

Feynman's Cataclysm Question

Rev. Sally Fritsche

First Unitarian Congregation of Toronto

20 October 2024

Our call to worship this morning is, in true UU fashion, actually a call to question: In 1961, Richard Feynman chose to open the very first lecture of his physics 101 class, with this question: "If, in some cataclysm, all of scientific knowledge were to be destroyed, and only one sentence was passed on to the next generation, what statement would contain the most information in the fewest words?" Using this question, as his students' first introduction to the study of physics, makes it clear that the discipline of science, in Feynman's view, would not consist of the lifeless memorization of facts, but instead the asking of engaging and thought-provoking questions.

Similarly, Unitarian Universalism is far more than the droning repetition of familiar ideas. We are a living faith, one that challenges its people to be always searching for answers, and always questioning the answers we find.

The challenge of writing the perfect "Cataclysm sentence" has captivated listeners ever since Feynman first posed the question. But it's actually a different question, a slight variation on the original, that most choose to pursue. Not, "what if some cataclysm wiped out all *scientific* knowledge," but "what if that cataclysm wiped out ALL knowledge?" What if all the gathered wisdom of humanity had to be simplified down to one sentence and delivered to a new generation to start over. That is the cataclysm sentence that any one of us might write, not just the scientists or physics students among us.

Our time together today is about, as our opening hymn says, "casting questions into the deep." And as Unitarian Universalists, we do not pretend that the person behind the pulpit is the only one with answers. With insight or wisdom to share. Each of us might answer this cataclysm question differently, some of us might answer very similarly. We will hear, later in the service, a handful of answers from different thinkers and writers, but first, I want to actually ask you personally: If hypothetically all human knowledge was lost, what would be the most important information in the least number of words that you would convey to the next set of people? What would be your sentence?

Don't go to the chat yet! But if you have a scrap of paper, or an open notes app, or open a blank draft on your computer, This is a writing prompt! You can take the whole service to think about it, but try to actually write out a sentence (or a few different attempts) that answer this version of Feynman's cataclysm question. Toward the end of our time together today, we will go to the chat and gather up some of the answers of anyone willing to share their sentence, and we will get to hear some of the collective wisdom we'd like to pass on. What one sentence would the world need most, if we had to start over from scratch.

As we sit with our question, and the beginnings of answers start taking shape, I'll invite us to move fully into this sacred space. Come, let us question together.

Now that we have asked the question, it's only fair to hear a few possible answers, while you continue to work on your own.

We know, for example, that the storytellers behind Old Turtle, who we heard from earlier, would likely say that their cataclysm sentence would have two parts: "You are loved... and so are they."

There is an excellent episode of the Radiolab podcast, in which the hosts ask this cataclysm question to a wide variety of artists and thinkers. I recommend that you listen to the whole thing if you can, but I'll share a couple of the answers they collected.

Writer Nicholson Baker's sentence would be: "You know more than you can say."

The artist Lady Pink would paint a mural rather than write a sentence, 4 stories tall, depicting God as a woman or a gray alien, descending from the heavens and looking lovingly down at the viewer.

Composer Missy Mazzoli would leave one "primordial chord" that has to be played by at least six hands on the piano.

Developmental Psychologist Alison Gopnik would have her sentence be a question, just one word, "Why?"

Journalist Cord Jefferson says that his first attempt at a sentence was, "Race isn't real unless you make it real, at which point it will become the biggest problem in the whole world." And then he kept thinking, zoomed out even further, and chose instead as his sentence, "The only things you're innately afraid of are falling and loud noises. The rest of your fears are learned."

Author Jenny Holwell chose the simple: "Everything is connected," because she wanted to capture some element of scientific truth, as well as something more inspiring. (This one is one of my favorites!)

Mortician Caitlin Doughty went with, "You will die and that is the most important thing."

What I love about all these answers, all these cataclysm sentences (or images or musical chords), is how brilliantly they reflect the specific lives and perspectives of those who offered them. There is no "right" answer! There are a billion right answers, 8 billion.

Because each of us has a piece, a genuinely precious, valuable piece of truth that *could* be the foundation of a new society.

So what about mine? What about yours?

Inspired by all these creative answers, I think MY cataclysm sentence wouldn't be a sentence at all, but a human handprint. Or a few handprints, left by a group of people together.

A human **Handprint**, not a drawing of a hand, but evidence of that specific place having been touched. I would want to communicate that we were here, in this specific place, which was important to us. We were together. We are like you; we touched the world like you do. Whatever we did, for good or bad, you could also do. And you can put your hand right here and know for a fact that I once did the exact same thing.



There are, right now, ancient handprints found in caves across the world. In Europe, Australia, South America, and I can't presume to know the reason those ancient peoples left their mark in this specific, tactile way. But in some of those caves, tiny child-sized handprints appear high up on the walls and ceilings, meaning that someone lifted a child up on their shoulders so they could participate with the rest of the community. And that is exactly the kind of message I would like to include in my "cataclysm sentence."

But I actually haven't shared my favorite response, from one of the thinkers interviewed by Radiolab. Jaron Lanier, who has been instrumental in creating the internet, and now AI, responded to the Cataclysm question by refusing it altogether. He feels it would be hubris to assume we have something useful to teach the imagined post-disaster people, especially because it's likely we caused the cataclysm that destroyed us.

All our accumulated knowledge, physics, biology, the creative arts, is either something we found or something we made. And these new people could find it too, at their own pace, or make it, in ways that better suit who and what they are. He wouldn't want to deny them the journey of creating their own knowledge base, rather than having it seeded by a dead parent-civilization.

And of course, as a product of UU youth groups, I should've remembered that when we're all going around answering a question, you can always say "pass"! But this response, this refusal, struck me as so unexpectedly humble, and humbling.

Why *should* these future people listen to us? The central theme this congregation has been reflecting on in recent services is "trust." And that's part of this question. Why should they trust us? Trust our single sentence to contain wisdom at all? And do we trust them, to interpret it correctly, not to twist it or take it and start running in entirely the wrong direction. Who exactly are we picturing, when we imagine the audience our all-important sentence will be heard by?

The Cataclysm question is posed in a broad, universal, way, but depending on the specific time and place, the specific needs of these imagined future people, some sentences might be way more useful than others. And how are we supposed to predict what will be most necessary to a people we will never meet?

If, for example, you leave your one sentence behind in a community living on a coastline that experiences frequent earthquakes, you should probably say, "When the ocean water goes all the out very quickly, that means a huge wave is coming and you should get to high ground immediately," rather than wasting your sentence on some more metaphysical bit of wisdom.

And once I was thinking about the types of practical knowledge, rooted in specific places, I realized I had been ignoring one obvious fact, one that should have been obvious as soon as I thought of those neolithic handprints. And that fact is, for many peoples of earth, the cataclysm has already happened. There are worlds that have already ended, and there have been countless knowledge bases, languages, histories, indigenous sciences, lost or destroyed over the course of this planet's history.



My "cataclysm sentence," of stamping my hand on a wall alongside those of my community, would put me in a long lineage of humans who thought to leave their mark on the world in the shape of a hand. The oldest cave painting ever found is a red stencil of a hand, in a cave in Spain, dating back more than 64,000 years. It was made by a Neanderthal, a species of person that has since gone extinct.

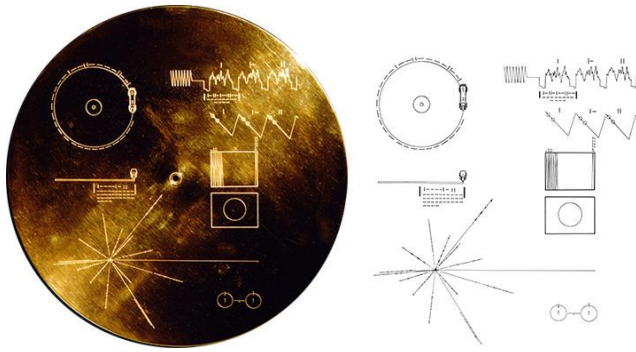
So then I had to ask myself, am I listening to the cataclysm sentences that have already been written? The wisdom they left for some imagined future that we're now living in? What would it look like to extend the same trust and curiosity backwards that we hope a future people will extend to us? We would need a heaping dose of humility, I think. Letting go of the assumption that our information, our knowledge, is by definition superior to that which came before. If we're going to imagine what sentences we would like to speak into an apocalyptic future, let's also consider the sentences we should be listening to from the apocalyptic past.

We are already living in a world in which humans have had to answer some version of, "what will we leave behind?" and "in the absence of all shared culture or contextual knowledge, what information can we communicate?"

In 15th century central Europe, some communities placed "hunger stones" in their local waterways during times of drought, marking the low water line and carving messages warning future generations, "if you can see this, you are about to experience a famine." And what is that, if not a cataclysm sentence of sorts? A single sentence carved where future people would see it, regardless if any other knowledge or connecting threads were able to survive between generations. Its content decided not based on what they felt the most profound truth was, but on what might actually help those future people to survive.



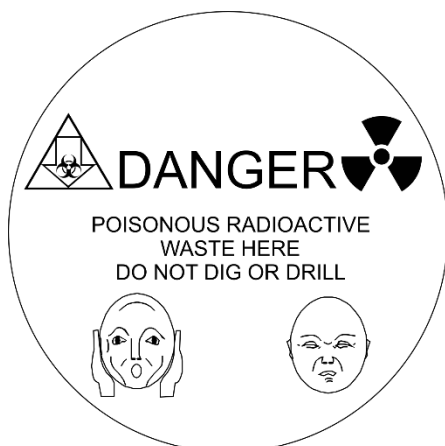
Or when the voyager probe was launched in 1977, heading out beyond our solar system, it carried with it a golden record, encoded with 115 images and a variety of natural sounds, such as surf, wind and thunder, birds, whales, and other animals. Plus musical selections from different cultures and eras and spoken greetings in fifty-five languages. On its cover, the NASA team engraved pictographic instructions on how to play and decode the record, an image of a hydrogen atom, and a map of our solar system's location relative to 12 nearby stars.



This message, quite a bit longer than a single sentence, was crafted with absolutely no guarantee that humanity, earth, or even our solar system would still exist by the time any being ever saw it. It represents what those who launched it thought was the most core, important, information about all of us.

One more example, one of my favorite Wikipedia rabbit holes to go down, is the project of creating long lasting labels for nuclear waste. Nuclear waste, buried deep beneath protective layers of concrete, metal, and earth, will still be dangerously radioactive millennia from now. And if some future civilization, long after our culture and language are lost to time, gets curious and decides to do some digging, how do we warn them away?

Because, just like carvings outside the tombs of ancient kings warning of curses, there might be nothing so enticing as a warning sign. This is an example of one proposed sign. With faces of fear and disgust, which transcend language barriers. Some other proposed messages read: "This is not a place of honor. What is here was dangerous and repulsive to us. This message is a warning about danger." There are plans to include detailed scientific information about the contents of the waste, in case people in the future will somehow be able to neutralize it. And in case these future people have no communication in common with us at all, some scientists want to make the landscape as inhospitable as possible, like embedding huge metal spikes in the ground, or building structures that will produce a mournful howling sound when the wind blows through them.



I love this project because it grapples with something that I think a lot of us trying to answer hypotheticals like the cataclysm question forget. We should be asking not just “what would we tell these imagined future people...” but also, how would we get them to believe us. How do we inspire them to care, about whatever it is we want to say to them?

We are trusting that they won't twist the information we give them in some kind of destructive way. And we are hoping they will trust us enough to give our words weight.

How might we piece together something that inspires, as well as informs? Something that could communicate some elements of science, of our shared humanity, of practical advice.

I gave you my sentence, and we've heard many different answers, including no answer at all, and I am very, very curious, what you all have been writing in yours. As we take a moment and move into song, I invite you, now, to take to the Zoom chat, if you wish, and share what you've managed to come up with. What are your answers to the Cataclysm Question?

Feynman asked the original version of his question mostly to prove that physics could be interesting. Could be poetic and deep and engaging on a human level. But he also asked it because in 1961, everyone was thinking about the end of the world. The bomb, the escalating cold war.

And today, I think, it's pretty easy to feel like we are living through, different, cataclysmic times. And for a lot of us, for me, there's a part of our imagination that is always a little occupied with preparing to lose a lot, a lot of the social structures that shape our world, the ecological balance and rhythms we rely on, none of it feels entirely stable. A kind of background apocalypse anxiety. And spending time in community asking questions like, “What would you save, what is something that would help people start over?” is actually a kind of hopeful and constructive way to engage with that imagination.

I'd like to share some of the sentences we created here today. What we would pass on, if all else was lost. Please write your sentences in the chat ...

Beautiful! We all began with the same question, and you have generated so many, diverse, interesting answers to that question! And in those answers, something deeper is revealed.

Choosing to answer with all our various “cataclysm sentences” reveals that we feel we really do have something of value to offer the world. Reveals that we feel we owe something to those who come after us, that we would want to ease their way, alleviate their suffering if possible. And reveals that each of us has our own idea of what the likeliest causes of that suffering will be. We want to warn about nuclear waste, or about tsunamis, or about the parts of human nature we think will trip them up. We want them

to trust us, know us, or at least be curious enough about our existence to listen to what we have to say.

And here's the good news. None of that, none of that, actually requires any cataclysm at all. We don't have to wait for the cataclysm. There is value *today* in finding the most vital messages we want to world to here. Value in figuring out how we might convince listeners to care about what we have to say, be inspired to trust us.

Feynman gave us a helpful thought experiment, a step stool to help us reach those truths we most cherish and most want to share with future generations, challenging us to put them into words. But then when we take the step stool away, the words are still there. And the truths are still there.

We don't have to wait for a cataclysm. It is in our power right now, in this world, this life, to try to build on these foundations. Isn't that what we're trying to do? In church and beyond. Figure out the REAL real, the core, and hand that off to whoever shows up next?

We do not know what the future holds, and we do not need to know. May we strive, right now, to live lives that embody these truths. May we continue to cast our questions into the deep and gather up all the millions of answers that come back.

May we listen to those who came before and live in such a way that will be helpful to those who come after.

May we leave our gentle handprints upon the world, and may they survive whatever cataclysms may come.

Let us take a few deep breaths in silent reflection