

And there are special satisfactions in looking upon both entities as being infinite in time and space. For biology teachers to think of life and energy as being sibling entities becomes a challenge that holds great promise. And this is not only because such a challenge is consistent with the first chapter of the book of Genesis. It is most inspiring to think of the animate world catching up with the rate of progress in the inanimate world. Were both entities to receive similar treatment, perhaps humanity can give up behaviors that could very well have been left in the cave, or if you prefer, in the Garden. To pass this challenge along to America's 40,000 biology teachers can be an effective way to recognize the role that their profession plays in our society. It will be up to people who can cope with the complexities of communication but I will gladly provide the first one thousand dollars to finance a first class letter that reminds our biology teachers of the central theme of the "Controversy" booklet and includes appropriate versions of the above ideas.

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Theistic Science: The Metaphysics of Science

A recent letter of mine,¹ which suggests that an entity in nature is either: (1) purely physical, (2) purely nonphysical, or (3) both, viz., physical/nonphysical and considers the existence of the supernatural, was meant to clarify the theistic science put forward by Roy Clouser.² In fact, several authors criticized Clouser's attempt of a theistic science.³ Nonetheless, in a recent letter, Clouser characterizes the "purely physical" as "on a par with talk about square circles."⁴

Clouser's objection that an entity could be purely physical is based on the gedanken experiment of "thinking away the non-physical properties of a thing to see what they have had left when they finished."⁵ Clouser adheres to the philosophy of Herman Dooyeweerd,⁶ to whom even atoms, clearly purely physical entities, can have "biotic, sensory, logical, linguistic, and many other kinds of properties."⁷ Surely, atomic properties, e.g., mass, spin, change, etc., are detected by purely physical devices via physical interactions and such data is ascribed to inherent properties of individual atoms.

Physics deals with the physical aspect of nature. A reasonable start then is to suppose that science is the study of the physical aspect of nature and its subject matter is data that can be collected, in principle, by purely physical devices. Note that only the physical aspects of physical/nonphysical entities are amenable to the study of science. Accordingly, life, rationality, consciousness, etc. are purely nonphysical since purely physical devices cannot detect them. Herein lies the non-reductive aspect of our set-theoretic description of the whole of reality.

Laws of experimental science are generalizations of historical propositions, viz. experimental data. Thus, history is constitutive of experimental science, whereas metaphysics is regulative of it, while formal logic and

mathematics are instrumental to it. Theology is neither constitutive, nor instrumental, nor regulative of science. Hence, theistic science can only be envisioned as supplying the metaphysics that regulates science without creating incompatibility between historical propositions and particular theological propositions.

Consider a book, which is purely physical even if it contains ciphered, rational information. A rational human being, which is a physical/nonphysical entity, together with the book, gives rise to more than just the sum of its parts. By deciphering the information, the human acquires knowledge, which is purely nonphysical.

Similarly, purely physical devices collect data when interacting with other entities, whether purely physical or physical/nonphysical, which the experimenter transforms into purely nonphysical knowledge via data analysis and theory building. Of course, one ought never to forget that human rationality characterizes the whole of reality by nonphysical mental models, abstractions, and constructs that have their counterparts in the real but are not necessarily identical to them.⁸

Scientists deal with secondary causes, not first causes.⁹ The latter involves ontological questions.¹⁰ From the standpoint of the order of being, one can say that without the ontological neither the generalizations nor the historical propositions of the experimental sciences would be possible. However, the theistic concept of creation *ex nihilo* is actually impossible for humans to understand or think since prior to creation there is nothingness, which humans cannot conceive. Only an intelligence, infinitely superior to ours, a super intelligence, can be in the presence of nothingness and make something happen.

It is commendable to attempt to develop a theistic science. For the Christian, two verses would have to be central: (1) "All things came into being through him, and apart from him nothing came into being that has come into being" John 1:3; and (2) "... true knowledge of God's mystery, that is, Christ himself, in whom are hidden all the treasures of wisdom and knowledge" Col. 2:2-3. However, I do not know how to use such revealed knowledge to do science except to require a metaphysics that is regulative of it that is consistent with such biblical verses.

Christ, who is the Creator and source of all knowledge, is the ultimate goal of all those seeking truth in any discipline. It is difficult to know God with the puny tools of science. As we get closer and closer to the truth, our science must merge with our theology otherwise we will be following a false end of our scientific inquiry. I think Max Planck said it best: "God is the beginning of every religion and at the end of the natural sciences." All scientists who have any depth to their work will find the hand of God in nature or else a mystery that they refuse to identify with God.

Notes

¹Moorad Alexanian, "Set Theoretic Analysis of the Whole of Reality," *PSCF* 58, no. 3 (2006): 254-5.

²R. Clouser, "Prospects for Theistic Science," *PSCF* 58 (2006): 2-15.

³P. Le Morvan, "Is Clouser's Definition of Religious Belief Itself Religiously Neutral," *PSCF* 58 (2006): 16-7; H. Halvorson, "Comments on Clouser's Claims for Theistic Science," *PSCF* 58 (2006): 18-9; and

D. Ratzsch, "On Reducing Nearly Everything to Reductionism," *PSCF* 58 (2006): 20–2.

⁴Roy Clouser, "Author's Reply to Two Letters Regarding 'Prospects for Theistic Science,'" *PSCF* 58, no. 4 (2006): 333–4.

⁵Ibid.

⁶Clouser, "Prospects for Theistic Science."

⁷R. A. Clouser, "On the General Relation of Religion, Metaphysics and Science," in *Facets of Faith and Science. Volume 2: The Role of Beliefs in Mathematics and the Natural Sciences: An Augustinian Perspective*, edited by J.M. van der Meer (Lanham: The Pascal Centre for Advanced Studies in Faith and Science/University Press of America, 1996).

⁷Moorad Alexanian, "Physical and Nonphysical Aspects of Nature," *PSCF* 54, no. 4 (2002): 287–8.

⁹Alexanian, *Set Theoretic Analysis of the Whole of Reality*, Footnote 14.

¹⁰"It does not follow, however, that in the order of knowing the ontological is constitutive as evidence for generalizations. To illustrate: From the truth that God created the world, and hence the actual order of nature from among possible orders, there is no enlightenment as to what that order is. The latter may be discovered whether or not one believes in God. This fact constitutes the element of truth in the statement attributed to Laplace, that experimental science has no need of God." William Oliver Martin, *The Order and Integration of Knowledge* (Ann Arbor, MI: The University of Michigan Press, 1957), 215.

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Clouser's Response to Alexanian

If I understand Alexanian's letter correctly, he agrees with me that the way belief in God should impact theories is neither the fundamentalist program of finding theory content in Scripture nor the idea that biblical teaching is largely walled off from theory-making. He says: "... I do not know how to use ... revealed knowledge to do science except to require a metaphysics that is regulative of it that is consistent with ... biblical verses [about creation *ex nihilo*]." That was precisely my proposal, so it is the outworking of such a metaphysics he objects to rather than the program itself.

The metaphysics I proposed as consonant with the doctrine of creation is a systematically non-reductionist one (in the senses of "reduction" I defined). I argued for a theory of reality that eschews the traditional approach to metaphysics, namely, positing something in creation as exclusively X, where X is a basic kind of properties-and-laws. Alexanian rejects my non-reductionist proposal but neither offers an argument for his rejection of my view nor a critique of the argument I gave for it. He merely says that physics studies the physical aspect of things, which is surely right. But from that it does not follow that things have *only* that aspect. Just as we abstract the physical properties of things for study, we may also abstract their quantitative, spatial, biotic, sensory, logical, etc., properties-and-laws. And I see no reason why the studies conducted of those aspects of things are any the less sciences than physics is.

The pluralistic ontology I advocate recognizes a distinction in the way a thing may possess its properties: actively or passively. A rock, e.g., possesses quantitative,

spatial, and physical properties actively which means its having them does not depend on its relations to other things. But it does not actively possess biotic properties as it is not alive. It can, however, have passive biological properties in relation to things that are alive. For example, a small rock can be swallowed by a bird and take part in its digestive processes, or a larger rock may be the wall of an animal's den. Similarly, a rock does not perceive. It has no sensory capacities and no active sensory properties. But did it not have sensory properties passively, it could not be perceived in relation to creatures who do have active sensory functions. Just so, a rock does not think; it possesses no logical properties actively. But, once again, were the rock not subject to logical laws and in possession of passive logical properties, we could form no concept of it. In this sense, I contend, everything in creation has some properties of every basic kind and is subject to the laws of every kind. And as we cannot so much as frame the idea of any kind apart from the rest, none are plausible candidates for divine status.

The argument I gave for this view still stands: try to form an idea of anything with only X kind of properties and you will see that you cannot do it. Alexanian claims that a book has only physical properties but does not meet the challenge of that argument. What, pray tell, is the idea of a book that is *exclusively* physical? A book that has no quantity, has no shape and is not in space, has no sensory appearance and is not logically distinguishable from anything else, is no book.

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Are the Products of ANT and SCNT Equivalent? A Response to Peterson

Jim Peterson's article, "The Ethics of the ANT Proposal to Obtain Embryo-Type Stem Cells," (*PSCF* 58, no. 4 [2006]: 294–302), is misinformed about the biological equivalence between altered nuclear transfer (ANT) and cloning, and it fails to provide moral guidance on the ethics of ANT.

Peterson equates ANT and somatic cell nuclear transfer (SCNT, or cloning) on the biological level. According to Peterson, ANT produces an entity that would "function as an embryo except it would not be able to grow into a normal fetus" (p. 294), while SCNT (following McHugh) results in "an embryo-like entity that can form tissue but not organize a fetus ..." (p. 302). Although he equates ANT and SCNT, Peterson prefers SCNT because "it may meet the same moral concerns [as ANT] with fewer technical challenges" (p. 302). Peterson's judgment represents a pragmatic preference based on false biological premises.

Equivalence between the products of ANT and SCNT obscures the biological distinction between transcription factors and coding genes. Transcription factors control the pattern of gene expression, while coding genes contain information necessary to the production of proteins required for cellular function. Transcription factors are ubiquitous, occurring both in the cytoplasm and the nucleus, whereas coding genes are found only in the