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【Review】

The Energy of Slaves: Oil and the New Servitude by Andrew Nikiforuk, Greystone Books, 2012.

Reviewed by Dennis Riches

Introduction

The contemporary understanding of the energy crisis has become focused on the need to reduce the effects of global warming. This singular focus has had some unfortunate effects on the public imagination as we seek innovative responses to energy problems. Much of the public discourse centers on the hope of finding new technologies and new sources of energy that will meet all energy needs so that fossil fuels can simply be replaced and everyone can carry on as before. This preoccupation has led to a neglect of older analyses of humanity's relationship with energy sources, analyses which existed well before anyone was concerned about global warming. This article discusses this issue by reviewing the book *The Energy of Slaves: Oil and the New Servitude*,[1] by Canadian author Andrew Nikiforuk.

Energy as a Social Problem

In the late industrial revolution, when fossil fuel use sharply increased, the critical analyses that emerged were focused on social disruption much more than on environmental effects. These discussions of the social effects of energy use are now much neglected, but they are still essential because no solutions will be possible

without addressing the fundamental issues underlying the use of energy. It is as if modern civilization has forgotten what was achieved with the exploitation of energy: within a span of two centuries, humans made a revolutionary change in the way they got things done. We went from using humans and animals to do work to using the energy stored in fossil fuels and uranium. We found new types of servants and slaves.

One of the few contemporary works to address this matter in recent years is *The Energy of Slaves*. This book provides an excellent discussion of the authors of the 19th and 20th centuries who decried the effects of the new servitude of machinery, and the author relates their analyses to the contemporary dilemmas that come from a dependence on fossil fuels, and in particular he focuses on the social and political impacts on various nations, states and provinces that have become *de facto* but often unacknowledged petro-states.

As the title suggests, Nikiforuk explains that our relationship with energy is one of master and slave, so he begins with brief histories of slavery in Rome and in the early Industrial Revolution. The comparison of the energy crisis with the historical problem of slavery is more than an analogy. The new servitude is a continuation of the same problem in a new form, one which suggests the necessary energy transition will be as contentious as the labor movements and emancipation struggles of the past. If we get it wrong, our way of life may collapse like Rome's, which never gave up its addiction to slavery. The Roman Empire just kept trying to acquire more slaves until the unquenchable demand led to decline and invasion from regions that once supplied the slaves.

19th century America provides the most well–known example of a shift away from the old form of slavery toward another. In the emancipation struggle against slavery in America, nothing was given up without a long, vicious fight. Progress was imperfect and incremental, achieved through flawed work–around solutions like the Emancipation Proclamation. Living conditions, and relations between the former masters and slaves were hardly improved by the legal changes that ended slavery. No one had answers for how the freed were supposed to survive and live as equals in their new circumstances, but those who wanted slavery to end knew that society had to make a blind leap into an uncertain future. They just pushed through the

necessary changes and left it to future generations to figure out the rest of it.

The emancipation from modern slavery, from machines, fossil fuels and other harmful sources of energy, may proceed in the same way. We can expect something similar as a disordered (in a good sense of the word) global patchwork of innovative confederations emerges in the emancipation struggle now underway, each one undergoing its own series of blunders, conflicts, political compromises and bold leaps into the unknown. Some will change faster than others. No one will be able to say with certainty what will work, but we do nonetheless know that the devolution to a low-energy society is necessary. It's a leap of faith that has to be made.

If Nikiforuk's theory about energy slaves seems strange, readers should note that he has merely presented an overview of numerous philosophers, sociologists, economists and scientist of the industrial age who have covered this topic before; people such as:

> Bernard Beaudreau, Wendell Berry, Jacques Ellul, Buckminster Fuller, Mohandas Gandhi, Ivan Illich, John Ise, Leopold Kohr, James Kuntsler, Lars Lerup, Alasdair MacIntyre, J.R. McNeill, Donella Meadows, Robert Putnam, Francois Quesnay, Hyman Rickover, John Ruskin, Eduard Sacher, E.F. Schumacher, Vaclav Smil, Frederick Soddy, Pitirim Sorokin, Joseph Tainter, Alfred René Ubbelohde, Thorstein Veblen, and Graham Zebel...

Many of these writers lived during the time of transition, when the effects of new energy sources were more obvious to those who could see what was being traded away for the new comforts. In the early 20th century it was common to read newspaper commentaries denouncing fathers who took their families on automobile "joyrides" on Saturday afternoons, wasting gasoline and recklessly speeding past sights they didn't stop to appreciate. The oil industry was condemned not so much for its pollution but for the moral depravity and chaos that sprang up in every oil boomtown. Critics were alarmed by the social disruption and the spiritual effects of easy access to luxuries like travel and time-saving appliances. Once, only the very wealthy had servants, but now the new energy slaves were within the grasp of the average person.

Nowadays, these concerns are likely to seem quaint, or be a little hard to grasp, because modern people have no knowledge of a time when their machine slaves were not available to them. Our acquaintance with the natural struggles of existence is so unfamiliar that it may be hard to understand how dramatic the changes were. We are also inclined to see this new form of slavery as a good thing in many ways. A book published one year before *The Energy of Slaves,* Steven Pinker's *The Better Angels of Our Nature: Why Violence Has Declined,*[2] claimed that the modern era has seen a rapid decline in war and violence, and he advocates for a greater appreciation of what has been achieved. However, Nikiforuk does not share such enthusiasm for modernity, as his book makes it clear that modernity has come at a heavy price to segments of the world population that Pinker overlooked. Direct violence may have declined, but structural violence and ecological violence have increased. What we have gained in the present, in some lucky parts of the planet, comes at a high cost to others, and the costs being passed to future generations make all claims about a decline of violence highly contingent.

Scholars of slavery note that the relationship leaves both the master and the slave chained to each other and diminished in human dignity. This is not to say the two suffer equally, but this insight is useful in understanding how we degrade ourselves in our relationship with our non-biological slaves. For the master, there is a loss of freedom that comes with the dependency on energy slaves, and the pernicious effects of the arrangement take longer to become apparent. In addition to the creation of a gross dependency that makes the master lazy, unhealthy, dumb and unskilled in the basics of survival, the use of energy resources creates environmental damage and new social relationships, the worst of which is the miserable servitude (an enduring kind of human slavery) still required to extract energy resources in remote locations under inhumane conditions. Extractive operations tend to be work camps of single men, distant from functioning communities composed of women, children, the elderly and persons performing a variety of occupations.

It's important to note here that these considerations were apparent before people were conscious of global warming, and they are just as relevant as ever. Even if global warming were not a concern, there would still be many good reasons to favor a less energy-intensive lifestyle and to focus attention on the underlying problems of

population growth and an economic system that depends on infinite growth on a finite planet. Reassessing our relationship with our slaves will be good for souls, with the added benefit that there will be fewer tailings ponds, oil spills and deaths from lung disease, and less mercury finding its way into the ocean food chain—to mention just a few of the benefits aside from reducing the effects of global warming. Furthermore, even if we could exploit an ideal limitless and clean source of energy (such as the elusive nuclear fusion) for all of our "needs," the pernicious effects of the master–slave relationship would not disappear.

One way Nikiforuk elucidates this point is in his description of all the ways that the petro-state erodes democracy, citizenship, and political consciousness. Just about every state, province and nation that has been afflicted with the resource curse suffers in the same way. Petro-states are more corrupt, and their influence tends to go beyond the immediate interests of the industry toward the promotion of retrograde social policies like religious fundamentalism, whether it is in the US or Saudi Arabia. Petro-states buy off their citizens with cheap fuel, low (or no) taxes, and, in some cases, provide imported slaves (the "guest workers" of Qatar, for example) so that their citizens don't have to have contact even with their machine slaves. The ease and comfort bought with oil brings passivity and obliterates the will for individual agency in political life. Henry Miller might have been one of the first to see what was happening when he came back to America in 1939 and called it "the air conditioned nightmare." His book of this title is full of lamentations about what a pitiful, lazy and cowardly people he saw in his now-unfamiliar homeland, people eager to chase the dream of borrowing money to own a car to commute to a job in an air conditioned office.[3] (Yes, there were air conditioned office towers in 1939).

Dependence on energy complicates political participation in other ways. It requires greater centralization, standardization, complexity and concentration of power as resources become scarcer and the search for them becomes more desperate. America's dysfunctional relationship with Saudi Arabia is a an example of how strained this system has become. Within this large system, people lose physical and mental strength, and the basic skills to shelter and clothe themselves, to gather and grow food, and to form communal bonds. They build cities in places with no natural

supply of water or a hinterland to provide food. Citizens are left with little choice but to be consumers, cubicle drones and organization men and women because no one is really engaged in producing the essentials of life. One might want to drop out and go back to the land, but the land is likely to be fracked, contaminated or claimed by state bureaucracies and corporate title. There is, essentially, no space left for individuals who want to go off the grid and establish innovative ways of rejecting the energy–intensive lifestyle. The dropout is on his own with no direction home.

Nikiforuk also covered the problem of technological solutionism and the naïve and limited view of engineers, technocrats and economists. The former two always see problems as having technical solutions, but the solutions become ever more complex, costly and elusive. The sociologist Jacques Ellul was stunned at the narrow thinking he saw among scientists when he wrote, “When these technocrats talk about democracy, ecology, culture, the Third World, or politics, they are touchingly simplistic or annoyingly ignorant.”[4] Each problem has only one answer: more technology. One could add that F. Scott Fitzgerald touched on this point when he wrote in *The Great Gatsby* we are “borne back ceaselessly into the past” and forever separated from the “orgastic future that year by year recedes before us.”[5]

Standard views in economics imagine that wealth expands by increasing financial capital and the exchange of goods, yet economists who focus on energy inputs see that economic growth depends on having access to energy supplies with a high EROEI (Energy Return on Energy Invested), an observation that was made in the 18th century by a neglected French contemporary of Adam Smith, Francois Quesnay, and later by other economists such as Frederick Soddy and Eduard Sacher. The economic contraction of recent years may be the outward sign that economic growth has stalled because we have entered the era of extreme energy, “the process whereby energy extraction methods grow more intense over time, as easier to extract resources are depleted.”[6] The easily exploited resources are gone. The pursuit of the dregs has led to the use of more complex and dangerous techniques to get sources with less EROEI, the kind exemplified by the Alberta Tar/Oil Sands where the oil gives only an EROEI of 5 or 6,[7] far below the world average of 20, which itself is down from about 30 one century ago.[8]

A good way to understand why technical fixes won't succeed is to rethink the standard view of food supply and population growth. A common perception is that future population growth and human welfare depend on expanding the food supply and delivering energy to the poorer regions of the world. However, the record shows that population grew very slowly before the Industrial Revolution, but grew exponentially afterwards. One hundred years ago the global population was a little over a billion. Now it is seven billion. Obviously, the use of hydrocarbon energy to produce fertilizer, and other technologies dependent on energy inputs, *enabled* the population to grow to seven billion. Interestingly, the International Energy Agency noted that 1.3 billion people presently have no access to electricity, which is about the same number that had no access to electricity in 1880—that is, all the people alive on the planet at that time.[9)]

People who hope for a technical fix to population growth imagine that a breakthrough in fusion energy, or a rapid expansion of nuclear energy, could deliver clean and consequence-free energy to meet all of humanity's "needs" (a term that is assumed to be quantifiable and definable), in a world where everyone lives a First-World life style, with low birth rates coming naturally as higher affluence emerges. Yet there is no reason to believe that unlimited energy supplies would not lead to more population growth and greater desires and greater environmental impacts. It would be a dystopia rather than a utopia in which human intellect and mental abilities would be diminished. We would come to resemble the vegetative human blobs depicted so effectively in the children's film *Wall-E,* or also in the crude satire *Idiocracy,* in which a soldier, selected for his perfectly average IQ of 100, is put into a long, suspended animation so that he will wake up in the distant future. He wakes up five hundred years later and is hailed as a genius by relative comparison to everyone around him, including the American president.

The quest to meet all energy "needs" is as spiritually empty as the wish to never work or suffer. As we face the environmental and social consequences of extreme energy, those who thrive will be the ones who fight for emancipation, those who can accept the old precepts which all the great religions teach. Be humble. Walk softly. Accept life's limitations and the inevitability of suffering. Those who are trying to create a social system of low energy intensity have recognized these

limits, but they are scoffed at by the techno-optimists whose false concept of helping the poor is to expand various alternatives to fossil fuels that present new sorts of hazards.

Alternatives: Nuclear, Hydro and Renewables

The Energy of Slaves didn't cover nuclear energy and other alternatives in detail, but it bears mentioning that the dilemmas of slavery apply to other sources of energy as well.

Nuclear energy in particular is as problematic as fossil fuel, and it exemplifies the downward–spiraling pursuit of more costly and complex forms of energy in a time when all the easy resources have been tapped. As carbon sources decline, many countries consider nuclear to be an alternative, but an expansion of nuclear would just be a desperate turn toward something that offers no solution to the problems created by fossil fuels.[10] Nuclear has a significant carbon footprint[11] because there are carbon-energy inputs involved in mining, processing, construction, deconstruction and the eventual abandonment of spent fuel in some way, yet to be invented, that we hope will minimize its contact with the ecosystem and never result in harmful effects on future generations. The cost of nuclear waste stewardship is, for all practical considerations, eternal and infinite. The only stage of the process that has no carbon footprint is the fissioning of uranium and plutonium, which is labelled as a "clean" process only because, amid the singular focus on the problem of global warming, the definition of "clean" has come to mean "free of CO2." The deadly radiation emanating from irradiated nuclear fuel rods is supposedly "clean."

The failure of a nuclear power plant can be a long-lasting, high-impact catastrophe, so nuclear technology requires complex and expensive measures in risk management and government regulation. The costs of the precautions and insurance liabilities are so high that private investors no longer have any interest in new nuclear plant construction. Nuclear technology leaves most of its burden to be carried by future generations that won't have benefited from the energy, while in the present it contaminates remote people and places, seldom seen by the users of the energy, where uranium is taken from the earth.

The Hanford Reservation, just one nuclear facility in Washington State, is estimated to need a further $100 billion to clean up, but "clean up" is a dubious term. The Department of Energy admits it doesn't presently have the technology to solve all of the problems on the site.[12] The accumulation of spent fuel now stored at nuclear power plants is a similar conundrum. There is no solution on the horizon. It is hard to imagine how an energy-starved nation with a contracting economy is going to have the desire or the resources to deal with this problem at hundreds of other decommissioned nuclear sites. During its productive lifetime, a nuclear power plant at least has a product to sell (electricity), something for which there is market demand, so it can be financially viable for a few decades. However, during its long period of dismantlement and storage of its radioactive parts and fuel rods, it has nothing to sell. There is no mass market demand for radioactive decontamination. It is simply an unpayable mortgage left for people of the future to deal with, assuming there will always be large states with the technical capabilities to effectively manage this legacy.

Renewable alternatives are much less problematic that nuclear, but they have limitations, downsides and carbon footprints as well, and they are merely technological solutions to what is at its root a social problem. Dennis Meadows, one of the authors of the 1972 book *The Limits to Growth,*[13] stated in 2012:

> We try to reduce the share of fossil energy as we use more alternative sources like wind and solar. Then we work to make our energy use more efficient, insulate homes, optimize engines and all that. We work only on the technical aspects, but we neglect the population factor completely and believe that our standard of living is getting better, or at least stays the same. We ignore population and the social elements in the equation, and focus totally on just trying to solve the problem from the technical side. So we will fail, because [the impacts of] growth of population and living standards are much greater than [what] we would save through efficiency and alternative energy. Therefore, the CO2 emissions will continue to rise. There is no solution to the climate change problem as long as we do not address the social factors that count.[14]

Conclusion

In the years after the publication of *The Limits to Growth* there was controversy over the accuracy of its dire predictions. They were based on the assumption of the continuation of present trends, so disaster could have been averted through changes in political, economic and social structures. Yet in 2012, Dennis Meadows was pessimistic in noting that those changes hadn't occurred over the past forty years, and dire crises are now upon us. He added, "We are basically now just as programmed as 10,000 years ago. If one of our ancestors could be attacked by a tiger, he also was not worried about the future, but his present survival." In *The Energy of Slaves: Oil and the New Servitude,* Andrew Nikiforuk has made a valiant attempt to make us look at the root causes of the energy crisis and see beyond the obvious modern-day tigers.

Notes

1) Andrew Nikiforuk, *The Energy of Slaves: Oil and the New Servitude* (Greystone Books, 2012).

2) Steven Pinker, *The Better Angels of Our Nature: Why Violence Has Declined* (Viking Adult, 2011).

3) Henry Miller. *The Air-Conditioned Nightmare* (New Directions Publishing, 1945).

4) Jacques Ellul, *The Technological Bluff* (Wm. B. Eerdmans Publishing Co., 1990), p. 29.

5) F. Scott Fitzgerald, *The Great Gatsby* (1925).

6) "What is Extreme Energy?" *The Extreme Energy Initiative*. Accessed August 9, 2014 http://extremeenergy.org/about/what-is-extreme-energy-2/

7) Adam R. Brandt, Jacob Englander and Sharad Bharadwaj, "The energy efficiency of oil sands extraction: Energy return ratios from 1970 to 2010." *Energy 55,* no. (June 15, 2013): 693-702. http://www.sciencedirect.com/science/article/pii/S0360544213002776

8) Andrew Nikiforuk, 210.

9) "Energy Poverty," *International Energy Agency,* http://www.iea.org/topics/energypoverty/ .

10) "Nuclear Power and Climate Change: Forget about the Myths." *Don't Nuke the Climate*. Accessed August 9, 2014. http://www.dont-nuke-the-climate.org/spip.php?article423&lang=en

11) Sovacool, Benjamin K. "Valuing the Greenhouse Gas Emissions from Nuclear Power: A critical survey." *Energy Policy* 36 (2008): 2940-2953, http://www.nirs.org/climate/background/sovacool_nuclear_ghg.pdf .
Sovacool's survey shows the various ways that nuclear energy's carbon footprint has been quantified. A definite figure cannot be provided because the calculation involves variables that

depend on reactor design, quality of uranium ore, and so on. Regardless of the debate over the size of the carbon footprint, honest pro-nuclear advocates admit that the nuclear energy is far from being a zero-carbon source of electricity, as is so often claimed in the industry's propaganda for the general public.

12) Les Neuhaus, "After $40 Billion, America's Biggest Nuclear Dump Is Still Leaking." *Who WhatWhy,* July 14, 2014. http://whowhatwhy.com/2014/07/14/after–40–billion–americas–biggest–nuclear–dump–is–still–leaking/ .

13) Meadows, D. H.; Meadows, D. L.; Randers, J.; Behrens III, W. W., *The Limits to Growth: a report for the Club of Rome's project on the predicament of mankind* (Universe Books, 1972).

14) Rainer Himmelfreundpointner, "Dennis Meadows: 'There is nothing that we can do,'" *Church and State,* June 3, 2012, http://churchandstate.org.uk/2013/04/dennis–meadows–there–is–nothing–that–we–can–do/ .