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Can Scientists Create Living Things?

By Fr. John Breck

The burgeoning field of synthetic biology raises the question as to whether scientists will one day be able to create living organisms. People are alarmed, even scared. Should they be?

Will God soon have competition from the laboratory? It's a question increasing numbers of people are asking, given the spate of articles showing up in everything from serious scientific journals (*Science, Nature*) to Internet blogs. What exactly is going on?

I'm not a scientist, so all I can do is summarize a little of what has appeared recently in the media, then hazard a theological evaluation. This disclaimer arises not from modesty but from too little information. It may be worthwhile making a stab at the issue, though, if only to encourage us to think and talk about some unnerving developments in this brave new world of ours.

Craig Venter became internationally known a few years ago when his team of specialists nearly beat out the U.S. government in sequencing the human genome. In October of 2006, his eponymous institute announced it had filed a patent application for a particular bacterial genome. The Ottawa based "ETC Group," an environmental pressure group, began protests against Venter and his organization that escalated at the end of June, 2007, with the institute's most recent announcement. It seems that Venter scientists succeeded in converting one species of bacterium into another closely related to it. This they accomplished by transplanting the DNA of the first bacterium (*Mycoplasma mycoides*) into the second (*M. capricolum*; mycoplasmas are micro-organisms, capable of self-replication, that lack cell walls). Their stated aim was to create

new life-forms, capable of producing environmentally friendly fuels and eliminating vast quantities of carbon dioxide to combat global warming. Eventually they hope to create new organisms whose genomes will be entirely synthetic.

An editorial in the scientific journal *Nature* (447, 28 June 2007, 1031f) pointed out that synthetic organisms will become a reality within the next few years. It also stressed the fact that cellular growth is conditioned by environmental factors difficult to control, and that cells in any case “do not live alone, but in colonies and, in general, in ecosystems.” All of which indicates that the obstacles to “creating life” are massive, even though many will certainly be overcome in the relatively near future.

Cloning by somatic cell nuclear transfer (SCNT) has been widely practiced, without concern that it amounts to inventing new life forms. This new procedure differs, in that “naked” DNA alone is transferred from one cell to another. This allows for the potential creation not only of a clone, an organism with a genome identical to that of the somatic cell donor, but for creating forms of life—combinations of DNA—that are unique, which have never existed before. It is this possibility that is provoking such anxiety among those who fear that humans will usurp God’s role as Creator of living things.

The fear, I believe, is quite unfounded. In the first place, cloning produces what seem to be such intractable problems (vast numbers of failed attempts to produce a single clone, production of cancers, premature ageing, and so on) that the growing consensus sees it as wholly impractical, as well as immoral, when applied to human cells for reproductive purposes. This new technique, involving transfer of DNA from one organism to another, may indeed lead to the production (or “creation”) of new life forms. But the technology involved is so complicated that it is hard to imagine that it could achieve anything more than creating micro-organisms that will serve specific functions, such as those noted above.

The theological issue, on the other hand, has to do with the place of God in the entire work of creation itself. If DNA exists at all, if there is what we recognize as “life” apart from inanimate matter, it is a direct result of God’s creative purpose and activity. Scientists in fact cannot create life; at most, they can manipulate it. When a child is conceived, we often speak of “new life.” Yet both sperm and ovum are living organisms that combine, not to “create life” but to produce a unique genome, a new genomic sequence. That combining does not

“create life” *ab ovo*; it merely rearranges existing life forms in a process of continuing generation.

It is true that the line between naturally living things and artificial cells that might be created in a laboratory is becoming increasingly difficult to maintain. Synthetic biology may indeed produce what we can properly term “new life forms.” Yet there will remain a vast ontological gulf between the living organisms we are presently familiar with and the artificial cells that science may manufacture. If Adam, and each of us, “became a living being” (Gen 2:7), it is because of God’s indwelling, creative Spirit. We can manipulate that created life for good or for ill—to cure disease or to create “designer babies.” But we will never be able to create “living beings” as such.

Yet even if we could, that would hardly limit God’s creative activity or provide “competition” in His design of the world. Too often we think of God as somewhere “out there,” fashioning things which we subsequently replace through the “miracle” of technology. Insofar as we believe we can take from the hands of God the power and authority to *create* anything at all, we are deluding ourselves. We are operating within a “God of the gaps” theology, where God is progressively displaced each time we manage to invent or produce some material thing that people used to attribute to Him (e.g., antibiotics with the power to heal, babies produced by IVF), or we find a “natural” explanation for some heretofore unexplained phenomenon (e.g., the movement of the stars, “life after death” experiences).

We need to remember that in the realm of creation, as in the realm of redemption, God is sovereign Lord over all. Whether life or death, things in heaven or things on earth, everything, like everyone, is created and sustained in their existence from moment to moment by the unfathomable power of God. What happens in the laboratory, in the conjugal bed, on the battlefield, in confession, or in any other circumstances of our existence: all is under His ultimate authority. He is and will always remain Creator and Lord of all, in the micro-cosmos and macro-cosmos. Will He allow scientists to create new organisms recognizable as “alive”? He may very well, just as He allows us to manipulate and destroy human embryos, exploit the poor and powerless, and murder each other. Our sinful misuse of His creation, in other words, in no way limits His authority, power and ultimate judgment over it all, including ourselves.

God has no competition in the matter of creation, nor in any other matter. If we fear that human beings will deprive God of His ultimate rule and sovereignty

over living things, then our image of God is nothing like what He has revealed Himself to be, in the Scriptures and in human experience.

Rather than fear what can happen in the laboratory, then, we would do well to beg God to bestow on those specialists gifts of wisdom, discernment and integrity. At the same time, we should closely monitor what in fact is happening in the realms of science and technology, to make clear the ethical and spiritual implications of manipulating human and other forms of life as some are now doing. What we need to fear is not so much advancements by scientists as abdication of our moral responsibility to communicate to the scientific community “the mind of the Church.”