postmodernism itself. Many of us who are skeptical of the validity of the postmodern critique of science are not so because we deny the contribution of Kuhnian skepticism to our understanding of the place of scientific thought in the realm of intellectual endeavor or because we would return to a simple acceptance of philosophical realism. There is high value in critiques, particularly those founded on the understanding that all thought is metaphorical. Scientific theories are underdetermined. Other avenues of exploration have great value. The accomplishments of cultures that have not taken or did not take the approach of Western science to investigation of the nature of the universe have great value and must be respected. (I use the term *Western* to refer to modern science in a historical sense, aware that science is now a worldwide phenomenon and is no longer necessarily identified with its origin in Europe.) Science is a culturally embedded activity, like all human endeavors, and any given formulation at any given time is likely to reflect biases and assumptions that will come to be recognized and recharacterized subsequently.

In the realm of understanding many aspects of how the world works, however, I do not think we can get outside the scientific method. There is much that science has discovered and will discover that is simply given to us by the natural world and is not subject to the charge of cultural bias or open to being swept away by new paradigms. To be sure, the scientific approach rests, as one first encounters it, on multifarious stackings of assumptions and techniques, and without those assumptions and techniques the microscopic and macroscopic discoveries and perspectives and theories with which modern science now confronts us would seem implausible in the extreme. Many, including many scientists, are not foundationally critical of the bases for the assumptions that they draw upon.

But I also believe in the autonomy of reason and believe that if we ask questions of the world in a disciplined way, science is how it must be done. The phenomena that we call atoms and their constituents really exist; cells and proteins and nucleic acids really exist; stars and galaxies and superclusters and, it seems awfully likely, black holes really exist—in all cases not just as a result of the technique of investigation that has discovered them but as part of the universe, there to be found by any creature with the mental capability to conduct abstract investigation and symbolic analysis. Webs of ecological relationships really exist, subject though they are to

study from many perspectives that cannot be privileged one over another. The study of human beings and social phenomena is shot through with difficulties deriving from the perspective of the investigator and the nature of the questions asked, and from the interaction of beliefs about how things are with the human ability, within limits, to make them be a particular way, but that does not render feckless the effort to determine what is given in our natures.

Or, as Nagel puts it,

> . . . we begin from the idea that there is some way the world is, and this, I believe, is an idea to which there is no intelligible alternative and which cannot be subordinated to or derived from anything else . . . even a subjectivist cannot escape from or rise above this idea. Even if he wishes to offer an analysis of it in subjective or community-relative terms, his proposal has to be understood as an account of how the world is and therefore as inconsistent with alternative accounts, with which it can be compared for plausibility. . . .
>
> I believe it is possible to understand the demand for order as a direct consequence of the idea of an objective reality, independent of particular observations and observers. . . .
>
> The subjectivist proposal is not that we don't know whether our beliefs about the world are correct but that it is a mistake to interpret them as beliefs about a mind-independent natural order. . . .
>
> But there is really no alternative. The attempt to reconstrue the ordered world picture as a projection of our minds founders on the need to place ourselves in the world so ordered. . . .
>
> It is certainly not a necessary truth that the world is orderly, let alone that we can understand its order. Substantial aspects of reality may never submit to this kind of intellectual grasp. But anything we can know about must be at least related in an orderly way to us, and an amazing amount has proved to be within our reach; given our achievements so far, it is reasonable to try to continue. (Nagel 1997, 81–92)[7]

As to Kuhn's empirical, historical claims about the way science proceeds and has proceeded, at best it can be said, contra Grenz, that there is a great deal of scholarly weight behind the view that, as a general proposition, he was simply wrong, except perhaps in the limiting case of the shift from the Ptolemaic to the Copernican worldview that gave rise to his original thesis. But I am not equipped to engage in such a refutation, nor would this be the forum for doing so.[8] Instead I will proceed into an area where I have more sympathy with Grenz's concerns.

Mechanism and Value. The fear of the mechanistic view is completely rational, as is the need for sources of meaning and commitment and the terror that there will be nothing left to sustain the human endeavor if all is reduced to epiphenomena of the interaction of matter and energy.

But we cannot find the answer to this terror in traditional Western religion. We cannot because what the Enlightenment has taught us, science has taught us, and the postmodern critique of science has taught us again, is that skepticism is not divisible. The skepticism of reason, which in the postmodern critique turns reason on itself, cannot just reach the door of

religion and stop. Or, as Steven Weinberg put it in his famous Smithsonian lecture (1999), among the things that science has given him is freedom *from* religion—the right not to believe doctrines that he finds incredible, deriving from authority to which he sees no reason to give credence. And yet we must find our way back to a world of meaning and purpose.

Let us state the problem plainly. Our symbolic capabilities and our rationality allow us to abstract ourselves outside ourselves, to see ourselves as the product of a world that exists prior to us and separate from us and that we can take to explain who and what we are. Yet when we study ourselves as mechanism, we are heir to the perception that mechanism can in principle be analyzed to its end point, duplicated, understood, and manipulated—and we are now on the threshold of being able, technically, to do exactly that. But how are we to decide what to do with this ability?

Yes, this is the "same old question." How and why are we to value? But I believe that our manipulative capabilities have now advanced to the point where we no longer have any place to hide. Who and what we are demands that we feel at home in the world, have commitments and motivations that support our passionate existence as human beings. Once we at least had the option of taking our own natures as a given—even Nietzsche could posit a motivational basis in the will to power. The humanist enterprise took as its basis the notion that man is the measure against which other measures can be calibrated; but what if we lack any standard to calibrate against? That is, we have the dilemma of a posited God, able to create anything, able to create even our own natures. But if we changed our own natures and then looked about us with the fresh eyes of newly created beings, to what point of reference could we look to reach the judgment that our new starting point was better (or worse) than the one that preceded it? No wonder a God who was trying to decide what kind of universe to create and what kind of conscious creatures to put in it would have been lonely. Where, after all, would She have gotten her own nature, subject as it would be to her own complete re-creation, much less decided what kind of nature to give us and the creation that surrounds us?[9]

The view that we now have the powers imputed to God may be seen as ludicrously hubristic, but I believe it is not. It does not deny our finitude and does not assert our mastery over nature in the sense of infinite manipulative capability that could defy the lurking forces in the universe that may destroy any one of us at random, or our entire species, or even all life on earth. It simply acknowledges that the ability to understand and consciously create a being that has the same abilities and understandings that we have—or perhaps greater—but a differing nature, and to alter ourselves as beings already created, has all the radical, transformative freedom that it is worthwhile for any god to have. Or to put it differently, surely the primary challenge for a god who could create and understand the entire universe would be to create another being with which to share the universe so created; and although we cannot re-create the universe in which

we exist, we can create other beings that could share our abilities and go beyond them.

Yet from another perspective, the idea that we can have the radical freedom to create any kind of being we want to and to transform ourselves without limitation represents the ravings of a fool, shorn from the actual circumstances of our existence in the most fundamental way. For it is the perspective of an individual mind, as if self-created and outside the web of relationships that has brought us into existence and sustains us as the kind of inevitably social and interactive creatures that we are. The one being, the Frankenstein monster, is created by an asocial, individual megalomaniac, because the creation of a creature that is newly different and of a different nature is an enterprise that will always be altered if it is undertaken in a context of equals who are separate but have common interests. A society of equals constrains and prevents the creation of an unruled monster that will overrule all. The newly created being, with its own potential for independent action and valuation—in the monster-gone-amok scenario, its own potential to value itself to the exclusion of all others, including its creator—is the extension of a particular individual will, even if that one will has intimidated or mesmerized helpers.[10] A society of equals, by contrast, would not be willing to have one of their number create a new being that would potentially assert its own superior claim to exist and supersede its creators rather than serving them. Or, rather, that society would be willing to do so only if its new creation were one of such beauty and with such compelling attribute that assent for its creation and continuation were freely given.

But why would that assent be given? Surely it would not be simply because such a being were more capable than we are intellectually, true though that might be.[11] Pure intellect is instrumental only. However useful we might find it to employ the capabilities of an intelligence greater than ours,[12] an intelligence capable of solving mysteries we cannot penetrate, we would have no reason to recede before it and acknowledge its superiority as a *being*. For that acknowledgment, were it to come, we would need subtlety of understanding in our created being, an apprehension on our part of its conscious appreciation of worth and beauty, reason for us to feel that it experienced the world, indeed enjoyed and valued the world, in a manner beyond our ken but sufficiently within it for us to endorse. Therefore we return again to the mysterious question of what and how to value, why to want to continue to exist at all.

Thus, I believe, we are led by an understanding of the limits of science itself, through the exercise of the same project of reason that has generated science's success, to the inescapable requirement that we figure out how to find bases for emotional and aesthetic appreciation, understanding, and allegiance. And for that, I suggest, we can turn nowhere but to a different investigation, equally rigorous, equally subject to doubt and recharacterization, and on its own terms equally rational, but ultimately no more

hegemonic than the external perspective of traditional natural science. We must deploy our reason in this investigation, but we must also employ our faculties of direct apprehension and emotional engagement in a way that reason can only aid, without the autonomy it commands in the exploration of external reality. And science will never displace the need for this investigation, however adequate its description of the reality of the universe may come to be.

The question of whether scientists must confront the same questions that theologians confront becomes, therefore, a question of the mode in which they are thinking and interacting in the world. From a scientific standpoint there is no privileged position but rather methods of analysis that seek to understand phenomena from differing perspectives in ways that will yield accurate and aesthetically pleasing description and prediction.[13] But from the standpoint of meaning and value and aesthetics, the scientist, like anyone else, must seek a privileged position, because the scientist, like anyone else, must decide what to do and to what values to give allegiance. And these are inquiries that always assume a continuation, an actualization, a future.

Here, therefore, although not from a Christian perspective, I agree with Grenz. His ultimate conclusion is that "The universe as God wills it . . . , the realm in which the divine will is actualized, is not a present but a future reality" (Grenz 2000, 351). In my view, this is not so because God wills it, for I claim to know nothing of God, but it is so because the discovery and construction of meaning and value is by its nature a continuing enterprise, to be actualized in the present but always with a future component—for the realms of meaning and value must assume their own continuation. But where shall we go to find them?

Will Rock and Roll Dreams Come Through?

Once upon a time was the backbeat,
Once upon a time all the chords came to life
And the angels had guitars even before they had wings
If you hold onto a chorus you can get through the night

Remember everything that I told you,
And I'm telling you again that it's true
You're never alone 'cause you can put on the phones
And let the drummer tell your heart what to do
Keep on believing, And you'll discover baby

There's always something magic,
There's always something new
And when you really really need it the most
That's when rock and roll dreams come through
The beat is yours forever, The beat is always true
And when you really really need it the most

That's when rock and roll dreams come through
For you
—Jim Steinman, "Rock and Roll Dreams Come Through," 1993

I have argued here that reason is inescapably foundational in its own realm and that scientific reason is validly foundational as our best way of coming to understand external reality. Second, I have suggested that the external reality that scientific reason allows us to investigate so successfully is not itself foundationally real. Third, I believe that this lack of foundational reality does not allow us to do an end run around scientific reason and to assert over it the primacy of another realm, such as mind, as some Buddhists would have us do, or God, as some Christians would have us do. What we can do, however, is use reason, as far as we can, in our investigation of any other way of understanding and apprehending the world that may be available to us. Does this lead anywhere?

Eugene d'Aquili, lamentably now gone, and Andrew Newberg have investigated the neural correlates of mystical states. They tell us that certain characteristic changes in brain states occur in connection with the report of mystical experiences and the perception of Absolute Unitary Being (AUB), the culmination of what they refer to as the Aesthetic-Religious Continuum (see d'Aquili and Newberg 2000, 39). They note that to many of those who have experienced it, AUB seems more real than our everyday reality, and compare that feeling of reality to the consistent perception of a different realm reported by many people who have had near-death experiences. Because they take the view that the vivid sense of reality is the ultimate mark of what is in fact real, they conclude that the perceptions experienced in AUB and near-death experiences disclose a realm that is real in every sense that everyday reality is real. Yes, there are neurophysiological correlates to such experiences that can be taken to explain them; but it is equally true that there are neurophysiological correlates of all everyday perceptions—which we do not take to negate the reality of what is thereby perceived. In effect, then, we are invited to contemplate the possibility of an objective realm of value.

Although this is a difficult epistemological argument to evaluate, the apparent commonality of reports of this realm may pass the pragmatic test of intersubjective confirmation and belie its potential solipsism or naive realism.[14] In addition, I suggest that it is worth considering from a neo-Kantian perspective. Kant argued that we must make moral judgments, and that only the existence of God can ultimately justify moral judgments; therefore we must posit a God whose existence cannot be proved. While the practical realm of moral judgment draws upon, but is not the same as, the motivational realm of value, assent, and commitment, the strong need to find a basis for valuing requires us, I believe, to explore the potential of an objective realm of value with urgency and fascination. And, at least as important, exploration of the aesthetic-religious continuum leads us to

focus our attention on the parts of our selves and our existence, our finitude, the inevitability of our deaths, and our shared befuddlement at our being here at all that are most central to deepening our capacities for compassion and personal fulfillment.

Meanwhile, in our realm of practical everyday reality, I agree with the widely held strictures against committing the naturalistic fallacy and agree that reason cannot establish a foundational metaethic. In the realm of practical reason, therefore, the pragmatic view that moral judgments can be coherently pronounced only within a specified intersubjective community has greater appeal. However, even here I believe that a rejection of postmodernism carries significant advantages, for I believe that many, if not most, moral judgments depend deeply upon factual characterizations that can be investigated, challenged, and recharacterized, but that the potential recharacterizations are limited. And science, always questioned, always probing, always probed, is the best tool of choice for this task. I believe that the most important differences in cross-cultural values derive from assertions concerning differences in human capacities and the inevitability of the fitness of predefined societal roles and modes of interaction, and that those assertions will frequently yield before reasoned and skeptical analysis. In addition, I believe that assertions of ultimate truth within the realm of value, even if we can find evidence of an objective order there, require high tolerance of the privileged position that all persons have concerning their own exploration. And therefore I affirm a strong, reasoned basis for the project of liberal individualism against the assertion that it is simply what we have come to regard as natural as result of our particular historical and cultural circumstances.

But still, we must find and make our own affirmations. Ultimately, aesthetically, we need to reach into ourselves and experience the chords coming to life. Through our intellect we perceive the potential unreality of all. Through our emotional response we experience the reality in the unreality, the mystery that supports and bathes us all the more because we are here because of it but will never account for it, only experience it. To me, this is the source of grace, which I do not deny, but for whose existence I see no need to posit a God. In the end, therefore, I believe that the dream must come true in the beat because the beat is the dream.

Shall we dance?

NOTES

1. Among other works, Michael Cavanaugh is the author of *Biotheology: A New Synthesis of Science and Religion* (1995).

2. But we, or at least some of us, can imagine a great deal. See, e.g., Asimov 1990.

3. I have been properly questioned on my use of "real" in this context. As I believe will be clear from the remainder of this article, I do not question the existence of external reality or the validity of investigating its nature in a rational and objective manner. Rather, I question the validity of the distinction between an acknowledgment of the mystery of how our universe originated and the mystery of how it is sustained. A description of the operation of scientific laws,

however beautiful and valid in its own terms, cannot tell us why the universe works the way it does in the present—whether we are here, for instance, because of some sustaining divine grace—any more than it can, at least currently, look back behind the Big Bang to say how the universe originated. Therefore, I question what we can know of the reality of our everyday existence just as much as I question what we can know of the reality of where that everyday existence came from. We do not know the implications of this kind of questioning, but I suggest that it can lead to a grateful acknowledgment of the grace of every moment.

4. I find myself in agreement with almost all of Nagel's arguments in this book.

5. Nagel on the same subject: "atheists have no more reason to be alarmed by fundamental and irreducible mind-world relations than by fundamental and irreducible laws of physics. It is possible to accept a world view that does not explain everything in terms of quantum field theory without necessarily believing in God. . . .

"This need not be a particularly anthropocentric view. We are simply examples of mind, and presumably only one of countless possible, if not actual, rational species on this or other planets. But the existence of mind is certainly a *datum* for the construction of any world picture: At the very least, its *possibility* must be explained. And it seems hardly credible that its appearance should be a natural accident, like the fact that there are mammals.

"I admit that this idea—that the capacity of the universe to generate organisms with minds capable of understanding the universe is itself somehow a fundamental feature of the universe—has a quasi-religious 'ring' to it, something vaguely Spinozistic. Still . . . at no point does any of it imply the existence of a divine person, or a world soul.

"Actually, I find the religious proposal *less* explanatory than the hypothesis of some systematic aspect of the natural order that would make the appearance of minds in harmony with the universe something to be expected. Here, as elsewhere, the idea of God serves as a placeholder for an explanation where something seems to demand explanation and none is available; that is why so many people welcome Darwinist imperialism" (Nagel 1997, 131–33).

6. This is a highly contentious issue in political philosophy. A prevalent postmodern, pragmatist view is that value judgments may be coherently reached only within the context of a particular society's practices. Nagel is an opponent of this view, as is Ronald Dworkin (with whom Nagel has long taught a course at New York University). For an entertaining exchange that is, among other things, informed by these perspectives, see the back-and-forth between Richard Posner and Dworkin, in which Posner responds to Dworkin's criticisms of Posner's book on Monicagate, in *The New York Review of Books* [cite].

7. It is worth noting that Grenz tries to have it both ways. He wants to embrace postmodern conclusions, but he refuses to say how he agrees with the critical realist view. Thus, "Critical realists do have a point. There is a certain undeniable givenness to the universe. Yet we do not (yet) live in the universe as a given, external reality." (Grenz 2000, 349). This is very slippery.

8. For two treatments opposing Kuhn, see Weinberg 1998 and Kitcher 1993.

9. Fitting though it is to be humble in the face of ultimate mystery, I regard this dilemma of a posited God as sufficiently unattractive to consider it an independent basis for not believing in the God with purposive consciousness proposed by Grenz in his eschatological ruminations at the end of his article. As mindbending as it is to deal with the concept of something coming from nothing, a God's exercise of conscious will in the complete absence of constraint or given motivation strikes me as being even more so.

10. I recognize that this line of thought appears to ignore the real-world possibility of the accidental development of a self-preserving and -acting robot through a runaway technological process whose consequences are not foreseen. For present purposes, however, I must put that particular scenario aside, even though I regard its confrontation as a matter of utmost importance. I do so here because the point of the present discussion is not to predict or even to warn but to probe certain abstract characteristics of our existence.

11. I suppress here—indeed deny—the philosophical relevance to this inquiry of the raging debates concerning the nature of intelligence and consciousness and the uniqueness, or not, of human mental capabilities, particularly those centering on the question of whether there is something different in our biologically given capacities that could not be duplicated by a sufficiently capable digital computer. Given an ability to manipulate biological capacities with a sufficient understanding of the genetic code, the mechanism for the creation of a new type of being need not be electronic, and I see no reason therefore to believe that we cannot in principle create new kinds of beings with all our mental capacities and more, but with characteristics that we would otherwise specify.

12. I state this contention as a matter of logic, but I also deem it to be demonstrated empirically by the inability of people who have been deprived of certain kinds of emotional capabilities to plan and function in the world in any practical way. See Damasio 1994.

13. Grenz quotes Norwood Hanson to the effect that Tycho Brahe and Johannes Kepler simply did not see the same thing when they watched the dawn, for what one sees—the sun circling the earth or the horizon of a turning earth "dipping, or turning away, from our fixed local star"—is a product of the intellectual perspective from which the observer construes that observation (Grenz 2000, 349–50). What Grenz and Hanson apparently fail to appreciate, however, is that both characterizations are wrong, because each seeks to place some point of view—that of the sun or the earth—in a privileged position with respect to another. As one of my college physics teachers once explained in a different context, when I take a step I am just as much pushing the world behind me as the world is pushing me forward. Likewise, much is made of the question of whether the particle-wave analysis of quantum physics can ever account for emergent phenomena at "higher" levels such as molecular interactions, the patterns shown in large aggregations of matter, and ultimately life. From one perspective, quantum phenomena appear to be irreducibly undetermined and therefore ultimate and fundamental. But from another perspective, when quantum waves are placed within a system consisting of other quantum waves and gravitational attraction, they produce deterministic results, including life and human consciousness. Those resulting phenomena can, on a local level and constrained by the laws of thermodynamics, themselves constitute new methods of informational interaction that can affect the local disposition of matter and energy. No one perspective—the subatomic, the atomic, the molecular, the interactions that form planets and stars and galaxies and superclusters, the cellular, the neurological, consciousness, the social interactions within which consciousness functions and without which it could not exist—can be right, or privileged, to the exclusion of the others, because all levels both affect and are affected by the others. The effort to establish the autonomy or irreducibility of "higher" phenomena, particularly life, and ultimately human consciousness, ultimately derives, in my opinion, from a misplaced impression that one must do so in order to establish scientifically the legitimacy of the human realm of meaning and value. But if those realms are seen, as I believe they should be, as the product of the interaction of mere matter and energy, to be explored and understood within their own realms because the only escape from those realms lies in their annihilation, from a scientific standpoint there is no need to assign them privileged positions. Rather, they simply exist as one perspective from which to view everything that there is. (Of course, I acknowledge that my views deny the validity of the contention that top-down everything-emerges-from-quantum-mechanics causality explains and accounts for all that is; but it would require another article to explore that issue thoroughly.)

14. When I once pointed out that apparent solipsism to d'Aquili, however, he replied, "Solipsism is a dirty job, but somebody has to do it."

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