

TOTAL MILITARIZATION OF SPACE AND SPACE LAW: THE FUTURE OF THE ARTICLE IV OF THE 67th OUTER SPACE TREATY *

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"Ensuring that outer space is devoted exclusively to peaceful purposes has remained a most important goal, but until now that goal has not been politically possible to bar arms from the new dimension. It is only now, with the cessation of the cold war and with new relations developing between all powers, that it may be possible to give full effect to the principle of the use of outer space for exclusively peaceful purposes." Manfred Lachs¹

This paper attempts to examine the perspectives of total militarization of outer space in the light of what International Space Law provides today on the military use of space and celestial bodies. In this sense, special attention is paid to the theory, very much in vogue, especially in the USA, that the "non-aggressive" military use of space can and must be considered as a "peaceful" use. In short, the article offers some ideas and reflections on how to avoid the installation of weapons in space and avoid its becoming an arena of warring rivals.

Perspectives of total militarization in space

The plans to militarize space to the ultimate consequences — including the qualitative leap to install weapons there and thus create a new battlefield — have survived the end of the Cold War. They may eventually just be a farce, given the current economic hardships against their realization. Yet they continue on the agenda of the powerful leaders and general staff, and of the gigantic aerospace industry complex, all busily defending their technical feasibility, strategic requirement and ethical-legal validity.

A doctrinal veneer covers the issue. It must be examined.

In the 1980s, the clash between the USA and former USSR was on the verge of causing total militarization of space. The two largest powers in the world were about to test anti-satellite weapons. In 1983, the USA announced the construction of an ambitious antimissile defense system, officially called "Strategic Defense Initiative" (SDI), which was soon to be known as the "Star War". The design of a formidable shield against intercontinental ballistic missiles bearing nuclear warheads, consisting of state-of-the-art weapons also distributed in space, breached the princi-

ple of strategic balance and deterrence. It adopted the premise that one of the parties in the dispute could become invincible and, therefore, stronger than the other. This party, then, could win a nuclear war. The proposal was not successfully proven feasible or effective, like that of the anti-satellite weapons. Yet the arms race accelerated, building up the tension in the world. Even so, space was not invaded by weapons.

In 1985, a new Soviet leader emerged who proved to be increasingly determined put an end to the situation of rivalry on the edge of an abyss and to open the way to broad negotiations with the USA. The Cold War was becoming a mere shadow of itself.

In less than three years, between 1989 and 1991, the world watched open-mouthed what had perhaps been the greatest all-time political collapse in times of peace. The so-called "Community of Brother Socialist States" in Eastern Europe, guided by the USSR, with its state economy systems and single party, and the "Union of Socialist Republics" itself crumbled like a house of cards. One of the centers of dispute and arms race which for so many decades had threatened the planet with nothing less than a nuclear disaster was disappearing.

The new geopolitical world map seemed to say that there were no longer reasons for militarizing space until new weapons emerge which could turn it into a battlefield.

The impression — or would it be hope? — was to fade all too soon. The Gulf War in 1991 left this quite clear. The "Desert Storm" operation — started by the USA and some allies on behalf of UNO, to force Iraq to leave the illegally occupied Kuwait — grew to dimensions clearly out of proportion with the objective, especially in view of the modern means used.

The vast military mobilization was oriented by images from seven satellites. Never had so many of these devices been used at the same time for the same war-waging purpose. They made an average of 12 passes over the theater of operations each day, producing hundreds of images daily. In addition, the USA armed forces had in operation 15 to 20 signals intelligence satellites, intercepting radio communications of the Iraqis. Furthermore, the USA had at its disposal the services of three weather satellites, at least four military communications satellites and up to 16

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“Navstar” Global Positioning System (GPS). This armada of military space assets received additional assistance from the images acquired by the French SPOT and US Landsat civilian remote sensing satellites, which were used to update maps for the operational forces.²

The US Air Force Chief of Staff, Merrill McPeak, overestimate the “Desert Storm” defining it as the “first ‘space war’, since it was for the first occasion on which the full range of modern military space assets was applied to a terrestrial conflict”. He, of course, lost no time in praising the increase of the military expenditures on space “even during this time of decline in many other dimensions of our activities...”^{2A}

In fact, there was no “space war” whatsoever. The “Desert Storm” operation did not occur in outer space but rather on land and in the air space over Iraq, which is very different. The latest space technologies only acted as support to increase the degree of accuracy of the air and land operations. Seeing this as the “first space war” leads to concealing the transcendental steps which still have to be taken to bring about a real space war. We may, however, arrive at it if and when the international community permits putting arms in orbit and converting space into a combat zone. And this possibility will continue to exist as long as there are plots and close-knit plans in high military and political circles, accompanied by intense lobbying, involving the return to anti-satellite weapons, already developed by the former USSR and USA, and to antimissile systems with space segments.

In 1997, we are commemorating the 40 year anniversary of the Space Age which began with the launching of *Sputnik I* on October 4, 1957, and the 30 years of the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies³, known as the “Space Treaty”. We can also commemorate the auspicious fact of having kept space free of any kind of weapon.

The space militarization process, however, continued, although having been forced to slow down in the new world context and internal budget setbacks. The so-called “passive” and “non-aggressive” military uses of space have not at all ceased to be enhanced and qualified. These are uses of reconnaissance and observation, communication, navigation, meteorology, geodesics, control and command, which were put to an excellent test in the Gulf and Bosnia wars. With regard to Bosnia, the USA successfully experimented the space observation Jstars system, with which they accompanied the movement of each vehicle in an area of 200 sq.km, in any climate, on a simple computer screen.

There are euphemisms to be examined here. The “passive” military and “non-aggressive” uses can support both equally “non-aggressive” and “aggressive” activities. Taken on their own, of course, they do not configure a war operation. Yet, why separate them from their real function? After all, they are integral and indispensable parts of the central intelligence which prepares and activates all essential elements of a war operation. The result of this is that such uses can only be considered “passive” if taken from the situation in which they operate and from the objectives which they serve — an artifice which minimizes and even

hides their effective destination. Active military uses depend entirely on them. They cannot be intrinsically and permanently “aggressive” but potentially never cease to be such. Their *raison d’être* is always military. They are at the service of the use of force.

The move from partial and “passive” to totally active militarization of space continues to be supported in the USA by influential and tenacious advocates.

“We are going fight in space”, declared general Joseph W. Ashy, in mid-1996, when he was at the head of the USA Space Command and was asked if outer space would become a battlefield one day. He was emphatic: “Some people don’t want to hear this, and it isn’t in vogue... but — absolutely — we are going to fight in space”.⁴

USA Defense Department authorities consider that military control of space must be given a high priority in USA national security, since the country increasingly depends on an enormous group of vital tasks, ranging from fixing targets for missiles to undertaking economic transactions. They maintain that the space control will probably require the development of space-based weapons.

In September 1995, the USA undersecretary of Defense for Acquisition and Technology, Paul Kaminski, created the Space Architect Office, entrusting it to Air Force Major General Robert Dickman. The Office was immediately in charge of preparing a plan for space control to be presented in the first half of 1997 to the Joint Space Management Board of the Defense Department, made up of the military and top experts from the intelligence services.⁵

For some time now, the USA Air Force has struggled to see space control become a national defense priority. In September 1994, the then Air Force secretary Sheila Widnall, stated: “Certainly, part of the Air Force mission is control of space, our ability to deny the use of space if necessary.”

Intervening in the 2nd Annual Space Policy and Architecture Symposium on February 12, 1997, general Howell Estes, commander-in-chief of the US Space Command, was careful to note that any decision to renew development of space-based weaponry would not be made by the military, but all too clearly he stated that “we [...] support whatever decisions our elected leadership may arrive at regard to space control and the weapon systems required”.

In general Estes’ view, the USA must be able to “control space”, an action which he defines as “ensuring friendly use of space while denying hostile forces’ use of space against us”. As, in his opinion, “in purely military terms, the national dependence on space-based systems equates to a vulnerability and history shows that that vulnerabilities are eventually exploited by adversaries, so the US military must be prepared to defend these systems”. He mentions that space-based weapons are also “a viable alternative to ‘terrestrially-based’ systems”.⁶

Control of space, according to the USA military sector, can be achieved by a variety of means, ranging from diplomacy — which was used during the Gulf War to prevent the Iraqis from obtaining commercially available satellite imagery — to antisatellite weapons, including bombing enemy satellite ground stations and electronic jamming.⁷

“Facing an Air, Space Challenge”, is the title of the article by Col. James Smith, vice-director of the North American Aerospace Defense Command Operations, written in tribute to the 50 years of the USA Air Force.

He says: “As a service, the Air Force can no longer be air or space; it must be both. Traditionally, the Air Force has drawn a distinction between air and space missions; that distinction has been eliminated with the six core competencies for the Air Force of the future: air and space superiority, global attack, rapid global mobility, precise engagement, information superiority and agile combat support.”

He also stresses: “As this nation [USA] becomes increasingly dependent on its space resources, the need to defend those resources will become increasingly compelling. To this end, the space side must develop a war fighting mentality.”

And adds: “We are at a point in our service history where space is becoming the dominant medium over air. The Air Force must look at the future battlefield from the perspective gained at 30,000 feet and from that gained in geosynchronous orbit... The service must completely operationalize space, so airmen completely understand and control the air and space mediums. As we celebrate the first 50 years as a separate service, we honor our success in dominating the air medium. The next 50 years will require a dominance in both air and space. Such is a job for a US space and air force.”⁸

“Pentagon considers space as a new area of responsibility”, discloses the magazine *Aviation Week & Space Technology* in March 1997, spokesman for the USA industrial-military complex. The article discusses the view defended by the military in the debate underway at top North American government level, on whether outer space must be promoted or not to “a new area of military responsibility of the USA”.⁹

The publication mentions that today the USA has three “areas of military responsibility” — air, land and sea — and announces that, if president Bill Clinton agrees, outer space will become the fourth area. The suggestion is from the USA Space Command and is based on the Unified Command Plan (UCP), renewed every two years and always submitted to the Pentagon. This UCP defines the missions of the five Unified Commands with which the USA covers every important region on the planet: Central, European, Atlantic, Southern and Pacific. This, therefore, deals with creating the Unified Space Command, the sixth in the series.

The Plan, under study at the Joint Chiefs of Staff level, must be submitted to JCS Chairman Gen. John M. Shalikashvili, who will submit it for the White House’s final decision.

For those who suggested the idea, the active development over the last ten years of commercial space systems, particularly in the areas of communication, navigation and imaging, is analogous to “historical US economic expansions over land, on the seas and in the air”. “As the freedom to operate in each of these mediums became essential to the nation’s economic well-being, it was necessary to protect the associated lanes of commerce. That led to development of the US Army, Navy and Air Force. A

natural extension of land-, sea- and air-based economic activity is into ‘the fourth medium – space’, in the words of the publication. The following words of general Howell M. Estes, commander-in-chief of the US or unified Space Command (CINCSpace) and commander of the Air Force Space Command, seem to reinforce this: “All the commercialization [there indicates] that space will soon be of vital national interest.”

In fact, space and its business are already of crucial interest for the USA, as they are also for all other countries. What country today can live normally without telecommunication, meteorology satellites and reconnaissance of on-shore natural resources?

Here it is worth stressing: outer space is not destined for national expansions. The vast majority of countries, including the USA, have already decided to exclude from the new environment the ways of conquering new lands, seas and continents by which the most powerful countries divided and colonized our planet. It was also decided that no country is apt to extend its sovereignty beyond its air space. Since the early 1960s the fundamental principle was defined by universal consensus that all mankind is interested in the progress of the exploration and use of outer space for peaceful purposes and that the exploration and use of outer space should be carried on for the betterment of mankind and for the benefit of States irrespective of their degree of economic and scientific development.¹⁰ That is, everything that occurs in space is of general interest to every country and nation.

This is evident from the *Aviation Week & Space Technology*’s own information, despite its parochial view: “Today there are more than 200 US satellites in orbit, worth in excess of US\$ 100 billion, and many more scheduled for launch during the next few years. When international and allied spacecraft are included, more than 500 platforms are in Earth orbit...”

In this situation, general Estes’ conclusion could not be more one-sided: As these assets become more crucial to national welfare and economic strength, “I, as a military commander, have to say that somebody is going to threaten them; and when they [do], we [should] have armed forces to protect them.” He believes that, “if there was ever a threat to our national security [in space], the best — and only — way to solve the problem is to take weapons into space”.

General Estes, however, acknowledges that, at the moment, so far there is no visible or foreseeable foe. So much so that, he explains, the Space Command has not articulated a requirement for space control or force application systems, “because there isn’t threat that [demands] these types of systems in space”.

Yet the lack of a real enemy does not seem to discourage the strategists. The aforementioned general Joseph W. Ashy is much more concerned in how to structure the actions to be performed directly in space. He contributes to the special issue of *Aviation Week & Space Technology* which commemorates the 50 years of the USA Air Force, published in April 1997, with an article in which he emphasizes the need to think about the organization of space operations, since “future military operations will be sup-

ported not only from space (as in the first stages of airplane use, but also within and to space".¹¹

The Economist, in a recent cover article on "The future of warfare", states that "the world is in the early stages of a new military revolution", but that this "embryonic revolution" (...) "has not emerged in response to any particular threat to the USA and its allies", having only arisen because "the generals want to play with new technologies in case a future threat emerges", among which are the space threats.¹²

The "toy" of those USA generals, although the text does not say so, is also the plaything of the billionaire arms industry which has done nothing but lose since the end of the Cold War.

The joint happiness of certain generals and industries leads us to suspect that the arms race is not necessarily the result of effective danger, as was claimed, for instance, in relation to the "empire of evil", the former USSR — even when it was already giving unmistakable signs of serious internal distress, carefully disregarded in order not to prejudice the greater interest of furthering the dispute.

Along the same lines, French jurist Monique Chemillier-Gendreau warns in a recent paper that "the arms industries are over-sized in all industrialized countries in relation to their defense requirements" and that "the military machine looks like a crazy machine which escapes from political and social control".¹³

Any arms race always adopts its own dynamics, independent of the real life facts. It does not need real enemies for it to exist and flourish. Ghosts are enough.

In fact, the absence of adversaries, on Earth as in space, causes no embarrassment to the new USA defense secretary, William S. Cohen. His Quadrennial Defense Review, sent to Congress in the second fortnight of May 1997, lists the conditions to be met to accredit the USA to use its military power anywhere in the world.

The fourth condition is as follows: "The United States must retain superiority in space. Global intelligence collection, navigation support, meteorological forecasting, and communications rely on space-based assets. To maintain our current advantage in space even as more users develop capabilities and access, we must focus sufficient intelligence efforts on monitoring foreign use of space-based assets as well as developing the capabilities required to protect our systems and prevent hostile use of space by an adversary."¹⁴

This stance adopts, essentially, the strategic ideas prevailing in the country. Nevertheless, it has been criticized as "insufficient" by the National Defense Panel, formed by top military officers, which appraised the Quadrennial Defense Review report.

Specifically on the space segment, the Panel stated as follows: "Space is clearly of great importance to national security and we must maximize the effectiveness of functions carried out in space. Moreover, its value and range of uses will almost certainly increase exponentially over the next two decades. Access to space-based information allows us to better apply the military and civil systems we currently have as those in the acquisition stream. Threats to space access and our space-based systems include com-

puter 'hacking', electronic jamming, and future laser and kinetic energy systems. One can expect threats in space to further increase as the technology grows. It is the Panel's view that use of space and vulnerability to space threats received insufficient attention in the Quadrennial Defense Review. The Department needs to develop a strategy for maintaining access to space. Military strategy and doctrine in the 21st Century will be effective and viable only if space is addressed as a frontier vital to the warfight."

It is worth mentioning that the Defense secretary preferred to include in the report that the USA must "retain superiority in space" rather than "control space", as many of the military had suggested. The change is symptomatic. It reveals that the USA government cannot ignore or be indifferent to the universally recognized norms of the 1967 Space Treaty, in whose preparation the USA played an active role and to which it is committed since the beginning. A country's official objective to "control space" does not combine with the terms of the first two articles of this Treaty, considered as the space code.

Article I, § 2, stipulates that "outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there should be free access to all areas of celestial bodies".

Article II, in its turn, states that "outer space, including the moon and other celestial bodies, is not be subject to national appropriation by claim of sovereignty, by means of use or occupation or by any other means".

Now, controlling space cannot mean anything else but the act or power of exercising supervision, the domain and certain government over space, overseeing and judging what is or is not done there. This is incompatible with the principles of freedom of access, use and exploration of space for every country, without discrimination, and the non-appropriation of space in any form or pretext whatsoever. No country has any right to claim control over space, whatever the projected manner and alleged reason. Space, not belonging to any country in particular, belongs to everyone. The prerogative of adopting any kind of responsibility over it, especially military, either will be the joint competence of the United Nations or will be illegal. This is the text and spirit of the entirely in force international space law.

The USA Defense secretary's caution, therefore, is a positive sign of recognition of the prevailing international legality. He changed the legally unsustainable term "space control" for "superiority in space", an effective situation resulting from the technological advance of a country which, in principle, cannot be questioned from the legal point of view, unless this superiority means actions detrimental to the space activities of the other countries.

It so happens that this substitution does not change the planned military goals at all. *Aviation Week & Space Technology* is very clear in this respect: "The 'space control' theme is consistent with the Defense Department objectives set out in the Joint Chiefs of Staff's 'Joint Vision 2010' and a National Security Space Master Plan, developed by the deputy under-secretary for space, Robert V. Davis".¹⁵

Yet, there is a more sophisticated line of thought on “space control” in the USA Air Force Space Command itself. Major Cynthia A. S. McKinley, the Command’s political and strategy analyst, acknowledges that: “Today many nations and businesses are dependent on space systems, creating a much more complex environment than existing during the Cold War. Space is no longer the ‘high ground’; it’s more ‘common ground’. As a result, in her opinion, “the space warfighters need to start thinking of achieving military and political objectives through ‘campaigns’ that rely on influencing, deterring, compelling and defeating adversaries”. This is what she calls a “coercion spectrum”, considering it compatible with Defense Department’s emerging space control architecture and doctrine.

Major McKinley’s focus seems sensitive to the international nature of space. She understands that “the ongoing rapid commercialization of space is changing the potential combat environment from military domain to an internationally intertwined commercial domain”. And she argues that “space systems may not have a sole owner. Some satellites serve as many as 135 consortium members.”

This is why, in her mind, “the (US) military’s responsibility to control space is not to control the *medium*, but rather to control the adversary’s ability to exploit and derive benefit from the medium”. After all, the highest military goal is to deny an adversary the use of space systems.¹⁶

McKinley’s words are correct. Not so with the inference. As a self-defense measure — or to be more precise, as a preventive measure for the eventual use of the right to legitimate defense — any country, including the USA, has the right to be perfectly aware of what the other countries are doing in outer space and even what they can or aspire to do there. Yet no country has the right to act unilaterally and preventively against another country — denying it, in the case, access or use of space.

Every and any potential conflict or disputes on Earth or in outer space is under the absolute competence of the UN Security Council. This is the system established by the UN Charter, in its Chapter VII (Action with respect to threats to the peace, breach of the peace, and acts of aggression), whose prevalence in outer space and on celestial bodies is among the peremptory norms, from which no derogation is permitted and which can be modified only by a subsequent of general international law having the same character.

In contemporary international law and, especially, space law, the fact that a country considers another an enemy is not a merely domestic matter. It is international. It has to do with peace and security of the entire community of countries and peoples and, therefore, humanity as a whole.

In space, whose assimilation is defined as “the province of the all mankind” in Article I of the 1967 Space Treaty, the presence of disputes and, above all, potential conflicts is too serious a threat to the group of space activities with their increasingly essential implications to the development of life on Earth. It must be subdued as early as possible, with the explicit support and active participation of the whole community of countries, through their main intergovernmental organizations. The alleged hostile use of space is a problem to be ascertained, examined and face up by every

and not by one country alone.

Despite all this, the doctrine and strategy which treat space as “a vital frontier for war” seem to prevail in the USA, especially in the circles of power. Influential sectors desire that the country, which obstinately attributes to itself the right and role of judge in international questions and the world’s police, is prepared to act in the same way in space too. They see the new environment, first and foremost, as an area USA’s own area of strategic interest. They make no mention of the alternative or possibility at all of resorting to the joint effort of the international community, cooperation between countries, all equally interested in restraining abuse and aggression, as well as in the use and exploration of space for peaceful objectives. The USA’s one-sidedness, already so often revealed in arbitrary actions, tends to continue unchangeable at the time of galloping scientific and technological progress which they lead. In these times of such glorified globalization, its implacable nationalism shows no propensity to yield whatsoever.

“No one can be certain where this [military] revolution will end”, states *The Economist*. Great mistake. History has a lot to testify. Militarization plans, in general, end by artificially creating, fostering and even aggravating tensions. In particular, in today’s world conditions, they are perfectly capable of blocking and postponing the achievement of a more just global legal, democratic and cooperative order, claimed by the absolute majority of nations.

These trends and perspectives in no way whatsoever favor the best performance and consolidation of modern International Law with its focus on the superior mission of maintaining international peace and security. In history’s most violent century, when man did his utmost to destroy his own species and the planet where he lives, this law succeeded — as written in the UN Charter — in prohibiting the threat or use of force against the territorial integrity or political independence of any state, demanding an exclusively peaceful solution to the international disputes and admitting the use of arms only and exclusively in the common interest of world community.

The mere attempt to extend to outer space the logic of force and destruction, with such tragic consequences here on Earth, is much more than a dangerous step backwards in relation to these historical advances. It is an insult.

Yet there have been attempts to put the mind at rest with seemingly humanist reasons: “War in outer space would affect almost exclusively material objects and not human lives. It would be crewless satellites which would be destroyed or damaged. In outer space there would not be the slaughter which decorates the sorrowful war history archives. Nothing of Verdun, Stalingrad or Hiroshima. So why condemn it, then?”¹⁷

There is nothing but to condemn a cunning irresponsible bait on the subject of the utmost relevance for the evolution of the human race, for at least four reasons:

1) It is absolutely impossible to guarantee that the space war would be limited only to space objects and would not cause the death of human lives, as if the interests at stake in space were any different and remote from the interests at stake here on Earth.

2) There is not the least doubt that destruction, albeit partial, of the vast and varied group of satellites which today serve the inhabitants of our planet can bring incalculable damage to the economic, industrial, farming, financial, cultural, educational, technological and scientific activities of countless countries.

3) To categorically assure that there would be no massacres such as Verdun, Stalingrad and Hiroshima is to underestimate, without any real basis, the scope of the disastrous effects caused by the total lack of control of the blind and deaf space systems to be targeted.

4) Even assuming the absurd hypothesis that life would not be affected, nothing would justify the indiscriminate elimination of space objects created at such great cost by mankind over so many years, to enhance its existence and permit it an increasingly in-depth knowledge of the universe.

Space Law on space militarization

The 1967 Space Treaty, cornerstone of the Space Law, adopts, right at the beginning, three standpoints which denote its strong tendency and readiness against the military use of space:

1) It acknowledges "the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes";

2) It expresses the desire "to contribute to broad international co-operation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes";

3) It considers "applicable to outer space" the resolution 110 (II) of the UN General Assembly of November 3, 1947, which "condemned propaganda designed or likely to provoke or encourage any threat to the peace, breach of the peace or act of aggression";

In the same sense, in its Article III, the Space Treaty establishes that space activities shall be carried on "in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding".

In fact, the Space Treaty, drawn up between 1963 and 1966, seems to reflect, as far as possible, to its planners the desire for peace and understanding that captured international public opinion and community of nations in the 1960s in the middle of the Cold War. The text and spirit of this basic document are openly pacifist.

In 1984, in one of the worst phases of the Cold War, the judge of the International Court of Justice, Manfred Lachs, who played an active role in preparing the Space Treaty, emphatically reiterated, in the seminar on "the maintenance of outer space for peaceful uses", held in The Hague, Netherlands by the United Nations University: "However one may attempt to interpret the text [Space Treaty], the law is clear and is confirmed by the preparatory work: the goal is the full demilitarization of this new dimension".¹⁸

Nevertheless, at no moment does the Space Treaty determine that space must be used "exclusively for peaceful purposes". Such a clause would be unrealistic and in-

nocuous since it would clash with the strategic interests of the two conflicting space powers, the USA and USSR. That was when they had proven the excellent performance of the "spy satellites". At the same time and with identical concerns, they would never admit to closing outer space off to the passage of their intercontinental ballistic missiles armed with nuclear warheads, the ultimate in powerful weapons with which they fenced against each other.

Thus, however great were the peaceful desires and effort of selfless jurists from many countries, such as Manfred Lachs himself, against space militarization, it was not possible to fully prohibit its military use. Gaps continued. They were not, in fact, fully utilized during the Cold War. Today, they serve those who consider it inevitable and indispensable to store weapons up there.

These gaps are in Article IV of the Space Treaty, which deals specifically with the military issue. Let us analyze it.

Article 4 says:

'The States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.

The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall also not be prohibited."

In the first paragraph there are two very serious gaps:

1. Only mass destruction weapons placed in orbit around the Earth are prohibited. There is no prohibition — and therefore permitted — on semi-orbital flights of ballistic missiles carrying mass destruction weapons, which only leap into outer space and, therefore, do not enter the Earth's orbit;

2. Only mass destruction weapons (nuclear, chemical and bacteriological) are prohibited in space. There is no prohibition on any other kind of weapons, including the latest, laser or particle beams — therefore, permitted.

The only partial demilitarization of space — veto on testing nuclear weapons and putting into orbit mass destruction weapons — contrasts with the complete demilitarization of the moon and other celestial bodies, stipulated in the second paragraph.

The celestial bodies must be "exclusively for peaceful purposes". The moon, Mars and all the rest are free of military bases, installations, fortifications, manoeuvres and tests with any kind of weapons.

The Agreement Governing the Activities of States on the Moon and other Celestial Bodies¹⁹, known as the "Moon Agreement", approved unanimously by the UN General Assembly in 1979 and in force since 1984, gives more detail to the principle of demilitarization.

Its thorough Article 3 states:

“1 - The moon shall be used by all States Parties exclusively for peaceful purposes”.

2 - Any threat or use of force or any other hostile act or threat of hostile act on the moon is prohibited. It is likewise prohibited to use the moon in order to commit any such act or to engage in any such threat in relation to the earth, the moon, spacecraft, the personnel of spacecraft or man-made space objects.

3 - States Parties shall not place in orbit around or other trajectory to or around the moon objects carrying nuclear weapons or any other kinds of weapons of mass destruction or place or use such weapons on or in the moon.

4 - The establishment of military bases, installations or fortifications, the testing of any type of weapons and the conduct of military manoeuvres on the moon shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration and use of the moon shall also not be prohibited.”

The Moon Agreement, despite the unanimous approval of the UN General Assembly, has been ratified today by only nine countries, among which there is no space power. This, of course, prejudices its influence and authority. Yet in no way does it weaken the principle of total demilitarization of the Moon and other celestial bodies, set out, first and foremost, in the Space Treaty, of undeniable validity and only given in greater detail in this Moon Agreement.

It so happens that both Article IV of the Space Treaty and Article 3 of the Moon Agreement have, in the end, an identical text permitting the use of military personnel, as well as equipment and installations of a military origin, in scientific and other activities, as long as they are for “peaceful purposes” and consist of “peaceful exploration” of the celestial body.

This is justified in the dual nature of space technologies, which can attend peaceful or military purposes.

The most important item in this provision is, however, the clearly stipulated contrast between “military” and “peaceful”. The military, together with their equipment and installations, can only be admitted on the moon and other celestial bodies if they are not exercising their main, military, tasks, and if they are at the service of “peaceful” projects. It is of little importance if the military activities are “aggressive” or “non-aggressive”. They just need to be “military” to be unacceptable.

The same focus has already been confirmed in the Antarctic, the first continent on Earth completely demilitarized through an international agreement. The 1959 Antarctic Treaty stipulates, in Article I, that this region “shall be used for peaceful purposes only”, and that in it “there shall be prohibited, *inter alia*, any measures of military nature, such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of any type of weapons”.

The whole practical experience of 40 years of a demilitarized Antarctic — without banning the admission and work of military specialists — clearly shows that any effectively military activity is incompatible with its special status

as territory devoted exclusively to peaceful projects.

The ocean bed, soil and subsoil areas, outside the jurisdiction of the States, also “is open exclusively to peaceful purposes”, according to Article 141 of the 1982 UN Convention on the Law of the Sea, in which arms testing nor their installation is permitted.

In the same way, the multilateral agreement signed in 1988 between the USA, European Space Agency, Japan and Canada to build an international permanently manned civil space station linked the project to “peaceful purposes” in its Article 1.1. These words have been interpreted by Ivan Vlastic, professor of the Aviation and Space Law Institute of McGill University in Montreal, Canada, as follows: “Considering that the major problem in negotiating this agreement was the strong opposition of the majority of the participating States against the military having anything to do with the design or use of the station, the inclusion of the term “peaceful uses” can have only one logical meaning — ‘non-military’.”

Understanding “peaceful” as “non-military” appears to be obvious. The first resolution of the UN General Assembly on a space issue on November 14, 1957, after Sputnik I was launched on October 4 that same year, introduced the term “exclusively for peaceful purposes” with the unmistakable meaning of “non-military”. This view had full support from the USA government. In January 1958, President Dwight D. Eisenhower proposed to the USSR that their two countries should agree to use outer space “only for peaceful purposes” and not for “testing missiles designed for military purposes”.²⁰

It so happens that, exactly at this time, in the late 1950s, military reconnaissance satellites had become technically feasible. Shortly afterwards, they inaugurated the first military use of space. The merit probably goes to the North American military watch program called Samos (Satellite and Missile Observation System) which launched around 20 satellites between October 1960 and January 1963.²¹

It was at this time, then, that the theory arose in the USA that the military satellites not involved in aggressive operations could and should be considered “peaceful”, since they would be harmless. Richard N. Gardner, university professor and vice-secretary of State for the USA, sustained that “the test of the legitimacy of a particular use of outer space is not whether it is military or non-military, but whether it is peaceful or aggressive”.²² With this, the “passive” military satellites, such as those of reconnaissance (espionage), communication, navigation and others, would be part of the respectable “peaceful” list.

This position was adopted by many jurists, especially in the USA. Stephen Gorove, for instance, states that it “is supported by the UN Charter, which does not consider general military activities illegal, and only prohibits the threats to the peace, breaches of the peace and acts of aggression”.²³

Of course, the Charter does not ban all military activities. It permits defensive military activities to qualify the countries to exercise their “inherent right of individual or collective self-defense if an armed attack occurs (...) until the Security Council has taken the measures necessary to maintain international peace and security”, as stipulates

Article 51 in the Charter. Nothing fairer than that. Yet this does not turn defensive military actions into “peaceful” ones. By their very nature, they continue being “military”, albeit “defensive” and, therefore, “non-aggressive”. Military activities can be “aggressive” and “non-aggressive”. This does not mean they cease to be military. Nor does it mean that “non-aggressive military” becomes “peaceful”.

Hence the ironic reaction of Vladlen Vershchetin, today judge of the International Court of Justice: “Semantic methods can not transform a military activity into peaceful activity and vice-versa; in any language, peaceful activity remains peaceful, and military, military.”²⁴

Along the same lines, E. Kamenétskaia went even farther and warned that “certain efforts to distort the generally accepted meaning of the word ‘military’ (making it synonymous, for example, with ‘aggressive’) are of doubtful legitimacy; and do not help elucidate the truth”.²⁵

In fact, the effort to restrict the meaning of “military actions” solely to “aggressive” actions and placing non-aggressive military activities on the same plane as peaceful activities, as if following the same dynamics, being stimulated by the same interests and pursuing the same objectives, can be seen as a mere artifice to disguise or hide the true nature of each kind of activity in question.

If in space military activities are not entirely prohibited, as they are on the moon, it does not make the least sense to give certain military operations the title of peaceful. Very much to the contrary, it is necessary to clearly define the military uses permitted today or tolerated in practice. This has the double advantage of granting such uses the necessary guarantee of legitimacy and, at the same time, fixing in a clear cut fashion a reasonable and controllable limit on the space militarization process.

The greatest danger, today, lies in introducing, installing and using weapons in space. If this boundary is crossed, as many would like, it is most probable that the insecurity and uncertainties of the space activities in general and the nations themselves here on Earth increase.

A serious practical problem must not be minimized: if we permit the admission of weapons to space, we will be worsening the situation in such a way that, as Kamenetskaia very well warned, there will be no going back. As historical experience shows, it is much more difficult to remove already installed weapons from somewhere than prevent their installation.

Important legal instruments help us in this task, providing that they are kept enforced, strengthened and even developed.

According to Article V of the Treaty Between the USA and the USSR on the Limitation of the Antiballistic Missile Systems, signed in 1972, known as the “ABM Treaty”, “each Party undertakes not to develop, test, or deploy ABM systems or components which are sea-based, air based, space-based, or mobile land-based. From the start, it permitted each country to build two earth-based antimissile systems. Later, under the 1974 Protocol, only one was permitted. This was to prevent the installation of a nationwide antimissile defense system to protect the whole country, since such a structure would be a breach of the principle of strategic parity considered essential for the coexistence

between the two powers.

To “legalize” its aforementioned project, “Strategic Defense Initiative” (SDI), an enormous anti-missile system with a vast space segment, destined to make USA territory inaccessible to Soviet missiles, the Ronald Reagan government curiously did not wish to run the political risk of withdrawing unilaterally from the ABM Treaty and preferred to interpret its rules *sui generis*; the anti-missile systems with weapons based on new technologies, such as directed energy, foreseen in the SDI, non-existent at the time of signing the ABM Treaty, would be free of prohibition.

The manoeuvre failed. The new interpretation was rejected by important members of the USA Congress, North American diplomats and specialists who negotiated the ABM Treaty, the country’s scientific and academic community and most of the allied countries. Thanks to this, to the end of the Cold War and the need for cuts in government spending, the SDI lost its *raison d’être* and its character as a megaproject. But it did not disappear altogether.

This year, 1997, the Clinton government announced its intention to double the program’s budget over the next six years, from US\$ 2.3 to US\$ 4.6 billion. It is a solid basis for the qualitative advance of space militarization. However, it will first have to substantially change the ABM Treaty.

As Scott Pace tells in “Economic Interests and Military Space Systems: an American Perspective”, “for many supporters of ballistic missiles defences, the ABM Treaty is seen as an anachronism that should be dropped as soon as possible.”²⁶ This is why defending the original integrity of this treaty helps block space from arms installations.

The 1977 Convention on the Prohibition of Use of Environmental Modifying Techniques with Military or Any Other Hostile Uses, considers illegal all “deliberate manipulation of the natural processes”, with military uses, and which aim at “modifying the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or outer space”. Article 1 of the Convention vetoes the military use of environment modifying techniques with widespread, lasting or serious effects, to cause destruction, losses and damage to other countries. It is not an easy nor direct instrument to apply. Yet it may be assumed, without much difficulty, that the launching of modern weapons against space from Earth, against Earth from space and in space itself, and the consequent conversion of this environment in a battlefield, will surely be extremely detrimental today to the natural processes both of space and Earth.

The 1979 Strategic Arms Limitation Treaty, known as “Salt II” prohibits in its Article 9 the development, testing and deployment of nuclear or mass destruction arms systems in Earth’s orbit, including fractional orbit missiles.

The historic first Strategic Nuclear Arms Reduction Treaty (Start I) in 1991 reduces the arsenals of ballistic missiles and, although does not restrict the military use of space, reinforces the ABM and Salt II Talks, as well as all arms control measures adopted by the USA and USSR (today the Russian Federation).

Ironically, on the same day as presidents George Bush and Mikhail Gorbachev signed Start I, the USA Sen-

ate approved the Missile Defense Act, planning on the construction shortly in Grand Forks, in the State of North Dakota, of a new anti-missile defense system, described as the first step towards deploying a nationwide system. The Act itself recognizes that, in order to be effectively implemented, the ABM Treaty would have to be amended.

In 1995, the USA Congress approved a law linking the country to the development and installation of a multiple antimissile defense system covering all American territory.²⁷ They are further proof of how important it is to keep the ABM Treaty intact.

Outer space not only continues free of any kind of weapon but has never been the stage for a single hostile act. To keep it like that, however, the current legal benchmark regulating its military use is, without a doubt, not enough and needs to be substantially enhanced before it is too late.

Ways to avoid total space militarization

“What could and may prevent outer space being transformed into an arena of military contest and arms-protected territory?”, asks Kamenétskaia, and she herself replies; “The answer lies not on the technical, but on the politico-legal plane. It is a matter of political will, of political decisions, of legal obligations. In this connection it should be emphasized that the essential factor in restraining the militarization of outer space is international law.”²⁸

This means that the political will, negotiations and decisions are indispensable elements in the process in question, but not enough. The political vector must be committed to an effort of cooperation and convergence which, by necessity, leads to the joint preparation of clear-cut effective and powerful legal obligations, approved mutually and in complete harmony with the basic principles of international law, consolidated in the UN Charter and, in this case, also in the Space Treaty.

The use and exploration of space — indispensable, extremely risk and increasingly complex — are, more than ever, strategic activities for peace, security and the development of all countries and humanity. The States — and their public or private companies — involved in space programs have the responsibility and obligation to immediately anticipate the facts that may cause damage and loss to the other countries, as stipulated in Article IX of the Space Treaty.

This is why the space law, like other vanguard branches of modern Law, has the special duty of advancing possible or probable contexts of major and recognized danger, adopting clearly preventive measures.

On the other hand, space, as a medium of an already indispensable universal utility, albeit still contaminated with uncertainties and threats, requires strict legal security, that is, the prevalence of objective clear norms which guarantee the domain of the law over the individual will.

This is especially important inasmuch as predictability and objectiveness of the legal norms are not in many times of interest to the stronger countries, accustomed to getting their own way: they prefer individual negotiation,

where they can more easily make their strength and interests prevail.

It is worth mentioning that, in the current international scenario, the absence of partners to negotiate with the USA on equal conditions may reduce even further its reluctance to make concessions to the concerns of most of the other countries, which are in no conditions to make corresponding concessions.²⁹

Thus, it is not hard to predict: the space law provision which impedes total space militarization will be the crowning achievement of outstanding politico-legal work, able to overcome apparently invincible obstacles in today's world, which is so unequal and still so powerless before frequent arbitrariness.

This crusade, however, has already begun. Let us look at some of its landmarks:

In 1978, the UN General Assembly, in the final report of the Special Session on Disarmament, succeeded for the first time in recommending that “in order to prevent an arms race in outer space, further measures should be taken and appropriate international negotiations held”.³⁰

In 1979, Italy submitted to the Disarmament Committee the project of a Protocol to the 1967 Space Treaty, proclaiming the intention to wholly prohibit military activities in outer space and stipulating the prohibition against “the development and use of earth-based or space-based systems designed to damage, destroy and interfere with the operations of other State satellites”, as well as the tests with any kind of weapon.

In 1981, the UN General Assembly asked the Disarmament Committee, consisting of representatives from 40 countries, to give priority and study forms to prevent the extension of the arms race into outer space, with the aim of drafting an effective and verifiable agreement.

In 1981, the USSR proposed the project of “Treaty on Prohibition of Placing Weapons of Any Kind in Outer Space”, which, however, vetoes only weapons placed in orbit around Earth, and therefore does not include ground and air-based anti-satellite devices. But the greatest flaw in this project is its Article 3, under which “each Party-State of the Treaty is committed to not destroying, damaging nor interfering in the operation of other countries' space objects, if these objects are placed in space strictly according to Article 1, paragraph 1, of this Treaty [Do not deploy in orbit objects around Earth which carry any kind of weapon aboard]”. Such terms lead to the absurd idea that it is admissible for each country to have the right to attack a satellite of another country if it thinks that it carries weapons. This would mean legalizing the use of force in space in the form of a unilateral and preventive action, in breach of the UNO Charter. Another serious flaw: the project permits that the member countries of the Treaty withdraw from it when “extraordinary facts ... endanger their supreme interests”. Yet the most valuable point in treaties of this nature is that they have to work exactly at extraordinary moments.

In 1983, the USSR proposed, in a letter from its minister of Foreign Affairs to the UNO secretary-general, the project of “Treaty on Prohibition of the Use of Force in Outer Space and from Outer Space with respect to the Earth”. The proposal, broader and more convincing than that of

1981, had the great merit of banning the anti-satellite systems completely, including those based on the ground and in the air. Moreover, it creates a Consulting Committee to solve the problems that may arise while implementing the treaty, and simply does not foresee the possibility of the countries resigning from it.

In 1985, the USSR included in the agenda of the UN General Assembly agenda the item "On International Cooperation in Peaceful Exploration of Outer Space Under Conditions of the Nonmilitarization Thereof".

In 1986, the USSR government, in a letter to the UN Secretary-General, further developed the document of the previous year and proposed to create a World Space Organization as part of an ambitious global space cooperation program, based on the premise of "nonmilitarization" of outer space. The Soviets defined "nonmilitarization" of outer space as "the rejection by the States of the creation (including the corresponding scientific research work) of tests and development of space arms". But this restricted definition of the expression did not move the USA government, which has always preferred to interpret it as embracing every and any military use of outer space. This, of course, greatly contributed to putting an end to the proposal.

In 1986, the USSR proposed at the Disarmament Talks the signing of an international agreement guaranteeing satellite immunity, prohibiting the development, testing and deployment of anti-satellite weapons, and eliminating those already in existence.

In 1987, the USSR recommended to the *Ad Hoc* Committee that it consider the possibility of forming an international checking system for satellites and other space objects before they are launched, to intercept the dispatch of arms to outer space.

In 1988, the USSR submitted to the Disarmament Committee the memorandum "On the Creation of an International Control System for Not Allowing the Stationing of Weapons of Any Kind in Outer Space", with the aim of on site inspection of all objects ready to be launched into space, against their carrying weapons. The memo omits the phrase "non-militarization". It goes straight to the point. (The proposition is similar to the France one made in 1978 on the creation of the "International Satellite Monitoring Agency".)

In 1989, Venezuela proposed at the Disarmament Talks the increase in scope of Article IV of the Space Treaty, extending its prohibition to all kinds of weapons and attributing to all member-countries the obligation of "not developing, producing, storing or using such weapons".

In 1992, the *Ad Hoc* Committee report discusses the two basic clashing views on this subject. For the so-called Western powers, among them the USA, "the existing legal regime provided an equitable and balanced response to the need to promote peaceful uses and arms control in outer space". Most of the Committee's member-countries, however, think that the existing legal instruments were "not satisfactory"; "Limited in scope, they were utterly inadequate in forestalling an arms race in outer space in that they contained no clear-cut provision on the prohibition of all types of space weaponry".

In 1993, France and other countries proposed at the Disarmament Talks an amendment to Article IV of the 1975

Convention on Registration of Objects Launched into Outer Space, seeking to ensure that more specific information on the real mission of each satellite, especially with regard to its civil or military nature, be more rapidly disseminated before the respective launching. At the same time, they suggested the creation, under the auspices of UN, of an international center in charge of collecting and distributing information supplied by the countries launching space objects. The absolute transparency of the essential data of each space launching, if effectively complied with, can encourage an atmosphere of confidence, which may get rid of suspicions between the countries, weakening the argument that defends outer space arms deployment against "possible future enemies".

It is worth recalling that Brazil did not sign the Convention on Registration of Objects Launched into Outer Space, precisely because it considered the data required by it for space launchings insufficient.³¹

Everything indicates that for some years now the *Ad Hoc* Committee has been spending much more time in discussing confidence-building measures than in preparing an agreement or agreements to block outer space against the arms race. It is a deviation from its principal task. There are by no means few countries which criticize this unjustifiable change in direction. One of them is Russia, which maintains the USSR position on this subject. However beneficial it may be, confidence-building does not substitute the fully assumed and written legal commitment, in terms of effectiveness and security.

The new post-Cold War reality permitted the USA and Russia to adapt at lower levels of its military parities, especially in the nuclear field.³² The cause of global disarmament could advance as it had never done before. The following are the documents achieved in this short period:

- 1) Treaty on the Elimination of Intermediate-Range and Short-Range Missiles, 1987;
- 2) First Strategic Nuclear Arms Reduction Treaty, 1991 (Start I);
- 3) Second Strategic Nuclear Arms Reduction Treaty, 1993 (Start II);
- 4) Open Skies Treaty, 1992, signed between USA, Canada and 23 European countries, among them Russia;
- 5) Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Arms and Their Destruction, 1993, in force since April 1997, and which took 20 years to be ready;
- 6) Comprehensive Test Ban Treaty (CTBT), 1996, also an old claim by most countries.

Thanks to Start I and II, if everything goes according to plan, in 2003 there will only be 30% of the nuclear arsenals calculated in the USA and Russia in 1990, that is, 3,500 warheads in each country, instead of 12,718 and 10,779 respectively. There are also expectations around the negotiation of Start III planned for the USA-Russia summit meeting in Helsinki in May 1997, soon after the ratification of Start II by the Russian parliament. Start III may diminish the nuclear arsenals to around 2,000-2,500 warheads within ten years.

In 1995, it is fair to add that the review mechanism of the Treaty on The Non-Proliferation of Nuclear Weapons (NPT) was reinforced to enable the non-nuclear member-

countries to put more pressure in favor of nuclear disarmament.

By the end of 1997, it is expected to conclude an international agreement prohibiting antipersonnel mines, if the USA back this project.

All this, of course, would be unthinkable just over ten years ago.

Curiously enough, so far there has been no legal advance in the scope of the multiple attempts to close outer space to the arms race.

It so happens that the vast majority of UN member-countries wish to prohibit space weapons and their influence only tends to increase, in the coming years, with the increasingly active development of outer space activities in the field of scientific research, industry and services, and with the growing interest and participation of more and more countries and private corporations in such prosperous enterprises.

Thus, from an optimistic viewpoint, perhaps the day is not too far away when beneficial blessed perseverance of the world community will have achieved the mutually agreed political desire and decision to exclude from history the possibility of total outer space militarization.

When that day comes, one of the first multilateral legal tasks will appear logical and urgent: to update the Outer Space Treaty, starting at Article IV, which admits putting arms in outer space, except for nuclear and mass destruction weapons.

Article IV perhaps was useful in the time of deterrence and balance of terror. Today we live in the age of widening the commercial and scientific uses of outer space. The historic mission is to close the sky for the arms race forever. It means – *inter alia* – the elimination of the present incoherence and the discrepancy between article IV, on one hand, and, on the other, articles I (outer space only for benefits and in the interests of all countries) and IX (cooperation and due regard to the corresponding interests of all countries).

It would be quite important for the UN General Assembly to request an advisory opinion from the International Court of Justice on this topic in order to open a better legal way to prevent the deployment of weapons of any kind in outer space, as the one recently requested about the legality of the use of nuclear weapons. After all, these questions are related and their subject is the same: to warrant peace on Earth as in space.

The present generation has the chance to stop the gaps, through which today space actions can infiltrate which could put an end to the outstanding Article I of Outer Space, in which, as a pioneer, the common good of all mankind is established as a law. Will we make good use of this?

Notes

1. **Space Law: Development and Scope**, edited by Nandasiri Jasentuliyana: foreword by Manfred Lachs, Praeger Published, 1992, p. x.

2. **Vlasic, Ivan**, *Space Law and the Military Applications of Space Technology*, in *Perspectives on International Law*. Edited by Nandasiri Jasentuliyana, London: Kluwer Law International, 1995, p. 388.

2A. *Id.* *ibid.*

3. **Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies**, approved by UNO General Assembly, as Resolution 2222 (XXI) on December 19, 1966, was open for signature by the States on January 27, 1967 and in force since October 10, 1967.

4. *Aviation Week & Space Technology*, August 5, 1996.

5. *Space News*, February 17-23, 1997.

6. *Space News*, February 17-23, 1997.

7. *Space News*, February 17-23, 1997.

8. *Space News*, March 24-30, 1997.

9. *Aviation Week & Space Technology*, March 24, 1997.

10. **Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space**, Resolution 1962 (XVIII) of UN General Assembly on December 13, 1963.

11. *Aviation Week & Space Technology*, March 24, 1997.

12. *The Economist*, March 8, 1997.

13. **Chemillier-Gendreau, Monique**, *Humanité et souverainetés — essai sur la fonction du droit international*, Paris: Editions La Découverte, 1995, pp. 293/4.

14. *Defense News*, USA, via Internet.

15. *Aviation Week & Space Technology*, February 26 and March 17, 1997.

16. *Aviation Week & Space Technology*, March 10, 1997.

17. **Grouard, Serge**, *La Guerre en Orbite — Essai de politique et de stratégie spatiales*, Paris: Ed. Economica, 1994, p. 221.

18. **Maintaining Outer Space for Peaceful Uses**, edited by Nandasiri Jasentuliyana. The United Nations University, 1984, p. 7. Manfred Lachs, judge of the International Court of Justice, headed the seminar. As chairman of the Legal Sub-Committee of the UN Committee on Peaceful Uses of Outer Space (Copuos) in the 1960s, he played a fundamental role in the preparation process of the 1967 Space Treaty.

19. **Agreement Governing the Activities of States on the Moon and Other Celestial Bodies**, approved by the UN General Assembly as Resolution 34/68, on December 4, 1979. Open to the signature of the countries on December 18, 1979. In force since July 11, 1984. Today it has nine ratifications (Australia, Austria, Chile, Philippines, Morocco, Mexico, The Netherlands, Pakistan and Uruguay) and five signatures (France, Guatemala, India, Peru and Romania).

20. **Vlasic, Ivan**, *ib.*, p. 390.

21. **Cotardière, Philippe de la, & Penot, Jean-Pierre**, *Dictionnaire de L'Espace*, Paris: Larousse, 1993, p. 204.

22. **Vlasic, Ivan**, *ib.*, p. 391.

23. **Gorove, Stephen**, *Developments in Space Law*, The Netherlands: Martinus Nijhoff Publishers, 1991, p. 257.

24. **Kamenétskaia, E. P.**, *International Legal Problems of Preventing an Arms Race in Outer Space*, in *Perestroika and International Law*, edited by W. E. Butler, The Netherlands: Martinus Nijhoff Publishers, 1990, p. 149.

25. *Id.* *ib.*

26. **Pace, Scott**, *Economic Interests and Military Space Systems: An American Perspective*, in Gasparini Alves, Péricles (editor), *Evolving Trends in the Dual Use of Satellites*, Unidir, United Nations Institute for Disarmament Research, Geneva, 1996, p. 146.

27. **Jankowitsch, Peter**, *Legal Aspects of Military Space Activities*, in *Space Law: Development and Scope*, edited by Nandasiri Jasentuliyana: foreword by Manfred Lachs, Praeger Published, 1992, p. 153. Also see SIPRI Yearbook 1996 Armaments, Disarmament and International Security, Stockholm International Peace Research Institute, New York: Oxford University Press, 1996, p. 650.

28. **Kamenétskaia, E. P.**, *ib.*, p. 147.

29. **Jankowitsch, Peter**, *ib.*, p. 155.

30. **Vlasic, Ivan**, *ib.*, p. 401.

31. **Convention on Registration of Objects Launched to Outer Space**, approved by UN General Assembly, as Resolution 3235 (XXIX), on November 12, 1975. Open for signature of countries on January 14, 1976, in force on September 15 that same year. It has four signatures and 39 ratifications. On Brazil's decision not

to sign this convention, see Monserrat Filho, José, *O Brasil e o Direito Espacial (I)*, in *Revista Brasileira de Direito Aeroespacial*, no. 64, July-December 1993.
 32. Lafer, Celso, "Dividendos da paz" no mundo pós-guerra fria, *O Estado de São Paulo* newspaper, July 5, 1997, p. 2.

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