Nature Talks Back

"It changes you, um, even if you don't want it to…it does."

Doug Hurley, astronaut. Feb. 2, 2023 In September, 2022, reports of the number of COVID-19 deaths ranged from 6 million – 20 million worldwide, but there was still no reprieve from other disasters.[1] Reports of natural disasters seemed vying to outdo each other with record-breaking severity and catastrophic damages. A common refrain from those subject to such disasters became: "It's apocalyptic!" Even before the pandemic began, we have surely encountered nature as a power that storms and ravages where it will, humbling mere human beings–who think we can wreak havoc on one another, the earth, and then … seek to control all of nature as well. At the beginning of the year—and beyond just the U.S., Kristopher Bedka, an atmospheric scientist at NASA Langley who specializes in studying extreme storms, reported on what Pope Francis has called "our common home."[2] Bedka commented on the underwater volcano, Hunga Tonga-Hunga Ha-apai's violent eruption and subsequent tsunami waves in the region of Oceania: "The intensity of this event far exceeds that of any storm cloud I have ever studied."[3] Not only did the volcanic eruption change the shape of the Pacific seafloor,[4] but it could also be seen from outer space, as the plume of the volcano burst 36 miles upwards.[5] The explosion was 500 times as powerful as the nuclear bomb dropped on Hiroshima, Japan, at the end of World War II.[6] Recent images of both Lake Mead, the largest reservoir in the United States, and Lake Powell made clear the seriousness of a mega-drought in America's West. These two reservoirs provide a significant portion of the water in the Colorado River system, which is a lifeline in states with desert-like climates for more than 25 million people in major urban, agricultural, and industrial areas.[7] The water level in the lake has been declining for years, but this year Lake Mead dropped to its "lowest elevation since the reservoir was first filled" when the Hoover Dam was created in July, 1937.[8] And the Hoover Dam's capacity for generating power in August, 2022, was "36% less than the dam usually produces."[9] Yet these were hardly new discoveries. Just a little over a year ago, Lake Mead was "at its lowest level since Franklin Delano Roosevelt was president."[10] For years before that, college students wrote papers about Lake Mead, questioning with alarm the depletion of its water supply and receding shoreline.

For most of this time, the nation chose to defer action, to push the inevitable down the road so that today, "the American West is facing its most severe drought in human history, and research suggests conditions are now drier than for at least 1,200 years."[11] Then, too, our scientific predictions are not always completely accurate. "Based on what scientists later realized was a flawed estimate of the river's flow…development has "outpaced the water available to support what's there."[12] Billions of dollars designated for infrastructure from the Inflation Reduction Act are now targeted "to improve western water and power infrastructure and address the challenges brought on by the drought."[13] The year 2022 also saw one of the worst heat waves in Western history. Searing temperatures in the hundreds were felt throughout western states, and fears voiced about whether the electric grids would hold up.[14] According to NASA, 2022 was the warmest year since record-keeping began.[15] Perhaps our habit of kicking difficult matters down the road makes evident the counter-value of decisions made to better withstand the test of time. This is something President Biden claims his legislation and vision of the future is based upon: "We're at an inflection point in the country… decisions now … [will] determine what we're going to look like the next ten years from now."[16] Bipartisan efforts, as well as stronger accountability, are needed to keep us focused on sustainable solutions more so than quick "fixes" that sound good—but only for the moment. Puerto Rico provides a second example. In September, 2022, Category 4 Hurricane Fiona hit the island territory with winds up to 130 mph. In some places, thirty inches of rain fell, washing out roads and homes. Over a million homes and businesses were without power and water.[17] Puerto Ricans have a reputation for resiliency, but this time they rejected that mindset in favor of wanting some stability. There had been five years to prepare for another storm since Hurricane Maria had hit, but Puerto Ricans said they did not think a hurricane with Fiona's strength would come so quickly after Maria. Fiona occurred five years to the day since Category 4 Hurricane Maria hit the island and former president Trump had insulted the people by throwing them some paper towels. Some felt they couldn't just "bounce back" again from Fiona.[18]

Biden pledged $60 million to strengthen flood walls and provide a new warning system "ensuring the island is better prepared for future storms."[19] During his visit to Puerto Rico, the president then reflected on the pattern of nature outperforming itself in order to amplify his message: "The climate crisis and more extreme weather are going to continue to hit this island and hit the United States overall."[20] He emphasized long term over short term fixes: "As we rebuild, we have to ensure that we build it to last."[20a] Even before the pandemic, seven of the ten costliest disasters from 1970-2019 had occurred in the United States, suggesting the president's foresight is appropriate.[21] In October, a near-category 5 Hurricane Ian slammed into the southwest side of Florida, decimating roads and bridges before proceeding up the eastern coast of the United States.[22] In certain parts of Fort Myers Beach and Sanibel, the devastation was described as "a bomb going off."[23] Ian was reported to be the "5th strongest storm in US history ever to make landfall, with ferocious wind gusts 150-180 mph and storm surges 10-18 feet high along the coastal communities."[24] Twelve to eighteen inches of rain fell. A week and a half later, with some 150 people dead, most by drowning, Ian was reported to be the 2nd deadliest hurricane in US history, surpassed only by Hurricane Katrina.[25] Weather officials tracked data in advance of Ian forming, and officials in Florida insisted they had given adequate warning to evacuate. Two and a half million people did evacuate, but officials acknowledged they could not force others to leave their homes. Relief efforts came in "from all over the country—and the world."[26] Line workers from 27 other states came to help restore power for the millions without it.[27] "In less than a week, 570,000 homes and businesses remained without power, a substantial recovery from the 2.6 million who were in the dark just days earlier."[28] In hard to access areas like Fort Myers and Sanibel, those without boats were stranded because the islands had been severed from the mainland. Relief agencies could not restore electricity and water except by boat, and still, "a lot of the residents don't want to leave."[29] Efforts by people who risked their lives to help victims in these hardest hit areas were described as "Herculean.[30] The mayor of Tampa expressed gratitude for FEMA's "very collaborative" recovery efforts with the state, including approval of flood insurance waivers.[31] Eight of every ten households in Florida had not been protected by flood insurance.[32] Reporters now predict an ongoing housing crisis, especially in areas where people lived in trailers destroyed by Ian.

The president pledged support of the federal government "every step of the way to help Florida," and Gov. Ron DeSantis praised FEMA along with local and state agencies, saying coordination among them had been exceptional during the storm's aftermath: "There's been less bureaucracy holding us back in this one than probably any I've ever seen."[33] Estimates to repair damage from Hurricane Ian ranged from $28-47 billion, the most costly disaster since 1992.[34] Early in October, ATT and the National Guard reconnected cell phone service for many of those stranded. The US Coast Guard had rescued 1600 people.[35] The National Guard rescued over two thousand people who had not evacuated.[36] Others were rescued by helicopter via the Saint James Aid Station. The Red Cross sounded urgent requests for blood donations to help the injured. In addition, volunteer organizations such as Dynamo.org stepped in to help when other organizations were overwhelmed. Gov. DeSantis commented, "There's more urban search-and-rescue teams in Florida now than in any one place in American history since September 11."[37] NBC anchor Lester Holt reported that in Ian's aftermath, local residents showed competence in accessing areas difficult to reach and risked their own safety to help those in need. Volunteers and first responders raced through flood waters pulling out people, helping cars stuck, and also saving cats and dogs. Holt commented on Florida being a state where people were responding with "hope and good will."[38] *New York Times* columnist David Brooks agreed with the assessment: "When you focus on human beings, it does take you a little out of politics."[39] Bryan Stern, US veteran and head of the search and rescue team Project Dynamo, called southwest Florida a "warzone."[40] But most agreed there were no Republicans or Democrats in this Florida warzone. With love and concern for their neighbors, first responders also showed us the best in humanity.[40a] With focus on our common humanity, the best of humanity is still possible. On November 10, 2022, Florida was again hit by Category 1 Hurricane Nicole, the first to occur in November in 40 years. Before being downgraded to a tropical storm, Volusia County saw 5 foot storm surges wash away beaches, beachfront homes collapse, and foundations of buildings and homes destroyed.[41]

"There were 20 separate billion-dollar weather and climate disasters in 2021, just two events shy of the record set in 2020."[42] Then in October, scientists thought earthquakes near Sitka, Alaska, might mean a volcano dormant for at least 800 years, Mount Edgecumbe, was waking up.[43] "In the Tlingit oral tradition, we find 'no written accounts of eruptions from Mount Edgecumbe,' but about 800-900 years ago, Tlingit oral tradition calls L'úx Shaa (the original name of Edgecumbe) 'a mountain blinking, spouting fire and smoke.'[44] Significantly, Alaskan natives believe, "We are not separate from nature. … We are a part of nature."[45] Also in late 2022, the world's largest active volcano in the world, Mauna Loa, in Hawaii, erupted for about 12 days, its first eruption since 1984.[46] *On January 5 of the New Year, Hawaii's Kilauea volcano, its youngest and most active, began erupting.*[47] Many Native Hawaiians view Kilauea as home of the volcanic deity of volcanoes and fire, Pelehonuamea.48 Traditionally, "she is said to reside in Halema'uma'u crater, a persistently active pit within the summit caldera. …It is currently home to a lava lake that appeared on September 29, 2021."[49] Similar to the beliefs of the Alaskan natives, "many in Hawaii question the wisdom of interfering with Pele. …During the 2018 Kilauea eruption, David Ige, governor of Hawaii, told reporters 'his experience showed him it's not possible to overcome nature and Pele.'"[50] Despite technological advances, humans have rarely had much success stopping lava. Doing so remains difficult and dependent on the force of the flow and the terrain. "'Thinking you should physically divert lava is a Western idea rooted in the notion that humans have to control everything,' said Kealoha Pisciotta, a Native Hawaiian cultural practitioner. She said people need to adjust to the lava, not the other way around."[51] Even in the winter weather and cold air in Iceland, it takes years for magma to cool. A new satellite network now monitors volcano eruptions from space. Scientists who view volcanoes as seen in outer space say the eruptions keep them humble; they are reportedly "so much grander…almost divine."[52] In particular, Native Americans, Hawaiians, Alaskan and Mexican native tribes, as well as other indigenous peoples retain deep respect for nature, maintaining personal relationships with it and seeing humans as a part of natural phenomena—and even, to differing degrees, nature as part of the divine.

They are not the only ones who find the sacred in natural phenomena. Christian Scriptures, psalms, and other traditional writings rely on metaphors of natural phenomena to speak of an ineffable God: fire, clouds, mountains, thunder, light, storms on the seas, growth of plants, the Eucharist. Top speech writer for former President George W. Bush and longtime journalist Michael Gerson commented before his death at age 58: "All language about God is metaphorical. But the metaphor became flesh and dwelt among us."[52a] In short, nature remains undaunted, and is perhaps merely flexing a few muscles. Winter in the U.S. brought chilling cold from a "once in a generation arctic blast" to New York and northern Maine with 60 degrees below zero, and with wind chill, in New Hampshire, 100 below at Mt. Washington.[53] A "barrage of atmospheric river storms" continuing from late 2022 and into March, 2023, dumped rain and snow on California for weeks, leaving flooding, downed trees and power lines, and causing mudslides. In Olympia Valley, avalanches moved at 150 mph.[54] In response to a rare, long-lasting EF-4 twister that formed in March, in Silver City, Mississippi, "the National Weather Service warned: "'You are in a life-threatening situation' … [and] Royce Steed, emergency manager for the area, likened the damage to… Hurricane Katrina in 2005. "'It is almost complete devastation,' he lamented…. 'This little old town…is more or less wiped off the map.'"[55] In spring, the airport in Ft. Lauderdale, Florida, shut down due to flash floods and what was called a "once in a thousand years event," more than two feet of rain (26 inches) or 7 months of rain in 7 hours."[56] Melting snow packs contributed to widespread flooding, the worst in decades. The Mississippi River flooded across five states, and torrential rains and baseball-size hail in Texas flooded along the Gulf coast from Texas to Florida. [57] At least seven tornadoes raged across the south, moving eastward.[58] Blinding dust in the Midwest resulted in massive crashes of cars piled atop each other on roads.[59] In northeast Nevada, red crickets, closely resembling grasshoppers, invaded northeast Nevada, an intrusion that might last from four-six summers.[60] U.S. neighbors, both north and south, were also affected. Whereas during an average year, 9 thousand square miles might be burning, in Canada's worst wildfire season in history, more than 400 wildfires were now burning out of control across 51 thousand square miles of the country.[62] At what was just the start of the season, the fires produced hazardous air quality throughout much of the east and the middle of the U.S.[60] Jeff Berardelli, chief meteorologist and climate specialist for WFLA-TV in Tampa, Florida, reported, "The heat wave in Mexico may be very well the worst heat wave we have seen in modern history"—due not only to its intensity, but also the length of time it has lasted.[63] We might consider listening to earth's eco-systems talking back to us because it seems the environment as a whole is making an argument–one backed with indisputable evidence.

The argument is not merely scientific—i.e., that climate change can no longer be ignored–but also existential, i.e. the effects of the environment on humanity are of equally grave concern. Therefore, to what extent do our actions contribute to the changes and to what extent are we now morally responsible for what we have disregarded for so long, yet now accounts for more and more human need? In the book of Exodus, the prophet Moses declares, "The earth is the Lord's." (Exodus 9:29) Some may dismiss that prophecy, but it does not seem that we have the upper hand. The devastating weather conditions remind me, as they do others, of Old Testament plagues, particularly because so many are of ferocious intensity and have occurred at the extremes of recorded histories: In 2021, California and Colorado battled the largest wildfires in their histories, and wildfires raging through the west were the "worst on record." Hurricanes Delta, Laura, and Zeta pummeling Louisiana in 2020, were "record-breaking." In December, 2021, the Midwest saw the deadliest and "once-in-a-century outbreak of tornadoes across America's heartland…at least 59 twisters bull-dozed through ten states." In Kentucky, a tornado dubbed "the beast" by a meteorologist carved "a 200-mile gash" across the state and was "the worst tornado event in its history," with "devastation like none of us has ever seen before." In the following spring, 2024, innumerable tornadoes again ravaged the heartland of America, with 180 tornadoes in Oklahoma, Missouri, and Kansas, shredding homes and businesses. Torrential rains in the southwest, falling in 2022, were the worst in nearly a century—half a year of rain fell in one hour. In 2022, the American West currently faces its most severe drought in human history. The near-5 Hurricane Ian was reported as the second deadliest storm in U.S. history, surpassed only by Katrina. The "monster winter snowstorm" in Buffalo and western New York dropped nearly 7 feet of snow, 66 inches, in just one day, a deadly snowfall, and the highest ever recorded in a day.

Life-threatening cold in the northeast in winter, 2023, spewed out from a once in a generation arctic blast. Flash floods in Florida, or 7 months of rain in 7 hours, were a "once in a thousand years event." In 2022, 17 tornadoes in four days across the south, included a "rare," long-lasting, EF-4 twister that wiped a small Mississippi town off the map. Widespread flooding in the spring of 2023 was "the worst in decades." Canada's 2023 wildfire season was the worst in its history. In summer, 2023, Maui, Hawaii, was the site of the deadliest wildfire in modern US history.[64] Both for length and intensity, the heat wave in Mexico is likely the worst in modern history. One after another, these disaster declarations sound and feel like plagues raining down on a people insistent on seeing themselves in power and going about their usual pursuits, clinging to the notion that we can control most everything, oblivious to years of prophetic warnings from scientists and others: over-dependent on fossil fuels, subservient to greed, and neglecting the impact of our actions on others. Such stories have become oddly relevant again–familiar to where we find ourselves and relevant to assessing where we are in a world that must now adjust to the aftermath of a global pandemic. A post-Covid world is perhaps in need of acknowledging disease can also exist within the human heart. "The Biblical definition of plague, or *maggephah* in Hebrew, is a "stroke of affliction or disease," and the plagues recorded in Exodus 7-12 were sent specifically to disrupt or "unsettle the hardened heart of Pharaoh."[65] During the plagues, the Jews, enslaved in Egypt by Pharaoh, painted their doorposts with the blood of a lamb. This was an act to show *recognition* of the need for God's mercy and protection, i.e., to "pass over" the lives of their firstborn. In contrast, Pharaoh refuses to relent before the power of God. He allows the Jews their freedom only after the firstborn of his people and beasts have been destroyed, only after tragedy is pervasive and Egypt has sunk into a "darkness which may be felt."[66] The "darkness which may be felt" is destruction of the firstborn, i.e., destruction of a lineage that considered itself almighty or *self-sufficient*.

It is the darkness of hard-heartedness and indifference that imprisons and may be felt even today where there is hatred and intolerance, decadence, violence and war. Darkness has no existence in and of itself; it is absence of light, and we are aware of it when we long for what is other than darkness–for light to illume the world around and/or within us so that we might see or understand "Why?" something is the way it is. Despite the suffering of those around him, "Pharaoh's heart was unshaken," so that the plagues continued, destroying much-needed food crops.[67] In the Hebrew Scriptures, the wrath of God passes over those who acknowledge *need for God's mercy* and thereby gain their freedom from Pharaoh. The Passover imagery simultaneously foreshadows the coming of Light into the world—the death, burial and resurrection of Jesus Christ whose Incarnation marks God's entry into human time, bringing a message of divine mercy and salvation to all of humankind. In the New Testament, all who recognize their need for God's mercy gain freedom from death due to the blood shed by Jesus Christ, the Lamb of God. Christ exemplifies God's outpouring of unconditional mercy, forgiveness, and love. All of humanity is freed from an eternity of death and darkness when Christ re-deems, or gives life, yet again.[68] Understanding and respecting that we share a nation and world with many faiths, it seems pertinent to wonder what we are doing *this time*–with time re-deemed—or given again, that is any *different*? We too seem to continue to teeter on an eerie edge of void and palpable darkness—a "darkness which may be felt," while yet clinging to self-absorbed ways, warped by homage to the false gods of money and power, and often indifferent towards the suffering of others. Could it be that a higher power is trying to get our attention? If "today you would hear his voice, harden not your hearts." (Psalm 95) Is it that we simply refuse to listen because, like Pharaoh, our hearts are too hardened, our ways of thinking too comfortable and settled, our greed too embedded to bother disturbing or recognizing something like a need for mercy?

Perhaps we are too resistant to any such narrative that runs counter to the stories we prefer to tell in which our own wills—regardless how tragic or absurd the outcomes–are self-sufficient. We believe our own human power is sure to prevail over all else. On the other hand, if the Covid crisis has unsettled us, deepened empathy, and stretched our compassion to hear the suffering everywhere around us, then another response to the grandeur and terror of nature's disasters might be a re-awakened awareness of humanity's fragility in relationship to infinity. To the extent we have reprioritized values that focus on issues the pandemic shifted to center stage, we might now prefer to engage in causes greater than ourselves–something climate change surely qualifies as. The pope invites all to engage in mindfulness with what they believe is their higher power: "I would like to invite all people of faiths, Christian or not, and all people of good will, to embark on [a] journey, starting from your own faith, or if you do not have a faith, from your own intention, from your own goodwill."[69] The underdogs of today are the refugees, immigrants, and the forgotten—those whom society "discards," as Pope Francis frequently and urgently reminds us. In his second Ted Talk shortly before the start of the pandemic, the pontiff mentioned his "encyclical letter "Laudata Si," dedicated to the care of our common home" and again proposed hearing and responding to both "the cry of the Earth, as well as to the cry of the poor."[70] A year later, yet another call to "listen to the cry of the Earth" was made *by all three* of the world's main Christian leaders, Pope Francis, Archbishop of Canterbury Justin Welby, and Orthodox Ecumenical Patriarch Bartholomew. They appealed to people, "whatever their belief or world view."[71] The above leaders provide examples of making "meaningful sacrifices for the sake of the Earth which God has given us."[72] We are encouraged to "listen…to people who are poor…choose people-centered profits; make short-term sacrifices to safeguard the futures for all of us, become leaders in the transition to just and sustainable economies."[72a] UN Secretary General Antonio Guterres reinforced the warnings scientists were giving, based on a need to cap "global warming to 1.5 degrees Celsuis: "We are on a catastrophic path. We can either save our world or condemn humanity to a hellish future."[73] After so many natural disasters overlapping with the Covid-19 pandemic, this "cry of the Earth" that indigenous peoples, many people of faith, as well as political leaders implore us to hear and respond to has been thrust center stage.

"The phenomenon of climate change," writes Pope Francis, "has become an emergency that no longer remains at the margins of society. Instead it has assumed a central place, reshaping not only industrial and agricultural systems but also adversely affecting the global human family, especially the poor and those living on the economic peripheries of our world."[74] And, as if we needed another example to keep the issue front and center, this year monsoon rains, 400% heavier than the average for the last 30 years, pummeled Pakistan, Bangladesh, and India! In Pakistan, "roads and bridges have been washed away."[75] Seventeen hundred Pakistanis have died.[76] "Livestock and crops have been wiped out."…There is no safe drinking water, and many have "very severe malaria… some with cerebral malaria, for which there is no medicine."[77] "Pakistan emits less than 1% of greenhouse gases, yet 90% of the nation's crop is gone for the year. Winter planting has also been wiped out![78] Given the destruction of these much-needed planting cycles, how will the Pakistanis eat this year? Upon visiting the area, UN Secretary General Guterres stressed he had seen "great heights of human endurance and heroism--from emergency workers to ordinary people helping their neighbors." But he was also **struck by the "unquantifiable depths of human suffering"** he had witnessed: "I have never seen climate carnage on this scale…The needs are enormous, and that's why 'I urge massive and urgent financial support for Pakistan.[79] Guterres concluded: "This is not just a question of solidarity or generosity. It is a question of justice."[80] The question of justice that Guterras confronts us with occupies a central position in the UN's Climate Change Conferences, or COPs. Guterres voiced further concern when the COP27 conference nearly fell apart over corporations and financial institutions "greenwashing"—or making claims, especially about money they would provide, but then failed to back up.[81] Developing nations are now demanding "money to adapt their infrastructure to reduce future emissions" and demanding rich countries like China and the U.S. pay for damages from climate disasters.[82] After President Biden's meeting with Chinese President Xi, bilateral climate discussions between the US and China resumed at the COP27 global climate summit in an effort to accelerate saving the planet by capping "global warming to [the] 1.5 degrees Celsuis" scientists say is needed.[83] Achieving net zero means achieving a balance between the greenhouse gases put into the atmosphere and the amount of those gases taken out.

"Beijing produces more greenhouse emissions than the rest of the world combined, but also more solar power, wind power and electric cars than any other country."[84] China resists collaboration when "the U.S. confronts Beijing over human rights abuses and military threats to Taiwan and tries to restrict China's access to Western technology."[85] These two countries might suspend mistrust in just this one area, simply to serve a goal that is universally beneficial. At the end of the COP27 conference, the European Union proposed a new fund for vulnerable nations that would provide financial support to the world's poorest nations to address future climate disasters and be "tied to explicit commitments to phase out fossil fuels."[86] In 2023, a committee of 24 nations was set to discuss who "will pay for the fund and how it will operate."[87] In the summer before COP27, the pope had convened a conference of the Pontifical Academy of Sciences to consider the ways an integral ecology interacts with climate, biodiversity, and inequality. "Religious, political, social and cultural leaders" came together to address the current crisis, including reducing emissions—and the fall-out from wars–and providing technological assistance to poorer nations."[88] Akin to the MASS concept for architecture (see 5c), conference participants came from across diverse fields and "trans-disciplinary alliances" to reach consensus about need for "a multidimensional approach to forestall crisis for both individuals and our planet."[89] The conference viewed human interactions with nature through three lens: "Climate, Biodiversity, and Inequality" and offered *"recommendations placed on the agenda of COP27 and beyond."[90]* "Inequality" brings to the fore the pope's emphasis on social justice–the rights of the poor and under-privileged. We cannot remain indifferent, like Pharaoh and like the Covid pandemic, to the suffering our lifestyles cause others because earth is also the means by which we are all neighbors to and for each other.[91] Pope Francis does not call fighting climate change and care of the environment an option, but rather "a moral imperative" that includes "lessening climate risks by reducing emissions," and assists and enables "people to adapt to progressively worsening changes."[92]

The final statement of the conference assumes "faith and science can form trans-disciplinary alliances to deliver the requisite mobilization of public support. Such alliances are feasible because protection of all of creation is the stated goal of all faiths."[93] Support for the Pope's final statement comes from Buddhists, the Dalai Lama, indigenous spiritual leaders, Evangelicals, a Hindu Declaration on Climate Change, and many interfaith groups. This joint statement asserts consensus that "*it is too late to rely just on mitigation. Adaptation to climate risks is overdue and must become a central theme of climate actions. A global effort to build climate resilience is needed, and the following recommendations placed on the agenda of COP27 and beyond."[94]* To draw strength for the work ahead, the pope asked others to join in praying "Solomon's classic prayer for Israel and make your prayer applicable to the United States as well as to the entire world."[95] He added, **"**This prayer is still effective today"[96] **'***If my people who are called by my name humble themselves, and pray and seek my face and turn from their wicked ways, then I will hear from heaven and will forgive their sin and heal their land.'" (2 Chr 7:14)* Here, therefore, is a blueprint for solidarity across diverse and intersegmental communities—religious, scientific, political, industrial, agricultural, wealthy, and marginalized—that proposes cooperative solutions for the UN to address a far-sighted and coordinated program on the common goal of holding further climate change at bay. It asks something from each pairing of First World developed countries with one or more developing countries, to provide the mentorship and technological help for such countries to adapt to climate changes. It asks most from leading nations—the U.S. and China. Climate groups within each of the First World nations might set up funding sites to help with the technological changes needed in each developing nation(s) that a country is mentoring. In the U.S., Bono and U2, Bon Jovi, Cold Play, Adele, Beyonce, Bob Marley, Taylor Swift, Ed Sheeran, Bob Dylan, Mick Jagger, John Legend, Common–volunteer groups of every kind could hold concerts and other activities with all proceeds going to fund the technology needed to reduce use of fossil fuels in each developing nation partnered with a First World nation.

Sports teams might hold super-sport events with amateur athletic teams for fun and to see which players and teams can raise the most awareness and funds for this climate change initiative. Given what scientists have warned will be the warming threshold within just 20 years, this is clearly the crisis of the younger generation, and surely a time we might well ask what kind of world do we want to pay forward, to our children? At the beginning of the Ecclesiastical Year on September 1, 2023, the Ecumenical Patriarch of Constantinople, Bartholomew I, took the occasion of his annual Message for a Day of Prayer for Protection of the Natural Environment, to address reducing use of fossil fuels and current wars: "Every act of war is also a war against Creation, as it poses a grave threat to the natural environment."[97] At a faith summit in Abu Dhabi ahead of the conference, Cardinal Pietro Parolin and 27 leaders from more than 19 different religions, faith traditions, and denominations signed an "Interfaith Declaration on Climate Action Towards COP28," which says that "our faith instills in us a sacred duty to cherish not only our human family but also the fragile ecosystem that cradles us."[98] Such practical alliances between science and faith working in solidarity across intersegmental, diverse communities offer a roadmap to actual progress on the environment at COP28, which will be held from at the end of 2023 in Expo City, Dubai.[99] Though he would later be given medical orders not to attend, Pope Francis announced his plan to attend the climate conference COP28 in Dubai in December, 2023, stating simply, "Our future is at stake, the future of our children and grandchildren. It requires some responsibility."[100] Rather than indifference, this re-awakened awareness of humanity's smallness–perhaps even humility–can also be heard in individual responses to recent and ongoing disasters. "As Tropical Storm Ophelia, the 15th named storm to form in the Atlantic in 2023, dumped torrents of rain on the upper east Atlantic coast from the Carolinas to Maine, its main threat the flooding from half a foot of rain in some areas," cries were heard: "It's Biblical."[101] Fires and 70 mph winds in Maui, Hawaii, that killed over 100 people and demolished the city of Lahaina were called "apocalyptic,"[102]and could "only be described as apocalyptic."[103] Seven days after "catastrophic flooding impacted the central region" of Greece, cars were everywhere abandoned, houses ruined, nothing left but walls.[104]The storm dubbed "Daniel" brought up to nearly 30 inches of rain, the most extreme rainfall on record.[105]

People were angry about not having been warned: "We just woke up in the water."[106] Environmentalist Theodora Scoffi made a similar comment about the ferocious wildfires in Europe: "We are not prepared."[107] Prof. Christos Zerefos, Sec. Gen. at the Academy of Athens and the country's leading climate scientist, agrees with a reporter who questions: "It's biblical? Floods and fires?"[108] "It is! It is!" says Zerefos. "But without having Noah's Ark … Noah's Ark would be a preparation for such big disasters. To prepare properly."[109] The prime minister responds, "Greece is facing a war with climate change"—catastrophic flooding, ferocious wildfires, and intense heat. Zerefos adds, "The civil protection programs are not adequate" for the scale of such disasters.[110] A reporter says the example of Greece shows us the financial cost of dealing with the consequences of climate change. Europe just pledged another two billion to Greece this month.[111] Bill Gates has said, "I don't want to be a voice of doom and gloom,' but 'the worst' could still be ahead.[112] Consider that Gates made this prediction over two years ago, in May, 2022, after over one million in the United States were dead from Covid, and over 6.5 million dead worldwide—though some estimates are closer to 20 million.[113] Bill Gates foresaw the pandemic and helped advise strategies to deal with it, particularly the scientific basis for taking precautions against the virus. "One lesson from the Covid pandemic so far," he writes, "is that preemptive planning and protective measures could help the world better manage future pandemics. It's the core concept in his upcoming book How to Prevent the Next Pandemic and requires long term political change as well as accountability from businesses.[114] Preparing a Noah's Ark would seem to involve precisely the kind of "preemptive planning and protective measures," as well as the accountability from businesses, that Gates advocates. Congress passed its biggest-ever climate legislation with the Inflation Reduction Act, but leading nations are still far off the goal of limiting warming to 1.5 degrees Celsius. So, we might ask, what are we—that is, what is everyone—still waiting for? Among the most terrifying of natural disasters are recent earthquakes in the areas of the Mideast and Mediterranean Sea. A 6.8 magnitude earthquake in Morocco, its deadliest quake in more than 120 years, killed more than 300,000 people, and destroyed villages across the Atlas Mountains, as well as historical sites in the ancient city of Marrakech with many stone buildings and masonry not built to withstand earthquakes.[115]

"The famous 12th century Koutoubia Mosque may have been damaged, [and] … The famous red walls that surround the old city — a UNESCO World Heritage site — have also reportedly crumbled in some places."[116] Less than half a year later, on February 6, 2023, A giant 7.8 magnitude earthquake struck northwest Syria and southeast Turkey.[117] **Syrians have been displaced again and again during the past twelve years, due to Russian airstrikes and the Assad regime. Millions are now homeless, and the landscape said to be "obliterated" in the area's worst disaster in at least a hundred years.[118]** There have been at least 78 aftershocks, and the death toll estimated at **over 44,000.[119] "**A magnitude 5.6 quake struck and was followed by magnitude 7.8 and 7.6 quakes. The death toll in Turkey alone surpassed 50 thousand."[120] Graphic pictures of utter ruin were transmitted via satellite. Drone footage shows a former olive grove in Turkey, split in two, with "a huge gorge so deep a 13-story building could fit in it."[121] This image is mind-boggling, and like the images from outer space of the underwater volcano Hunga Tonga Hunga Ha-apai's eruption … eerily disquieting. As aid began moving in, children were still being found alive after 4 days.[122] After 5 days, a mother and her little girl were rescued by a US team.[123] After 9 days, nearly 200 hours, near miraculous rescues were still found, though the mental health of children has not yet been assessed. Good Samaritan strangers stepped up to care for children who had lost parents.[124] After 10 days, a girl survived after being found under the earthquake in Turkey.[125] How can that be? And yet, after 11 days, a man was found alive under rubble.[126] Then in October, a 6.3 magnitude quake "flattened to rubble large areas of Afghanistan near the city of Herat," only to be followed by "another 6.3 magnitude quake.[127] "It's like mankind is paying for what they've done," cries a man trying to brace 130 mph winds in France.[128] Salahuddin Hawa, an earthquake survivor in Syria, states, "Our young children who are under the rubble are imploring people to take them out of the rubble…when you talk about an earthquake, a violent earthquake, the politics is intermingled…with a humanitarian crisis:" The UN sent some aid, but no disaster response units to Syria, where people work with only rudimentary tools. On the other hand, "Well-equipped rescue teams from all over the world have searched for people in Turkey under the rubble."[129] After visiting the Turkish-Syrian border, Martin Griffiths, U.N. Under-Secretary-General for Humanitarian Affairs, acknowledged: 'We have so far failed the people in northwest Syria.

They rightly feel abandoned.'"[130] According to Bahia Zrikem of the Norwegian Refugee Council, "No search and rescue teams were able to enter…The international community failed the Syrian people by not reacting fast enough, and not supporting the search and rescue teams."[131] "In contrast, across the border in hard-hit Turkey, 15,000 out of 19,000 buildings that collapsed had been inspected a week after the disaster, according to President Recep Tayyip Erdoğan."[132]Later reports spoke of eighty thousand buildings destroyed in Turkey.[133] **One of the worst hit areas was an area also frequently bombed—Id Lib province in Syria, but "after 12 years of war, 3 years of the Covid pandemic, cholera," and now a freezing winter, there is no food or any kind of help—even for mental trauma.[134]** A man in Syria's northwest Aleppo province made an impassioned plea to the rest of the world: "Imagine that this earthquake happened in anywhere around the world. What would the situation be? Can you say that we will not send, for example, aid because that country is a communist or a capitalist or whatever? No, we do not do that …All the world. Here, we are people. We are human. We are—we need life."[135] Reporter Jane Ferguson also seemed disturbed by the imbalance of responses with aid: "The politics of who gets what help has never been more stark. The contrast compared to Turkey is glaring."[136] "We knew there were people under the ruins," Yasser Nini, a leader of the volunteer rescue group White Helmets, told The Associated Press. "We heard their cries." He says they did not have the heavy equipment needed to rescue them. "Neither the international community nor nearby countries care."[137] It is deeply troubling to learn of this insidious form of passive war In the words of Ferguson, "A manmade border decides between life and death."[138]

Could failure to care about all people, our common humanity around the globe, or even in different political parties–be a virus spreading throughout our own hearts? Contrast this horror with reports earlier the same month by astronauts viewing our planet from outer space. Astronauts Doug Hurley and Bob Behnken were interviewed by NBC News' Tom Costello about what it is it like to look down on earth from various vantage points, such as from inside of a space suit, from a space shuttle, or from the international space station.[139] Ferguson's comment about manmade borders deciding between life and death in earthquake-ravaged Syria and Turkey contrasts sharply with Doug Hurley's response: "Looking out the window from space is mesmerizing. It changes you, um, even if you don't want it to, it does. So you know, the most hardened astronaut probably gets…you know…that it's …an incredible emotional reaction …and yeah you look down and I remember you know when we were up there during the summer of 2020….there was a lot of stuff going on down on the planet that wasn't good, but you don't see any of that."[140] "You know it, you sense it, you feel it, but you don't see the borders, you don't see the strife."[141] "You see our very thin atmosphere uh, and as Bob said, everything that you know and love is down there…we've been given such a gift with this planet. We've got to take care of it, and we've got to take care of each other."[142] What a difference, then, between not seeing borders—simply loving earth–and manmade borders deciding between life and death. Gavin Schmidt, director of NASA's Goddard Institute for Space Studies, makes a critical point when he discusses global warming with William Brangham of PBS. Schmidt explains that if we stopped emitting carbon into the atmosphere tomorrow, temperatures would not rise any further. Obviously, he says, that is not going to happen…. And "it's very hard to go back…to where it was in the 1980s or in the 20th century." But, he adds, it does show that "any further increases from where we are now are really under our control. We have agency."[143] Indifference to who or what is destroyed puts climate change in a category much like the Covid pandemic—but with a critical difference: Having "agency" means human beings also have—not super powers–but a *degree* of control. To the extent to which we are "enlightened" and intelligent enough to heed the science, we can act. We have the ability and the freedom to do what technology alone cannot do. We are able to change the directions in which we act. We are able to care for all those people in Syria and in Turkey. We can choose to support politicians and corporations willing to take *radical and practical action* to reach the goal scientists recommend of limiting global warming to 1.5 degrees Celsius.

John Muir, naturalist and environmental philosopher, reflected, "When one tugs at a single thing in nature, he finds it attached to the rest of the world." Pope Francis, too, suggests we consider the pandemic 'a wake-up call' to care for creation of the natural world: "We are part of this interconnected web of life, not its masters."[144] Clair Vlases, a young girl in Montana and represented by Our Children's Trust, has taken that state to court by claiming legislators permit coal and hamper renewables even though the state constitution grants everyone living there a right to a clean environment.[145] On August 14, 2023, judges sided with sixteen youth, ages 5 to 22, ruling that the state violated their rights when the state supported fossil fuels for 30 years after knowing about the harm they cause.[146] "*Held v. State of Montana* is a first of its kind case," but with the judge ruling that Montana must now "consider the effects of climate change when deciding whether to begin or renew fossil-fuel projects," we can hope that other states will follow suit and hold big oil accountable for the harm they have known they were causing all of us—just as big tobacco was once held accountable.[147] Other efforts to bring people together in positive ways and across generations include participation in nonprofit-sponsored and volunteer clean-up projects of beaches, streams, and trails, as well as community gardens linked with food drives. The City of Buffalo has participated in the Great American Cleanup since 1999, encouraging social responsibility in its community members by their participation in events such as litter and shore-line trash pick-up, recycling, and tree planting. A man fills potholes in roads—an unexpected gift!–with the beauty of his artistic mosaics.[148] A more modest way, and not directly related to carbon emissions, but in which all of us as individuals and local communities can exercise agency is that families can raise children with more respectful attitudes for our common home instead of allowing its sometimes use as a collective garbage bin. On the other hand, "The world's transition to Net Zero by 2050 … is a rallying cry for companies to rethink how they link their sustainability agendas with technological innovation and adoption.[149] Corporations must be held more accountable for recycling what they produce BEFORE new products are brought to market.

The full cycle of production—manufacturing, testing, advertisement, planned obsolescence, and recycling all need to be part of foresight before putting "innovations" on the market. Consumers will then be able to *choose* those with least impact on the environment. We as voters need to demand that Congress hold corporations accountable for holistic manufacturing that makes them responsible for an umbrella of needs linked to their products. Take, for example, something as small as pill containers. Seniors often need multiple medications; the number of pill containers used every few months is astounding! Walgreens claims to recycle pill containers (I have found only one of its stores and now one at Walmart). Pharmaceutical companies could be recycling all plastic pill bottles in ways easily accessible for seniors—perhaps at senior centers, rehab, and other care facilities, as well as drug stores—like the bins Target stores have for recycling common kinds of materials A very effective ad during NBC Nightly News from plastic makers now states the industry is aiming for "sustainable change" with its recycling.[149a] Consumers might call for more of this kind of holistic production, reuse of, and recycling of goods. Whole Foods once used wonderful cardboard food containers for their bakery items that showed concern for the environment. Now, the bulk of these items are sold in prepackaged plastic containers. Perhaps these "convenience" products are being mass produced, but they result in more and more plastic dumped in our oceans. Given the amount of waste already dumped into the earth, what does it hurt us to forego some conveniences when biodegradable alternatives are already available? Recipients of the Earthshot awards in 2022 have come up with innovative solutions, including one of this year's winners, Notpla, who found a way to create packaging out of seaweed instead of plastic! I would like to see that innovation supported in America in order to expand consumer choice and provide eco-friendly alternatives to plastic.[150] In 2020, Prince William set up these Earthshot awards to distribute five $1.2 million environmental prizes. The prizes "support climate innovators who are tackling the greatest existential threat to the planet."[151] Inspired by John F. Kennedy's moonshot challenge, the prince says, "I have the same faith today that we can repair and regenerate our planet in this critical decade. From Moonshot to Earthshot, the seemingly unsolvable can be solved."[152] Kari Helgason, an astrophysicist working on direct air capture of CO2, actually compares that company's new invention to a moonshot: The new technology, Direct Air Capture of CO2, "vacuums carbon dioxide out of thin air and locks it away underground."[153]

Sandra Osk, geologist with Carbfix, the Icelandic company that came up with this amazingly safe method to capture CO2, explains they capture gas we can't see: "we turn it into fizzy water and then it turns to stone and you don't have to worry about it…. Carbfix uses geothermal energy, which is renewable and green… Carbfix didn't invent the process. Nature did." Osk stresses that the hard part now is "scaling up fast enough to slow climate change."[154] The work of Carbfix to vacuum carbon out of the air and dispose of it into hardened rock seems a timely and ingenious solution. Hopefully, it—as well as other solutions–will be financed and supported in good faith by all nations. So it is not as though human agents lack the skills to come up with ingenious solutions to real problems IF we then follow through on the practical steps needed to reach our climate goals! The other half of the destruction to the earth by climate change is, of course, the damage to human beings in poorer nations who have not been the major users of fossil fuels. Preparing Noah's Ark can also mean internal preparation–examining our hearts and wills for what lies ahead. In the first trip of his pontificate, Pope Francis visited Lampedusa, "an island symbolizing the plight of migrants in the Mediterranean," where he emphasized fraternity.[155] Today the Pope asks us the same question the Lord asked of Cain immediately after killing his brother Abel: "Cain, where is your brother? (Genesis 4:9)…."Where is your brother?" Your migrant brother? Your brother prostrated by poverty? Your brother crushed by war?"[156] But after killing his brother, Cain merely questions, "Am I my brother's keeper?" (Genesis 4:9) This is the Old Testament version of the response when an expert in the law asks Jesus to elaborate on "Who is my neighbor?" (Luke 10:29) Jesus redirects the man's attention to three scenarios he explains and then replies, "Which of these three do you think was neighbor to the man who fell into the hands of robbers?" (Luke 10: 36) The expert in the law answers, "The one who had mercy on him." Christ replies, "Go and do likewise." (Luke: 10:3) As in this parable of the Good Samaritan, in many of the natural disasters that have befallen us in recent years, people do come together to help each other.

In repeated scenes of devastation, we experience humanity at its best–people coming together to each other's aid, being neighbor to each other. People come from every state to help rebuild what nature destroys. We engage with greater empathy and compassion. We rethink our workloads and family to balance and rebuild trust. We continue to destigmatize mental health needs and are more conscious of being kind. We make more room at our tables and hold potluck meals for our communities. In Hawaii, Ukraine, and other areas of disaster, native peoples join Chef Andrés' World Central Kitchen in feeding thousands, if not millions in need. In Morocco, tourists took time to join in lines of Moroccans at a Marrakesh hospital offering to donate blood to help the many wounded in the earthquake.[157] After the terrible earthquake in Syria, White Helmets stepped up to do whatever they could; strangers stepped up to care for the many children who had lost parents.[158] In these ways, we pay forward to our young people what is best in us: human beings are rebuilding society by showing mercy and being neighbors to one another. Now with climate change, we need to consider preemptive help rather than only reactive help. We need to make earth itself the Ark by anticipating our own needs and each other's in advance more so than only after-the-fact, which gives tragedies unfettered space in which to mushroom. As with the Covid pandemic, as with climate change, scientists, political leaders, and the Pope urges us to act, to use our agency to change direction, to "reverse course … from the powerful magnet of Cain" and orient the compass of our lives towards fraternity, "our common belonging."[159] Consider that in June, 2023, smugglers made millions while refusing to let anyone off of a sinking fishing vessel–killing 500 migrants off the coast of Greece in its greatest maritime disaster.[160] Having "agency," as NASA's Gavin Schmidt reminds us, means we already have this capacity to change direction, to move away and inoculate ourselves from the virus of indifference. Humans are not meant to act like a pandemic, and we hear of strangers whose *responses* are indeed different. In discussing his life's work of photographing wars, James Nachtwey states he had been "in places where people have next to nothing, and yet anything they have they offer to a stranger."

This, he says, is what makes him believe in humanity.[161] "We live in an age of migration, of nomadic wandering around the world."[162]In April, 2023, Paul Salopek, Fellow with *National Geographic* and who is on a trek around the world, found that due to the pandemic he had to reroute in southwest rural China, Yunnan Province. Salopek traversed through "more than 25 different minority communities that each had their own language … [and] sometimes … their own cosmologies."[163] Yet, despite what Salopek calls these "extraordinarily, kaleidoscopically" differences, he notes if a person spends enough time conversing, not only do we "also find points of connection," but "the things we talk about are like 90 percent the same." [164] (see 2c) While covering the one year anniversary of the death of George Floyd, Jeff Pegues reported on looters and vandalizers who broke into some 1500 businesses in Minnesota, one of which was a firefighter's who dreamed of opening a restaurant there. The next day, an arsonist had burned the building to the ground. The man started a Go fund me page. "Thirty-four thousand Americans—complete strangers—donated more than one million dollars to make his dream a reality."[165] When a reporter asked how something like that is ever paid back, the man replied, "Just pay it forward."[166] In terms of responding to our common humanity, the response remains to be seen. To take decisive action before the end of the decade to reach a global temperature limit within 1.5 degrees Celsius, "negotiators from nearly 200 participants came together in Dubai" for COP28.[167] "Global greenhouse gas emissions are still rising, and [the] planet is on track for at least 2.5 Celsius of warming by end of [the] century."[168] As he presided as head of last year's COP28, top fossil fuel executive Sultan Al Jaber announced, "We must reduce emissions by 22 gigatons by 2030."[169] But he also said there is "no science behind demands for phase out of fossil fuels."[169a] Ahead of the summit in Dubai, the UN reported global temperatures were on track to rise 2.9 C above pre-industrial levels—*nearly double* the goal cited in the climate summit's final declaration."[170] Perhaps we are just taking our time—and will let nature have the last word? Radley Horton, professor at Columbia University Climate School, is concerned that in 2023 the planet "shattered" previous global annual heat records.[171] Horton explains the scientific models may have been off by underestimating "*aggregate* warming."

"We may have under-estimated how vulnerable we as a society are to a little bit higher temperatures. It's becoming clear that, if we want to avert…really catastrophic outcomes that are beyond what our climate models or our financial models or our crop models tell us is possible, we need to urgently reduce emissions."[172] The biggest issue at the COP28 conference seems to have been "climate finance," or who will pay the cost for the need for developing countries to switch from fossil fuels to clean energy…as well as a "loss and damage" fund for which the World Bank will act as trustee for four years[172]–a crucial and practical step.[173] Inclusion of businesses with the world's nations seems to have muddied the water–mixing economic competition with nations working toward a common goal. NPR described the meeting as a "circus" or "combination of international organization with a trade show."[174] Reportedly, COP28 closed with "an agreement that signals the 'beginning of the end' of the fossil fuel era by laying the ground for…transition, underpinned by deep emissions cuts and scaled-up finance."[175] UN Climate Change Executive Secretary Simon Stiell commented on the need for governments and businesses to turn "pledges into real-economy outcomes, without delay."[176] "Without delay." But isn't "without delay" about where we leave every COP conference? Was COP29 different? It is almost as though we have forfeited agency and are waiting for… … for what? to act on our behalf? For A.I. to come to the rescue?