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Not Yet?

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The summer 2014 issue of CALIFORNIA, the magazine of the University of California Alumni Association, was touted as the "Apocalypse Issue." It contained articles, mostly excellent, on a series of potential California and global problems: asteroid collision, epidemics, extinction, climate disruption and earthquake. In stark contrast, though, was a summary article, "Apocalypse Later" by Brendan Buhler, interim Science Editor for the issue.

Buhler's essay hinges around two assertions about the future. On the one hand he asserts that apocalypse is something that is at worst far off in the future. It is "not yet"; there is time. Time for what? For the technological solutions that he asserts are just around the corner. To advise a wait-and-see attitude when it comes to confronting severe threats to us and our descendants, and a thoughtless confidence when it comes to future breakthroughs in technology, is a lethal combination; it is not the advice we and many of our scientist colleagues offer up in the classroom.

Sadly, the drift toward apocalypse is propelled by four horsemen: ignorance, denial, faith, and greed. Education can cure ignorance, and most of the essays in this issue of CALIFORNIA are a useful step in that direction. But denial, blind faith, and greed are pervasive and recalcitrant, as Buhler demonstrates. Greed, long recognized as the basis of modern economic systems, is illustrated by Buhler's assertions about salvation via new supplies of oil made available by melting ice caps. Those who would exploit these resources do so out of greed, not out of concern about the collapse of civilization, and in fact the exploitation of those resources will hasten collapse. Buhler expresses faith that farm yields will begin to rise again,

faith in a second coming of the Green Revolution. And his assertion that biofuels could well be the path to sustainable energy denies a growing body of scientific literature demonstrating the many ways that reliance on biofuel technology will leave the planet in even worse shape than it currently is: more vulnerable to energy supply disruption because of energy dependence on a capricious climate, more depauperate of biodiversity, and shorter of food as critical resources such as water, nutrients, and land become even more depleted.

To see denial in operation, consider the rant that frames the entire article: Buhler's dismissal of the concerns about population size found in both Malthus and *The Population Bomb.* As is true of so many critics of Malthus and the "*Bomb*", Buhler appears to have not understood the content of either. A widely cited passage from the latter stated "In the 1970s the world will undergo famines – hundreds of millions of people are going to starve to death in spite of any crash programs embarked upon now. At this late date nothing can prevent a substantial increase in the world death rate, although many lives could be saved through dramatic programs to 'stretch' the carrying capacity of the earth by increasing food production. But these programs will only provide a stay of execution unless they are accompanied by determined and successful efforts at population control."

Let's evaluate that passage in the light of the reality subsequent to its publication. Buhler effectively denies that some 300 million people have died of hunger or hunger-related disease since that was written, and that at least two billion people are hungry or nutrient malnourished today – despite the crash program of the "Green Revolution." And the concerns expressed in the *Bomb* have hardly faded away. The FAO, for instance, estimated that increasing food production by some 70% would be required to feed a 35% bigger and still growing human population adequately by 2050.[1] As the conservative 2013 World Economic Forum Report said: "Global food and nutrition security is a major global concern as the world prepares to feed a growing population on a dwindling resource base, in an era of increased volatility and uncertainty. Over 870 million people are now hungry, and more are at risk from climate events and price spikes; concerted efforts to improve food security have never been more urgently needed."

Buhler notes the many barriers to improving that security – the brutal trends in fisheries, ocean acidification and warming, soil loss, and the like, but simply asserts "there are solutions to these problems." He does not note how far above the long-term carrying capacity of Earth the human enterprise has expanded.[2]

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[1] Food and Agriculture Organization (FAO). 2009 *How to Feed the World in 2050*, http://www.fao.org/fileadmin/templates/wsfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf

[2] http://www.footprintnetwork.org/en/index.php/GFN/page/world_footprint/

In short Buhler's implication that controlling human numbers is not required to solve food problems may be true for the very wealthy, at least for now, but the failure of human beings to solve the production/distribution problems exacerbated by overpopulation has already caused, and is now causing, so much death and misery that "not yet" seems like a very bad joke. Buhler might have the ignorance excuse for not realizing things like the many nonlinear negative effects of population increase,[3] or the frequently-studied tight relationships between human population size and epidemics,[4] and human numbers and the loss of biodiversity and ecosystem services[5]. But only denial can explain his (and most of the media's) failure to point out the way human population growth helps drive climate disruption, sea level rise, ocean acidification, and soil loss (all those things which Buhler tells us have solutions, but just "not yet").

We could expand on the "not yet" element of the population driver –not yet for the thousands of environmental/economic/political refugees dying trying to enter the European Union or the United States? If "not yet", why did EU nations create the Frontex agency and concentration camps to internationalize its border control and build detention camps[6] against an immigrant flood?

Even catastrophes like typhoons, earthquakes, tsunamis, and asteroid collisions, that at first glance seem to have no demographic connections, actually do. The first three may be triggered by anthropogenic climate disruption[7] and the impacts of all may be exacerbated by huge numbers of poor people forced to live in exposed areas with inadequate infrastructure. The high death rates with Typhoon Haiyan, Hurricane Mitch and the 2004 Indian Ocean tsunami are examples. We have so far been fortunate with "city killer" asteroids, but the same principles apply.

Of course, Buhler's "Apocalypse issue" doesn't touch on one of the most significant elements of the approaching apocalypse – that building resource/climate[8] wars could easily

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[3] Harte J. 2007. Human population as a dynamic factor in environmental degradation. Population and Environment 28: 223-236.

[4] Daily GC, Ehrlich PR. 1996. Impacts of development and global change on the epidemiological environment. Environment and Development Economics 1: 309-344. Keeling MJ, Grenfell BT. 1997. Disease extinction and community size: Modeling the persistence of measles. Science 275: 65-67.

[5] E.g., Ehrlich PR. 1995. The scale of the human enterprise and biodiversity loss. Pages 214-226 in Lawton JH, May RM, eds. Extinction Rates. Oxford: Oxford University Press.

[6] http://www.theguardian.com/world/2014/apr/01/migrants-living-hell-greek-detention-medecins-sans-frontieres-scabies-tb

[7] http://www.theguardian.com/environment/2012/feb/26/why-climate-change-shake-earth

[8] Welzer H. 2012. Climate Wars: Why People will be Killed in the 21ST Century. Cambridge, MA: Polity Press.

become nuclear, especially if triggered by the not unlikely possibility of nuclear terrorism.[9] He doubtless is unfamiliar with the doom inherent in even minor nuclear conflicts.[10] In his funniest statement Buhler says that "As [oil] supplies dwindle….before long it's resource wars." We wonder if he even knows about Iraq! But overall, Buhler sadly suffers from a clear case of what political scientist Gunther Anders calls "apocalypse blindness" – an inability to weigh up and respond appropriately to real dangers.[11] He does not make the connections among the generally excellent other articles in the "Apocalypse Issue" that would tie them together in the notorious perfect storm of environmental (broadly defined) existential problems that are already ruining millions of human lives and darkening the future of civilization.[12] "Not yet"? Nonsense.

Pete Seeger summarized our situation best when he wrote about Vietnam: "We were waist deep in the Big Muddy, and the big fool said to push on." To a nation eager to cease fighting an unwarranted and unwinnable war nearly 50 years ago, the nation was told "not yet". Today, it is most disappointing to hear that same bad advice, "not yet", given to university students eager to get to work on a warranted and achievable transition to a sustainable economy and a humane population size. Means of achieving the former exist in the form of improved efficiency and ever more affordable energy from wind and sun. Progress toward a sustainable human population worldwide can be made by affording women basic human rights and access to contraceptives, which give women the capacity to exercise freedom over their own reproduction. Amazingly, in place of advocating these sensible strategies for reducing the risk of apocalypse, Buhler offers up biofuels, oil from under the ice caps, and obliviousness to the population issue. A magazine representing a great institution of higher education can do better than feature such a splendid example of ignorance, denial, faith, and greed.

MAHB-UTS Blogs are a joint venture between the University of Technology Sydney and the Millennium Alliance for Humanity and the Biosphere. Questions should be directed to joan@mahbonline.org

MAHB Blog: http://mahb.stanford.edu/blog/not-yet/

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[9] http://www.cfr.org/weapons-of-mass-destruction/likely-nuclear-terrorist-attack-united-states/p13097

[10] Toon O, Robock A, Turco RP, Bardeen C, Oman L, Stenchikov G. 2007. Consequences of regional-scale nuclear conflicts. Science 315: 1224-1225.

[11] Welzer H. 2012. Climate Wars: Why People will be Killed in the 21ST Century. Cambridge, MA: Polity Press, p. 137.

[12] Ehrlich PR, Ehrlich AH. 2013. Can a collapse of civilization be avoided? Proceeding of the Royal Society B http://rspb.royalsocietypublishing.org/content/280/1754/20122845.