

Twilight of Abundance Book Lecture

The baby boomers enjoyed the most benign period in human history. The superpower nuclear standoff gave us fifty years of relative peace. We had cheap energy from an inherent over-supply of oil. Grain supply increased faster than population growth. And the climate warmed due to the highest level of solar activity for eight thousand years. All those trends are now reversing. We are now in the twilight of that age of abundance.

The book's beginning was almost a decade ago. In 2005, I was asked to replicate the work of a German scientist in climate. When I set out in climate science, I thought if I made it to the US Senate, to give testimony or the like, that would be as far as I could ever get and I would be happy. Thanks to Myron Ebell of the Competitive Enterprise Institute, I made it to the US Senate in 2011 to give a lecture on climate in a Senate hearing room.

Some progress was made in climate science on the way. In essence, my generation has known a warm, giving Sun, but the next will suffer a Sun that is less giving, and the Earth will be less fruitful. There will be less fruit from the fruited plain and fewer amber waves of grain.

It was also in 2011 that I was introduced to Doctor Chodakiewicz, here at The Institute of World Politics, who kindly said that the Institute would welcome a lecture from me any time I was coming through Washington again. I couldn't keep giving the same lecture over and over again but help came in the form of the Arab Spring. That brought up the fact that Egypt imports half its food, a situation that could only end in tears.

That fact started me down a line of enquiry that became a lecture entitled "The Four Horsemen of the Apocalypse". That lecture found temporal form in this book.

Who are those four horsemen? A severe, solar-driven cooling is one. Over the next twenty to thirty years, we are going back to the climate of the early 19th century as the best case outcome, or the climate of the late 17th century at worst. Here in the mid-latitudes of North America, growing conditions will move three hundred miles south from their current position. The United States will be producing twenty percent less grain by 2030, taking the United States out of export markets. Grain prices will return to 19th century levels in constant dollar terms.

The second horseman is the fact that a number of countries, but particularly those in the Middle East, are playing a big game of musical chairs. One day the music will stop and there won't be enough grain to feed everybody. This outcome will be brought forward by the climate-driven reduction in grain supply.

The consequent population collapse will take the Middle East back to the population levels of the Napoleonic era. Every grain importing country is at risk to some extent. As Yemen or Afghanistan or Egypt tip over into collapse due to starvation, there will be an immediate bidding war on the world's grain markets for what stocks are available. For people who haven't read this book, it will all be a big surprise when it happens.

The third horseman is our energy supply, starting with oil. In short, the oil price has tripled over the last ten years but oil production is no higher. It hasn't responded to the price signal because production is physically constrained by geology. Soon oil production will tip into decline and the price rise will resume and accelerate. We can solve our long term energy supply problem by commercialising the thorium molten salt reactor. There are literally hundreds of designs for generating nuclear power, but thorium in a liquid salt is the safest with the least waste generation. Commercialising that reactor is absolutely necessary if we are going to maintain a high level of civilisation going forward.

The fourth horseman is the Pakistani nuclear bomb program. Not so much their current stockpile of nuclear weapons but the fact that they keep on building more reactors for making weapons-grade plutonium. They have three operating and they are now building their fourth. This is a country with a literacy rate of 55% and frequent power blackouts. Let's not descend into cultural relativism by suggesting that they don't have their priorities right.

The Pakistanis must really like making nuclear bombs. They will still be making nuclear bombs while taking their last breath before the country becomes a failed state. And the completed stockpile will seek a new home. Then things might get really interesting.

The Four Horsemen of the Apocalypse come from the Book of Revelation, the last chapter of the Bible. The Book of Revelation also warns of another beast with these words:

And there appeared another wonder in heaven; and behold a great red dragon, having seven heads and ten horns, and seven crowns upon his heads.

What has seven heads? The Standing Committee of the Chinese Communist Party. In 2012, the number of members of that committee was reduced from nine to seven, no doubt to properly align with Biblical prophecy.

And what is the seven-headed dragon going to do to disturb the peace of the world? They are going to invade Japanese territory and attempt to seize the Senkaku and Yaeyama Islands. There will be a slaughter of many innocent people. Why the Chinese want to do this doesn't matter. They have their reasons, but as Secretary of State John Kerry would say, "It is a 19th century sort of thing to do." And not suited to the proper conduct of the 21st century.

What matters is our response. Well before the shooting starts, in the first instance we should be boycotting China and all things Chinese. Deny them the cash flow that keeps them going. As a US naval officer said recently, the Chinese spend 90% of their time thinking of new and inventive ways to sink our ships and shoot down our planes.

And when our ships and theirs are met on that great watery battleground in the western Pacific, let it not be said that anyone in this room contributed to the funding of the Chinese war machine. To be completely morally virtuous, you will have to make the effort required to make sure that nothing of Chinese origin ever enters your

possession. If you slip in that regard, have momentary lapses in checking labels perhaps, you will contribute to the death of a Japanese, or a Filipino, or even a US serviceman.

When our souls are all weighed in the balance, those who boycotted China in 2014 will sit at the right hand of God and those who persisted in feeding the Beast will be cast into the outer darkness. Because, to know what is required, but to not act, is to collude with this particular communist aggressor. It is easy to make the right choice in this matter, and you have to make it. And continually reaffirm that choice in your daily life.

I am not the only one who thinks like this. Dante said that the darkest recesses of Hell are reserved for those who remain neutral in a time of great moral crisis. This is our moral crisis: Do we abandon the Japanese and the Filipinos and abrogate our treaties with those peoples, or do we stand fast and remain true to our word despite a momentary inconvenience? If we do not stand up to Chinese aggression, our civilisation will enter one of the darker recesses of Hell that Dante warned of.

Twilight of Abundance also has some good news. The question of which is more virtuous – socialism or conservatism – is answered in this book. In short, socialism is an archaic and regressive behaviour that we left behind in evolutionary terms with the development of agriculture ten thousand years ago. It all has to do with the enormous amount of effort needed to take human babies and infants through to adolescence.

That led to group food pooling behaviour in our Palaeolithic forbears. Everything was shared and nobody got ahead no matter how hard they tried. It seems that our species was once hard-wired for socialism. Fortunately, group food pooling behaviour was superseded by the storable surpluses from agriculture and civilisation blossomed thereafter. This was the beginning of private property, capital formation, division of labour and all the other good things that led to the level of civilisation we now enjoy. Thus conservatism is a more evolved state than socialism.

The main purpose of this book is to prescribe the strategic energy plan that the United States should adopt. Because, if we don't get energy right, we don't have much of a future as a civilisation. In short, we should develop the thorium molten salt reactor for power generation. The coal we are currently burning for power generation should be used for making liquid fuels.

Humanity has been given a perfect planet to inhabit. The proportion of ocean to land is just right to sustain a mild climate. Tectonic processes have brought to the surface orebodies that contain all the elements we need for advanced civilisation. And the atmosphere has the ideal composition and thickness. We were given enough fossil fuels to kick off modern civilisation and show us what was possible. We were given the nuclear match to light the fire that will sustain that high level of civilisation during the post-fossil fuel eternity.

We lit that match, U^{235} , but haven't yet gone beyond burning the match itself. It is irresponsible of us not to move beyond U^{235} to thorium, the nuclear fuel that is six hundred times more abundant and safer, cheaper, and cleaner. Our standard of living

is directly proportional to how cheap and abundant we make our energy supply. Comparative advantage between nations will also be based on relative energy costs.

All the problems that are coming towards us over the next score of years—mass starvation and population collapse, climate cooling, nuclear proliferation, Chinese aggression—will be compounded if our own energy costs are not as low as they could be.

Books can be powerful things. With this mere, one pound of paper, we might build synthetic fuel plants, tear down ethanol plants, tear down wind turbines, and, on their ashes, raise up the thorium-powered plants that will sustain civilisation into the post fossil-fuel eternity.

As Admiral Rickover said to the Minnesota State Medical Association almost sixty years ago, a century or even two is but a short span in the history of a great people. It is the responsibility of this generation of that great people to honor the generations who preceded us by preparing for the generations who will follow.

Honor them therefore. Read this book, note its portents, and let it be your guide in the troubled years ahead.

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