THE UNIVERSE

Background and Context

The theologian, Thomas Berry, has written: "It's all a question of story. We are in trouble just now because we do not have a good story. We are in between stories. The old story, the account of how the world came to be and how we fit into it, is no longer effective. Yet we have not learned the new story….. We need a story that will educate us, a story that will heal, guide, and discipline us." Berry goes on to point out that there is a "New Story"—it already exists but we have yet to learn it. This New Story, or narrative, has the power bring purpose and meaning to life; it has to the power to engender a sense of belonging to something far greater than an economy or political party.

The New Story comes forth from both science **AND** religion and because of this is an invitation to end the dualistic pitting of science ***against*** religion. Said differently, it is an invitation to live in a reality of 'both-and' rather than 'either-or.'

Cosmology—the living story of how everything began and how things came to be as they are today, and where things are headed in the future—is a meeting ground for science and religion. Whether we acknowledge it or not, we live within a cosmological construct—our cosmology is our 'reality'—the ground from which all our beliefs, traditions and institutions have grown.

Check In:

What comes to mind for you when you hear the word, "story"?

Activity One: Silver Fox & Coyote: A Creation Story

It is time to explore the power of story. Imagine that the time is 5000 BCE and we belong to a clan of woodland Indians who have gathered on a Sunday morning to witness an enactment of our Creation Story—the story of how things have come to be. Three volunteers may assume the roles of Narrator, Silver Fox, and Coyote in this Miwok Creation Story (as detailed by Micahel J. Cauto and Joseph Bruhak).

Narration:

Narrator: Back then, Silver Fox was the only one living. There was no Earth, only [fog]. Silver Fox walked along through the fog, feeling lonely. So she began to sing.

Silver Fox enters the room singing:

I want to meet someone.
I want to meet someone.
I want to meet someone.
I want to meet someone.

Narrator: So she sang and then she met Coyote.

Silver Fox: I thought I was going to meet someone. Where are you traveling?

Coyote: Where are you traveling? Why are you traveling like this?

Silver Fox: I am traveling because I am lonely.

Coyote: I am also wandering around.

Silver Fox: Then it is better for two people to travel together.

Narrator: Then, as they traveled along….

Silver Fox: This is what I think. Let's make the world.

Coyote: How will we do that?

Silver Fox: We will sing the world [into being].

Narrator: So the two of them began to sing and to dance. They danced around in a circle and Silver Fox thought of a clump of sod. Let it come, Silver Fox thought, and then that clump of sod was there in Silver Fox's hands. Silver Fox threw it down into the fog and they kept on singing and dancing.

Silver Fox: Look down, do you see something there below us?

Coyote: I see something but it is very small.

Silver Fox: Then let us close our eyes and keep dancing and singing.

Narrator: And that was what they did. They danced and sang and beneath them Earth took shape.

Silver Fox: Look down now.

Narrator: Coyote looked down.

Coyote: I see it. It is very big now. It is big enough.

Narrator: Then the two of them jumped down onto Earth. They danced and sang and stretched it out even more. They made everything on Earth, the valleys and the mountains and the rivers and the lakes, the pines and the cedars and the birds and the animal people. That was what they did way back then.

Discussion:

You have just heard the story of Silver Fox and Coyote. To call this a story is not to disparage it as a mere myth of creation. Indeed, even for us today, this story offers important

teachings. For example, consider what it would be like for us if this Silver Fox and Coyote story, literally, were our Creation Story—i.e., if we believed this story to be true. What attitudes and values would you have regarding Earth? Wild creatures? The creative arts? The future? Let this question marinate in your imagination. Finally: Do you have difficulty accepting this story? And if you do, would a Miwok from 5000 BPE have the same difficulty accepting yours?

Activity Two: What is Your Story? What are Ours?

Many of us are familiar with Roman and Greek mythology, with the stories of Jupiter or Jove and Zeus, Juno and Hera, Neptune and Poseidon. We may be able to go further back, to the Titans, further back to Eros and Erebus, or furthest back to Chaos. For the Greeks, that was where creation created. You may even know a little Norse mythology, of how that tale so innocuously begins with fire and ice, and then gets weirder and weirder from there—left foot breeding with right foot, a giant forming out of sweat, a cow licking salt from a stone until a man emerges. In every act of human telling there is a tale, and what one speaks is always story.

Instructions:

1. ***Partner up, and share your story.*** You may have several moments to gather it in before you. What *is* your story? You do not have to speak this to the class, you do not even have to fully grasp this within yourself, but take a few moments to answer, nonetheless. If you were to tell yourself the story of existence, what is this story that you would tell? If you had to teach your child the story of creation, how would you begin? And if you were to tell it, now, to this person before you, what would you say?

2. ***Reformulate the group and see how many tales we have to tell.***

What can you say about the fluidity of stories over time, yet the bedrock necessity and role of a story in the present?

- What are all the stories here, in this room, right now? How many distinct tales do we have? Now, imagine how many there are in the entire U.S., the world, our human history and pre-history.

- Which one of all these stories is the true one? Is the only truth that, "none of them are true" .... that we live in mystery... and that to live in grace is to live the questions?

Activity Three: "We are Made of Stardust"

The "New Story," as some call it, has the power to bring purpose and meaning to our lives; it is a story that is scientifically defensible, a story that is spiritually uplifting; in short, a story that is worthy of our allegiance. It is a story developed out of science, yet it is ultimately a story founded upon mystery. The two are not exclusive.

You are the universe. This may seem a bold claim, and one to easily ignore, brush off, or not even honestly hear. So, listen again: You are the universe. You are made of stardust. Connie Barlow and Michael Down (www.thegreatstory.org) have a simple activity to show just how it is that we—you—"are" the Universe.

This activity can be led by one person or by six volunteers. A few simple things must be gathered before beginning: a bottle of water and a bowl.

Narration:

Leader 1—Light: Turn off the lights and clap your hands loudly for several seconds. Once silence has settled in, turn on the lights and read the following words:

In the beginning there was mystery and darkness. Out of this mystery and darkness, the universe was born in a Great Radiance of brilliant light and boundless energy.

Those who now study the heavens with sophisticated optical devices and light/energy detectors have traced the origins of the universe back 13.5 billion years to a defining creation event popularly referred to as the "Big Bang" or the "Great Radiance." As you may have heard in a different context, you hear it here, again: "First, there was light."

Leader 2—Hydrogen/Water: After Leader 1 has returned to her/his seat, rise and silently pour water into a bowl, standing so that everyone can see the trickle of water, and pouring from a height that will enhance the sound of the falling water. Then say:

Hydrogen is the elder of all. Each atom of hydrogen that swirls in water and within us is 13 billion years old. [pause]. Hear this: The hydrogen in this water, in your body, in my body, IS – is not LIKE, but IS – the oldest "thing" in the universe.

In the first seconds of creation, the first atoms were formed along with forces—such as gravity and electromagnetism—that gave the universe its remarkable potential to self organize. Following the light came the creation of hydrogen, helium, and trace amounts of lithium, the three most "elemental" elements. Indeed, all the hydrogen ever created in the universe was created in the first moments of creation. This ancient hydrogen is what joins with oxygen to form the gallons of water that exist in each of our bodies, which is to say that we are, in a sense, very, very ancient.

Leader 3—Air/Breath: Come forward, pause, breathe, and then invite everyone to take three deep, measured breaths. After the final breath, say:

ALL chemical elements heavier than lithium—which are all the elements but three—were forged by nuclear fusion inside stars (or via stars) that flared forth and died long before our Sun was born. After several billion years of nuclear fusion, a star begins to run out of its proton fuel source, and thus starts to cool and contract. This gravitational contraction, however, heats the sun's shell as it collapses, igniting a fire of nuclear fusion of unprecedented power. This new fusion swells the star's size to giant proportions. This star is now a Red Giant, and its renewed nuclear fusion creates elements such as Carbon, Nitrogen, and Oxygen.

In that last breath of ours, we each inhaled recycled stardust; we breathed the cooled core of these Red Giants, ancestors who lived and died before our Sun was born. [pause] It is that NITROGEN which now colors the sky blue. It is that OXYGEN which now burns in our cells and powers our awareness. And it is that CARBON which we, in turn, offer as a gift to the plant realm, in the carbon dioxide that we exhale. [pause]

Leader 4—Calcium/Bones: Come forward, pause, breathe, and then say:

Stars of extreme mass—those that are at least nine times heavier than our sun—are able to produce shell after shell of fusion reactions that create even heavier elements, up to and including Iron, Copper, and Nickel. In the bellies of these stars there formed all the Silicon atoms that now bind the rocks of Earth. These stars also brought forth all the Calcium atoms that now bind the bones of our bodies. [pause]

I invite you to close our eyes and sit up tall [pause], resting on your bones [pause], feet fully on the floor. [pause till shuffling ends]. Feel your bones. Know that you ARE made of stardust— recycled stardust!—because you are made of elements, and each element, each microscopic elemental fiber of your body, came from nowhere else but the furnace of a star.

Leader 5: Precious Metals: Come forward, pause, breathe, and say:

The heavy stars which fuse iron die because of it. Iron fusion retains its energy, and thus a star develops an inert iron core. These iron-fusing stars are already heavy, but if a particular star is particularly heavy, its iron core will collapse in upon itself with such a force, its shockwaves will explode the rest of the star into a supernova. The ensuing temperatures are so extreme—hotter than any stellar core—that it can create elements up to the atomic mass of 254. Remember, Hydrogen has the atomic mass of ONE. Carbon's atomic mass is TWELVE.

What metals are you wearing: any silver, gold, platinum? A metal filling in a tooth? "All the gold-leaf in an ancient Koran, all the silver in a Hanukkah menorah, all the copper in a bronze Buddha, all the tin in Christmas tinsel …." [Pause] Remember that these very atoms of metal were created in the awesome explosion of a supernova that signaled the death of an ancient star more massive than we can fathom.

Leader 6—Conclusion: Come forward, pause, breathe, and begin reading:

We humans have always been drawn to the stars. We have always yearned for relationship. And so, in 1943, the French author Antoine de St. Exupery had his Little Prince speak these words: "In one of the stars I shall be living. In one of them I shall be laughing. And so it will be as if all the stars were laughing, when you look at the sky at night." [pause]

In 1989, Native American poet Joy Harjo wrote of another kind of relationship with the stars: "I can hear the sizzle of a newborn star, and know that anything of meaning, of fierce magic, is emerging here. I am witness to flexible eternity, the evolving past. And I know I shall live forever, as dust or breath in the face of stars, in the shifting pattern of winds."

A quarter century ago, the astronomer Carl Sagan concluded his television series "Cosmos" in this way: "We are the local embodiment of a Cosmos grown to self-awareness. We have begun to contemplate our origins. We are star-stuff pondering the stars!"

Discussion:

- Even though this "New Story of Creation" comes out of scientific exploration, it is still, in a very real sense, a story. Why? Because science is just one way of knowing—a way that is

limited to measurement using instruments. Thus, this scientific story is limited by the nature of our instruments, and there may well be truths that scientific instruments cannot measure.

- This exercise was something of a ritual. In fact, it was a ritual. What do you have to say to that? What are the other rituals in your life, spiritual or otherwise? If this was a ritual that had no power for you, why? If it had power … why? What causes a ritual to have power, or to lose it? And, where, really, do rituals come from?

OUT-OF-CLASS FIELD STUDY: THE UNIVERSE

Take Hydrogen and Wait 13 Billions Years

Cosmologist, Brian Swimme, offers a one-sentence version of the New Story of creation: "Take hydrogen and wait for 13 billion years and what you get is roses, gazelles and Mozart symphonies." Is that not remarkable? Is it not an astounding miracle in so far as it is impossible to truly fathom how this could be? And yet this is the story that has come forth in the 21st Century from humankind's careful observations of the heavens. Take hydrogen and wait 13 billion years….. and what you get is roses, gazelles, … … … Ask yourself, what else do you get? What is here? Tell me, what do you see?

This is an exercise in the observation and exploration of the universe. It is rather simple: grab a notebook or your journal, and make a list of what you discover. Nothing is too small, big, weird, or normal for this list. Work from your bed at night. Work from the coffee shop. Work from the sidewalk. Work from the sixth tee of your local golf course. Head out to woods and work from the hemlock grove or the rocky ledge or under the stars at night … The universe is everywhere, though perhaps you will see it better if you choose the right vantage.

Yet, do not hoe the beans for the compost heap; eat them. After you have gathered a feasting list of observations, meditate upon them—that is, "eat" what you have sown. Compose a response piece to this adventure. Where are the places that you went to watch, and why did you go there? What did you discover? Where was what you discovered more than what you "saw"? Finally, compose a list of questions of and for the universe. These questions are not for your teacher. These questions are for the universe. Ask at least one of these questions to the universe, and compose a response piece regarding that experience.

Here is an axiom to ponder: Garbage in, Garbage out; Heart in, Heart out; Wonder in, Wonder out.