Book Review

Overshoot: The Ecological Basis of Revolutionary Change
William R. Catton, Jr. Champaign (IL): University of Illinois Press; 1982. Paperback; 320 pages; $27.

> "Having heard all of this you may choose to look the other way . . . But you can never say again you did not know."
> *William Wilberforce*
> *British Parliamentarian, 1789*[1]

I recently finished reading a critically important book by Professor William R. Catton, Jr., entitled, *Overshoot: The Ecological Basis of Revolutionary Change*."[2] I not only consider it one of the most influential books I have ever read, but I believe it ranks as one of the most important books ever written, period. I wished I had read it 27 years ago, but at that time I had already left my undergraduate ecological roots behind me while engaged in the excitement and challenges of the start of my public health career at the Wisconsin State Health Department. Well, better late than never!

Despite its maturity, *Overshoot* remains a vividly fresh and visionary work of brilliance and foresight. The ecological foundations of Catton's thinking are strong and enduring due to his careful research and interpretive power. His treatise explains much about the human condition that we find ourselves in now, early in the 21st century. In a breathtaking yet concise sweep of history and biology through the eyes of a human ecologist, Catton reveals how we got here and where we are in all probability headed. He summarizes this view as follows:

> Today mankind is locked into stealing ravenously from the future [by way of] diachronic competition, a relationship whereby contemporary well-being is achieved at the expense of our descendants. By our sheer numbers, by the state of our technological development, and by being oblivious to differences between a method that achieved lasting increments of human carrying capacity [agriculture] and one that achieves only temporary supplements [reliance on fossil fuels and other mined substances], we have made satisfaction of today's human aspirations dependent upon massive deprivation for posterity.[2]

In a series of essay-like chapters, he explains how the inhabitants of modern civilization (*homo colossus,* he calls us, due to our prodigious use of energy, raw materials, and mechanical/prosthetic amplification devices) are living more and more luxuriously but, ironically, more and more dependently on the limited and nonrenewable resources and energy we have unearthed from the geologic past. The result, he says, is a mortgaging of our and our descendants' future.

From a vantage point of the late 20th century, he offers not only a paradigm shift but also a temporal shift for 21st century humanity. What we have built, what we have become, and what we have come to expect as individuals and complex societies is, he writes, but a unique and historically brief interlude of riches ("exuberance," he labels it) as we (especially the Western "we") have dominated and abused the planet whose ecological workings and whose place in it most of us did not and still do not fully understand.

Catton pulls no punches. Because of humankind's lack of understanding and wisdom, there is likely to be no happy near-future ending as the exuberant interlude comes to a close. It is finishing because we have shot way over the planet's carrying capacity to sustain the desired living standard for most of the earth's population. (There will be seven billion of us by April 2010,[3] a doubling from about 1965.) We have overshot and continue to overshoot via the troika of (*1*) habitat takeover, (*2*) habitat destruction, and (*3*) the drawing down of finite ancient geological resources, all the while believing that new technology, undiscovered resources, clean energy, interplanetary resettlement, or faith will save us. Yet analogous crashes of populations and civilizations have been recorded in history many times before; it is just that today the stage is global and the size of the susceptible population is larger by orders of magnitude. We may claim innocence by reason of ignorance, but nature, Catton reminds us, does not care about our ignorance.

When will the first symptoms of overshoot arrive? Arguably, we may well be there already, if we would interpret local and global events in the proper ecological context. Periodic genocides, global food crises, world wars, global climate change, soaring crude oil and commodity prices, massive droughts, gigantic forest fires, ocean dead zones, off-the-scale plant and animal species extinction rates, massively fouled human environments, global pandemic threats, resource wars, diminishing energy and resource reserves… the list goes on and on. The evidence is all around us that the downward slope is in the near future. Technology, stored wealth, and prudent local resource management may postpone and smooth for some of us the period of

reckoning. But from a global perspective, population decline mediated by increasing pestilence, war, and famine is inevitable. Heinberg, in a modern update, has called this the "universal ecological dilemma," referring to the fact that population and consumption growth cannot possibly continue unabated on a finite planet.[4]

As individuals, we still have choices to make. We can work for short-term humanitarian gain and labor toward helping developed and developing economies devise programs and policies that lead to healthier and safer environments, homes, communities, jobs, recreational activities, and transport systems. Or we can choose to focus our efforts on the larger picture and work on developing societies and communities built around more limited but long-term sustainable transportation, agricultural, health, and economic systems. At the very least, we may need to do both.

But haunting questions remain once an ecological perspective of public health takes root. Are we who work in public health unwitting accomplices in the global climate, resource, habitat, and species diversity destruction by saying it is alright to create and try to support unsustainable transportation-based economies as long as we strive to keep their current inhabitants safe and healthy? Is it ethical to assist in leaving a broken planet to our children, as long as we would do so safely and healthfully for those of us lucky enough to live in this short period of exuberance before the onrushing ecological and economical descent?

Overshoot, if read perceptively and openly, raises uncomfortable dilemmas for most areas of public health. It means that the gains of low infant and maternal mortality and rises in population longevity—brought about in great part by harnessing fossil fuels, the agricultural revolution, modernization, and disease and injury reduction efforts—in many instances impedes rather than facilitates moving toward sustainable living. It can be argued from the ecological perspective that most public health efforts, as humanitarian as they are by intention and immediate effect, through accelerating population pressures on the environment are paradoxically hastening the destruction of the earth's habitat on which the next generation of humanity depends. It raises the concern that our perceived gains may be only illusory and temporary, with huge but unmeasured and unlinked environmental costs that will eventually lead to shorter lives of misery for our descendants.

The nexus of the challenge of Catton's temporal paradigm shift as it relates to public health is this: We have been able to conceptualize the goals and practices of public health by reducing geographic disparities and striving to improve the human condition at local, national, and global levels. But are we able to conceptualize the role and value of our labors temporally, across the 21st century to the 22nd century and beyond?

Public health may have a future as an instrument, practice, and science to serve humankind. Catton's book helps to teach and remind us that it will continue to do so only in an ecological context that looks beyond a single program and views the bigger ecological system. Human health and the health of the environment and ecosystems we depend on should be seen as the opposing forces that they sometimes are; forces that must be moved more to equilibrium and away from a focus solely on short-term human gains.

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