The Olduvai Theory

Back to hunting and gathering

BY RICHARD C. DUNCAN PH.D.

A Concise History

Thomas R. Malthus FRS in 1798 wrote, "The power of population is indefinitely greater than the power of the earth to produce subsistence for man." Then at the brightly lighted Chicago World's Fair in 1893 historian Henry Adams concluded, "The new American — the child of incalculable coal-power, chemical power, electric power, and radiating energy — must be a sort of god … The new forces would educate … the next great influx … seemed near at hand, and its style of education promised to be violently coercive."

In 1963 astrophysicist Fred Hoyle stated, "Who then is in the drivers seat? If not the governments, if not the scientists, who? Nobody. We are travelling in a vehicle that guides itself, just as our species has arisen from an evolutionary process that guided itself throughout past ages. It is my belief that nothing has changed, we are still in the grip of natural processes; we are not in charge of our own destiny." MIT professor Jay W. Forrester invented a new way to model complex systems of the world, and in 1971 he concluded, "Our greatest challenge now is how to handle the transition from growth into equilibrium. The folklore and the success stories praise growth and expansion. But that is not the path to the future."

A book on the Olduvai Theory is a great idea. There is much thought in the theory and it fits the present trends very well. In the final analysis the only truly sustainable lifestyle is that of the hunter-gatherers. They just used the annual incremental resource dividend from renewable resources, but at a low standard of living.

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I really have no idea of where we are going. But the road we are now on — using nonrenewable natural resources at an exponential rate — is dead end. Then what?[1]

This essay reports on what has happened and is now accelerating in North America and around the world.

Gov. Jerry Brown indicts global warming

"The state's climate appears to be changing," Gov. Brown said on ABC's "This Week" in May 2014. "The scientists tell us that definitely. So we've got to gear up here. And after all, in California for 10,000 years our population was about 300,000. Now it's 38 million. We have more structures, more activity, more sparks, more combustible activity and we've got to gear up for it, and as the climate changes, this is going to be a radically different future than was our historic past."

Brown's remarks came as firefighters battled fires in San Diego County, where Brown declared a state of emergency the previous week. According to state fire officials, 1,108 wildfires burned more than 2,500 acres in California from January 1 through late April, an increase over the 697 fires and 1,793 acres burned in the comparable period last year.

"As we send billions and billions of tons of heat-trapping gasses, we get heat and we get fires and we get what we're seeing," Brown said. "So we've got to gear up. We're going to deal with nature as best we can, but humanity is on a collision course with nature and we're just going to have to adapt to it in the best way we can."[2]

Wildfires are going to get worse

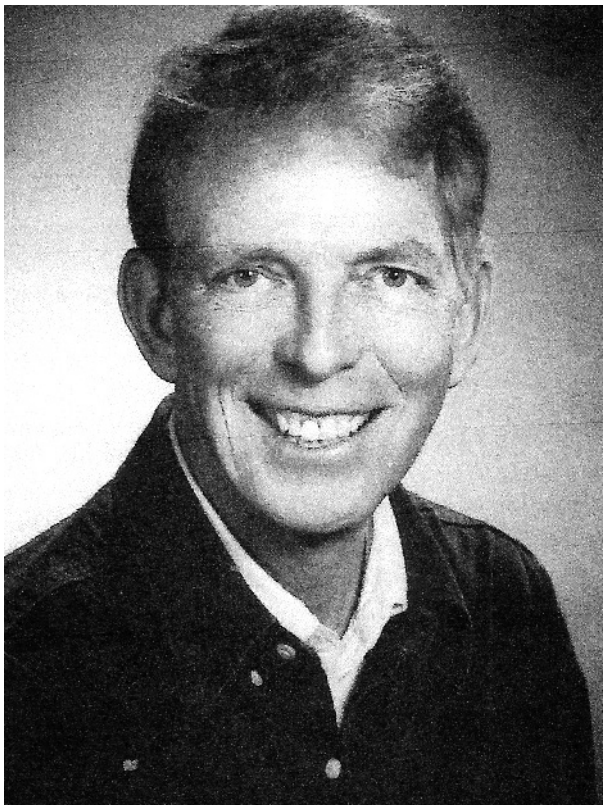
The devastating wildfires scorching Southern California offer a glimpse of a warmer and more-fiery future, according to scientists and federal and international reports.

In the past three months, at least three different studies and reports have warned that wildfires are getting bigger, that man-made climate change is to blame, and it's only going to get worse with more fires starting earlier in the year.…

"The fires in California and here in Arizona are a

clear example of what happens as the Earth warms, particularly as the West warms, and the warming caused by humans is making fire season longer and longer with each decade," said University of Arizona geoscientist Jonathan Overpeck. "It's certainly an example of what we'll see in the future."

Since 1984, the area burned by the West's largest wildfires — those of 1,000 acres — have increased by about 87,000 acres a year, according to an April study in *Geophysical Research Letters*. And the areas where fire has been increasing the most are areas where drought has been worsening, and "that points certainly to climate being a major contributor," study main author Philip Dennison of the University of Utah said Friday.



Richard Duncan

"Increased warming, drought and insect outbreaks, all caused by or linked to climate change have increased wildfires and impacts to people and ecosystems in the Southwest," the federal report said. "Fire models project more wildfire and increased risk to communities across extensive areas."

But three major ingredients fuel the California fires: drought, heat, and winds. California and Arizona have had their hottest first four months of the year on record, according to National Weather Service records. …

"With the drought this year, we're certainly going to see increased frequency of this type of event," Dennison said. "Because of the draught fuels (dry plants and trees) are very susceptible to burning."[3]

Climate change warnings for the planet

From changes in stream flow to acidifying oceans and widespread forest die-offs, the Pacific Northwest is already experiencing signs of a changing climate, according to the most comprehensive analysis yet of impacts in the United States.

The third National Climate Assessment, released Tuesday, warns that no part of the country is immune, and the effects of climate change will become increasingly disruptive in the coming decades.

"Climate change, once considered an issue for the distant future, has moved firmly into the present," the report says. "Corn producers in Iowa, oyster growers in Washington State and maple syrup producers in Vermont are all observing climate-related changes that are outside of our recent experience."

The national assessment is mandated by Congress and published roughly every four years. But this marks the first time it has zeroed in on local impacts, with sections on nine geographic regions, including the Northwest.

Nationwide average temperatures have increased by 1.3 to 1.9 degrees Fahrenheit since 1970, with another 2 to 4 degree increase expected before the end of the century. The past decade was the hottest on record in the U.S., and 2012 was the hottest year.

Across much of the country, the warming has led to more intense rainstorms, fewer cold snaps, prolonged allergy seasons, and shifts in bird migrations and the types of plants that grow in gardens, says the report, which was written by more than 250 experts and reviewed by the National Academy of Science.

"Taken together, the evidence tells an unambiguous story: the planet is warming and over the last half century, this warming has been driven primarily by human activity," the report says.[4]

Objective data on climate change

Carbon dioxide: The level of carbon dioxide in the atmosphere has increased by some 30 percent since the Industrial Revolution, mainly because of extensive burning of fossil fuels and the destruction of large areas of rainforest. This has been postulated as the main cause of average increase of 0.74 degrees C in global temperatures over the last 100 years, through the greenhouse effect. Atmospheric carbon dioxide concentration continues to rise, in spite of tentative steps to control emissions, giving the prospect of accelerated global warming in the foreseeable future.[5]

Global warming: An increase over time of the average air temperature of the earth. Global average surface temperature increased over the twentieth century by about 0.6 degrees C, and is predicted to increase by between 1.4 degrees C and 5.8 degrees C during

the period 1990-2100. The increase in temperature has been largely attributed to human activity in the form of increased emissions of greenhouse gases, especially carbon dioxide, to the atmosphere and the consequent greenhouse effect.

It has serious implications, for example, for changes in global climate patterns and in the melting of ice masses, such as polar ice caps, with consequent rising of sea levels (during the twentieth century global average sea level rose between 0.1 and 0.2 m). At an international level, the Intergovernmental Panel on Climate Change (IPCC) studies global warming. International efforts to control global warming led to the Kyoto Protocol (… signed in 1992). The treaty was drawn up in Kyoto, Japan, in 1997, to reduce emissions of greenhouse gases; the treaty took effect in 2005, following ratification by Russia, and will require all ratifying nations to achieve individual emission reduction targets. Among countries not ratifying the treaty, the most notable is the U.S., the world's largest emitter of greenhouse gases, which withdrew from the Kyoto Protocol in 2001.[6]

Climate Change Facts
U.S. Environmental Protection Agency (EPA)

The major scientific agencies of the United States — including the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA) — agree that climate change is occurring and that humans are contributing to it. In 2010, the National Research Council concluded, "Climate change is occurring, is very likely caused by human activities, and poses significant risks for a broad range of human and natural systems." Many independent scientific organizations have released similar statements, both in the United States and abroad. This doesn't necessarily mean that every scientist sees eye to eye on each component of the climate change problem, but broad agreement exists that climate change is happening and is primarily caused by excess greenhouse gasses from human activities.

Scientists are still researching a number of important questions, including exactly how much Earth will warm, how quickly it will warm, and what the consequences of the warming will be in specific regions of the world. Scientists continue to research these questions so society can be better informed about how to plan for a changing climate. However, enough certainty exists about basic causes and effects of climate change to justify taking actions that reduce future risks.[7]

How the Olduvai Theory evolved

For six years I lived and worked in Saudi Arabia. On vacation, I took a flight from Saudi Arabia to Nairobi, Kenya on July 19, 1989. Following that, a tour bus took us southward to Tanzania and the Great Rift Valley, and then onward to the Olduvai Gorge. The Olduvai Museum is located close to the Gorge. Nearby is where Mary Leakey in 1959 found a 1.8-million-year-old skull of a hominid ancestor *Australopithecus boisei*.

After studying the artifacts, photographs, and other evidence at the Olduvai Museum, we headed northward toward the vast Serengeti Plain. It was on this part of the trip that I made the first sketch of the Olduvai Theory, including, first, the pre-industrial epoch that began millions of years ago when crude stone tools were invented; second, the industrial age that began in about 1800 with James Watt's steam engine; and third, the post-industrial age is forecast to begin this century as humanity spreads out thinly over the globe and returns to various modes of hunting and gathering.

This scenario is described and illustrated on the Web: "The Olduvai Theory of Industrial Civilization."[8] There you may look at the colorful images and read some of the pro and con papers. ■

Endnotes

1. Dr. Walter Youngquist. Letter 1/24/14.

2. *The Sacramento Bee*, copied in *The Seattle Times*, 5/19/14.

3. Seth Borenstein, *The Seattle Times*, 5/19/14.

4. Sandi Doughton, *The Seattle Times*, 5/7/14.

5. *The Oxford Dictionary of Science*, Sixth Edition 2010, p. 131.

6. ibid. p. 360

7. US EPA: <http://www.epa.gov/climatechange/basics/facts.html>

8. http://www.oilcrisis.com/duncan/olduvai.htm