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THE END OF CONTAGIOUS OPTIMISM AND DENIAL

John Cairns, Jr.

Department of Biological Sciences, Virginia Polytechnic Institute and State University,
Blacksburg, Virginia 24061, USA

It is noteworthy that people in America go to great lengths to deny or forget about death. Yet if you deny reality it is likely to catch up with you.

George Soros (2008)
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Shiller (2008) remarks that "too little attention has been paid to the most fundamental cause" of the financial crisis humankind is now in; he identifies this fundamental cause as speculative bubbles that are fueled by investors who depend on unsubstantiated, rising prices and optimistic views of the market. Historian Aaron M. Sakolski chronicles such events in his 1932 classic *The Great American Land Bubble* and explains the concept of a bubble as "the contagious optimism, seemingly impervious to facts, that often takes hold when prices are rising." Shiller affirms that bubbles are like epidemics and should be treated the same way: "Every disease has a transmission rate (the rate at which it spreads from person to person) and a removal rate (the rate at which those individuals recover from or succumb to the illness and so are no longer contagious)."

With some notable exceptions, housing values appreciated in the United States until 2007-2008. Then, the housing crisis of today was caused by "unscrupulous mortgage lenders, dishonest borrowers, and under-regulated financial institutions" (Shiller 2008). Large financial institutions failed in September/October 2008, and an emergency bailout plan was passed by the US Congress and signed by US President George Bush. Even by mid-October 2008, the success of this plan was not assured, and additional remedial measures were being discussed.

The term *tipping point* originated in the field of epidemiology to explain the concept that small changes will have little or no effect on a system until a critical mass is reached. Then a further small change "tips" the system and a large effect is observed. At present, the spread of optimism could be compared to a pandemic disease – a tipping point has been reached. In a societal and ecological context, a tipping point is one at which a slow, gradual, almost imperceptible change suddenly becomes irreversible and return to the predisturbance condition is impossible (Cairns 2004).

The most important attribute of both societal and ecological tipping points is that their existence is not recognized until damage has been done. This unacknowledged tipping point appears to be true for all complex, multivariate systems, although societal systems (e.g., financial) are human artifacts and should exhibit some signs of instability if skillfully monitored. Apparently, robust monitoring to determine if pre-established quality control conditions were being met has not been widely used. A monitoring system apparently was not used in the current financial meltdown.

Humankind has already passed one global climate tipping point (probably 350 ppm atmospheric carbon dioxide), and another is probably in the near future if "business as usual" greenhouse gas emissions continue at present or, more likely, increased levels. Although some parts of the world have suffered grievously from the effects of global climate change (e.g., Australia, parts of Africa); in others (e.g., Blacksburg, Virginia; and Kentucky), the deleterious local effects have not yet been sufficiently severe to convince people that climate change can have major effects on their lives. The preponderance of scientific evidence is persuasive (e.g., The Intergovernmental Panel on Climate Change [IPPC]), but most people cannot or will not take the time to examine it.

Consequently, greenhouse gas emissions will continue to increase and positive feedback loops (e.g., release of frozen oceanic methane) will continue at present levels, or even worsen. The next major climate tipping point is probably between 400-450 ppm atmospheric carbon dioxide –the present level is somewhat over 385 ppm. As a result, an additional, major climate tipping point will be passed – probably in the early part of the 21st century. Minor increases in global temperature will create serious consequences (Lynas 2008).

Soros (2008, p. 3) remarks: "My starting point is that our understanding of the world in which we live is inherently imperfect because we are part of the world we seek to understand. There may be other factors that interfere with our ability to acquire knowledge of the natural world, but the fact that we are part of the world poses a formidable obstacle to the understanding of human affairs."

In his interview with Nathan Gardels (2008), Soros states: "The key to understanding this crisis – the worst since the 1930s – is to see that it was generated within the financial system itself. What we are witnessing is not the result of some exogenous shock that knocked things off balance, as the prevailing paradigm, which believes markets are self-correcting, would suggest. The reality is that financial markets are self-destabilizing, occasionally they tend toward disequilibrium, not equilibrium." This explanation is particularly important because many people, including US President George Bush, have stated that efforts to address global climate change must not have adverse effects upon the economy. Yet the recent economic downturn has shocked the world. If the economy is sacred, why wasn't it better protected?

However, as Monbiot (2008) remarks: "Ecology and economy are both derived from the Greek word *oikos* – a house or dwelling. Our survival depends upon the rational management of this home: the space in which life can be sustained. The rules are the same in both cases. If you extract resources at a rate beyond the level of replenishment, your stock will collapse." In short, ecological overshoot occurs! The day Earth reached ecological overshoot for 2008 on September 23 – the day humanity used all the resources nature generated this year, according to Global Footprint Network data (http://www.footprintnetwork.org/gfn_sub.php?content=oveshoot#WOD). Human society is using the equivalent of 1.4 Earths to support its collective lifestyle, although humankind has only one finite Earth. The result is that natural capital continues to be used and continues to shrink, as does the ecosystem services it provides. Humankind went into ecological overshoot for the first time in 1986 – before then, it consumed resources and produced greenhouse gases at a rate the biosphere could assimilate. By 1996, humankind had an ecological overshoot of 15%, and the day Earth reached ecological overshoot was in November. Since humankind is now using resources at a rate that is 40% faster than Earth can regenerate them, its present lifestyle is unsustainable.

Monbiot (2008) notes that the present economic crisis is trivial compared to what will happen when the consequences of badly depleted natural capital becomes more evident to the general public and its political leaders. Pavan Sukhdev, the Deutsche Bank economist leading a European study on ecosystems, reports that natural capital worth between $2 trillion and $5 trillion is being lost every year, as result of deforestation alone (Black 2008).

Another Positive Feedback Loop

Just what humankind did not need – another positive feedback loop seems to have been activated: "Ordinarily peat bogs are a huge carbon sink. They consist of marsh grasses, trees and other organic matter that, because of the wet, oxygen-starved conditions, don't decay much. What's more, peat generally begets more peat: because it holds so much water and blocks drainage, as it accumulates the water table rises, reducing decay even further" (Fountain 2008).

Environmental conditions are changing. Takeshi Ise of the Japan Agency for Marine-Earth Science and Technology and colleagues examined bogs in northern Manitoba. The research investigators simulated the effects of an increased warmth of 7°F and found that higher temperatures would, in effect, "reverse the feedback loop: the water table would drop, causing more peat to dry and decompose" (Fountain 2008). In short, instead of being an organic, carbon sink, bogs would become a source, thus increasing atmospheric carbon dioxide.

This news is not good at a time when anthropogenic greenhouse gases are still being emitted at unsustainable rates if atmospheric carbon dioxide is to be reduced to 350 ppm – the target recommend by James Hansen. "Global emissions of carbon dioxide have surged, driven mainly by explosive economic expansion in developing countries . . . More than half of global emissions, which totaled more than 34 billion tons of CO_2 in 2007, are now from developing countries" (Revkin 2008). One cannot ethically urge that third world citizens not aspire to resource consumption rates of the United States and, to a lesser degree, other developed countries unless countries with high rates of resource consumption dramatically reduce them. "Large reductions in net CO_2 uptake in the warm year were caused mainly by decreased plant productivity resulting from drought, while the lack of complete recovery the following year was caused by a lagged stimulation of CO_2 release by soil microorganisms in response to soil moisture conditions" (Desert Research Institute 2008). The point is that Earth's assimilative capacity for carbon dioxide is not constant and may even decrease when humankind needs it most. This situation is merely new evidence of another positive feedback loop that will increase atmospheric carbon dioxide at a time when reduction is badly needed.

Conclusions

Contagious, irrational optimism not based on solid evidence is hazardous to humankind in both matters financial and ecological. Globalization has vastly increased the consequences of bad judgment, especially in an era of exponential human population growth and substantial ecological overshoot. Denial of these issues, coupled with global climate change, is a formidable obstacle to remedial measures that could save billions of lives. Another major, global climate tipping point could be reached any time since the location of tipping points is not known until one has been passed. Since the consequences will probably be catastrophic, immediate precautionary measures are justified. It is worth remembering that contagious pessimism can be as dangerous as contagious optimism!

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