

Alla Yaroshinskaya, Ph.D.

From Nucleus to Nuclear Targeting and Nuclear Proliferation

The history of the struggle for superiority in the creation of the nuclear bomb extends over 6 key years – starting with the 1939 fascist invasion in Europe to 1945 when the USA carried out its first nuclear test. It is an insignificantly small interval of time even when compared with a human life. By historical measures it is merely an instant. But this instant has transformed, and continues to transform, human existence into that of a permanent struggle for survival in a nuclear world. Today the world is again on the brink of nuclear war.

And it all began absolutely informidably - with the Renaissance of physics in the beginning of 20 century. The cascade of brilliant fundamental discoveries on a boundary of the centuries became a harbinger of humanity's transition to a new era, a new attitude and a new world outlook. I shall name only some of these discoveries: V.K. Rentgen's discovery of X-Rays (the Nobel Prize in 1901), discovery of polonium, radium and uranium's natural radio-activity by A. Besquerel, P. Curie and M. Sklodowska-Curie (the Nobel Prize in 1903), the discovery of the electron by D. D. Thomson (Nobel Prize in 1906), the creation by Einstein of the general and special Theory of Relativity and the formulation of the law of mutual connection between mass and energy that became the base of all nuclear physics (the Nobel Prize in 1921), and the creation of the quantum model of atom by N. Bohr which opened a new round in development of the nuclear theory (the Nobel Prize in 1922).

In 1911, an Englishman, E. Rutherford, opened a nucleus, and since then the term "nucleus" has been one of the basic concepts of modern physics. In 1914, E. Rutherford opened a proton in a nucleus. In only five years, he managed to carry out the **WORLD'S FIRST NUCLEAR REACTION** – transforming nitrogen into oxygen.

In truth, the first 10 years of the 20th century became the Golden Age of physics. (In Russia this same period has gone down in history as the silver age of poetry.) But this Golden Age of physics was really marked by deafening discoveries which have had far-reaching, fatal consequences - down to Hiroshima and Nagasaki.

A decade of calm then followed. But the beginning of the 1930s brought a new wave of discoveries. In 1932, the Englishman D. Chadwick opened a neutron (the Nobel Prize in 1932). The first nuclear cyclotron was constructed by E. O. Lawrence and M. S. Livingston (the Nobel Prize in 1939). Active research on the nucleus with the use of a stream of particles began. The French scientists Frederik and Irene Joliot-Curie bombarded the nucleus by alpha particles, and the Italian scientist Enrico Fermi subjected it to neutron attack. And so begun man-made, artificial radioactivity was opened.

The scientific world, not yet suspecting any sinister outcome, quickly moved toward the creation of a nuclear bomb. It took only ten years.

The discovery of nuclear fission of uranium became the transition to a new, more sophisticated level in the development of nuclear physics. The German scientist, a woman, Ida Noddak, was the first who guessed what happens with a nucleus of uranium during its bombardment by slow neutrons. This occurred in 1934. I emphasize it was in 1934 in Germany.

This is an important circumstance – by then, Germany had been seized by fascist madness. It is distinctly fearful what would have happened had Ida Noddak's work been understood by her German colleagues. It means that Hitler surely would have had a nuclear bomb before anyone else, possibly even available by the beginning of his attack on Poland on September 1, 1939. But, fortunately, Ida Noddak's colleagues did not react at all to her communications.

And only 4 years later, in 1938, German scientist Otto Hahn, who in due time addressed Noddak's discoveries, together with colleagues came to the same conclusion: the nucleus of uranium collapses under bombardment by neutrons. Moreover, it happens in an explosive manner: its particles scatter with huge speed, and the piece of uranium is heated up. This is nuclear energy.

Only after the publication in January 1939 of articles by Hahn and his colleagues, many other physicists around the world understood what was really happening, and for the first time they discussed the possible creation of a nuclear bomb. By then, the physicist Leo Szilard had already written that this possibility was " extremely dangerous to all humanity. "

Somewhere in this period, the free exchange of information ceased among nuclear physicists. Many of them, understanding the global consequences of the development of nuclear weapons, especially during that time, voluntarily engaged in self-censorship. It was extremely important that the insane Hitler would not have the first nuclear bomb. It was clearly apparent to everyone that nuclear weapons were now inevitable – it was just a matter of time.

And what is occurring in Russia at the beginning of the 20th century, a country now the world's second nuclear power? In the beginning of the 20th century, Russia had no time for nuclear physics because there was taking place a succession of revolutions and wars: the bourgeois revolution in 1905 and the socialist revolution in 1917; then World War I. The Bolsheviks called for transforming this war into a civil war, and they succeeded. (Long before Hitler, Lenin constructed across all of Russia concentration camps in which the Bolsheviks let their opposition rot. In the civil war begun by Lenin, 10 million people died.)

During this upheaval, all of Russia's best minds emigrated abroad, mostly to France. Those who disagreed with the new ideology but had not emigrated were deported, while others were put into prisons and camps. It is no wonder that at this time there have not yet appeared any Russian national physics schools, or Russian discoveries in nuclear physics. Russian scientists had no communication with the West, as Stalin's iron curtain now kept our country apart from the global community.

There were just a few exceptions to this: the establishment of The Radium Institute in 1922 by V. Vernadski (he had been given one gramme of radium for his research). And several Russian scientists were given permission to go to the West for training. Peter Kapitsa worked for 13 years at the Rezerford laboratory. One of the future fathers of the Russian nuclear bomb July Hariton also trained there for two years. And the outstanding Russian physicists, L. D. Landau and G. A. Gamov became the pupils of Nils Bohr, while Rontgen's laboratory at the Munich University became the school for A. D. Ioffe.

The Soviets' own physics school began to be outlined only in the 1930s under I. V. Kurchatov's management. He headed the Physical and

Technical Institute, and he began research on the nucleus only in 1932. The USSR's first physics and chemical scientific magazines began to appear at that time, also.

During this same period, many physicists, especially Jewish physicists, left Germany. They left because of ethnic or ideological persecution by the Nazi regime. Many of them arrived in England and the USA. Some of the best scientists were transported to England by Frederik Lindeman, a personal friend of Churchill, who evacuated them from Germany by means of a magnificent "Rolls-Royce" automobile – and these scientists then became part of the English nuclear program. The same was done also by emissaries of the USA.

In 1938, in England, for the first time in the world, GOVERNMENTAL support of and control over nuclear research was established for the military goal of creating a superweapon - a nuclear bomb. A special committee was created at The Aircraft Ministry for this purpose. Thus began the British nuclear program, but England did not become the first nuclear state, nor did Germany.

It is interesting that in April 1940, German and Austrian scientists-emigrants R. Paierls and O. Frish first presented to the head of the Committee Henry Tizard a memorandum "About creation of the superbomb based on nuclear chain reaction in uranium. " They began a campaign to convince the English authorities of the urgent necessity to start working on creating a nuclear bomb. As a result, their offer was accepted, and soon after, the secret " Mode (?) Committee " was created to develop the first British nuclear bomb. By then, a factory to enrich uranium had already been approved as a new project. Britain concentrated its efforts to become the first nation with a nuclear bomb, in order to decide the outcome of the

war. Today, it is possible to draw a conclusion: in 1941, Hitler's Germany was probably the first nuclear target of the probable Great Britain's first nuclear bomb.

But history took another turn. In 1941, the American Banbridge took part in the confidential meeting of Great Britain's Committee on nuclear bomb, and he immediately understood everything. His participation resulted in the Committee deciding to cooperate with the USA in a comprehensive expansion in the nuclear sphere. That decision resulted in the subsequent loss of Britain's nuclear weapons program, although the British did not yet realize it, and even created their own state nuclear program " Tube Ellois (?)".

In 1941, a copy of the British Committee materials casually lay on a table of Vannevar Bush, the head of the US' department of scientific research and development. The fall of that year saw the start of a number of agreements adopted between Britain and the USA about information exchange in the world of nuclear research. Further, the British project of industrial uranium production was rapidly transferred to the Americans.

In 1942, Great Britain accepted the offer of the USA to work on development of the weapon together. In 1943, Roosevelt and Churchill signed Kvebek's agreement that practically closed down the British nuclear project. By this time, the Americans have already "pumped out" from Britain everything that was possible, and British were not necessary for them any more. The British were even not informed of the start-up of the FIRST NUCLEAR REACTOR in Chicago in December 2, 1942, or the beginning of the construction of the factories in Oak Ridge and Hanford. The door had slammed shut for the English scientists. Jumping forward a few years, I

shall tell you that only in 1947 did the British accept the new nuclear program and then spent five years to acquire its own nuclear bomb.

Meanwhile, German scientists-emigrants in the USA were very concerned about Hitler's regime and his preparation for war. Fearing Hitler's ability to create the first nuclear bomb, they sent President Roosevelt a letter along with an appendix on the possible development of the new superweapon. The letter was also signed by A. Einstein, though he was a pacifist for all his life. The Uranium committee was soon created, but no action was yet taken.

Then, in 1940, physicists appealed to Roosevelt repeatedly. By then, the occupation of Europe by Hitler was fully underway. But only on December 6, 1941, after an attack of Germany on the USSR, did the White house agree to start a nuclear program. The next day, Japan attacked Pearl Harbor. On August 13, 1942, the administration of the USA ratified the "Manhattan Project." The colonel Leslie Groves became its head and five days later he was made general.

After three years of enormously intensive work, the construction of factories, and the creation of the first test site, the first two samples of bombs - uranium and plutonium – were achieved. On March 25, 1945, the same scientists Einstein and Szilard wrote to Roosevelt to prevent the production of a nuclear bomb, but they received no answer. On April 12, 1945, President Roosevelt died without having given any orders about the nearly-ready nuclear bomb. (To tell the truth, there are opinions that shortly before his death, Roosevelt considered the possibility of a nuclear attack against the Japanese fleet.) The Minister of Foreign Affairs of the USSR, Alexey Gromyko, in the book "The Memorable" (Moscow, 1988, page 294) writes that about this time, Einstein said: " If I had known Hitler

did not have a nuclear bomb, I would not have begun to support the American nuclear project. " War with Hitler comes to an end.

Attempts to stop the use of nuclear weapons were undertaken also by other scientists. But the train had already left the station. The new US president, Truman, was totally unaware of The Manhattan Project, and was surprised when he learned of the nuclear bomb. In 1945, on July 16 at 5:30 am, the first US nuclear test, "Trinity," was successfully carried out.

At the same time, the Potsdam conference of the leaders of the countries of the antifascist coalitions was held. On July 24, after the ending that day's session, Truman came to Stalin and informed him the USA test of the new weapon surpassing any another had been successful. Stalin, according to all experts, even did not turn a hair. Truman recalled Stalin congratulated him and wished the new weapon "be used against Japan." Did Stalin really state the target for a new American nuclear bomb? In 1945, on May 31, the special Commission of the USA recommended to Truman the use of the new weapon against Japan, having chosen a target in an area of buildings that could be destroyed easily. It was a terrible, inhumane recommendation!

The members of the commission included five politicians, three military policy scientists, and four nuclear physicists - R. Oppenheimer, E. Fermi, A. Compton and E. Lawrence. Among them, only Fermi was not an American.

What was occurring in the USSR at this time re: physics, this period of bloody war against fascism, having lost to it 27 million citizens over four years? As I have already told, until the 1930s, in Russia there was no nuclear school, there only were separate attempts of separate physicists to

deal with the problems of the nucleus. Besides, in the second half of the 1930s, political reprisals began. The outstanding theoretical physicists U. A. Krutkov, and P. I. Lukirsky have been arrested and sent away to camps. On the charge of espionage for the benefit of Germany, the well-known physicist L. D. Landau and others have been arrested. But it was not really the truth. In addition, the Bolsheviks tried to ideologize science. For example, genetics was declared a pseudo science. And something similar occurred with nuclear physics. Theoretical work on uranium had not been forbidden, but as known nuclearist Y. B. Zeldovich recalls, scientists were engaged in it only in the evenings.

All this slowed development of scientific ideas in the nuclear sphere. But beginning in 1933, in the USSR All-Union conferences on nuclear physics started to be carried out on a regular basis. There was intensive work on nuclear particles. It is important to note also that in 1939 (already after Gan and his colleagues) U. B. Hariton and Y. B. Zeldovich published two articles on chain reaction of uranium under influence of slow neutrons. (I believe Hariton's experience in laboratories of Rezerford during his training there helped them to do that.)

In July 1940 in the USSR FOR THE FIRST TIME the question on expansion of work on nuclear issues was included for discussion in the Academy of Science, and the commission on uranium was started. The decision to begin uranium geological prospecting in Central Asia was also made.

But with the beginning of the war with Hitler on June 22, 1941, all nuclear research stopped, and all efforts of scientists have been directed to the development of conventional armaments which were needed at the front.

In 1939 the head of the most terrible departments in the USSR – the People's Commissariat of Internal Affairs (the future KGB) - L. Beriya has withdrawn from abroad some soviet secret-service agents who were then killed or sent to prisons and camps. But on the eve of the war with Hitler, the People's Commissariat of Internal Affairs under urgent orders prepared and sent out new secret-service agents, including to London.

One of the outstanding Soviet "nuclear" spies was Vladimir Barkovsky. He arrived in London by way of Japan, the Hawaiian islands and the USA mainland in the beginning of February 1941. Europe already lay at Hitler's feet. Barkovsky's mission was to find and send to Stalin English nuclear bomb secrets. It was very timely – the British just has actively started to work on the bomb. "London residences became the pioneer in the delivery of such information, " - Vladimir Barkovsky recalled in his memoirs. (Vladimir Chikov. " The bomb, stolen from the safe ". " The Russian Newspaper ". 2001, August 22). In September 1941, the residence of the Soviet secret service in London broadcast to Moscow the cyphered message that Great Britain has created Special Committee for the development and creation of a nuclear bomb. The second message from London described a plant for the division of isotopes of uranium and calculations of critical weight of uranium - 235. Finally, the full report of the British militarists appeared in Moscow.

Since 1941, known German physicist Klaus Fuchs who emigrated in 1933 to England and later worked two years in the USA at Los Alamos, worked for the KGB. It is known that in 1949 he was "suspected" by English special service and kept under surveillance for 14 years for espionage, on the belief that he was a communist. The same is also true for John

Kernkross, the employee of a military department of the USA. Bruno Pontekorvo, an emigrant from Italy, the well-known employee of Enrico Fermi's, cooperated with the Soviet KGB. Frequently, they transferred secret information to the Soviet special service under their own initiative. As Soviet agent Barkovsky says, all his western agents worked for the USSR not for money, but for the cause of communism.

It is a known fact that after arrest of Fuchs, there followed the persecutions of many US people by the House Un-american Activities Committee under the initiative of US Senator Joseph McCarthy. His victims also included well-known physicist Oppenheimer because he shared communism's ideas.

But until 1943, all invaluable materials passed by Western physicists were kept in the cabinets of the Kremlin and Lubyanka (People's Commissariat of Internal Affairs). No scientist was allowed to see them. There were collected about two thousand pages of special scientific material concerning manufacture of a uranium nuclear bomb.

Several months prior to the first US nuclear test, the physicist Nils Bohr wrote to prime minister Churchill of Great Britain advising him to share nuclear bomb secrets with Russia. He believed that unilateral control over nuclear weapons by a single country would lead to heavy consequences for all humanity. Churchill did not listen to him. Bohr's letter to Roosevelt with a similar warning also went unheeded.

In 1942, Soviet nuclear physicist G. N. Flerov, who was at the front, wrote a letter to Stalin about the necessity of developing a nuclear bomb, and explained in non-technical language its design and force. Before the war, Flerov had already discovered independently from western scientists

the phenomenon of spontaneous nuclear fission of uranium – 235. And he knew what he was talking about. His letter reached Stalin at the same time as Beriya's report on England's and America's nuclear bomb programs.

Soviet agent Barkovsky rightly notes that the fault of the USSR's slowness in acting to create a nuclear bomb lies with the chief of the People's Commissariat of Internal Affairs, L. Beriya. If he had considered reports from the Soviet agents more seriously earlier, and had informed Stalin, despite the horrific war, the USSR could have created a bomb earlier than the USA. The question for me is what would have happened in this case? Would Stalin have bombed Hitler and Japan? And perhaps the USA as well? What country would have become the first nuclear target of the bloody dictator Stalin? I do not have any doubts that Stalin would have used a nuclear bomb against Hitler in order to finish faster the war.

At last, on February 11, 1943, Stalin signed the document creating the Soviet nuclear bomb program. The secret "Laboratory № 2" headed by a young nuclear physicist, I. V. Kurchatov, was established. He was the first Soviet scientist to whom all classified documents of the Soviet Intelligent Service were shown. He discovered in the documents two things absolutely unknown to Soviet science: First - a nuclear reactor can work using not only heavy water, but also using graphite. Second – plutonium can be used to make a nuclear bomb and a plutonium bomb requires much less critical weight than a uranium bomb.

There were so many and varied documents from the Soviet agents (studied at the Kremlin and by the KGB) that even if Kurchatov had been a superman, it was beyond his ability to become an expert on all the information. Therefore, despite Beriya's resistance, additional physicists were brought onto the project, including Ioffe and Hariton. They had no

authority to reveal the KGB's secrets and therefore they had to claim the scientific data as their own discoveries. This created around them an aura of geniuses.

By the end of 1944, a single ingot of one kg of pure uranium had been created. In 1945, instead of the, V. M. Molotov, L. Beriya, the head of the KGB, had been appointed the curator of the nuclear project. Millions of Soviet prisoners worked in total secrecy in uranium mines, knowing nothing about what they actually were doing.

The USSR government was rushing its nuclear bomb program, especially after the first test in the USA. The big question was already about the US' nuclear ambitions rather than about Germany's. There was no doubt in Moscow that the USA wanted to destroy the Soviet Union with the help of the new weapon. After Hiroshima and Nagasaki, it became even more obvious. Therefore, Stalin set a strong task for the country's scientists - to create a nuclear bomb by 1948.

Beginning in the summer of 1945, the US military-industrial complex began to develop a plan of nuclear attack on the USSR, to define the targets. The first project (the report № 329) was named " Strategic vulnerability of Russia for limited air attack " and was dated November 1945. In 1948-1949, a detailed plan of bombardment of the USSR was prepared. It was supposed to demolish 70 cities and the industrial centers, about two thousand subjects in total. It estimated that up to 2.7 million people would be killed initially, and 4 million more wounded over a month.

Fearing a nuclear attack by the US, the Soviets began to bluff. In 1947, the Minister of Foreign Affairs Molotov (by the way he was one of the most bloody bolshevik who sent to pamps thousand and thousand innocent

people) declared that " a secret of nuclear bomb in the USSR is discovered" and that the USSR possessed a nuclear bomb, even though at that time two years remained before the USSR's first test. Some Russian experts say it was a holy lie because in this way Moscow tried to protect itself from American nuclear attack. At that time in the USSR in different areas of the country, huge non-nuclear explosions were done to show to the US visible "proof" of the USSR's nuclear testing.

The first real test of a Soviet nuclear bomb took place at the Semipalatinsk test site in Kazakhstan on August 29, 1949. The USSR did not officially declare this test because Stalin was afraid that the USA would carry out preemptive strikes on the Soviet nuclear plants. After that, Fuchs was arrested and Truman announced the creation of the hydrogen bomb.

So the first stage of a nuclear era ended and the second one began – a mad nuclear arms race, mutual targeting, and proliferation of nuclear weapons.

Humanity needed 25 years to get to the Nuclear Non-proliferation Treaty, to try to push the nuclear genie back in its bottle. But the nuclear monster still does not wish to get back into the bottle even after almost 35 years since the Treaty's signing. Over the last few years, we have witnessed just the opposite: the world now faces an increased threat of nuclear war.

Even after the reductions of nuclear weapons by both the USA and Russia according to the START-1 agreement, we have more nuclear weapon now than before signing of the NPT. No country publicly revealed exact figures, but according to western experts published in the magazine

"Nuclear Proliferation", in 2002 Russia had 5,858 strategic warheads and the USA 7,013. According to that source, a year ago Russia had 4,000 tactical warheads, the USA 1,620. Russia had in storage 9,421 warheads and the USA about 5,000. However, do not forget about the nuclear weapons of Great Britain, France and China.

In addition, the general stocks of plutonium are estimated by experts for Russia to be 150 tons, and for the USA 99.5 tons. This is enough plutonium to make 40,000 warheads. The stocks of highly enriched uranium are also enormous: There are more than 1,500 tons in Russia and 944 tons in the USA, which is equivalent to more than 100,000 warheads.

I also want to remind you that during the height of the "cold war," the highest levels of the USSR and the USA nuclear arsenals were respectively 32,000 and 40,000 units. Arjun Makhijani gave the fact in one of his articles that in the 1950s the USA planned to use only 750 nuclear bombs against Russia. US documents in 1954-55 re: nuclear war with the USSR indicate this number of nuclear bombs would be enough to transform Russia " into smoking radioactive ruins within two hours."

It is concerning figures.

Now we shall talk about other countries. It is known, that India and Pakistan have declared themselves to be nuclear powers (they did not sign NPT) and are now teetering on the brink of regional nuclear conflict. The nuclear potential of Israel is also not a secret. Further, 36-44 states have nuclear reactors in Nuclear Power Plants and in research facilities. That is why, according to the CTBT, they possess the technical ability to make nuclear weapons. According to a Russian Special Service investigation published in 1995, 20 countries (!) are on the way becoming nuclear weapons states.

In 1995, at the Conference on the prolongation of the NPT where I worked in the official Russian governmental delegation as an Advisor to the Russian President, it was clearly shown that a nuclear apartheid exists in the world. It looks like there are two ways of overcoming this: constructive - to achieve implementation of Article VI of the NPT- and destructive - to overturn the NPT and to arm ALL countries with nuclear warheads.

It seems the second scenario is developing at a fast tempo and sooner or later it will lead to nuclear war. The statements of one of the most high-ranking international officials is interesting on this point. On January 26, 2004, the Director General of the International Agency of the United Nations on Atomic Energy (IAEA) Mohammed El-Baradei declared that "danger of nuclear war was never so big as now." And further: "The Nuclear Non-proliferation Treaty does not interfere with a state engaged in producing enriched uranium or even buying nuclear materials that can be used for military purposes. If any of these 35-40 countries currently a signatory of the Nuclear Non-proliferation Treaty decides to leave it, it can create nuclear weapon within months. " And it is the truth. I wrote about this in my articles ten years ago. Both then and today, the greatest obstacle to implementing the Nuclear Non-proliferation Treaty is the illegal sale (or confidential sale, on the basis of secret bilateral contracts) of nuclear technologies.

Here is an overview of the largest leakages of nuclear materials during the years of the NPT's existence:

In 1969, (almost right after the signing of the NPT) a German cargo ship set sail from Antwerp with 200 tons of uranium. The ship's documents show that the uranium was intended for an Italian chemical firm. But that cargo ship did not reach its port of destination, Genoa. Many

months later it was located in a Turkish port loaded with other cargo. The international nuclear services has no information about the missing uranium. Only a year later, one of the CIA's employees said 561 wbarrels with uranium was sold to Israel. Theis amount is enough to produce weapons grade plutonium for 33 small nuclear bombs.

In the middle of the 1970s, in the USA, 4 tons of enriched uranium and plutonium mysteriously disappeared.

In 1978, the British department on atomic energy's inventory shows in 1971-1977 100 kg of plutonium disappeared from atomic power stations in Great Britain.

It is relevant to recall that China tested a nuclear bomb in 1964, and a thermonuclear weapon in 1968.

India conducted nuclear tests in 1974.

A nuclear bomb in Pakistan became public knowledge in 1984. It has conducted tests for 4 years.

Sweden possessed all the resources to make a nuclear bomb around 1957, but it signed the Nuclear Non-proliferation Treaty in 1968.

The Republic of South Africa had 6 nuclear warheads in 1989, but in 1991 it signed the NPT.

Most of these countries could not independently develop nuclear weapons or make enough uranium and plutonium as fast as they have acquired these materials. From this, we can conclude clearly that they

have bought all the necessary elements - from the engineering specifications up to fissile materials.

The truth about the black nuclear market is much more terrible than the frightening newspapers and TV accounts. They say that we are being threatened by nuclear terrorists. I agree, because we are being threatened, most of all, by a system of secret bilateral state contracts dealing with nuclear technologies. I have absolutely no doubt of it. Here are the facts:

In 1945-1946, the USA gave information on a bomb to Sweden.

In 1970, the USA transferred nuclear materials and technologies to Israel.

In 1974, the USA, France and Israel shared nuclear secrets with the republic of South Africa.

In 2003, Russia began to build a nuclear power plant in Iran. The last year under pressure of the MAGATE, Iran has admitted that it did receive nuclear technologies, including a centrifuge for enriching uranium from Pakistan.

In 1956-1960, within the framework of the Soviet and Chinese program to transfer nuclear rocket technologies and to train Chinese in high schools of the USSR, nuclear secrets appeared in the Chinese People's Republic.

China has sold nuclear secrets to India, Pakistan and Northern Korea.

Subsequently, a chain reaction was created by these activities:

Pakistan has shared nuclear knowledge with Libya. Pakistan plans to sell a bomb to Saudi Arabia. In October 2003, the New York Post referring to general-major Aaron Zeevi, the representative of Israel Army of Defense, stated that Saudi Arabia negotiates with Pakistan for the purchase of nuclear warheads.

Argentina, Brazil and Syria are probably on the way to creating nuclear bombs.

And certainly it is more likely in these conditions that nuclear terrorists can more easily take advantage of the increasing chaos in the world of underground nuclear trading to achieve regional, if not global, nuclear proliferation. (For example, there was a quantity of so-called mini-mines in the Chechen Republic during the Soviet era. They disappeared after disintegration of the USSR. The CIA and former KGB have led special operations to search the territory of the Chechen Republic, but the results have not been reported to the public.) The same mini-nukes had also the USA during Cold war.

Today according with information China and Israel have technological capacity to produce mini-nukes. In addition to Stockholm International Peace Institute researches China possesses of nuclear landmines and Israel has explosive nuclear devices. But there is no information about sizes, weight and nuclear power of its.

There is no guarantee that an action of a nuclear terrorist will not provoke a chain reaction at a national level. In this, the Middle East is

especially potentially dangerous. And I always await news from there with fear.

The years after the USSR dissolved were characterized by deep stagnation where the nuclear nonproliferation regime was concerned. The situation in Russia (and in the world) has little improved with the coming to power of Vladimir Putin in Russia. The Russian Duma immediately ratified the START-2 and CTBT under his pressure, and this has somewhat improved the international nuclear climate. Then presidents George W. Bush and Vladimir Putin signed the Strategic Offensive Reduction Treaty (SORT) to reduce the nuclear arsenals of the two states by 2,200 warheads each over ten years. However, this Treaty is designed to placate a concerned world rather than to be an effective step to peace.

During this same period, the USA has taken the following steps that have practically broken down the efforts of the international community to stop nuclear proliferation and a new arms race: walking away from the ABM Treaty of 1972; declaring a new nuclear doctrine that allows use of nuclear weapon in local conflicts; reanimating the so-called Star Wars program; constructing national and local MD using space. All these actions only serve to provoke the non-nuclear countries to become nuclear nations by any way possible.

The published parts of the 2002 Nuclear Posture Review of the USA also do not add optimism. Russia and other countries indicated there are like potential nuclear targets of the USA.

Actually, the Russian establishment was shocked by this news from NPR on the targeting of Russia because on January 14, 1994, Presidents

Yeltsin and Clinton signed the Moscow Declaration on mutual non-targeting. (Russia has also signed one with China.)

The experts suppose that the targeting of Russia is the reason why US President Bush could not agree with Putin's proposal to cut down the nuclear arsenals of both countries to 1,500 units. And although Bush could offer no explanation, nevertheless, he also repeated many times that Russia and the USA are not enemies. It is also clear that the nuclear arsenals of Britain, France and China offer no reason to worry. So, why not reduce the number nuclear weapons even further if Russia agrees to do that?

The reason is that although President Bush says that "the preconditions of a choice of the purposes for the nuclear weapon in days of " Cold war " no longer dictate the size of our arsenal, " they actually do. Today, as well as in days of the "Cold war," the threat from Russia's side defines USA nuclear arms planning. Nuclear strategists of the USA continue to believe that for successful deterrence, the United States needs to have an opportunity to limit damage in case of nuclear war. It could be even done preemptively, on 2200 targets in Russia, including 1100 nuclear arms targets, 160 control centers, 500 conventional arms targets, and 500 industrial-military enterprises targets.

I think this number of targets will be reduced if Russia cuts back its nuclear arms. However, on the US side, Bush will not reduce US nuclear arsenals to 1500 units because the US still wants a large number of targets in Russia.

It is interesting to know how Russians view the issue of de-targeting Russian nuclear weapons. According to a 1999 sociological poll, the

majority support de-targeting. Further, only 12% believe that the weapons should be kept in storage, while 82% maintain that missile systems must be kept on full military alert.

It is estimated that, at present, Russia would be able to launch approximately 2,100 nuclear warheads within a few minutes of the command being given; even with the full implementation of START I and II, this figure would still amount to several hundred.

There is still fear among the Russians that they might be the target of nuclear attack from another state. 52% of the poll respondents consider such an attack to possible, while 38% think it impossible. The residents of Moscow and St Petersburg - the most likely targets of nuclear strike - are relatively sure that there is no threat of nuclear attack (62%, against 28% who consider it possible).

Considerably more worrisome is the possibility of nuclear facilities in Russia becoming the target of terrorists. 89% of those questioned believe that terrorists may attack such facilities, while only 7% believe in the security of Russian nuclear facilities that they consider terrorist attacks to be impossible. Strikingly, only 5% of the elderly believe the facilities to be secure.

I do not support sole reliance on de-targeting. For me, targeting is like a lamp. If you switch it off, it does not mean that the lamp will not work. It takes only a second to switch on it again. The same is true with de-targeting. The states involved need only several minutes to retarget their nuclear weapons.

Since the fall of the Berlin wall in 1989, military circles in the USA have continuously created doctrines and justifications for using nuclear weapons against those countries which they believe have or are

developing weapons of mass destruction. The Joint Chiefs of Staff has put forward the new nuclear doctrine which allows use of nuclear weapons in regional conflicts.

The US strategic command, Air Force and Navy have modernized strategic reconnaissance and nuclear arms to more effectively strike targets in any point of the globe.

STRATKOM, apparently, develops lists of the prospective targets which will be transferred to regional commands of US military forces. Moreover, under the new concepts which are put forward by the military, nuclear research centers are developing new types of nuclear weapons of low power - so-called "mini-nukes."

STRATKOM's offers in the field of counteraction to distribution of nuclear weapons consist in the creation of confidential lists of targets, named "silver books." Such "silver books" could be transferred to the European, Atlantic, Pacific and Central commands. According to publications, the first "silver book" is already prepared for commanders of armies of the USA in Europe. An unnamed, high ranking officer familiar with this concept informed "Jane's Defence Weekly" in January 1995, that "the various variants of actions in relation to the countries, the organizations or groups which are the serious threat for proliferation will be collected in "the silver book". Strategic Command is going to create the list of targets and full range of weapon and systems of delivery that can strike every target by nuclear or conventional weapon."

Russia is concerned about an expansion of NATO and U.S. military into territories of the former Soviet Asian and Caucasus republics. For example, Uzbekistan and Georgia have already announced that they are strategic U.S. and NATO partners and U.S. military bases have already been established there. Turkey prepared an airport according to NATO

military standards in Marneuli, Georgia, which can handle many types of aircraft, including heavy bombers. According to Russian military experts, the airport restructuring may be related to the U.S. NMD system and may be used as a place to deploy anti-missile laser weapons systems. These kinds of laser weapons already exist in the United States.

The Bush administration claims its NPR is directed against so-called rogue nations, but geopolitically it will also provide the United States with the capability to control Russian territory. If the U.S. deploys a Boeing-747 with laser weapons on the territories of Georgia, Kyrgyzstan, Kazakhstan or Afghanistan, it will be able to control not only Iran, Pakistan and parts of India, but also parts of China and Russia.

Do leaders of the USA and the NATO believe these countries will agree with such a situation near their borders? It is obvious, that such developments will give them a serious reason to take measures for their own safety. Very probably they will take advantage of it for developing and producing new kinds of weapons, including nuclear.

And who will seriously believe that China will resignedly agree the USA will "cover" Taiwan and Japan by nuclear "umbrella"?

After the publication of part of the NPR in March 2002, Minister of the Foreign Affairs of the Russian Federation Sergey Ivanov declared Russia is not going to destroy some parts of dismantled warheads.

And president Putin declared radical modernization of the Russian nuclear forces. This modernization already has begun. Russia has now also declared it will employ first nuclear strike if there is a threat to national safety. In the recent report by the Minister of Defence of Russia, "Actual

Questions of Development of Armed Forces of Russia," it states that Russia gives active fighting status to nuclear weapons, and it also does not exclude using preemptive strikes.

Flights of NATO aircrafts over the former Soviet countries of the Baltic – new NATO members - have given a new boost to the Air Forces of Russia. In March 2004, the Minister of Defence Sergey Ivanov declared the creation of a new Russian aerospace defense. Work on radical modernization flight systems of TMD, and the ground automated complex for management by space apparatus have already begun.

In 1983, the writer Stanislaw Lem wrote: " Soon after the nuclear destruction of Hiroshima and Nagasaki the American scientists founded a monthly journal " The Bulletin of Atomic Scientists. " And on its cover they have placed a watch whose hands show ten minutes to midnight. They have moved a hand five minutes forward to mean six years after the first successful tests of a hydrogen bomb. The hand moved three minutes more to midnight when the Soviet Union became the owner of the thermonuclear weapon. Its following movement should mean destruction of a civilization according to the doctrine proclaimed by the "Bulletin": " One world or any world ". It was supposed the world will escape only if it united, or else inevitably be lost. None of the scientists nicknamed " fathers of a bomb " did supposed that, despite the increase of nuclear arsenals on both sides of the ocean, despite increased use of plutonium and tritium in more and more exact ballistic missiles, the world being stricken by "usual" regional conflicts, we will last to the end of century." Well, they were wrong. We already live in the 21st century.

It is interesting to monitor the further course of the watch's hand . In 1963, the hand on the magazine's cover showed 25 minutes to midnight. In

1996, after the end of the Cold War the hand showed 30 minutes to midnight. In 2000, one has reversed and showed 11 pm.

In 2001, they have stopped the hand of the nuclear watch on seventeen minutes to midnight. Probably, nuclearists are bigger optimists than I am. It seems to me that India and Pakistan declared an opportunity of an exchange of nuclear strikes in 2002, the US declared probable use of nuclear weapons in local wars, and after that Russia declared the possibility of a preemptive nuclear attack the hand of the nuclear watch should be only one minute before midnight, nuclear amargeddon.

Now at last, humanity should seriously reflect on how to turn this hand back from the brink of a nuclear precipice.