

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

nucleus. Therefore, transcription factors already present in the cytoplasm of the female oocyte can activate or suppress coding genes after fertilization or cloning. This is why they are also referred to as epigenetic factors. The *Cdx2* gene regulates transcription factors. Down-regulation of *Cdx2* in the female oocyte before DNA transfer results in an entity incompatible with human life because the missing transcription factors cannot turn on the genes for embryogenesis. To claim, as Peterson does, that ANT produces "an entity which functions as an embryo ..." is therefore misleading. Embryos by definition are multicellular organisms with the capacity to independently develop into a complete, integrated, living being.

What we most want to learn from Peterson about the morality of ANT is veiled in clouds of agnosticism. Because Peterson insists on using the term "embryo" or "embryo-like" whenever he refers to the product of ANT, he misplaces the burden of proof on those who would either affirm or deny that an embryo is a human person. Since ANT does not produce an embryo, the proper moral consideration is whether it is ethically acceptable to manipulate the human genome through nuclear DNA transfer. About this question Peterson has little to say. Indeed, Peterson's moral and biological equation between ANT and SCNT raises serious questions about his moral judgment on this issue. His pragmatic conclusion that "SCNT may meet the same moral concerns [as ANT] with fewer technical challenges" depends on what he means by "technical challenges." While it is true, as Peterson claims, that animals cloned from adult donor cells rarely survive to live birth after implantation, there is a small technical problem with the approximately 4% who do survive. If Peterson really finds SCNT morally equivalent to ANT because it has a low probability of producing life, it would seem more prudent to prefer a procedure that is utterly incompatible with the production of living beings.

Where Peterson is certain, I find perplexity. According to Peterson, the Bible does not establish the point at which individual life begins (p. 297). However, the Gospel of Luke is absolutely clear that Jesus Christ's human life began at conception. While Peterson states that Luke's birth narrative "does not tell how far along Mary was in her pregnancy" (p. 297) when Elizabeth greeted her as "the Mother of My Lord" (Luke 1:42), the chronology is very specific. The annunciation came to Mary "in the sixth month" of Elizabeth's pregnancy (Luke 1:26, cf. 1:24, 36). After the annunciation, Mary made the four-day journey from Nazareth and stayed with Elizabeth "about three months" (Luke 1:56) before John was born. Jesus' personal existence, therefore, coincides with the annunciation, as Mary's question, "How can this be ..." (Luke 1:34) makes clear. Mary's question is also the reason for my perplexity. Where did the other twenty-three chromosomes come from? Is the virgin birth analogous to modern cloning? If so, what are the moral criteria for human cloning and genetic engineering?

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Peterson's Response to McCallum

First, thanks to J. Bruce McCallum for taking an interest in my article. That is appreciated. I am puzzled by his statement that "Peterson insists on using the term 'embryo' or 'embryo-like' whenever he refers to the product of ANT." Actually, there is no instance in the article where the product of ANT is referred to as an embryo. The one reference where the product of ANT is referred to as "embryo-like" is citing a proposal and the language of Paul McHugh. The word that the article does use throughout for the product of ANT is "entity." The word entity was deliberately chosen out of deference to scholars who are convinced that the product of ANT is not an embryo.

He also charges that I am not able to tell the biological difference between the products of ANT and SCNT. Of course, I do not claim that ANT and SCNT are identical procedures, nor that they have identical results. I did note that each has been touted as a way to produce an entity which can provide pluripotent stem cells without the death of a viable embryo. Whether either succeeds to that end and is morally preferable in how it does so, depends largely on one's definition of embryo and on the moral status of an embryo if one is present.

It is the latter question that is the focus of my article. On the moral status of the embryo, McCallum proposes that the first chapter of Luke is already "absolutely clear" about this. For McCallum, because Elizabeth calls Mary "the Mother of my Lord" four days after the annunciation, Jesus must have been fully present, hence all embryos are fully present persons. Actually, what Elizabeth says to Mary is that Mary will in the future bear a blessed child. Far from hailing the immediate presence of the Messiah, Elizabeth hails the mother of a very important child in the future. There is no statement in this text that Mary is pregnant at that moment. Now Elizabeth does use the phrase "the Mother of my Lord" (a confirmation undoubtedly much to Mary's encouragement), but that title does not tell us that the Holy Spirit had already created the start of the life that would be Jesus or that the Second Person of the Trinity was already incarnate inside Mary at that moment. God's promises are so sure that they are often stated in the Bible as if already accomplished before they chronologically take place. For example, God directed Abram to be called always "Abraham," which means the Father of Multitudes, on the basis of God's trustworthy promise a year before he and Sarah had even one promised child, let alone a multitude (Gen. 17:5, 21). A biblical title can mean that a referenced event is sure to happen, not necessarily that it already has happened.

In sum, the Luke text does not describe precisely when or how the Holy Spirit establishes the Incarnation, let alone that all human beings are fully present persons from conception. As stated in my article, there are no biblical texts that tell us that a person, a soul, is fully present from conception. Arguments to support that particular conviction will have to come from personal revelation, tradition, reason, or some other extra biblical source.

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