

July 24, The Cosmos and a Single Breath, Rev. Linda

Through the Webb telescope, mankind is seeing extremely distant galaxies “that stretch back to the beginning of time. We are gazing into “some of the oldest and most distant cosmic structures ever observed...(as we look through) this galaxy finding machine.”<sup>1</sup>

“This is the oldest documented light in the history of the universe from 13 billion — let me say that again, 13 billion — years ago,” President Biden said.

Our own galaxy, the Milky Way, is about 100,000 light-years across and contains some 100-400 billion stars, according to NASA. It’s size is too big to comprehend, but within the context of the larger universe it is smaller than a grain of sand.<sup>2</sup>

The light from those galaxies, magnified into visibility by the gravitational field of the cluster, originated more than 13 billion years ago. Astronomers theorize that the most distant, earliest stars may be unlike the stars we see today.

The first stars were composed of pure hydrogen and helium left over from the Big Bang, and they could grow far more massive than the sun — and then collapse quickly and violently into supermassive black holes of the kind that now populate the centers of most galaxies.<sup>3</sup>

But the most striking image was of the Carina nebula, a vast, swirling cloud of dust that is both a star nursery and home to some of the most luminous and explosive stars in the Milky Way. Seen in infrared, the nebula resembled a looming, eroded coastal cliff dotted with hundreds of stars that astronomers had never seen before.<sup>4</sup>

The tallest peaks in this image are about 7 light years high or about 42 trillion miles high, or about three hundred fourteen thousand, seven hundred twenty times around the earth. Inconceivable.

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<sup>1</sup> <https://www.azcentral.com/story/opinion/op-ed/philboas/2022/07/13/webb-telescope-may-not-show-face-of-god-but-it-draws-us-closer/10043469002/>

<sup>2</sup> Ibid

<sup>3</sup> [https://www.nytimes.com/article/nasa-webb-telescope-images-galaxies.html?action=click&algo=bandit-all-surfaces-shadow-lda-unique-time-cutoff-30-alpha-0.03&alpha=0.03&block=editors\\_picks\\_recirc&fallback=false&imp\\_id=16501130&impression\\_id=6859e3c3-05be-11ed-8aa1-47f311cca331&index=0&pgtype=Article&pool=pool%2Fe76d7165-92f7-4bd2-bc6e-298322d3680a&region=footer&req\\_id=554309760&shadow\\_vec\\_sim=0.13041872541812718&surface=eos-home-featured&variant=0\\_bandit-eng30s-shadow-lda-unique-alpha-0.03](https://www.nytimes.com/article/nasa-webb-telescope-images-galaxies.html?action=click&algo=bandit-all-surfaces-shadow-lda-unique-time-cutoff-30-alpha-0.03&alpha=0.03&block=editors_picks_recirc&fallback=false&imp_id=16501130&impression_id=6859e3c3-05be-11ed-8aa1-47f311cca331&index=0&pgtype=Article&pool=pool%2Fe76d7165-92f7-4bd2-bc6e-298322d3680a&region=footer&req_id=554309760&shadow_vec_sim=0.13041872541812718&surface=eos-home-featured&variant=0_bandit-eng30s-shadow-lda-unique-alpha-0.03)

<sup>4</sup> Ibid

The Carina nebula is a turbulent cloud of gas, dust about 7,600 light-years from here, a birthplace and graveyard for some of the Milky Way's hottest and most massive stars.<sup>5</sup>

Light from these galaxies took billions of years to reach us. We are looking back in time to within a billion years after the big bang when viewing the youngest galaxies in this field.<sup>6</sup>

Webb's images offer a kaleidoscope of colors and highlights and dust— a major ingredient for star formation, and ultimately life itself. Nearly all the elements in the human body were made in a star and many have come through several supernovas. We are looking at the place from which we come.

The scene in this image began when a star shuddered and died, launching its own atmosphere into space like an expanding soap bubble. The only part of the star left behind was a scalding-hot core known as a white dwarf, in the center of the image.

Compared with previous studies of the Southern Ring Nebula from the Hubble Space Telescope, the new image shows more of its outskirts: the first material that was launched from the star to spread away. It also reveals glowing grains of carbon, and a better view of a companion star huddled at the center of the nebula.

Representative Steny Hoyer, the Democratic majority leader said of Webb, "This gives new meaning to as far as the eye can see."<sup>7</sup>

The late astronomer Carl Sagan famously pointed out that:

*"The nitrogen in our DNA, the calcium in our teeth, the iron in blood, the carbon in our apples were made in the interiors of collapsing stars. We are made of star stuff."*<sup>8</sup>

He also noted how unique we are:

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<sup>5</sup> <https://www.nasa.gov/image-feature/goddard/2022/nasa-s-webb-delivers-deepest-infrared-image-of-universe-yet>

<sup>6</sup> <https://www.nasa.gov/image-feature/goddard/2022/nasa-s-webb-delivers-deepest-infrared-image-of-universe-yet>

<sup>7</sup> <https://www.nytimes.com/live/2022/07/12/science/webb-telescope-images-nasa#first-look-southern-ring-nebula>

<sup>8</sup> <https://www.cantonrep.com/story/opinion/2022/07/17/webb-telescope-proves-humans-small-part-big-story/10036997002/>

"Every one of us is, in the cosmic perspective, precious. If a human disagrees with you, let him live. In a hundred billion galaxies, you will not find another again."<sup>9</sup>

There are so many times my friends that I grow tired, and despair builds up like cosmic star dust so deep in my heart and mind that I cannot see through to what a day is asking of me, never mind what a relationship is asking.

And then this happens, we see into time, literally, we see into a world that we never knew was there. I think, what do we look like from there, what do we all look like and if there is life somewhere else, and it seems more and more likely that there is, do they know that this running around we do, this lack of wonder that we live in, do they know, can they see all the ways that it is too small for us, that we are too big, too multiple to fit into these little tiny boxes, and cell phones and Iwatches, and computers and keyboards and tv screens.

Can they see that we are making ourselves small so that we do not have to feel the vastness and our smallness? Do they see too that though we are so small, so small, that we are just too big for the containers we build to hold us in?

And do they weep, do they weep that we do not look up and only see how small and insignificant we are but also know that we are part of what we are looking at, made of the same stuff, birthed through what we gaze at?

What do we lose in making ourselves small? I think this mostly-wonder. Sheer, awesome, dumbfounding wonder.

And maybe figuring out how to add more wonder to our lives is not about figuring out how to meditate more or put things down more or have sabbaths, though surely those things help. Can we learn right inside of all of it, whatever all of it is for us, to open ourselves to wonder? Can we right here, in the middle of a Sunday, open ourselves to being star struck?

NASA released [a 35-second audio clip](#) of the sound earlier this month using electromagnetic data picked from the Perseus Galaxy Cluster, some 240 million light-years away. What we will be listening to is essentially a re-sonification, so a data sonification of an actual sound wave in this cluster of galaxies where there is this supermassive black hole at the core that's sort of burping and sending out all of these waves. And the scientists who originally studied the data were able to find out what the note that is being released is. And it is essentially a B-flat about 57 octaves below middle C. So they've taken that sound that this black hole is playing and then just brought it back up into the range of human hearing — because we certainly can't hear 57 octaves below middle C.

This was made this for those who are visually impaired and cannot see the images on the screens here that they have offered us. So close your eyes.

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<sup>9</sup> Ibid

They call this Pillars of Creation and is a black hole at the center of the Perseus Galaxy Cluster. Listen for a minute [here](#).<sup>10</sup>

As you hear this, what is left for you, to you, as you? At first I felt despair for my insignificance and then it shifted as I leaned in. I heard creation. I heard an unfathomable web that has been speaking to us for billions of years but we have not been able to hear. I heard what a beginning sounds like. What time sounds like. I felt an immense fear of my own insignificance. Okay, it did not take my fear of cancer or climate change away, it did not make me find peace about what our last president did before, during or after the election, it did not make me feel like our species will survive what is happening in congress to climate initiatives but this it did: It made me feel like maybe this just keeps happening, these cycles of beauty and despair. Maybe we are all part of that sound I just played, maybe it is a sound that our bones and blood and heart know. Maybe we are part of the story, the great story, just as we are, just as it all is.

And if this is true, what if this is true, maybe too we need to learn how to integrate wonder into our daily lives between our dings and beeps and reminders and alarms. Maybe right inside of all of it we have to listen again to this sound, this sound of the pillar of creation, and lean into the wonder that birthed us and to which maybe, just maybe, we return.

And look up and see who is there, who is here, who is missing, who is remembered and forgotten. To get quiet enough to hear the wonder of our being and rest there completely, fully, and feel it, the wild, open, unlimited sound of creation.

We are all part of that sound my friends. We have to be. When I hear that sound and see these images I hear something more than science. I hear beginnings and endings and hope and destruction. I hear time and emptiness. I hear creation creating.<sup>11</sup>

“Science is not only compatible with spirituality; it is a profound source of spirituality,” said Sagan. “When we recognize our place in an immensity of light-years and in the passage of ages, when we grasp the intricacy, beauty, and subtlety of life, then that soaring feeling, that sense of elation and humility combined, is surely spiritual.”<sup>12</sup>

Here's hoping that whatever we may encounter by way of the James Webb Space Telescope helps us to remember that when we gaze up at the stars, we're really looking at ourselves.

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<sup>10</sup> <https://www.youtube.com/watch?v=ioR5np1fmEc>

<sup>11</sup> <https://www.azcentral.com/story/opinion/op-ed/philboas/2022/07/13/webb-telescope-may-not-show-face-of-god-but-it-draws-us-closer/10043469002/>

<sup>12</sup> <https://www.azcentral.com/story/opinion/op-ed/philboas/2022/07/13/webb-telescope-may-not-show-face-of-god-but-it-draws-us-closer/10043469002/>

Because we, too, are "star stuff," that makes us mortal — and miraculous.<sup>13</sup>

Lean in and hear your own creation music. Lean in and let the fear of it all and the profound wonder just on the edge of that fear, nurture you. Be nurtured friends.

Amen.

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<sup>13</sup> <https://www.cantonrep.com/story/opinion/2022/07/17/webb-telescope-proves-humans-small-part-big-story/10036997002/>