

Our Place in the Universe and Nuclear Weapons: Reflections from a Nuclear Arms Control Negotiator

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EDITOR'S NOTE: Amb. Roland Timerbaev passed away in mid-August at the age of 91. Timerbaev was a member of the Soviet/Russian diplomatic service for 43 years, with his final posting as permanent representative of the Soviet Union/Russia to international organizations in Vienna from 1988 to 1992. He also participated in negotiations on the 1972 Anti-Ballistic Missile Treaty, the 1973 Agreement on the Prevention of Nuclear War, the 1974 Treaty on the Limitation of Underground Nuclear Weapon Tests, and the 1976 Peaceful Nuclear Explosions Treaty. Timerbaev was one of the central figures in the negotiation of the 1968 Treaty on the Nonproliferation of Nuclear Weapons. *Arms Control Today* published an extensive interview with Timerbaev in 2017 on the legacy of the NPT.

Last month, a close colleague of Timerbaev's, Victor Slipchenko, contacted the Arms Control Association on his behalf to say that he wanted the following essay to be published after his death in a U.S. publication. The following is the English translation of the original Russian text. We are pleased to be able to share Roland's reflections with our readers.

The existence and development of nuclear weapons and the universe are inextricably linked. As scientists believe our universe has existed for about 13.7 billion years and will continue to develop and expand for 22 billion more years.

Let's consider the law of the development of the Universe—as the basic principle, the life cycle where things that should go are being replaced by things that should come. It can be a star, a planet or life of any creature. The 4 billion-year-old sun is the source of everything within the solar system and, according to scientists, it will burn out in 4 billion years. After all, the sun is a huge fusion reactor. After the sun goes, the entire solar system, including our Earth, will cease to exist.

Is there any chance that something could happen to the Earth before the death of the entire solar system? Alas, the universe has its own plan on this matter. First, there are asteroids, colliding catastrophically with planets and other celestial objects every now and then. Some asteroids are gigantic. The one that fell on the Yucatan Peninsula in Mexico 65 million years ago had a diameter of almost 10 kilometers. It caused such a soil and sand storm that a dark cloud formed over the Earth for many years, as a result of which the temperature of the Earth's surface dropped by many degrees and millions of huge dinosaurs that trampled the entire surface of the Earth died. The mammals survived though. Before the crash of the asteroid, due to the widespread dominance of dinosaurs, the mammals were small, and after the dinosaurs disappeared, mammals

began to develop rapidly, and as a result, a mammal like a modern human being appeared. That is how the development of the universe happens!

At the beginning of our century, in 2004, astronomers discovered a huge asteroid with a diameter of several hundred meters, which could approach the Earth or even collide with it in the 2020s. A few countries, including Russia, started a hectic search trying to find a solution on how to avoid a collision with the asteroid, named Apophis after the ancient Egyptian god of darkness and evil. The idea of deflecting the asteroid's orbit with the help of nuclear explosion was considered as the best solution. Some additional calculations by astronomers have shown that this asteroid might approach the Earth many decades later. But it goes without saying that it does not exclude the possibility of other dangerous asteroids approaching the Earth.

Besides asteroids, volcanoes are another danger to life on Earth. The center of our planet is filled with magma which breaks out to the surface of our planet every once in a while. Thus, the powerful eruption of the Tambora volcano in Indonesia in 1815 led to the deaths of over 70,000 people. There is a common version in the scientific circles that the intensification of volcanic activity can be explained by the fact that about 300 million years ago all the main continents joined together into one single continent, Pangea, and this led to the Permian-Triassic extinction, the largest of all that the Earth knew (90 percent of marine organisms and 70 percent of terrestrial species died). As a result, even today our Siberia, which was affected by this tectonic phenomenon, remains a poorly developed territory.

The invention of nuclear weapons on Earth might have its reasons as a part of the development of the universe. We might be wrong calling it a "weapon." After all, a weapon is a tool or mechanism created in order to win a war or defend itself against an adversary, and a nuclear "weapon" puts us in a position where we can't win. Think bigger—a nuclear explosive is intended to destroy any obsolete or outdated living things and to enable the emergence of new ones that can ensure the further development of an element or the universe as a whole.

We are told that atomic weapons were invented during the Second World War to ensure victory over the enemy but are now capable of destroying the world. However, all people are part of the universe, and the possibility of creating this "weapon" is inherent in the universe itself. If there had been no uranium or other substance on Earth to produce a nuclear explosion, no weapons of such power could have appeared.

All people on Earth are undoubtedly an integral part of the universe. The approach of World War II in the late 1930s and early 1940s prompted talented physicists and designers of the world to search for what is already inherent in nature, in the universe. All these people (Robert Oppenheimer, Enrico Fermi, Edward Teller, Niels Bor, Stanislaw Ulam, Igor Kurchatov, Yuli Khariton, Andrei Sakharov, and others), being part of the Universe, took advantage of what could be found on our own Earth and throughout the universe, and created nuclear weapons.

An atomic explosion involving even a low-yield “tactical” nuclear device can lead to an uncontrollable nuclear escalation that would inevitably cause a worldwide nuclear catastrophe, which will lead to the extinction of present life on Earth. Indeed, a number of nuclear powers, have at their disposal a system for automatic launch of missiles with nuclear warheads (in Russia, it is the “Perimeter” or “Dead Hand.”). Apparently, this power to launch was delegated by their military to those leaders of the nuclear powers who have a “nuclear button,” in case the country’s leadership is deprived of action in an emergency.

We must not forget that according to scientists, there have been at least 20 other species of human beings before homo sapiens appeared. All of them were less adapted for life on Earth than a modern man, and they all became extinct. However, the present-day human race also has serious shortcomings that impede our further development. The main one is that we never can get enough. This shortcoming makes a person constantly want more than is necessary for a normal existence. This is what leads to hostility, conflicts, and wars. And it’s getting worse and worse. The 20th century was probably the most warlike century in the history of humankind, which led to the deaths of tens and even hundreds of millions of people. We stepped into the current century with wars too.

We shouldn’t forget that those who created the initial atomic bomb were opposed to the development of a hydrogen bomb, which would be hundreds of times more powerful than uranium and plutonium bombs. In 1949, the General Advisory Committee of the United States Atomic Energy Commission, chaired by Robert J. Oppenheimer, unanimously rejected the hydrogen bomb program, but it was nevertheless approved by President Harry Truman.

Today, nine states possess nuclear weapons, despite the fact that the nuclear Nonproliferation Treaty entered into force in 1970. Without the treaty, there would have been 20-25 such states. Yet, some countries have not yet given up their secret ideas of creating their own Doomsday weapons.

Of course, it would be unfair not to mention that some states (primarily the Soviet Union/Russia and the United States) made certain efforts to reduce their exorbitant nuclear arsenals, which was prompted by awareness of the global danger of using nuclear weapons during the Caribbean crisis of October 1962 (known as Cuban Missile Crisis in Western countries).

Back in the day, in 1963, negotiations on the ceasing of nuclear testing began. The negotiations then started covering the issue of limiting and reducing nuclear weapons as well. As a result, at the beginning of this century, Russia and the United States have almost six times fewer nuclear weapons than they did at the peak of the Cold War, about 7,000-8,000 warheads for each of the parties. In 2010, the last strategic nuclear arms reduction treaty was concluded, which expires in 2021. It has not yet been extended,

although such an opportunity is enshrined in it. Further negotiations on nuclear reductions, unfortunately, have ceased.

Understanding the complete dependence of life on Earth on nuclear weapons inexorably requires further efforts to abandon and eliminate these weapons. — Roland M. Timerbaev, Moscow, January 2019

[1] Daniel Ellsberg, *The Doomsday Machine: Confessions of a Nuclear War Planner*, p.289.

Roland M. Timerbaev

<https://www.armscontrol.org/blog/2019-10-28/our-place-universe-nuclear-weapons-reflections-nuclear-arms-control-negotiator>