

THE GREATEST EXPERIMENT IN HUMAN HISTORY: WHY IS IT BEING IGNORED?

When the last individual for a race of living things breathes no more, another heaven and another earth must pass before such a one can be again.
William Beebe

Nature does nothing uselessly.
Aristotle

Nature is trying hard to make us succeed; but nature does not depend on us. We are not the only experiment.
Buckminster Fuller

The greatest experiment in human history will determine how many years perpetual human population and economic growth can continue before causing a state shift in Earth's present Biosphere. A state shift is irreversible and will involve many new conditions that could be fatal to civilization and even drive *Homo sapiens* to extinction.

The greatest experiment is global and is vastly important because it consists of damage to the present Biosphere, which serves as Earth's life support system and the source of renewable resources that are the foundation of the human economy. The present Biosphere is the first that will probably collapse because of human activities; the primary threats are all caused by human activities (Cairns 2010, 2012). A biospheric collapse would result in mass extinction of species, which occurred in the five previous collapses that were not caused by humans. At present, a state shift of the Biosphere is the worst case scenario, and the destruction of human civilization but the survival of *Homo sapiens* is the probable best case scenario. A sobering observation is that "*more than 99 percent of all species that have lived on Earth are now extinct*" (<http://dsc.discovery.com>).

For a few weeks, the attention of citizens of the United States and a significant portion of the rest of the world was understandably focused on Superstorm Sandy and its impact on the human condition. Preliminary estimates of costs are US \$32 billion for New York State alone – the total cost of the storm could exceed \$100 billion. Superstorm Sandy was just a component of the social cost of carbon emissions in the United States (Johnson and Hope 2012).

Those Catastrophic Externalities

"Corporate profits can be increased by keeping wages low and real social, environmental, and economic costs externalized, borne by society at large and not by the firm. Today's corporations have been called 'externalizing machines' because they are so committed to keeping much of the real costs of their activities off their books. One can get some measure of these external costs from a recent analysis of three thousand of the world's biggest companies; it concluded that paying for just their external environmental costs would erase a third of their profits at least" (Speth 2012, p. 5). Externalities may be "external" to corporate profits, but they are not external to humankind when they badly damage the biospheric life support system. This experiment cannot long continue without serious, probably fatal, damage to human civilization.

Developing an Actively Caring Worldview

"The large-scale, long-term health, safety, and welfare of people require us to routinely go beyond the call of duty on behalf of others. We call this actively caring for people or AC4P. . ." (Geller 2013, p. 5). Of course, the most obvious response in actively caring is to help individuals in need. However, all humanity evolved and, at times, flourished in the present Biosphere. If it collapses, which seems increasingly probable, all humanity will suffer.

Framing a New Worldview

"The technical term for understanding within the cognitive sciences is "framing." [Humans] think, mostly unconsciously, in terms of systems of structure called "frames" . . . the frame circuitry in our brains doesn't change overnight" (Lakoff 2009).

Perpetual economic growth on a finite planet with finite resources has been a catastrophic failure. Although the scientific evidence is massive, many people cling to the practices that cause catastrophes, such as greenhouse gas-emitting fossil fuels when non-carbon energy sources are readily available (e.g., solar, wind geothermal). A new worldview centered on non-carbon energy sources is essential.

Lack of Urgency

The "Greenland glacier is melting 5 times faster than it was in the 1990s" (McDiarmid 2012), yet humankind still shows no urgency about approaching irreversible global tipping points. When irreversible changes occur, humanity will be strongly tempted to approve the use of inadequately tested "hail Mary" geoengineering techniques. Even now, inadequately tested large-scale geoengineering experiments are being given more serious attention. For example — "Last July, a freelance geoengineer [Russ George] — some called him rogue — dumped 100 tons of iron sulfate into the Canadian Pacific, the largest deliberate ocean fertilization ever. A plankton bloom covering thousands of square miles of ocean resulted" (Carroll 2012). And then what happened? No robust evidence is available of the probable extent of unintended secondary effects.

Denial of Climate Change Continues

During the 2012 presidential candidate debates, global climate change, overpopulation, rising sea levels, and food security were barely mentioned or not mentioned at all. Superstorm Sandy, which occurred during the end of the election period, had little or no effect on the presidential debates. However, coverage of Sandy focused almost entirely on its effects on humans and property. Some forceful attempts were made to focus on causes — "It's Global Warming, Stupid," blasted from the cover to *Bloomberg Businessweek* (Carroll 2012).

Illustrative Questions to Initiate Discussion

During a global biospheric shift,

- (1) how can biological forecasting of global state shifts be developed?
- (2) what does equal opportunity mean?
- (3) can humanity be persuaded to accept that the universal laws of physics, chemistry, and biology cannot be ignored or denied?
- (4) how can policymakers be persuaded to focus on root causes of change rather than symptoms (i.e., effects)?
- (5) what is meant by the words "bounce back" in the context of planetary state shifts?
- (6) what does individual freedom mean?

Acknowledgment. I am indebted to Darla Donald for transcribing the handwritten draft and for editorial assistance in preparation for publication and to Paul Ehrlich and Paula Kullberg for calling useful references to my attention.

LITERATURE CITED

- Cairns, J, Jr. 2010. Threats to the biosphere: eight interactive global crises. *J. Cosmology* 8:1906-1915.
- Cairns, J., Jr. 2012. The ninth threat to the biosphere: human thought processes. Supercourse Legacy Lecture: National Academy of Sciences Members' Lectures. <http://www.pitt.edu/~super1/lecture/lec46811/index.htm>.
- Carroll, J. 2012. The Earth experiment. Boston Globe 26Nov
- Geller, E. S. 2013. *Actively Caring for People: Cultivating a Culture of Compassion*. Make-A-Difference, LLC, Newport, VA.
- Johnson, L. T. and C. Hope. 2012. The social cost of carbon in U.S. regulatory impact analysis: an introduction and critique. *J. Environ. Stud. Sci.* 2:205-221.
- Lakoff, G. 2009. How we talk about the environment has everything to do with whether we'll save it. Alternet 19May http://www.alternet.org/story.140138/how_we_talk_about_theenvironment_has_everything_to_do_with_whether_we_%2711_save_it.
- McDiarmid, M. 2012. Greenland glacier melting 5 times faster than in the 1990s. CBC News Online 29Nov
- Speth, J. G. 2012. *America the Possible: Manifesto for a New Economy*. Yale University Press, New Haven, CN.