

Isaiah 42:5-9
Acts 17:24-28a

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From one ancestor God made all nations to inhabit the whole earth, and he allotted the times of their existence and the boundaries of their places where they would live, so that they would search for God and perhaps grope for him and find him—though indeed he is not far from each one of us. For “In him we live and move and have our being.” *Acts 17:26-28a*

We talk a good deal in our Christian faith about God's love for us, about our being created in the image of a loving God (Genesis 1:26-27), and of love being the motivating and guiding force in our relationships. And so we should. Love of humanity was the driving force that made Jesus unwilling to resist the powers that crucified him, demonstrating instead that yielding to coercive power was ultimately stronger and more effective than resisting it. Yet, as we outlined last week, in modern history love has not widely characterized our human family's relationship to our earthly home, or to nature's wonderfully providential systems that take care of us century after century. There have been relatively few souls as sensitive to this relationship and as environmentally passionate as John Muir, leading spirit of the Sierra Club, who in 1892 wrote to *Century Magazine*, “Let us *do* something to make the mountains glad!”

To put it bluntly, our civilization's treatment of the earth, and much of the materialist technology that western nations have exported so successfully, are tantamount—whether implicitly, through indifference or by neglect—to our running an unvented generator in our grandchildren's bedroom. The earth, our one-shot home needs urgent help to right itself. And we who have led the demand for material things to satisfy ourselves, need a fresh resolve—not out of merely utilitarian motives “because it hurts *our* future,” but because my God blessed the earth and called it good. Because we are children of this God by our own choice, we have a faith duty—hopefully a faith-fondness—to preserve the earth and do right by it.

Like most of you, once a week I fill up my car with gas. It's a small SUV with a 15.5 gallon tank, probably average or on the small side as most family cars go. This past week I had a shocking epiphany about that weekly ritual. It came out of an email conversation with Don Bain, who happened to speak of a common enough physics term called the “conservation of energy.” I was familiar with the term, but I'd never really considered its consequences. Its principle is that the amount of energy in the universe remains constant, though energy may change from one state or form to another (e.g. ice to water to steam). Not one atom of any of it is ever actually *lost*. So if I boil a pint of water, which weighs about 1 pound, to make a mug of tea, and forget to take the kettle off the boil, 1 undiminished pound of water is still in the air, albeit in a different form. The implications of this were Albert Einstein's colossal insight 100 years ago: $E=MC^2$, energy is equivalent to matter times the speed of light squared—a phenomenal number—and vice versa.

The same is true of my car consuming 1 gallon of gasoline which, not incidentally, is 7/8 carbon and 1/8 hydrogen. 15 gallons of gasoline weigh almost 100 lbs (about 6.5lbs. per gallon of “regular”), which is, within a few ounces, what this towering pile of 21 Britannica encyclopedias represents. When my engine burns gasoline, not 1 atom of that 87 pounds of carbon disappears. So in one year my little Subaru Forester deposits 2 gross tons of carbon into the atmosphere. There are 150 million cars in the US, 600 million in the world—1 for every ten people, and the overwhelming majority of them burn gasoline. This does not include aircraft, trains, trucks, buses, motorcycles, power station generation, ships, industrial generators, home and business heating plants, and other fossil fuel fed systems.

God’s splendid natural world has the most extraordinary ability to regulate, replenish and restore itself. Much of that is done by forest and plant life taking in CO² by night, utilizing carbon, and giving back the oxygen into the air. But throughout earth’s evolution nature didn’t count on having to scrub out billions of tons of humanly produced carbon emissions each year. Nature took care of its own excess of carbon by burying it in the ground. However, since the dawn of the industrial revolution we have dug up vast quantities of it in the form of coal, oil and natural gas, *and* stripped the earth of 40 percent of its living, permanent forest. The suburban lawns and cropland we created from those lost forests hardly compensate for the loss of CO² scrubbing, especially as crop produces vegetation only part of each year.

Wherever each of us stand on the issue of greenhouse gas accumulations and global warming, the point is, we are effectively poisoning the planet. Stand in the stream of an idling engine’s exhaust for 5 seconds, and you get the point. Stay in a closed garage with the engine running for 20 minutes, and you’re dead.

It does not have to be this way. There are alternative energy sources, though many are still in their technological infancy. Not all are entirely “clean,” but they are far less damaging—solar power, hydrogen power, hydro-electric power, tidal power generation in estuaries, gas-to-liquid (GTL), methanol, ethanol and biodiesel, propane, and battery-electric power, and so on. Many of these have been tried and proven successful, but have been discarded for reasons you can likely figure out yourself.

Transportation alternatives are also crucial. Future generations can no longer assume the right to extravagant personal transportation (like my Subaru!) rather than public transportation. Many European countries with limited national real estate have long been attentive to alternatives. Today in the Netherlands, writes Lester Brown, 35 percent of all urban trips are on bicycles, compared to 1 percent in the US—where we, too, have no shortage of flat terrain. Mid-size US cities that put cops on bicycles find their arrest rates 50 percent more per day than officers in squad cars. Consider, too, that the calories in one potato can power me for 7 miles (most of you much farther!), which is phenomenally more efficient than moving 1 person 7 miles in a 1-2 ton vehicle. There are other ways of getting around, as our ancestors discovered, Jesus included.

As to those trees—in South Korea, once a barren, almost treeless country, as anyone who served their knows, now has 65 percent of the nation reforested. And in Africa, Wangari Maathai a recent winner of the Nobel Peace prize, deeply concerned about deforestation to fuel village cooking fires, with all its subsequent soil erosion, planted 9 trees in 1977 and started a massive movement among African women to plant more trees. By the end of the century tens of millions of trees had been planted, giving shade, creating desperately needed wind breaks, holding moisture in the soil (and thus restoring aquifers), and restoring crop land.

In a recent book called *Collapse*, Pulitzer Prize winner Jared Diamond, shows why some civilizations that faced ecological disasters survived, while others simply disappeared. One that survived is Iceland which, six centuries ago realized that sheep overgrazing on their already thin pasture land on the high plateaus was not allowing the grass to replenish itself. Faced with a crisis, these island sheep farmers compacted together to figure out how many sheep the terrain could sustain, then commit themselves to quotas. They understood the consequences and took action. And they are still here!

Others civilizations faced calamity but *did not* change their way of life. The first modern civilization, the ancient Sumerians in the fourth century B.C., are a classic example. These are the people of the famous “Tower of Babel” story in Genesis 11. They had the novel idea of damming the Euphrates river and creating a very sophisticated irrigation system that vastly increased available cropland. As water percolated through the soil the land, which has very poor natural drainage, saw the water table rising to the surface. And the surface water evaporating away left salt behind. As this salt built up on the surface, the wheat crops failed. So the Sumerians shifted to barley, a more salt resilient crop, but eventually, as the saline density increased, the barley crop also began to fail. Eventually, the entire civilization was permanently lost. This highly sophisticated people, the first to build cities and create writing, and the first to create complex social systems, apparently knew what the problem was but didn’t address it.

There are other examples of turning a blind eye to environmental upheaval. The ancient Easter Islanders suffered a similar fate. Relying to a high degree on dolphin as a food source, with supplemental agriculture, they cut down dense forests on the island over hundreds of years to make sea-going canoes, and to build their impressive communities and to transport monuments—especially the massive stone statue that populates the island. One wonders, mused Jared Diamond, what the person who cut down the last viable tree was thinking as it hit the deck.

Greenland’s Norse communities also disappeared for want of adaptation. For four hundred years, in a warmer era, they ran a thriving cattle and milk production culture, until the “little ice age” encroached in the 1400s. Surrounded by semi-nomadic Inuit Eskimos, who lived by hunting and adapted to the new climate, the Norse simply chose not to adapt, and died out very unpleasantly.

We are familiar enough with the term negative reinforcement, as the often tacit endorsement of unwanted behavior and the failure to correct it. Some years ago, having a new Labrador puppy, and getting out of bed regularly to let her out at 3 a.m., rather than teaching her to wait till morning, was a personal example of negative reinforcement, as Elizabeth Unger once pointedly reminded me. The night I stopped getting up was the night the yelping stopped for good. But when we permit national policies, both democratic and republican, to sustain negative environmental practices, everyone eventually suffers.

Some examples. Bjorn Larsen, in a World Bank policy paper in 1994, estimated that the world fossil fuel industry was being subsidized by taxpayers to the tune of \$210 billion per year. Lester Brown writes of hidden costs and subsidies. “In 1998 the International Center for Technology Assessment calculated [that if] the roughly \$9 per gallon of gasoline burned in the United States, were added to the \$2 cost of the gasoline itself, motorists would pay about \$11 a gallon for gas at the pump. Filling a \$20 gallon tank would cost \$220.” Hidden costs include military costs of protect access to oil supplies, tax subsidies to the oil industry, health care costs for treating respiratory illnesses, and ultimately, the cost arising from climate change.

Imagine if those same billions of dollars were switched to support environmentally friendly and self sustaining social policies:

Example: (1) Worldwide, the present fishing industry is unsustainable and often heavily subsidized, yet we know that rotating fishing zones that are off-limits enables fish populations to rebound, and fishermen to keep their livelihood. Red snapper fishing off the coast of New England is a case in point. Once violently opposed by the fishermen, they now champion it because they have seen the local snapper population increase 40-fold.

(2) Because it takes 1,000 tons of water to produce 1 ton of grain, 70 percent of the world's consumable water is used for irrigation. Eliminating water subsidies and increasing the cost of water would give everyone the incentive to conserve. Many countries have already demonstrated this.

(3) Other examples include helping small farmers in poor communities develop drip irrigation systems—often no more than a bucket with a flexible plastic tubing laid on the soil and easily portable, which dramatically reduces water loss and helps restore horribly depleted well water.

(4) In the United States, retiring one tenth of our cropland that was highly erodible, and shifting to low tillage (plowing) or non-tillage practices, has reduced soil erosion by 40 percent in 20 years.

(5) In India, just a few decades ago a medieval economy in the modern world, raising dairy cattle on crop residue has turned the Indian dairy industry into the most productive in the world, surpassing the heavily subsidized US dairy industry.

(6) Fish farming in China has been developed to such a high level of productivity that fish farm output now exceeds oceanic catch. And the 1.3 billion Chinese (over four times the population of the U.S.) eat a *lot* of fish!

The list of successes is much longer than this.

What is needed is a population willing to reshape political will on both sides of the aisle by expecting legislators to make smart, sustainable, earth friendly—therefore people friendly—policies, and holding them accountable.

But again, let this not be just for “our benefit.” Year by year we trust and rely upon the earth to feed, clothe, shelter, and keep us. It can do so only if we become loving partners with it. Let us also do this because God has entrusted this planet to us. The one who blessed it and called it very good.

Amen.