

## RESPONSE TO WILLIAM STOEGER

Thank you for a thoughtful and interesting address on theology and the challenge of the natural sciences, a subject that has not been considered very often among us. My response is shaped around three points. First, I would like to pinpoint the essence of the challenge. Second, I will name several obstacles that prevent our dealing with it. Finally, I would like to underscore the validity of this challenge, ending with some practical suggestions.

1. I find it fascinating to realize how different the challenge from the natural sciences is today from what it was in the past. From the beginning of the scientific revolution in the seventeenth century, many scientific thinkers attacked religious faith in the light of scientific methodology that required strict adherence to empirical data. Crudely stated, their ontological presupposition held: if it cannot be measured, it does not exist. In response to this challenge, theology assumed a defensive posture, shaping arguments to justify fundamental beliefs, such as belief in God, that obviously are not empirically based.

But today science itself is in a new situation. Quantum mechanics has destroyed the determinism of early modern science, so that the field is becoming what Stephen Toulmin calls postmodern science. Now the God question is emerging *within* the context of the study of nature.

Astronomer Robert Jastrow describes this in a memorable passage in his *God and the Astronomers*:

For the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance; he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries.<sup>1</sup>

This situation in the field of science gives rise today to a double-sided challenge. The challenge *ad extra* arises because theological issues are being raised in the natural sciences themselves, and these call for response and discussion by theologians. And most Roman Catholic theologians are not prepared for this dialogue.

The challenge *ad intra* arises because science is creating a new understanding of the universe, and therefore of reality itself, along with new language and symbols that express this understanding. This scientific horizon affects semi-directly the very framing of theological questions, plus the conceptual content of what can be thought. It affects, for example, basic philosophical notions such as order, time, causality, and the relation of matter to spirit. It affects basic theological notions

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<sup>1</sup>Robert Jastrow, *God and the Astronomers* (New York: W. W. Norton, 1978) 116.

such as the idea of God and God's relation to the world; the doctrines of creation and eschatology; and the belief that human beings are created *imago Dei*.

To fulfill theology's responsibility to mediate between gospel and culture in this culture, we need to re-articulate the idea of God and its surrounding network of beliefs in the light of this framework of an incredibly vast, unbelievable old, rapidly expanding universe, and of biological evolution through chance selection. And we are not prepared to do so. I take this to be the heart of Dr. Stoeger's paper.

2. What is holding us back? Because this is not the first time this kind of challenge has arisen, and been successfully met. In biblical times the cosmology of the ancient Near East was assimilated into the first chapters of Genesis. In medieval theology the hylomorphism of Aristotelian natural philosophy was used to help interpret many central themes from the hypostatic union to the sacraments. I remember well the moment during my doctoral studies when the realization struck that one could never understand Aquinas' theology of grace without first understanding Aristotle on motion!

At least three factors are tying us down. To begin with, theology as a discipline is more at home among the humanities and the social sciences. In the last three decades, Catholic theology has indeed entered into in dialogue with key aspects of intellectual culture: critical history, psychology, the philosophical turn to the subject, the linguistic turn, hermeneutics, social analysis, and so forth. All of these dialogue partners have in common that they are part of the humanities curriculum, rather than the hard sciences. Apart from the philosophy of science, where categories such as "paradigm shift" are proving helpful to theology, the methods and terms of scientific research are foreign and strange to us. We feel alien and, I dare say, even afraid.

This spring I had an informal conversation with James Gustafson that bears this out. When theologians name the shapers of the modern mind, he observed, they list Feuerbach, Marx, Nietzsche, Freud. Seldom if ever do they mention Darwin. We are scared silly of that one, he said.

A second factor blocking theology's alacrity in responding to the natural sciences is the legacy of our ecclesiastical culture. In 1987 John Paul II issued a fine major statement encouraging theologians to integrate the results of the natural sciences into their own theological agenda, following the example of Aquinas.<sup>2</sup> But . . . easier said than done. Since the dawn of modern science there has been hostile conflict between science and religion. The churches, all of them, saw science as dangerous to the faith. Science saw the churches as obstructing scientific progress, and thus irrelevant. The resulting history of mutual polemics, lasting centuries, and best symbolized by the trial of Galileo, resulted in strong alienation on both sides. Sociologically we are still living with the fallout. We are part of an ecclesiastical culture that has consistently been suspicious of science, and even in this century has penalized and silenced theologians who have tried to dialogue with the natural sciences, e.g., Teilhard de Chardin. Subliminally, punishment rather

<sup>2</sup>Reprinted with responses from theologians and scientists in Robert Russell, William Stoeger, and George Coyne, eds., *John Paul II on Science and Religion* (Vatican Observatory Pub., 1990).

than reward has the effect of dampening enthusiasm for the task, at the very least. We should not underestimate the negative effect of this ecclesiastical culture on theology's readiness to dialogue with science.

Another crucial factor is time. No matter how science redefines it, we never have enough, and the task of becoming scientifically literate is a large one. Science is generating a new universe of discourse. Reading even general literature in the field, for example, you come across these wonderful terms: cold dark matter and hot quarks; the Big Bang, and the unimaginable singularity when  $t$  (time) = 0; the arrow of time; the butterfly effect; chaos and chaotic structure in dynamical systems; the anthropic principle and whether or not it may be a new argument from design; cosmic strings; and the grand unified theory, or (and I admire the *chutzpah* of this since it so closely parallels the theological task) the search for the theory of everything!

This is wonderful language, and the reality to which it points is even more wonderful. But realistically, who has time to understand? Most theologians, already making great efforts to keep up with developments in our own disciplines which are coming fast and furiously, simply have no time. Nor does there seem to be time in the pressured endeavor of theological education, whether for ministerial or advanced academic degrees. Some voices among us are rightly urging theology not to lose contact with our classical heritage. By the time one considers biblical, patristic, medieval and modern theology, to say nothing of contemporary developments in theology and its allied fields in the humanities and social sciences, adding the natural sciences to the mix becomes overwhelming.

In sum, there are basic conditions both social and personal that isolate theologians from the natural sciences which are, however, a major locus of North American intellectual life. We need to address these and other underlying factors if we hope to remedy the situation.

3. Some among us should be specialists in the dialogue with the natural sciences; some few pioneers already are. But the challenge is valid for everyone who does theology. I was struck as I read and reflected on Dr. Stoeger's paper by the realization that we are all using science, whether we intend to or not. The situation is analogous to the political character of all theology, of which liberation theology has made us aware: there is no neutral stance, and if we are not improving or challenging the status quo, then we are supporting it. The same is true in the case of science.

Let me give an example, namely, the question of divine agency or how God acts in history. Science today is acutely aware of the open-ended character of biological evolution. In retrospect each new life form emerged as a lawful consequence of a concatenation of random events. But these events were genuinely contingent, not strictly predictable in advance. In other words, the universe did not unfold the way an embryo develops from a fertilized egg. Rather, the universe exists as a result of what to me is a rather wild interplay between chance and law. In retrospect the outcome may make sense, but it could never have been predicted.

This scientific finding raises theological questions. Can there be divine purpose without an exact predetermined plan? And if so, how do we reconceive divine omniscience? Let me zero in on the challenge put to the classical idea of God's agency.

It now appears that God works through the dialectical interaction of chance and law. The creative, causal nexus of random events *is* the locus of God's creative action. And the new keeps emerging. Since the emergence of enduring forms and even of patterns of events now appears genuinely contingent, rather than pre-planned; since they are random and might not have been, then the element of contingency in the ongoing process of nature has become the hallmark of the creative activity of God in the history of the universe.

Anyone who speaks responsibly today about God's action in the world has to come to terms with this. The notion of divine agency, already being rethought because of the rupture of massive, unjust suffering in history, here receives a new urgency, because contingency pervades even situations of well-being and flourishing. However, theologians (myself among them) can still be overheard speaking with precritical naiveté about God's direct personal intervention, along the lines of biblical speech about Yahweh's mighty deeds; or else theorizing about God's action in terms of primary causality and a world that is pervaded with predetermined order.

This shows not that we are being unscientific. But that we still have allegiance to premodern science, or to the physics of Aristotle. We are implicitly using a standard of information about the world that became obsolete long ago. The nature of our scientific presuppositions is not an issue that we can duck.

Nor—to deepen the agenda—should we want to. For theology's universal character is unavoidably bound up with the fact that it speaks of God. In a monotheistic faith this God is the Creator of all things. If theology remains conscious of the intellectual obligation that goes along with the use of the word God, it will try in every possible way to relate all truth, including that of the natural sciences, to the God of the bible, the God of Jesus Christ. How can we speak credibly of God's relation to the world if we ignore reliable scientific inquiry into how the world came into being and how it works? We cannot. Theology must relate with science if the world explored by science is to be interpreted meaningfully as God's creation. We have no other choice if we do not want theology to be vacuous and sterile, taking place in a ghetto where we talk just to ourselves and not to the rest of the world.

To conclude: In his 1989–1990 Gifford Lectures, Ian Barbour limns four possible models of relationship between science and religion: conflict, independence, dialogue, integration. We have lived with the first for several centuries, and more recently have operated with the second. Now Dr. Stoeger's ringing call for dialogue points us toward the third. We cannot produce competency for this dialogue on demand. But we can try to establish conditions which are favorable for creative intellectual work, and hope that this fertile ground will produce results in time.

Toward that end, some practical steps may be taken.

- The CTSA could form a continuing seminar on theology and the natural sciences (one colleague has remarked that it ought to be a remedial one!). Our society could invite Catholic scientists into dialogue with us at the annual meeting or elsewhere. The society could join with other learned bodies in sponsoring interdisciplinary dialogue between scientists and theologians.

- Every one of us could read a book: perhaps Barbour's Gifford Lectures, published as *Religion in an Age of Science*<sup>3</sup>, or Ted Peters's edited collection of essays entitled *Cosmos as Creation*.<sup>4</sup>
- In our own settings we can bring influence to bear on university programs with a view toward increasing conversation with the natural sciences on campus.
- We can incorporate this dialogue in the courses that we teach.

The point is not that we should become scientists. But we need to be literate in the scientific world of discourse, and able to converse. The reason for this is that theology, in accord with the best of its own tradition, may develop a worldview that is at once credibly scientific (in the post-modern sense) and profoundly Christian. In return, the theological imagination will be and already is being immensely enriched by fresh vistas offered by contemporary natural sciences.

I leave us to ponder an evocative word of Teilhard de Chardin, himself a courageous forerunner of dialogue between theology and the natural sciences. This saying can function as a proper summons to theologians on the subject at hand. "Pay attention," he said, "to what is going on, because we are now leaving the Stone Age."

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<sup>3</sup>Ian Barbour, *Religion in an Age of Science* (San Francisco: Harper & Row, 1990).

<sup>4</sup>Ted Peters, ed., *Cosmos as Creation: Theology and Science in Consonance* (Nashville: Abingdon, 1989). Other suggestions: James Gleick, *Chaos: Making A New Science* (New York: Penguin, 1987); Stephen Hawking, *A Brief History of Time* (New York: Bantam, 1988); Robert Russell, William Stoeger, and George Coyne, eds., *Physics, Philosophy and Theology: A Common Quest for Understanding* (Vatican Observatory, 1988; dist. by University of Notre Dame Press).