THE COMMON AIMS OF MANKIND

# The Strategic Defense of Earth: the 'New SDI'

*This is an edited transcript of the weekly LaRouche PAC Webcast, featuring LaRouche Science Team member Ben Deniston. He was interviewed by the program's host, Matthew Ogden.*

**Matthew Ogden:** The title of our broadcast today is "The Common Aims of Mankind: Strategic Defense of Earth." The acronym is SDE. This is not a coincidence: SDE is a direct reference to SDI, President Ronald Reagan's famous, history-changing announcement on March 23, 1983 of the Strategic Defense Initiative—a proposed missile defense system to make nuclear weapons "impotent and obsolete."


Now President Reagan's impetus for this call, in the 1980s, was that this would not be merely a defensive measure against another country, but a joint project among all nations of the world, including at that time, in the context of the Cold War, the United States and the Soviet Union.

On January 17, President Donald Trump made an announcement compared by several to Ronald Reagan's Strategic Defense Initiative. The occasion was the release of the 2019 Missile Defense Review (MDR), commissioned about a year ago by Congress, which contained some language very clearly pointing in the direction of continuing along the lines of what had been developed, or begun to be developed, in the 1980s for space-based missile defense systems. Let's just read a little bit of that document's Executive Summary:

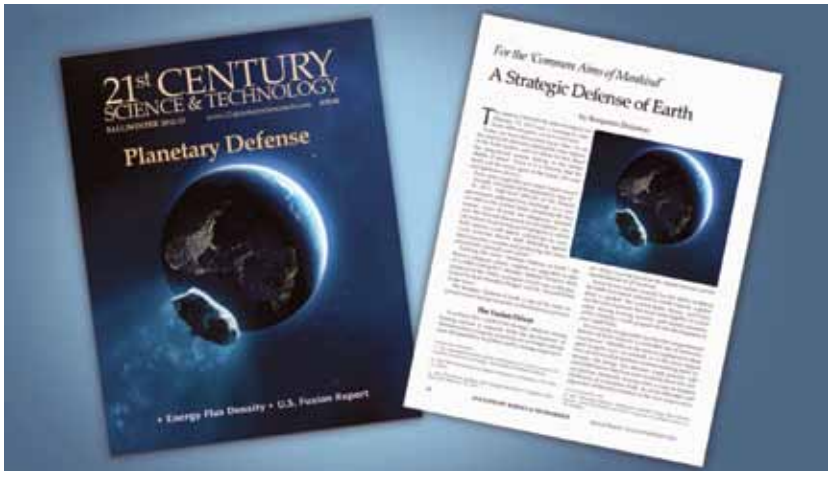
*Importance of Space*. The exploitation of space provides a missile defense posture that is more effective, resilient and adaptable to known and unanticipated threats. Space-based sensors, for example, can monitor, detect and track missile launches from locations almost anywhere on the globe—they enjoy a measure of flexibility of movement that is unimpeded by the constraints that geographic limitations impose on terrestrial sensors, and can provide "birth to death" tracking that is extremely advantageous.

As rogue state missile arsenals develop, the space-basing of interceptors may provide the opportunity to engage offensive missiles in their most vulnerable initial boost phase of flight, before they can deploy various countermeasures. Space-basing may increase the overall likelihood of successfully intercepting offensive missiles, reduce the number of U.S. defensive interceptors required to do so, and potentially destroy offensive missiles over the attacker's territory rather than the targeted state. DOD will undertake a new and near-term examination of the concepts and technology for space-based defenses to assess the technological and operational potential of space-basing in the evolving security environment. . . .

DOD will identify the most promising technologies, and estimated schedule, cost, and per-

sonnel requirements for a possible space-based defensive layer that achieves an early operational capability for boost-phase defense.

[The complete 108-page MDR document is here.]




21st Century Science & Technology

*"A Strategic Defense of Earth," by Ben Deniston in the Fall/Winter 2012-13 issue.*

I've asked Ben Deniston to join us here today because he's the author of an item that appeared on the LaRouche PAC website just a few days ago, "The 'New SDI' Must Be the SDE—Strategic Defense of Earth."

What we're going to discuss here, today, is very, very critical when it comes to war and peace. But we will also discuss the idea of a New Paradigm of relations among nations—that we, as the human race, must unite not to fight wars against each other, but to fight to defend mankind from threats which come external to our planet, and that's the subject of the Strategic Defense of Earth.

I'm going to let Ben tell us about this idea. Ben?

## Lyndon LaRouche's Concept of the SDI

**Benjamin Deniston:** Just to underscore one other critical aspect of Lyndon LaRouche's view of the SDI: We're talking here about strategic balance—a stable, mutually beneficial, win-win strategic order. One key aspect of the SDI that LaRouche campaigned on, and Reagan picked up on, famously, and Dr. Edward Teller supported, was the intention to eliminate the threat of nuclear Armageddon. Our younger viewers might not be aware that the strategic military doctrine and U.S. national security policy at the time was technically called Mutually Assured Destruction, appropriately termed MAD. The entire strategic balance was based on the idea that if we detected a launch from another power that we believed would completely annihilate our country, our response would be to launch an annihilating strike against that country, in the minutes before we were about to be annihilated: mutually assured destruction. That was the strategic military balance at the time.

The idea of creating a defense system that could effectively stop mutual annihilation was crucial.

Another element, both critical and unique, added by LaRouche, was that the basis for peace also involves progress: Eliminate the threat of Mutually Assured Destruction, which is insane, but at the same time, introduce a cultural regime which fosters the uplifting of human nature, while also fostering anti-entropic economic development. Key and central to LaRouche's proposal for the SDI was this joint science-driver program: It must be a joint program, a joint program pursuing new, fundamental scientific principles.

## The Strategic Defense of Earth

With the SDE, you need the defense aspect, but you cannot separate that from creating an environment where nations can jointly develop and share the most advanced technologies available, and use those not just for defense but also generally for production, for infrastructure development, for manufacturing—that is absolutely required for any positive future for civilization on this planet. The joint development of the most advanced technologies, and the sharing of those—not just siphoning them off for defense, keeping them secret from your own people, keeping them secret from your supposed adversaries, where they just sit there, with no application to general progress. Instead, open that technology up, bring it out to the economy more generally, and engage in the kind of programs that continuously force the development of new technologies, new breakthroughs.

So that was central to LaRouche's idea of the SDI—very different from the way a lot of people played it at the time, and the way people talk about it today. In fact, it really was a minority—LaRouche, Reagan, Teller—

that really understood that aspect of the idea. And a lot of other people tried to play geopolitical games with it, and tried to use it as an excuse to try and bankrupt the Soviet Union. But that was not the program that Teller, LaRouche, and Reagan were behind.

That's important to know, because the exact same people who were campaigning on that idea in the 1980s, around the SDI, when the Soviet Union fell, it happened to coincide with a very interesting situation, where people were beginning to realize the actual threats that existed to our planet from things like asteroids existing in the Solar system. And you have this fascinating period, in the early 1990s up until the mid-1990s, when there was a coming together in a series of conferences of a lot of key players in the defense area and in the nuclear labs, in both the former Soviet Union and in the United States, to discuss the issue of planetary defense against asteroids and comets.

This even happened in some of the leading nuclear labs in the United States and in Russia: Russian leaders in their nuclear labs programs, nuclear weapons programs, coming to the United States, coming to places such as Los Alamos, being brought into our nuclear centers to discuss what to do as a unified people on this planet, in the case we have an asteroid that threatens civilization. They had a conference at Lawrence Livermore National Laboratory. There were conferences in Russia at their nuclear labs—Chelyabinsk, for example, which used to be a secret science city, which people didn't even know existed, where they pioneered this research.

I guess maybe the Solar system heard that they were planning to defeat these asteroids. Chelyabinsk was ironically the place where a 20 meter near-Earth asteroid exploded on Feb. 15, 2013.

## Convergence on the Common Aims of Mankind

So, there's a natural evolution to the SDI and SDE concepts—the central idea being what Teller termed "the common aims of mankind." That was core to what LaRouche, Reagan, and Teller were fighting for with the SDI in the 1980s.That spirit naturally evolved into addressing asteroidal threats and threats to the Solar system. Unfortunately, a lot of geopolitical perspectives prevailed in the 1990s.

We never went with a joint U.S.-Russia planetary defense program in the spirit of the SDI, but it is an idea which has kept on popping up in various forms. In 2011, the Russians proposed it again. Dmitry Rogozin, Russia's ambassador to NATO, was appointed as Special Representative on anti-missile defense to negotiate with NATO countries. In 2011, as NATO began moving missile systems closer to the Russian border, Russia proposed instead looking at the bigger issues, those threatening the entire planet: threats to mankind in the Solar system from rogue asteroids and comets. So, the SDI/SDE was again put on the table.

There's an historical and natural connection, and it comes inherently in technologies developed to defend against intercontinental ballistic missiles (ICBMs), for example, and some of the newer technologies coming up—hypersonic missiles—some of these advanced systems the Russians have just recently unveiled. The kinds of technologies you would need to defend against these newer technologies very much overlap the technologies needed to detect and defend against the threat of an incoming asteroid or comet. There's a natural convergence between strategic defense from the threat of nuclear war, and a broader defense of the planet as a whole from threats in the Solar system.

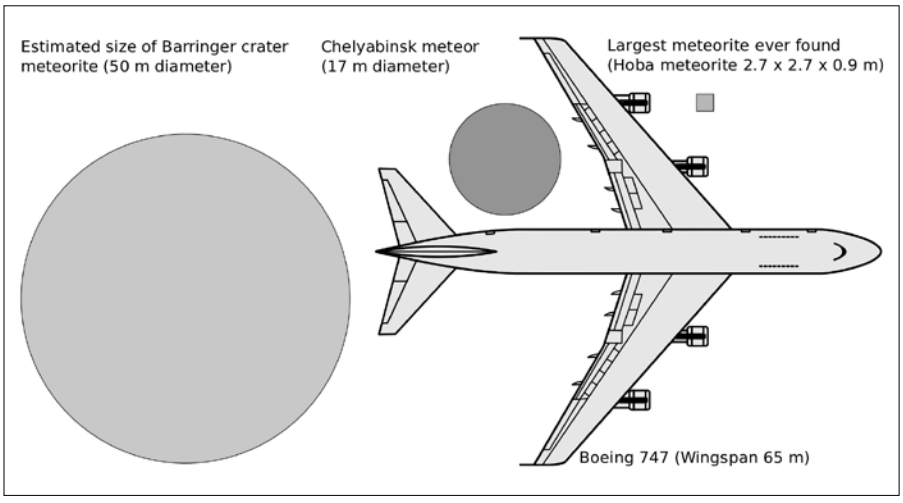
## Living in the Solar System

There's a lot more we can get into, but I want to make the point, with some graphics here, that this is just a regular part of living in the Solar system. Asteroid impacts happen quite frequently. I'm sure everyone remembers all the dash-cam footage and other raw footage from this amazing, and completely surprising impact from the very small asteroid over Chelyabinsk. Next to that, in **Figure 1**, we have a comparison of the size of the Chelyabinsk asteroid with other incoming bodies. The reason these things are so destructive is that the impact speeds are so high. The Chelyabinsk asteroid was on the very, very small end, just on the border of what can really start to be damaging. It damaged windows in some buildings, and some people were injured. Luckily there were no fatalities.

But that's the small end, minimum threshold. If you look at other things, like the estimated size of the object that caused the famous Barringer Crater in the Western United States, a relatively fresh impact, a huge crater that was caused by an object not that much bigger than the one that hit over Chelyabinsk. Another famous one from the beginning of the 20th century, is an impact that happened over Tunguska, in Siberia in 1908, which lev-

FIGURE 1

**Comparison of Meteor Sizes**




eled hundreds of square miles of trees. It took scientists a long time to even figure out that it was probably the effect of an impact, which it was.

These are just a few examples of relatively recent impacts. In the chart of "Bolide events," every dot marks an impact from a small asteroid exploding in the atmosphere. A lot of meteors explode with the energy equivalent of small nuclear weapons. These are not just "shooting stars," these are pretty significant explosions in the upper atmosphere. But they're not quite big enough to reach the surface without breaking up. Looking at the 10-year intervals in the Bolide chart in **Figure 2**, we see that most of the data were obtained relatively recently. These upper atmosphere explosions were detected with systems designed to monitor nuclear tests. The monitoring teams happened to be picking up all these explosions in the atmosphere, and (fortunately) figured out these were small asteroids exploding, not nuclear weapons going off.

If we don't have a competent ability to detect these objects as they are coming in, it's not inconceivable that a small asteroid could explode over a country and be thought to be a nuclear blast. That's been raised as a concern.

U.S. Geological Survey/D. Roddy

*The Barringer meteor crater in northern Arizona.*

*A still from a dashcam video from Chelyabinsk, Russia of the meteor streaking over a highway on October 16, 2013.*

Leonid Kulik expedition, 1927

*The Tunguska event effects in Krasnoyarsk, Russia, 1908.*

## Threats Seen and Unseen

This is the environment that we live in, in the Solar system. Many people are probably familiar with the 1994 comet impact on Jupiter, around the time of the conferences I mentioned earlier. People began to realize such impacts occur in the Solar system; these bodies do collide. These occurrences are not just events that happened billions of years ago, and everything now is ordered and pristine.

The collision of Comet Shoemaker-Levy 9, a very big comet, with Jupiter was a big wake-up call for a lot of people. Some scientists detected the comet before it hit Jupiter. They were able to forecast the impact and collect images of it as it happened, as we see in **Figure 3**. The comet broke up into chunks before impact, and so there were multiple impacts. This was a huge event, not from an asteroid in this case, but from a comet. Comets pose potentially greater challenges and threats.

This has now been recognized for 25 years. There's been a significant effort to find and track these bodies in the Solar system. But we still have a lot of work to do. **Figure 4** is one depiction of where we are in asteroid defense, in particular the detection and tracking aspect. The graph is a logarithmic scale, so the numbers go up by orders of magnitude.

For the larger asteroids—in the range of a diameter of 1,000 meters and up to 2, 3, 4, or 10 km in diameter—there's a correspondingly smaller total of near-Earth asteroids (NEAs) out there. NASA has done a pretty good job of tracking these relatively larger asteroids in space.

But as their diameters get smaller and smaller, their numbers go up geometrically. These are harder to detect, because they're smaller and there's way more of them. The Chelyabinsk asteroid was on the very, very low end.

FIGURE 2
**Bolide events 1994-2013**

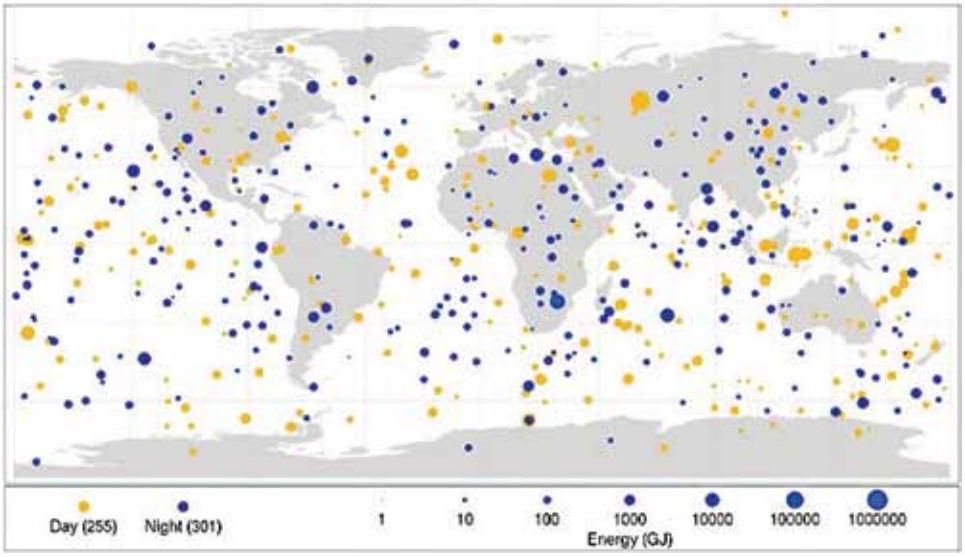
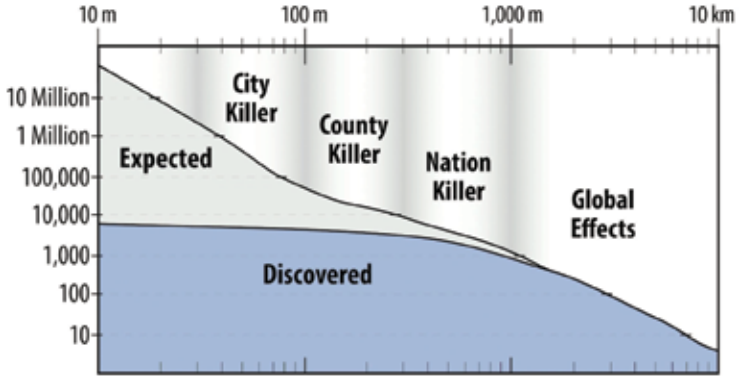


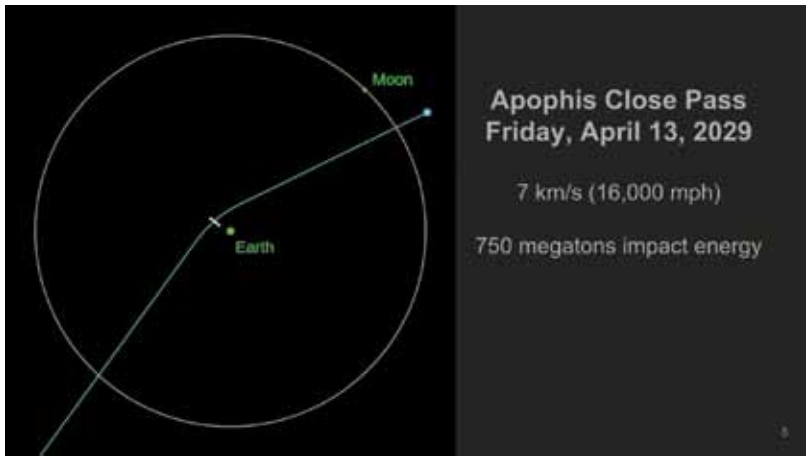

FIGURE 3
**Comet Shoemaker-Levy 9 Impacts in Ultraviolet**


FIGURE 4
**Near-Earth Asteroid Sizes**



We have a huge gap of really hundreds of thousands of these objects that we have just not detected that could be big enough to take out a city, all the way up to taking out an entire country with their impact effects, were they to hit. There are literally hundreds of thousands of them out there that could wreak major damage. We are not currently tracking them; we don't know where they are. A huge effort remains to be made just on the asteroid defense aspect.

FIGURE 5
**Apophis Close Pass, Friday, April 13, 2029**




## The Case of Apophis

Some Russian scientists have recently raised new concerns about one particular asteroid that is being tracked, called Apophis. It has a very small chance, but not a zero chance of hitting Earth in the future. What they're looking at right now is what you see depicted in **Figure 5**, the expected close pass of Apophis by Earth in 2029. We know for certain that unless something quite unexpected happens, it's not going to hit in 2029—but it's going to come extremely close.

This image is to scale; the asteroid itself is not to scale, but the size of the Moon's orbit around the Earth and the relatively close pass is to scale. Apophis is coming much closer to Earth than many everyday man-made satellites. It's coming so close that Earth is going to significantly change this asteroid's trajectory, it's orbit. If it changes it just the right way, which is a small chance—but again it's not impossible—if it passes by in just the right way, its orbit will be changed just enough to put it on a *future* impact trajectory with Earth.

Apophis is not on the super-large scale, but it's also not on the super-small scale; this is something that is really of significant size. If it were to hit, depending on the angle and the speed, it could release on the order of 15 times the energy of the largest nuclear weapon ever exploded in the history of nuclear research. That's not a small impact. This is one particular case that's now being studied and watched. This is one case we know about; we're tracking it, we're watching it.

At the same time, we have the potential of thousands of other cases that we currently *don't* know about. And that's just asteroids! Comets are a little bit of a different challenge, and a lot less is known about them. We have to think about living in the Solar system. Also, we have huge questions about what the Sun does, and the effects of solar activity on Earth.

It's only in recent years that there has really been a growing understanding of potential electro-magnetic pulse (EMP) effects that can be generated by explosive outbursts of solar activity. A solar EMP surge has the capability of knocking out our entire electrical grid, although that has so far never happened. Solar EMPs have frequently caused minor damage, but most people don't know about these occurrences. A very large EMP would have catastrophic consequences.

There are many open questions about the role of solar activity in climate change. Scientists are raising legitimate concerns that solar activity could be going through an extreme weakening phase, which could lead to what some call a mini-Ice Age. It would have huge effects on agricultural production, the ability to produce food. The last time this happened—around the 1600s—it did have major effects on human populations. If it were to happen again today, that would be a major concern.

## Moving Beyond Geopolitics

These are the issues—the asteroids are a leading one, but not the only one—that really need to become the basis of a new era of strategic policy. Leading nations—the United States, Russia, China—instead of developing defense technologies in secret, kept from other nations and frankly even kept from their own people most of the time, must come together in cooperation to address these threats.

We have to move beyond the geopolitical perspec-

tive on strategic relations and open up technologies in a joint way to defend the entire planet from the kinds of threats I've mentioned. These are real threats; these are threats that we are not capable of handling at this point.

One last critical subject to emphasize, one which LaRouche is quite frankly unique in emphasizing in the SDI/SDE program, is the absolute necessity of its science driver aspect. We're not just talking about opening up these technologies and dumping a bunch of money into this stuff with no effect on the general public. This program could really have the same type of effect that the Apollo program had—President John Kennedy's science-driver program to bring us to the Moon. The right kind of investment in these kinds of advanced technologies generates technologies that are not just applicable for defense—for defending mankind against the threat of nuclear war and from asteroids and other threats from space.

These are *fundamentally* important new technologies; technologies we can use for all kinds of applications on Earth. Generating progress in this direction is absolutely going to be critical to having stable strategic relations on the planet as well.

I think these are the things we should be putting on the table in response to what Trump recently released with the idea of space-based sensor systems, that is, a space-based defense capability for nuclear threats. The history behind that type of discussion is very important. We play a critical role in pushing forward the critical science-driver elements of it.

## Mutually Assured Survival

**Ogden:** This is all extremely relevant, because the discussion of the history of this is one which goes hand-in-hand with the idea that we have to overcome this Cold War-era Mutually Assured Destruction [MAD] doctrine which really, as John F Kennedy said, this is hanging like a sword of Damocles over the heads of every man, woman, and child on this planet. It continues to do so today, and the power of thermonuclear weapons becomes exponentially greater and greater. This destructive capability really could engender the extinction of mankind. We need to quickly move out of that phase of humankind and move into a New Paradigm in which the common defense of man becomes one of the common aims of mankind.

In 1992, Teller spoke at Los Alamos, and here is just a quick quote:

> In the last three years, very remarkable changes have occurred in the world. Now, for the first time, incredible things can really happen, including international cooperation on a subject like defense against asteroids.

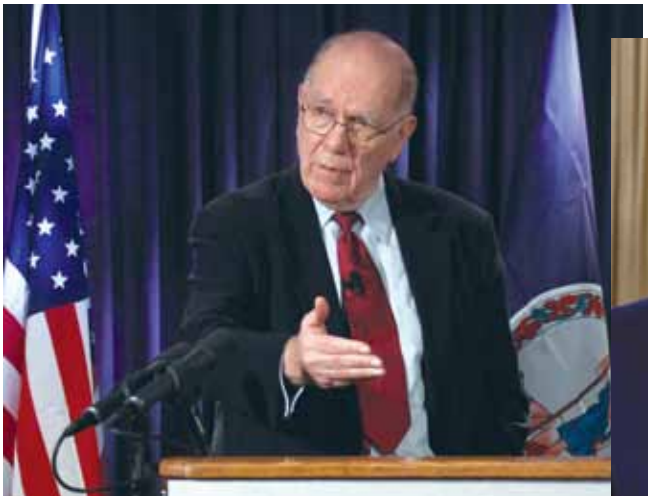
In 1993, Teller attended a conference in Erice, Italy [the annual International Seminar on Nuclear War, jointly chaired by Teller and Yevgeny Velikhov]. You had a discussion with one of the participants at that conference. Do you want to say a little bit about what you talked about?

**Deniston:** The discussion was a confirmation of what we've been talking about here. Erice has been the center of an interesting series of conferences on planetary emergencies and global threats. In the 1980s, around the SDI work, conferences were held in Erice on the subject of the threat of mutual annihilation from nuclear war. Famously, at a number of these, there were discussions about the SDI, about joint U.S.-Soviet collaboration in eliminating the threat of nuclear weapons.

Another conference at Erice, in the early 1990s, taking up the issue of asteroid defense, brought together some of the same people. From discussions with some of the people involved, it is very clear that the same core spirit of the SDI was there. The idea was that the SDI should not be relegated to just a little bit of collaboration between some scientists, but it should be the basis of a fundamental strategic policy shift. The idea was that we should have a strategic policy of cooperating with the Russians now that the Soviet Union was no more, and that we should utilize advanced defense technologies, apply them to defending the planet from asteroids, comets—challenges threatening the entire planet, arising from our very existence in the Solar system.

That was very much on the table. A lot of the key players in the SDI work from the 1980s, from both the Russian side and the U.S. side, were active in these conferences in the 1990s. So, you see a continual resurgence and development of the idea, coming back to the common aims of mankind.

**Ogden:** The idea of the common aims of mankind is what inspired Edward Teller, one of the leading physicists in the United States in the 1980s. In 2001, two years before he died, he published an autobiography.

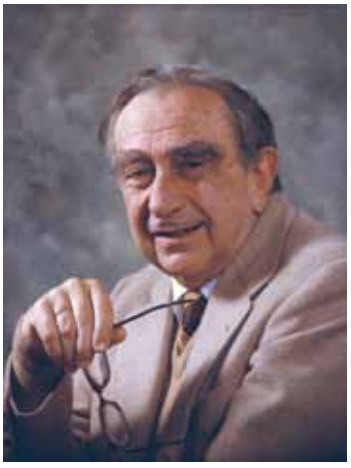


EIRNS/Stuart Lewis

*Lyndon LaRouche, in 2009.*

Official Portrait

*President Ronald Reagan, in 1985.*



CC/UC Davis College of Engineering

*Dr. Edward Teller, in 2012.*

It's a very fascinating autobiography. The conclusion, the last chapter, is on planetary defense and asteroid defense specifically. This is really what he dedicated the last 10 to 15 years of his life to. Here's the very last statement he makes in the book:

> I think that learning cooperatively with other nations how to prevent damage from meteor impact, becoming knowledgeable enough to prevent a globally catastrophic natural disaster, that this would be a worthwhile way to begin the new millennium.

Maybe you want to go into a little bit of detail on how some of this technology would work. What are some of the different strategies on diversion of asteroids?

## Detection and Deflection

**Deniston:** There are two aspects to it. The first is detection. And then if you do detect something that is on an Earth-impact trajectory, you do something about it.

So, one aspect is improving the detection capabilities. Once something coming is detected, even if it's large but you know it's coming, maybe 20, 30, 40 years in the future, you have a lot more options than if you have only a short warning. In the long time-frame detection cases, you really only need to potentially slow the object down or speed it up, or change its trajectory just a little bit. Often, speeding it up or slowing it down is looked at as a more effective way. A minute change in velocity added up over 30 years can amount to a pretty significant difference in where it actually will be decades into the future. A lot of discussion, hypothesizing, and modelling is going on these days. People are writing papers about what could be done. A lot of it depends on the particular scenario.

People discuss the possibility of kinetic impact to change the object's velocity. Say Apophis does not hit during this small window of time in 2029, but the gravitational interaction with Earth puts it on an impact trajectory some decades into the future. If we were to get to it quickly enough and just slow it down a little bit by running a spacecraft into it, then we could ensure that it would miss that collision date decades into the future. If you wait longer, you're really in the domain of needing nuclear explosives.

There's nothing that we can do currently that surpasses the energy density of a nuclear explosion. Even with that, there's a lot of disinformation and confusion. A lot of the things that people have studied in the nuclear labs here and in Russia are concerned with preventing a nuclear explosion from shattering a meteor into a million pieces. An explosive detonated near the surface can change its trajectory—without exploding it into a million pieces—just using the blast to push it a little bit.

## The Necessity of Nuclear Propulsion

There are a lot of aspects and details to the different designs, but I think the most important thing is a more general principle of expanding mankind's access to and presence in the Solar system generally. Limiting us in a major way is the lack of nuclear

fusion propulsion to get us around the Solar system. So, say Apophis is on an impact trajectory, and we need to get to it quickly. Right now, we have to wait years until the orbits line up just right so we can launch a spacecraft that can do its own gravity assist and do its own orbit, such that at some point many years later the spaceship will rendezvous with Apophis. Our ability to travel around the Solar system with the current chemical propulsion technologies is really just incredibly limited compared to what we could be doing.

If we had fusion propulsion; if we had a presence on the Moon; if we could launch off the Moon; if we were actually building systems from resources in space, and building spaceships in space; if we really move to what we should have been doing decades ago, really colonizing and industrializing and developing nearby space; that's a whole platform that's going to give mankind all kinds of new capabilities.

This was Lyndon LaRouche's evolution of the SDI. He put the SDI on the table; he fought for it. Around the mid-to-late 1980s, he started stressing a transition, where he said that the core benefits of the SDI should really be subsumed under a Moon-Mars colonization program. We would be just as well served, if not better served by a Moon-Mars colonization program. So, at a certain point, that was his emphasis in the evolution of the real principle and spirit and nature of the SDI.

It's a statement of principle that now there really is a convergence of those ideas. On the one hand, recognizing that the evolution of this defense aspect takes you to dealing with the threats from space; but doing that means going with what LaRouche was saying already in the 1980s—that mankind needs to go to the next platform of the development of space and mankind's capabilities in space.

I think that's what is really most important. You can talk about particular scenarios: in this situation, you could do this, in that situation you could do that. But the underlying issue is, is mankind really an active presence in space? Are we increasing our ability to get to anywhere we need to in the Solar system, quickly? Get there effectively to do what we need to do to deflect one of these things? To even know where they are? To really populate the whole Solar system with more advanced sensory systems so we can detect them. It's all a question of whether or not mankind is going to take this next step to the new economic platform of space development; that's the real underlying issue.

## Collaboration, not Confrontation

**Ogden:** On January 11 our show discussed the importance of collaboration between the United States and China on space exploration and the breakthrough that China had just made by landing a rover on the far side of the Moon. We need to lift the Wolf Amendment, the ban on collaboration between the U.S. and China on space exploration.

At the same time, with regard to Russia, the strategic environment is so toxic that NASA Administrator Jim Bridenstine, who had invited Dmitry Rogozin—the Director General of Roscosmos, Russia's State Corporation for Space Activities—to come to the United States to have meetings and discussions on U.S.-Russian space collaboration, had to disinvite Rogozin because he's under U.S. sanctions. Dmitry Rogozin is the person responsible for coining the name SDE—Strategic Defense of Earth.

**Deniston:** Despite all of these insane attacks against Russia and China, President Trump has said—and he has been consistent on this—that he does think the United States can have positive relations with Russia and China. This is one of the key intentions that he is very serious about, and this is really freaking out the British establishment and their Tory colleagues in the intelligence agencies. Trump has shown an inclination to move to some new type of strategic framework, where we no longer have to view Russia and China as existential threats; we don't have to continue running these proxy wars to try and undermine their activities in various parts of the world. So, that is there; that's real.

I think in that context, it's a perfect opportunity to put these ideas back on the table again and kick back against all this other geopolitical stuff. That's what defeated the SDI in the 1980s; it's what defeated the attempt to move to the asteroid defense in the 1990s; it's still the fight today. If we can defeat those forces, this is the kind of program that mankind should be pursuing.

**Ogden:** Wonderful. We currently have several pages on the LaRouche PAC website that provide a background on the SDI. We also have a page on planetary defense with a lot of details. Also your paper, "The 'New SDI' Must Be the SDE—Strategic Defense of Earth" is there.

Thanks a lot, Ben, and thank you all for tuning in.