

LaRouche on creativity and paradox: What is true science?

Lyndon LaRouche responded to the following questions at the International Caucus of Labor Committees-Schiller Institute conference in Eltville, Germany over Dec. 10-11.

Q: First, on biodiversity. You recently said there were two evolving processes, one by which mankind elevates the potential of the planet which causes some species to disappear, and, at the same time, a financial oligarchical system which makes certain useful species disappear. We have to consider these two processes you specified.

You also said we have to use species for the benefit of mankind. I understand the concept perfectly, but it is not so easy to judge that. For example, in the case of Florida, there are those who want to empty Miami of men for the panther, and it's very clear that the panther is not useful for mankind. But for the tropical forest, it's less clear.

A second question. There is a huge scientific program going on in the world called Global Change, which purports to prove that mankind is destroying the atmosphere. Of course, some of this research brings useful results here and there in the field of geophysics, but most of it is bad because it is based on a political compromise with greenie ideology. My question is, do you think we can change that in a better direction?

I put that in the context of what you said about Purgatory—the point from which we see the possibility to build a better world. The conquest of Mars is one way to show mankind the possibility of raising itself up. If we want to have a colony on Mars, we have to have an atmosphere and therefore to create one. So it is interesting to understand in a detailed way how our atmosphere was created and functions. So do you think it possible to reorient this huge Global Change program in a more positive direction?

LaRouche: First of all, on biodiversity, I will make an observation which is axiomatic in nature and covers both question areas. I used to have fun years ago in the university, which enhanced my certainty that I should get out of there at the end of the war. That was because of my experience in defending Leibniz, in my own way, against Kant, it was my

refutation of Kant in the late 1930s which established the foundation of everything I have done in history since. Being aware of this, when I would find myself in a room where insanity was descending like a sickening disease, you would want to do something to break windows, so some ventilation could occur. Somebody would be talking about physics or something, and it would always come down to a certain form which comes up in biology. Somebody would ask the biology professor, "Well, how do we know that life is possible?" from the standpoint of chemistry or biology. How can we prove from mathematics that life is possible? The same thing is: "How do you prove mathematically that God exists?"

It's like the case of Pietro Pompanazzi, the teacher of Gasparo Contarini and others, who represent the Venetian tradition in Protestantism and in nominal Catholicism. The basic premise of their reasoning is they can only prove that neither the human soul nor God exists. And then they say, "Well, we can't prove it, but we know He does."

"Why?"

"Well, I heard a rumor from a well-informed neighbor," or, "a priest once told me."

"What did he say?"

"That it's a mystery."

That question is crucial. What is the difference between a living process and a chemical process which apparently has the same chemical composition as a living process?

Take a tissue at the moment you pronounce it dead. There is a point at which the tissue is alive, and a point at which it is dead. What is the moment of death? Now define a chemical or a biophysical principle by which you can define this. Immediately you create a crisis, because in formal mathematics and formal science in all universities today, they advocate what they call scientific method, the notion of *causality* which Pompanazzi gave to [Francesco] Zorzi, which they gave to [Paolo] Sarpi then to Galileo, to Bacon, to Fludd, and to Bacon's homosexual wife, Thomas Hobbes, etc. This method is generally called "science."

So, most people called scientists are not really scientists. The ones who are useful are rightly called engineers. The

distinction is very simple, although certain engineers do go on to become scientists, as Gaspard Monge understood it. The engineer learns how to repeat and master certain proven techniques and to apply them in a responsible, professional way. But he does not intrinsically represent knowledge, only professional skill.

Knowledge is located in answers related to the question typified by this one: What is the difference between a living and a dead tissue? What is the event that defines the difference in a chemical process which is living at one point, and in the next is no more? That question defines knowledge.

The distinction between man and beast

The second question is of the same form. What is the difference between man and the beast? We can demonstrate that if you look at the human species biologically and in terms of its behavioral propensities, it is not capable of any greater potential population density than one of the higher apes or baboons. The ape has a more or less fixed behavior; it can not change its range of adaptability. Man can intervene with a lower species to direct it to rise to capabilities which the species would otherwise not have. The perfect example is dogs. We have one in the room. This dog has been cared for by a person I've known, and has reached a state of moral and intellectual development as a dog which would not be possible for a dog in the wild. The Sicilian donkey is even more intelligent, but also more troublesome, more mischievous.

But no species can increase willfully its potential population density. So, the fact that we have more than several million people on the planet proves that man is not an animal. How do we achieve that? Through ideas. We achieve progress through non-traditional ideas. If somebody talks to you about tradition, you say, "Wait a minute. We are not animals, we do not have traditions. Animals have built-in traditions. We have a higher capability, which is to create."

Ideas can never be expressed in words. No dictionary can define an idea, as Jonathan Tennenbaum referenced in the case of the Chinese with the little parables (see *EIR*, Jan. 1, 1995). A paradox can not be literally explained by any computer. If you can find the meaning of a word in the dictionary, it is not an idea. An idea can be communicated only by replicating in the mind of the hearer a paradox of the form of the solution principle to Plato's *Parmenides* paradox.

A dog would never understand that, nor a parrot. That paradox can only be solved inside the mind of the individual, not by behavioral conditioning, but rather only within the creative powers of the individual, that which makes the individual in the image of God—the creativity which is inexpressible in words, which is the leap from a lower state of knowledge to a higher state which occurs in the human mind.

Thus you need a Classical education which is not based on "repeat after me," an education which forces the child

from the beginning to face the paradoxes. One of the best things for children, without any trigonometry involved, without any arithmetic, but only simple geometric construction, is to show a child how ancient Greeks such as Eratosthenes, who never saw the curvature of the Earth, not only knew the curvature of the Earth, but measured it with an accuracy of Earth diameter of about 50 miles. How did the Ancients of the same period find the distance from the Earth to the Moon? They made errors in the calculations, but how did they do it? How did the Ancients know the distance approximately, even with great error, from the Earth to the Sun? Only by line of sight, no telescopes? You can show a child how to do that with a technique which is outlined and developed in Jacob Steiner's *On the Method of Construction using only Straight Lines and Circles*. You can show a child how to make a good estimate of the curvature of the Earth, or the distance to the Moon, using a few eclipses to help you out.

Once he has understood that method, he has made a breakthrough from ignorance to pre-science. He has the grounding to understand science at a later point. We use the same thing with poetry, with drama, using metaphor. The child develops his creative ability, waiting to be awakened from a sleeping form. You show the child not that he is creative, but that creativity can be communicated. When you can communicate something, not by words, but by paradox, that paradox now becomes an object of consciousness, of thought, an intellectual object which has no sense perception, no sound, no visual image, it exists independent of all senses, and yet it is a definite object. You can show that this object increases man's power over nature, and that in no other way can man's power over nature be increased. We can measure that in terms of population density, in terms of the intellectual level of those with whom we communicate.

Only when we get to physical economy do you have real science. Without it, as I have defined it—and that is my *unique* contribution—there is no true science. What you must prove is not an experiment, but that a method of creative discovery is valid for all humanity, insofar as it produces repeatedly results which increase man's power over nature. You can only prove this in terms of physical economy. There is no other possible proof. That was my discovery. I was able to deal with it through the help of [Georg] Cantor, and especially of [Berhard] Riemann. Before me, only Riemann answered this adequately, not in terms of economy, but of the difference between mathematics and physics. That is not competently taught in any text I have ever read, even though the language of Riemann is absolutely clear and lucid.

Our responsibility toward nature

Once you understand that, two things follow in answer to the question: On biodiversity, we have a moral responsibility in respect to all of nature, including the universe in general—a moral responsibility which is to use reason, and to use

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it against the yardstick of the increase of man's power over the universe. We are especially sensitive to life. We do not terminate the life existence of any species carelessly. We use reason. We say, "Will the extinction of this species increase the potential population density of future generations or not?" Obviously, bubonic plague and a few other things should be eliminated. Diseases should be eliminated. Rats carry viruses, in some cases for which we have no cure—they should be eliminated. Many other animals carry deadly diseases. Their presence in areas of human habitation should be controlled. Some species are very useful to us. Some should be curtailed. We should always keep the possibility—if we do make a mistake—of correcting it. We should not extinguish a species, although we may curb it, because, if we have made a mistake, we want to be able to bring it back.

Our attitude on this is a moral one. If we apply the injunction of the Book of Genesis, we make no mistake. We must look at every species, every form of matter, in general in this way: Is it useful for human existence? It is God's law that man use the universe for his advantage.

Those who bring man down to the level of animal, who say mankind must be sacrificed for the sake of the animals, arbitrarily, for species that have no usefulness, that is *evil*. The people who say so are *evil*, because they are attacking the fundamental difference which separates man from the beast. They reduce people to equality with beasts, as Prince Philip proposes to do. Prince Philip does not have to kill a single person for us to know he is evil. What he says is evil,

and he organizes on behalf of what he says, to bring it into effect.

If you reject the difference between man and beast, you become a beast—like Prince Philip and the World Wildlife Fund. We have no moral obligation to respect them, but we do have a moral responsibility to do nothing irrationally and to measure what we do in a scientific way.

Man's extraterrestrial imperative

As our dear friend Krafft Ehrigke said years ago: Man has a manifest extraterrestrial imperative. Man is not given instructions by God on what way to walk—not directly. But man is given instructions very clearly by the principle which we in Christianity know as the principle of Gethsemane. Sometimes, the man of the family faces it when there is a catastrophe in the household—a responsibility is thrust upon him, a cup from which he must drink.

By simply responding to our moral imperatives, we find constantly that there are things we find we must do morally, even though there are no written instructions. So we come to space: In order to get some knowledge about the nature of physical processes, we should know more about the universe. Human knowledge is always based on human creativity, which Kant denied to exist and, therefore, for Kant, is evil. (And his tastes in art stink.)

Man's progress has always been based on astronomy. The root of science is in solar sidereal astronomy. The solar calendar as modified by a sidereal criterion is the foundation of all natural science in man's history and pre-history. We can trace that in central Asian culture back about 20,000 years, to ancient Chinese calendars. I must examine the stars, I must learn, as Kepler did, from observation. But I can't make the observations, because the atmosphere doesn't let me. I can't get certain frequencies in the right proportions. If I go out into Earth's orbit, I find the Sun is a very dirty place, electromagnetically.

What I want to do is to put some giant radiotelescopes out as far as possible from the Earth in order to fix upon measuring the observable anomalies in the full range of the spectrum, invisible as well as visible. So I put these radiotelescopes out. But how far can we go? With a fusion energy driver-system, using the only fuel readily available in space, on the Moon, helium-3, the best we could go, on a round trip, in a vessel carrying its own fuel at one Earth gravity acceleration-deceleration, is about the asteroid belt.

We could go further if we used matter/anti-matter reactions or if we could develop artificial environments to compensate for the lack of gravity on a slower moving vessel. But human beings can not go conveniently further than the asteroid belt. With those technologies, the nearest place we can get is in the vicinity of Mars. Then you need a base to manage all these telescopes and scientific laboratories. Therefore you have to build a base for this work, and the only

available real estate is Mars, which has a fractional gravity which is probably tolerable. We can build a self-sustaining science city on Mars. There are many technologies we have to master to be able to do that; it would take about 30-40 years, but we could do it. We build a city of about 250,000 of so on Mars, of engineers and logistical people who sustain it. That would be a great profit to Earth.

We will not bring back any minerals from Mars, except for scientific purposes, but when we have learned to build a city on Mars, we can use that to build a city in the Sahara. If we can solve the problems of man's habitation in space, there is no problem on Earth we will not solve by the same means, in terms of man's habitation. So we have to go to Mars to establish a science city simply in order to discover the new knowledge which we need to have to meet the requirement of the human race over the coming period.

So the cup is given to us, and we must drink from it. We must make the trip to Mars.

But we can't just go out and get a bus ticket. Therefore we have to prepare. How shall we pay for it? It won't cost us anything to get to Mars, because the improvement in the productive powers of labor on Earth as a result of the scientific and engineering developments will make everybody on Earth rich. The net cost of the project will be less than zero: a pretty good investment. Only groups of nations can do it. We have the technologies so why don't we do it?

But the problem on this with the pseudo-science is the same thing. Knowledge is often used to describe what passes for engineering knowledge or what enables you to pass a multiple choice questionnaire in the course of getting a useless degree from the university. But knowledge is the communicable ideas which cannot be expressed in words. We practice that knowledge first of all by poetry. The principle in all great poetry is the same: metaphor, or in all great Classical tragedy, or in Classical musical composition. In mathematical science, we know it as the principle of discovery. We don't have science today, because science means knowledge. Leibniz had science, Riemann understood the principle of science, Kepler was a great scientist, so was Leonardo. Cusa was the first real scientist, because he was the first to understand this principle of human knowledge in this way, even though the precedent for it was established by the Greeks.

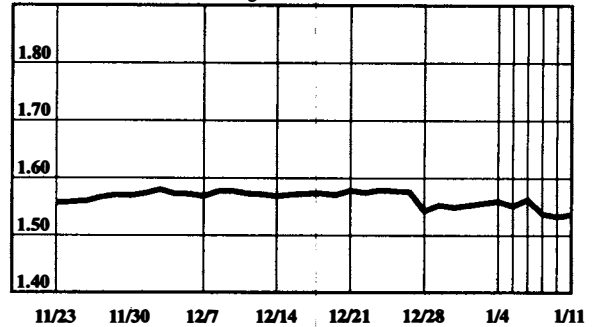
If we enforce the idea of the distinction between living and dead processes and then among living processes, the difference between thinking processes and animal processes, if we learn the lesson of what we can do with the dog of Renate Müller and her husband Dino de Paoli—of how they elevated her to something more than a dog could be—and then understand real human creativity; if we address all these questions from that standpoint, with the science of physical economy to help us, then these things are no problem.

I'm sorry to be long-winded, but I thought the axiomatics had to be addressed in this case.

Currency Rates

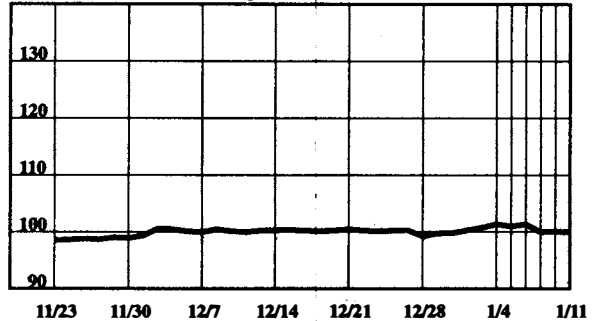
The dollar in deutschemarks

New York late afternoon fixing



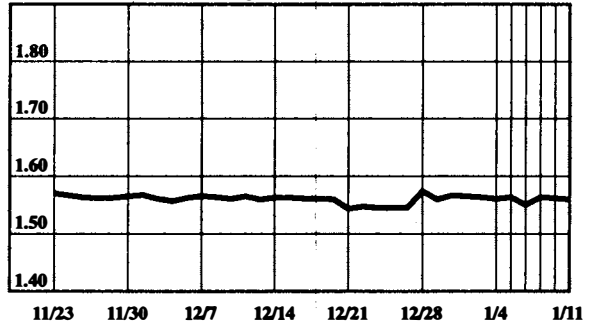
The dollar in yen

New York late afternoon fixing



The British pound in dollars

New York late afternoon fixing



The dollar in Swiss francs

New York late afternoon fixing

