

RECENT DEVELOPMENTS IN SPACE LAW

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I am honored to speak with such an illustrious group as we have here today. My topic is listed as New Developments in the Law Relating to Man's Activities in Space. For reasons of time constraint, this has been converted into a brief discussion of some areas of law requiring new interpretations, interpolations, or treaties in the law relating to space activities.

There is already a very substantial body of treaty law and municipal law relating to space activities, but technology is ahead. There are some three hundred books, many repetitive, on the subject, and the number of articles reaches into the thousands. Much of this literature is not worth reading. In spite of all this "erudition," the extent to which we do not have developed law is exemplified by the fact that we do not know — legally or scientifically — where air space ends and where outer space begins.

There are thirty-five or forty theories on where outer space begins, but none are scientifically sound, and any demarcation between air and space would be arbitrary. In contrast to water, there is no physically identifiable upper boundary to the earth's atmosphere. The reach of gravity provides no guide either. Gravity holds the earth in place relative to the sun and holds the solar system in place relative to the Milky Way galaxy. The end of gravity's influence is inconceivable. Other theories are equally defective. Perhaps in the future functional definitions rather than physical lines of demarcation will be developed.

The enormous importance of activities in space, both peaceful and, unfortunately, militarily oriented, is recognized internationally. Laws relating to the uses of space are evolving into a substantial body of complex and specialized international law that will become increasingly important as the technology of utilizing space develops. The number of lawyers making their living from the practice of space law will probably never be very great, but the importance of their work will be disproportional to their numbers.

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General international law applies to the intercourse of nations wherever they may come into contact with each other. Consequently, general rules of international law apply to activities of nations through their agents in space, although there have been erroneous assertions that a legal void exists in space.

The interpolation of customary international law and the positive law of treaties for space activities has of necessity been extensive, since the fact situations present in space today were never thought of in the hundreds of years in which international law, as we know it, was developing. It is necessary to develop new treaties, to the extent possible, to deal specifically with the new problems. However, sufficient technical knowledge is not yet available upon which to base a comprehensive codification of law relating to space activities. The first general treaty relating to space, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, came into force in 1967. In broad and sweeping terms, it provided that space be utilized for peaceful purposes only; that there be no national sovereignty in space; that space not be used for military purposes; that space be devoted to the benefit of all mankind; and that absolute liability for all injuries resulting from activities in space be the rule. A number of additional space law treaties ban the testing of any weapons of mass destruction — including nuclear weapons — in the atmosphere, in outer space, and underwater.

Treaties also provide for an International Telecommunications Satellite organization (InTelSat). InTelSat was initially dominated by the United States because financing and technology were from the United States. The InTelSat treaty has now been substantially revised, internationalizing management and control, although approximately seventy-five percent of its traffic commences or ends in the United States. This change was a concession on the part of the United States to induce other countries of the world to participate to a greater extent in satellite communications. This revision has provided remote areas of the world with modern communications at a fraction of the cost of conventional land lines.

Additional treaties provide for the rescue of astronauts and their return to their respective countries. A separate treaty establishes the absolute liability of a nation from which a satellite is launched or which has procured a launching. Regardless of who within a nation launches a satellite, the nation itself is liable. If the United States is hired to launch a satellite for another nation, the

United States is jointly and severally liable with the nation which hired the launching.

The only claim to arise thus far is the nuclear contamination claim of Canada resulting from the disintegration of a Soviet nuclear-powered satellite over Canada. Canada has submitted a claim to the Soviet Union using the Space Liability Treaty and the United Nations machinery. The negotiations for the settlement of the claim are, however, bilateral between Canada and the Soviet Union rather than within the United Nations. If in the future, nuclear power is extensively used in satellites, it will be desirable to negotiate a new multilateral treaty dealing with the specific and complex issues of liability for injury in the event of an accident.

The cooperative arrangements that attend many of the scientific space projects have resulted in the development of perhaps fifteen hundred executive agreements to which the United States is a party. They relate to experiments, information retrieval, and the tracking, control, and recovery of satellites. Frequently there are multiple scientific projects inside the same satellite. The various nations that have an input have cooperative agreements and are jointly and severally liable. The United States has been the principal country to launch these cooperative space probes; the Soviets are a distant second. The Soviets, however, have led the way in launching astronauts from other nations and in launching female astronauts. These cooperative agreements are usually bilateral, and few are noted by the United Nations, but in the aggregate, these cooperative bilateral treaties are of considerable significance in establishing patterns of cooperation.

As years go by, new space law treaties between the great powers will be needed, since science and technology will not remain static. While lip service will undoubtedly continue to be given to the United Nations, it is unlikely that the United Nations will play a major role in the negotiations. The major space issues will be negotiated between the space powers concerned. The remaining nations and the United Nations will be enlisted for the purpose of drumming up support and giving a United Nations gloss to an accomplished agreement after the agreement is reached. The United States and Russia are the only significant space powers at the present time. Therefore, it is obvious that one or the other or both of these countries will be parties to any substantial space negotiations.

Unless trends are reversed, the future input of the United Nations in resolving global issues will diminish. Even now major world problems are not handled as United Nations problems, al-

though they are of great interest to the United Nations and may be on the agenda for discussion. Thus, the Arab-Israeli treaty negotiations have a slight United Nations gloss, but the decisionmaking has been trilateral. Realistically, the SALT negotiations are only between the United States and the Soviet Union.

This may or may not be regrettable depending upon individual views, but the entire structure and purpose of the United Nations has changed from what it was when the United Nations was established at the end of World War II. There are now one hundred fifty members, and one hundred twenty are Third World nations. The basic goal of Third World nations is to modernize quickly and painlessly. They expect the Western industrialized states to provide the formula and resources for instant modernization.

The communications discussions recently held in UNESCO and elsewhere provide clear examples of this philosophy. The underdeveloped nations stridently demanded that the industrialized nations, specifically the United States, provide for them, without cost, the physical facilities for satellite communications and instant education to enable them to utilize these facilities. The United States has made some very generous offers along these lines. In addition, Third World nations are demanding guaranteed access to the world media with an absolute right to inject their own materials into the news broadcasts and an assurance that their materials will be given substantial prime time coverage in the developed countries. The Western countries cannot force the free media to broadcast what would obviously be propaganda of the Third World countries; therefore, it is improbable that any treaties satisfactory to the underdeveloped countries can be negotiated.

In space, as in political and economic fields, negotiations reveal the differences between developed nations and underdeveloped nations. The Soviets, however, usually side with the underdeveloped nations. The solutions will, therefore, usually be worked out between the two major space powers. The views of the underdeveloped countries will be considered but will not control. The results will be based upon policy, rather than narrow legal studies, and hopefully the policy decisions will then be encased in understandable legal language.

Aggressive use of space is forbidden by treaty. There are, however, frequent violations of the spirit of the treaty, and it is extremely difficult to determine precisely what actions are proscribed. Is an anti-missile missile forbidden? What is and what is not a peaceful and proper use of space? Remote sensing devices for use

in space have been developed to such a sophisticated level that a satellite passing overhead can almost tell whether or not your up-turned wristwatch is on time. Presently, the space powers take the position that the passage of a satellite overhead does not violate the territorial sovereignty of the national beneath it. In regard to airplanes, exactly the opposite view is followed as demonstrated by the U-2 incident, although the logic underlying the distinction is not clear. The Soviets have suggested a rule of international law whereby if a picture resolution is less than fifty meters across it becomes impermissible espionage. The Soviets are not in a good position to object, since it is well-established that they are expending major efforts to improve their own remote sensing capabilities. Unfortunately, successful Soviet espionage has uncovered some of the most sophisticated United States sensing secrets. Presently, it appears doubtful that nations know what they want in a treaty concerning these points, and the additional question of who is entitled to receive the military, economic, and political intelligence gleaned by satellites.

Another interesting problem has arisen within the past year or so. A number of equatorial countries, especially Latin American, are now claiming sovereignty over the positions in space used primarily to place satellites in geosynchronous orbits for communications. These geosynchronous satellites travel at approximately 22,300 miles above the equator as they orbit the earth every twenty-four hours. The satellites have fixed positions relative to the earth, although their positions in space are constantly changing. It is only over and parallel to the equator that such an orbit can be established, since the plane of the satellites' orbit must pass through the center of the earth and be perpendicular to the polar axis. The claim of sovereignty over this space is contrary to the terms of the 1967 treaty, which prohibits sovereign claims to any area in space. Soviet interests coincide with those of the United States on this matter. Latin American position papers do not present a strong legal argument. They argue the space powers will put so many satellites in geosynchronous orbit they will foreclose Third World nations from being able to utilize geosynchronous orbits when and if they become able to launch their own satellites. In all probability most of the small, lesser-developed nations will only be able to utilize the geosynchronous orbits if they hire the launches from one of the space powers. The cost of developing this space capacity is too great to be economically justified. As a matter of national prestige they may make the effort anyway, but they are not likely to be able

to commit the necessary amount of scientific effort as well as financial and manufacturing resources to such a project.

A further complexity regarding communications satellites is the Soviet and Third World demand that broadcasts from satellites directed into home radio and television receivers be subject to censorship. Such broadcasts are technologically possible and could be operational within a few months from the time a political policy decision to broadcast was made. Jamming satellite transmissions can be quite expensive, however, and the Soviets might be tempted to use an anti-satellite satellite or killer satellite to knock an offending communications satellite out of orbit. The Soviet-Third World demand presents complex constitutional issues for the United States, a subject on which Mr. Thomas Arthur and I are preparing a book.

Sunday newspaper supplements have carried many imaginative articles about the development of space colonies. It is doubtful that any independent self-sustaining colonies will ever be developed, however, because of the need to maintain an earth-type atmosphere for the production of food. Wholly captive and dependent colonies would create complex legal problems. Presumably the nation-colony relationship would be comparable to the absolute control a nation exercises over a ship flying its flag. International cooperative efforts would be covered by treaties.

Only slightly less complex are the efforts of scientists to bring energy to earth from space. The enormous but diffuse resources of energy from the sun are well-known. If exploitation of this diffuse resource becomes feasible, it may be accomplished by orbiting very large fields of energy collectors around the earth. It may be necessary to fashion the orbits in such a manner that the shadows from the energy collectors never strike the earth. A method of transmitting the energy from a collection field to a desired spot on the earth's surface must be developed. Scientists suggest the possibility of laser or maser beams for the transmission of energy, but these are unproven theories. What other sources of energy may be available from space is presently unknown. If the scientific unknown becomes feasible at some distant future time, extensive treaties will need to be negotiated to allocate the energy resources to the peoples of the world.

In the future, if it becomes feasible to bring mineral or other resources from celestial bodies to earth, new agreements must be developed. Existing treaties provide that resources from space be devoted for the benefit of all mankind, but nothing is said about the

share of the nation making the recovery. Although the United States made rocks from the moon available, *gratis*, to scientists throughout the world, it would seem that commercially valuable resources would be distributed on a cost basis after the recovering nation had satisfied its minimal needs. Should the particular resource have substantial strategic value it is unlikely that the recovering nation would be willing to share with anyone other than closely allied nations, regardless of existing treaty provisions.

Whether or not nuclear energy can be developed from resources in space is unknown. If nuclear energy fuels can be manufactured in space, extensive liability treaties will be required as the technology becomes available.

At the present time the cost of bringing materials to earth from the moon, our nearest celestial body, approximates one million dollars an ounce, exclusive of research and development. This presents a crucial limitation on the likelihood of commercial activity and obviates the need for extensive new treaties in the immediate future. Nonetheless, the United States and the Soviet Union have, on a desultory basis, been discussing a treaty dealing fairly specifically with resources from celestial bodies, particularly the moon.

International lawyers and diplomats, through treaties and treaties, must endeavor to keep international law abreast of the technological developments of space science. The political questions and their solutions will, in the future, continue to be entwined in international security and economics.

Q. Is it constitutionally possible for the United States to agree to any form of censorship of direct satellite broadcasts?

A. It is obnoxious to most of us to think that any foreign nation may censor a broadcast from the United States, but based on numerous United States Supreme Court decisions it seems probable that there are some limitations that we can accept. It will be very difficult to work out specific provisions, because the Soviet Union has indicated it will insist on the right to censor any criticism of the Soviet system. Negotiations on the subject of direct broadcast from satellites have been sporadic, and little progress has been made. Neither side has considered it a matter of urgency. Our own broadcast industry is opposed to it, since in theory all local radio and television stations could become surplus and would have no way to be broadcast. The new technology would terminate the jobs of several thousand people. Politically, it seems doubtful that Congress

would accept direct satellite broadcasts for the reasons suggested above as well as the fear that concentrated control over broadcasts would render the media susceptible to being used for domestic propaganda. This Congressional concern is probably justified. The domestic, political, and economic aspects of direct satellite broadcasts are as important as the constitutional issues.

Q. Why have the Soviets not raised the same objections to short wave broadcasts and broadcasts from the Voice of America, Radio Free Europe, and the rest?

A. The Soviets have not objected strenuously in part because of their ability to jam these transmissions. Also, voice propaganda is not as effective as television. Radio Free Europe and even the Voice of America have engaged in some measure of self-censorship on the theory that it is better to have some of the message go through than have the broadcasts jammed to the extent that Eastern Europeans tire of attempting to listen to the American stations.

Satellite broadcasts would be very expensive to jam, necessitating a grid of high-powered transmitters every twenty miles or so. These are some of the reasons for the distinctions in the Soviet reactions.

Q. Why has the United States not gone to the use of direct satellite television broadcasts if it would be more effective than voice broadcasts?

A. An important reason is the United States' uncertainty about using direct broadcasts domestically. Furthermore, the Soviet government has privately indicated to the United States its strong objections and has hinted it might consider the use of a killer satellite or anti-satellite satellite to eliminate a direct-broadcast satellite.

Q. What would be the United States' reaction if the Soviets did knock down one of our communications satellites?

A. The answer to that question will have to come from the government. However, the present policy is not to push the Soviets to the point where they will take such action. The United States takes the position that this is an interdependent world and we must endeavor to get along with other nations.