

REFLECTIONS ON SCIENTIFIC AND RELIGIOUS METAPHOR

by Ursula Goodenough

Abstract. Scientific and religious understandings are inherently contextual, yet the contexts in which they are embedded are often elusive or difficult to reconcile with a person's worldview or experience. Access to these contexts and understandings is therefore often abetted by metaphor. It is argued that if a metaphor is valid—that is, if it carries some core truth about an understanding—then what is important is whether it carries that core truth over to someone else.

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METAPHOR

My eighth grade English teacher, Mr. Pennypacker, spent a great deal of time drilling us on the distinctions between analogy, simile, metonymy, and metaphor, and if he is still with us, he is doubtless exasperated by the looseness with which these terms are being used in our times. Yet it is with the loose definition of metaphor that I will be working, for it has come to convey the general activity of “carrying over” (*meta-phor*) from one understanding to another. In the most general sense, our language itself is a system of symbols, and hence metaphors, that we manipulate and interconnect to generate concepts. Here I will be invoking metaphor in the larger sense that we use the term, to indicate a carry-over that generates both cognitive and emotional valence, where meaning and value inhere. I will first consider the challenges and opportunities inherent in conveying

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our scientific understandings in metaphor and will then probe the question of how free we are to consider traditional religious understandings as metaphors for more open-ended religious interpretation.

WORKING WITH SCIENTIFIC METAPHORS

I am a deep admirer of Brian Swimme, a mathematical cosmologist who teaches and writes about the epic of evolution, often in collaboration with Thomas Berry. But at one of his first public lectures that I attended, I found my intellectual sensibilities twisting into a pretzel as he threw back his magnificent head and intoned: "Gravity is Love." What?? As outrage was traveling toward my toes, I realized that the man sitting next to me was doing just fine. In fact, he was rapt, glassy-eyed with understanding, having at last some profound insight as to how to think about gravity.

At a more recent seminar where Swimme was present, this topic returned. He was talking about the fact that scientists often complained to him after lectures about the leaps he took with scientific metaphors, and he told us that he was trying to "tone them down." "What?" howled a woman seminar participant who had taken classes with him. "You aren't taking away 'Gravity is Love,' are you? When I first heard you say that, the universe became coherent for me. All that attraction, all that allurements. Things became warm and inviting rather than cold and mechanical."

For me, these stories focus attention on a key issue faced by those of us working religiously with our scientific understandings of Nature. Granted that a scientific understanding of Nature, told straight, can generate goosebumps of connection and belonging in many persons (I happen to fall into this group), the fact is that for many other persons this understanding generates goosebumps of fear and alienation. For these people, the anthropocentric analogies—the metaphors—help enormously. But in a deep sense the metaphors are also wrong. Except for the superficial similarity of "attraction," gravity and love have nothing to do with one another.

We can argue that the problem lies with education, that the goosebumps of fear and alienation will disappear once our scientific understanding of the universe is taught properly and engagingly in the schools. Perhaps. But this outcome may not take place for generations, whereas the need for a global acceptance of scientific understandings has, for many of us reading this journal, an imperative urgency. Moreover, I am not persuaded that education will wipe out the problem.

It is my read of human nature that our anthropocentrism is deeply engrained in who we are. Indeed, it is not to my mind a leap to argue that the biological imperative to stay alive and reproduce, given the huge efforts required to do so, introduces a *de facto* centrism in all creatures. Creatures without scientific understanding, and human beings until recently, have operated adaptively in the context of supposing that their interests are *the*

interests. Therefore, our recent recognition that this supposition is a misunderstanding of planetary dynamics is pitted *mano-à-mano* with our natural biases. And all the while, our cultures offer us beguiling stories that assure our centrality, stories from traditional religions and from capitalistic orthodoxies alike. Resistance to these messages is, at best, difficult.

Therefore, it seems to me that we throw out the baby with the bathwater when we insist on the necessity of using scientific language to convey scientific concepts. If the universe story is to compete with other stories for human attention, we need to offer human-friendly analogies for those who best understand scientific concepts through experiential referents. But in saying this we have not yet resolved the problem.

The deeper problem is, who is going to write the metaphors? Who are the interpreters of the story? “Gravity is Love” is charming and appealing and arguably does no harm to our understanding of either, particularly when it is clear from Swimme’s contextual usage of the metaphor that he is not attempting to redefine or reinterpret either term. However, if we consider a second example—“Evolution is the Work of an Intelligent Designer”—we encounter not only a metaphor, God as intelligent designer, but also an implicit interpretation of the mechanism of evolution. In fact, the design proposals that are currently on offer variously ignore and/or falsify what is established about biological evolution. Moreover, the opportunity for misunderstanding is enormous: design theory is appealing because it makes sense—when we see a watch we think “watchmaker”; when we see biological design we think “designer”—and the notion that design could arise by random mutation and natural selection over long periods of time is foreign to our experience. Yet, there is overwhelming evidence that this is what took place. Therefore, if our evolutionary metaphors are to communicate, they need to convey this counterintuitive concept.

So, how to proceed?

Here are two possible rules of thumb. It is important, first, in crafting a scientific metaphor, to really understand the science and have the metaphor ring true with the science. In the case of design, the metaphor intentionally misrepresents the science so as to make a doctrinal point. Other metaphors miss the mark because they fail to grasp or convey the root concept of the science. Several years ago I attended a self-described science/religion retreat in California. At one point a group leader assembled us in a small chapel to meditate and then broke the silence by gushing, “Oh! All the DNA in this room! I can just *feel* it!” There is much to say about DNA, but “feeling it” isn’t one of them. It’s a terrible metaphor.

So, is “Gravity is Love” a good metaphor? Or how about Swimme’s celebrating the “generosity” of the sun in giving us warmth and light? The sun, after all, has no choice but to do so. What is accomplished by calling it generous?

My second rule of thumb, and the larger point of this essay, is that if a metaphor is valid—that is, if it carries some core truth about an understanding—then what’s important is whether it carries that core truth over to someone else. Indeed, we scientists use metaphors all the time when we communicate with one another: we speak of selfish DNA and orphan receptors and proteins that serve as chaperones and genes that hitchhike. When challenged, we defend the practice, explaining that while we hold valid understandings of the molecules and mechanisms of which we speak, it is easier to convey these understandings to one another in analogical language.

Exactly. Gravity isn’t love. Not in the slightest. But the metaphor conveys the inevitability, the inexorability, of gravitational attraction that many of us have best experienced in love. I like to imagine that the man who sat next to me at Swimme’s talk is a magnificent lover, someone for whom the attractions he feels in love are particularly large and important and meaningful to him—in which case, realizing that gravity has the same kind of large and important meaning has the potential to serve as a vital entrée to his understanding of our universe.

It is important to remind ourselves at this juncture that the distinctions we are striving to make would be most puzzling to persons in indigenous cultures. John Grim, a scholar of the native peoples of the northern plains in North America, refers to their core orientation as “cosmological personalism”—a fusion of the longing to inhabit the cosmos with the longing to find fuller understanding within human community. His accounts of their worldviews are haunting:

In some of these traditions, the creative forces of the spiritual world may assume either animal or human form. These creative animal persons are directly associated with places that are named. When named, the people are sacralized, animated, rendered in relation to the animals and sacred places. Myths result from these connections and often tell of humans who go to the same watering hole as the other creatures but do not mate with them, of humans who came last in the creation sequence and are in many ways the least powerful. In a particularly poignant myth among the Columbia River Salish peoples, Coyote inquires from the more powerful animal spirits about the impoverished, last-to-be-created humans saying, “What will the humans be given?” The spiritual beings answer: “We will give humans songs when they fast and cry in awareness of their limitations.”

When humans use words and songs, according to these living traditions, they stand in relation to other-than-human beings who are powerful presences in the natural world. They stand in relation to places that resist any final summing-up or fully descriptive word. Cosmological personalism, then, arises in relation to, and not in standing over, life. As such, it is a basic moral vision of language, presence, and time. (Grim, pers. comm.)

Modern science offers us a cosmology that is so mind-boggling that we risk approaching these indigenous legends with something akin to romantic nostalgia. But to do so is to miss their import. As we work to fashion

scientific metaphors that are valid and evocative, we are challenged as well to find words that foster this kind of cosmological personalism, words steeped in moral character and a sense of the sacred, words that invite—indeed insist upon—our anthropocosmic participation.

WORKING WITH RELIGIOUS METAPHORS

Several years ago I was asked to give the sermons at an IRAS conference on Star Island. I knew that the chapel was provisioned with Unitarian-Universalist hymnals, so I obtained a copy and started going through it to make the hymn selections. But something was very wrong. For many of my favorite hymns, the words had been changed. For example:

We gather together to ask the Lord's blessing;
He chastens and hastens His will to make known;
The wicked oppressing now cease from distressing,
Sing praises to His name; He forgets not His own.

(Nederlandsch Gedenckclanck, 1626)

had become:

We sing now together our song of thanksgiving
Rejoicing in goods which the ages have wrought,
For life that enfolds us and helps and heals and holds us
And leads beyond the goals which our forebears once sought.

(Edwin T. Buehrer, 1956)

And:

Sing praise to God who reigns above, the God of all creation,
The God of power, the God of love, the God of our salvation.
With healing balm my soul is filled and every faithless murmur stilled;
To God all praise and glory.

(Johann J. Schütz, 1675)

had become:

Faith of the larger liberty, source of the light expanding,
Law of the church that is to be, old bondage notwithstanding;
Faith of the Free! By Thee we live—By all Thou givest and shall give
Our loyalty commanding.

(Vincent B. Silliman, 1944)

While I could understand how the old words might have been problematic to the editors of the hymnal, it took me some time to work through the paradox of why the new words were problematic for me. After all, I self-identify as a religious nontheist, and I lack the capacity to believe in supernatural concepts. Yet, even though the edited texts had been rendered more consonant with my religious orientations, I found them sacrilegious. The original hymnists who had integrated melody and text to produce these works were steeped in the Christian mythos. Their art was dedicated to the conveying of Christian understandings, among which is the belief

that God is both powerful and judgmental. The editing felt akin to taking the yellow out of a van Gogh or, at the least (and with all sorts of good intentions), changing the yellow to beige.

So I photocopied the original versions from a Methodist hymnal and passed them out at the worship services. Much lusty singing ensued. But by midweek, several conferees had politely but pointedly confronted me, asking why I was asking them to sing words that were offensive to them—and, they presumed, offensive to me—when the amended hymnals were stacked right there in the pews. Although I continued to pass out the original music, the challenge occasioned some serious reflection on religious metaphor.

I have come to recognize that religious metaphor is no different from scientific metaphor in the sense that if the metaphor is valid—that is, if it carries some core truth about an understanding—then what's important is whether it carries that core truth over to someone else. Where the two differ is in how they are conveyed: whereas scientific understandings can be conveyed in two ways—by the crisp minty snap of empirical data or by metaphorical renderings of these data—the core truths of a religious tradition are invariably articulated in metaphor. We learn of its myth through narrative artistry—psalms, parables, liturgy—and we learn of its meaning through visual and musical artistry. The sensibilities of the religious artist are birthed and nurtured by immersion in the religious tradition in much the same way that our “good” metaphors about science most often come from those who are scientifically literate.

Musician/composer Carl Smith describes the dynamics of artistic truthing in a religious context with particular cogency:

A patron in renaissance Italy commissions a painting of St. Cecilia, patron saint of music and musicians, for a chapel. There are strong contexts for such “saintly” pictures and strong traditions in the depiction of St. Cecilia (what is “known” about her). The artist begins working. All his skill, imagination, and knowledge of the traditions come into play, plus his personality and taste (within clearly defined boundaries). Ideas come, he makes drawings, and when the work is formed in his mind—but not yet executed—he has his *conchetto* (we have no good English word for this—“concept,” perhaps, or “conceit” as in poetry, but both fall short of the mark). As he executes the painting itself, he will realize (or not) his *conchetto* in such a way that not only will the many details of the painting be apparent to the viewers, but his vision of Cecilia will communicate to them as well, and, with repeated viewings, in ever-greater depth and richness. Their experience will be that he has told the truth about her, that the painting is good, true, and beautiful. (Beautiful here does not necessarily mean pleasing to the taste of any particular viewer; it means fully, compellingly integrated in all its various parts, which is akin to what Aquinas says about art: “it imitates nature in her manner of operation, but not necessarily in her appearances.”). The painting is true in its strength of *conchetto*, beautiful in its appearance and execution, and good in its value to the spirit, soul, passions.

So, what is the actual result? A piece of canvas with oil pigment on it. Empirically, that's all. The rest is tradition, context, association, and imagination—the

artist's and the viewers'—and therefore not real and therefore not true. But it's worse than that. Cecilia was an idealization: she never existed at all. So, the painting is at once doubly false and . . . "true." The truth of all art, whether or not its subjects actually do/did exist, remains in its ability to compel those who are willing to suspend disbelief so as to "see" of the truthfulness of the artist's *conchetto*. Our rational minds it just messes around with. And our vocabularies, too. (Smith, pers. comm.)

If we can work with "Gravity is Love" and the "generosity of the sun," so too would I suggest that we are invited to work with the metaphors of our religious traditions. Persons who insist that we take religious metaphors literally—who say that we can think about Mary only as the Virgin Mother of God—are, to my mind, invoking the mindset of religious fundamentalism, just as to argue that science can be understood only in scientific terminology invokes the mindset of scientific fundamentalism. Meanwhile, a vast and fecund middle ground awaits those of us who seek meaning rather than literal certitude in our religious lives. Participation and immersion in the traditions gives us the license to translate, as evocatively as we are able, the original texts and their artistic presentations. These translations do not require us to delete the original language or remove the yellow from the canvas. The originals inform and constrain our translations. To translate the meaning of Christ's life as a justification of patriarchy, for example, is as inept a metaphor as is to translate the meaning of DNA as something we can feel in a room. But, after that, they invite us to articulate, however subjectively and tentatively, our own responses to the original *concettos*.

And then, as with our scientific metaphors, we are called as well to create, or commission, new works of religious art that articulate our rediscovered cosmological personalism.

WORKING WITHOUT METAPHORS

We are given our songs, and they give voice to the realization that we have emerged from Nature, seek her meanings, and seek as well the meanings embedded in our cultural traditions. But we are given more than this. We are also embodied neural creatures who reside not in metaphor but in flesh and experience. One of the great gifts of our time is that we have been provisioned with many ways to experience ourselves anew. We now understand that we are evolved apes, uniquely aware of our awareness, multicultural, and finite. As we make love and play with our kids and walk in the woods and laugh and weep, we experience the immediacy of being—direct, nonmetaphorical—that underpins our every scientific insight and religious *conchetto*. If our goal is to achieve an informed cosmological personalism, then its pursuit must initiate in, and circle back to, stunning self-encounters of the first kind.

At the end of the week, my husband and I abandon our quests for understanding and go out to Magnolias. From midnight 'til 3, the tiny nightclub is packed with dancers, mostly gay men of varying races, who pulse and vibrate to music so loud and continuous that conversation is impossible. I am known only as the middle-aged white lady who comes on Friday nights to dance; my identity, my credentials, my hermeneutics are checked in at the door. I become physical, sexual, and tribal, connected by rhythm and joy with the rest of my species. The need for metaphor is nowhere to be found.