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## THE RUSSIAN SATELLITE—LEGAL AND POLITICAL PROBLEMS

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ON OCTOBER 4th, 1957, the U.S.S.R. launched the first man-made satellite. This memorandum is written in Europe only two weeks later. The satellite and the shell of the last rocket stage from which it was launched have already circled the earth over two hundred times. Before the launching only a small group of jurists were concerned by the lack of any international agreement as to the extent of national sovereignty in space above the surface of the earth and by the legal status of possible space flight instrumentalities. Today world-wide recognition of the gravity of these questions is more than apparent.

As the *New York Times* said in a leading article on October 13th:

“Is the earth satellite trespassing on the air-space of all nations? If the sky is the limit of national sovereignty, how high is it? Who pays if a United States satellite falls on Westminster Abbey?”

“These are some of the questions that, until a week ago, were hypothetical. They are so no longer, for since then a 184-pound sphere has been circling the earth at 18,000 miles an hour.”

Behind most of the present difficulties lie certain basic, but at times forgotten, legal principles:

a. The territory of a sovereign State is the area within which it has the right to make its law effective, to the exclusion of all other States.

b. As part of that right, the State has full control of transport in its territory, including the determination of what foreign transport instrumentalities may be permitted to enter.

c. Territory of a State is three dimensional, including the lands and territorial waters within its recognized surface boundaries, and the “air-space” above.

The prime difficulty is that no international agreement exists as to how far above the surface lies the upper boundary of this three-dimensional national territory. In other words, how far upwards is the “roof on sovereignty,” and what is meant by “air-space.”

Many nations, including the United States, but not the U.S.S.R.,

participated in drafting the Paris "International Convention for the Regulation of Aerial Navigation, 1919," which recognized that "every Power has complete and exclusive sovereignty over the air-space above its territory." For reasons not connected with air-space sovereignty, this convention was not ratified by the United States. However, in 1926, by the passage of the Air Commerce Act, the United States unilaterally asserted its exclusive sovereignty in the air-space over its surface territories. The U.S.S.R., in various statutes, going back to just after the Second World War, also declared superjacent air-space to be part of its territory.

The present Chicago Convention of 1944, to which the United States is a party, recognizes the existence of State sovereignty in superjacent air-space just as did the Paris Convention. This is not limited to member States of the Convention. It is a recognition of an existing principle of international law, binding and benefiting all States, under which the "air-space" is accepted as part of the territory of the State below. Under this principle, no State may use the air-space over another State without the consent of the latter. On this principle rests the ever-widening group of bilateral agreements through which international air transport now operates.

The U.S.S.R. is not a party to the Chicago Convention. But no State has asserted more forcefully its right to deny the entry of foreign aircraft into its "air-space."

Such was the situation when scientists of many nations, including the United States and the U.S.S.R., planned the present Geophysical Year to learn more about the earth and its surroundings. As part of this plan, the United States more than two years ago announced that it would launch one or more satellites designed to collect scientific data in upper space. No statement has ever been made, at least none has come to my attention, indicating that the United States Government asked formal permission of any other State to project the proposed satellites over such States. Shortly after the American announcement, the U.S.S.R. disclosed a similar program, again, so far as I am aware, without any formal inter-governmental exchange of flight permits.

On October fourth of this year, the U.S.S.R. program resulted in startling success. The world still awaits, at this writing, for the first American satellite. In addition, press reports indicate that the Russian satellite is many times heavier than the carefully planned American "Vanguard." The U.S.S.R. has gained world-wide technical acclaim.

But what of the legal and political problems? Has international conduct already, as some appear to feel, begun to create new customary rules as to the extent upward of national sovereignty?

As I pointed out at the 1956 meeting of the American Society of International Law,<sup>1</sup> jurists had taken two different positions. It was insisted on the one hand that the United States by its satellite announce-

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<sup>1</sup> John C. Cooper, "Legal Problems of Upper Space," reprinted in 23 *Journal of Air Law and Commerce*, 308-316, from the Proceedings of the American Society of International Law, 1956.

ment, had in effect declared that space above the atmosphere was not part of the territory of any State, and could be used by any State, just as in the case of the high seas. It had been argued by others that the failure of any State to object to the proposed Geophysical Year Satellite program evidenced consent. Under this latter agreement, no position need be asserted as to the extent upwards of sovereignty, as a special case existed which would not mature into a general rule of customary law.

In this summer of 1957, prior to the satellite launching, the question of guided, or other intercontinental missiles, appears to have been brought before the United Nations disarmament subcommittee meeting in London. The minutes are not yet available. However, it is stated in a paper prepared by Mr. A. G. Haley, for delivery at the recent Barcelona meeting of the International Astronautical Federation, that in press briefings between certain delegates and reporters, statements were made as to a proposed technical committee to study design of an inspection system which would make it possible to assure that sending of objects through "outer space" should be exclusively for peaceful and scientific purposes. In the same briefing, it appears that the term "outer space" was used to refer to space at a distance beyond the earth at which "you no longer have friction of air to delay and retard the speed."

On October eleventh, one week after the satellite had been launched, twenty-one nations (including Canada, France, Britain and the United States according to the *London Times*) introduced into the General Assembly of the United Nations in New York a draft disarmament resolution which urged a disarmament agreement to include the study "of an inspection system designed to ensure that the sending of objects through outer space will be exclusively for peaceful and scientific purposes." No definition of "outer space" seems to have been included, although it may have been mentioned in debate. It may, however, be assumed that it was used in the sense mentioned in the London press conference, namely areas where the gaseous air no longer interferes with free satellite flight.

The introduction of this most important resolution must support strongly the argument that its sponsors feel that natural sovereignty does not exist in "outer space." If it did, the subjacent states could unilaterally prohibit foreign activity in areas above their territory, and would not be compelled to rely upon a multilateral inspection agreement as to the type of space flight instrumentalities to be permitted in "outer space." This resolution is today still pending, so far as I am advised, in the political committees of the United Nations. Whatever happens to it, however, cannot lessen its far reaching importance as an admission by an imposing group of States that national sovereignty does not exist in those areas where a satellite, or, unfortunately, a war-like missile may be used free of atmospheric drag.

If this be the case, then we face nothing but accurate scientific data to fix the rules of Space Sovereignty, unless, and this is of paramount

importance, the international community to protect its future may determine to extend national sovereignty by agreement into "outer space." At the 1956 meeting of the American Society of International Law, I suggested the need of a treaty to resolve then existing doubts, and as a purely tentative basis, the following:

"Reaffirm Article I of the Chicago Convention, giving the subjacent state full sovereignty in the areas of atmospheric space above it, up to the height where aircraft, as now defined, may be operated; such areas to be designated 'territorial space';

"Extend the sovereignty of the subjacent State upward to 300 miles above the Earth's surface, designating this second area as 'contiguous space' and provide for a right of transit through this zone for all non-military flight instrumentalities, when ascending or descending;

"Accept the principle that all space above 'Contiguous Space' is free for passage of all instrumentalities."

The suggestion of a "Contiguous zone" between the upper level of true "air-space" where "aircraft" may operate, and free space has been criticized, at times, I think, without considering the context. This zone depends for its depth on scientific data not yet available. When I suggested 300 miles, I was relying on what was then generally accepted scientific opinion to the effect that somewhere not far below 300 miles the atmosphere had sufficient density to prevent real satellite flight. It seemed to me in 1956, and still does, that the subjacent State properly has sovereignty in the atmospheric area where airplanes and balloons can operate. These depend for their lift on the existence of fairly dense gaseous air in the true air-space. It also seemed then, and still does, that the area in which sufficient gaseous air exists to prevent free satellite flight, might very well, by agreement, be deemed part of the "air-space."

The only difficulty is that the Russian satellite, "Sputnik," seems to refuse to follow the pre-suggested rules, at least as to usable altitude. When it was first launched it was stated, apparently from Soviet sources, that its altitude was about 585 miles above the Earth's surface—clearly in "outer space." Soon, however, the press began to report Moscow items to the effect that the area in which flight was progressing was much colder and much less dense than expected—in other words that heating and drag were less. Soon very careful observations in England indicated that the orbit of the satellite was an ellipse, and that at its nearest point it was less than 150 miles above the Earth's surface, and was still not losing altitude nor disintegrating. As I indicated in 1956, we must wait for accurate data from the Geophysical Year final calculations before deciding how far up the suggested "contiguous zone" should extend.

As to the need of a widely accepted treaty, recent events have made this more urgent than ever before. An international decision must be made as to what is meant by "outer space," if that now apparently official term must be used. The status of the atmosphere between the true "air-space" where "aircraft" may be used, and this "outer space"

must be fixed. International misunderstanding must not be allowed to develop. For example, the *London Times* of October 18th refers to a very recent article by a Russian jurist proposing complete freedom in the region beyond 12 or 18 miles above the Earth's surface. This would certainly include areas where free satellite flight still seems impossible and may well include areas in which future improved types of aircraft might navigate if powered by rocket engines.

Such a treaty is also needed for an entirely different reason. When the great French jurist Fauchille drafted his first proposed code of the air in 1902, he insisted on "freedom of the air," contending that the air, or air-space, could not be part of national territory. He followed with the logical assertion that "aerostats," as he termed flight instrumentalities, must have nationality, otherwise chaos would result. This "nationality" to which he referred is the characteristic which centuries of international usage has attributed to a vessel carrying a national flag on the high seas. The State of the flag is responsible for the international good conduct of such vessels, though not for their private torts. Similarly, if "outer space" is to be free for the use of all, rules will certainly develop by custom or agreement to be followed by flight instrumentalities such as satellites or other space craft, and the State responsible for their launching must be answerable for their good conduct in following the rules. Such satellites and other space craft must, by treaty, have nationality. Even now we speak of the "Russian Satellite" as we would of a "Russian Vessel." Particularly is such "nationality" required when radio transmitters are carried, as in the case of "Sputnik." If frequencies and transmission methods are not the international responsibility of the launching State, radio interference amounting to telecommunications chaos will soon follow.

Space in this short memorandum does not permit any adequate discussion of methods of international control. Until the Russian Satellite was launched, I had hoped that such control could be lodged in the International Civil Aviation Organization, created under the Chicago Convention. That is no longer practical. The U.S.S.R. has taken the lead. ICAO had an opportunity in 1956 to express its views about upper space when it was on the agenda at the Caracas Assembly. It failed to do so. The U.S.S.R. is not a member of ICAO. Only the United Nations itself can now serve as a forum for further discussion. Recent press discussion indicates some possibility of an "outer space" United Nations trusteeship to enforce future agreed rules on space-craft good conduct. This might succeed. But whatever the ultimate answer, every day that passes with no attempt at real international discussion of the legal status of space beyond the air space and the legal status of the flight instrumentalities using such space only adds to the chances for fatal international confusion and perhaps conflict.

*Editorial Note: As Professor Cooper's statement was being set in type, the Political Committee of the United Nations General Assembly adopted a resolution on disarmament, including provision for: "Joint study of an inspection system designed to insure that the sending of objects through outer space will be exclusively for peaceful and scientific purposes."*