

# MESSENGERS FROM THE SOURCE

Rev. Jaco B. ten Hove, co-minister

Cedars Unitarian Universalist Church, Bainbridge Island & Greater Kitsap County, WA — May 10, 2015

The earth has come about through an “internal guidance system.” Now we know how that system has been operating, and we have the power to turn it off “automatic” and put it on “manual.” That’s what’s happening.

—Miriam MacGillis, *The Fate of the Earth*, 1986

We’re awake now, and the question is how do we stay awake to the living world? How do we make the act of asking nature’s advice a normal part of everyday inventing?

—Janine Benyus, Biomimicry Institute

**BIO-MIMICRY:** from the Greek: *bios*, life, and *mimesis*, imitation  
(Nature as model, measure and mentor)

## Call to Worship

Rev. Jaco ten Hove

...Today’s theme was chosen by the winners of our most recent church auction item, Bill and Karen Scarvie, who gave me the names of two significant women to lift up, both of whom, it turns out, were born in New Jersey, my home state; and each of whom has contributed greatly to our better understanding of the cosmic and earthy context in which we live.

I knew of and had already been influenced by Dominican Sister Miriam MacGillis, but Biologist Janine Benyus was new to me (and she now lives in Montana). I thank the Scarvies for this chance to delve deeper into both their fields, profound and vocal Messengers from the Source that they are, as you shall hear later. I also included Kentucky poet Wendell Berry, another voice from and for the Source, who fits in well with this theme and has been a source of inspiration for both MacGillis and Benyus...

## Flaming Chalice Dedication

Bill Scarvie

Early in our relationship, Karen subjected me to a three-part qualifying test:

First, upon noticing my interest in the book *Finite and Infinite Games* by James Carse, which I had taken from her bookshelf, she asked “Have you read it?” “Yes,” I replied. “Did you understand it?” “No.” She pumped her fist: “Yes!”

Later, she admitted to loving one and only one TV series: *Star Trek*. When I admitted my love for Captain Kirk and the crew of the Starship Enterprise, she pumped her fist again: “Yes!”

Still later, she asked me to listen to “The Fate of the Earth,” a recorded lecture by a Dominican nun named Miriam Therese MacGillis. Hearing this lecture, she said, brought a lifetime of learning into sharp focus. It brought her head knowledge and her heart’s yearning together. It became her sacred text. By that time, I would willingly do anything Karen wanted. She started the tape and we got comfortable on the couch.

Everything went smoothly for about 22 minutes, then I heard Miriam make what I considered a fatal mistake. She was describing what was going on early in the evolution of the

universe; that is, the fusion of hydrogen atoms into helium and helium atoms into carbon.

Wait, what? “Turn it off! Sorry, but her science is way off! Hydrogen into helium is okay, but helium directly to carbon? Impossible! I took chemistry in college, so I know about the periodic table. Helium is #2 and carbon is #6. What about 3, 4, and 5? What about lithium, beryllium, and boron? You can’t just jump them like checkers!”

Just like that, Miriam’s credibility with me was shot. Karen was aghast at my arrogant dismissal of her sacred text. Well, two out of three isn’t bad. I wasn’t disqualified, but it remained a sore—but not fatal—subject for a few years.

In 2006, Karen encouraged me to attend an intensive course in the “New Cosmology” that Miriam describes in “The Fate of the Earth.” For sixteen days I lived and studied at Genesis Farm, Miriam’s Earth literacy learning center in western New Jersey. I learned from Dr. Larry Edwards, a real live cosmologist, that I wasn’t so smart after all. I didn’t know what I didn’t know when I rejected Miriam’s presentation.

I learned from Miriam how to live fully in the sacred story of the origin and evolution of the Universe. And I came to revere Miriam’s mentor, Fr. Thomas Berry, who penned these words: “The Universe is a communion of subjects, not a collection of objects.”

And so today, I dedicate the lighting of the flaming chalice, the symbol of our faith, to the communion of subjects of which we are a part.

<b>Special Music</b>	<i>Holy Now</i> (by Peter Mayer)	<i>Jaco ten Hove, guitarist</i>
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When I was a boy, each week / On Sunday, we would go to church  
And pay attention to the priest / He would read the holy word  
And consecrate the holy bread / And everyone would kneel and bow  
Today the only difference is / Everything is holy now  
    When I was in Sunday school / We would learn about the time  
    Moses split the sea in two / Jesus made the water wine  
    And I remember feeling sad / That miracles don’t happen still  
    But now I can’t keep track / ‘Cause everything’s a miracle  
    Everything, everything, Everything’s a miracle  
Wine from water is not so small / But an even better magic trick  
Is that anything is here at all / So the challenging thing becomes  
Not to look for miracles / But finding where there isn’t one  
    When holy water was rare at best / It barely wet my fingertips  
    But now I have to hold my breath / Like I’m swimming in a sea of it  
    It used to be a world half there / Heaven’s second rate hand-me-down  
    But I walk it with a reverent air / ‘Cause everything is holy now  
    Everything, everything, Everything is holy now  
Read a questioning child’s face / And say it’s not a testament  
That’d be very hard to say / See another new morning come  
And say it’s not a sacrament / I tell you that it can’t be done  
    This morning, outside I stood / And saw a little red-winged bird  
    Shining like a burning bush / Singing like a scripture verse  
    It made me want to bow my head / I remember when church let out  
    How things have changed since then / Everything is holy now

When despair for the world grows in me / and I wake in the night at the least sound  
in fear of what my life and my children's lives may be,  
I go and lie down where the wood drake /  
rests in his beauty on the water, and the great heron feeds.  
I come into the peace of wild things / who do not tax their lives with forethought of grief.  
I come into the presence of still water. / And I feel above me the day-blind stars  
waiting with their light. For a time/ I rest in the grace of the world, and am free.

**Reading**From *Biomimicry: Innovation Inspired by Nature*

by Janine Benyus, 1997

When I bought property (in Montana), everyone told me that the pond (there) was a legendary nursery for water-fowl... (But) two years ago, the once sparkling water was eclipsed by a solid sheet of duckweed, a tiny floating plant that forms colonies and manages to shade out everything below it...

It seems that duckweed in profusion is too much of a good thing, and birds that would normally relish it wouldn't even land on it... I tried to remedy things by screening off the duckweed with a series of handmade contraptions, but, like the Sorcerer's apprentice, I managed only to create more duckweed. The county extension agents recommended that I treat with chemicals, but ...when I asked (them) for a more natural way to rejuvenate the pond, they were stumped.

Finally, after one heaping wheelbarrow too many, I simply stopped. I stopped trying to engineer schemes in my own mind and I just sat down on the banks. I indulged in a fantasy of how I would like the pond to be: clear, loud with the squabbles of nesting birds, a healthy balance of vegetation and open water.

It was then that I *became* a biomimic instead of just writing about them. I realized that it wasn't a fantasy I was referencing, but an actual place, a (nearby) pond that I had once biked to. I peeled off my swamp boots and got on my bike.

I spent the afternoon on the lush banks of that (well) balanced pond, trying to absorb its secrets. I noticed the way grasses and willows crowded at the edges, and, when I dipped my hand in, I found it sharply colder than my pond. My final clue came when a cottonwood leaf cruised lazily into view—*and out again*. Current!

By then it was coming clear to me. My pond must have originally been spring-fed, but lately the source of fresh water, the maker of current and cold, had been suffocated under layers of topsoil roiling in from the fields. The topsoil was eroding because years of overgrazing had weakened the thick sod. One thing led to another, and the pond silted in, becoming a tepid bowl—perfect for duckweed but not, ironically, for ducks. If I wanted to keep the pond open to breeders and have duckweed only in the cat-tailed edges again, I would have to find that forgotten spring, free it, and then stop the source of silting.

I went home and gave my neighbors one more thing to talk about as I slowly paddled through the green froth, feeling for the coldest spot. I started to dredge there, and sure enough, great shovelfuls of good topsoil came up. What came up next felt like a miracle.

Released from its burden, a cleansing swell of cold Montana snowmelt geysered to the surface. The once-murky waters rose to fill their banks, and the duckweed I had labored to screen away for two years flowed casually over the dam in sheets. By afternoon, my pond was sparkling, and the wood ducks in the river below me were feasting.

(This) was a classic example of echoing nature, and if I were to offer some sort of path for the larger culture to take toward a bio-mimetic future, it would follow this pattern. Like all echoing, mine was a dialogue with the land, but instead of me speaking and a canyon amphitheater responding, it was the other way around. I listened while the land spoke, and then I tried to mimic what I had heard.

The preparation for this echoing was a quieting on my part, a silencing of my own cleverness long enough to turn to nature for advice. My afternoon vigil at the (healthy) pond was the listening stage, the absorbing of secrets in a respectful way. My uncovering of the forgotten spring was the echoing, the biomimicking itself. The follow-through to all this was the stewarding required of me, an ongoing thank you for the wisdom I had acquired. It was up to me to revegetate my denuded lands with native plants that would hold the soil so that flood events would not continue to suffocate the spring.

In my adventure with the pond, I realized that biomimicry is just like opening a forgotten spring, rushing new hope to problems that have seemed intractable..., studying nature's wellsprings of good ideas, and then protecting them so that they can continue to flow.

**Sermon**

*Messengers from the Source*

*Rev. Jaco ten Hove*

*Silencing my own cleverness long enough to turn to nature for advice.*

*I come into the peace of wild things...rest in the grace of the world.*

*Everything is holy now... Not to look for miracles / But finding where there isn't one.*

These are expressions of a new humility, which we are being called to, in ways gentle and rough, by the external Source of our life and being, the Earth. Or maybe it's not such a *new* humility, really; it invites a posture that's been taught, in modest modes, down through the ages, and practiced by many a tempered soul. But only recently has it emerged as an imperative, urging us to scale it up.

Collective humility may now be our civilization's most demanding psychic challenge. I think without some greater degree of that humility, we will be much less likely to succeed at all the practical challenges that are arising apace. Over thirty years ago Miriam MacGillis began Genesis Farm, the place in N.J. that Bill spoke of earlier, and she began a campaign of explaining to audiences, among other things, that:

“The earth has come about through an ‘internal guidance system.’ Now we know how that system has been operating, and we have the power to turn it off ‘automatic’ and put it on ‘manual.’ That’s what’s happening.”

When I first heard that image, it shook my world and has shaped my path forward ever since. Suddenly I realized that yes, in our human arrogance, we're taking the Earth out of its natural “automatic” mode and thinking we know better how to guide its life systems, with our chemicals and plastics and atom-splitting power. Miriam MacGillis goes on:

“There are dynamics happening at the most profound level which are altering the capacity of the earth to do what the universe has mandated it to do. That is to continue to live and heal and nourish and regenerate itself. (Humans with our vaunted) consciousness (are) violating this mandate. Not because we're evil, but because we think we have a full deck of cards, and

we really don't. We're dealing like mad, laughing all thru the game, hoping that another card will show up to get us out of the mess we've created. But we don't have a full deck.

Because our consciousness is so young and primitive, we don't understand the magnitude of our behavior. We don't have a context adequate for what we know and what we can do."

But we believe we're clever enough to put the Earth on "manual" and figure it out as we go. Instead, I heard from her a call for a new, more grounded humility that doesn't deny our innate and growing creativity, but can balance that inventiveness with an awareness of our place in the scheme of things. That meant a new story must be told of who we are, where we've come from and what our role is in this universe. Those are the elements of theology.

I was in seminary at that time, in a rather formative mode, and Sister Miriam's portrayal of the greater context for a New Story of the Universe and its implications introduced me to a number of extremely influential ideas that have indeed informed my journey and work ever since. Cassette tape copies of this Dominican nun's talk to a Santa Rose, CA, audience in May of 1986, subsequently circulated widely and hearing it has been described as "a watershed moment" in the lives of many people, myself and Karen Scarvie included.

The original talk is also now available online, and I listened to it again this week, which thoroughly reminded me how significant it was to my own journey. I like to think that I have even been able to craft a degree of humility along the way.

As Bill noted, Sister Miriam credits much of her material to the inspirations of Thomas Berry, himself a Catholic priest of the Passionist order—and not to be confused with his fellow southerner, the poet *Wendell* Berry, whom I draw from today.

But Father *Thomas* Berry is generally revered in deep ecology circles as an astutely progressive cultural historian and eco-theologian, who called himself a "geologist." Before he died in 2009 at age 94, he authored seminal books such as "The Dream of the Earth" and "The Universe Story." Among others he was in league with was Miriam MacGillis, and she became a prominent voice, a true Messenger from the Source.

When a Catholic nun and priest so compellingly throw out the Story of Genesis and propose a new, more universal story to guide our path forward, I'm listening.

From Sister Miriam's talk I first really learned that regardless of our size or weight, we are each 70% salt water—like the salt water that flows in the oceans. And the other 30% of each body reflects the minerals that form the crust of the earth. So we *are* the earth, literally, and are certainly *from* it, which suggests to me rather clearly that it is *back* to the earth we go after our time is up. It is our Source externally and we are part of its Source internally.

Sister Miriam also does a good job describing the planetary dangers we currently face; after all, the title of her talk is "The Fate of the Earth." It is a compelling portrayal. But as fierce as she is about all that, she also provides hope and offers what she calls "an extraordinary short poem by *Wendell* Berry that has touched this for me personally:

In the dark of the moon, / In the flying snow, in the dead of winter  
War spreading, families dying, the world in danger / I walk the rocky hillside, sowing clover.

“That kind of hope, that sense of the significance of *doing things for life*, is what hope and meaning is about,” she says. And she continues her ministry of Earth literacy and more on Genesis Farm over there in rural New Jersey.

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The idea of “doing things for life” provides a good segue to our other Messenger from the Source, Janine Benyus, author of the clogged pond story Bill shared earlier, and a prominent founder of Bio-mimicry as a field of study and a tool for practical development. She wrote the basic primer on the subject in 1997, called “BIOMIMICRY: Innovation Inspired by Nature,” and it is littered with more references to Wendell Berry, which is why I added him to the line-up of Messengers today, as a poetic link to these other two formative voices.

While I had heard about the idea of using natural bio-diversity as a model for human community, I can’t believe I’ve managed to avoid this rich field of Biomimicry for the past umpteen years. It is so coherent with our Unitarian Universalist values, which very much encourage “doing things for life.”

Biomimicry asks, “Is there a best practice of how to be an Earthling—a carbon-based life-form on this planet—that enhances rather than degrades?” Biomimicry is, Benyus declares, “The conscious emulation of life’s genius.” In this she echoes our Unitarian forebear Ralph Waldo Emerson, who noticed a similar phenomenon a century and a half earlier as he wrote: “When nature has work to be done, she creates a genius to do it” [*The Method of Nature*, 1841].

It’s remarkably simple concept, really. In the words of Janine Benyus:

“The biomimics are discovering what works in the natural world, and more important: what lasts. After 3.8 billion years of research and development, failures are fossils—and what surrounds us is the secret to survival. The more our (human) world looks and functions like this natural world, the more likely we are to be accepted on this home that is ours, but not ours alone” [*Biomimicry*, pg. 3].

Duh! Another call for humility of purpose and behavior. But Benyus rightfully points out that “Biomimicry isn’t an answer; it’s a way to find answers”—which is another way this is quintessential UU material, and reflected well in the theme of YES! Magazine’s Winter 2013 issue: “What Would Nature Do?”

Unitarian Universalism is all about the *process* of seeking what is authentic and proper for each individual within the demanding framework of community, writ small and large, as in congregational life and all the way up to the community of the Universe. Can we learn to ask and explore more directly, “What *would* Nature do?”?

Biomimicry isn’t an answer itself; it’s a process by which one can find answers that will work—because they have been proven to work by the natural world. “There is more to discover than to

invent,” says Benyus [*Biomimicry*, pg. 4]. Yet in our industrialist fervor and modernist arrogance, we have generally dismissed such genius and become infatuated with our own left brains.

Now, there’s nothing wrong with our left brains, per se, of course, and we will need them at every turn in the formidable future. But a rebalancing is in order, and that may well be the task of our lifetimes, my friends. As Father Thomas Berry reminded us: “The Universe is a communion of subjects, not a collection of objects.”

And as Karen Scarvie resonated with Miriam MacGillis’s talk because “It brought her head knowledge and her heart’s yearning together,” so must we temper our arrogance with a well-informed and grounded humility. To my mind, nothing embodies that balance better than the field of Biomimicry, with great thanks to Janine Benyus, who began her career with a degree in the applied science of forestry. She reflects back on how the teaching of forestry began to feel untethered to her:

“Cooperative relationships...and dense interconnectedness were not something we needed to know for the exam. In reductionist fashion, we studied each piece of the forest separately, rarely considering that a spruce-fir forest might add up to something more than the sum of its parts, or that wisdom might reside in the whole. There were no labs in listening to the land or in emulating the ways in which natural communities grew and prospered. We practiced a human-centered approach to management, assuming that nature’s way...had nothing of value to teach us” [*Biomimicry*, pg. 3].

So her life’s work has been to spearhead a growing revolution in orientation, one that sponsors very encouraging developments that might look like inventions, and are to some degree, but mostly they take advantage of what nature has already figured out.

So let’s shift now from the theoretical to the practical, and walk through a short litany of examples that reflect this new approach of Biomimicry, some of which are not at all new. Notice in this baker’s dozen how each idea originated in a deeper understanding of lessons from a natural element, mostly critters.

1. Birds and bats have influenced aircraft wing design and flight techniques for decades.
2. After a hunting trip in the Alps in 1941, Swiss engineer George de Mestral’s dog was covered in burdock burrs. He put one under his microscope to find a simple design of hooks that very effectively attached to fur and socks. So then he invented [Velcro](#), probably the best-known and most commercially successful instance of biomimicry.
3. The toe pads of tree frogs have inspired treads on vehicle tires.
4. Polar bear fur has inspired thermal collectors and clothing.
5. A high-rise building in Harare, Zimbabwe, called Eastgate Centre, was designed to mimic the way that tower-building termites construct their mounds to maintain a constant temperature by opening and closing vents throughout the mound. The innovative building uses similar design and requires less than 10% of the energy used in similar sized conventional buildings.
6. Self-sharpening teeth found on many animals are copied to make better cutting tools.
7. The light refracting properties of butterfly wings are harnessed to provide improved digital displays [Qualcomm].

8. Bird-watching engineer Eiji Nakatsu, at Japanese rail company JR-West took inspiration from the kingfisher—not just to solve a severe noise problem of the Shinkansen bullet train, but also to reduce its power need and enable faster speeds—by redesigning the train’s nose into a 50-foot-long steel kingfisher beak.
9. Part of the swimming prowess of 40-ton Humpback whales comes from a row of warty ridges (tubercles) on the front edge of their fins. Biology professor Frank Fish at West Chester University in Pennsylvania discovered that by adding rows of similar bumps to wind turbine blades he could reduce drag and noise, increase speed, and boost the power harnessed by 20%.
10. Copying the arrangement of leaves on a plant makes for better solar collectors.
11. Nanotechnology surfaces, swimsuits and boat hulls mimic the properties of super-efficient sharkskin.
12. A team of University of Massachusetts researchers has developed an adhesive (Geckskin) so strong that a small strip of it can hold up to 700 pounds, based on the astounding ability of Gecko lizards to scale smooth walls and scamper upside-down across ceilings, which they do by changing the direction of millions of microscopic hairs on the bottom of their toes.
13. An engineer at Caltech, John Dabiri, studied the wakes produced by schools of swimming fish and applied this awareness to a wind farm so that the placement of turbines could take advantage of the air flow among them. The blades thus get greater energy production from being in tune with the wind’s behavior, the way that schools of fish utilize the water’s behavior for forward movement.

And the list goes on.

Benyus tells the story of attending a Manufacturing Materials Research conference, at which many engineers and scientists ran around with thick binders describing the latest whiz bang chemical combinations for accomplishing one miracle or another, almost all of which involved either high heat or high pressure, or both, and thus required great outlays of energy to produce. The mantra for these materials was “heat, beat and treat.”

She found the one, humble corner of the conference promoting Biomimicry, which demonstrated nature’s way of manufacturing things “under life-friendly conditions, such as in water, at room temperature, without harsh chemicals or high pressures” [*Biomimicry*, pg. 97]. And the success rate of such natural methods was far beyond what could be done with exorbitant expenditures of energy and money. For instance:

“The inner shell of a sea creature called an abalone is twice as tough as our high-tech ceramics. Spider silk, ounce for ounce, is five times stronger than steel. Mussel adhesive works underwater and sticks to anything, even without a primer. Rhino horn manages to repair itself, though it contains no living cells. Bone, wood, skin, tusks, antlers and heart muscle—miracle materials all— are made to live out their useful life and then to fade back, to be reabsorbed by another kind of life through the grand cycle of death and removal” [*Biomimicry*, pg. 97].

No waste, no pollution, low energy demand, quality results—better results through Biomimicry. As mentioned in her reflections following the clogged pond experience, Benyus promotes a four-stage process for those who would be biomimics: Quieting (as we immerse ourselves in nature); Listening

(a kind of “interviewing” of flora and fauna around us); Echoing (collaboration with Nature); and Stewarding (to preserve diversity) [*Biomimicry*, pg. 287-295].

That sequence I find very reassuring and not at all intimidating or complicated: Quieting, Listening, Echoing and Stewarding. Yes, I think I can manage more of that, as I endeavor to be more in tune with the natural world all around me. May such guides urge our kind forward toward a future in which we scale up the attitudes and possibilities for a deeper, more effective sharing of our planetary home in a widespread spirit of creative humility. It can’t happen soon enough.

There is, of course, much more about both Biomimicry and The New Story of the Universe than I have been able to portray here, so I invite your further investigation into these realms, if you haven’t already explored them. And keep your ears out for more opportunities to promote what are really counter-culture efforts by pioneers such as Janine Benyus and Miriam MacGillis, to help the Great Turning unfold sooner than later.

Their messages from the Source, about the sources of life that animate all of us, are music to my ears. May they become less counter-culture and more mainstream. And let us flow from here with another piece by Wendell Berry:

**Responsive Reading #646**

*The Larger Circle*

by Wendell Berry

We clasp the hands of those that go before us,  
*And the hands of those who come after us.*  
We enter the little circle of each other’s arms  
*And the larger circle of lovers, whose hands are joined in a dance,*  
And the larger circle of all creatures,  
*Passing in and out of life, who move also in a dance,*  
To a music so subtle and vast that no ear hears it *Except in fragments.*

**Hymn #175**

*We Celebrate the Web of Life*

by Alicia S. Carpenter

We celebrate the web of life, its magnitude we sing;  
for we can see divinity in every living thing.  
A fragment of the perfect whole in cactus and in quail,  
as much in tiny barnacle as in the great blue whale.  
Of ancient dreams we are the sum; our bones link stone to star,  
and bind our future worlds to come with worlds that were and are.  
Respect the water, land, and air which gave all creatures birth;  
protect the lives of all that share the glory of the earth.

**Closing Words**

We revel in the circles of those among us on today’s journey, as we share the glory of the earth, balancing both head knowledge and heart’s yearning. Let the rays of the sun mimic spider strands, weaving a web of life, its magnitude we sing amid music both subtle and vast.

We would go forth on this lovely Mothers Day—doing things for life: Quieting, Listening, Echoing and Stewarding. Go in Peace, my friends, BE peace, Return in *holy* love.