

1. On LaRouche's Discovery, with William Wertz

DIANE SARE: We're going to get started. Good afternoon. It's June 23, 2018. I'm Diane Sare from the LaRouche PAC Policy Committee, and we are having the first of an eight-week class series which was begun here in Manhattan on Friday night with younger activists, and here on Saturday for the Manhattan audience and also people who have signed up for the class online. So, before I introduce our speaker and one of our two teachers, just to situate where we are, I wanted to say a couple of things.

First of all, as I said, it's June 23rd. Does everyone remember what day the meeting between Trump and Kim Jong-un was in Singapore? June 12th. So, you realize that this was not even two weeks ago. But from what's been in the U.S. news media and the hysteria about refugees and everything else, you might feel like it was June 12, 1867. And that is by design. Mrs. LaRouche gave a webcast on Thursday and has been making the point, her fight over decades is that mankind has to get into a New Paradigm. She and her husband of course, Lyndon LaRouche, who set this in motion in the United States decades ago. She made the point that what happened in Singapore, which really was about as obvious as I don't know, the lack of gravity. If you walked out the building, you could walk on air or something. If you think a few months back, what was going on with North Korea, the "Rocket Man" quotes from President Trump, the nuclear missile tests and so on; many people rightfully were terrified that we were on the brink of a major war. Yet because of a dynamic which is largely invisible to people in the trans-Atlantic world, which is the Belt and Road, which is the Chinese initiative of the One Belt, One Road, there's a completely new geometry which makes things possible which were previously thought to be impossible. Also within these last ten days, you had the G7 summit. You remember Trump left early to have this meeting with Chairman Kim, and remember what happened there, which was thoroughly delightful. President Trump said, well if you're going to talk about Russia 25% of the time, why don't you invite Russia back in and make it the G8 again? What was the response to that? No, excepting the new Prime Minister of Italy Conte of course, agreed with him. And Prime Minister Abe from Japan did not say anything, but everyone knows he's been having meetings and discussions with Putin. So, it really is not a G8 or a G7, it's a G4; an impotent group of whining leaders whose countries are disintegrating with the bankrupt trans-Atlantic system.

Now otherwise, what's happened after that is the Belt and Road continues to grow. We know that Evo Morales, the President of Bolivia, has been in China; we know a delegation from the Dominican Republic has been in China discussing infrastructure projects and ports development. If you think about the geography and you think about the video I showed a few months ago of the Chinese plan for Port-au-Prince, Haiti; if the Dominican Republic is involved in these negotiations, perhaps it will not be long before Port-au-Prince becomes a fully modernized, fully functioning city with better flood management than we have here in Manhattan.

Then what they also are not telling you is that President Moon of South Korea was in Russia. If you think of the geometry

-- and there's an excellent article in the {EIR} this week by Mike Billington on the further implications of the agreements with North Korea. Because what it means is, South Korea is no longer an island. It means it's connected to the Eurasian landmass; which opens up enormous potential. What Moon and Putin discussed were nine bridges between South Korea and Russia. The nine are: gas, rail, electricity, ship building, job creation, the northern sea route, sea ports, agriculture, and fishing. So it's extremely optimistic and promising; and again, not one word in the U.S. press.

What happens here? Well, Manafort gets sent to jail, and then we get bombarded by pictures of refugee children who have supposedly been separated from their parents; except the pictures that we're bombarded with are from 2014 from the Obama era. As people who are involved in immigration issues, you may know that Obama was actually known as the "Deporter-in-Chief"; deporting record numbers of people. All of the people who have been screaming and screeching and wailing about whatever Trump was mandating on the border -- and you will notice that Trump has signed an executive order to end that, and Melania went down to do her own investigation. But all of these people who are wailing about what Trump supposedly is doing, were nowhere to be seen when Obama was killing hundreds of people with drones, bombing wedding parties and funeral processions. Where were they? If they have such great love of children, where were they when Qaddafi was murdered in Libya? And where were these Europeans who are saying, "Well, what we really should do with the refugees is put them in concentration camps in Libya." Libya doesn't even have a government; you can even guarantee water, let alone guarantee that people will not be raped, sold into slavery, their bodies harvested for organs, and all kinds of things. So, the high and mighty Europeans who are attacking President Trump are making a proposal that is truly hideous.

What Mrs. LaRouche has put forward, is a plan on the Singapore model, which is that the European Union summit, instead of being a summit of the walking dead system, should be a summit where they invite Xi Jinping, they invite the leadership of China, they invite a number of African heads of state; and they discuss European-Chinese collaboration to develop the continent of Africa. You can think here a model for the United States -- if you actually wanted to address this -- what could the United States and China do to develop Ibero-America? What could the United States be doing with China to not only rebuild Puerto Rico, but to raise it to an entirely new, higher standard of living? That's the way that we have to think.

Finally, what you also had -- and people may be aware -- there's a 30-minute video put together by Barbara Boyd on the LaRouche PAC website, which is highlights of the testimony of Inspector General Horowitz on his investigation into the FBI "investigation" of Hillary Clinton's emails. Of course, what comes out in that hearing is absolutely devastating. You have Peter Strzok texting things like "We will stop Trump," before any investigation whatsoever, which does seem to indicate he could not possibly do a fair investigation, and this is brought up clearly. This screaming about the refugees was timed to disrupt exactly that hearing. So, what we are on the brink of is actually a moment for spectacular change. It also means in such a moment of instability that each and every person -- particularly citizens of the United States -- can have a major impact on history. It is for that reason that we have to be able

to think in a profound way and to learn from the genius of Lyndon LaRouche.

So, the last thing I wanted to share with you, I was really blown away by an old paper of Mr. LaRouche's that we ran in the {EIR} two weeks ago, called "The Economics IQ Test"; which he wrote April 28, 1999, almost 20 years ago. He starts it by saying, "If anyone tells you that a rising Dow Jones stock market index proves that the U.S. economy is growing, your reply ought to be, 'Oh! You mean that the cancer is growing! Tell me, doctor, how is the patient doing?'" He then warns that this type of economics is going to lead to a rapidly increasing death rate inside the United States. Exactly as we have seen, which is out in the figures of the Princeton study, "The Diseases of Despair," the increase in deaths from opioid overdoses, alcoholism, heart attacks, suicide, etc. LaRouche said it 20 years ago. So, the question is, how did he know? What is the method? That does not lie in economics as taught by any textbook or university today. It's about that that Will Wertz and Dennis Speed will be doing this 8-part class series. So, now, I would like to introduce Will Wertz, who is the President of the Schiller Institute, a former political prisoner, and a long-time associate of Lyndon LaRouche.

WILLIAM WERTZ: Thank you. It's within the context of what Diane just presented that we decided to go ahead with an 8-part course in Lyndon LaRouche's economics. Because this is probably the most urgent thing that we have to consider at this moment in world history. Lyndon LaRouche is certainly the foremost economic forecaster in history, but he is also more than a forecaster. He is a philosopher. In fact, he once described himself as having become a philosopher at the age of about 11; that was his adopted identity. He is uniquely the person who has developed a science of physical economy based upon an intellectual breakthrough which he made during the years 1948 to 1952. The first class in this core session will be devoted to that discovery which he made at that point. This is urgent because the discovery he made in refuting the ideas of a person by the name of Norbert Wiener, makes it very clear that the entire effort to impose the so-called Second Law of Thermodynamics -- the idea that entropy is a universal principle of the universe -- this is totally contrary to the nature of the universe and is also contrary to the nature of man. And it's contrary to what man has done over the last 400-500 years, and it is contrary to what we must do going forward from this moment.

Now I must say, in the current situation, we have a President in the United States who has expressed his commitment to what he understands as the American System. During the campaign, he called for reinstating Glass-Steagall. After the campaign, he made a number of speeches in which he called explicitly for the American System, referenced Alexander Hamilton among others, and a whole school of American System economists. He has been committed, during the campaign and then afterwards, to dismantling globalization and free trade. This is something that Lyndon LaRouche has been committed to for decades. We're talking about NAFTA, we're talking about the Trans-Pacific Partnership, which has already been killed. What he's talking about is reversing a policy of deindustrialization of the United States, which has occurred under the ideology of limits to growth, the ideology of a post-industrial society which has become predominate in the United States, really going back to the

time at which the Kennedy space program was being wound down, even as we were landing on the Moon. That policy was coming directly from Britain and associates of Britain. You have a book called {Limits to Growth} which was put forward in the 1960s, which argued that we have limited resources, therefore we shouldn't industrialize any further and we cannot support a growing population. You had, for instance, the Tavistock Institute put out in the 1960s -- something called the Rapoport Report -- which argued that the space program was very dangerous because it was reinforcing a belief in progress and optimism in the American population. So, this was the threat in terms of the British Empire.

It is not clear, however, to what extent President Trump has a scientific understanding of the American System. There are many questions about that. On the other hand, I would point out that when you're bringing about a major change, there's going to be a lot of turmoil. We used to do organizing in the United States, for instance in California. And many people would tell us about out-sourcing globalization, free trade, that you cannot put the toothpaste back in the tube. If you look at it, this policy of free trade, of globalization, has been dominant for decades now. So, to unravel that is a very difficult problem to address. Advocates of the American System have always been in favor of protectionism against the policy of free trade which was advocated by an agent of the British East India Company, Adam Smith in his {Wealth of Nations}. Our American Revolution was fought against that policy of free trade. However, in the world today -- and Lyndon LaRouche has often emphasized this -- while we defend national sovereignty, we also have engage in cooperative agreements with other nations for the economic development of the rest of the world. This is an area which President Trump has not thus far excelled in; pushing for such agreements. We, of course, have advocated that the United States should work with China, with Russia, with India, and other countries on the One Belt, One Road policy. Of course, this is a policy which Lyndon and Helga LaRouche promoted going back to the 1990s; far before the Chinese adopted this policy in 2013. So, this is not exclusively a Chinese policy, although it is the Chinese who have taken the initiative on this score. It was an American and his German wife who have promoted this perspective for decades. This perspective was based upon the American System of economics.

Just as background for this, there was a famous meeting between Franklin Roosevelt and Winston Churchill during World War II. The discussion was recorded by Franklin Roosevelt's son, Elliott Roosevelt. What Roosevelt said to Churchill was, we are not fighting against the Nazis to preserve the British Empire. After this war is over, we are going to use American methods of economics to help develop the entire world. And what he's referring to is the projects which he, himself, had implemented in the United States such as the Tennessee Valley Authority, the Grand Coulee Dam, the locks in the St. Lawrence Seaway, the Hoover Dam. So, this is the policy which, in fact, China has been carrying out. It's the policy which the Japanese discussed back in the 1970s; it was called the Global Infrastructure Fund, by Mitsubishi, a Japanese company. Their whole perspective was to engage in projects throughout the Third World. Lyndon LaRouche has presented a succession of ideas to get this started. He proposed an International Development Bank. He proposed a European Monetary Fund into a development bank. He proposed in

the United States to use the Export-Import Bank to that effect. In 1982, he made a proposal called {Operation Juárez} in discussion with President José López Portillo of Mexico. The whole idea was that we would have an exchange between the U.S. and Mexico; made Mexico a paradigm for the rest of the world in terms of North-South relations. The idea was that we would have an exchange of Mexican oil for U.S. high technology capital goods, which would have developed Mexico. López Portillo wanted to have new cities; he wanted to have nuclear power plants in Mexico. If we had worked with that program of Lyndon LaRouche back then, we would have created many jobs in the United States producing the capital goods which were necessary not only in Mexico, but throughout the rest of the Third World. It would have been to the benefit of the United States as well as the rest of the world. It would have been what the Chinese call a "win-win" situation. That program was not adopted. Instead, we later got NAFTA, which was detrimental both to the United States and to Mexico. If you talk to anybody from Mexico, they will tell you that NAFTA was not good for Mexico; it resulted in {maquiladoras}, basically low-wage sweatshops. That's what it resulted in. Mexico is not -- their economy has not developed as a result of this. So, the outsourcing which destroyed our economy, did not benefit Mexico. What you had on top of that was the drug cartels. NAFTA paved the way for the drug cartels. I think what we have to do is reverse that, and we have to have a perspective in this country not only of national sovereignty and reindustrializing this country, but doing it in cooperation with other countries. This goes to Lyndon LaRouche's conception of the necessity of an alliance among four major powers in the world -- the United States, Russia, China, and India. That combination is sufficient in terms of economic power, population, combined with some other countries which will join this combination to end the imperial of the British and the Anglo-Dutch once and for all.

That I think is the urgency of our learning from Mr. LaRouche in terms of his method of economics. There are many people who may have predicted a particular financial collapse, but they have no scientific conception positively of what the economy should be. Lyndon LaRouche does. As I said, Lyndon LaRouche identified an identity as a philosopher at approximately the age of 11. The issue before us in this economics class is not information. The fundamental issue is identity. The fundamental issue is what do you do as an individual to contribute to the General Welfare -- the well-being of all humanity -- into the future? Do you have that sort of mission, or is your life lacking that higher mission? If you have that mission, that's really what immortality is about.

I want to start with a cartoon which Lyndon LaRouche often referred to in courses that he gave back as late as the 1970s. This is a cartoon by Abner Dean, which appears in a book called {What Am I Doing Here?}. What you have is an individual being carried in a funeral procession in a casket, asking the question, "What was {that} all about?" For many of us who worked with Lyndon LaRouche going back to the late 1960s or the early 1970s, this cartoon had a very big effect; because it posed for us the necessity of making sure that our lives have meaning. As you can see, all of the characters in this cartoon are hedonists; they're running around naked, there's not a thought in their mind. It's sort of a Dionysian hedonist procession; it's almost like the Flagellants in the Dark Age.

I would also say in terms of being a philosopher -- what

does the word philosophy mean in Greek? It means love of wisdom, love of truth. That's what really has to motivate people, because everybody knows that today if you pursue the truth, you're going to run into all sorts of adversaries. In going to the class last night, I was being told about people who were in school and they were penalized by their professors by writing something actually truthful; because it was contrary to political correctness in the universities today. For instance, I was told that one person wrote an article on Marian Anderson and got a "D" for it, because the school only recognized hip-hop. So, throughout history, people have been demonized. We see Trump being demonized, we see Putin being demonized; Lyndon LaRouche has been demonized, he was in prison for standing up for the truth. So, you have to have a certain certainty in terms of what you come to know, and you have to have a passion for truth and for wisdom; for finding that out. Friedrich Schiller, the German poet, discussed this in a lecture he gave at the University of Jena on universal history. He made a distinction between the philosophical mind and what in German is {Brotgelerhte} -- it's basically somebody who only learns in order then to make a living. It's essentially a careerist. For instance, to get grades in school in order to be able to get a career, regurgitate the answers which are expected; as opposed to searching for truth. The philosophical mind is someone who is committed to finding the truth; and if he finds that what he previously believed was wrong, he will be the first one to overthrow his false system of belief and find what is truthful. Whereas, the person who is a {Brotgelehrte} is a person who actually becomes a reactionary, because he will defend what he has learned in school and what he has regurgitated, and view any challenge to his beliefs as a threat, and therefore will oppose any challenge to those false assumptions which he has invested so heavily into in order to make a living. So, the question here is, do you devote your life to the truth? Do you devote your life to humanity? Or do you devote your life to making money? That goes to this whole issue of the growth of the cancer in terms of the monetary values which we know have, even as our industry and productive power has been destroyed.

What Lyndon LaRouche indicated in a number of his writings, including "On LaRouche's Discovery," which he wrote in 1993 while he was still in prison, is that his discovery in that period 1948 to 1952 was based on his refutation of the work of Norbert Wiener. Wiener had written on cybernetics earlier, but he wrote this book, {Human Use of Human Beings}, in 1950. What Lyndon LaRouche said about this is as follows:

"{My} discoveries were initially the outgrowth of 1948-1952 objections to the inappropriateness of Norbert Wiener's application of statistical information theory to the characteristic distinctions of living processes and of communication of ideas. I countered with a contrary, non-statistical definition of negentropy, as that meaning of the term might be derived from the common, physically distinguishing characteristics of an evolutionary biosphere. This non-statistical counter-definition of negentropy was then stated in terms of a successfully self-developing ... physical economy; the efficient impact of scientific discoveries' communication within such a negentropic physical-economic process was treated as most typical of the communication of ideas in general."

This is what he writes in a chapter titled "The Case of Norbert Wiener" in his autobiography, {The Power of Reason} in

1988:

"It was not until a later book of Wiener's, his {Human Use of Human Beings}, that I suspected an evil streak in Wiener himself.... My understanding of Wiener's error is the key to my original discoveries in economic science, and is therefore the key to everything which has made me an influential international figure today."

In 2009, because what Wiener put forward is a theory based on entropy as a law of the universe; so what Lyndon LaRouche wrote in 2009 in {The Science of Physical Economy} was:

"Without understanding the fraud of the Second Law of Thermodynamics, it were not possible to provide a competent physical-scientific basis for a study of the principles of economy."

This is an issue which Lyndon LaRouche had paid attention to previously, particularly since he was a student of Gottfried Leibniz. Leibniz entered into a correspondence with an associate of Isaac Newton by the name of Samuel Clarke in 1715. Leibniz's comment about Clarke and Newton was as follows:

"According to their doctrine, God Almighty has to wind up his watch from time to time. Otherwise, it would cease to go. He had not, it seems, sufficient foresight to make it a perpetual motion."

LaRouche commented on this:

"A universe based on principles of winding down [which is entropy], could not have come into existence in the first place."

The basic point here is that the particular person who argued that the universe is entropic, which means it's winding down, is a person by the name of Clausius, but this is a long-standing idea, and certainly has its roots in Aristotle. Newton himself admitted that his choice of mathematics was a source of this conception of entropy; and his source of mathematics was inductive-deductive mathematical formulas. That means that essentially you go from sense perception to the creation of certain fixed categories of thought; that's an inductive process. And then, you use deductive logic to draw conclusions from these same fixed categories of thought; so it's a closed system. Of course, the idea of entropy was originally developed in respect to a closed system, to a machine. Which is not the nature of the universe, and it's certainly not the nature of the human mind; even though some people think the human mind is just a computer and maybe not even as good as computers that can be made in the future. But all of this denies what is distinct about man, which is that he has the capability for creativity. That is not entropic -- creativity.

Let me read through this section from Norbert Wiener's book. This is the second chapter, which is entitled "Progress and Entropy," and you'll see what the problem is. He starts by saying:

"Sooner later we shall die, and it is highly probable that the whole universe around us will die the heat death." This is very optimistic, as you can see. "We are immersed in a life in which the world as a whole obeys the second law of thermodynamics: confusion increases and order decreases. Yet, as we have seen, the second law of thermodynamics, while it may be a valid statement about the whole of a closed system, is definitely not valid concerning a non-isolated part of it...."

"There are local and temporary islands of decreasing entropy in a world in which the entropy as a whole tends to increase, and

the existence of these islands enables some of us to assert the existence of progress."

He's essentially saying this is a false assertion that progress exists.

"[W]e ourselves constitute such an island of decreasing entropy.... It may very well be that life is a rare phenomenon in the universe, confined perhaps to the solar system, or even ... to the earth alone....

"It is quite conceivable that life belongs to a limited stretch of time ... and that the time may well come when the earth is again a lifeless, burnt-out, or frozen planet... [I]t is a foregone conclusion that the lucky accident which permits the continuation of life in any form on this earth, even without restricting life to something like human life, is bound to come to a complete and disastrous end.... In a very real sense we are shipwrecked passengers on a doomed planet.... We shall go down, but let it be in a manner to which we may look forward as worthy of our dignity."

So, you may have heard about dying with dignity; well, this comes from Norbert Wiener.

"We have already seen that the theory of entropy, and the considerations of the ultimate heat-death of the universe, need not have such profoundly depressing moral consequences as they seem to have at first glance. [So, no need to be depressed by this perspective.] However, even this limited consideration of the future is foreign to the emotional euphoria of the average man, and particularly to that of the average American. It seems almost as if progress itself and our fight against the increase of entropy intrinsically must end in the downhill path from which we are trying to escape."

So you can see that, one, this is aimed at an American audience. He's claiming that Americans back in that period had an emotional euphoria on behalf of the idea of progress. And he's saying that this is not really well-founded. But this is the same as the Tavistock report which said that the problem with the space program is, it's encouraging optimism and a belief in progress in Americans. This is what they want to stop.

I would just maintain that many of the problems that we have in the world today -- including in this country -- are a direct result of this mentality. You may fight against entropy in your island, in your enclave. You may even have some technological progress, but that's not going to stop the heat death. In fact, the more you succeed in fighting entropy, the more rapidly the law of the universe -- entropy -- will assert itself. So, it's totally futile; it's a completely depressing view. You look at the rates of suicide, the rates of opioid abuse; these are people who have no sense of progress, no sense of future, no hope. Look at the advocacy of euthanasia, which was our criticism of Obamacare; that decisions on medical treatment should be basically turned over to people who will make a cost-benefit analysis as to whether you should get certain treatments. Whether it's worthwhile financially to fight to continue your life. These policies all come from this conception of entropy. There's no basis for it; there's no way of proving that the universe is entropic as a whole. It's not a machine; it's not a closed system. So, Wiener's conception of negative entropy is not really, he doesn't ascribe not-entropy to the universe as a whole; but he says that negative entropy is merely an attempt to negate entropy and a small island for a small stretch of time, and it's futile. This is the same mentality as Al Gore and the

climate change people. In other words, that population growth over the last 4-500 years, as a result of technological improvement, is in fact, a threat to humanity and to nature. That's the view of Al Gore, and others obviously; and it's a completely unscientific viewpoint.

But this is what Lyndon LaRouche decided to refute. And as the basis for his own development of a scientific conception of physical economy as what is necessary for man's progress. Let me just say one other thing. He also refuted Wiener's conception of information theory. Wiener's conception was that human beings receive messages through our sense organs, and in that way, we're just like machines. It's a complete empiricist conception which has no correlation to what it actually means to be a human being. Whereas Lyndon LaRouche's conception is, how do we communicate ideas? Well, we communicate ideas through what he calls "metaphorical provocation of the creation of higher hypotheses." That's what you see in Classical art; that's what you see, you see it for instance, in the works of Nicholas of Cusa. He always poses a metaphorical paradox in order to get you to think at a higher level. For instance, he describes man when he's in a state of operating from reason, as in "timeless time." Now Aristotle would say that violates the law of contradiction. How can you be in timeless time? Or he will say that man is a finite infinite. How can you be both finite and infinite at the same time? But these are metaphors which provoke a higher hypothesis as to the nature of man. That's how ideas are communicated. In that way, not by receiving messages like a text message. You're going to receive a text message and then that's going to somehow create a new idea in the universe that's going to transform humanity? I haven't received any text messages like that, and I don't think anyone else has.

I would like to go to the passage from Riemann. This is from his habilitation dissertation: {On the Hypotheses That Lie at the Foundation of Geometry}. In the quotes that I'm going to present from Riemann and then from Georg Cantor, don't look at it from the standpoint of mathematics; look at it conceptually in terms of what he's developing. The fundamental concept is what LaRouche develops in his Four Laws, for instance. That through creativity, mankind develops higher economic platforms. Just as we went from a society based upon burning wood as a source of fuel to a mode of energy production based on coal combustion and then to oil, and then to fission power. And we have the potential in the future for fusion power and even higher forms of energy production. These are platforms, and each of these successively higher economic platforms or manifolds as they're called by Riemann and Cantor, has a greater power over nature. So, look at it from that standpoint. This is in paragraph two of his Dissertation.

"If in the case of a notion whose specializations form a continuous manifoldness, one passes from a certain specialization in a definite way to another, the specializations passed over form a simply extended manifoldness, whose true character is that in it, a continuous progress from a point is possible only on two sides, forwards or backwards. If one now supposes that this manifoldness in its turn passes over into another entirely different, and again in a definite way, namely so that each point passes over into a definite point of the other, then all the specializations so obtained form a doubly-extended manifoldness....

"In a similar manner one obtains triply-extended

manifoldness, if one imagines a doubly-extended one passing over in a definite way to another entirely different; and it is easy to see how this construction may be continued."

So, this is not just a question of a doubly-extended manifold and then a higher triply-extended manifold, but you can continue this infinitely through creativity.

"If one regards the variable object instead of the determinable notion of it, this construction may be described as a composition in a variability of $n+1$ dimensions out of variability of n dimensions and a variability of one dimension." And the final sentence is the final sentence in this paper, which he makes it very clear that this is not purely a mathematical consideration, that you have to actually--from this idea of successively higher ordered manifolds--doubly-, triply-, quadruply-ordered manifolds, that you have to go into the domain of another science, of physics, and that this habilitation paper is not devoted to that, per se, but that is where you have to apply this conception. It later became reflected in the question of the ability of man to break the sound barrier, where you go from one domain into a totally new domain, by breaking the sound barrier. He forecasted that on the basis of this conception; whereas, others, particularly the British school, said that you couldn't do that--you couldn't break the sound barrier.

Now could we go to Cantor? Now Lyndon LaRouche then looked at Riemann from the standpoint of the work of Georg Cantor, who was again a German scientist who wrote his {Foundations of General Theory of Manifolds} in 1883. Here what you have is a further expression of this conception of a continuous nested series of higher-order manifolds, which he describes as a transfinite process, that is, you're going beyond the finite to what he calls the "super-finite" or "transfinite" process.

What he distinguishes is between a genuine infinite and a non-genuine infinite. Others have referred to this as the distinction between a bad infinite--a bad infinite is essentially a notion of infinity which goes on endlessly, like an infinite regression; and a good infinite is the idea that any array has a "one" which bounds it, which defines it. And that "one" is a good infinite or a genuine infinite.

He makes the point that what he is talking about is what Plato calls "the realm of becoming." He makes a distinction, as Plato does, between the realm of becoming, which is a succession of such increasing powerful manifolds, and he contrasts that to the idea of the "absolute" or "the good," as Plato calls it. Lyndon LaRouche in a work called, "The Truth of Temporal Eternity," discusses this very conception, as well; it is another work which I would recommend to you.

He basically goes through two number classes and keep what we just discussed in terms of Riemann in mind. The first number class consists of finite aggregates, so it is a non-genuine or bad infinity. You're counting numbers: 1, 2, 3, and that goes on endlessly, as represented by "v."

The second number class consists of infinite aggregates. The latter numbers he refers to as omega, that's the "w-shaped" form. Omega ("w") is the limit towards which the number "v" tends, and omega ("w") is the first whole number which follows all of the other numbers "v." It is greater than every one of the numbers "v." Thus, omega ("w"), you have a new series, which is the whole number, which is an infinite, a transfinite. And then you can continue from there, $w+1$, $w+2$, ... $w+v$. At a certain point, you have to develop a new whole number, a new infinite,

and that would be $2w$. (The slide graphic shouldn't have an equal sign there.) It should be $2w+1, 2w+2, m \dots 2w+v$, and this process continues. There is no end to the formation of such higher-order, transfinite numbers.

The final quote I'll go to is: "Thus, one can arrive at ever new number classes and, along with them at all the different, successively ascending powers existing in corporeal and mental nature."

Cantor's conception of these transfinite numbers is that each of them has a higher power. And this will be important when we get into discussing in the next class that Dennis will be giving, potential relative population density and the question of increasing energy flux density. But you can see with each higher order form of energy production, for instance, you have higher power. Each manifold represents a higher power--fusion much more than fission, for instance.

Now, the next slide. I hope you can see this. This is the first footnote in Cantor's paper, and what he lays out here is that his conception of the transfinite in his view was developed in the dialogue by Plato called the {Philebus}. In the second column, you'll see that he also saw this conception developed in the works of Nicholas of Cusa; those two in particular. I'm not going to go into Nicholas of Cusa in this class; I'll be going into it more in the third class, but I just want to reference the fact that what Nicholas of Cusa did was that he refuted Archimedes, who had argued that you could approximate through inscribing polygons within a circle, the circle; and you come up with a number "pi," which Archimedes thought was really an irrational number as in the Pythagorean Theorem. What Cusa points out is that the circle is actually ontologically superior to any construct based on linearity, which all polygons are. That you can't get to the circle from the standpoint of the polygon, but you can get actually derive any polygon from circular rotation. So, the circular rotation is actually causal in respect to the polygon, not the other way around. What he developed here is that "pi" is a transcendental number and that is definitely coherent with Cantor's notion of the transfinite.

In the {Philebus}, let me just say (next slide) what Plato wrote is: "There is a gift of the gods--so at least it seems evident to me--which they let fall from their abode and it was through Prometheus, or one like him, that it reached mankind, together with a fire exceedingly bright. The men of old, who were better than ourselves and dwelt nearer the gods, passed on this gift in the form of the saying: All things (so it ran), that are ever said to be consists of a one and a many, and have in their nature a conjunction of limit and unlimitedness."

One such conjecture is to impose a one on a many, and this is really what Plato explores in his dialogue the {Parmenides}; this results in essentially a catastrophe, the idea of the static one that is imposed on the unlimited. In "The Truth on Temporal Eternity," what Lyndon LaRouche argues correctly is that, if you impose a fixed hypothesis on an economy, then the economy will in fact run down; it will collapse. You've got to have not-entropy; you've got to develop higher orders of technology which redefine resources. If you don't do that then you will have entropy. The point is that not-entropy depends on human creativity, as an instrument of the creative process of the universe.

What is Plato's solution? The solution is that there is a different conjunction of the one and the many, or of limited and unlimitedness. The higher conception is, that you can have an

unlimited succession of limits, which is the same concept that's developed by Cantor and Riemann, and which is the fundamental principle of Lyn's economics. He also says that, "The mind belongs to the family of what we called the cause of all things, which is Plato's way of saying, as was said by Nicholas of Cusa and is in Genesis, that man is the living image of the Creator; and we have creativity, and that's what makes us in the image of the Creator. In that way, we are a cause.

Could you skip forward? There's a quote from the Russian scientist or actually Ukrainian, Vernadsky. What he says is: "A great personality, whether a scientist, an inventor, or statesman--can be of a fundamental decisive directing importance, and can manifest himself as a geological force." This is Vernadsky's conception of the noösphere that essentially is what Lyndon LaRouche calls "human noëtic will" is the instrument for bringing about the further development of the universe on behalf of humanity. This is also the concept of the German space scientist Krafft Ehrlicke, that we have an "extraterrestrial imperative," that there is an imperative; there's a moral responsibility to go beyond the Earth. I think that conception is fundamental to Lyndon LaRouche's economics, that you've got to recognize that human creativity and bringing about successively higher-ordered economic platforms for the benefit of mankind is the fundamental conception of economy.

Can you show the population chart?

Since the Golden Renaissance, we've had an exponential increase in population in Europe, but also throughout the world, and this is the result of the ending of the Dark Ages. Remember Europe was depopulated by 50% during the Dark Ages, from the 1300s to the 1400s through the Plague; but it was ultimately the result of monetarist polices of Venice, and there was also the Hundred Years' War that destroyed all of Europe.

In 1438-39, there was a Council in Florence, Italy which brought together the Catholic Church, scientists from the West, and also Orthodox Greek, Russian figures from Greece, Russia, and also scientists. For the first time, all the works of Plato were brought to the West. At that time, the only work of Plato that had been available was a Latin translation of the {Timaeus}, which is important, but there are so many other works of Plato. When Nicholas of Cusa went to Greece to bring the Orthodox representative to the Council of Florence, he brought back with him the works of Plato which were then translated. The key conception in this period was the conception of "{imago viva Dei}," (the living image of the Creator). The emphasis on that conception and the effort to create a form of society which would foster that, which was the sovereign nation-state, that was the fundamental reason for this increase in population and also there was an increase in energy flux density in terms of kilocalories per capita over that period. And it was mediated through scientific development and technological advancements that were brought about that.

Al Gore uses this same chart. Whereas, this argument is when man actually is man, as distinct from a beast--if he frees himself from an imperial system like the Code of Diocletian, a Roman Emperor, then the human population will grow -- because his mind has been unleashed. So, this is good, this is a reflection of not-entropy in the universe. But of course, going back to Wiener, what Al Gore would argue is that this is a disaster, this is horrible! This negentropy in an island in a short period of time, why, if we continue in this way, we're doomed! Like the

polar bears, and other such creatures who are not creative.

That gives you in a certain sense the contrast between Norbert Wiener's conception: the universe is entropic, there's negentropy in the small, but it's futile and you might as well just die with dignity. And on the other hand, Lyndon LaRouche's concept which is the universe as a whole is not-entropic, it's a self-perfecting process and man is the instrument for its self-perfection, and you only have entropy if you fail to carry out that mission, as we saw in the Dark Ages; and as we have actually seen in the trans-Atlantic region over the last several decades, where we adopted the policy of post-industrialism, limits to growth, and so forth.

I just conclude by saying this is the fundamental mission of man: to be an instrument for the not-entropic growth, economic growth on behalf of the human species, so that the human species can carry out its extraterrestrial imperative. And as Lyndon LaRouche has said, "If your hypotheses are correct, then nature will obey." It's like the last line of Schiller's poem {Columbus}, where he says, "Nature stands with genius, with creativity; what the one promises, the other will fulfill"; and that was the basis for his certainty that he would actually be able to rediscover the Western Hemisphere.

That is what I have, so you can open it up for discussion and questions. [applause]

SARE: There are a number of questions that have come in online, but I actually want to wait, because none of them are directly related to what you've presented here. And I'm hopeful that people who heard what Will just said might have something to ask, but if not, I can ask some of the other ones. Sylvia? Sylvia wants to give a report -- go ahead.

Q: [Sylvia] Yes, I just wanted to bring it up, that here in New York and New Jersey, we had a full week of organizing, coordinated with our members of our phone team, and that several of them were this week involved in street organizing for young people, so that was good. One of the cases was this campus in Manhattan called BMCC, where people were already coming up because they were intrigued by LaRouche's face next to Four Laws and Hamilton. But then this sociology teacher brought up 25 of the students from his class to ask questions or to find out what we were doing. And when I called some of the students that we met earlier back, they had said they had heard about it or they had seen the youth out in front of our table, swarming our table. One of them actually came to the class last night and he said, "Oh yeah, I'm coming back, I'm going to bring other people, I'm getting the word out."

The important thing was that we had several people involved in the phone outreach afterwards and so our first class for young people last night had 17 new young people. The room was with 25 total, but it was a really good, intense discussion with a lot of questions throughout the presentation, so it created a very organic dialogue. And at some points, one of the younger people would actually give an explanation. For example, with the formula with Georg Cantor, he actually explained it in his own words to help the other people that seemed a little bit puzzled, to help them understand it better. Then there were other cases where people were saying controversial things because of certain words that they didn't agree with, like the idea of the word "superiority," for example, of the circle over the polygon; or

the word of "dominance"--like there is a higher order of principle, they didn't understand it that way. They understood it the way society says it today--you can't dominate, you can't be better, humans aren't better than animals. That was funny to encounter and to actually intervene on.

The other important thing is that what we are trying to do here is to for our next class, we want to grow, so the challenge is to get everybody here, all the attendees to collaborate with us, to increase the potential of more youth to get involved. That means talking to people about what you just heard, getting young people, get their phone numbers, call up your contact person in the movement, and give us the number so we can reach out to these youth. Because we've got to transform the society and it's only going to happen by getting young people involved. I just wanted to say that.

SARE: Okay, good. Jarod why don't you come up; and then after Jarod, we have a question from Houston.

Q: [Jarod] My question is basically on the transfinite numbers. If you could elaborate more on that, with its role in LaRouche's development of economics? And if there are any examples of what transfinite numbers are? Because to me, it is still vague. I understand a lot of the philosophy with Riemann or Cantor, but the idea of numbers and the mathematics of Riemann is still quite confusing.

WERTZ: The best way to look at it is, as Lyndon LaRouche does, from the standpoint of Plato's conception of hypotheses. Transfinite means that you're transcending that which is finite, simply, that's how the concept is developed. And remember what I said earlier that the way ideas are communicated, as opposed to information theory, is that you create a metaphorical provocation which requires the development of a higher hypothesis to solve. Metaphorical provocation would be in the form of some sort of paradox--well, how do you resolve this paradox?

In Plato, the idea is -- this is in {The Republic} by Plato) -- is a man who generates hypotheses. You can have a simple hypothesis, but as LaRouche said in "The Truth about Temporal Eternity," if a society stays at a fixed hypothesis, that it will exhaust the resources upon which that hypothesis is based, at some point, and the society will be doomed. So you have to have a higher hypothesis. What Plato discusses is that you have to hypothesize a {higher} hypothesis. And then what you have is the capacity to hypothesize a succession of higher hypotheses.

That's really the way to look at the transfinite. I would not look at it from the standpoint of number theory. Cantor himself was highly harassed for having developed this conception, to the point that at a certain point being mentally incapacitated, by the harassment. In many of his later representations of the concept of the transfinite, he became much more mathematically formal, because that's the demand on anybody who is doing work in this kind of area: You have to present it in logical-deductive, mathematical terms.

Many scientists are prone to this which is the same reason why so many scientists refuse to take on Isaac Newton, or to take on Euclid and his assumption of linearity. I wouldn't look at it from the standpoint of number theory, per se, but I {would} look at it philosophically--that's the whole idea.

Cantor gets at it in that final statement, which I quoted

where he says that this has application in the corporeal or physical world, as well as in the mental world. It defines the human mind. We have an infinite capacity to form new, higher-order concepts, and if these concepts are valid in their application they will further develop the physical universe. Nicholas of Cusa had a conception, which was that the universe is enfolded in the mind of God, and then is unfolded over time. And that's completely coherent with this notion of a nested sequence of higher-order hypothesis.

There was an Ionian philosopher by the name of Heraclitus. (I have a quote from Lyndon LaRouche on Heraclitus; it's back one or two slides). He lived from 540 to 480; his writings are only available in fragments; given that it's so far back they weren't fully preserved. But Plato has an appreciation of Heraclitus in his dialogue {Cratylus}. The basic thing that Heraclitus argued is that the only thing that's permanent is change. But what Plato argued and I think correctly is that his notion of change was not arbitrary change; it was change subsumed by reason, by the Logos. This is what Lyndon LaRouche says in respect to Heraclitus: "In place of a simply Platonic view of Heraclitus, 'nothing is permanent but change,' say, 'Nothing is permanent but change subsumed by continuing negentropic action.'" That's in contrast to those who argue that the universe is fixed -- it's entropic and it's running down.

All I would say is that look at it from that standpoint. That's actually the valuable standpoint from which to approach Cantor. It will help to ensure that you don't go crazy by being a follower of mathematical formalism.

SARE: We have a question from Houston.

Q: [Houston] I know that in the early 1950s, one of the things that really provoked LaRouche passionately was the assertion by Norbert Wiener and his associates that human cognition could be reproduced on a computer; that nothing that human beings did could not be reproduced that way. That human beings' intelligence was not unique, which is the equivalent of saying that they're animals because you can reproduce most animal things, as their doing today, on the computer.

I was reading this thing last night, about the "Fourth Industrial Revolution." And every day, all you have to do is turn on the radio, and they're talking about the "supremacy" of artificial intelligence in the future economy. Now, it seems to me that this is a very fruitful target for us to refute, and totally emphatically with LaRouche's ideas, right now. Because it's totally based on a falsehood, like many things are in so-called modern science, although there's obviously beneficial aspects to so-called artificial intelligence. Could you elaborate on that?

WERTZ: Actually, last night this kind of question came up, about computers. One person actually confused what I was saying about the capacity of the human mind for infinite concept formation, and he reduced it to thinking I was talking about the space within the brain. And of course, it had nothing to do with space, it had to do with creativity.

The point is that, there's no computer logic, and it is a logic, that can create a truly new idea. That's only something that human beings can actually do, and a computer can no more do that than any animal, including an ape. Computers are useful,

but their use does not apply to this domain, the domain of creativity, the domain of generating the hypotheses which make human progress possible. Computers are useful, once you've generated that new hypothesis. It's very similar in a certain sense to the question of money: Money is not an end in itself. But as credit it has a use, which people like Benjamin Franklin and other founding members of the American Revolution recognized and wrote about.

So it's a falsehood, and it's part of this information theory. I was trying to address it in terms of the question of a message that a human being receives through his sense-organs. It's an inductive-deductive system that you're talking about, it's not a creative system. And so, just as there's a distinction between man and animal, there's also a distinction between man and machine, including the most powerful computers -- as useful as they can be. They may be able to do computations or calculations in a way that a human being may not be able to do with the same speed. But they are not capable of doing what human are capable of doing, which is generating new, higher order concepts.

But of course, this is part of the overall anti-human ideology that has come to prevail over the last several decades.

Q [José]: Hi Will. I was at the class last night, and I was here, too. Towards the beginning of your presentation you referenced the Marian Anderson incident, that was a reference to me -- that is, I wrote that paper. But I wanted to clarify it. The reason I got a C-, not a D -- and I had to fight for it [laughter] -- but the reason I got a C- was because the paper, it wasn't that it was only about hip-hop, although we could pick any song we wanted including hip-hop, I chose {My Country 'Tis of Thee}, not particularly the song itself, but rather the performance of Marian Anderson in front of the Lincoln Memorial. The topic of the essay was supposed to be "explain the meaning of the song, the context of why it's being performed," and also the generic, what's the meter of the song, what are the logistics of the song.

And so I thought I could pull the meat out of that song by using Marian Anderson. And one of the things the professor really did not like was the fact that I put in my essay, "Marian Anderson singing in front of the Lincoln Memorial was an act of nonviolence," period. He had crossed out "nonviolence" and put "nonviolent protest -- I think this is what you meant to say."

Another thing was that I referenced Roland Hayes, and his performance in Germany. He was performing a Lied, I think it was {Du Bist die Ruh}, and for 10 minutes he stood on stage as he was being ridiculed. I believe, a week before he came, they said he was going to come and "taint the German Lieder." And so he stood there for 10 minutes, took the ridicule, and then he started singing. And halfway through his performance, they started stomping their feet and their canes a sign of respect, and he said he doesn't see the parallel -- even though I explained that these were both "acts of {nonviolence}." And he said you should have stuck to one song. I said, "well, the message is that they're both equal. They might be different songs, but the act and the message itself is the same, so that's where the parallel lies."

And then he took up a few other discrepancies, like why are you talking about Martin Luther King in this paper? And I said, well, this is a paper about music, so I'm going to write about

music. But he had a very pragmatic view of music, as if these are separate genres, separate timelines, separate periods, they have no correlation with each other, and why am I talking about civil rights in a paper about music. So, you know, I got the C. I was proud of that. I just wanted to clarify that, as to why.

WERTZ: I don't think that professor had a very good concept of the transfinite. [laughter]

Q: [Renée Sigerson] I think what José was just going through actually gets at the crux of something, which is the sequences, the successively degenerating manifolds by which the oligarchical system has imposed these various forms of making the world incoherent, as opposed to coherent; which I think is an aspect of Lyn's pedagogy as he built this political movement, which is very important to keep in mind. I was just thinking about it as he was speaking.

And it's actually related, but on this question of his use of Riemannian mathematics, in particular, and also Cantor, but increasingly Riemann, people have to keep in mind that Lyn was always showing how things that seem to be completely unconnected to each other were really not unconnected to each other, which is also Plato's method. And that in that, the type of quote/unquote "mathematics" or machine-tool principle type language that Riemann developed when he talked about the shockwaves of airplanes, was necessary, for example, as we see it, it's actually embodied in the Triple Curve Function that LaRouche developed, which is the fundamental pedagogical problem that you had politically, was being able to identify the connection between financial bubbles and physical production -- which {nobody} had any understanding of. We lived through it, but nobody saw it! I mean, people just didn't see it, because it was drip by drip, and therefore it was kind of invisible to people, sort of like dust mites, it was invisible.

And so, you have a situation in which they were not investing after Kennedy was killed, they were increasingly not investing -- although that was already starting in the '50s. When he was developing this, what he saw in India, that they were not investing in the capital goods that would make development possible; but they were investing in these financial bubbles. And he had to prove that it was the same universe, and that these two things were going to collide and that the effect would be destruction.

Because, without going through the details, and I know it's of interest to some of the people who were there last night, but this was even admitted by the British through people like David Ricardo. And then picked up by Karl Marx in this whole thing about the "falling rate of profit." But they pretended that "well, this is just the nature of the world, there's nothing you can do about it." And Lyn went in there to prove No! this was a result of a conscious policy that is based on the {axiomatic} standpoint which is completely invisible to people, that the oligarchy viewed human beings as {animals}, not as human, not as divine, not as sacred. And that's why they would do something like that.

And in education, this was exemplified by his polemic against -- and the way that this, coupled with the artificial intelligence and Wiener, was the influence of Dewey. And I know that for many of us, like myself who joined this movement, Lyn's polemic against Dewey and the way that the Dewey theater forced

the entire education system to become so compartmentalized that anything you learned in one subject absolutely was completely irrelevant to anything you learned in another subject. So that you had your own standard for truth in the physical sciences, your own standard of truth in Classical art -- it wasn't even truth, your own standard for procedure, for method, in each one, was completely separated from all the others.

And when he spelled this out, it was so wrenchingly true! You realized you had been being brainwashed by submitting yourself to this oligarchical system.

And I think the point about Riemann and Cantor is that you needed this kind of authoritative approach in which there was a bridging between physics and the mind, and that's why he became so fascinated with the brilliance of Riemann, because, as he always said, right there in his graduating paper, he said, that Euclid had never been proven: That everybody's being told, this linearity, this sense-certainty-based linearity in how we interpret the physical universe {has never been proven}. And he said this is the revolution that was need to begin the process of getting people's minds moving, -- Riemann was a super genius in the way that he did, because his discoveries about physics were amazing. And you're forcing me to think about this, so that's good! [laughter]

Q: [John Sigerson] I wanted to bring up something about machines. You mentioned earlier that something is "only a machine."

I've always had a somewhat different, especially after reading Leibniz, I've had a somewhat different idea of what a machine is, and I think Leibniz does too. And as everybody knows, Leibniz was fascinated by machines and built a lot of them, and even built the first calculating machine -- first computer, you might say.

All through my life, I've been fascinated by machines, but also by music. And there's an interesting connection, because in Leibniz, I believe in the {Monadology}, and it's always struck me, where he says, what a machine is, is something that does useful work. It actually does something useful, for what? For humanity. And for the universe, to make the universe a better place -- because we are in the best in all possible worlds. That's his conception of a machine.

And in that sense, he talks about the fact that actually a human being is a "perfect machine," and a living thing is a perfect machine. Because unlike machines that we build, the human machine continues to be doing work all the way down, in all of its parts, as well. And this of course, brings up Vernadsky from the standpoint of the biological transmigration of atoms. That is, that an atoms that is involved in a living process is a different atom than one that is involved in a nonliving process.

And it also relates to music, because, you can write a beautiful musical score in a computer program now, and you can play it on a computer and so forth. But when it gets down to the individual parts, that done by a computer, there's always that extra something that's missing, which is exactly what Wilhelm Furtwängler brings up when he talks about playing "in between the notes."

Whereas, with a machine that we build, it's built out of components, and when you breakdown those components, they cease to be machines; just a cogwheel in itself is not a machine, it's only when you put it together with other levers and various types

of things, that it actually is a machine that does work. Whereas a human being is a "perfect machine." I thought that this was very useful from the standpoint of really thinking about refuting the whole cybernetics argument, because you can't just "well, just a computer is just a machine." The fact is, it's an imperfect machine, because it can't do those things that we perfect machines can do.

Thanks.

WERTZ: I think also, if you look at what Lyndon LaRouche has said in terms of the use of robots in space, for instance, we're not going to send human beings right away to Mars. But the robots, as John was just saying, are created by man, and have a use which is a contribution to mankind. So, in a certain sense, they're "given life" by their creator. And so, I think that, beside the more general point that you made, that also came to mind.

SARE: OK we have a couple online. This is one is from someone in Texas, who's there, but I'll read it to you. He said, "I was thinking about the Triple Curve of Lyndon LaRouche and what was the spark in me from the latest reprinted paper of Lyn, 'The Economics IQ Test,'" -- which I read a little bit from, in the beginning. And he wants to know, "What would the Triple Curve look like under a credit system?"

WERTZ: Let me actually go back to what Renée had said earlier. There is no internal contradiction which leads to depressions in the American System of what you might call "capitalism." The contradiction is longstanding: It's a contradiction between a monetarist imperial system, and a sovereign nation-state which is based on political economy.

There has not always been a nation-state. The nation-state is a relatively new creation. It was created by Nicholas of Cusa, conceptually, in 1433, in a piece called {Concordantia Catholica}. He developed this notion, which is embedded in the U.S. Constitution and the Declaration of Independence, that the government is based on the consent of the governed. And he actually says, that the power of the governor is derived from the people.

Now, the first nation-state was created in France under Louis XI, after the heroic, sublime efforts of Jeanne d'Arc, in fighting the Normans. And there was a second national sovereign country in England, under Henry VII. But the problem was that the system of sovereign nation-states did not become globally hegemonic. You had two instances of them, but these were monarchies and the successors of the monarchs under which these systems were created, did not continue with that perspective.

But America certainly was created as such a sovereign nation-state, based on this principle of the consent of the governed. But from the time of the creation of the nation-state, there was symbiotic relationship between ongoing imperial system, which during the Dark Ages was the Venetian system; and then became the Venetian Party in the Netherlands and England, and you had the Anglo-Dutch system arise. And this is the conflict between the American System and the Anglo-Dutch system. You see it right here in Manhattan; this was a Dutch colony. So you have an Anglo-Dutch system, which is Wall Street, which is a Trojan Horse and a branch of the City of London; and then you have Hamilton who operated out of here, and launched development

projects nearby in Paterson, New Jersey. That's the conflict.

And the Triple Curve, if people are not familiar with it, shows that if you emphasize monetary values, or Mr. LaRouche called "fictitious capital," -- speculation, usury, usury on ground rent, and so forth -- over investment in real production, then you get an exponential curve of monetary aggregates; and financial speculation has to be fed financially to preserve it, which is what we see with the quantitative easing policy of central banks, since at least 2008, but even before that. So it's become an exponential curve of speculation, which is paralleled negatively, in the form of a cancer, to the population growth exponential curve that we saw in the graphic earlier.

But when that happens, you have an exponential curve of decline in investment in real production. And that's what's happened in this country and in Europe: Real production has been deliberately reduced. Remember, under Carter, you had Paul Volcker had of the Federal Reserve, and Volcker, was part of a team that put together a policy on behalf of the Trilateral Commission, called "controlled disintegration." This is a reflection of this policy of entropy, of increased disorder.

That's what LaRouche's Triple Curve shows: It shows a curve of speculation going up exponentially, at the expense of real production, which goes in a curve negatively, downward.

Now, that is not a necessary phenomenon. That's the whole point. This is a disease, a parasite that has dug into the real body of the physical economy and that has to be reversed. And so, to answer the question, if you were to eliminate that financial speculation and you were to do what Lyndon LaRouche advocates, you would make credit available at low interest for real production. And you would not have speculation: If you had Glass-Steagall, speculation would not be protected; anybody who speculated and lost in their speculative games would have to go through bankruptcy, and nobody's going to come to their protection, which would be a disincentive for people to engage in that in the first place. And what you do, is you produce such things as have tax credit. One of the problems with Trump's tax cut, is that his intention, ostensibly -- and Kennedy had this policy, too; Kennedy, in 1963, before he was assassinated, called for lowering the tax rates on personal income. But of course at that point, you had Glass-Steagall, and Kennedy also put forward a policy of tax incentives: That if you invested in real production you would get a tax credit. So it was directed. The concept was, if you engage in speculative activity it's not protected, and in fact, we're going to positively, by the government through tax credits, encourage you to put your investment in real production. And he was assassinated, as you know. And that was part of the reason, -- not the only reason, but part of it.

Trump's does not have that tax credit orientation. Did he have a different concept, and just figured with this Congress he couldn't get any else through? Perhaps. But we know what the policy should be: You have to have tax credits as Lyndon LaRouche has advocated. We need national banking which directs credit into real production, and into research and development, science, and into the frontiers of science, such as fusion power and space exploration.

You can devise a chart from that standpoint, which would be completely different. It would be bifurcated in this kind of way. But you would have credit that is actually going into real

production, and the bottom curve, instead of going down exponentially would begin to go up exponentially, and the credit would be coherent with that, because you're talking about a return on the extension of credit as a result of the investment in real production. Back in 1980, Lyndon LaRouche wrote a very good pamphlet "Why Credit Can Be Greatly Expanded Without Adding to Inflation," which is in the list of readings for this course, which basically laid out how you can expand credit without its becoming inflationary. And the way you do that, is you ensure that it's going into productive investment.

The problem today is, that nobody has any conception of what "productive" is. So how do you create a tax credit, if somebody's saying, "oh, we have to invest in solar panels; we have to invest in windmills, and not nuclear fission," because of the whole radical environmentalist mentality? There isn't an agreement on what is productive, that you can direct the investment in. So the question is, how could you get through this Congress, given the level of uneducation, or negative education, a program of tax credits in which you define what's productive? But that is what you need.

And under those conditions, under low interest rates for this purpose, as opposed to usurious speculation, and usurious interest rates, you could actually get an exponential increase in the bottom curve, instead of the speculative curve going through the stratosphere -- until it collapses -- you would have a curve that was contributing to the upward curve of production. I think that we may have produced such a graph in the past, but I wasn't successful in actually locating it. We'll try to see whether we have; otherwise maybe we could get one produced.

But that's the basic idea in terms of what such a chart would look like: It would be completely different, completely different. It would actually parallel the exponential population graphic that was showed going back to the year 1400, approximately.

SARE: We have three more questions here and one more in Houston. I think given what you were just saying, I want to read one of the other online ones. Which is from Michelle. I'll read her question, and then we'll go to Alvin, and then we'll go to Houston. And then John.

Her question is: "How do you reconcile Hamilton's ideas of using tariffs, etc., to protect industries, critically important to the defense of the country, versus the idea of no tariffs under the Belt and Road?"

WERTZ: The idea of protectionism in Hamilton and the American System was in opposition to Adam Smith, and the basic idea is, the colonies and then the United States did not have developed manufacturing. The British had a much more advanced manufacturing capability, and what they were doing is dumping their manufactured goods into the colonies at prices below which it was possible for the newly developing country to develop its manufacturing and produce competitive products. That was the conception, and it was a valid conception.

There are certain issues, like for instance, in Europe, there's a 10% tariff on U.S. automobiles, and the tariff on European cars coming here is about 2%. So clearly, what Trump in that case is talking about, is fair trade, as he said. Go to fair trade -- he goes after free trade and says we should have "fair trade." So in that case, it would seem to me that makes a

certain kind of sense.

In general, it's not that we're having goods dumped in this country, in the same way that the British were attempting to do, to prevent manufacturing from developing. But I think you have to look at, as I said earlier, a somewhat higher level than the tariff issue, per se. It goes back to what I said earlier, yes, you have national sovereignty, and you should protect your manufacturing. We produce 30% of our steel at this point, 2% of our aluminum. I used to live in Washington State which is the center of aluminum and steel production. In aluminum the cost of electricity is crucial, and the reason that you had an aluminum industry there was because of Roosevelt's policy in respect to hydroelectric power; and you also did some nuclear power plants there earlier, but the hydroelectric power was critical. But the environmentalists moved to block the cheapest of that hydroelectric power by preserving tourism and salmon, so the aluminum companies were forced out of the area.

But, is the tariff the only solution to these kinds of issues? No. Because if you look at it, again, I raised the issue of Mexico and the U.S., in what Lyn laid out back in 1982, in consultation with President José López Portillo of Mexico. If we produce capital goods for export to develop other countries, then that would mean high-technology jobs in the United States; so instead of having people working in service jobs at low wages, or instead of people being unemployed; instead of people engaging in drug sales as a means of survival, when there are no productive jobs, you would have jobs in skilled positions. Look at Baltimore; Baltimore, along with Chicago, is now one of the homicide capitals of the country. But they used to have steel mills there, they used to have shipbuilding there, and people could get jobs there that have a decent wage, and they would be able to bring up a family, they'd be able to send their children to school, they've be able to have a home and so forth and so on.

So by deindustrializing the United States by outsourcing we destroyed our economy, and we destroyed our population. So that needs to be reversed. But the key to it, I think, is in this realm of agreements with other nations for us to engage in a massive revolution in production of capital goods for export, which was Roosevelt's vision; how do we develop the rest of the world, using American System methods? That's the issue. That's the solution, along with stopping regime-change wars and stopping the promotion of drug cartels -- remember Obama gave weapons to the Sinaloa Cartel. How many of these Congressmen made a protest about the Mexicans who were killed as a result of the weapons given by Obama to the Sinaloa Cartel, under Operation Fast and Furious? Where was the outcry? There were tens of thousands of Mexicans -- their journalists were being killed, just anybody in Mexico, their bodies are left dismembered in public areas by the cartels!

So you have a country which wanted to build new cities, which wanted to have nuclear power -- Lyndon LaRouche and López Portillo's perspective was aborted by those who said "we're not going to allow a Japan south of the border." That was Brzezinski and that was Kissinger -- "we will not allow Mexico to develop into a productive economy." And what did we get? We got free trade, we got drug cartels, and murder, and that was a result of our own policy.

So we need to go back to what Lyndon LaRouche proposed. And that, Trump has not done yet, and that is the point of emphasis that has to be brought to the attention of the Presidency: That

we have to have such agreements. Lyndon LaRouche, in a piece called "Trade and Currency" which is in a book called {Now, Are You Ready To Learn Economics?} [2000, see reading list] described the necessary process as a two-step process. The first step is the development of certain regional blocs, which operate parallel or outside of the IMF system, and he cited the Japanese example from the late-1970s, the Global Infrastructure Fund -- I think it was 1979 that this was proposed by the Japanese and it was related to Mitsubishi.

But what have we seen? The Chinese have developed the AIIB [Asian Infrastructure Investment Bank]; the BRICS have a New Development Bank; there are other banks which are associated with the One Belt, One Road policy. Certain institutions have been created outside and parallel to the IMF system, but the IMF trans-Atlantic system still persists, and it's bankrupt. And the prevailing institutions, with the exception of Trump in the United States are still committed to zero growth. In Germany, there's the exit from nuclear power -- it's completely green, even though it's to the detriment of the actual interests of the population and of German industry.

The basic idea would be what Lyndon LaRouche has proposed in the past, is that we create a New Bretton Woods system. This is something that I don't see that is on President Trump's radar screen at this point. But the second step that Lyndon LaRouche proposed in that piece, was that you have to then, with the countries that are involved in these new institutions leading the way, replace the bankrupt trans-Atlantic IMF system, with the new system, having created the seed crystal outside of that system. And that, in a certain sense is what's needed.

I can envision a meeting between President Trump, President Xi, President Putin, and Prime Minister Modi, and maybe others -- Prime Minister Abe of Japan; Prime Minister Conte of Italy, and perhaps others -- getting together and deciding that we need to have a new international monetary system which would be oriented towards economic development globally.

That would change everything, that kind of approach. And that's precisely what Lyndon LaRouche has advocated in the past. That would address the issue of the conflict over tariffs per se. It's not a solution in its own right. We would increase our steel and aluminum industry massively, if we engaged in a policy -- which the Chinese are doing already, and others are joining them in -- of economic development of Third World nations. That was the purpose of {Operation Juárez} by Lyndon LaRouche back in 1982: Use a positive U.S.-Mexican relationship, based on development, as a paradigm for North-South relations as a whole.

That's the direction to go on this. I just wanted to add that.

SARE: OK, thanks. A slight change: We're going to take Houston first, and then Alvin.

KESHA ROGERS: OK, so here we have a brief comment from Joel, here, and then I have a question from a guest.

Q: [Joel] One example of the transfinite that Lyn has used repeatedly is the idea of the polygon and the circle. If you increase the size of the polygon to quadrillions of sides, it will never equal the circle. So if you think of our polygon as chemistry, no matter how you use the various chemicals, like lithium, or carbon and graphene, or cobalt, you will never

achieve the energy density of nuclear or ultimately of a fusion process. So if you think of the polygon of chemistry, it will never equal fusion as a circle. That's just one example.

WERTZ: Good!

ROGERS: That's interesting.

OK, so the question gets at the context of why we're doing this class in the first place, which is "How can we speed up economic growth? And should we?" That was the question from a guest here, on the speeding of economic growth, and should it be done?

WERTZ: That's addressed in the Four Laws that Lyndon LaRouche formulated in 2014 and is the centerpiece of the LaRouche PAC Platform for the Future. It's just straightforward: It's based on the principles that we've been discussing today. We've got to move to wipe out speculating gambling, usurious financial activity. You can use Glass-Steagall, which is extraordinarily important, because it makes a distinction between speculative activity, which should not be protected by the government, and investment in banks which are extending credit for real production. That's one thing. Lyndon LaRouche has also said there are other things we can do in terms of tax policy: Tax to death speculative investment and usury, and make low interest available through a National Bank for capital-intensive, productive investment.

And at the same time, you need what some call an "infrastructure program" and we'll be discussing this in one of the classes, basic infrastructure. But LaRouche's concept is not just that repair existing infrastructure. It's not a questions of filling potholes, as certainly Manhattan needs a lot of work in that direction. Judging from some rides that I've taken in the last 24 hours. But it's much more fundamental: It's a question of looking at the economy from the standpoint of the next higher platform, looking at it from the standpoint of the development of fusion power, as Joel was just saying; looking at it from the standpoint of the exploration of space.

For instance, Lyndon LaRouche talks about building new cities throughout the country, west of the Mississippi, where you build a new city from scratch, instead of having the sprawl -- you can't really have that here, because it's an island -- although you do have New Jersey is a certain kind of sprawl. But take Los Angeles, or Mexico City -- Mexico City has 20 million people. Or Los Angeles, it's horrible -- there's no design to it at all! It just continues to sprawl. So instead of just repairing those cities, although some repair is necessary, why not build new cities from scratch, and what proposes is, that the design of these cities should be based upon the design of new cities on the Moon, as Krafft Ehrlicke proposed, or eventually on Mars. And they should be modular, and oriented towards the future.

And what kind of living environments do you need for people to be productive? As opposed to, for instance, commuting, as many people do in Virginia and West Virginia: People commute from West Virginia to Washington, D.C.. How many hours of mind-deadening activity does that involve, and exhaustion? How do we want to develop the cities, so that people have access to things without such craziness? China's building new cities? Why

aren't we?

The point is, not to just think in terms of making repairs. There are certain repairs we have to make; there are certain things we should do, whether that's fast trains -- but do we want to link up Los Angeles and Las Vegas? Or do we want to build new cities that re productive? That's really the kind of question; so I think we need absolutely to develop the economy, not only in this country, but throughout the world. What's admirable about what the Chinese are doing, is they are not only eliminating poverty in their own country, and developing their own country, but at the same time, they are developing other nations. And this, as I said, was the conception of Roosevelt for the post-World War II period; and it was a perspective for instance of Pope Paul VI, who wrote the encyclical {Populorum Progressio}, in which he said, "The new name for peace is development."

That's the real sense of generosity for all mankind, and that is precisely what we have to do. We're not doing that in the United States at this point. So I would say, in a certain sense, "American First" is insufficient, and we need to be thinking about humanity as a whole. Because, you'll pay the consequences if you don't think about humanity as a whole. That's why we should do it, and I think the Four Laws lay out the way in which we can do it.

Q: [Alvin] Hi Will. I'll go back, in sitting through this first session, to the last series, where we were able to work through something, like we're hopefully going to do, and I have a sense for me personally, get a better understanding of things that we've done in the past and referred to, but never in a series manner. So the idea of deepening our understanding of the true meaning of the New Paradigm, of the evil Russell, the nature of how that British culture has infected us and how we need to examine that, was all very good and spread out.

And I get a sense from just this first one, for me personally, a bit of a breakthrough. Because when it comes to mathematics, -- and I think this goes back to my experience in algebra in junior high school -- that it's like a {big} problem for me! Which is not fun, when you get old to back off and do that. Yet, I'm sitting, listening and following as best I can, and I begin to realize, I think for the first time, that it's the problem that I'm thinking in mathematical ways, that {is} the problem, that's inhuman. And so, some of the quotes and stuff you had up there, and now I have an opportunity, week by week, to continue to work on that, like we did in the last series. Because I think this series about how we think, and that's what needs to change, if I want to really affect a person or uplift them, I need to have that deeper understanding, that for me has always been very fragmented. It took me a long time to truly absorb and understand -- again, because of this mathematical block, what the Triple Curve was. Now, it seems so natural, so obvious, so clear. I can actually discuss that and go through that with people. But this type of block is what I'm and this little small step just hit me -- I said, "wait a minute, I think I might be onto something." But if we just left it this week, it wouldn't work.

I wanted to bring that up to you, and let you -- for all of us that could use that kind of help -- elaborate. Because I think that's what this is really about, how we think, that needs to change.

WERTZ: Yeah. Good. It's a eight-part course. And we're not going away! We'll be developing these ideas, and I would also encourage everybody -- we didn't put forward a reading list on the basis of "read this piece for this class"; we put together a list of suggested readings of Lyndon LaRouche so that if people are excited about the ideas, they'll just begin the process of reading through it.

Lyndon LaRouche had many experiences, where he would be with some very creative scientists and this was at the time of the founding of the Fusion Energy Foundation, but they all, because they were under peer review -- in other words anything they had published, it had to be reviewed by their peers -- they all would want to go up to the blackboard and put up a bunch of mathematical formulas, and they were also very reluctant to attack Newton, because Newton was the universally accepted authority in science, or to attack Euclid. In other words, it's a certain self-policing mechanism, mental police mechanism that takes over even very creative scientists, with only a few exceptions.

So we're indoctrinated into believing mathematical formalism, as opposed to looking at the real, physical world. Lyndon LaRouche has written in his autobiographies that he was in high school, he challenged a teacher about the validity of Euclid, the idea that linearity is primary, which is central to Euclid. Think about it, when you're doing geometry, it's all on a flat piece of paper, drawing objects which don't exist. Because in the real world, the real world is defined by curvature; it would be as if you believe the Earth were flat, as opposed to spherical. And this was enforced upon people's thinking for how many hundreds of years -- even though, prior to that, there were scientists who had demonstrated that the Earth was round and had estimated the circumference of the Earth.

So you have to recognize that the way in which people think is deliberately fostered in order to control them, and not to encourage creativity which is a threat to an imperial order. If you just think about it, think of all of the assumptions which you know are in the media, they're accepted by congressmen, they're accepted by all of the public authorities, and these assumptions of post-industrial society, that there are limits to growth, that there's global climate change which is caused by human technological progress, that's the argument, and so forth and so on. Or that Adam Smith was the founding economist of the American Revolution, when he was an agent of the British East India Company, who laid out a policy for destroying the nascent industry of the colonies and the future United States. Or, Malthus. Just think of all of the ideologues: The World Wildlife Fund which was set up by Prince Bernhard of the Netherlands, and Prince Philip of Great Britain. All of these ideas, you're told that these are the accepted ideas, and you can't challenge them. If you're in a university studying science, you better watch out, if you challenge global warming! You're not going to get grants, and probably no professor who accepts a paper from you, which doesn't accept that assumption is going to keep his job for very long.

That's the problem you're up against, and it is true, you've got to free your own mind from these kinds of shackles, which are a result of public opinion. There's a writer that Lyndon LaRouche often refers to, I think his name is David Riesman, who discusses "inner-directedness" as opposed to "outer-directedness." Most people are outer-directed, they

operate on the basis of what other people think, what's acceptable. What you allow yourself to be heard saying, so that you don't get into trouble. As opposed to, as I was saying at the beginning, are you committed to a search for wisdom? Are you inner-directed from that standpoint? That's the fundamental issue.

In a free people, a free individual is inner-directed and has this commitment to find truth, and is not afraid to fight for truth. Because the truth is what's necessary for humanity. So if you really want to say that you love humanity, you love your fellow man, you want to have any sense of immortality in your life, value in your life, you've got to be inner-directed, you've got to actually examine ideas on your own, and don't advocate something which you haven't proven to yourself is true.

Q: [follow-up] I certainly will not be the one that finds himself asking that question you had up earlier: What was that all about? [laughter]

WERTZ: Good!

SARE: I think that concludes the class today. Do you have anything you want to say about next week, or anything else? A lot of the reading material on the list is available at the book table.

WERTZ: I just want to, as Sylvia did earlier, I want to encourage everybody here to come back next week and for the whole course. If these ideas have engaged your mind, start reading through the material; come back with questions, and organize others. We have a real potential, I think, right now, with the 17 younger people who came on Friday night, and with the attendance here today; and this is being made available through YouTube nationally [<https://youtu.be/EIBR36t3xSQ>], we have a real chance of educating people, and creating the conditions under which we can shape the actions of the Presidency.

President Trump is a counterpuncher, he is outside -- as Russian Foreign Minister Lavrov has said -- he's outside the system. He's not supported by all of the Republicans or all of the Democrats. He ran against 16 or 17 Republican candidates and then he beat Hillary Clinton who was about to be coronated. Martin O'Malley from Baltimore, he had a good line, it was his only good line in the whole campaign, but he didn't have any guts: He said "this election is not about a coronation," in terms of Hillary Clinton or Jeb Bush. But then he didn't have any perspective or any guts.

But Trump is basically -- there are elements which are important: If he meets with Putin in the next few weeks, that's going to be a real potential game changer, just as his meeting with Kim. And we have a potential as Helga Zepp-LaRouche has pointed out, of creating a New Paradigm. But I think it's just crucial that we internalize that Lyndon LaRouche's method, his commitment in life, to the truth and to other people, is really our greatest strength, and I think that other nations in the world need to know more about Lyndon LaRouche's method, including China, Russia.

Lyndon LaRouche has not been China; his wife has been in China. He's been in Russia, he's been in India. At one point, he was at the Russian Academy of Sciences, after he was released from prison, and some of the scientists there were {very}

appreciative of Lyndon LaRouche. They especially appreciated his conception of potential relative population density, and one of the scientists suggested the metric for it should be called the "La," based on LaRouche.

The point here is, we have a responsibility to educate ourselves. The consent of the governed is only valuable if the governed have educated themselves; otherwise, as Nicholas of Cusa said, "the number of fools is infinite." And how can you give consent, what will be the meaning of consent of the governed, if the governed are not operating on the basis of reason and have not developed their minds? That's the fundamental issue.

From that standpoint, I really encourage people to read this material, to come back next week, when Dennis is presenting the second part of the class, and to bring other people, either to the Friday night meeting, if they're young adults; or to here. If somebody can't come on Friday, they should come in Saturday. And we should get this organizing process moving.

I would also encourage people, as you become more confident of these ideas, consider going out and organizing with us, going out in the street. Because you don't really know something, as Lyndon LaRouche has emphasized -- and it may have been stated also by Humboldt -- you don't really know something until you've taught it, until you've been faced with questions from other people and you have to struggle to figure out how to represent the ideas to another person. And you have to figure out, in freeing yourself from mental shackles, it's crucial that your struggling with the ideas by freeing other people from similar shackles, similar false axiomatic assumptions. And having the courage to stand up, even in the face of massive contrary public opinion.

So, please come back next week, and be prepared. [applause]