**FREE FORUM with TERRENCE McNALLY - A WORLD THAT JUST MIGHT WORK**

**RICHARD HEINBERG**
**THE PARTY'S OVER: Oil, War, & the Fate of Industrial Societies**

**Transcript**

**NEW INTRODUCTION – recorded 08-13-2026**

*The following interview was recorded a month into the war on Iraq in 2003. Here we are, 23 years later, engaged in another war in the Middle East, again based on lies, again with no exit strategy, again ultimately about oil.*

*RICHARD HEINBERG, a guest a handful of times on this show, died July 19th, just two weeks after a diagnosis of pancreatic cancer. He was a visionary, often a few steps ahead of whatever the current conversation might be when it came to humanity's relationships with nature, energy, power and each other. His books include A New Covenant with Nature; Cloning the Buddha: The Moral Impact of Biotechnology; The End of Growth; Our Renewable Future, and the one we talk about in this episode, THE PARTY'S OVER: Oil, War, and the Fate of Industrial Societies*

*As one of his colleague's wrote after his passing, "He challenged people to face difficult truths without giving up on beauty, community, or the possibility of living well within Earth's limits."*

*I hadn't spoken to him in a few years, and I now look forward to reading his final book, POWER: LIMITS AND PROSPECTS FOR HUMAN SURVIVAL, which appears to offer a synthesis of his thinking about the challenges he'd written about for decades.*

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**Conversation - recorded 04-19-2003**

McNally:
Hello, I'm Terry McNally: and welcome to Free Forum.

Let's do the numbers. The U.S. consumes 25 percent of the world's oil. The world and U.S. populations are projected to double in 50 and 70 years respectively. While global oil supplies are projected to be nearly gone in 50 years. Oil production from all non-OPEC countries probably peaked in 2002, while OPEC nations of the Middle East sit on 73% of the world's proven reserves. To talk seriously, not just about the U.S. war in Iraq, but about our entire lifestyle, in our future, "It's about the oil, stupid."

Here on Free Forum, we explore the lives, the work, and the ideas of individuals I suspect hold pieces of the puzzle of a world that just might work. We look at new, innovative, provocative models in business, environment, health, science, politics, and media. All based on the fact that I believe we can do better and I want to find out how.

The show plays on the Progressive Voices Network on TuneIn.com. Podcasts are available on Apple Podcasts, YouTube, Spotify, most major podcast sites and at my site, terrencemcnally.net.

RICHARD HEINBERG has been writing about energy resources, issues, and the dynamics of cultural change for many years. A member of the Core Faculty at New College of California, his books include *Cloning the Buddha: The Moral Impact of Biotechnology A New Covenant With Nature; a*nd his latest, the one we're going to focus on, THE PARTY'S OVER: Oil, War, and the Fate of Industrial Societies.

Welcome, Richard Heinberg, to KPFK and Free Forum.

Heinberg:
Good to be with you, Terry.

McNally:
Thank you. My first question, always on Free Forum, is about your personal path to the work that you do today, the issues that you focus on. Maybe the fact that you're a writer and a teacher. I want listeners to get to know the people that they're hearing as well as the ideas. And so take it back as far as you want and bring us up to the present. Some people actually mentioned mentors, turning points, you know, dreams; that sort of thing. Take it away.

Heinberg:
Well, I've always been interested in cultural change and social change. And why it is that societies are different from one another. And I've also always been interested in the environment. And I actually teach a subject called Human Ecology at New College. Ecology, of course, is the study of the relationship between organisms and their environment. So Human Ecology is the study of the relationship between people and their environment.

And that unfortunately is a long sad story, which I talked about quite a bit in my book A NEW COVENANT WITH NATURE. The story of how we invented agriculture and the impacts of that and industrialism and so on. But in studying Human Ecology, it became increasingly clear to me that the key to understanding human societies was energy. Just as the key to understanding ecosystems is energy.

It all starts with the sun, and plants through photosynthesis are able to turn sunlight into carbohydrates. And then animals eat the plants and carnivores eat the herbivores and so on. And pretty soon you have a whole food web that's basically an energy web.

Well, human societies are kind of the same way. We get our energy from the sun and traditionally, through agriculture we have produced food for ourselves and fueled our economies through animal muscle power, human muscle power and renewable energy sources like wood or wind or water through windmills and so on. But then about...

McNally:
Or other humans in some of our darker times.

Heinberg:
Right, exactly, yeah. But a couple of hundred years ago, we discovered fossil fuels and started partying down like there was no tomorrow. And fossil fuels are what created the Industrial Revolution. We usually think of the Industrial Revolution as being all about technologies and tools.

McNally:
And also as starting in the period of the steam engine.

Heinberg:
Right. Right. Which it did. Yeah, with coal; another fossil fuel. But really what the Industrial Revolution was about from an ecological point of view was human kind discovering a cheap abundant energy source and then inventing tools to use that energy source.

And using that energy source we were able to enlarge the human carrying capacity of Planet Earth. And that's from an ecologist's point of view, that's a really significant thing because what we've done over the last 200 years is change the earth and our way of living on the earth so that instead of supporting fewer than one billion people, the earth is now supporting over six billion people. We've enlarged the human carrying capacity by well over 600%.

And we've done that through basically the use of fossil fuels.

McNally:
In other words, one of the things you're saying is that at the core of expanding population, expanding consumption, everything that sort of has marked the radical shift in how we sit on the earth and how big a footprint we have on the earth really comes down to this almost subsidy of fossil fuel.

Heinberg:
Exactly. That's a good way to put it. We wouldn't be here right now talking via this medium if it weren't for electricity.

McNally:
Yes, we wouldn't be speaking to a city of 13 million and whoever else picks us up on the web.

Heinberg:
Exactly. Yeah... yeah. We found all kinds of ways for using fossil fuels to increase the carrying capacity - like transportation. Now suppose you want to create a city in the middle of the desert, you know. How do you do that? Well, if you don't have much top soil or water, it's pretty tough. But if you can transport those materials from elsewhere, those resources, then hey, you can build as big a city as you want in the middle of Arizona or Southern California or wherever. So transportation has enlarged human carrying capacity. Then the fact that you know, a hundred years ago we had to grow food for animals; animals that were pulling our plows and carts and harvesting our food and so on. We had to use like a quarter to a third of our farm land just to grow food for the ox and the horses and so on and agriculture.

So now that we don't have to do that anymore because we have tractors running on fossil fuels, that frees up a quarter to a third of our farmland to grow more food for more people.

McNally:
And even though we grow a great deal of it for cattle, now that's for consumption and not for work.

Heinberg:
Exactly. That's still for human consumption. And then we also have managed to find ways to use fossil fuels to make chemical fertilizers like nitrogen fertilizers. And you know, plants need nitrogen. And intensive agriculture tends to rob the soil of nitrogen. So what's the solution?

Well, traditionally, we had to use legumes and rotate crops and so on. But as we intensified our agriculture, we needed inputs. First we used bird guano from cliffs off the shore of Chile. Toward the end of the 19th century, these vast resources of guano were discovered and were a huge boom to agriculture in Europe and North America but it's starting to run out.

So what were we going to do then? This was going to be the biggest crisis in agriculture. And so two German chemists, Haber and Basch, invented a process for turning coal into ammonia-based nitrogen fertilizer. And using the Haber-Bosch process, we've doubled the amount of available nitrogen in the biosphere over the last century. Now all that nitrogen that's produced from legumes and lightning strikes and everything - all the natural sources put together - is doubled by the Haber-Basch process. So that's also increased the human carrying capacity. We have created not only a way of life, but a human ecosystem that is utterly dependent on these non-renewable resources. And a writer whose work I respect a lot by the name of William Catton, who was a great inspiration for me, he calls this: Phantom Carrying Capacity.

McNally:
Um-hm. Because it's based on something created in the past and non-renewable.

Heinberg:
Exactly. Something that's going to go away within a span of time that is of concern to human beings.

McNally:
Okay, so what I get from what you've just said is that after years of looking at ecology and looking at our relationship to nature and so on, you focused on the role of oil. Not only is it a phantom carrying capacity that we're living on right now, but that its time is running out. And that's what led to this book.

What I'd like to do at this point, Richard, is go back a little bit. Talk briefly about your earlier books and then come back to this one.

Heinberg:
Sure. Yeah.

McNally:
One of the reasons for that is that the book that I first read of yours, A NEW COVENANT WITH NATURE. I feel that in that one you were taking sort of the biggest picture, not focusing on a particular resource. Yes, focusing on this era, but not focusing on a particular resource - looking at the big picture and our relationship to the natural world.

If you could lay out for people kind of the thesis of that book and then we'll relate it to this current crisis or this emergent crisis.

Heinberg:
Well, A NEW COVENANT WITH NATURE was based on the realization that just about everybody who studies cultural anthropology has at one time or another, which is that the way we get our food is absolutely crucial in terms of determining our culture.

In other words, if you can know only one thing about a group of people, the most important thing to know would be how they get their food. If they get their food through hunting and gathering, you can pretty well predict that those people are going to live in small vans or are going to treat their children very permissively. They're going to have a spirituality that's based on the idea that everything around them is alive; animism in other words.

Whereas if you're talking to a group of people that get their food through, say horticulture, using a digging stick or maybe through a slash and burn...

McNally:
You're making a distinction there. Horticulture as separate from agriculture.

Heinberg:

Yes, exactly. Horticulture preceded agriculture and there's still pockets of people all around the world who live a horticultural existence - in New Guinea and South America and so on.

McNally:
And what's the distinction between horticulture and agriculture?

Heinberg:
Well, agriculture comes from the Latin word *agre* meaning "field." Whereas horticulture comes from the Latin *hortus* meaning "garden." Gardeners grow lots of different food plants all together using simple hand tools whereas with agriculture, you're growing field crops; monocrops using plows and draft animals typically.

With agriculture we see the emergence of the state, we see the emergence of complex societies with a permanent class system.

McNally:
Partly because with agriculture for the first time we really had surplus?

Heinberg:
Yeah, exactly. I would say that these are all strategies for increasing our per capita energy harvesting from the environment. We're harvesting more energy from the environment the more intensively we develop our technologies.

With industrial production, which began a couple of hundred years ago… Again, if you know that's how people get their food, you can predict all kinds of things about them. That they're going to live in very complex societies, they're going to be very dependent on the technologies around them, and all sorts of other things.

Knowing that people's social relations and their technologies, the way they treat each other, their political religious beliefs and so on, are all tied to the way they get their food… The second premise of the book is the way we're going right now is not very sustainable. And we're heading toward a cliff environmentally speaking, whether you're talking about depletion of resources or greenhouse effect, etcetera, etcetera.

Essentially, we need to re-negotiate the terms of our covenant with nature.

McNally:
And what do you mean by a covenant?

Heinberg:
Well, every people has some sense that they're taking something from nature. Obviously they're taking food from nature and other resources. But also they have some responsibility to give something back to the natural world. Certainly hunter gatherers have that sensing. And horticultural and agricultural societies and so on. And this is embodied in their myths and their practices and so on.

Now, when we get to industrial civilization, we're taking so much from the environment and yet we have very little sense of the responsibility to give something back.

McNally:
As I recall, there were two things you said early in that book that struck me. One was: There are three likely outcomes of where we are right now. I think one of them was Utter Collapse.

Heinberg:
Yeah... right.

McNally:
One of them was a real outlaw kind of world where the inequities got worse and most of civilization was reduced...

Heinberg:
Road Warrior Existence.

McNally:
Road Warrior Existence.

Heinberg:
With plastic bubbles with rich people living in them… yeah.

McNally:
And the third was Adaptation and Sustainability.

Heinberg:
Yeah, exactly. Changing the way we live.

McNally:
Now, how many covenants have you traced?

Heinberg:
Well, basically there are seven up to the present time. Hunting & Gathering, Simple Horticulture, Complex Horticulture, Agriculture, Fishing, Animal Herding, and Industrialism.

McNally:
Each of them having a covenant with nature. We'll take this from nature, we'll give this back. We're in balance of some sort. And the current system we're in now in some sense lacks a covenant.

Heinberg:

It says: We take everything and give nothing.

McNally:
And so the new covenant you were proposing was what - just realism?

Heinberg:
Well, yeah. I think we need to change the way we're living from the ground up.

In other words, we have to start with the way we get our food: industrial production. As long as we are cut off from the soil, as long as we individually get our food from the grocery store, what kind of connection does that give us with the natural world? It's only kind of a second-hand sentimentalized at best, connection with the natural world. We have no sense of the fact that our lives are in the hands of the earth, really. And we take the earth for granted. It's more or less inevitable.

We can have sentimental ideas about how beautiful the earth is and how nice it is and how we should preserve it and so on. But as long as we're actually dependent for our existence not on the earth *per se*, but on human economies and technologies and political systems, then ultimately the earth is something that we think we can do without.

McNally:
Now, one of the reasons I went back to that is that I found a similar kind of thing in THE PARTY'S OVER. Talking about oil…There's been a period where we could seem free of bounds, free of limits. And that we could go forward.

And in some sense in our covenant with nature, the same sort of thing happened. For the last couple of hundred years, it seemed like it was okay not to relate to nature because it didn't seem to matter.

And if we're waking up, it's because of the peak oil reserves, global warming, population, and limits on room to dispose of resources and so on. All those factors are forcing us to recognize again our relationship with and dependence on the rest of the natural world.

Heinberg:
A NEW COVENANT WITH NATURE is in many ways a devastating critique of industrial society. The biggest difference between these two books is that when I was writing it back in the mid '90s, I was clueless about the role of energy. I still think it's a good book. There's a lot of great material in it. But the word energy does not even appear in the index. And since then, I've learned a thing or two, I hope. And what I would say now is energy is the key to understanding human societies.

McNally:

Isn't part of what's going on here that in any other species, energy would be food production. Even with humans, isn't what you were calling food production really in some ways about energy?

Heinberg:
Yeah. In all of our previous covenants with nature, we've gotten our energy from nature mostly through food. Also through harnessing animal power and wind and so on, but mostly through food. But now we're getting our energy mostly through fossil fuels. In a sense, we're eating oil. Not directly, but indirectly, because that's what's creating the carrying capacity for roughly five billion humans who wouldn't be here without fossil fuels.

McNally:
Right. Let me talk just a little bit about the middle book, CLONING THE BUDDHA*: The Moral Impact of Biotechnology*. What was your premise or your take in that book? And has it changed at all?

Heinberg:
My thinking on the subject of biotechnology has not actually changed. The circumstances have changed in various ways, but I still have pretty much the same views, which are that biotechnology, like all technologies, is not morally neutral. We tend to think of technologies like… It's a hammer. You can use it for good or bad. Or a hand gun. Hey, you can use it to hold up a convenience store or you can use it to protect your family. It's just a neutral tool.

That's a very naive way of thinking about technologies. Every tool has some inherent use, that's why it was invented. Hand guns are basically for killing people - or target practice, I guess. But you know, you have to ask yourself: Well, is that something we want to promote in our society? Do we want to have more people killed by hand guns? If so, we should... yay, let's have more of them. Or if not, well, then we should do something about that.

Well, what's biotechnology for? You know, that's a question that you don't really ask. We see there are biotech foods and so on. Is that really what it's for? You have to go back in history to the beginnings of molecular biology to see what it's for, who invented it, and why?

McNally:
I've heard a lot of people pro and con re biotech. One of the single things most revealing to me 'in *CLONING THE BUDDHA is* the political economic history of biotech, which I suspect is something that most people don't know.

Heinberg:
I talked to groups of molecular biologists and they don't know this.

It started in the 1920s as a project of the Rockefeller Foundation. And the Rockefeller Foundation was very heavily invested in the philosophy of eugenics - the idea that we should use scientific breeding techniques with human beings just as we use scientific breeding techniques with flowers and wheats and corn and pigs and pussy cats and everything else. I mean, why not? We want to improve the species, right?

The Rockefeller Foundation was in position to donate large sums of money to research institutes. They did so with a specific purpose of discovering the molecular basis of heredity. The word gene already existed but nobody had any idea what a gene was. It was just a hypothetical unit of heredity. They wanted to know the molecular basis of heredity, so they hired some scientists to do this, and the scientists they hired were out-of-work physicists. They didn't go to biologists because biologists were accustomed to thinking of nature in terms of complex systems, whole organisms - zoologists and botanists looking at whole plants and animals, and ecologists, my God, looking at whole ecosystems. That was not the direction they wanted to go. They didn't want to go in the direction of holism, they wanted to go in the direction of reductionism: What's the smallest unit?

McNally:
And the reason for that was because...

Heinberg:
Social control.

McNally:
Because control. Reductionism is a tool for control.

Heinberg:
They explicitly stated that their purpose in this research was social control.

McNally:
The systems way of looking at biology is not so much a method of control, but as a method of observation.

Heinberg:
And understanding.

McNally:
Yeah, and understanding.

Heinberg:
They hired the physicists to do this, and the physicists were actually looking for new jobs at the time because they were people who had been brought up in the 19th century with the kind of reductionism and mechanistic pre-Einsteinian, more Newtonian way of thinking. And they were unhappy with the way physics was going in the direction of quantum theory and relativity theory, and so on.

They were quite happy to have a new research project. And they were successful. They very quickly discovered the DNA molecule and the chemical alphabet that makes up the DNA molecule. And they got Nobel Prize after Nobel Prize for their discoveries.

And by the 1970s, they'd figured out a way to splice genes together from different species. Where all of this is headed, of course, is the re-creation of the natural world. And also the re-creation of ourselves, because inevitably, sooner or later, we will be using genetic engineering for exactly what the Rockefeller Foundation had in mind when they funded the creation of molecular biology in the first place, which is the genetic alteration of human beings.

And we're beginning to see just the very few stages of that now, but the people in the industry... You know, some people say: Well, this is science fiction, it'll never happen. Let me assure you, there are plenty of people who are involved in this research work right now who are absolutely clear that this is what they want to happen. And they're working full time in this direction, to genetically engineer new races of human beings.

McNally:
Frances Fukuyama says that those kinds of things you're talking about are so far in the future...

Heinberg:
Not at all.

McNally:
…that if we focus on those, we'll miss more important issues that are happening.

Heinberg:
Well... Yes, I agree with this in this sense. We do need to focus on genetic engineering of food, for example. I mean, that's with us right now. For the last several years, our food supplies have been genetically engineered. That's harming both human beings who are eating foods that haven't been properly safety-tested and it's also harming the environment in ways that we may not understand.

McNally:
And let me ask one question about that while we're grazing through this piece of it. The contention is made by those who favor GMOs, that it is necessary to feed our burgeoning population, and that those who oppose them are selfishly ignoring millions who will die. What's the truth of that as far as you can see it?

Heinberg:
I'm tempted to use a word that I can't use on radio. Well, just look at what's going on in Africa right now. U.S. is offering food aid to several African countries and they're refusing it. Why? Because it's genetically engineered food. Now, the popular press in

the U.S. is portraying these African countries as being insane. I mean, as being too much under the influence of the European countries who have this cultural opposition to genetic engineered food. And it's really just superstitious, you know.

McNally:
Just another example of those European countries that can't get with it.

Heinberg:
Right. But here are these African people who are starving and the genetically engineered food could save them. Now, what is the problem with these people?

Well, here's the problem right here. Those genetically engineered foods are patented, right? And what we want to ship them is mostly corn. Now, the poor people who are going to be receiving this corn, as far as they're concerned, corn is food but it's also seed. They're going to want to plant that corn and grow it. And the fact that it's patented seed means that once those corn plants root in the ground and grow, they will be the property not of those farmers, but of the company that owns the patent, say Monsanto.

And Monsanto could stand to be basically the owner of the entire food system of a country like Zimbabwe, for example.

McNally:
And the farmers would be licensing it.

Heinberg:
Yes. They would be bio-serfs, in essence - you know, growing food only at the behest of the biotech corporation. Now, the governments of these African countries want to prevent this from happening. So they say to the U.S.: Well, look, if you'll just grind the corn first so that it can't be planted, then we'll be happy to accept it as food aid. Okay?

McNally:
Interesting. I hadn't heard that. Good suggestion... yeah.

Heinberg:
And the U.S. government says: No. Gotta take it as whole kernel or not at all. So guess what the priority of the government is?

McNally:
And in my understanding, the other piece of this is that - outside of the situations of starvation and so on - the research indicates that the GMOs have not greatly increased yield. But they have tied those farmers and those seeds to particular herbicides and particular pesticides that they're made to match with.

Heinberg:

Right. This is all about profitability. It has nothing to do with increasing food production. Well, I should put a proviso on it. There are people in the biotech food industry who genuinely want to help the world and they genuinely believe that this is what their research is trying to do. But unfortunately, I believe that those people - as brilliant as some of them are - and I've met a number of them - that they're misguided. And that their efforts are being hijacked by giant multi-national corporations whose only interest is increasing the bottom line.

McNally:
When we were speaking earlier, you said you began to realize that energy was the crucial piece. What was the information that tipped you that this is an impending crisis worth writing about?

Heinberg:
Well, once I realized the importance of energy and particularly of fossil fuels to just where we are today, once I realized that our whole way of life and the fact that there's an extra five billion of us around as a result of these fossil fuels, my next question was: Well, when will we run out? How much is there left?

I got myself on to an internet or email discussion group of about 150 energy experts from around the world. And I just listened in to what they were telling each other for about four years. And I learned some things that they know that the rest of us don't know. And the most important fact is one that I think is the single most important piece of information any of us can have right now.

And that is that globally oil production is about to peak within the next three to seven years. And the implications of that are well, overwhelming.

McNally:
Okay, let's say it again. The most important thing is not whether Brad and Jennifer are okay?

Heinberg:
Right.

McNally:
Or even where we are relative to Baghdad and Basra?

Heinberg:
Yeah. It's why we're in Baghdad.

McNally:
I know. What is it again? So you state that sentence and then go to the implications.

Heinberg:

Well, most people think of oil in terms of when will it run out? I even used that phrase a little while ago. When oil is going to run out. Really that's the wrong way of thinking about it. That's the gas tank metaphor, you know. If you fill up your gas tank, the car runs fine. If you're down to a quarter of a tank, the car still runs fine. It's only when you actually run out that you have a problem.

So people think the same way of oil. How much do we have? Well, we have like a trillion barrels of oil in the ground. That's a huge amount. That's more than we've used from 1859 - when the first commercial well was drilled - through the present. So a trillion barrels of oil is a lot of oil.

How much do we use? Well, we use between 25 and 30 billion barrels a year globally. So all you have to do is divide one trillion by 25 billion and you get 40. So we've got 40 years of oil left.

McNally:
At the current rate we have 40 years.

Heinberg:
At the current rate we have 40 years. So...

McNally:
Now, what's interesting also is as you said: We haven't yet used half of what's been available.

Heinberg:
Right... not quite. We're just about at that point.

McNally:
So from 1859 in almost 150 years...

Heinberg:
Yeah... yeah, we used the first half.

McNally:
But based on calculations, even if we didn't grow in population and didn't increase our consumption, we've got about 40 years left.

Heinberg:
Yeah, but see, that's the wrong way to look at it because that assumes that we can continue using at the same rate and then suddenly 40 years from now, we drain the tank dry. And the car would stop. But that's not how petroleum production works.

McNally:
And the factors that play into that are?

Heinberg:
They're geological factors. I mean, it's more about geology than anything else. When an oil province is first discovered, test wells have to be sunken. You have to map the oil province. And then the easy stuff, the stuff that's under pressure and close to the surface and highest quality, that's going to be drawn off first. And the stuff that's lower quality, that's more expensive to produce and so on, that's going to be saved until last.

So oil production from any given province is going to take kind of a bell-shaped curve of production. And when about half of it is gone, production is going to peak. Right? And so after that, no matter how many more wells you drill or how hard you try to pump, you're not going to be able to continue production at the same pace. The rate of production is going to fall off.

McNally:
So we've gotten the easiest half.

Heinberg:
We've gotten the easiest half.

McNally:
The cheapest, the easiest, the most available half is what we've gotten.

Heinberg:
The second half is going to be harder to get at and it's going to be more expensive. And we're not going to be able to produce it at the same rate. In other words, we're not going to be able to continue growing our energy supply. And since our economy...

McNally:
Let me question one thing.

Heinberg:
Yeah, sure. Go ahead.

McNally:
You say we're not going to be able to do it at the same rate. If we were willing to pay the price? Could we do it at the same rate?

Heinberg:
No, no. For physical reasons; geological reasons.

McNally:
You mean no matter how much we're willing to spend. We just can't keep pumping it this fast?

Heinberg:

Exactly.

McNally:
And why is that?

Heinberg:
Well, that second half that's harder to get at and harder to... It's deeper, it's in more... it's in...

McNally:
Harder to get access, harder to refine. Every aspect of it. It's harder at every aspect. Or we would've used it already.

Heinberg:
Yeah, yeah... yeah. See, we had this experience already in the U.S.

McNally:
Yes we did, didn't we?

Heinberg:
Our oil production peaked in 1970.

McNally:
We were for quite a while the largest producer in the world.

Heinberg:
The U.S. was the Saudi Arabia of the early 20th century. We were the world's largest producer of oil and the world's largest exporter of oil. We won both world wars for the allies because we were supplying them with oil.

McNally:
And let me ask a question which hadn't even occurred to me before. When we were the Saudi Arabia of the early 20th century, was that a big factor as to why we were... Sure, we have these protected borders and blah, blah, blah. But the fact that we had the easiest access and, in some sense, the cheapest access to the energy, was that a factor in why we became the dominant?

Heinberg:
That was probably the biggest factor. Also the fact that we had all these European immigrants. Many of them were well educated and knew how to invent new technologies to make use of all this new oil. And so we invented cars and we invented planes and...

McNally:
So there was an interesting confluence of effects there. You had the energy resource available in this country, you had the stock of people who were the adventurers who

chose to leave their previous countries; the free-thinkers and so on. And you had a system of rules and rights that fostered creativity. So when you said before how we came up with all sorts of new ways to create greater carrying capacity out of this energy subsidy, the U.S. was the perfect place both ideologically...

Heinberg:
Geologically...

McNally:
Culturally, demographically; it all came together.

Heinberg:
Absolutely. But then when oil production peaked in the U.S. in 1970, all of that changed.

McNally:
Is it no accident that the first oil crisis was in '73?

Heinberg:
No accident at all. I mean, that was the wake-up call that oil could be used as a weapon. And that card couldn't've been played against us in say, 1943 or 1953 when we were still a big oil producer. Actually, we're still a big oil producer now but we're importing 60% of what we use. So we're overwhelmingly dependent on other countries.

McNally:
Well, we of all people developed a lifestyle, as we were just saying, that outpaced our domestic capacity.

Heinberg:
Right.

McNally:
For a while, we had what appeared to be unlimited capacity and created with that in mind.

Heinberg:
Yeah... Yeah.

McNally:
Interesting.

Heinberg:
There's still oil in the ground. We still have wells in Southern California and in East Texas and Oklahoma, still pulling oil out of the ground. The fact is we could invest a

hundred billion dollars next year in increasing our oil production in the U.S. and we still couldn't get it back to the same rate of production as we had in 1970.

McNally:
And my guess is that, given what you said about the easiest comes first, that hundred billion wouldn't get us near what that same hundred billion would yield if we bought foreign oil?

Heinberg:
Right. Exactly.

McNally:
And so thus, the profit motive means we'll buy foreign oil.

Heinberg:
Absolutely, yeah. And the cheapest oil to produce is oil from Saudi Arabia and Iraq. At this point, there's no oil coming from Iraq.

Iraq has 112 billion proven barrels... 112 billion barrels of proven reserves, which is the second largest. But it's only about the tenth largest producer. So that means that there's a lot there that just hasn't been tapped yet.

McNally:
Yeah... yeah. Is this war about oil? Let's not go down that whole path, but Iraq was one of the first oil producers to no longer trade in dollars, but in the euro. it's something you don't read about and you certainly don't hear on TV, but that the idea that the U.S. may be able to shift Iraq's oil production back to trading on the dollar has a lot of importance…

Heinberg:
Look for that as being one of the first actions on the part of the new Iraqi government, whatever that is, to shift oil sales away from the euro and back to the dollar.

McNally:
One of the deals we made with OPEC, as their biggest customer, was that all trading had to be on the dollar. Iraq went away from that and once they did, others could've.

Heinberg:
How do countries get dollars? A country like Japan has virtually no indigenous energy reserves, no oil reserves, so it has to buy oil and it has to pay for it in U.S. dollars. Where does it get its dollars? Well, it has to either borrow dollars from U.S. banks or sell its products to the U.S. And since it's motivated to sell and the U.S. may or may not be motivated to buy, Japan will sell at cut rates.

And that's basically what happened in the 1960s and '70s. Japan rather deliberately devalued the yen in order to make its exports to the United States attractive. So the U.S. by maintaining a strong dollar, was able to get resources and manufactured products from around the world at cut rates.

McNally:
But one of the reasons was not simply because the dollar as dollar was so valuable, but because the dollar was what you needed to buy oil.

Heinberg:
Exactly. Yeah.

McNally:
I'll bet actually that if we took a poll right now in congress, I'll bet very few of them would know that fact.

Heinberg:
Right. Right. Well, you know, international currency exchange is not something that everybody discusses around the morning table, but it's one of those nasty boring subjects that just happens to affect our lives indirectly.

McNally:
Okay, so we've got oil for 40 years more...But those 40 years more are not like the 40 years past.

Heinberg:
Right. Right. I wouldn't say that we have 40 years more. What I would say is: We'll still be pulling oil out of the ground 100 or 200 years from now, but you know, in drips and drabs.

McNally:
Because the average can't stay what it is.

Heinberg:
Yeah. I don't even talk about when we'll run out. What we should talk about is when is it going to peak. That's the important thing.

McNally:
When it peaks, it becomes more expensive?

Heinberg:
Yeah... and less of it will be available year after year from now forward.

McNally:
So once it peaks, (a) it becomes more expensive; (2) capacity will drop; actual usable capacity will drop.

Heinberg:
Right... right.

McNally:
Okay. And when is that peak?

Heinberg:
Well, best estimates are somewhere between 2004 and 2015.

McNally:
And there's disagreement?

Heinberg:
Right, yeah.

McNally:
And what is the disagreement about?

Heinberg:
Well, the disagreement is about exactly how much there is. Not every oil company or every oil producing country wants to share accurate information about their oil reserves. So we have to derive that information the best way we can. And the best information that I've seen is what has been collected by Colin Campbell, who was formerly associated with the Petrol Consultants in Geneva, Switzerland, who publish a yearly report for like $35,000 a copy, something like that.

And they have the best database of any organization in the world that I'm aware of. And Campbell comes down on 2010 as being probably the most likely time frame.

McNally:
Now, someone might say that you've shown a tendency to be kind of an alarmist, or a 'we're-in-trouble' kind of person. So what do the optimistic estimates say?

Heinberg:
Well, there are optimistic estimates that say, you know, that we're swimming in oil and will be for decades. But the fact is they're based on extremely unrealistic data.

McNally:
And isn't it a fact that a lot of the oil producing countries have falsified their data because of other economic factors?

Heinberg:
Yeah... political motives, yeah.

McNally:

Yeah, political and economic motives.

Heinberg:
In 1986 and '87, OPEC changed its rules to say that countries could export oil on the basis of their reserves. So if you had larger reserves, you could export more and therefore get more foreign revenue. So countries were motivated to report reserve increases.

McNally:
And suddenly reserves spiked...

Heinberg:
Like in those two years, every country in OPEC reported reserve increases of between 50 and 100%. And there's no evidence whatsoever that that oil was really there. It's just, you know, reported reserves, and that kind of accounting sleight of hand is still going on today. Just last year, Canada decided to count its oil sands in Alberta as oil reserves. So last year, Canada reported reserve increases of well over 100%. And the thing is, the oil sands are not conventional oil reserves. They should be considered in a completely separate category because they're extremely expensive and environmentally ruined...

McNally:
I mean, it's really apples and oranges.

Heinberg:
Yeah, yeah.

McNally:
Okay, so if we say somewhere soon, maybe as soon as when it peaks, it begins to become more expensive, yet our population is still growing and our consumption is still growing. Obviously from now 'till the end of the show we're talking about, what does that mean? And how do we deal with it?

Heinberg:
Yeah. I've taken to discussing this question in terms of Plan A and Plan B. Okay, Plan A is, once it becomes clear that petroleum resources are running out, and it becomes clear to us that this is the oxygen for the industrial system, then Plan A would be for countries with the biggest bombs and the most guns and planes, to figure out where the oil is, go there, take it over, and use it 'till it’s gone.

McNally:
They wouldn't do that.

Heinberg:
Okay. Well, that's Plan A. It has some things to be said for it, and a few drawbacks, too.

And then Plan B would be for the countries of the world to engage in some kind of cooperative process of conservation and energy resource-sharing.

McNally:
They wouldn't do that... I find myself having to say that.

Heinberg:
Yes, let's talk about this for a minute. I mean, first of all, Plan A is really obvious. I mean, it's something that's politically do-able because it's going to be easy to talk to people of your country into, you know, saying: This is in our national interest, something we need to do to protect our way of life.

McNally:
Now, as I read the Neocons, and their Project for a New American Century, which we've spoken of quite a bit on this show, and their plan that the U.S. should be the only super power, that it should invade and convert basically the Middle East, oil does not play largely in that. They talk about democracy...and you believe oil is the subtext.

Heinberg:
Absolutely.

McNally:
That the reason to be the only super power and the reason to focus on the Middle East...

Heinberg:
…is the oil.

McNally:
Is the oil.

Heinberg:
That's the only reason we're interested in the Middle East. If there were no oil there, we would not care what was happening there or what religion those people are.

McNally:
We'd be arguing whether to send them corn or not.

Heinberg:
Yeah, I mean...

McNally:
Like Africa.

Heinberg:
Yeah, I mean, why aren't we talking about invading Australia and New Zealand? You know... Well, obviously, those countries have governments that are friendly to us.

McNally:
But Africa, I think is the comparison.

Heinberg:
Or Africa. Yeah, sure.

McNally:
So, Plan A/Plan B. If we reflect this through the current lens, which is why I ask about the Neocons and their plan. What then if we go to the Plan B?... Well, we've actually seen this administration undermine whatever exist in terms of international cooperation from the moment it took office.

Heinberg:
That's right. That's right.

McNally:
Is it your reading that that's just a mindset or that there's some relationship?

Heinberg:
Oh, I think there's absolutely a relationship. I think the Neocons have... are absolutely fixated...

McNally:
It's my reading that the Neocons did not have control of the Bush Administration at its outset.

Heinberg:
No, not until 9/11.

McNally:
And yet he still, even prior to 9/11, abandoned all international treaties. And... Let me share this. My image prior to the 2000 election and then with its outcome…When he picked Cheney, you had two oil people running on the Republican ticket at the birth of the 21st century. A victory by them would be the 20th century reaching up from the grave. I see this image of a hand grabbing the 21st century by the neck and saying: Not so fast.

Heinberg:
Yeah, right.

McNally:

And so the fact that these oil people, even without the Neocons, broke all sorts of treaties, and broke away from international cooperation certainly fits your idea that these are not people interested in Plan B.

Heinberg:
Yeah, absolutely. Plan B you know, sounds pie-in-the-sky in this country. I mean, it's hard to imagine Americans being able to give up...

McNally:
As Bush Sr. said, “The American lifestyle is not up for negotiation.”

Heinberg:
The standard of living, yeah. But you go anyplace else in the world, and people are quite willing to contemplate Plan B, if we can call it that. I mean, already in Europe, people are using about half the energy per capita that we are, and still enjoying...

McNally:
- and Japan.

Heinberg:
- and Japan. And still enjoying a very high standard of living.

McNally:
Looking at environmental issues since let's say 1990, that fact has been true since then.

Heinberg:
Right... Right.

McNally:
So in other words, it isn't that they've cut back because they're nervous about the end of oil or Kyoto or global warming, it's that they never quite dealt with it as patiently as we did.

Heinberg:
Well, energy was always more expensive for them anyway because for us, we had it subsidized by the fact that it was denominated in dollars.

McNally:
And earlier, that we were the biggest producer. So for a period we were the biggest producer. When that ended, we made the rule that it had to be dealt with in dollars, so the power that we built as the biggest producer allowed us to run the game afterwards.

Heinberg:
Exactly. Yeah.

McNally:
And so they've always had to be more efficient.

Heinberg:
Yes. Yeah. But they're also more willing to undertake the inevitable and probably painful conversion to the new energy economy of the 21st century.

McNally:
When you were in these chat rooms and so on. This is an international chat?

Heinberg:
Absolutely, yeah.

McNally:
And there's just a whole different way of thinking and talking about this?

Heinberg:
There's no question about it. Yeah. And people elsewhere in the world look at the United States and they're aghast. They can't comprehend how... It's not just the Bush Administration, it's the whole American lifestyle.

McNally:
That's right. We can't just point the finger at them. I still believe my image and I think they do represent sort of an abhorrent extreme, but just that a leader could say: The American lifestyle is not up for negotiation and be applauded.

Heinberg:
Right. I mean, anybody else looks at that and they're incredulous. The fact that we're using non-renewable resources, right. That tells you right away they're going to run out sooner or later. Any person with common sense at all would say: “Well, we need to use these resources abstemiously, you know, use them as conservatively as possible.”

McNally:
…use our intelligence and ingenuity that showed us ways to exploit it for a long time - use that same ingenuity and our power position to now adapt to the inevitable future.

Heinberg:
Exactly.

McNally:
What are the possibilities? It seems to me a lot of people say: There is a way out and it's through hydrogen and fuel cells and various technologies.

What's your take on that... Is that the solution? Not just hydrogen, but any alternative?

Heinberg:
Well, I think there's no magic bullet, in fact. Our transition over the next century is going to be toward a whole suite of alternatives, including photovoltaics, wind, but more than anything else, curtailment, cutting back on energy use *per se*.

Hydrogen is actually not a solution at all. Hydrogen is not an energy source, it's just an energy storage medium because there are no hydrogen reserves. You have to make hydrogen either with hydrocarbons like natural gas… All commercially produced hydrogen now is made from natural gas.

McNally:
From petroleum

Heinberg:
Yeah, right. Actually, a gallon of gasoline contains more hydrogen than a gallon of liquid hydrogen. So you can make hydrogen from gasoline, but...

McNally:
So the attraction between hydrogen is not that it's plentiful, but that it's clean.

Heinberg:
Right. But it's an energy loser. I mean, when you make hydrogen out of gasoline or whatever, you're not making new energy that wasn't there before. And if you make hydrogen out of water by disassociating the water using electricity...

McNally:
That sounds pretty plentiful.

Heinberg:
Sure, but you have to use more energy to separate the hydrogen from the oxygen then the hydrogen is going to be able to give you when your run it through the fuel.

McNally:
What's the best alternative?

Heinberg:
Well, you know, we have to look at the primary energy sources, which are once again, you know...

McNally:
The original ones... The primary: wind, water, sunlight.

Heinberg:

Yeah... And what can those actually offer us? And basically, we have to find a way to power down over the next century to the point where we are operating on the basis of solar energy.

McNally:
So what you're saying is work backwards.

Heinberg:
Yeah.

McNally:
It calls for forward thinking to work backwards... Forward thinking is: see what's happening. And then work backwards from the capacity available from renewable primary sources, and then what would you have to do in the next 50-70 years so that at that point you're living on that?

Heinberg:
Right. Among other things, you'd have to move producers and consumers closer together. Right now the average food item on our plate travels 1300 miles to get there. And those are 1300 fossil fuels miles. So this isn't about survivalism because individual survivalists will be overwhelmed by the people around them. This is about community survival. We need to make our communities sustainable and survivable by producing the necessities close by.

McNally:
And yet it seems to me that most of the multi-nationals and the countries they influence have been promoting globalization and free trade, which would've been perhaps appropriate 40 years ago, but is inappropriate for exactly what you're talking about because of the 1300 miles that they're willing to transport...

Heinberg:
Yeah, right. Globalization is absolutely insane given the context of peak oil.

McNally:
Wow.

HEINBERG
Yeah. And we have to basically take the movie of globalization and run it in reverse. You know, we have to think local, slow, and modest in every aspect of social and human life.

McNally:
Now, once you've said that... And we've got two minutes. What do you think the prospects are?

Heinberg:

I think they're very good. If you ask people, “Would you be willing to give up some standard of living if the result were that your children and grand-children could live in a survivable, sustainable world? If you could live without fear of terrorist attacking you from the other side of the world because you're taking their resources? If you didn't have to worry about your own government taking away your civil liberties and tearing up the Constitution because of fear of international terrorism? …” Hey, I would be willing to give up a heck of a lot of my so-called standard of living.

And a lot of the human experience of the industrial revolution, has actually been one of loss anyway. We've lost our sense of community. We've lost our sense of self-worth and self-sufficiency because we're all dependent on this social machine of which we have virtually no control.

McNally:
In other words, the biggest trends that are going on in the United States at this point, are actually... My image is even truer than I thought. Trends that were perhaps appropriate to the past… The endeavor of human society needs to move away from those things and return to something else. And it seems to me that the biggest factor in this is going to be to give up denial and to get the truth of some of these things in front of people...

Heinberg:
That is the key, yeah. Getting the information out because so few people understand where we are in terms of this crucial historical period. Just the fact of peak oil is one piece of information that if everybody had that and understood it, I think it would change everything.

McNally:
Okay. We've come to the end of the hour. The book is THE PARTY’S OVER: *Oil, War, and the Fate of Industrial Societies*, and the message is: The truth is the only thing that'll save your children.

Heinberg:
Yeah. Let's go for Plan B.

McNally:
Okay.

Heinberg:
It's been a pleasure talking with you, Terry.

McNally:
Thank you, Richard.

For this conversation and many other interviews and articles, and to join me in pursuit of a world that just might work go to terrencemcnally.net or a

worldthatjustmightwork.com – the same website. If you want to receive my weekly email announcements of guests and issues, plus links to 10-15 articles I choose each week to flesh out the conversation, sign up at my site or email me at temcnally@mac.com. Thanks to Kiyana Williams in production and George Vasilopoulis at Progressive Voices, and most of all you, my listeners. Please share this podcast widely.