

# STORIES AND THEORIES: A SCIENTIFIC CHALLENGE TO THEOLOGY

by Alfred Kracher

*Abstract.* Stories about the divine are meant to help our imagination cope with what is ultimately not fully imaginable. In the process we make use of metaphors that rely on *quantitative* relationships to express the *qualitative* difference between the reality accessible to us and the transcendent reality of God. For example, because we have no notion of what it would mean to “be outside of time,” eternity tends to be explained in terms of infinite temporality. With the increasingly bizarre and unimaginable worldview of contemporary physics, it is perhaps no longer clear what the difference is between the unknown and the unknowable, or even whether it is possible to articulate a meaningful difference. Science appears to have outrun theology in creating stories that engage our imagination. How to overcome the difficulties this raises, particularly with respect to a widening gulf between academic analysis and popular belief, is at present not clear. A “flight from metaphor” into formalized theory, although apparently valid in science, leads to a dead end in theology. A rethinking of many traditional concepts, such as immanence and transcendence, seems to be indicated.

*Keywords:* eternity; imagination; immanence; metaphor; storytelling; superstring theory; transcendence; unknowability.

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## PRELUDE: THE BIRD AND THE DIAMOND MOUNTAIN

When I was a child I heard a story about what *eternity* means. It had to do with a bird wearing down a mountain of pure diamond by once a year sharpening its beak on it. Anyway, the point was that it is a time immeasurably

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[*Zygon*, vol. 35, no. 3 (September 2000).]

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and unimaginably long. Having grown up to become a cosmochemist, I could probably look up the abrasion hardness of diamond and of keratin, and find out whether the bird would wear down the mountain within the 4.6 billion years of the age of the earth, or the 15 billion years or so that astrophysicists give the universe, or whether it would take another few powers of ten. Unimaginable still, to be sure, but no longer immeasurable.

Of course, to theologians *eternity* means something else entirely, and has since St. Augustine—not infinite time, but timelessness. Is it any less impossible to imagine one or the other? Does our imagination even have anything to do with it?

#### INTRODUCTION: THE DOMESTICATION OF IMMENSITY

In this paper I ask questions that have to do with what we can and cannot imagine, how theories (both scientific and theological) interact with our imagination, and whether imagination is or is not important in science and religion. At least religion, if not science as well, has a lot to do with storytelling, and stories can only exist through our imagination.

Eternity, which has been my initial example of a story subject, is the domain of the divine. I prefer talking about *the divine* rather than God—the environment of God, if you like, or the *theosphere* (in analogy to biosphere). By this I leave open the question who or what shares that environment. It will become clear later, I hope, what the point is in talking this way.

Let me begin with a recent study by William Placher, *The Domestication of Transcendence* (Placher 1996), in which he investigates how thinking about God changed (in Placher's words, "went wrong") at the beginning of modernity. Rather than reproducing Placher's arguments, I give my own version, from my viewpoint as a scientist, of what I take Placher to say.

During the late Middle Ages, when the kind of classical theology was developed on which Placher's argument rests, many things were seemingly inaccessible to human investigation. To be sure, Aristotle, who became popular with medieval scholars at that time, had had an opinion on just about everything. Thus, to the extent that scholars dealt with Aristotle's physical (i.e., scientific) theories, they had notions about astronomy, meteorology, and so on. But from our modern perspective these theories had a flaw: however intellectually satisfying, they had only limited power of prediction. It probably did not strike anyone in the Middle Ages as unreasonable to claim that there were extensive areas of reality that simply could not be reached, as it were, by the stretch of ordinary human concepts.

At the beginning of modernity things changed. Not that people thought that everything was already known, but they did think that most of what was not known could be found out: it was not unknowable, it was simply not *yet* known. What Placher terms the *domestication of transcendence* is

thus intimately tied to the emerging idea of progress. Not only did people expect to gain progressively better insights into the physical world, they also started “clarifying” the way we think about God, developing, for example, sophisticated theories of analogical language. And thus they destroyed the very purpose of it, which was that the language of human theories, however sophisticated, was not just contingently imprecise but fundamentally inadequate to grasp the divine.

Theologians, both medieval and modern, realized of course that there must be a difference between the unknowable and the not yet known. To make such a distinction in the abstract is trivial enough. What is much more difficult is whether we can tell which is which in a particular situation. And if we cannot, is there really any point in making the distinction? In any case, with increasing secularization the distinction was in fact sometimes denied, leading to the characterization of religion as the “retreat into the unknowable for fear of the unknown.” Behind this erudite insult lurks the assumption that the unknowable is somehow not worth thinking about. We say that the universe is *immense* in size and age, and no longer notice how the very meaning of the adjective has been affected by the seventeenth-century change that Placher describes. Etymologically *immensity* has to do with measuring, and surely its original connotation was something that *cannot* be measured. But since the advent of modern science there really is no such thing. What we mean today when we call the universe *immense* is simply that it is very, very large and old. The notion that there may be things for which a yardstick or a clock is not adequate or appropriate has receded, like diamond mountains, into the realm of fairy tales.

#### GOD AND MODERNITY: CLOCKWORKS, CLOUDS, AND GALAXIES

Looking in broad outline at the history of theological thought, it seems that our thinking about the divine is closely connected to our thinking about the physical world. During the Middle Ages, when people were content with letting the unknowable be unknown, the divine was in many ways unknowable. During the early modern period, when the universe ran like clockwork, we came to have a correspondingly predictable deity as well. I am thinking here not so much about Deism, which is really a functional theory disguised as theology (or philosophy), but about the way in which orthodox doctrine came to be interpreted. It is a time of distinctions and niceties, of developing medieval arguments to a level of detail that its originators would have thought inappropriate to the subject matter. As science became more formalized, so did theology. But in theology as well as in science there is something like an *overdefinition* of concepts, and both the Catholic Church after Trent and its counterparts in the Reformation camp seem to have fallen into that trap quite readily.

More recently we have come to live in a world much less predictable

than we had thought, and full of strangeness. Quantum theory makes us dizzy, or if it doesn't it probably should, as Niels Bohr is supposed to have said (Greene 1999, 88). The Hubble universe, although finite and thus measurable in principle, is so vast that our imagination has nonetheless no way of telling the difference between its size and infinity. And after some suitable incubation period theology as well has begun to turn away from the know-everything attitude of early modernity, and remembered its apophatic tradition. If even physics can make us dizzy, perhaps it is all right that religion can do the same.

However, in the course of this development science seems to have out-run theology in superlatives. This has put a strain on the effectiveness of old and cherished stories like the Diamond Mountain (as well as more adult ones). The problem is perhaps not so much one of credibility—stories in religion are after all often meant to be metaphoric, and understood as such—but of rhetorical impact. Rhetoric seeks to evoke a personal response, something rooted in the experience of the listener. As hard as it is to imagine a time as long as  $10^9$  or  $10^{10}$  years, the personal response of the cosmochemist (or any interested reader of the weekly science pages in one's newspaper) is quite different from the intended audience of the Diamond Mountain parable.

TRANSCENDENCE AND UNKNOWABILITY:  
ELLIE ARROWAY'S MYSTIC EXPERIENCE

All this may simply be a matter of psychology. We find it hard to bring totally different attitudes to different problems. And when it comes to thinking about strange physics and thinking about the divine, most traditional theologians would like to admonish us that there is an evident difference, that we should not confuse our methodologies, and that we should really keep the distinction between the not yet known and the unknowable.

Things are never this simple, however. As Werner Heisenberg reminds us, there are unknowable things in physics as well. Besides, if it is psychologically so difficult to keep theological transcendence and physical unknowability separate, perhaps it is not entirely frivolous to ask whether we *should* retain the distinction, or even if it is possible to retain it—on epistemological as well as psychological grounds.

This is not merely an esoteric theological problem; it has occupied thinkers both hostile and sympathetic to religion. Carl Sagan made it a central theme in his novel *Contact* (Sagan 1985), the movie version of which bowdlerizes most of the theological issues in the book.<sup>1</sup> Ellie Arroway, the main character of the story, makes contact with aliens of vastly superior power. The experience leads her, among other things, to come to terms with mortality. However, after her return to Earth she lacks the evidence to convince those who did not share it that the encounter actually took place. *Contact* is a metaphor of religious experience.

Sagan seems to be equating Ellie's lack of proof with the ineffability of religious experience. When I started this investigation, I was completely convinced that this was simply a trivial confusion. But it is not that simple. If it is impossible to imagine superstrings (the supposed fundamental particles of everything, Greene 1999) and impossible to imagine God, does it make sense to claim that some impossibilities are more impossible than others? Quite to the contrary, is it perhaps even desirable, as the theologian, physicist, and rhetorician Rupert Lay has demanded, that theology and science should tackle their respective subject matters with the same *Denkstimmung*, a shared mental attitude (Lay 1971)? Such an attitude would, I think, preclude a sharp distinction between theological and scientific kinds of unknowability.

Imagination is, of course, limited, but it is not entirely immutable. Over time it may catch up with what we know theoretically. Although the earth is still "down" and the sun still "rises," a heliocentric astronomy no longer gives us vertigo; and at least some people also have a kind of intuitive sense of special relativity. So, as unlikely as it may seem to us today, perhaps future generations will grasp general relativity and quantum mechanics in a similar way. But by then there will no doubt be other items of science that will seem as bizarre to them as these issues are to us. The strangeness of the physical world is unlikely to go away. The clockwork universe, like its God, may have been no more than a temporary aberration in our thinking about nature.

#### THE FLIGHT FROM METAPHOR: SUPERSTRINGS AND DIVINE NATURE

Why, one may ask, should we worry so much about imagination in relation to theology? Is not the divine after all unimaginable by definition? Perhaps what we require is rational analysis rather than an effort at storytelling.

It is certainly true that what we imagine is not the divine but *metaphors of the divine* in the sense of a metaphorical theology (McFague 1982). But the effort to replace the metaphorical approach by formal theory leads, I believe, to a theological dead end. The reason for this can be seen by tracing a parallel development in science.

Theories in science develop by being quantified, or at least formalized in some sense, and this process provides increasingly stringent criteria for evaluating them in various ways (agreement with experiment, coherence, and so on). Although imagination plays an important role in science, this particular evaluation can in principle proceed without it. For example, during the first half of the twentieth century, our mind-pictures of atoms evolved from Bohr, through de Broglie, to Schrödinger and Heisenberg, and in the process they became less imaginable and more mathematical.

Is it possible that something similar happens in theology, and if so, is it desirable? I would argue that it does happen but that it is a self-defeating move. For this we have to take a closer look at the mathematization process. What could count as “theology’s math”?

The problem is that whatever formal statements (e.g., equations) exist in science, they are ultimately linked, however indirectly, to observations. We cannot see electrons, nor weigh them in any vernacular sense, but with adequate definitions of *electron*, *mass*, *charge*, etc., we can perform experiments that allow us to determine the electron mass.

One may, of course, try to argue that this relationship obtains in theology as well. But it is obvious that any attempt at positive definitions that do not rely on imagination runs into difficulties. What we can reasonably agree on are arguments of a kind of negative theology. This is important (we do want to be able to say what God is not), but their main function is to act as constraints on our imagination.

How would it look if we were to try to use these statements of negative theology in the same way that mathematization functions in science? The negative statements would obviously acquire a definitional aspect—a development that has in fact occasionally occurred in the history of theology. We may start out with a God-picture, some kind of metaphor, which, among other things, tries to convey that ordinary notions of time and space do not apply.

As we shift from metaphor to “hard data,” however, existence outside of space and time necessarily becomes the *definition* of the divine existence. But this gets us into trouble with physics, because on this definition (and assuming that superstring physics will turn out to be correct) the totality of superstrings is God. Superstrings are supposed to be the ultimate building blocks of the universe, and they do not exist in time and space (Greene 1999).<sup>2</sup> Rather they *create* time and space and everything else. Clearly the identity of God with superstrings is undesirable to most theologians. But it seems difficult to appeal to any formal definition for articulating the difference.

#### THEORY AND IMAGINATION: A WISH LIST FOR THE STORIES OF TOMORROW

The flight from metaphor into pure theory gets theology into trouble. This does not mean that theology is no more than storytelling. There are constraints to the kind of stories that do justice to the subject, and the development of such constraints is so far a theoretical enterprise. On the other hand, merely staking out the constraints does not tell us which stories are believable and effective. I am tempted to start a wish list.

The insight that perhaps impressed me most in *The Domestication of Transcendence* (Placher 1996) was the connection between God’s transcen-

dence (properly understood and undomesticated) and God's nearness. God as understood by medieval theology is near to us *because* God is transcendent. To our scientific age the notion is at first paradoxical, but it is not really hard to follow the train of thought. Since God is not in any way material, we do not imagine God "out there" (which would place God far away indeed, if we consider the size of the material universe), but everywhere, in the sense of panentheism.

A return to this kind of thinking would require us to develop stories that recover both the transcendence and the immediacy of divine presence. But simply going back to the Diamond Mountain will not accomplish this. Trying to salvage too much of the traditional picture into the age of science demands an extremely sharp distinction of theosphere and physical world—perhaps so sharp as to be psychologically, epistemologically, and maybe even theologically unreasonable.

My wish list therefore inevitably reads, "new stories." Some theologians have made a start with this task, notably Sally McFague (1982). But for the most part we still have the problem I described before, that the stories of science outrun theology in taking hold of our imagination. As a scientist I am tempted to feel smug about this. But we need the theological stories if we want to maintain credibility of belief.

On the other hand, it is perhaps unreasonable to simply voice the demand and count it as a deficiency of theology if it does not deliver. It would be unreasonable to demand of scientists that they come up with a cure for cancer in five years or build a spaceship that can reach  $\alpha$  Centauri in ten. We can *imagine* how these things might be done, but we cannot do them, at least not yet. We should not expect that theologians can deliver on demand the perfect theology that fits all the requirements of the modern age. Nonetheless, it seems worthwhile and even necessary to spend some time thinking about the wish list.

## NOTES

1. In the novel, unlike the movie, the encounter involves several people, which rules out self-deception. It also strengthens the analogy between this situation and a community of religious believers.
2. Greene entitles one section "What are Space and Time, Really, and Can We Do without Them?" He even goes so far as to say "string theory may yield . . . a formalism that will take us one step closer to answering Leibniz's question of why there is something rather than nothing" (p. 382).

## REFERENCES

- Greene, Brian. 1999. *The Elegant Universe*. New York: Norton.
- Lay, Rupert. 1971. *Der neue Glaube an die Schöpfung*. Olten, Switzerland: Walter.
- McFague, Sallie. 1982. *Metaphorical Theology*. Philadelphia: Fortress Press.
- Placher, William C. 1996. *The Domestication of Transcendence*. Louisville, Ky.: Westminster John Knox.
- Sagan, Carl. 1985. *Contact*. New York: Simon and Schuster.