1983
Keep Space Weapon Free

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KEEP SPACE WEAPON-FREE

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Novosti Press Agency Publishing House

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CONTENTS

A Meeting Above the Planet Earth

That day, we thought then, would be unforgettable, but now it seems that it never happened at all.

On that day, July 17, 1975, a Soviet cosmonaut and an American astronaut shook hands high above the planet Earth where the Soviet spaceship **Soyuz** and the American spacecraft **Apollo** had met and docked.

> The joint flight of the Soviet and US spaceships is a major step in the development of Soviet-American scientific and technological cooperation. Its success opens up new prospects for various countries to work together in the peaceful exploration of outer space.

These words are taken from the message of greeting sent by the CPSU Central Committee, the Presidium of the USSR Supreme Soviet and the USSR Council of Ministers to the scientists, designers, engineers, technicians, workers and all agencies and organizations involved in the preparation and accomplishment of the joint mission by the Soviet **Soyuz-19** and the US **Apollo.**

In America that night, CBS newscaster Walter Cronkite said that the handshake in space could

usher in a new era in mankind's advance towards the unknown.

A few hours earlier, just after 3 p.m., the rendezvous in space had been shown live on television. By that time I had managed to lure into my West Side flat in New York the well-known Soviet writer Chinghiz Aitmatov, who was in the city then, and the prominent American novelist Kurt Vonnegut.

Here is a record of their impressions, their first impressions which have not lost their relevance with time and which give us a common sense reference point for what we are going to discuss later on.

Aitmatov: We are now accustomed to incredible events in space exploration. We are really seasoned in that sense. Nothing can surprise us any more, and yet I think that what we are seeing now on the screen is an amazing event in the history of our generation.

I have recently written a short novel whose action unfolds at a time when few people thought about penetrating the depths of the Universe. My book deals with wartime, when people used horse-drawn ploughs. Today the same people have witnessed outstanding breakthroughs in rocket technology, and yet the period that has elapsed is historically very short.

My story is to some extent autobiographic. I tried to describe what I saw and felt at the time. My youngest son Askar read my story in manuscript and asked me in surprise: were there really no tractors then? I replied that there were tractors, but that they were in short supply because of the

war. Now scientific and technological progress has transported us from one epoch into another. What is a mere tractor today? Here we are, sitting in front of a TV-set and not just watching what's going on in space, but feeling somehow involved in the quest by the two great powers for points of contact and for peaceful cooperation with each other.

This is something that affects me deeply. To all appearances, we are just calmly sitting and watching the tenth or twentieth live transmission from space. But it compels us to ponder the titanic power of human intelligence. I sit here and think that—touch wood!—this is how it should always be: no rivalry up there, in space. I wish there were no rivalry on Earth, either.

Vonnegut: What we are seeing now is magnificent. But then I think the very fact that we are having this talk is remarkable. We understand each other perfectly. Even before we met I had no difficulty understanding Aitmatov, because we are both writers, and we have common interests, common concerns and professional secrets. You say two nations are now meeting in space. But we have already met. You are familiar with American literature and we, too, know yours to some extent. Then we also met on the Elbe. That was a meeting of tremendous importance, which put an end to war in the blood-stained fields of Europe. I was freed by the Red Army. When our armies met to shake hands it did not seem anything special: death and destruction still reigned all around us. War

is a terrible disaster, you cannot be romantic about it. But that was the first time our nations, linked by a common goal, had met each other. Now we have this new meeting, and what a meeting it is!

So far as I know, there has never been any hatred between our nations. Ask any man in the street if he hates the Russians and he'll be surprised: why on earth should he?

Of course, we still have some maniacs voicing their views but they are just black sheep.

Aitmatov: There are no major confrontations in the world today, and we have managed to avoid a new world war for 30 years now. Nevertheless, there are still many things that divide us for many reasons—historical, political and social. No one says that we must preserve these controversies as they are. The meaning of life is, probably, to keep searching for solutions to these or other problems. Such attempts are being made in various spheres. One example is what you and we are doing in literature and culture when we try to influence closer spiritual and cultural ties among nations and when we speak up for exchanges in spiritual values which can and must contribute to the development of a noble way of thinking meant to promote the prosperity of the whole world.

Another example is what is going on in front of our eyes, when our cosmonauts and your astronauts are working as members of one family and doing one great common job.

is this meeting not a meaningful symbol and a promising beginning? Shouldn't new vistas open up for us in its wake? Shouldn't we see it as an attempt to find a symbolic example of action amid the controversies of modern life? After all, what we are watching now is not just a technical achievement. Here I see a very important aspect of the moral and ethical relations between our two countries. Let us recall what sort of relations we had in the postwar period. Now we have cut a window into space. Through this space window we see each other in a different light, in a different dimension.

Vonnegut: I think our two countries both believed they would have greater strength in the face of their adversaries...

Aitmatov: Well, if one is to seek a source of strength in confrontation alone, one should maintain a boxing stance all the time. This forces one to be collected, on the alert and ready to fight back or attack any moment, but that is not what I call life. We must remember that during such confrontation the millions of people do not stay away but are involved in this process in one way or another and suffer from it. We all only live once. There comes a time when each person reaches physical and intellectual maturity, when he has to comprehend and explore the world, to assert himself and to fulfil his destiny. Must he really sacrifice all this and feel like a boxer instead all the time, punch somebody or take the blows of others?

Vonnegut: Our civilization must be sufficiently mature to say: yes, we now know how to go to Venus. That is exactly what we'll do in time. There's no hurry. Venus is not going to vanish from the sky. Let us be wise, instead of being excited children wanting to get the upper hand over another group of children. Let us pursue our goal gradually and by joint efforts.

I really admire the speed with which the Soviet Union recovered from the Second World War, that it has such magnificent technology and is setting an example in scientific endeavour. We have what we call American football in which players can get killed during a game. Bellicosity may be rooted in a country's history: it has never run into strong opposition.

Slowly but surely we are changing. One example is our cooperation in space. But I want to cite an example from a different field. Today we no longer admire the kind of strong muscular man who crushes his adversaries. If anyone insults your wife, you no longer have to kill the guy. And if you are overwhelmed by emotion, you're no longer forbidden to cry. But when I was a boy in Indianapolis, my buddies taught me how to walk down the street with a terrifying face. It was fashionable. It was the accepted thing in the America of that time. Now you no longer have to look like a bully. I think our leaders are taking into consideration these changes in the national character. I don't want to get the upper hand over the Soviet Union in anything. The next breakthrough will probably be a

cure for cancer. I don't care where it is made: in the Soviet Union or in America. Of course, there is a field in which we must be firm. It is business. I would prepare very carefully for business talks with Soviet negotiators. While we are sitting here and talking we like each other, but we can't be so charming when deciding how much money is going to change hands and on what terms.

Aitmatov: I would like to suggest collecting our thoughts together or they will scatter away like sheep in the mountains. I want to return to encounters in space and to what's happening this very moment before the world's eyes. We can interpret this broadly from various aspects: historical, social or routine, but whatever way you look at it, it is a milestone, it fills the papers, radio waves and all channels of information. Each person will try to comprehend, evaluate and examine it from his own point of view so as to decide what it promises for the future.

We are living in a troubled world. There are social, national and other conflicts and passions raging on the planet. History is made in continuous struggle, and it is from this earthly chaos that something new is emerging today, which ennobles mankind in its own eyes and shows its real worth. What is happening now in space is a precedent which we are going to refer to for a long time to come. We will be saying that there was indeed a moment like a flash of sudden realization when the two mighty forces moved towards each other

not to destroy but to unite. I hope very much that this event will be reflected in many spheres of life and, notably, in the development of culture, in mankind's thinking and in its perception of various aspects of society's life both in its individual manifestations and on a global scale. As far as I know the feelings of the Soviet people, this is exactly what interests us most. We all know that space can be used for military purposes too, and we do not want it to be thus used. Some positive changes would seem to be occurring in the collective human intellect. I would like to believe that this is really so.

Yesterday we returned from San Francisco. As we walked about the city, people looked at us on hearing that we spoke Russian, some of them came up to us, said hello and made the thumbs-up sign, referring to our joint accomplishment in space. No words were needed. But there were other people, too, who doubted that the whole thing was worth the dollars spent on it.

I don't want to censure or accuse people who try to convert everything into money. For them, money in the long run must have some tangible, material manifestation: a lipstick, a skyscraper—you name it. But when the result is not something they can touch, they think that money is being thrown down the drain.

It is clear enough that space exploration requires big material outlays, and this question naturally concerns everyone. I noticed this on the very first day of our stay

in Washington at the first-night performance at the Arena Stage theatre of my play "The Ascent to Mount Fuji" co-written with Kaltai Makhumedzhanov. The audience came alive and grew really excited where one of the play's characters, agronomist Dosbergen argues that we do not need space research. An argument rages and he makes the following remark in the heat of the dispute: "Give me rain when it's needed and stop it when it's not. What's the use of this space research of yours otherwise? I am not going to plough or sow in space!" The audience rumbled in response to his words. But the next utterance made by his wife Almagul, who showed that it was essential to know what was going on around the Earth to control the climate, was received by the audience with equal understanding and respect. That was a familiar enough situation. At the Sovremennik theatre in Moscow this scene sometimes brought a similar reaction from the audience as well.

It is true that the money invested in space research could be used for something else. But I think that human society has some unavoidable super-tasks which just have to be resolved if there is to be progress.

Yes, no matter what we might say or do, the inevitable happens anyway: science and technology develop and history marches on. What does this development bring in its wake? This is the main problem, and our primary task is to steer this process in the right direction, the direction of genuine progress and human happiness...

That was the optimism expressed by two prominent writers—and the majority of people in the United States and the USSR as well—in 1975.

To cite just one example of this general feeling here is the opinion of Willis Shaplie, Assistant Director of the US National Aeronautics and Space Administration (NASA):

> I hope with all my heart we are now seeing the first step along a long road of Soviet-American cooperation in space leading to a noble goal. Joint projects would help us share the tasks and expenses and so more quickly reach the goals we would attain later if we were working on our own. As a NASA manager I know how expensive projects of the Soyuz-Apollo type are. But I also know that the money we have already spent and are going to spend in future on similar joint scientific and technical experiments could not have been better spent. I hope this mission will be an inspiring example not only for our continued cooperation, but for the development of international scientific research in general.

Oh, those good old days! One cannot but feel sorry comparing this statement by Shaplie with a recent pronouncement by US Air Force General Bernard Schriever (Ret.). In the 1950s he was in charge of the Air Force rush program to build intercontinental ballistic missiles to bridge the so-called "missile gap" which was later admitted to have never existed at all. As chief of the Air Force Systems Command, Schriever was the man who launched the programs involving the military use of Earth satellites. This is what Schriever has said with his martinettish straightforwardness:

> That phrase "space for peaceful purposes"—I never understood why the hell it was put in the National Aeronautics and Space Administration Act in the first place. If I were to fight a war, I'd prefer to fight it in space, rather than on the ground or on the seas. Now what's so special about keeping space free from war? I can't see it... If we could get wars out in space, we'd be a hell of a lot better off here on earth. "Space for peaceful purposes" was a lot of pap for the public, that's all. That's all it was. You don't hear it anymore.

Well, you certainly do not hear it from the present Administration.

The Soviet-American agreement on cooperation in the exploration and use of outer space, signed in 1972, was renewed in 1977, but, since the Reagan Administration refused to prolong it, it expired on May 24, 1982.

The talks scheduled to be held around that time in the Soviet Union to discuss new agreements on cooperation in the field of planetary research were cancelled. The working groups tackling specific aspects of joint research in the fields of space meteorology, environmental studies, lunar and planetary studies, space biology and medicine were disbanded. The last meeting of a Soviet-American working group on the future of joint flights was held in the fall of 1977. The next meeting scheduled for the spring of 1978 was postponed indefinitely.

Note that all this happened before the events in Afghanistan or Poland, which have supposedly caused the current deterioration in Soviet-American relations. It all began much earlier. The events in the above countries were used merely to speed

up the process and to justify it by shifting dates later on.

The only surviving field of space cooperation today is the international KOSPAS-SARSAT program to detect ships and planes in distress and to organize rescue operations.

When the ancient Romans first advanced the motto **ad astra**—"to the stars"—they were hopefully guided by peaceful intentions. The Soviet Union, the first country to step towards the stars, called for peaceful cooperation in space exploration. Yuri Gagarin, the first man in space, said the following remarkable words:

> Is our Earth not a spaceship flying in the expanses of the Universe? This ship belongs to all of us, to all nations, and its crew must live in peace and friendship.

Preparations for "Star Wars"

The day of July 4, 1982, was a fine day everywhere in the United States. It was Independence Day, the day of patriotic fireworks. In the evening one TV commentator said that the Americans had been offered a "well produced show." It was no mere chance that it was also the day when Columbia returned to Earth. The first American reusable spaceship was launched under the National Space Transportation System program which is better known as the Shuttle program.

As **Aviation Week and Space Technology** reported later on, the Shuttle had orbited the Earth one extra time so as not to land too early—President Reagan had to have a good sleep. In the opinion of that professional magazine, the additional orbit involved a risk—the astronauts would not have been able to land at Edwards later that day if something had prevented the scheduled descent. This detail shows the degree to which the White House is anxious to reap political dividends from technological advances. But everything went well, and those who watched the descent on TV had every reason to admire the achievements of the American technological genius.

This technological genius may become, however, an evil genius if people do not maintain a high intellectual level in human affairs. This is scientists' responsibility for their creations. The problem has always existed but has never been as acute as it is now after the appearance of diabolical means of mass destruction.

One of the reasons behind the arms race today is the inertia of the flight of technological thought (which is high in itself), the we-can-do-that-too spirit. As a result, some of the new weapons systems are developed in design bureaus purely by force of inertia, and not because there is a military need for them. Only after these weapons have been developed do the military invent a function for them, pondering over what these weapons can blow up or incinerate, and what place they should be given in the growing arsenal.

The Soviet Union has long been proposing that this dubious progress should be slowed down and stopped. On the day when President Reagan saluted Columbia at the Edwards base, the UN General Assembly Second Special Session on Disarmament was sitting in New York. The Soviet Union, in its memorandum to the session on ways of averting the growing nuclear threat and curbing the arms race, again proposed renouncing the use of scientific and technological advances for military purposes. As if in reply to the Soviet proposal, President Reagan in his speech at Edwards dwelt on the contribution of space research to "national security". He said that the landing of Columbia, and the completion of test flights signalled America's entry into a new era. The President announced that he had recently approved a directive on national policy in space and made a relevant statement for the press.

The statement summed up the results of the ten-month-long research and analysis conducted by an inter-departmental government group. The main feature of the directive was a greater emphasis on strictly military goals in space programs. Newspapers noted at once that the document had been formulated in the tough policy spirit.

The directive says that the US space program will consist of two separate, clearly outlined and closely interrelated parts—a national security program and a civilian program. Priority is given to enhancing the security of the United States, and measures to prepare for war in space are envisaged in its framework.

Strictly speaking, preparations for war in space did not begin with this directive. It is enough to recall the classified document on military planning for the next five years, which was signed by Defense Secretary Caspar Weinberger in March 1982, that is, three months earlier. Charles Mohr of the **New York Times** reported that Weinberger had instructed the services of the armed forces to build prototypes of space-based weapons in order to "be prepared to deploy fully developed and operationally ready systems should their use prove to be in our national interest". There is also a program for advanced research in military space technology.

Ronald Stivers, Assistant to the US Undersecretary for Policy, observed that it was a historical fact that whenever a new environment opened up to man, it was used to gain military advantage. The course of world development had often been changed by that country which was the first to grasp the advantages opened up by the use of the new environment's military potential, he noted.

Shivers' observation may hold true for the past in many respects, but not for the future, which is implied, for he repeats the mistake of the many generals preparing... for the last war.

Just as "air power" had its supporters in between the First and Second World Wars, such as Italian General Gulio Due or Billy Mitchell of the United States, who taught that wars could now be won from the air, "space power" has its supporters, who believe that the wars of the future may be won from space.

In his book **The New High Ground** Thomas Karas calls these supporters the "space mafia" and describes their credo as follows:

> Although the "space guys" are not unanimous on all points, they do agree on several ideas. They think the time has come to treat space more as an arena of military operations and not merely as an arena for research and development. They say we need to plan for and spend more money on the weapons for space that are now on the technological horizon...
>
> Many of them believe that the United States can use space to obtain a substantial, if not decisive, military advantage over the Soviet Union (and that if we don't get that advantage, the Soviets will).

Colonel Morgan W. Sanborn, USAF (Ret.), who now holds an important position in Rockwell International, can well be regarded as a man from the "space mafia". He reasons:

> Past civilizations have risen and fallen and the West seems to be in decline. The US needs to do something to reduce this decline and the ascendancy of the Soviet Union—a bad trend for our nation. Space

is an area where we might establish new goals, galvanize public opinion, regain our momentum.

Thinking about its own space business, Rockwell International published a booklet entitled **Space: America's Frontier for Growth, Leadership and Freedom,** not without Sanborn's help. The booklet talks of various unfavourable trends, which will lead the United States "...to find itself in an increasingly precarious position, beset with problems both at home and abroad". These trends include decline in economic growth, growing dependence on imported fossil fuels, loss of military advantage, and decline in national morale. Space technology, concludes the booklet, can make a major, perhaps decisive contribution to the reversal of these trends.

Rockwell International even suggests a three-stage plan for gaining military superiority over the Soviet Union in the next thirty years. At the first stage, in the 1980s, the United States continues to improve reconnaissance, navigation and other satellites. In the 1990s, the US can progress so far that space systems will offer "decisive support" for its military forces. Absolute space superiority should be reached by the year 2010. By that time Rockwell plans to put into near-Earth orbit a geostationary space base — a large fortress, an all-seeing watchtower permitting "direct, rapid, and reliable command and control of all military forces". The station will be protected by a laser device.

So, as we see, the Pentagon regards space (as it regards Europe) no more than another theatre of operations. Undersecretary of the Air Force Edward Aldridge even expressed his surprise in an interview with the **New York Times,** saying that there was nothing new in the military use of space, and that the United States had always been en-

gaged in this. And here are the words of Lt.-Gen. Richard Henry, one of the heads of the US Space Command, which will be described later on:

> Space is not a mission, but a place. Space is a theatre of operations, and it is high time it were treated as such.

One more reaction to seeing space as a theatre of war. Sai Reimo, head of the space technology lab, is gladdened by the prospect of space exploration increasing the area of cubic kilometres in which the United States can deploy its strategic forces.

The most absurd argument in defence of "star wars" is the hope of moving combat out into space. Those who hope to do so apparently think that there, in far-off space, the winner will be determined in what they see as a contest between knights of the Middle Ages. Herman Kahn, a leading "armchair strategist" and futurologist, who died in 1983, predicted the coming of the day when "pure wars" in space would be possible.

To believe him, it will be possible to square earthly accounts in space.

The opinion of the "armchair strategist" is shared by a practitioner — US Undersecretary of Defense for Policy Fred C. Iklé. He stated that implementation of the Pentagon's space plans would move war to a place where there are no people.

These optimistic views are challenged by Richard Garwin, a consultant at International Business Machines, and former adviser to the President on military matters, who was involved in the building of the H-bomb and other military programs. Speaking before a Senate committee, he warned that war in space was just a prelude to war on Earth, not an alternative to it. Thomas Karas agrees with him:

> We cannot hope to make the Earth safe from warfare by moving combat into space. Military systems in space are designed to produce military advantages on the ground.

And, finally, here is an account of what **Defense Monitor,** the bulletin of the Washington-based defence information centre, writes on this score:

> The phrase "war in space" has an almost benign connotation in that it seems to imply that we can move our armed conflicts out into space where nobody has to get hurt. Indeed, military men have spoken of space as an arena where a "show of force" might be made at minimal cost. The military value of space systems, however, stems from their contribution to fighting capabilities on land, in the sea, and in the air. Space may be a place where wars in the atmosphere are extended, or it may be a place where wars start, but it will not make war safe for mankind.

Space Version of the "Soviet Threat"

The directive on national space policy which we have already mentioned speaks of the need to maintain the US lead in space. The use of the verb "maintain" and not "establish" is indicative: the United States claims it has the "lead".

Yet all American space programs are traditionally justified by a need to "catch up with the Russians". This is done by analogy with the already classic "missile gap", "ABM gap", and the "window of vulnerability" invented by the Reagan Administration.

Richard DeLauer, Undersecretary of Defense for Research and Engineering, spoke in detail about the "space lag" in the arms control subcommittee of the Senate Foreign Relations Committee on September 20, 1982. He scared the audience with large numbers of Soviet satellites, the Russian combat anti-satellite system, the Russian lead in the development of directed-energy weapons, and the development of the potential for the generation of high-peak signals in the microwave frequency, which had an especially sinister ring. By way of conclusion, DeLauer said: "Yet... given the alarming rate of Soviet spending for space activities, it would be imprudent for us not to be prepared to defend our interests there, as anywhere else."

Speaking before the subcommittee on the same day, Eugene Rostow, the then Director of the US Arms Control and Disarmament Agency, expressed similar views. He focussed on the alleged "anti-satellite gap". Rostow said he saw no balance in that area at present, and announced that, to his knowledge, the Russians had an anti-satellite system ready to be phased in. To make the picture even more horrifying, he attempted to scare the rest of the world by saying that the development of anti-satellite weapons by the Soviet Union posed a threat not only to the American satellites, vital for national security, but also to satellites belonging to other countries.

The American press has no doubt whatsoever that the Soviet Union "has already developed and space-tested its anti-satellite weapons". More often than not, lasers are implied, but sometimes references are made to "military platforms in space" which "the Russians are about to build". The **Washington Post,** for one, reported on March 21, 1983, that in late April the Soviet Union might begin the construction of such platforms.

Specialists are more cautious in their statements. Thus, Deputy to the Air Force Chief of Staff, Lt.-Gen. Kelly Burke expressed doubts about the potentialities of anti-satellite systems. He said that for the time being these systems would not be able to destroy ballistic missiles or major military satellites which were either shielded against lasers or were in high orbits. Yet the General also scares his compatriots with the gloomy political prospects of possible Soviet achievements:

> The Soviets' main purpose in orbiting a laser weapon first will be to make political gains by creating a worldwide im-

pression of leadership, as they did in 1957 with the sputnik satellite.

US space militarization programs are thus being justified either by the need to "catch up" with the Soviet Union, or by the need to prevent the Soviet Union from catching up with the United States. And all those who feign panic keep silent about Soviet proposals on preventing the militarization of space and Soviet readiness to hold talks on banning anti-satellite weapons, talks for which the US side is not ready. But this subject will be discussed in more detail later on.

They also say nothing about the fact, admitted by American sources, that this "gap" was allowed to occur with the intention of obtaining a better weapons system. Colonel Earl Van Inwegen, deputy director of the Air Force Space Directorate, stated that the Soviet Union was well ahead of the US in that area and added knowingly:

> Not that we haven't been working on it, it's just this technological enamorment we have—we want to make the thing the best, the most sophisticated.

In his book **The New High Ground,** Thomas Karas writes that the Soviet Union is unable to hit the high-altitude geosynchronous satellites, communications satellites, and so on and so forth. Meanwhile, the public, not well-versed in space technology, is being told about Soviet anti-satellite weapons which are supposed to be almost all-powerful. "The usual justification for the US anti-satellite program is the existence of the 'operational' Soviet interceptor satellite," writes Karas, and this is indeed the justification used in propaganda.

Specialists are at times more outspoken. In 1979 Seymour Zeiberg, the Pentagon's deputy chief of

research for strategic and space systems, testified before a Congress committee. He stressed that it was important not to couple US anti-satellite program with the Soviet anti-satellite program. He also said:

> The principal motivation for our anti-satellite program is to put us in a position to negate Soviet satellites that control Soviet weapons that could attack our fleet. That differs, in my mind at least, from a consideration that if they have one we ought to have one and we can develop some deterrence in the use of anti-satellite systems.

Brigadier General Ralph Jacobson, then the Air Force research chief for space systems, testified before another Congress committee in 1981. He explained the real reasons behind the development of anti-satellite weapons by the United States:

> The ability of the Soviet Union to use military power on a worldwide basis is increasingly dependent on effective and reliable operation of various satellite systems. These systems enhance the performance of Soviet surface, sea and aerospace forces and represent a major threat to US and Allied sea, ground and aerospace forces. Thus, the US has a legitimate military need for an ASAT capability to remove the current sanctuary status the Soviets enjoy in space. In addition, posing a threat to Soviet satellites may help deter Soviet use of their operational ASAT capability.

The allegation about a "Soviet threat" in space, and the ensuing "need" to match it with an American threat are, as we see, mentioned by General

Jacobson only as an addition, a bow to routine propaganda.

The main point is the Pentagon's stubborn desire to "surpass" the Soviet Union in any field of military technology, a desire which is the main driving force behind the arms race.

Milstar, Navstar and Other Technicalities

The US record in the military space race also shows that the allegations about a US "space gap" are far-fetched and politically motivated. The United States has not been idle in this military field, nor in any other. Both Reagan's directive of July 4, 1982, and Weinberger's classified document on military planning merely accelerated the militarization of space which was already underway. As early as May 13, 1978, President Jimmy Carter signed Presidential memorandum 37 urging activities in space in the interests of ensuring the right to self-defence in order to strengthen national security, enhance deterrence and guarantee compliance with arms control agreements.

The military use of space began with its exploration. In the estimate of West German expert Gunter Paul, cited in the bulletin "Parlamentarisch-politischer Pressedienst" on July 8, 1982, about 1,500 military satellites were put into near-earth orbit from 1957 to 1977. There are currently about 4,500 man-made objects in outer space.

Satellites are classified in the following way:

— Weather satellites, which transmit information about the weather, information which the military need along with other people.

— Reconnaissance satellites for surveillance in the visible and infrared radiation bands. They have special optical equipment. The pictures taken may be dropped to Earth in special capsules, or the film may be developed on board the satellite, and the pictures transmitted by television. This system operates on the US Big Bird satellites. A Big Bird satellite weighs 14 tons.

— Ocean reconnaissance satellites for detecting enemy naval forces. The US press writes that some of them can determine position to within 16 metres.

— Missile early warning satellites, which report the launching of missiles immediately after they have been launched or, if the sky is overcast, immediately after the missiles break through the clouds.

Richard Halloran described the work of the early warning systems of the North American Aerospace Defense Command (part of the NORAD Cheyenne Mountain Complex in Colorado) in the **New York Times** on May 29, 1983, as follows:

> Officers explaining the warning system said that seconds after Soviet missiles lifted out of silos in Siberia and their rocket engines ignited, green-screened consoles would spring to life here, high-speed teleprinters would chatter, and battle staffs would swiftly come to full alert in a missile warning centre, a space computation centre, and the Norad command post. At the same time, that information would alert duty officers in Washington; the Strategic Air Command in Omaha, and other command posts around the world.

Halloran went on to describe two separate screens similar to a row of clocks with a digital

decimal dial. One would show the time of the very first launch, others would point to the number of approaching missiles, and still others to their general direction. Other devices would indicate the number of missiles that were still in flight, and the time before they would reach their targets.

To continue with the classification of satellites:

— ELINT satellites for electronic intelligence gathering and for jamming enemy electronic signals.

— Communications satellites, acting as long-distance communication relay stations. They are part of NORAD.

— Navigation satellites that help submarines and ships to determine their position with supreme accuracy, thereby enhancing the accuracy of their missile targeting.

The press reports that the Navy is working on satellites with nuclear energy sources for continuous surveillance of the oceans in any weather. The Grumman Aircraft Engineering Corporation is developing powerful radars for satellites that will eventually be able to detect aircraft in the air and tanks on land.

The United States is planning to build by 1987 a Global Positioning System (GPS), also known as Navstar (the Navigation System Using Time and Ranging). The system will consist of eighteen satellites, ten or so of which are already in orbit. When all of them become operational, any soldier, pilot or sailor with a GPS receiver will be able to determine his exact location to within 50 feet, that is, 15 metres.

Such accuracy will open up a host of opportunities to the military: pilots will be able to bomb more accurately, helicopters will be able to land in pitch darkness and artillery attacks will be much

more accurate. The Navstar satellites will also be fitted with nuclear-explosion detectors, making up the IONDS—the Integrated Operational Nuclear-Explosion Detection System. It is believed that in a nuclear war this system will report on where nuclear warheads detonate and what targets have been destroyed. If a missile fails to detonate on target, a follow-on weapon may be fired immediately.

It is a fair assumption that in the event of a nuclear conflict the ground-based stations controlling communications satellites will be destroyed. The US Air Force is therefore working on a special communications system called Milstar (Military Strategic-Tactical and Relay) which is to be built by the end of the 1980s. The system will consist of four satellites in stationary orbit, three satellites in polar orbit and one reserve satellite. These satellites will orient themselves automatically by stars and maintain communication with airborne headquarters, heavy bombers, missile command posts and nuclear submarines.

This autonomous system is an important element in ensuring what the Pentagon calls a "nuclear warfighting capability".

In the 1960s it was assumed that the President, who is also Commander-in-Chief, and his closest military advisers would be safe and sound in their bunkers in the event of a nuclear strike. Now that assumption has vanished through the "window of vulnerability", that is, with the increased accuracy of nuclear missiles. This has raised the problem of "C-cubed", or "C^3"—control, command and communications. It is the nervous system of the nuclear arsenal.

Presidential Directive 58, adopted under Carter, provided for measures to enhance the mobility,

shelter and protection of the President and his successors in order to ensure the "continuity of government". The same problem of "continuity", but as regards control of military operations, was raised earlier in Presidential Directive 53. And, finally, the best known Presidential Directive 59, on nuclear warfare, put the task of "survival" on the top of the list of priorities for command and control structures. At the same time it raised the task of destroying the enemy "C^3", a task often defined as "decapitation".

In 1978-1980 the Pentagon tried to persuade Congressmen to earmark funds for the Strategic Satellite System—Stratsat. The proposed system was to have consisted of satellites on incredibly high polar orbits (almost half-way to the Moon), and would therefore have been out of range of any foreseeable anti-satellite systems. Stratsat was designed to wage a protracted nuclear war.

Secretary of the Air Force Hans Mark explained in 1980:

> I think the judgement... has to be made on the basis of how important you believe survivability after a nuclear exchange is... I would regard the investment in such a satellite system as an investment in something that surely would survive a nuclear exchange.

Congress, however, refused to approve the requested 3,500 million dollars for something that would survive a nuclear war.

It was then that the military came up with Milstar, which is assigned the same task, that of maintaining troop control in a protracted nuclear conflict.

Maj.-Gen. Gerald Hendricks, vice commander of the Air Force Space Division, boasts:

> Milstar is designed to be a warfighting system. The first of its kind. It will work during all levels of conflict, have world-wide two-way communications, and be survivable and enduring.

The system is intended to maintain space-based control of troops regardless of what is going on below, on Earth. Milstar satellites are supposed to be equipped with manoeuvring devices enabling them to evade interceptor satellites.

Given the existence of such versatile plans, it is easy to imagine the military burden of re-usable spaceships. In July 1982, during the flight of Columbia, radio amateurs could hear mysterious orders transmitted to the astronauts:

"Carry out Alpha, Bravo."

"Foxtrot—finish."

"Do it again: Charlie, stage three."

The West German magazine **Der Spiegel** reported that these orders were given while testing a highly sensitive intelligence device installed by the military on board the spacecraft.

Thirteen out of the 44 shuttle flights scheduled for the period up to 1986 will be of a strictly military character. Before 1994 the Pentagon plans to carry out 114 shuttle flights in its own interests. A new space centre is being built for these purposes at the Vandenberg air force base in California, less than 100 kilometres from Reagan's ranch. The bulk of the space shuttle's military flights will start from here as from 1985, and reconnaissance satellites will be launched to polar orbits from this centre as well.

Yet no matter how ambitious they are, plans sometimes have to be revised. In November 1983, for instance, the Air Force planned a shuttle flight which was cancelled because the cargo was not

ready. The Air Force is now planning another space shuttle flight under the Slick Six program in October 1985.

The space shuttle was developed by the National Aeronautics and Space Administration (NASA). But, as Richard DeLauer, Undersecretary of Defense for Research and Engineering, declared, the Pentagon seriously intends to include the space shuttle and relevant technology into the plans for the future use of space. Experts believe that the programs of most shuttle flights will primarily be tailored to military purposes. It is not accidental that Senator William Proxmire asked to what extent NASA was acting as an instrument of the Defense Department.

Space Command

In 1981 Congressman Ken Kramer from Colorado Springs (future Space Command's headquarters) tabled a bill to the House on renaming the US Air Force the "Aerospace Force". He was only a little ahead of events.

The Space Command, with its headquarters in Colorado Springs, became part of the US Air Force structure on September 1, 1982. The military space departments were reorganized as well. Air Force Chief of Staff General Lew Allen said that the head of the new command would coordinate the planning of military actions in outer space. He added that the ongoing research and development in space weapons would soon make it possible to carry out military operations in space.

The Space Command will control all military satellite missions and space shuttle flights with strictly military aims, be responsible for any future flights of manned military space vehicles, carry out a considerable part of research into laser weapons, and supervise the development of anti-satellite weapons. The new command took over the NORAD aerospace defense system, and the latter's commander, Lt.-Gen. James Hartinger, was appointed first chief of the Space Command.

The setting up of the Space Command in the Air Force immediately triggered off a bureaucratic squabble. Already in the summer of 1983 the Air Force recommended the Chiefs of Staff to place the operation of all other services of the armed forces in space under control of the Space Command.

The Navy objected. They have their own system of communications, weather and reconnaissance satellites which serve US fleets all over the oceans round the clock. The Navy gets an impressive flow of information from space: the commander of a combat group including an aircraft carrier, several surface ships and two or three submarines sends and receives 40,000 radio messages a month. As a rule, the Navy has eight groups of this kind.

Vice-Admiral Gordon Nagler, chief of the Navy's communications, asserts that there is no need for a unified command. He said that he could not see what functions it should have and in what way it would help the Navy to improve troop control. On October 1, 1983, therefore, the Navy set up its own space command with headquarters in Dahlgren, Virginia. It was reported that the new command was the "functional equivalent" of the Air Force's space command.

However, the Air Force has not abandoned its idea of putting all military space activities under its command. It proposes that these activities be centralized at the Consolidated Space Operations Center (CSOC) which is under construction in Colorado Springs. According to Richard DeLauer, the Center will have two main missions—control of military satellites plus supervision of the space shuttle flights (planning, command and control). This fu-

tunistic centre will cost 1,400 million dollars and will be completed in 1987.

There are, however, difficulties involved, which are largely connected with the same bureaucratic red tape and the duplication of autonomous programs. After studying the problem, the General Accounting Office (GAO) published a report in January 1982, concluding that the CSOC lacked proper management by the Department of Defense. It even recommended that the project be frozen until relations between different services of the armed forces and different space programs were sorted out.

Discontent is also voiced by those who will have to curtail or stop their activities when the Center becomes operational. The space shuttle's military missions are now controlled by the Johnson Space Center in Houston, Texas, while the Satellite Control Facility at Sunnyvale, California, is in charge of military satellites. It was reported in January 1983 that the commissioning of the CSOC, scheduled for 1987, would be postponed for another six months.

The Anti-Satellite Problem

In June 1983 the **Washington Post** described anti-satellite weapons as a serious business. If one side has effective anti-satellite weapons, it can theoretically "blind" the other side, i.e., kill its capacity to control its own strategic forces and to monitor enemy forces from space. "Just the fear that one side might attempt such a blinding strike in a crisis could force decisions of irreversible consequences," wrote the newspaper.

Anti-satellite systems are an integral part of the Pentagon's five-year arms buildup plan, made so by the US Secretary of Defense, Caspar Weinberger. In a relevant document, the US Defense Department says that the United States must acquire a capability which will allow it not only to disrupt the functioning of the enemy space systems, but also to destroy them completely.

The allegation about US "anti-satellite gap" has already been mentioned. Instead of working for a universal ban on this channel of the arms race, the United States is demonstrating its typical technological arrogance, hoping to surpass its rival in this field too, although the record of the arms race does not seem to leave any illusions on that score.

Anti-satellite weapons are being developed along parallel lines by the US Army, Navy and Air Force. Back in 1958 the Defense Advance Research Projects Agency (DARPA) worked out a project to conduct research into the development of anti-missile defence systems with the use of nuclear particle beams. In 1972 the project was abandoned because of the high cost of such systems. In the same period the army began to implement a program which was later named White Horse. The Navy is carrying out the Chair Heritage program, part of the broader Dophin Program which deals largely with the use of X-rays.

In the June 1983 issue of **The Progressive** magazine, one of these systems is described by Professor Michio Kaku, Director of the Institute for Peace and Safe Technology:

> In X-ray laser, a nuclear detonation creates huge numbers of soft X-rays that can be channeled through hundreds of laser tubes into directed X-ray beams. When used in space, however, the nuclear explosion kills the satellite itself, so a laser cannon of this sort can be used only once.

This laser is essentially an electron accelerator. It is being developed by the Livermore National Laboratory in California. It is the brainchild of Edward Teller, the "father of the hydrogen bomb". The X-ray laser is his new "child", which he calls "the third generation nuclear weapon", after the atomic and thermonuclear bombs. On September 2, 1982, Teller and L. Wood, a laser specialist from Livermore, met President Reagan, from whom they sought allocations for an absolutely top secret program of work on a new laser. The allocations were to be increased by roughly 200 million dollars a year over a number of years. **Avia-**

tion Week and Space Technology reported that this laser had already been tested at the Nevada proving grounds.

Other variations of the "death rays" are also possible:

— systems with beams of nuclear particles, both charged and neutral;

— systems based on microwaves;

— systems employing an electro-magnetic pulse;

— systems acting as "mines" waiting in orbit for a signal.

So far, the military effectiveness of these weapons remains dubious. Physics professor Kosta Tsipis of the Massachusetts Institute of Technology warns that the fundamental scientific problems arising in attempts to create effective and practicable systems of laser weapons cannot be solved.

In May 1983 the Air Force prepared a list of weapons systems which should be abandoned—mainly for financial considerations, but also because of their dubious effectiveness. The Air Force suggested, for one, freezing the development of a space-based laser and the relevant Talon Gold program.

However, the champions of space-based lasers and their chief supporter in Congress, Senator Malcolm Wallop, believe that if every effort is made, a space laser system could be developed in the 1990s at a cost of between 50,000 and 60,000 million dollars.

On July 25, 1983, a spokesman for the US Department of the Air Force announced the first successful test of this type of laser weapon. A laser mounted in an airborne laboratory aboard a converted C-135 airplane hit five Sidewinder air-to-air missiles launched from a fighter towards the laboratory.

The spokesman for the US Department of the Air Force declared:

> Although the flying laboratory is not a prototype weapon system, the completion of this program is a major milestone in the continuing air force program to further our understanding of the technical feasibility of laser weapons.

Another anti-satellite system (ASAT) is the air-to-space weapon launched from F-15 jets at high altitudes. Depending on its modification, it is either targeted at once, or is first launched into space and then targeted. The system is launched into space by a two-stage rocket.

The Department of Defense and NASA are jointly working to modify the F-15 plane to enable it to launch the system into the upper layers of the atmosphere. The system being developed by the Air Force for F-15 planes will travel at a speed of 30,681 miles per hour. By way of comparison, an army rifle bullet travels at 2,200 miles an hour. The fastest modern satellite moves at a speed of more than 23,300 miles an hour at its perigee, while for the most part the speed of satellites is much lower. This new ASAT will be able to overtake any satellite.

The new weapon goes by the name of PMALS—the Prototype Miniature Air-Launched System. It is a computerized kamikaze, a miniature satellite with eight infrared telescopes and 56 small rockets which steer the system in the direction of the target registered by the telescopes.

A major advantage of the ASAT system for the F-15 plane is the use of tried-and-tested components. The first-stage rocket engine comes from the modified Short Range Attack Missile (SRAM), while the second stage comes from the Altair

Three missile which has long been in use in space. According to the **Aviation Week and Space Technology** magazine, the F-15 itself will not have to be seriously modified for its new mission.

Following the incident with the South Korean airliner on September 1, 1983, the American press commented extensively on the use of civilian aircraft, such as the wide-bodied Boeing-747, for intelligence gathering purposes. This type of plane is also to be used in space interception systems now being developed. An orbital unmanned spaceship, called the Mini-Shuttle, is attached to the carrier aircraft. The spaceship weighs about 9 tons and has nine engines. With this load the Boeing-747 rises to an altitude of 6.7 kilometres, and is then carried to an altitude of 11.3 kilometres by turning on an extra engine. From this altitude the Mini-Shuttle begins its independent flight to target, and after completing the attack returns to Earth with the help of an automatic landing system, or on command from an escort aircraft.

According to the Pentagon's plans, such anti-satellite systems should be ready for use by 1987.

In any event, the American enthusiasm for anti-satellite systems, presented either as a "response" to the "Soviet challenge" in this area, or as a natural evolution of military-technological thought, may have especially grave consequences. Alan Sherr points to one of them in his article "Anti-Satellite War" published by the **New York Times** in late August 1982.

In his opinion, such weapons are dangerous because they could undermine the ability of the rivalling powers to reveal violations of arms control agreements. Satellites are the eyes, ears and the nervous system of the nuclear powers, he reminds us. The potential ability of anti-satellite weap-

ons to put all these systems out of action will have a destabilizing influence on the situation, making the threat of war more real. Sherr believes that it would be much better to resume the talks with the USSR on banning anti-satellite weapons, which the US broke off in 1979.

In July 1983, more than 100 American Congressmen and over 40 prominent scientists and specialists on arms control sent President Reagan a letter appealing for an immediate agreement with the Soviet Union on a bilateral moratorium on space tests of anti-satellite weapons.

In this letter the American legislators voiced their deep concern over the threat of an arms race in space and conviction that it was in the national interests of the United States to avoid it. This arms race would jeopardize US security and undermine both international stability and the possibility of reaching arms control agreements in the future, they noted.

Congressman John Moakley, who read the letter at a press conference, pointed out that the United States had started the arms race in outer space. He noted that this race was swallowing huge funds. According to the General Accounting Office of the US Congress, the program for developing anti-satellite weapons would cost many thousand millions of dollars.

In their letter, American scientists told the President that as experts in space matters and as former delegates at Soviet-American arms control talks, they were appealing to him to take the first step in helping to avoid a potentially fatal arms race in space.

On July 14, 1983, a group of Senators put forward a draft resolution urging the President to

seek agreement with the Soviet Union on an immediate moratorium on anti-satellite weapons tests in outer space, and on the immediate resumption of talks on this problem with a view to signing a relevant agreement. The Senators argued that the United States needed satellites, and that it would be impeded by the threat created by anti-satellite weapons. The Senators were also concerned about the fact that the arms race in space swallowed up funds which were badly needed to maintain sizable, balanced armed forces.

As we mentioned earlier, in 1978-1979 the USSR and the USA held talks on limiting anti-satellite weapons. They discussed both the limitations which could be imposed on anti-satellite action, as well as the restrictions on satellite killer weapons. The first round of these talks was held in Helsinki in June 1978, the second in Berne in January and February 1979, and the third in Vienna from April to June.

The Reagan Administration does not want to return to the negotiating table, although, even if we follow its own "logic", the United States seems to have nothing to lose in view of its alleged "anti-satellite gap". As usual, the United States refers to the difficulties of monitoring compliance with a potential agreement to justify its policy of doing nothing.

Eugene Rostow, the former Director of the US Arms Control and Disarmament Agency, told a Senate hearing:

> It would be the height of folly to rush into negotiations on these subjects unless we are ready with verifiable proposals that will enhance national security.

Kenneth Adelman, who succeeded Rostow as the Agency Director, spoke about "fundamental

obstacles to such talks, especially in the same area of monitoring compliance with a future agreement, while testifying before the Senate Foreign Relations Committee on May 18, 1983. He declared:

> These daunting problems have not been solved, and we should not rush into negotiations on these subjects unless we are ready with verifiable proposals that will enhance national security.

So, as we see, people come and go, but the formulations remain.

Chairman of the Foreign Relations Committee, Charles H. Percy, declared that a space arms race could be very destabilizing and was likely to cost a lot of money.

Larry Pressler, Chairman of the Senate Arms-Control Subcommittee, perceived a reluctance, a half-heartedness on the Administration's part to establish control over weapons in space.

For his part, John Steinbrunner, director of defense studies at the Brookings Institution, stated the following:

> At the moment there appears to be no serious attempt to foreclose a competition in destruction of space systems that surely looms in the longer run if it is not immediately prevented.

The **New York Times** commentator, Flora Lewis, put the problem of banning anti-satellite weapons on the same plane with the nuclear freeze idea. She warned that the appearance of such weapons might seriously undermine the degree of confidence which the United States or the Soviet Union had in that neither of them was going to attack the other. "Satellite killers," she concluded, "could leave one or both sides like enraged tigers that

have lost their eyes and ears, but not their teeth and their roar."

In conclusion of the anti-satellite topic I would like to stress one illogical fact: the Pentagon relies increasingly on space-based control of its armed forces. It would seem that the all-round development of space-based communication and control systems should evoke interest in a mutual ban on anti-satellite weapons. Yet the Pentagon is acting in the opposite direction. The explanation of this paradox lies in the current orientation of the United States on the preparation for and waging of a nuclear war to victory, where "victory" is defined as ability to continue hostilities after the enemy is no longer able to do this.

In the book mentioned earlier Thomas Karas writes:

> There is not much point in building up our own anti-satellite forces **unless** we are planning to strike first, to start the nuclear war. The reason is that most or all of the earth-based men and equipment we would need to carry out anti-satellite weapon attacks will be lost to enemy nuclear missile attacks in the first fifteen minutes or half an hour of the war.

If a first strike is to be planned, a "blinding strike" is going to be the best option.

Anti-satellite weapons are also dangerous because of their destabilizing influence: they take tensions in military rivalry to a higher level.

Delivering a report at the 33rd conference in Venice in August 1983, general director of the Pugwash movement, Martin Kaplan said:

> Star wars as viewed by President Reagan belong to the hypocritical category of modernization of armaments. In fact, what we

face is a serious qualitative leap in the arms race. This is exactly why we must set up a group of experts whose opinion, we hope, will help take star wars back to Hollywood.

Who Stands to Gain?

Patriotic talk about the role of space in ensuring national security is a cover-up for down-to-earth considerations: an arms race in space means Big Money and, hence, Big Profits.

Space spending is the fastest-growing item in the military budget of the United States. Appropriations for space weapons in fiscal 1982 reached 6,400 million dollars, exceeding the NASA budget of 5,500 million dollars. The Administration's request for fiscal 1983 is 8,500 million dollars. During the next three years the Pentagon's space spending is to increase by 20 per cent a year. After citing this figure Richard DeLauer told the Senate that the increased allocations were a tacit acknowledgement of the growing importance of space systems.

The space weapons budget is expected to reach 14,000 million dollars (without adjustment for inflation) by 1988. All in all, in the last 20 years the United States has spent about 50,000 million dollars on its military space programs, reports **Business Week**. This money is bringing major US arms-making concerns considerable profits.

Let's look through the **Wall Street Journal** to illustrate the point.

June 7, 1982. The TRW Electronics Defense Section signed a 69.3 million dollar contract with the Air Force to supply equipment for the Consolidated Space Operations Center (CSOC) which is being built in Colorado Springs.

January 18, 1983. Rockwell International obtained a 5.5 million dollar Air Force contract for advance spacecraft parts.

January 24, 1983. The same corporation was given a new, 22 million dollar Air Force contract to provide parts and materials for satellites.

July 1, 1983. The Martin Marietta Corporation signed a 66.7 million dollar contract with the Air Force to supply ground equipment for space shuttle systems.

Similar reports appear in almost every issue of the US business community's journal.

Rockwell International was awarded a huge contract by the Pentagon to build 28 military satellites .The other major corporations, filling military orders are Lockheed and Helionetics. The latter's big share-holders are Edward Teller, Reagan's friend Robert Gray, and Admiral Thomas Hayward (Ret.), an enthusiastic supporter of laser weapons. The corporation supplies components for nuclear missiles, but its chief line is the development of laser weapons.

Space death merchants just shrug their shoulders when reminded that President Eisenhower once said the each cannon produced, each warship launched and each missile built in the end robbed those who were hungry and needy.

These merchants will not shed a tear of compassion for the robbed, because the arms race in space enables them to lead an all but idyllic life.

Around Los Angeles airport are palm trees and the ocean. The now reorganized Space Division

Headquarters of the Air Force is just south of the airport. Ten miles to the south, in Redondo Beach, lies the TRW company's Space Park. Farther north, east, and southeast are the space factories of Rockwell International. The ten hangars of Hughes Space and Communications are nearby.

The motto on a poster in the entrance to Space Division reads: "The Peace of the Future is Our Profession" (a variation of the Strategic Air Command's hypocritical motto "Peace is Our Profession").

A newspaper ad says: "Your space career can really take off in California... Our journey into space creates a work environment charged with excitement and challenge for industrial engineers..."

The companies preparing for "star wars" are all members of the Aerospace Industries Association. All the major aerospace companies have lobbyists in Washington. The latter's mission is not just to advertise the former's products, but also to engage in refined "enlightenment"—to prompt new avenues of military research in space, of which the legislators may not be aware.

A fresh military-technological idea always looks relatively low-cost at first, all the more so when it is promoted as enhancing national security. The main thing is the "buying-in" of a project, businessmen say. Its price tag is specified later on. Thus, initially, in 1972 Rockwell International undertook to build a shuttle for 2,600 million dollars. The price had risen to 8,400 million by 1979. In the end the project cost over 13,000 million dollars.

Dangerous ABM Illusions

The arms race in space was given a new and highly dangerous dimension on March 23, 1983, when President Reagan in his televised address to the nation urged the scientific community "who gave us nuclear weapons to turn their great talents to the cause of mankind and world peace: to give us the means of rendering these nuclear weapons impotent and obsolete".

The President went on to paint a rosy picture by asking the following rhetorical question:

> What if free people could live secure in the knowledge that their security did not rest upon the threat of instant US retaliation to deter a Soviet attack; that we would intercept and destroy strategic ballistic missiles before they reached our own soil or that of our allies?

Reagan's hopes for a workable anti-ballistic missile (ABM) system for the United States undermine the world's hopes for peace.

At first glance this conclusion may seem paradoxical: what's wrong with shifting strategy to "defence"? It is surely better than attack. Or, to quote Vice-President Bush's statement in support of the President,

Why not offer some hope to the world? Why not suggest that here's a way that you don't have to retaliate and kill somebody else, that you just knock down the other guy's weapons?

The relevant presidential directive announced by the White House on March 25, 1983, ordered research and development on defensive technologies that might eventually eliminate the threat posed by strategic offensive nuclear missiles. The preparations for such a long-term R & D program are already underway.

There is a saying that everything new is just something old which has been thoroughly forgotten. This holds true for ABM systems, which have repeatedly given rise to heated debates. President Eisenhower was skeptical about the capabilities of even ordinary air defence, to say nothing of anti-missile defence. In 1957, a commission presided over by Jerome Wizner for six months studied from all angles the prospects for air defence in an atomic war. After reading its conclusions, Eisenhower said the commission had missed just one thing: where were they going to get the bulldozers to remove all the corpses from the streets?

The work to develop the first version of an ABM system called Nike-Zeus began the same year, in 1957. After the publication of a special issue of the **Army** magazine in 1961, boasting about the results achieved, a number of Congressmen made a strong demand for the mass production of ABM missiles. President Kennedy, however, did not give in to those demands.

The year 1963 marked the beginning of the development of the more advanced Nike-X system. According to the project manager, Oswald

Lange, it was allegedly capable of ensuring the anti-missile and anti-space defence of the whole country. President Lyndon Johnson did not believe in the Nike-X.

By the way, these two projects cost more than 2,000 million dollars. In comparison, the development of the epoch-making atomic bomb also cost 2,000 million dollars. The arms race is getting more expensive all the time.

Next came the ABM project Safeguard which gave rise to particularly heated debates in the United States in the late 1960s. The "pros" and "cons" put forward at that time can still be heard with some modifications today.

Let us examine three of those "pros" and three "cons".

First, none of those who supported the ABM project at that time ventured to assert that ABM systems would guarantee the United States a 100 per cent perfect defence. They simply argued that something was better than nothing. That it was better to be slightly protected than totally exposed. And that it was better to lose 60 million lives than 100 million. Journalist Joseph Alsop portrayed an ABM system as a rational life insurance for at least 70 million Americans, which would cost 500 dollars per individual.

Second, in anticipation of Soviet counter-measures some militant generals welcomed the "battle of the budgets" in the hope of draining the Soviet Union economically.

And third, the ABM advocates tried to capitalize on patriotism: they were talking of defence, and what can be more patriotic than defence of the homeland?

The ABM opponents objected.

First, the setting up of an expensive ABM system would compel the other side to increase its missile forces to enable it to neutralize enemy ABMs, which would cost it ten times less. Any spending on ABMs could be offset by much smaller extra spending on offensive weapons. Any talk about a "rational life insurance" was irresponsible demagogy.

Besides, for an ABM system to be effective, it had to be 100 per cent failsafe. After all, it was enough for just a single missile to reach its target in order to destroy it. This was the difference between anti-aircraft and anti-missile defence. An air defence system intercepting 20 per cent of the bombers was considered effective.

In his book **World Without War** John Bernal writes that the method on which ABM defence rests is nothing new and was already used by... Baron Munchausen. The author recalls that in one of his stories this day-dreamer describes in detail how he managed to destroy an enemy battery during the siege of Gibraltar by aiming his cannon at the ball moving right at him and throwing it back from where it had come. Despite this precedent, writes Bernal, I still think that it would be absolutely unreasonable to pin any hopes on ballistic interception for a long time.

Second, the "battle of the budgets" was a double-edged weapon.

Third, the United States of course had the right to take care of its security, but it was vain to hope to ensure it through an intensified arms race. General Omar Bradley predicted once that missiles would be followed by anti-missiles, and anti-missiles, by anti-anti-missiles.

The debates produced a recognition of the fact that an ABM shield was psychologically dangerous.

Unable to rebuff a first strike, it made it possible to parry a retaliatory blow, which was likely to be a weakened one. Hopes of escaping retribution behind this shield might give the aggressor an illusion of impunity. Enthusiasm for ABMs and killer satellites would destabilize the existing military-strategic situation. Nuclear powers had to remain each other's hostage until they agreed to disarm.

This reasoning prepared the ground for the signing of the Soviet-American treaty on the limitation of ABM systems in 1972. In 1973 the sides signed a protocol to this treaty.

By doing so they tacitly recognized that for the time being the preservation of peace between the nuclear powers and their equal security rested on deterrence interpreted as either the threat of devastating retaliation against the aggressor (Soviet formula), or as the threat of inflicting "unacceptable damage" to the other side in retaliation (American formula).

I am not considering the intentions of the sides at this point, speaking in terms of abstract, theoretical military logic. But let's not forget that the Soviet Union has pledged not to be the first to use nuclear weapons.

The situation described above is also called a "balance of terror", and a position of "mutual assured destruction" (MAD). It cannot be recognized as satisfactory either morally or from the viewpoint of common sense. The situation leaves much room for criticism and it was criticized, for example, by Fred C. Iklé, US Undersecretary of Defense for Policy, whom I have already mentioned. He spoke about a "permanent nightmare," saying that the MAD formula replaced defence with revenge, that the forces were "poised to avenge,

but never to save life," and that the President's decision to raise defence to space removed "the doctrinal blinders."

All this, save the remark about "blinders", holds true. As I have said, the situation is unsatisfactory, and ABMs do not promise a way out.

A desire to seek a purely technical solution to the problem, which is typical of the Americans, and the usual American technological arrogance are manifest in the ABM question as well. George Keyworth, Reagan's science adviser, thinks, for one, that the development of a defence shield should use "the very strength that America has, our technological leadership". This example shows that the Pentagon has learnt little from the lessons of history showing that the monopoly on atomic weapons, MIRVs, and other "promising" novelties of military technology never lasts long.

In Congress, Reagan's "star wars" plan received a more cautious response. Senator Mark Hatfield (R-Oreg) declared:

> President Reagan has, in effect, called for the militarization of the last great hope for international cooperation and peace—outer space.

Scientists, to whom Reagan addressed his ABM call, were either sceptical or critical about it. William Jackson from the Washington-based Brookings Institution called the President's plan "bizarre". He added:

> Such a system will never work in the Nuclear Age because of the decided advantage the offence has over the defence.

Jan Lodal, former Director of Program Analysis, National Security Council, qualified Reagan's plan as "an impossible dream" which would only make the world a "more dangerous place".

As he makes his two-birds-in-a-bush promises about a reliable ABM defence for the United States, President Reagan deliberately lets the bird in the hand slip away (concrete agreements on stopping the arms race today). He continues to insist in Congress on an enormous military budget for another fiscal year, following his formidable program for the "nuclear rearmament" of the United States. This "rearmament" is supposed to continue without interruption until that hypothetical bright day when ABMs are at long last capable of providing the United States with a perfect defence, which will make all the previous military construction theoretically redundant, if we are to believe in Washington's peaceful intentions. This means that in the foreseeable future, the arms race, with its ever mounting dangers, will continue.

One of these dangers was for some reason neglected in the current round of debates, but a warning against it was made in the 1960s. Ernest Sternglass, professor of radiological physics at Pittsburgh University, then said that an all-out anti-missile defence, if it succeeded, would cause the extinction of the human race. The professor was thinking of the fact that strontium-90 would accumulate after "star wars", depriving the survivors of the ability to procreate.

But let's now assume, contrary to the weighty opinion of experts, that President Reagan's laser cannon has been built and the US has got the reliable ABM system it sought.

The Soviet leader Yuri Andropov said in April 1983:

> The adventurist nature and danger of this whole scheme is that the calculation is on achieving impunity, on delivering the first

strike in the belief that protection against a retaliatory strike is possible. It is not far from here to the temptation to reach for the firing button. This is the main danger of the new American military concept.

The Earth will find itself at the mercy of the United States. With an ABM shield and a quiver full of nuclear arrows, the United States may decide to usher in a new "American Age".

Its previous attempt to do this in 1945 failed after it lost its atomic monopoly. Reagan's plan of completely neutralizing the Soviet Union's nuclear arsenal by an effective ABM defence also means, although the President omitted to say this, the restoration of an American monopoly, this time on nuclear weapons. Nuclear blackmail would then gain strength.

Reagan may take American good intentions for granted. But the road to hell, this time to nuclear hell, is also paved with good intentions.

Criticizing the present "mutual assured destruction" doctrine, and using his personal experience of an actor in Westerns, Ronald Reagan paints the following picture: deterrence is like two men with loaded pistols, who keep their finger on the trigger and are ready to fire.

Reagan's picture of Soviet-US relations seems true to life. How can we change it? Dress one of the rivals in a bullet-proof suit? What will the other feel then? Isn't it better for both of them to throw their pistols away?

An enthusiasm for ABM defence coupled with the continued buildup of offensive nuclear weapons can easily be seen as preparations for a first strike.

Verbal assurances are the only guarantee here. One was made by Lawrence Eagleburger, Under-

secretary of State for Political Affairs, on the day after Reagan's ABM speech. He said:

> Now, I concede to you in this theological sense that if you combined the defence and the offence and you moved forward in both, that, I suppose, there is a first strike capability. I also happen, as the President said last night, not to believe that the United States will ever be the first to launch a nuclear war.

In this way practical deeds whose consequences threaten others are "offset" by verbal assurances. The latter's value is dubious if only because the United States has refused to follow the Soviet example and take the nuclear-no-first-use pledge. Verbal assurances are further devalued by blood-thirsty pronouncements, like the one uttered by Colin Gray, a Department of State consultant:

> The United States should plan to defeat the Soviet Union and to do so at a cost that would not prohibit US recovery. Washington should identify war aims that in the last resort would contemplate the destruction of Soviet political authority and the emergence of a postwar world order compatible with Western values. . .
>
> A combination of counterforce offensive targeting, civil defence, and ballistic missile and air defence should hold US casualties down to a level compatible with national survival and recovery. . . to approximately 20 million. . .

Or take the High Frontier space project which has been proposed since 1982 by the right-wing Heritage Foundation. The project was drafted by Lt.-Gen. Daniel Graham (Ret.), a former director

of the intelligence service in the Department of Defense, and a loud supporter of space wars. The project provides for the creation of an orbital system of 432 stations on which 21,600 interceptors with conventional explosives would be sited. The interceptors would destroy enemy ballistic missiles which are not expected to arrive in large numbers since an American "pre-emptive strike" is envisaged.

The **Air Force** magazine estimated the cost of the project at 300,000 million dollars.

So far the main stake in the ABM defence advocated by Reagan is on lasers.

The creation of a laser ABM defence will require the solution of at least three technical problems.

First, a powerful enough laser will have to be built. The Defense Advanced Research Projects Agency (DARPA) has Project Alpha designed to produce a 5-megawatt space-based laser. It is believed that a laser ABM system will require 25-megawatt laser generating devices.

A laser device needs fuel. Kosta Tsipis, who heads the "Program in Science and Technology for International Security" at the Massachusetts Institute of Technology, has calculated that it would take 2,750 space shuttle trips to deliver fuel for 50 laser units of this kind (provided each laser device could convert 30 per cent of its fuel's energy into laser energy).

Second, a laser needs a mirror to focus its beam on a distant target. In the opinion of Tsipis, making an adequate mirror is "beyond the technical capability of the US or any other nation".

And, third, a laser weapon needs a system for aiming the beam at targets. As Thomas Karas observes, "shooting at a missile from 3,000 miles in

space is like aiming from New York at a garbage can over Los Angeles". The technical problems are extremely complicated. Besides, a large ABM system of this kind would cost the United States 500,000 million dollars.

Experts add that the proposed system would itself be vulnerable. Verne Lynn, Director of Defensive Systems for the Undersecretary of Defense for Research, explains that it is easier to develop threats to the laser than it is to get rid of them. George Millburn, the Pentagon's expert on lasers, adds:

> There is little doubt that, like most weapons systems, space-based laser battle stations could be destroyed by a dedicated attack.

Millburn cited the following potential threats: the launching by the other side of the "space mine" or fellow-traveller which could explode on command or automatically; the launching of killer satellites modelled on those worked out in the United States, etc.

George Keyworth, the President's science adviser, takes a different view of the problem:

> As a pure speculation at this point, I'll start with the premise that high energy lasers are probably more advanced than the other alternative technologies and I think for example it might very well be possible to put a very high energy laser on the ground where it can be serviced and defended, and if we can learn, and I think we are making a lot of progress, to propagate that laser beam through the atmosphere and reflect it, deflect it, from a large mirror in space against incoming Soviet or enemy threats, I think this is the

> kernel, if you wish, the nucleus of a potential system that we should very, very seriously study.

Reagan's ABM speech was met in the world not with hope and relief, maybe contrary to his own expectations, but with serious alarm. The London **Times** wrote, for instance, that Reagan's statement was more likely to alarm his allies than to comfort them. People were calling for the arms race to be halted, not for it to be diverted into new directions, the newspaper added, which would assuredly be the result of such a move.

The President's speech was duly considered in Moscow. On March 27, 1983, the newspaper **Pravda** published Yuri Andropov's answers to questions put by one of its correspondents. The Soviet leader noted that the United States was continuing to develop and upgrade its strategic offensive forces. He went on:

> Under the circumstances, the intention to secure for itself the possibility of destroying the corresponding strategic systems of the other side with the help of the ABM defence, that is, of rendering the other side incapable of dealing a retaliatory strike, is a bid to disarm the Soviet Union in the face of the US nuclear threat.

This question has a legal aspect as well. When the parties signed the 1972 ABM Treaty, they pledged not to develop, test or deploy ABM systems or their components based at sea, in the air, or in space, nor those which were mobile land-based. Consequently, the whole "star wars" scheme has been at variance with US legal commitments from the very start.

US Defense Secretary Caspar Weinberger predicted in October 1981 that Washington would

adopt a nihilistic attitude to the ABM Treaty. He bluntly said that if upon concluding their research they came to the conclusion that a much more effective system that would require the Treaty's revision was possible, they wouldn't hesitate to demand its revision.

President Reagan's dangerous space whims alarmed the US scientific community as well, especially Carl Sagan, a well-known astronomer from the planetary research laboratory of Cornell University in Ithaca, New York, and Richard Garwin from the Thomas Watson Research Center in Yorktown Heights, New York. Together with other prominent scientists and public figures, Sagan and Garwin addressed Ronald Reagan and Yuri Andropov with an appeal to negotiate an agreement banning the deployment of any kind of weapons in outer space, and the damaging or destruction of the satellites of any state. The scientists also addressed their call to other countries engaged in space exploration.

Moscow's reply was not long in coming. Soviet leader Yuri Andropov said that he fully shared the concern of the American scientists over the future of space. In his reply he wrote:

> It is one of the priority problems facing mankind to prevent the militarization of space and many things here, on earth, depend on whether it will be solved. Indeed, the crucial moment is now approaching: the interested states will either sit down at the negotiating table without delay and begin drafting a treaty to ban the deployment of all kinds of weapons in space, or the arms race will spread to space as well.

On April 10, 1983, the Soviet press published

an address to the scientists of the world, signed by many leading Soviet scientists. The address dealt with Reagan's ABM project. Proceeding from their knowledge and understanding of the very nature of nuclear weapons, the scientists stated with full authority that "there are no effective defensive weapons in a nuclear war", and that "their development is practically impossible".

In these conditions, ABM systems would be of almost no use to the country subjected to a surprise nuclear attack, but could be useful for the attacking side anxious to weaken retaliation, the scientists observed.

They called on their colleagues abroad to declare honestly and clearly, being guided by their knowledge and conscience, whether the world should develop new types of strategic weapons, or curb the arms race and achieve subsequent disarmament.

The Soviet Union expressed itself in favour of holding a meeting of scientists to discuss the consequences of the deployment of the large-scale ABM system which Reagan would like to see. Yuri Andropov said:

> We propose to the United States government: let Soviet and American scientists, specialists in this field, meet and discuss the possible consequences of creating a large-scale anti-missile defence system. Let science give its weighty opinion.

Washington is avoiding accepting this proposal.

For a Peaceful Space

Director of the Stockholm International Peace Research Institute (SIPRI) Frank Blackaby warns:

> The military think they could gain a very big advantage by disabling the other side's satellites, so they are pushing ahead with the developments in this area. The militarization of outer space is one example of an aspect of the arms race that will be extremely difficult to halt once it gets going. A treaty banning anti-satellite operations would be practicable and would cut off this particular area of arms development.

The Soviet Union has been against shifting earthly squabbles to outer space from the very start. With its surprise "beep-beep" signal the Soviet sputnik ushered in the space era in October 1957. The Soviet Union, note, **was the first** to suggest a ban on the use of space for military purposes, and to propose international cooperation in space exploration. It made this proposal six months afterwards—on March 15, 1958. On the basis of Soviet proposals and subsequent resolutions of the UN General Assembly, the United Nations set up a Committee on the Peaceful Uses of Outer Space.

Yuri Gagarin was the first man in space in the spring of 1961. An address of the CPSU Central Committee, the Presidium of the Supreme Soviet of the USSR and the Council of Ministers of the USSR issued then read:

> We place the victories in space exploration not at the service of war, but at the service of peace and international security.

From the first days of the space era, the Soviet Union has spoken out in favour of regulating space activities by international law, and of preventing the militarization of outer space. Soviet ideas and proposals laid the foundation of the first document in this new field—the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, which came into force on October 10, 1967.

This document opens with a preamble which today seems to be a reminder of hopes which were never realized. It says that the Participating States are inspired by the great prospects opening up before mankind as a result of man's entry into outer space, and recognize the common interest of all mankind in progress in the exploration and use of outer space for peaceful purposes.

Article 2 of the Treaty has established that space shall not be subject to appropriation by any nation. Article 4 commits the Participating States not to put into near-earth orbit any objects with nuclear weapons or any other types of weapons of mass destruction, not to site such weapons on celestial bodies and not to deploy such weapons in space in any other manner.

The first document of space law, the Treaty provides for the complete demilitarization of the Moon and other celestial bodies, but only partial

demilitarization of space. Article 3 of this Treaty makes reference to the United Nations Charter, thereby legally determining the exclusively peaceful direction of space exploration in the interests of maintaining international peace and security and the development of international cooperation and understanding.

The Moscow Treaty on Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (August 5, 1963) was considered to be another major step towards keeping space weapon-free. It saved outer space from nuclear explosions (Article 1).

Somewhat later, on October 17, 1963, the UN General Assembly adopted a resolution banning the putting in orbit of any objects with nuclear weapons.

In 1972 the Soviet Union and the United States signed a Treaty on the Limitation of Anti-Ballistic Missile Defence Systems. Article 5 of the ABM Treaty prohibits not only the deployment, but also the development and testing of space-based ABM systems and their components. Article 12 bans interference with the work of national technical verification facilities which include satellites, among others.

These, in brief, are the principles of space law bearing on the maintenance of peace in outer space.

However, they do not remove the danger of the arms race spreading to space. This danger has been mentioned by UN Secretary-General Pérez de Cuellar. Addressing in August 1982 the Second UN Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE) in Vienna, he said that the world community should resolutely oppose

the intensified militarization of outer space. "We still have time, but very little," he noted.

The Soviet message of greetings to the Vienna Conference said that the boundless expanses of space must be free of weapons of any kind, and that achieving this great and humane goal by concerted effort was possible and also vital for the future of mankind.

The Conference was attended by representatives of 94 states and many international organizations. Most of those who took the floor pointed to the danger of the militarization of space. The Soviet Union urged others to back its 1981 proposal that a treaty banning the stationing of weapons of any kind in outer space be signed.

The Soviet delegation submitted its draft of the proposed treaty to the 36th UN General Assembly session in 1981. The Assembly expressed itself in favour of such a treaty being signed and instructed the Committee on Disarmament to begin working on it without delay.

This resolution, 37/82, was passed by a vote of 138 with one against and seven abstaining. The United States was the country who voted against.

In this resolution the UN General Assembly confirmed that space should be used exclusively for peaceful purposes and should not become a scene of the arms race. Any other use of space, the resolution said, contradicted the agreed goals of universal and complete disarmament under effective international control.

At the Vienna Conference, Group-77, representing 120 developing nations, made public their agreed position on the problem of the militarization of space. In their statement the developing nations urged the world community to ban the testing and stationing of weapons of any kind in outer

space, and called upon the two leading space powers to start negotiations on preventing an arms race in space.

The United Stated found itself in isolation at the Conference. First the US delegation engaged in pettifogging, criticizing the term "militarization" and suggesting that it should be replaced with the words "arms race". This was done, after which the US delegation adopted a formal position, saying that the arms race in space must be discussed in the Committee on Disarmament, rather than at UNISPACE. In the Committee itself, however, the United States is openly sabotaging the discussion of the problem.

Marcia S. Smith, a specialist in aerospace systems at the Congressional Research Service, Library of Congress, who attended the UNISPACE conference, wrote in the **Christian Science Monitor** that the United States apparently underestimated the level of the concern that other nations felt about the militarization of space, in the hope that eventually the issue would go away. Marcia Smith wrote:

> If so, this was a serious miscalculation. Using the approach it did, the US exasperated many of its friends.

Officially Washington claims that it is not going to violate international agreements on space, where America is acting merely in support of its right to self-defence. Richard DeLauer, for instance, told the Senators that the Department of Defense would continue to observe the existing international law regarding space.

As for the Department of State, its spokesman A. Romberg attached the now well known reservations to this position in April 1983. He declared that US national space policy provided for the adoption of further measures in the field of arms

control which would ban or limit certain weapons systems on condition that these measures were verifiable, balanced and in the interests of US national security. These three reservations—verifiability, a balanced character, and US national interests—enabled Romberg to turn down the Soviet proposal on working out a treaty prohibiting the stationing of any kinds of weapons in outer space.

American diplomacy is completely inactive as far as space is concerned. "Further measures" mentioned by Romberg are not being taken. Unlike the US, the Soviet Union is ready to hold talks on all aspects of curbing the arms race and attaining disarmament, including in outer space.

Speaking at the 36th session of the UN General Assembly in September 1981, Soviet Foreign Minister Andrei Gromyko observed that "fresh indications that space may become a scene of the arms race multiply with every passing day" and stressed the growing importance of the task of preventing military rivalry from spreading to outer space. At the 37th session of the UN General Assembly in October 1982 he again warned that the danger was growing of the arms race acquiring a qualitatively new dimension unless the necessary measures were taken promptly. He went on:

> Washington is now planning a military breakthrough to space. The Soviet Union has been seeking the signing of an international treaty banning the stationing of weapons of any kind in outer space for a number of years now. The expanses of space must be the scene of exclusively peaceful cooperation among states.

The Soviet leader Yuri Andropov has stressed that the crucial moment is approaching: either the interested states sit down at the negotiating table

without delay and begin working out agreements banning the deployment of any types of weapons in outer space, or the arms race will spread to outer space.

Replying to questions put by the West German magazine **Der Spiegel**, Yuri Andropov said in April 1983:

> It is becoming increasingly evident that the development of space-based weapons is a component part of the Americans' military preparations. They want to go into outer space with arms and to threaten mankind from there. This must not be allowed to happen. Outer space must remain peaceful. We proposed that an international treaty be concluded on the non-stationing of weapons of any kind in outer space. It is our firm belief that one must go even further: reach agreement on prohibiting altogether the use of force both in outer space and from outer space in respect of the Earth.
>
> Not to start the arms race where it did not exist, and to stop it where it is now taking place—this is the essence of our position, and this is what we are guided by in talks.

The Soviet leader again raised this important topic in his conversation with US Senators on August 18, 1983. He described the formidable and real danger of the arms race spreading to outer space as a "question of exceptional importance". Yuri Andropov told the Senators about the very important decision of the Soviet Union to make the commitment not to be the first to launch anti-satellite weapons of any kind, that is, to impose a unilateral moratorium on such launchings for the

entire period while other countries, the United States included, refrained from the deployment of any kind of anti-satellite weapons in space.

Senator Claiborne Pell, who took part in the conversation with the Soviet leader, called the Soviet idea a very promising proposal which should be seriously studied. Expecting the routine response about a Soviet "ploy" to deprive the Americans of anti-satellite weapons, Pell pointed to the Reagan Administration's duty to do what it had not been in a hurry to do—to draft and set forth an effective negotiating strategy.

In word Washington stands for talks in this field as well. In his speech of July 4, 1982, President Reagan promised on behalf of the United States to study verifiable and equitable proposals on arms control in space. The measures to be adopted must meet the interests of US national security, he said...

These are the usual general reservations against which it is difficult to argue. They concern problems which can well be settled if there is the political will, but which become insurmountable obstacles if there is none.

A year later, this time in response to the Soviet Union's proposal that the United States follow its example not to be the first to deploy anti-satellite weapons of any kind in outer space, a spokesman for the Department of State said on August 18, 1983, that arms control measures in space were being studied, but that there were serious technical problems connected with verifying observance of the potential agreement.

One should note the extreme demands being made in comparison with the usual US negotiating stance at arms limitation talks. A natural and reasonable approach is to begin by establishing

whether the sides are willing to limit or reduce arms in any given field. This, one would think, should be followed by a draft agreement in which verification methods would be given due attention. Reference to the difficulties of verification made even before the beginning of talks points to the lack of desire to hold such talks.

The talk of US Administration officials about negotiations is perhaps motivated purely by the domestic political aim of reassuring Congress. In the summer of 1983 Congress approved the acquisition of anti-satellite weapons, slightly reducing the money allocated for their testing. The President can get all the funds he wants only by declaring that he seeks a treaty banning such systems, or by referring to the need to prevent the "undisputable and irreparable damage" to national security.

In any event, the initial reaction of the White House to the Soviet moratorium proposal was limited to a formal display of interest. As for the Pentagon, according to the NBC television network, Defense Secretary Weinberger was obviously "perplexed" by the Soviet initiative. Later, he struck the posture of a Doubting Thomas, and declared that it would be surprising if this Soviet proposal were implemented.

The response of the American public was different. Kurt Gottfried, a physics professor at Cornell University, the chairman of a group of experts on anti-satellite weapons, and one of the leaders of the Union of Concerned Scientists, called on President Reagan to enter immediately into talks on a moratorium on further tests of anti-satellite systems. He added that a ban on the arms race in space would meet American military interests as well. It would be stupid and shortsighted to ignore the Soviet proposal in the hope of capitalizing on

the US current lead in anti-satellite technology, said the expert.

While Washington is dropping cold curtsies, Soviet diplomacy is developing the initiative. A month before the opening of the 38th session of the UN General Assembly in the fall of 1983, Moscow proposed putting on its agenda the question of the signing of a treaty prohibiting the use of force in outer space and from space in respect of the Earth. In a covering letter, Soviet Foreign Minister Andrei Gromyko made reference to the previous, already well known, Soviet proposal of 1981, on concluding a treaty to ban the stationing of weapons of any kind in outer space. Andrei Gromyko pointed out that work on the proposed treaty had not started so far. But there was no time to waste, and the Soviet Union was now offering to go further and reach agreement on the prohibition of the use of force both in space and from space in respect of the Earth.

A draft of such a treaty was submitted to the UN General Assembly. The signatories to the proposed treaty are to pledge not to test and to build new anti-satellite systems and to destroy such systems which they already have. The draft also speaks about a ban on any space-based weapons, and about a pledge not to destroy, not to damage, not to disrupt the normal functioning and not to change the flight trajectory of the objects in space belonging to other states.

The text of the Soviet draft is given in full in the appendix to this booklet.

The Soviet initiative was welcomed by UN Secretary-General Pérez de Cuellar.

This proposal, in addition to being important and timely, has still another merit—it is autonomous. This means that it can be implemented regardless

of progress in other spheres of arms control. The **Washington Post** wrote editorially that a settlement which would give either side the confidence in the fact that its deterrence potential would remain intact, would have tremendous significance even if a broader agreement was not reached.

Indeed, the arms race is discrete and consists of thresholds which are overstepped only once, affording no way back.

Thresholds are not overstepped automatically. A new military-technological idea is separated from realization by a distance which cannot be passed without the adequate material and intellectual resources that are controlled by politicians. A responsible political decision has the decisive say if only for that reason.

Where there is a will, therefore, there is a way—not to pass these thresholds from which there is no return. One of the past thresholds was the development of MIRVs—multiple independently targeted re-entry vehicles. The Soviet side suggested stopping before that threshold. But the US side overstepped it, driven by its imagined feeling of technological supremacy, and ignoring the lessons of the post-war arms race.

As was to be expected, American MIRVs were followed by Soviet MIRVs. They brought to the American strategists the notorious "windows of vulnerability", i.e. the theoretical possibility of Soviet MIRVs destroying US land-based ICBMs despite all defensive measures. But the Soviet side had suggested stopping before this threshold...

We are now facing a very dangerous threshold, that of anti-satellite weapons. We can stop before we reach that particular threshold, and do this independently of all other weapons systems. We can agree not to prepare for "star wars" in our

mutual interests, regardless of negotiations to limit armaments on Earth.

Common sense and the sides' own interests suggest that the relatively autonomous character of the arms race in space should facilitate bilateral negotiations in this field.

Supplement

TREATY
On the Prohibition of the Use of Force in Outer Space and from Outer Space Against the Earth

The States Parties to this Treaty,

guided by the principle that members of the United Nations shall refrain in their international relations from the threat or use of force in any manner inconsistent with the purposes of the United Nations,

desiring to prevent an arms race in outer space and thereby reduce the danger of nuclear war threatening humanity,

wishing to make their contribution towards achieving the goal of exploring and using outer space, including the moon and other celestial bodies, exclusively for peaceful purposes,

have agreed as follows:

Article 1

The use or threat of force in outer space, in air space and on the earth, involving the

use to that end of space objects in orbit around the earth, on celestial bodies, or stationed in outer space in any other manner as a means of destruction shall be prohibited.

The use or threat of force against space objects in orbit around the earth, on celestial bodies, or stationed in outer space in any other manner shall also be prohibited.

Article 2

In accordance with the provisions of Article 1 the States Parties to this Treaty undertake:

(1) not to test or deploy, by placing in orbit around the earth, stationing on celestial bodies or in any other manner, any space-based weapon for destroying objects on the earth, in air- and outer space;

(2) not to use space objects in orbit around the earth, on celestial bodies or stationed in outer space in any other manner as a means of destroying any target on the earth, in air- and outer space;

(3) not to destroy, damage, or disrupt the normal functioning, or modify the flight trajectory of space objects of other States;

(4) not to test or develop new anti-satellite systems and to liquidate such systems they already possess;

(5) not to test or use for military, including anti-satellite, purposes any manned spacecraft.

Article 3

The States Parties to this Treaty agree not to assist, encourage or induce any States, groups of states, international organizations, natural or juridical persons to commit actions prohibited by this Treaty.

Article 4

1. For the purpose of providing assurance of compliance with the provisions of this Treaty each State Party shall use national technical means of verification at its disposal in a manner consistent with the generally recognized principles of international law.

2. Each State Party to the Treaty undertakes not to interfere with the national technical means of verification of other States Parties operating in accordance with paragraph 1 of this Article.

Article 5

1. The States Parties to this Treaty undertake to consult and cooperate with each other in solving any questions that may arise with respect to the purposes of the Treaty

or in connection with the implementation of its provisions.

2. Consultations and cooperation in accordance with paragraph 1 of this Article may also be carried out by using relevant international procedures within the framework of the United Nations and in keeping with its Charter. These procedures may include the use of the services of a consultative committee of the States Parties to the Treaty.

3. The consultative committee of the States Parties to the Treaty shall be convened by the depositary within one month after the receipt of a request from any State Party to this Treaty. Any State Party may appoint a representative to the committee.

Article 6

Each State Party to this Treaty undertakes to take any internal measures it may consider necessary under its constitutional procedures to prohibit or prevent any action contrary to the provisions of this Treaty under its jurisdiction or control wherever it may take place.

Article 7

Nothing in this Treaty shall affect the rights or duties of States under the Charter of the United Nations.

Article 8

All disputes that may arise in connection with the operation of this Treaty shall be settled exclusively by peaceful means with the use of the procedures provided for in the Charter of the United Nations.

Article 9

This Treaty shall be of unlimited duration.

Article 10

1. This Treaty shall be open for signature to all States in the United Nations Headquarters in New York. Any State which does not sign this Treaty before its entry into force in accordance with paragraph 3 of this Article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Secretary-General of the United Nations.

3. This Treaty shall enter into force in relations between States which deposited the instruments of ratification, upon the deposit with the Secretary-General of the United

Nations of the fifth instrument of ratification, including those of the USSR and the USA.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Secretary-General of the United Nations shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or accession, the date of entry into force of this Treaty, and other notices.

Article 11

This Treaty of which the Russian, English, Arabic, Spanish, Chinese, and French texts are equally authentic, shall be deposited with the Secretary-General of the United Nations who will transmit duly certified copies of the Treaty to the governments of the signatory and acceding States.

Геннадий Иванович Герасимов
НЕ ДОПУСТИТЬ ОРУЖИЕ В КОСМОС!
на английском языке
Цена 40 коп.

KEEP SPACE WEAPON -FREE

Gennadi GERASIMOV