

MORE NONSENSE ON INEXHAUSTIBLE RESOURCES FROM THE WALL STREET JOURNAL

An NPG Forum Paper by Leon Kolankiewicz

Over the years – even over the decades, long before it was absorbed into the Murdoch Empire – the inimitable *Wall Street Journal* has been a reliable source of baloney on the subject of prospects for infinite growth on a finite planet. So much so, one might be mistaken for thinking it is a slaughterhouse or butcher shop rather than a high-circulation newspaper read by Important People whose decisions, prejudices, blind spots, and whims affect your life and mine.

One of the latest illustrations of its penchant for pap is an April 25, 2014 essay by Matt Ridley entitled “The World’s Resources Aren’t Running Out.” Ridley is a British science writer, businessman, climate change contrarian (or denier) and Conservative Member of the House of Lords. Unsurprisingly, he is also the 2012 winner of the Julian L. Simon Memorial Award, issued annually since 2001 by the free market-oriented Competitive Enterprise Institute. The first winner of the Simon Award was Stephen Moore, formerly of the Cato Institute, a co-founder and president of the Club for Growth, and an editorial board member of the *Wall Street Journal*.



Matt Ridley,
self-proclaimed “rational optimist”

While I suspect the late Professor Simon (1932-1998) needs little introduction to the majority of readers, I will just say this: the stock-in-trade of this crafty sophist was playing the arch-nemesis of all-too-earnest environmentalists and environmental scientists and the guru of growth *ad infinitum* for a generation of free-market ideologues, corporation-friendly Republicans, libertarians, and laissez-faire capitalists. While I have seen no surveys, I’m certain that among Simon’s following was more than a smattering of Ayn Rand (*Fountainhead*, *Atlas Shrugged*, etc.) disciples, although I wouldn’t say that Simon’s supporters amounted to a cult like Rand’s. It was and is more of an admiration society for the incurable optimist who proclaimed that the human mind was “the ultimate resource” that could overcome any and all resource constraints nature might dare or care to impose upon us.

“You see, in the end, copper and oil come out of our minds. That’s really where they are,” Simon once told William F. Buckley, Jr. And since what can come out of our minds is inexhaustible, resources are also inexhaustible! Voilà!

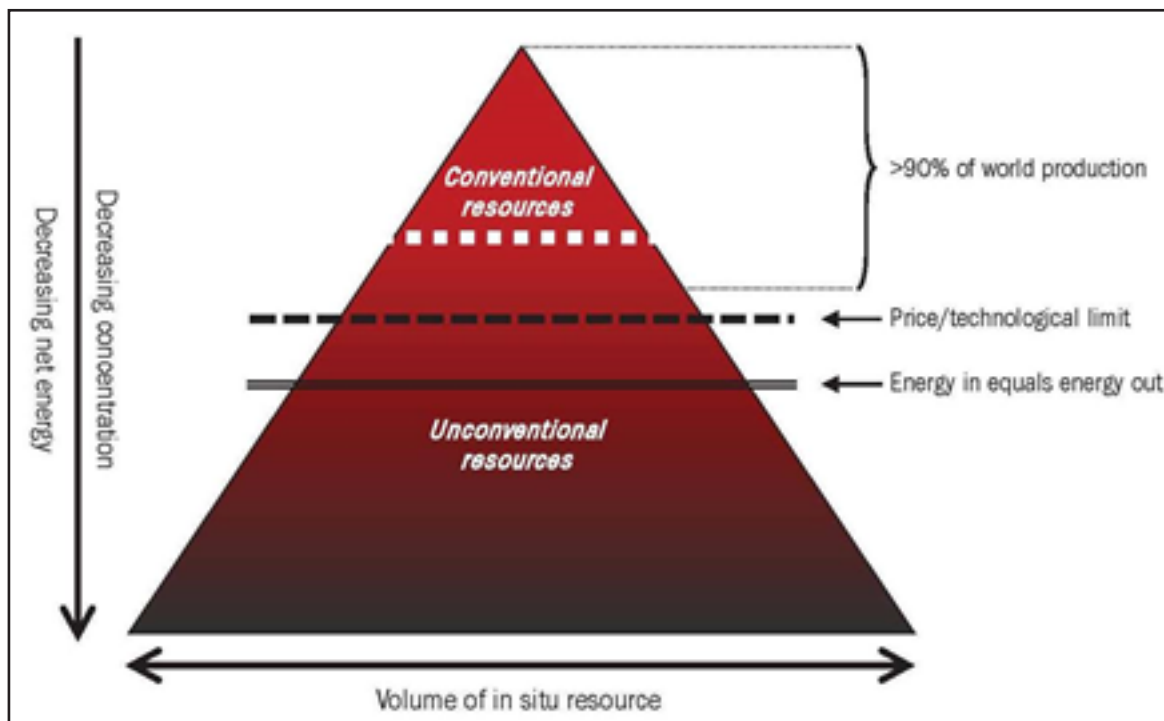
Channeling Simon, Matt Ridley reminds readers of his April 25, 2014 *WSJ* article that states: “ecologists worry that the world’s resources come in fixed amounts that will run out.” But he reassures us, “we have broken through such limits again and again.”

So much to set straight just in the article's sub-title!

Let's take the case of that archetypal non-renewable resource: the fossil fuels. Ridley's soothing assurances to the contrary, they do come in fixed amounts. These amounts happen to be (or to have once been) vast, almost incomprehensibly so. Yet these formerly vast and rapidly dwindling stocks of coal, oil, and natural gas on our planet are still fixed. Geologists (not ecologists) can only estimate what these amounts are, even with the most modern and marvelous tools at their disposal – like 3-D seismic imaging – and there are wide ranges in resource quality, grade, and concentration, as well as accessibility and affordability. (This is also the case for a number of critical non-fuel minerals vital to the world's industrial lifestyle and food supply – such as copper, titanium, phosphorous, and rare earth metals.)

But that does not make the amounts any less fixed. To argue otherwise would be like arguing that because the scale I use to weigh myself really only shows an approximation of my actual weight, or because my weight fluctuates, that I have no fixed weight at all at any given point in time. And this in turn implies that my approximate weight is a meaningless measure of my mass and wellbeing. What a relief to know that it doesn't matter if the scale says I weigh 170 or 220!

As many have observed before, like every other species of animal that ever lived on Earth, we humans have exploited the best resources first, or "the low-hanging fruit." While immense quantities of oil, gas, and coal do indeed await our utilization, this is the stuff that is at the bottom of the barrel, figuratively speaking, or at the bottom of the resource pyramid, more appropriately. Reaching and recovering (producing) these hydrocarbon resources is costing us more every year – economically, environmentally, and energetically. More dollars, more environmental impact, and more joules or BTUs expended. That is, the Energy Return on Energy Invested, or EROEI – the energy left over for society to use after the energy used up to obtain that non-renewable energy is subtracted, also known as net energy – is slumping ever-downwards. (It may seem obvious, but it is worth noting that this declining EROEI applies to non-renewable energy, not to renewable sources such as solar and wind, where cost of production is declining.)



Resource pyramid for oil, and fossil fuels more generally

(Also relevant for all non-renewable natural resources)

Credit: J. David Hughes, *Drill Baby Drill: Can Unconventional Fuels Usher in a New Era of Energy Abundance?*, Post Carbon Institute, Feb. 2013

We have to work harder and harder to get at the fossil energy resources that remain, running faster and faster just to stay in the same place. As the Red Queen explained to Alice:

“Now, here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!”

- Lewis Carroll, *Through the Looking-Glass*, 1871



The Red Queen and Alice – running faster and faster to stay in the same place

In other words, while the carbon-based fuels are still out there, and will be for many years to come, we have to drill, and pump, and mine ever deeper, through more and more ground and rock, in deeper and deeper waters, in ever-remoter locations, just to reach and produce the stuff. Canada’s Athabasca tar sands are a case in point. The tar sands are vast deposits of sand saturated with bitumen in the western Canadian province of Alberta, in the vicinity of the Athabasca River, which rises in the Canadian Rockies and flows northeast. Converting this bitumen into usable oil products is energy-intensive and highly polluting of air and water; it permanently blights large areas of boreal forest, and releases much more carbon dioxide per BTU of energy delivered than conventional oil. But the most serious problem is that there is a lot of bitumen bound up in the tar sands, and to exploit and burn it all, converting it into CO₂ in the process, would be, in the words of former NASA scientist James Hansen, “game over” for the climate.

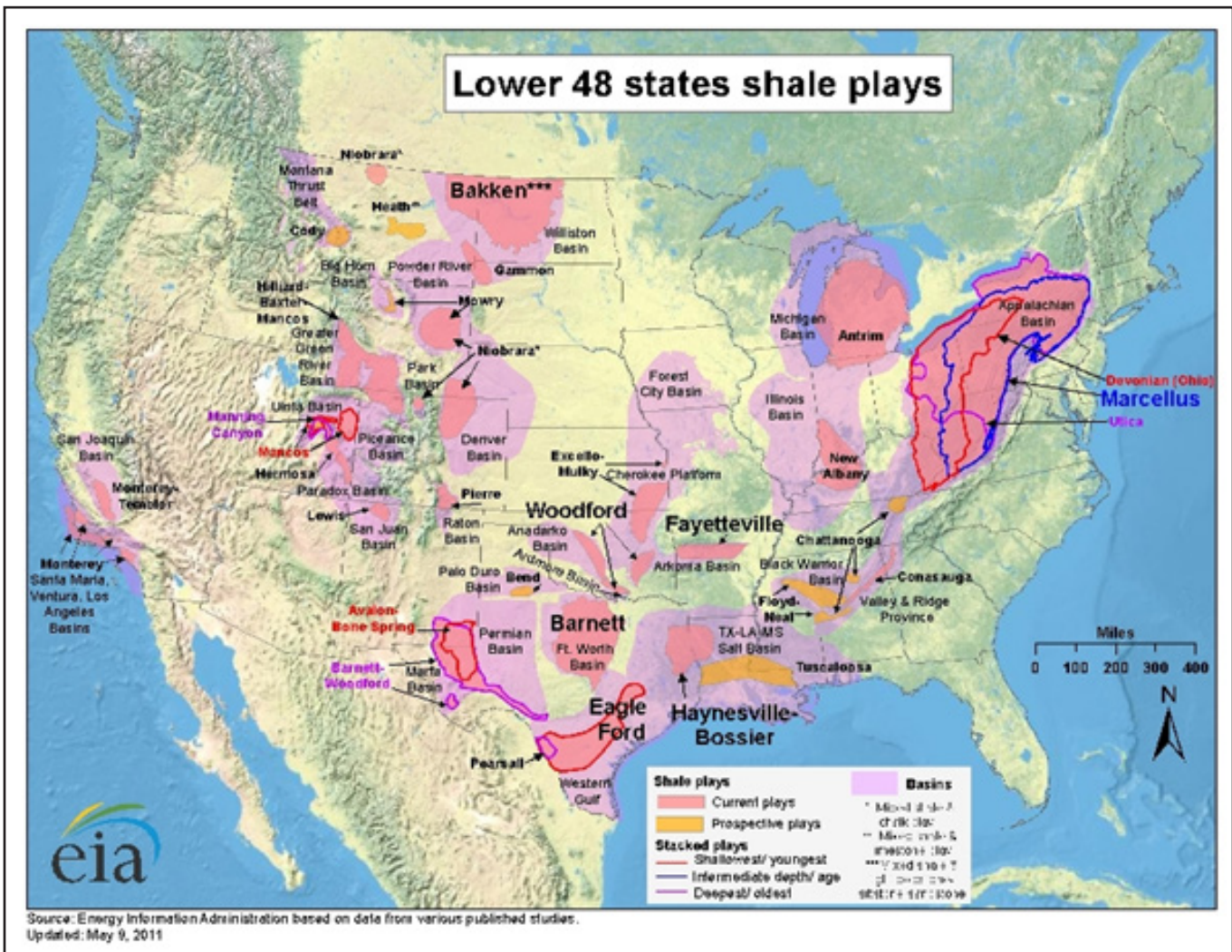


Tar sands development near Fort McMurray, Alberta

In 2012, Dr. Hansen wrote in *The New York Times* that the tar sands:

“...contain twice the amount of carbon dioxide emitted by global oil use in our entire history. If we were to fully exploit this new oil source, and continue to burn our conventional oil, gas and coal supplies, concentrations of carbon dioxide in the atmosphere eventually would reach levels higher than in the Pliocene era, more than 2.5 million years ago, when sea level was at least 50 feet higher than it is now. That level of heat-trapping gases would assure that the disintegration of the ice sheets would accelerate out of control. Sea levels would rise and destroy coastal cities. Global temperatures would become intolerable. Twenty to 50 percent of the planet’s species would be driven to extinction. Civilization would be at risk.”

Yet it is to “unconventional” resources like these that cornucopians like Ridley look to rescue humanity from the looming scourge of resource shortages. And it is technologies like horizontal drilling and hydraulic fracturing (hydrofracking or just fracking) – that they embrace with uncritical hope and fervor. Horizontal drilling and fracking are being used on an expanding scale to produce both natural gas and oil trapped in a number of shale formations that underlie many parts of the country. While geologists have long known that some shale formations contain substantial amounts of oil and gas, for decades they believed that these hydrocarbon resources would remain commercially unviable on any significant scale because shale normally has insufficient permeability to permit significant fluid flow toward a well bore.



Shale formations in the Lower 48 states containing substantial amounts of gas and/or oil

Source: U.S. Energy Information Administration

Research underwritten by the federal government and bold risk taking by gutsy entrepreneurs like George P. Mitchell – born to Greek immigrants in Galveston, Texas – made possible the sort of technical break-through that cornucopians believe wholeheartedly will always ride in to rescue us from the clutches of collapse. Mitchell is regarded as the father of the shale gas industry; it was he who pioneered the so-called slick-water technique that first achieved commercial viability in the Barnett Shale formation of Texas. In 2000 shale gas provided only 1% of U.S. natural gas production, but by 2010 it had risen to over 20%, and was responsible for all growth in U.S. gas output, dramatically turning around a trajectory that appeared to have peaked already and was in terminal decline.

A larger-than-life figure and a billionaire, Mitchell, who passed away in 2013 at the age of 94, was not just a highly successful and innovative oilman but was also very concerned about sustainability. He believed that natural gas unlocked by fracking should not be regarded as a panacea or permanent solution to our energy dilemma but as a bridge fuel to a low-carbon future, a position shared at least initially by several prominent environmental groups. Stimulated in good part by the landmark 1972 book *The Limits to Growth*, Mitchell collaborated with environmental scholars and leaders to inaugurate the Woodlands Conference Series on sustainability, which led to seven conferences from 1975 to 2001. He also established the George and Cynthia Mitchell Prizes for the best ideas on sustainability; over the years 38 prizes were awarded, the first ones in 1975 at the conference “Limits to Growth ‘75: The First Biennial Assessment of Limits to Growth.” One of the four winners that year was an ophthalmologist and Zero Population Growth activist from Petoskey, Michigan named John Tanton, for his essay “International Migration and World Stability.”



Fracking pioneer George P. Mitchell (1919-2013)

Just a couple of years ago, two of the leading official sources of information and insights on energy were quite bullish on the prospects for shale gas and shale oil (or “tight oil”). These are the Energy Information Administration (EIA) of the U.S. Department of Energy, and the Paris-based International Energy Agency (IEA), associated with the Organization for Economic Cooperation and Development (OECD). But the rapid depletion rates of individual hydrofracked wells and the mind-boggling amounts of capital needed to fund fracking and the pursuit of other unconventional hydrocarbons have caused these agencies to temper their forecasts and reign in their enthusiasm. In June 2014, the IEA released a report saying that the world would have to invest a staggering \$48 trillion by 2035 to meet growing energy demands. As Richard Heinberg of the Post Carbon Institute puts it, “the IEA says the party’s over.”

2014 has been a tough year for the cornucopians. On the climate front, there was yet another major report from the Intergovernmental Panel on Climate Change (IPCC), the U.S. National Climate Assessment, a report calling for action by retired generals and admirals from the U.S. military, and two reports on the incipient, irreversible collapse of the colossal Thwaites and other glaciers in West Antarctica, which alone will raise sea level by four feet in the coming centuries.

All of these underscore that humanity's impact on the climate is irrefutable, producing damaging impacts even now, and leading to potentially catastrophic consequences in the not-so-distant future. If the "no limits" and "man as omnipotent god" claims of the cornucopians were correct, these alarming impacts on critical Earth systems due to the altered composition of the atmosphere that we are causing should not be happening at all; we could simply wish them away with techno-fixes, like Disney's character Jiminy Cricket who wished upon a star, because they "come out of our minds. That's really where they are." It's not like we *want* climate change to be occurring, after all. Only a few simpletons and flat-earthers continue to argue simplistically that enhanced carbon dioxide levels are a good thing because CO₂ is a plant food.



Lobe of the vast Thwaites ice shelf in West Antarctica, October 2012

Photo: James Yungel, NASA

Then, on the energy front, the myth endorsed and promoted by the *WSJ* in its 2012 editorial "Saudi America: The U.S. will be the world's leading energy producer, if we allow it," began to unravel in a big way. The EIA slashed by 96% its estimate of the amount of recoverable oil from the massive Monterey Shale deposits in central California. Earlier, it had estimated that 13.7 billion barrels of oil could be recovered; now it thinks just 600 million barrels can be extracted from the jumbled layers of shale, which have been folded and shattered by seismic activity associated with the San Andreas Fault system. Since the Monterey Shale accounted for two-thirds of the nation's entire estimated shale oil reserves, this is a big blow to U.S. prospects for the energy independence and energy exports that cornucopians were salivating over.

On another front, cornucopians believe that advances in agricultural technology, like genetically modified crops, will allow world food production to increase 2-3 fold by 2050, keeping pace with projected population growth and a growing preference for meat and dairy products among the billions of global consumers just now joining the middle class. Not to put too fine a point on it, but this is delusional. A recent paper in the scientific journal *Nature Communications* concludes that:

"Previous projections of food security are often more optimistic than what historical yield trends would support. Many econometric projections of future food production assume compound rates of yield gain, which are not consistent with historical yield trends."

And:

"...there is evidence of yield plateaus or abrupt decreases in rate of yield gain, including rice in eastern Asia and wheat in northwest Europe, which account for 31% of total global rice, wheat and maize production."

It is highly improbable that these hoped-for yield gains will be obtained in the face of ongoing erosion and soil fertility decline, future scarcity and prohibitive cost of key fertilizers, continuing loss of prime agricultural soils to urbanization, competition for scarce water from growing urban populations and water-intensive industry, over-exploited and disappearing aquifers that furnish irrigation water, and the soil moisture stress associated with a warming climate.

Oh how I wish I could share the cornucopians' "don't worry, be happy" mindset, but I would have to disregard the dour conclusions of disinterested scientific investigation.



Overflowing horn of plenty of the cornucopians

I use the term 'cornucopian' to refer to folks like Matt Ridley and others of his ilk – e.g., Danny Dorling, Bjorn Lomborg and Hans Rosling. They prefer to call themselves "rational optimists." Amidst the balderdash, I do admit they make some good points. Humans are indeed highly adaptable, flexible, and inventive. When push comes to shove, we are capable of remarkable feats of survival, self-sacrifice, cooperation, and ingenuity. As Samuel Johnson observed, according to Boswell, "when a man knows he is to be hanged in a fortnight, it concentrates his mind wonderfully." One resource can indeed sometimes substitute for another. The price mechanism does have a role to play in reflecting scarcity, if not foreseeing it. "Necessity is the mother of invention," if only to a point. And Ridley is right, we won't ever run out of non-renewable resources like oil, gas, coal, and copper. But that's only because trying to recover all of it, at ever more dispersed and diffuse concentrations, would be a fool's errand indeed, requiring ever more of our scarce capital, energy, and labor. The misleading phraseology of the cornucopians suggests that we can rely on these resources to meet ever-expanding demands forever, which is a flat-out falsehood.

Cornucopians are fond of reminding us that "the Stone Age didn't end because we ran out of stones" four thousand years ago. And they're right – about the Stone Age. But the human population is now between two and three orders of magnitude (100x to 1,000x) what it was during the Stone Age, and our technologies immeasurably more powerful than obsidian projectile points and Acheulean hand-axes. To subscribe to the view that nature has boundless treasures awaiting our discovery – but only if we are bold and bright – is to subscribe to a form of magical thinking, of fantasy or make-believe. It is also a remarkably sanguine, even anthropomorphic, view of nature as benevolent provider to our species – a veritable enabler of the ascent of man, which is seen as our grandiose destiny fulfilling some Grand Design.

Ridley again:

"What frustrates [economists] about ecologists is the latter's tendency to think in terms of static limits. Ecologists can't seem to see that when whale oil starts to run out, petroleum is discovered, or that when farm yields flatten, fertilizer comes along, or that when glass fiber is invented, demand for copper falls."

In other words, the magician will be able to continue pulling rabbits out of the hat forevermore. I wish it were all true and that we could have our cake and eat it too. But alas! This is the real world, not a soothing Disney fantasy a la EPCOT or the Magic Kingdom. Reality bites. We thought we were on a trajectory taking us ever higher

– our preordained ascent to the stars and immortality – but overshoot and crash is the tragic fate that awaits us. Unless, that is, we can somehow overcome our inertia, disabuse ourselves of obsolete and mistaken mythology, and subvert the genetic predisposition we share with every other “lesser” species to grow with reckless abandon until nature itself cuts us down to size.



About the author: Leon Kolankiewicz is an “all-around ecologist” whose professional career spans three decades, three countries, and more than 30 states. He received a B.S. in forestry & wildlife management from Virginia Tech and an M.S. in environmental planning from the University of British Columbia (Vancouver, Canada). His career includes stints with the U.S. Fish and Wildlife Service, Alaska Department of Environmental Conservation, Alaska Department of Fish and Game, National Marine Fisheries Service, University of Washington, University of New Mexico, Orange County Environmental Management Agency, Carrying Capacity Network, and as a Peace Corps Volunteer in Honduras. As an environmental consultant, Leon has written, edited and managed many environmental impact statements on a variety of projects for multiple federal agencies and prepared more than 40 comprehensive conservation plans for national wildlife refuges from Alaska to the Caribbean. He has also authored reports examining the role of population growth in aggravating pressures on natural resources and the environment.

About NPG: Founded in 1972, NPG is a national nonprofit membership organization dedicated to educating the American public and political leaders on the damaging effects of population growth. We believe that our nation is already vastly overpopulated in terms of the long-range carrying capacity of its resources and environment. NPG advocates the adoption of its “10 Principles for a Responsible U.S. Population Policy,” with the goal of eventually stabilizing U.S. population at a sustainable level – well below today’s. We do not simply identify the problems – we propose solutions. For more information, visit our website at www.NPG.org.



Negative Population Growth, Inc.
2861 Duke Street, Suite 36
Alexandria, VA 22314

Voice: (703) 370-9510
Fax: (703) 370-9514
Email: npg@npg.org

Board of Directors
Donald Mann, *President*
Frances Dorner,
Secretary/Treasurer
Josephine Lobretto
Sharon Marks
Diane Saco

**SIGN UP TODAY AT WWW.NPG.ORG
FOR OUR FREE EMAIL OF THE NPG JOURNAL!**