Fact or Fiction?



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Supreme Arrogance

"Remember that image of the planet Earth floating alone in the universe? The U.S. astronauts beamed it back to us. That's the image that spoiled it all. That's when we started talking nonsense about the world. Suddenly the world's happy materialists, and its happy consumers were turned into guiltridden 'greens.' They saw the spaceman's view of the planet and they thought they saw something which was a fragile, static set of natural communities. Actually, nature is, of course, robust, and it's in constant tension. It's dynamic and it is absolutely full of opportunism ... What's more, nature's very nasty and it's extremely violent." These words are those of British environmental journalist, Richard D. North.1

The Robust Earth

"Saving the planet" has become a favorite phrase used by the media and environmental groups. We've all seen the pictures taken from outer space of our beautiful, lonely, cloud covered, blue planet with captions telling us how fragile it is and to treat it with environmental concern. Who are we kidding? We puny humans are not going to save the Earth. It can survive any abuse we provoke upon it. Sure, it might take thousands or even millions of years for it to recover from full-scale nuclear war or runaway pollution but as Mark Hertsgaard notes, "That is barely the blink of an eye in geological time."²

Mount St. Helens

One example of the earth's ability to respond to real disaster is its response to the eruption of Mount St. Helens in Washington in May 1980. It erupted with a ferocity not witnessed in the United States in historic times. As Alston Chase reports: "The mountain literally blew its top, igniting an avalanche that swallowed lakes and covered portions of its slopes with debris more than 600 feet deep. A cubic mile of hot volcanic material shot into the atmosphere, spreading a layer of ash over farms and forests up to a thousand miles away."3 Researchers assumed that nothing could have survived because of the severe devastation. They speculated that all life would have been either sterilized by the searing heat or smothered by debris and dust. However, just two weeks after the event, researchers "encountered one living thing after another: thistle, pearly everlasting, bracken fern, various herbs and legumes, fire fungi, animals such as deer mice, ants, and pocket gophers," says Chase. Within two years the mountain had been reborn and 90 percent of the plant species that existed before the eruption had returned.³

Other Great Disasters

Margaret Maxey notes: "History is replete with stark lessons about the harm inflicted on humans and their life-sustaining biosphere by the natural environment and its heedless malevolence. The Great Flood of 1887 in China's Honan Province caused 900,000 deaths. Winds from a great hurricane in 1900 caused a storm surge in Galveston, Texas, which claimed 6,000 lives. The volcanic eruption at Mont Pelee, Martinique, in 1902 caused 30,000 immediate deaths."4 Krakatoa in Southeast Asia erupted in August 1883 resulting in 36,000 deaths. An estimate of the force of the blast that pounded five cubic miles of volcanic rock into dust is that the explosion equaled somewhere between 10,000 to 30,000 megatons of pure TNT. For comparison purposes, the Hiroshima bomb was 20 kilotons of TNT (note that mega refers to millions of tons, while kilo refers to thousands.) After Krakatoa, weather around the world was affected for three years because of dust in the upper atmosphere.5 Earthquakes also wreck much havoc. The San Francisco earthquake of 1906, which was responsible for 3,000 fatalities, remains the

most destructive in U.S. history. However, it pales in comparison to the 1976 Tangshan earthquake in China that killed as many as half a million people.⁶ In spite of how technologically competent we earthlings think we are, we have a long way to go to control natural forces.

On the man-made side, the oil fires in Kuwait were predicted by some "nuclear winter" scientists to presage a coming ice age. Jeff Wheelright reports: "some three million barrels went up in smoke every day, the equivalent of 12 Exxon Valdez spills being ignited around the clock. The environmental carnage lasted many months. Although the air pollution was fierce, Kuwaitis were no worse off in health than long-suffering residents of Mexico City or parts of Eastern Europe. Local temperatures dropped, but there were no global changes in meteorology. Compare this with the overwhelming atmospheric disturbance of 1991, the eruption of Mount Pinatubo in the Philippines, which, dwarfing the Kuwait fires in its effects, cooled the global climate and aggravated the loss of ozone."7

Humans & the Environment

The environment is a present example that's been of concern for over three decades. Notes Noel Boaz: "The general opinion is that we are ruining our environment. As usual, however, when humans have a concept, they are always at the center of it. In fact, the 'environment' as a whole does not revolve around the human species, and it will survive just fine, minus us and a few other species that we may take with us to extinction."⁸

Stephen Jay Gould says that two linked arguments are often promoted as a basis for an environmental ethic:

1. We live on a fragile planet now subject to permanent derailment and disruption

by human intervention;

2. Humans must learn to act as stewards for this threatened world.⁹

He goes on to observe: "Such views, however well intentioned, are rooted in the old sin of pride and exaggerated selfimportance. We are one among millions of species, stewards of nothing. By what argument could we, arising just a geological microsecond ago, become responsible for the affairs of a world 4.5 billion years old, teeming with life that has been evolving and diversifying for at least threequarters of that immense span? Nature does not exist for us, had no idea we were coming, and doesn't give a damn about us. This assertion of ultimate importance could be countered if we, despite our late arrival, now held power over the planet's future. But we don't, despite popular misconception of our might. We are virtually powerless over the earth at our planet's own geological time scale. All the megatonnage in all our nuclear arsenals yields but one ten-thousandth the power of the 10 km asteroid that might have triggered the Cretaceous mass extinction. Yet the earth survived that larger shock and, in wiping out dinosaurs, paved a road for the evolution of large mammals, including humans. We can surely destroy ourselves, and take many other species with us, but we can barely dent bacterial diversity and will surely not remove many million species of insects and mites. On geological scales, our planet will take good care of itself and let time clear the impact of any human malfeasance."9

Our arrogance also is evident when we talk about future generations. H.W. Lewis uses radioactive wastes as an example. He notes that standards established by EPA for the repository to hold this waste require that it remain intact for 10,000 years, by which time the radioactive materials will be relatively innocuous. "EPA requires that the waste be stored in such a way that future people, presumed to be ignorant savages, will not be able to hurt themselves if they accidentally dig the stuff up. The arrogance deserves emphasis. We assume that we know much more than the people of the past, and it is even true, certainly as far as science and technology are concerned. To assume that we are also more competent than the people of the future means that we have selected ourselves as the highest manifestation of the human race, the peak of human development for all time. An engaging thought, just a bit pompous." He concludes by pointing out that the risk from radioactive waste buried according to EPA standards is ridiculously low, at least a factor of a million lower than any other risk discussed in his book Technological Risk. "The risk is as negligible as it is possible to imagine, yet the clamor about the subject has paralyzed the decision-making authorities, and there is still no consensus solution."¹⁰

Summary

No question we humans should do everything we can to prevent degradation to the environment wherever possible. However, any bad things we might do are trivial by comparison with the power of nature. As one of my favorite authors, Gabor Levy observes: "It is arrogant to forget that we will never be able to stop California from sliding north, or the lava flowing in Hawaii. The Caribbean will keep spawning tornadoes, and winters will always follow summers."¹¹ P&SF

References

1. Richard D. North, quoted in *Environmental Risks and the Media*, (London, Routledge,

Think Tank

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ored, soft, friable deposit or film. New anodes are electrolyzed to develop this film. Orange-red deposits or crust indicate contaminants, such as chloride.

- Bath temperature. Reference is given to confidence in knowing what the temperature actually is. Where is the temperature probe located? Twelve inches down in a 45-inch deep tank is not good enough or, in itself, accurate. Is there sufficient solution movement? The bath contains 20 or more oz/gal of chromic acid. This contributes to a layering effect, with different temperature zones, unless the solution is sufficiently agitated. Thermostatic control is only as good as it's calibration and stick free operation.
- Electrical contact. Hexavalent chromium is acutely sensitive to any current interruption. Make sure all contacts are kept cleaned and are live. This is especially critical in return type automatic machines. One station may be dead, resulting in whitewash and haze. This usually occurs in the entry station. For this reason, I prefer a separate rectifier with low current connected to the entry station.
- **Rectifier**. The rectifier should be at least three-phase. Adequate filters should minimize AC ripple to be no more than 0.5%. A service technician, or the electrical department, should routinely

2000), Stuart Allan, Barbara Adam, and Cynthia Carter, Editors, 26.

- Mark Hertsgaard, *Earth Odyssey*, (New York, Broadway Books, 1998), 15.
- 3. Alston Chase, *In a Dark Wood*, (Houghton Mifflin Company, 1995), 165.
- Margaret N. Maxey, "Managing Technological Risks: A Bioethical Perspective," in *Global 2000 Revisited*, (New York, Paragon House, 1992), Hugh W. Ellsaesser, Editor, 388.
- Ragnar Benson, *The Greatest Explosions in History*, (New York, Carol Publishing Company, 1991), 2.
- 6. Marc Reisner, *A Dangerous Place*, (New York, Pantheon Books, 2003), 69,
- Jeff Wheelwright, *Degrees of Disaster*, (New York, Simon & Schuster, 1994), 86.
- Noel T. Boaz, *Eco Homo*, (New York, Basic Books, 1997), 239.
- 9. Stephen Jay Gould, *Eight Little Piggies*, (New York, W.W. Norton & Company, 1993), 48.
- H.W. Lewis, *Technological Risk*, (New York, W.W. Norton & Company, 1990), 246.
- 11.G.B. Levy, "Supreme Arrogance", *American Laboratory*, January 1998, p. 6.

check for the level of AC ripple with an oscilloscope.

- Time delay. This is in reference to the time required from exiting the nickel bath to chrome bath entry. The nickel deposit will readily form an oxide, resulting in passivation, causing chrome plating rejects. Automatic, computer run lines should have sufficient times programmed into the cycle, preventing any problems during transfer to the chrome tank. Manual lines must keep racks moving along. The last station before chrome entry may be a pre-dip, consisting of the dilute chrome bath, effectively activating the nickel deposit. In a few instances, an overhead hoist may be running many stations, resulting in a hard-to-overcome time delay. If this happens, and tank space is available, I have found cathodic electrocleaning the nickel plated parts to be most helpful prior to chrome plating. Do not use the electrocleaner in the surface preparation step, but rather a separate electrocleaner, just for this application.
- Nickel Deposit. Maintain the bath and operating parameters to plate sufficient coverage of nickel. This includes optimum levels of the organic brightening and leveling additives. Excessive amounts of these agents in the nickel deposit will speed unwanted passivation.
- Racks. These should be maintained in top operating condition. Loose or broken prongs and contacts will affect chrome deposit coverage, as will excessive buildup of nickel deposits on tips. *P&SF*