

The Brightest of All Time—Science, Religion, and the Mystery of the Divine Light

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You might have seen [the news this week](#) about the high-intensity blast of light that NASA scientists saw on their Fermi Gamma-ray Space Telescope.¹

They're calling it the "Brightest Of All Time," or "the BOAT" for short—a play on the acronym "GOAT," which stands for "Greatest Of All Time."

The NASA scientists think it was the last flash of a dying star as it collapsed into a black hole. They estimate this event occurred 1.9 billion years ago, but we could only see it *now* because the light had to travel 2.4 billion light years until it finally became visible from Earth.

They're saying it was the biggest explosion since the Big Bang.

Those amounts of time and distance are basically incomprehensible by the human mind.

How do you even *begin* to wrap your head around the idea that space is so vast that a flash of light could have occurred *1.9 billion years ago* and only become visible to us *12 days ago*?

And, in the words of the psalms, "What are *we* humans" in the context of this unfathomable immensity? (*Psalms* 8:5)

We live as though we are the center of the universe, but against the backdrop of 1.9 billion years and 2.4 billion light years—which themselves are only a fraction of all of time and space—we are so obviously just an infinitesimal speck.

We think we are so enlightened, that we know so much, that we're so highly evolved, and that our knowledge and technology make us masters of the universe—and, in comparison to humans in past ages, we are.

But what do we know, *really*?

I guess it's all relative.

Compared with medieval humans, we know a ton. But compared to All There Is out there—Reality with a capital "R"—the telescope sighting of this star flash should be a reminder that we actually know very little.

There is so much that remains a mystery.

Humanity will, of course, continue to learn more and more. And even still, the mystery—that gap between what we have discovered and All There Is—will forever be immeasurable and essentially infinite.

There will always be things about Reality that we don't know. In fact, that's the premise of science.

The whole reason science exists is to explore and gain better understanding of Reality. If we already knew all there is to know, the scientists would pack up and go home.

In other words, we tend to think of science and faith as opposites, but, actually, they go hand-in-hand:

Faith, to me, is a willingness to believe in what you can't see; to believe that, against all evidence to the contrary, what seems impossible is actually somehow possible.

If scientists didn't have faith that there is more out there than they currently know—if they didn't believe that what seems impossible today may yet be possible tomorrow—they wouldn't continue to search for new discoveries.

And it works the other way around, too, for *some*—though unfortunately not *all*—people of faith.

In Judaism, we have a strong tradition of scholars who taught that *faith alone* is *not* enough to understand the Torah or how God wants us to live.

Where the Christian scriptures said that all you need is “faith the size of a mustard seed” (*Matthew* 17:20), these scholars insisted that, in order to carry out God's will and live fully in the world, you have to study *both* Torah *and* science.²

Rabbi Abraham ibn Ezra, who lived in the 11th and 12th centuries and is one of the most important Torah commentators of all time, wrote that a faithful Jew who wants to understand the true meaning of the Torah needs to study the physical and natural sciences, logic, geometry, mathematics, psychology, grammar, and—apropos NASA's recent discovery—the science of astronomy.

“It is impossible,” ibn Ezra said, “for an intelligent person to understand [the Torah's descriptions and laws of time and the sun and moon and stars] unless he studies astronomy. ... [But] when one masters astronomy and the circuits of the [sun and moon], he comes to know the works of God the Glorious.”³

In other words, our faith should *stimulate*, rather than suppress, our interest in science, and the knowledge we gain from science should *deepen*, rather than undermine, our faith.

I think it is so apropos that NASA's discovery was reported this week, when we're reading Parashat B'reishit, which tells the story of God's creation of the world.

In our scientific, rationalist culture, many of us are quick to dismiss Genesis' creation story as an irrelevant fairy tale, because it so obviously contradicts what we know from science about how the world came to be.

But in doing so, we fail to realize what the contemporary rabbi and scholar Art Green teaches: that the Torah and science are two discrete languages for speaking about the same thing.⁴

Both these languages were developed by human beings to explain the mysterious phenomena of existence.

The language of science is *prediction of the future* based on *observation of the past*.

Through research and analysis of empirical data, scientists formulate theories of how things will work the next time based on what has *already* occurred.

In many cases, their theories have been so solidly established that the predictions of what will happen in the future are essentially 100 percent accurate—and we take them for granted as something we “*know*.”

But sometimes, the prediction—even one based in strong empirical data—turns out to be right only until it's wrong.

Some previously unknown factor comes to light, and we realize that what we *thought* we “*knew*” with certainty was actually not right at all. And so, the search for a better understanding continues.

The Torah and religious language, by contrast, are not based on empirical data. They do not speak the language of prediction based on observation of the past.

Instead, they are poetic languages: languages that use imagery, metaphor, stories, parables, myth to describe the majesty, to grasp the mystery, to point to that which defies our comprehension, to identify the moral and ethical imperatives in the world—all things that science does not capture nor *attempt* to capture.

Contrary to conventional thinking, these languages do not negate or undermine each other. If we understand them for what they are, then, when we employ them together in partnership, they enhance each other and provide a fuller, more dynamic picture of life and the world.

The scientific language of astronomy, which ibn Ezra implored us to study, speaks about light being caused by the explosion of a dying star collapsing into a black hole.

Parashat B'reshit, which ibn Ezra also implored us to study, describes light coming into being by the command of God.

The former is an accurate description based on empirical data, while the latter is a poetic description based on an innate human sense of a moral-relational order in the universe—an order in which all things respond, as it were, to the imperative of a unified, intentional, and inherently *good* design (*Genesis* 1:31).

As Rabbi Joseph Soloveitchik puts it, “The bird in its flight, the flower opening its leaves toward the sunlight, the tumbling pebbles, the sea waves transmitting energy, all these, whether driven by a mechanical force, a biological impulse, or an instinctual drive, carry out a Divine ethical command. They are automatically engaged in the great universal task: the realization of the Divine will that is inherent in them.”⁵

In other words, science describes *what* happened: A dying star exploded as it collapsed into a black hole, sending light on a journey of 2.4 billion light years toward Earth.

Religion describes the *underlying why* of what happened: A star goes through these processes in its life cycle because, ultimately, it is carrying out its mysterious, divinely designed role in the cosmic drama.

Or, in the succinct, poetic language of our parashah, “God said let there be light, and there was light. ...And God saw that the light was good” (*Genesis* 1:3-4).

Rabbi Abraham Joshua Heschel remarked that the gap between what we know through science and what we don't yet know about Reality—the mystery—is what we call “God.”

Jewish tradition says the Torah contains all the secrets to that mystery, but ibn Ezra taught us that we need science in order to unlock those secrets.

In that way, every time a new scientific discovery is made, we gain a little bit more insight into the mystery and we uncover just a little bit more of God.

Thanks to the NASA scientists, we now have a much deeper and richer understanding of what the Torah means by “God said, let there be light.”

And that new understanding probably causes us to respond, almost reflexively, with awe and wonder at the majesty of God's creation.

It's so incredible, so unbelievable, so much bigger than what our finite minds can even grasp. So, how do we express awe at what we cannot even fathom?

When words fail us, our liturgy gives us the vocabulary we need:

“Mah gadlu ma’asekha Yah, m’od amku machshevotekha,” we say in Kabbalat Shabbat. “How great are Your works, O God; how very subtle and intricate are Your designs” (*Psalms 92:6*).

“Barukh atah Adonai eloheinu Melech ha-olam, yotzeir ha-m’orot. Blessed are You Adonai our God, ruler of the universe, creator of the heavenly lights” (daily morning liturgy).

1 Robert Lea, “Gamma-ray burst may represent the most powerful cosmic explosion ever recorded,” <https://www.livescience.com/gamma-ray-brightest-of-all-time>

2 See H. Norman Strickman, trans., *The Secret of the Torah*, 21-26

3 *Ibid.*, 21

4 See Art Green, *Ehyeh: A Kabbalah for Tomorrow*

5 Soloveitchik, *Worship of the Heart*, 124