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This month's MuseLetter comes in two parts. First up is my appreciation of peak oil visionary M. King Hubbert, who is the subject of a recently released biography. Following that is a recent interview I gave on electric cars and the future of transport.

A Personal Appreciation of M. King Hubbert

A recent vacation afforded me the opportunity to read [The Oracle of Oil](#), Mason Inman's excellent new biography of Marion King Hubbert. I strongly recommend it. But, rather than writing a standard book review (which might cover much of the same ground as [this one by Frank Kaminski](#)), I'm inspired instead simply to offer a few words in appreciation of Hubbert himself.

Born in Texas in 1903, Hubbert earned his Ph.D. in geology at University of Chicago, then taught at Columbia University. He later worked at Shell's research laboratory and for the U.S. Geological Survey, and occasionally lectured at Stanford and UC Berkeley. His contributions to geophysics included a mathematical demonstration that rock in the Earth's crust, because it is under great pressure over large areas, behaves in some ways more like a liquid than a solid. He earned every relevant scientific award short of a Nobel prize, and won lasting fame as the father of "peak oil"—the theory (by now more of an observation) that oil production in any large area will inevitably start from zero, reach one or more high points, and decline back toward zero. ([Here is a brief video clip](#) of Hubbert in 1976 explaining the very basics of peak oil).

For years I've had a photographic portrait of Hubbert, given to me by his nephew, hanging just above my computer in my home office. I described Hubbert's best-known accomplishments—his mathematical modeling of oil depletion and his successful forecast of a decline in U.S. petroleum production beginning around 1970—in my 2003 book [The Party's Over](#), and I have spent most of the last couple of decades reading, writing, and speaking publicly about oil depletion and its consequences, so I could fairly be described as a longstanding Hubbert devotee. After devouring Inman's meticulously researched and entertainingly written biography, I feel even more indebted to the great man than before.

King Hubbert, who died in 1989, was right on so many issues. He was a strong advocate of population stabilization (like my spouse Janet and me, King and his wife Miriam decided against reproducing).

He was also a fierce critic of mainstream economists' mania for growth, writing in the 1930s that the compounded growth of the economy, and therefore of consumption, in the context of a finite planet would inevitably lead to ruin. He went so far as to compare modern economists to medieval court astrologers.

Following early support for nuclear energy and official involvement with the Atomic Energy Commission as a member of a technical advisory committee, Hubbert gradually came to see nukes as simply too risky and costly. By the 1970s, he was a passionate solar energy advocate.

In the 1980s, Hubbert became aware of anthropogenic climate change and saw it as another unavoidable reason for society to wean itself from fossil fuels.

Inman's biography is immensely helpful in portraying Hubbert's evolving views in the context of global events and topical controversies. At first, his bosses at Shell and USGS attempted to muzzle his work on oil depletion. Then, during the energy crises of the 1970s, falling domestic oil production and increasing reliance on imports became subjects of widespread discussion at the highest levels of government. President Jimmy Carter tried to persuade the nation to adopt energy efficiency and conservation as primary goals. But, in the '80s, Ronald Reagan proclaimed that "there are no limits," oil prices fell, and blind cornucopianism once again ruled national policy.

All of this is hauntingly relevant to our current situation. During the decade from roughly 2004 to 2014, conventional oil production languished, oil prices skyrocketed, and peak oil was once again a widespread topic of public discussion. Yet since mid-2014 petroleum prices have plummeted and oil depletion has again mostly disappeared from policy discourse. Pundits proclaim that "Peak oil is dead!" and insist that "No, we're not running out of oil!"—even though peak-oil warnings never had to do with "running out," but rather the inevitability of depletion and decline. A short-term focus on prices has thus repeatedly undercut our ability to plan for the long haul.

Today's oil glut resulted from years of record-high oil prices and record-low interest rates, which sent torrents of investment capital flooding toward drilling projects in dismal-quality reservoirs—tight oil projects operated by many small-to-medium sized companies whose incentives were to lease land and drill as quickly as possible using other people's money. This rapid-fire drilling flooded a depressed market, causing fuel prices to collapse and producers' balance sheets to bleed red ink.

Meanwhile, the longer-term trend is toward higher costs to the oil industry as conventional crude production levels continue to wane and regular oil is replaced with expensive deepwater oil, arctic oil, tar sands, and tight oil. There are few if any of these new unconventional oil projects that make financial sense in today's low-price environment, so the industry is currently investing vanishingly little in exploration. The eventual and inevitable result will be falling overall production rates and ever-more violent price swings. Without

a long-term plan for weaning global transportation from its primary energy source, we face an economic whipsaw cutting first at society as a whole (when prices are high), then at the oil industry (when prices are low), with each turn of the blade made more savage by declining resource quality and by massive and growing levels of debt not only within the oil industry but throughout society as a whole.

M. King Hubbert tried decades ago to warn us about all of this, and he deserves to be remembered and celebrated. But it's more than a little sad to see how his visionary contributions have been mischaracterized and largely ignored.

We Need to Electrify As Much Transportation As We Can

Transcript of an interview with [The Real News](#)

JESSICA DESVARIEUX, PRODUCER, TRNN: Welcome to the Real News Network. I'm Jessica Desvarieux in Baltimore.

Folks are lining up to reserve electric car automaker Tesla's Model 3. It's considered to be one of the first electric cars for the mass market at an expected price tag of 35 thousand dollars. Tesla's CEO, Elon Musk, will be unveiling the vehicle on Thursday evening, so we can't show you what it will actually look like. But in this segment we wanted to get beyond the consumerism and ask, will this be a game changer for the automobile industry in America and the environment?

Now joining us to help us answer that question is Richard Heinberg. He's a senior fellow at the Post Carbon Institute. Thanks so much for joining us, Richard.

RICHARD HEINBERG: It's a pleasure, Jessica.

DESVARIEUX: So, Richard, why has it taken so long for an affordable electric car to sort of come to the market? I'm reminded of the 2006 documentary "Who Killed the Electric Car?" which really highlights how we essentially went from having electric cars on California roads in the '90s to then, eventually, shredding and destroying those very same vehicles years later. So my question to you, Richard, is, who killed the electric car?

HEINBERG: Well, the bosses at the Detroit automakers decided back in the 1990s that there wouldn't be a mass market for the electric car because of the short range of the vehicles. They thought consumers wouldn't buy a car if it didn't have a two to three hundred mile range, and the batteries at that time were not capable of delivering that kind of range. So even though they built some prototypes and sent them out to drivers, they never produced a mass market car.

Today, battery technology has improved enough so that it is possible to produce an electric car for the masses with at least a 200-mile range, and that's what's anticipated for the Tesla Model 3.

DESVARIEUX: Okay. there are some folks that are saying that this

isn't as big of a game changer as people are making it out to be, because essentially you're getting power to charge your electric vehicle from fossil fuel sources like coal. Do you agree with that?

HEINBERG: Not entirely. First of all, the energy mix is different in different parts of the country. Some parts of the country, electricity is mostly coming from coal. In other parts of the country the mix is more oriented toward natural gas, hydro and renewables. So, first of all, it depends on where you're getting your electricity from.

And second, you know, if you look out at the energy transition that we're just beginning right now, away from fossil fuels toward renewables, it's clear that one of the main strategies that we'll have to pursue during this energy transition is electrification. Right now only about 20 percent of the final energy that we use in the United States is in the form of electricity. The rest is in the form of liquid fuels for transportation, energy for high heat industrial processes and so on.

We have to electrify as much of that energy usage as we can, because most of our renewable sources of energy produce electricity. That's true of solar and wind, geothermal and hydro power. So we need to electrify as much transportation as we can.

DESVARIEUX: Okay. You have some automakers, you know, really touting this as a bright future, that we're going to see more and more electric cars hit the market. I want to ask you about the role of cheap oil. Do you think that threatens the growth of the electric car industry?

HEINBERG: Well, probably not over the long run. We're headed toward electric cars one way or the other, I think. However, over the short run it definitely takes some wind out of the sails, because from the consumer's standpoint the biggest draw for an electric car is that over the lifetime of ownership the operating costs are much lower, so if you have cheap gas that changes that differential a bit, so that there's not as much of an advantage.

DESVARIEUX: Okay, let's talk about the future. What would a truly green transportation system look like, and are there some states or countries that are really laying out a road map to get us there?

HEINBERG: Well, a truly green transportation system probably wouldn't rely on electric cars that much because it wouldn't be relying on cars that much. Cars are an inherently inefficient mode of transportation. I mean, think about it. Most cars just have a driver and maybe one passenger, and meanwhile you're dragging around two tons of metal, glass and plastic in order to get those one or two people where they want to go.

Much more efficient modes of transportation are light rail, any kind of public transportation, actually. So what we really need is to build up more rail transport and get people walking and bicycling as much as possible.

DESVARIEUX: Okay. Richard Heinberg, thank you so much for joining us.

HEINBERG: It's been a pleasure. Thanks, Jessica.

DESVARIEUX: And thank you for joining us on the Real News Network.

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