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## Prominent Environmentalist: We Need Nuclear Power!

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*James Lovelock, the well-known environmentalist and inventor, spoke with Gregory Murphy, associate editor of 21st Century Science and Technology magazine, on May 14, 2009.*

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*Lovelock, who has invented scientific devices to measure atmospheric gases, is the father of the Gaia Hypothesis, which views all life on the Earth as part of a self-regulating organism.*

*He made headlines in 2006, with an article in the London Independent, in which he wrote that the best way to handle “global warming,” is to build nuclear power plants; that nuclear power is the best power source we have at the present time. Lovelock, now 90 years old, has, in fact, been pro-nuclear power all along, and has written introductions to several scholarly books about nuclear power, but the Independent article was the first time he wrote a pro-nuclear piece aimed at the general population.*

*The Independent article, despite its false premise of posing nuclear power as a solution to so-called global warming, has served as a catalyst for other environmentalists to embrace reality and join the campaign for nuclear power.*

*A review of Lovelock’s latest book, The End of Gaia, appears in the Spring 2009 issue of 21st Century magazine.*

**Murphy:** In your book, you spend quite a bit of time dispelling the myths and deliberate lies that have been spread about nuclear power to inhibit its use. And you’ve noted that it’s the best power source we have.

**Lovelock:** It needs a good investigative journalist to look into that, because it’s quite a system, with the myths about waste, all sorts of things. And yet, its safety record is absolutely superb. No airline could match it.

**Murphy:** You mention in your book a good example of the safety record. You say that in the 50-odd years that we’ve operated nuclear power plants, fewer than 100 people have died. Yet, there are hundreds of thousands of deaths associated with the fossil fuel industry—coal, oil, etc. And there have been hundreds of thousands of deaths, associated with renewable energy and the consequences of using it. Can you explore that a bit?

**Lovelock:** In the case of renewable energy, people forget that hydropower, water power, are renewable energies, and water power means that dams are used, and dams can burst, and when they do, they kill a hell of a lot of people.

**Murphy:** And wind energy is intermittent, so if you use wind or solar, to replace baseload power, you’ll have a situation of energy starvation, which will also have the consequence of population deaths.

**Lovelock:** I think solar could be all right in desert regions where there’s sunlight all day long, and you can rely on it most of the year. And they’ve worked out



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*James Lovelock, father of the Gaia Hypothesis, caused a stir by promoting nuclear power, as the best way to deal with so-called “global warming.”*

ways of storing the energy at night, through the use of steam accumulators. It's an old-fashioned invention, that existed right back to the 19th Century. The Tube [subway] system in London worked on these accumulators. They had ordinary steam engines pulling the trains along the tunnels, but they didn't have any fire in the tunnels; they would pump up the steam.

### What About the ‘Waste’?

**Murphy:** In the interview you gave last year to the American Nuclear Society, you made a very interesting comment about the nuclear waste question. You said it bothered you that people were crying about this, and you would welcome it in your backyard—to heat your pool.

**Lovelock:** I would say, let me have it! I'd be very glad to take the full output of high-level waste from the single nuclear power station where I live. It's about as much stuff as you would fit in a car, and if you put it in a concrete well in the back yard, I'd use the spare heat from it to have free heating for the rest of my natural life. What's wrong with doing that?

**Murphy:** I thought that was such a great comment, because, when you're talking to people, and you start discussing nuclear waste, and how it can be recycled,

they tend to blank out. But if you take an ironic, humorous approach that cuts through on this, it gets home to people that there's really not much of a problem with this.

**Lovelock:** It's a benefit. Who would throw away the chance of free heating for life?

**Murphy:** Not many nowadays, with the energy crisis!

You know, my background is with [Adm. Hyman] Rickover's Nuclear Navy. I served for about three years on a nuclear submarine.

**Lovelock:** So you know then that the damn thing is safe enough...

**Murphy:** I know, and I always challenge the greens I talk to who are anti-nuclear. I ask them how close to a nuclear power plant they live, and most of them tell me, “two states away.” Then I tell them I lived within 300 feet of one for three years, and I didn't have any frog babies.

**Lovelock:** You've been in nuclear submarines, so tell me—I don't know if this is true or not—but I've heard that they've got less radiation than anywhere on Earth, when they're several hundred meters below, because no cosmic rays get through, there's no radiation from the Earth, and there's only the small leak from the reactor, which is so small that it's negligible. So, you've actually got a lower level of radiation if you work in a nuclear submarine than you have anywhere else on Earth!

**Murphy:** I've never heard that, but it makes sense, because a lot of the radiation you get—I've done radiation studies at nuclear power sites—is background radiation. And you talk about this background radiation in your book: You bring up Chernobyl, which, any time you mention nuclear power to someone on the street, the first thing that pops up is Chernobyl and Three Mile Island.... And I know from a recent study that Polish scientist Zbigniew Jaworowski told us about, that there's more radiation in downtown Warsaw than around Chernobyl now.

**Lovelock:** I'm not surprised. Where I live, down in

the west of England, which has a lot of granite, the radiation level here is way over 1 microcurie per hour, but the people here live just as long as they do anywhere else.

**Murphy:** There's always the benefit of low-level radiation too....

The other thing that I found very interesting in your book is how you classified the current environmentalists, the greens, as basically religious cultists. It's not new—you've said this before.

**Lovelock:** Well, from what you've said, I think you would agree with that.

### **DDT Banned: Millions Died**

**Murphy:** Oh, I definitely agree with that.

The other thing I was struck by, and I've read other books of yours—the *Revenge of Gaia*, *The Age of Gaia*, and others, and I don't remember your attacking the ban on DDT as a bad move, based on failed science, as you do in this new book. Can you explain that a bit?

**Lovelock:** Well, you know that the guy who invented DDT got the Nobel Prize for it, and it was given to him because it was a chemical that had saved more lives than any other chemical that had ever been invented. And it saved lives by stopping malaria all throughout Africa and Southeast Asia, and places like that. And used that way, in quite small quantities to kill off mosquitoes, it was an absolute benefit.

Then when the idiots went and banned it without thinking—it didn't really do much good, banning it, but it meant that all those people down in Africa and what-not, no longer got the benefit of mosquito killing, and they've been dying off. I think it's 2 millions a year who die of malaria, and about 200 million made miserable with it. And it's all unnecessary. It's one of the biggest mistakes the greens ever made.

And it all started because a group of women in New York got the idea that they got breast cancer from traces of DDT in the food they ate. And they stormed their Senator and got the whole thing stirred up.

**Murphy:** It's interesting that the Environmental Protection Agency's own science hearings, in 1972, found no correlation of DDT to cancer, or any other ill effects, yet EPA administrator William Ruckelshaus went ahead and banned it.

**Lovelock:** That's right, and it was crazy. This is

what the greens do. They do crazy things—because they are not scientists.

**Murphy:** Yes. As far as I can tell from talking to them, and talking to people who've been associated with them, the greens have a distrust of science, and try to be ignorant of science, which doesn't help anybody, in the long run, or the short run. Most people are interested in new scientific discoveries—they look at the Hubble Telescope photos and things like that. But they have the popular idea that they have to be ignorant of science.

**Lovelock:** It's crazy and illogical when you think of it, because they're using a sort of bum science to attack a scientific idea.

### **The Trouble with Computer Models**

**Murphy:** And it goes hand-in-hand with the idea that most of the science nowadays is computer models. I can't go to a science conference without being pelted with a model of this and a model of that. It's like going to a fashion show....

**Lovelock:** That's music to my ears, your saying that. That's the trouble with all of science nowadays. They'd rather make models and have pretend worlds, than go out there and have to measure something in the real world.

**Murphy:** You're right that this is an attack on the foundation of science. This whole idea of getting away from observations and evidence.

**Lovelock:** You're so right. It's the real crux of it. And we'll have to learn fast if we're going to get out of this mess that we're in. The IPCC [Intergovernmental Panel on Climate Change] is badly wrong; that's the biggest model in the world.

**Murphy:** Their models are total failures.

The problem I have with the IPCC models is a little different from yours. Mine, is that their models are supposedly showing the temperature and the climate, and we already know certain things that you can't model correctly, because our understanding, and the way of doing it is not at a sufficient level. That I can see and discount. But when they start having these scenarios, where you deny the idea of human creativity and discovery, and assume that you're going to have the same energy source for the next hundred years, then, it's a little hard to believe.

So, the problem I have with it, is all these scenarios of the worst case, which assume that the world will be in a steady state, that there will not be any more discoveries made. That is a major problem.

**Lovelock:** That's what I call "business as usual." Most people can't bear the thought of changing anything. They just want to go on, and they hope it will go on—but it won't.

**Murphy:** You've been promoting the idea of global heating, as opposed to global warming, which I disagree with. But, let's say, that you're right. Right now, the Congress of the United States is promoting a cap-and-trade bill; if you look at the top proposed cuts: If we slash carbon emissions by 82%, below 2005 levels, then, we're only going to reduce the temperature rise, that supposedly is going to come in 2050, by three-one-thousandths of a degree Celsius. That is scientifically meaningless.

**Lovelock:** I agree with you entirely, and I don't think anyone can predict what's going to happen in 2050.

**Murphy:** I think that's quite a reach.

When asked if there's a possibility that something could be done to counteract your global heating, you've always attacked the cap-and-trade scheme as nothing more than a "gigantic scam."

**Lovelock:** It won't do anything; that's the main thing about it. It doesn't produce a big enough effect, it doesn't noticeably reduce the emissions.

**Murphy:** But if you look at the other side of it—you're not noticeably reducing emissions, but you're capping emissions, which means cutting back on the amount of power people have access to. So, if you're not ramping up other power sources quickly enough, you're back into the same situation I brought up before. If you're using renewables for baseload power, you're back into energy starvation. That's the side that nobody wants to talk about.

**Lovelock:** Well, in the States it's mainly tax breaks, isn't it? Every year, the government subsidizes these renewables. The government pours money into things like wind turbines and whatnot to make them viable. Otherwise they'd never sell.

**Murphy:** Yes, wind has a production tax credit. In

the first ten years, they get a production tax credit of 1.28¢ per kilowatt, so when that was not going to be renewed by Congress, all the wind energy groups were putting out press statements saying, if we don't get this, we'll blow away tomorrow!

**Lovelock:** What a pity that they didn't!

**Murphy:** So, the irony wasn't lost on them either.

The problem I see with this is that the solutions being put forward have, one, no basis in reality to do anything, and two, the effect that they'll have on the physical economy, with people, health, and other things, will just multiply, and you'll have a negative, you could say, even genocidal effect, if you adopted these kinds of policies on a grand scale, as they are trying to do with the Copenhagen Agreement.

**Lovelock:** I agree with you wholeheartedly. Sadly, I think an awful lot of people are going to die off anyway. Or rather, they're going to die sooner than they would have done otherwise.

## 6 Billion People Could Die

**Murphy:** With the global heating possibility that you've talked about (and written quite a bit about in *The Revenge of Gaia* and now, in *The Vanishing Face of Gaia*,) you say that close to 6 billion people could die.

**Lovelock:** Yes, I'm afraid so. I can't see any way out of it, because, you see, the IPCC underestimates, because nobody knows what's going to happen in 2050. But just for the moment, let's take it that what they say is more or less true. By 2050, practically all of the main food-producing areas of the world, right across America, right across Europe, China, all the rest, will be deserts. That's what the IPCC is saying. Well, where the hell are you going to get the food from?

**Murphy:** That's an interesting question, because you are exacerbating problems that have already put into motion by decisions by the World Trade Organization, for countries not to be self-sufficient in food. We saw this played out with the food cost rise, because people speculated on food, and also this foolish attempt with biofuels—

**Lovelock:** That really is mad.

**Murphy:** To take food out of people's mouths and turn it into stuff to burn in your car is insane and genocidal.

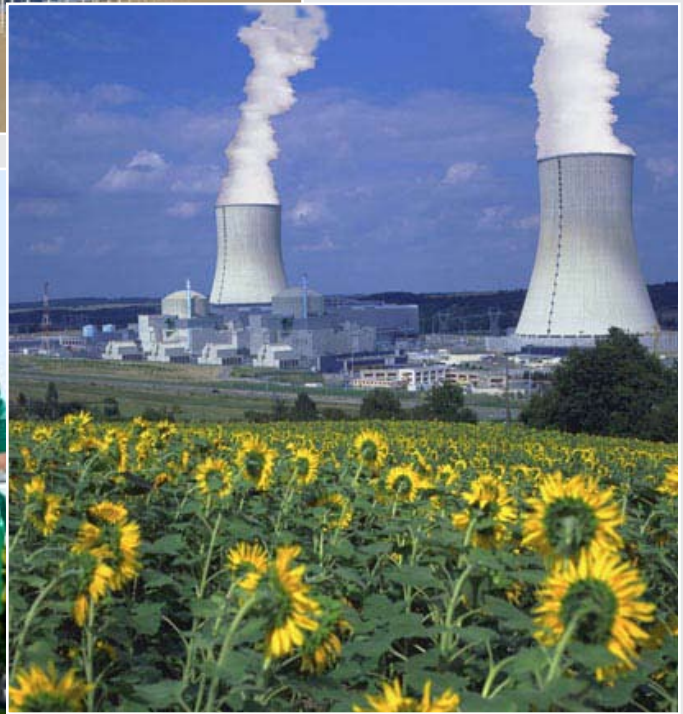




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*Solar and windmill energy provide only a tiny fraction of the power, measured by energy-flux-density, that nuclear does, and will condemn billions of people to die. As Lovelock suggests, the jobs created in “green energy” are nothing but a way to create another financial bubble.*

*Clockwise: ACCIONA’s Nevada Solar One concentrating solar power plant; the Civaux nuclear power plant in France (note happy sunflowers in adjoining field); a windmill farm; “Green People” converge on the nation’s capital to promote “alternative fuel autos.”*

**Lovelock:** Have you ever worked it out? It's a very simple problem: The amount of fuel that the driver of a car uses in the way of food, is about one-tenth of the amount of fuel he uses as gasoline to drive his car. So, if the world can hardly provide the food for everyone, how the hell is it going to provide 10 times as much for their cars as well?

**Murphy:** I didn't know that. It's very interesting. I never thought about it.

**Lovelock:** It's the real objection to biofuels. It's just illogical. It's silly. But it's politically good and the farmers like it.

**Murphy:** Well, the farmers have been hard pressed in the recent period with the economic downturn...

**Lovelock:** Oh, they have a hard job. I live in a farming region, and most of my friends are farmers, so I know just what you are saying.

**Murphy:** They are latching onto *anything*. The farmers in the U.S., even before the biofuel debacle in the last year or so, had the wind energy guys going out and telling them, "Don't grow food, rig your farm into a windfarm and you can sell the energy to the grid"—which will not happen. Because, as you know, it's intermittent power, and the cost of putting the wind energy onto the grid is at peak rate, so you get less money back for it, because it costs more to put it on.

**Lovelock:** It's not worked out yet—the interconnecting system to join up all the windfarms to the grid. They don't have the grid structure to do it. And that will cost a pretty penny before that's done.

Even in a small country like ours, they've gone further ahead with wind in most places. In Europe it's a gigantic scam, and they're doing it big. But now they're finding that they can't afford to lay on the transmission lines to take it from where it's produced to join up with the main grid, because you have to have so many of them.

**Murphy:** And then there's the storage question...

**Lovelock:** There isn't any storage you can get...

## **Green Jobs: The Next Financial Bubble**

**Murphy:** You have pump storage in areas that have hydroelectric available, but that's limited, so it's nonsensical.

To me, the drive for green jobs is nothing more than

make work, and a way to create another financial bubble to replace the one that's already gone, with the subprime mortgages, and all the other games they've played in the last few years.

**Lovelock:** You've really hit the nail on the head there. Because where money making money is concerned, it doesn't matter really what you aim at. You could give tax breaks to casinos. You could do anything. You could set up a great big money-making enterprise, and it would run for a few years until it crashed, and with the green money, it's just the same. That's what will happen with it.

**Murphy:** The problem is that the people who see that, look at \$100 million in steel production as the same as \$100 million in casino money. And yet, with steel production, you have the ability to build things that have more added value and real wealth, as opposed to just having money.

**Lovelock:** You're absolutely right.

**Murphy:** So, that's the point I try to make with people, and that's the problem I have with what the nuclear industry in the United States has done: It's sold its soul to basically what you commented on in the *Independent*: Nuclear energy is great as a way to fight global warming, not that it's not a great source of process heat, which can be used to produce all kinds of metals and different things, and to produce hydrogen, which can move us away from this fossil fuel economy.

So, instead of promoting that, they're promoting global warming as a way to get people excited about nuclear power, which I think is a failure; it's single-issueism and worse. It's just lying. You're not really putting forward why you should be excited about doing nuclear power.

**Lovelock:** I know. There's no interest in it among the big companies. The problem with nuclear is that it's a bit of a cottage industry, when you think of it.

The amount of uranium you need to equal the amount of oil you burn is about 1/100,000th less. And there isn't a lot of big money in that. It's a tiny amount of product to move around. So big business is never very interested in nuclear. And the thought that nuclear might displace any of the coal or oil doesn't please them one bit at all.

**Murphy:** No, they're resistant, that's about the best you can say.

**Lovelock:** And the nuclear industry's got no money for propaganda. They can't put up full-page advertisements. So all they get is the facts, like everybody else.

**Murphy:** I went to a conference on high-temperature reactors, the fourth-generation nuclear reactors—the pebble bed, prismatic block, and process heat. And the way they sold that conference was not the climate change issue. It was mentioned, and it was there, but it was on the basis of all the things you can do with process heat: These plants are so small that you can put them at petrochemical plants, to make plastics and other things. And they're small enough that you can deploy them to areas in Africa, to be developed. This is what was being promoted. And the difference was that people were excited and confident that something could happen on that front.

As opposed to the American Nuclear Society: Their meeting two years ago had climate change guys there selling them on this, that cap and trade would produce X-amount of money that could be put into nuclear power plants; that whole scam was being promoted. And it was like walking into a morgue. Nobody was excited about saying one thing about doing something in an industry that they had spent their lives in.

**Lovelock:** I can understand what you're saying. I've got to give a talk in Toronto in ten days time on this topic, mainly to energy companies, and it's difficult to know which is the best way of developing the climate change story or nuclear. There's no doubt from my experience that there's interest in the climate change story if you tell it for true—as long as you don't tell it for some special interest or some group or other.

**Murphy:** The idea is that the economy is hurting everybody, straight across the board, from the big companies all the way down. And it's going to get a lot worse. And they're grabbing onto all kinds of things. But the idea that they have not gotten to people, is that a person has the ability to make discoveries and change society for the better. And that is the best thing about this whole discussion about nuclear power: The ability to adapt to certain aspects of climate change is missing, because the idea of creativity has been taken out of it. People have gotten away from that, and that's sad.

You referred to it as human intelligence being on the increase all the time, and I refer to it as creativity. There are similarities...

**Lovelock:** I think we're talking about the same thing, actually, because what makes humans especially different is their creativity. Other aspects of intelligence are less important.

### **Gaia vs. the Noösphere**

**Murphy:** Another question I have for you is, that the greens have always tried to latch onto your Gaia theory, that the Earth is a single organism, that the species all act in a self-regulating way. And they try to say that that's the exact same thing that Vladimir Vernadsky was promoting with the Biosphere.

**Lovelock:** Well, it isn't.

**Murphy:** I know it's not, but this is how they try to do it. If you bring up Vernadsky, the idea that the Biosphere is acted upon by what he calls the Noösphere, the greens say "Oh yeah, yeah, we're with you; it's the same thing as the Gaia concept." But it's not. So, I've always wanted to ask you about this. What is the difference between Vernadsky's idea and your Gaia idea?

**Lovelock:** The main difference is that a chemical engineer can understand the Gaia theory, because it's all about fixed feedback on systems. There's nothing in Vernadsky about systems; it's mainly Romantic ideas and not much science.

**Murphy:** I was thinking about that. I've read through the Biosphere and different things Vernadsky's written, and the idea that he had of the Noösphere—and since I'm focussed on the idea that people can make discoveries and change things for the better—that really appealed to me. The Gaia theory seems a little flat on that question. It's an interesting idea, but it didn't have the aspect of human intelligence or creativity involved in it, which is the problem I have with it.

**Lovelock:** It *does* have it in it, because we are a part of it. That's the way of looking at it. That was not the way Vernadsky was looking at it. But we found Vernadsky. He was writing quite a while ago, and an awful lot has happened since then, and basically the duration has taught us so much about the other planets, that it became much easier to develop Gaia theory. It was developed at JPL [Jet Propulsion Laboratory] anyway.

**Murphy:** Speaking of space exploration, I hear that you're going to go on Richard Branson's Space 1.



**Lovelock:** If they can get certification for it, yes, I am.

**Murphy:** Well, you have all these people complaining about cutting emissions, etc. Isn't this really a slap in the face to all that?

**Lovelock:** I hope so. Well, I think if they had the chance, they would do it too; no matter if they had to plant 17,000 trees to pay for it, they would do it anyway.

Well, if they drive across the states to see their granddad or something, they probably use up more fuel than they would taking me up there.

**Murphy:** I think that's good. What I like about how you present things is that you use a sense of humor, to get people to understand the point you're trying to get across.

**Lovelock:** Why thank you. You can't really talk to people unless you're prepared to laugh a bit.

**Murphy:** Yes, and that's why I thought your comment about the nuclear waste in your backyard was perfect, because it's an ironical statement, that says there's no problem here; there's nothing to see. This exists, but it can be reprocessed and we can reuse all this. This crazy notion of proliferation is holding us back.

**Lovelock:** You'd have a hell of a job to make a bomb out of nuclear waste, wouldn't you?

**Murphy:** Most of the nuclear waste that's around is not out of power plants; it's medical, and it's liquid. There's always a question of the "dirty bomb."

**Lovelock:** There isn't any such thing, really.

**Murphy:** I know, but the BBC put on a show about how they got all this material together to make a dirty bomb. Well, if you know anything about that, you know that the explosive is the biggest part of it. What happens with the fallout, the contamination, is easily handled.

**Lovelock:** It would be negligible. If somebody set off a dirty bomb near me, I would be much more scared of being hit by a bit of metal that came off it than by the radioactivity.

## It's Easy To Scare People

**Murphy:** I would be too, but that's the difference: We come from a more scientific background, where we

have thought through this, or worked in these plants or areas, and know that the hype and scare stories that "radiation's gonna get you" are manipulative myths that keep you from having development.

**Lovelock:** It's easy to scare people. Have you ever thought how if you really wanted to scare people, you could scare them about flying? After all, an airplane isn't all that safe a thing. A damn sight less safe than a nuclear reactor. They do fall out of the sky every so often. And if you could make up the same sort of scare about flying as there is about nuclear, the airlines would all go bust.

**Murphy:** Well, they're pretty much all bust anyway. That's the economy again, the physical economy. We got away from that in the U.S.—from having trains, mass transportation, subways—into putting people in cars or planes to go across the country. And now you are basically at a point where if the airline industry and the highway system all goes bust, the United States would fail to function, coast-to-coast, as an economy. That's why the opportunity within the financial crash is to build nuclear power plants. We're saying we want to go to a hydrogen economy, we need maglev trains. In order to do that, you're going to have to build nuclear power plants.

**Lovelock:** Well, the French are wonderfully competent at that. I've travelled on their trains. They go at 200 miles per hour, and virtually all of the electricity that drives it is nuclear. You don't need hydrogen as an intermediary. You just make the electricity and they've even built a new track from Paris to Munich that's nearly 300 miles an hour. Well, there's no damn point in going by air. And you can go from city center to city center without going through security; you just go straight on the train, and that's it.

**Murphy:** I was trying to get at that same idea. But right now in the U.S. it seems that they're promoting high-speed rail and maglev as mainly a people mover, not for moving freight, and basically for moving people from airports to casino areas. The first one that will probably be built as a maglev line will be from Anaheim Airport in Orange County, California, to Las Vegas. Maybe because the economy is having such a bad effect on the casinos right now, that may not even be so sure.

**Lovelock:** It's a way of spending time, anyway.