LEGAL PROBLEMS CREATED BY THE SPUTNIK*

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Sputnik I was launched on October 4, i.e., three days before the opening in Barcelona of the Eighth Congress of the International Astronautical Federation. Sputnik II is also in space since the 3rd of November. Perhaps another kind of machine is at this moment on its way to the moon! And today the Russian scientists have said: "We are now on the eve of creating a new type of Soviet transport, the interplanetary. We believe that, within the next five to ten years, flights of people in cosmic space, possibly with a landing on other planets in our solar system, will become a reality."

Was such a realization a surprise? Certainly not for those who read regularly the Astronautical publications or who have attended the meetings of the Federation of Astronautical Societies. The Russian scientists have mentioned their research many times, not their intentions, but their projects. I remember that last September, in Rome, at the Eighth Congress of the same Federation, very interesting communications were made by the Russians on interplanetary travelling; the same week, also in September, I was in Barcelona at the time the Committee for the preparation for the Geophysical Year was in session. There the Russian representatives indicated the Soviet intention of launching satellites in order to complete the American satellite program announced by the White House in 1955. I had the opportunity to mention the prospective launchings — American and Russian — in an address which I made in Paris late in September 1956 at the "Académie des Sciences Morales et Politiques" and which was published in English in the McGill Law Journal.[1] Since that time notification of the wave lengths to be used by the Russian satellites has been published all over the world, about three months before the launching of the satellite itself; and the details concerning the establishment and the operation of the important network of stations for the observation of the satellite are contained in a very interesting paper presented to the recent Barcelona Conference.

The important scientific achievement constituted by the launching of satellites and its legal consequences should not have been a surprise for lawyers specializing in air law. In 1927, an important Russian publication on air law, called "Problems of Air Law", contained an article by a former General Inspector of the Russian Civil Aviation, in which it was said: "In spite of the principle of unlimited liability over airspace, we should recognize the importance of the principle on which is based the Zone theory, as far as the flights at great

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[1](1957), 3 McGill L. J. 70.

altitude and the interplanetary communications are concerned. We hope that the considerations of military danger which have influenced the doctrine of air sovereignty will disappear with the apparition of crafts circulating at a fantastic altitude and with unbelievable speed."

I will limit my comments today to the problems concerning satellites in peace time, with special attention to questions of safety.

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Prior to the launching of the first Sputnik, there were some discussions among lawyers, especially in America, with respect to the problems which may result from the launching of an American satellite as announced by the White House in July, 1955.

The first question was: is such a launching contrary to any conventional or customary rule of International Public Law?

I will answer that question as I did in Barcelona last September, i.e., in the negative.

The only Convention which may be considered as dealing with the circulation of certain machines or crafts above the surface of the earth is the Chicago Convention. We should note two points: (1) Pursuant to that Convention, the Contracting States recognized each other's sovereignty over the air space above their territory; such recognition is often considered to be a customary rule of International Public Law; (2) All the provisions of that Convention refer to machines called "aircraft", the definition thereof being left to annexes.

The U.S.S.R. is not a party to the Convention, and if the parties to the Chicago Convention are obliged, in accordance with a customary rule of international law, to recognize the sovereignty of any State over its territory, including the U.S.S.R., the contrary is not true; the U.S.S.R. has not recognized such a customary rule in spite of the terms of its national Air Code.

After the announcement made by the White House in July, 1955, certain American lawyers were very much concerned with the possibility of a protest to be made by the U.S.S.R. against the American project. A very long paper prepared by Mr. Haley, at that time General Counsel of the American Rocket Society, attempted to explain that, in the absence of a protest from any State, particularly from those members of the International Committee for the Geophysieal Year — which includes the U.S.S.R. — the United States might consider that their project had received a tacit consent.

Now, as the U.S.S.R. has repeatedly announced their intention of launching a satellite and as no protest has been made, I also think that we may arrive at the same conclusion as Mr. Haley.

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The second question to be considered is as follows: In the case when the State responsible for the launching of a satellite is party to the Chicago Con-

vention, should the circulation of such a satellite be governed by the rules contained in the Chicago Convention and its annexes?

My answer is "no", because a satellite is not an aircraft within the meaning of the Convention and it circulates outside what is called air space in the Convention, an expression which corresponds to the word atmosphere. I do not wish to amplify these points which I have largely considered in my article published in the McGill Law Journal,[2] and with which most of the lawyers are in agreement.

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We should now consider the problems which may well arise in the near future when dozens of satellites will be circulating around the earth outside the atmosphere; American satellites will probably join the Russian satellites next year and the Germans have announced the launching of satellites within two years; other countries may follow.

Should such a circulation be absolutely free, without any regulatory rule? We should not forget the following points:

1—A satellite will first ascend through the atmosphere; if during such ascent, it does not touch the atmosphere of another Sovereign State, there would not be any legal or political difficulty; nevertheless, even in that case, it may interfere with the authorized international navigation of some foreigu aircraft and cause damage.

2—As has recently been mentioned by the Russian scientists, it is possible that certain parts of a rocket may come back to the earth without being completely disintegrated; therefore, damage may arise on the earth to persons or to property.

3—If there are a number of satellites outside the atmosphere at the same time certain risks of collision may also occur; I do not suppose that they may be guided one against another, because we are still speaking of peace time.

4—If some of the satellites ascending or descending cause damage, it will be necessary to identify which satellite is the author of the damage; it seems necessary to provide for certain identification marks.

5—Assuming for the moment that all the satellites are used only for scientific purposes, they are in need of some radio communication with the carth and a certain distribution or attribution of wave lengths will be necessary in order to avoid interference. At a later date, when such crafts would be used for transportation, again telecommunication connections will be essential.

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This rapid review proves that the preparation of a new Convention is essential in order to complete the provisions of the Chicago Convention. I say: a new Convention and not an amendment to the Chicago Convention.

All the lawyers who have considered the problems of the circulation of various machines, or devices, or crafts, outside the atmosphere are in agree-

[2]See footnote 1, *supra.*

ment on the necessity of such a convention. But they differ largely on the points to be covered by it. Up to now their attention was concentrated, either on the definition of air space in order to determine the extent of national sovereignty, or on the division of air space into zones, giving each one a specific legal status.

Would a definition of air space serve a practical purpose? It has been and it still is impossible to determine in a precise manner the height of what is called the "atmosphere"; the most advanced scientists also agree that the height of the atmosphere is at variance above the different parts of the earth, and they are expecting the results of the Geophysical Year to provide a better knowledge. However, assuming that it would be possible to fix an altitude for the air space, the figure would apply only to the terrestrial surfaces, i.e., to 1/5 of the earth's surface.

The Maritime lawyers present here certainly know that, in the draft convention circulated to States for the forthcoming Conference on the Law of the Sea, the freedom of flight over the high seas has been inserted as one of the essential freedoms.

However, recently, at the Barcelona meeting which I attended, the Federation of Astronautical Societies authorized its President to establish a Committee composed of three distinguished lawyers and four, not less distinguished, scientists, in order to prepare a definition of air space, to be communicated to the United Nations. In my view the work of such a Committee may not give any practical result for the solution of the problems concerning the circulation of any device outside the atmosphere.

The division of air space into zones is a very old idea, which was discussed at length during the early days of air law, i.e., between 1900 and 1914, and which has been recently resurrected by Professor Cooper, the excellent historian of Air Law. Naturally, several different proposals have been made by Professor Ambrosini, by Mr. Haley and by some others. I think that we should give some attention to the proposal of Professor Cooper, presented with variations in Mexico in 1951, in Washington in 1956, and more recently in a letter to the London Times of September 2, 1957. He proposes a division into three zones:

First Zone — full sovereignty of States to the altitude where an aircraft, as defined in the Chicago Convention, is able to circulate: such a zone would be called "territorial air space."

Second Zone — extension of sovereignty up to 300 miles above the surface of the earth, a zone in which non-military aircraft may enjoy a right of transit for ascent and descent: such a zone would be called "contignous zone".

Above that Zone, the space would be entirely free.

In his letter to the Times, Professor Cooper suggested the extension of the contiguous zone to 600 miles.

That letter, and the proposal of Professor Cooper in general, have been the objects of comments by a very able lawyer and specialist in Air Law, Mr. Shawcross, co-author of the classic treatise of Air Law by Shawcross and Beaumont. These comments appear in a letter of September 5 addressed also to the London Times.

I agree entirely with the views of Mr. Shawcross and I ask your permission to read that letter.

> Sir, — I hesitate to differ from my friend Professor Cooper, whose letter you published on September 2, on the subject "Who owns the upper air?"
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> He has contributed to this fascinating topic much erudite study and literature; but his views have changed. The proposition that the upper space (whether at a distance of 600 miles or more) should be held to be within the territorial sovereignty of the subjacent State is unrealistic.
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> In the first place, there is a distinction between navigable airspace, the outer atmosphere, and the limitless space which lies beyond.
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> Secondly, how can the space be defined? The earth being an imperfect and rotating sphere, the vertical walls nationally drawn from the frontiers or coasts of any particular territory extended to 600 miles or beyond would form a kind of inverted cone and would in practice, if not in theory, impinge upon the adjacent territories or high seas.
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> In the third place a rocket proceeding at such distances (the words flying and height are inapt in this context) from the earth and at round-the-world-in-an-hour "speeds" is incapable of detection, much less of interception, from the territory "above" which it is at any particular moment. The words "speed" and "above" are equally inapt.
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> Professor Cooper's thesis appears to stem from a supposed analogy to the principle in International Law of sovereignty over territorial waters. This was originally founded on the maxim that a State's territory extended to the sea within range of its coastal artillery. Long since obsolete, this maxim never had any real application to the air.
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> The true view, I suggest, is that the stratosphere and the space beyond are incapable of being the subject of dominion, and should be classed by lawyers as res nullius or res omnium communis. This, if I am right, emphasizes rather than diminishes the need for that International Convention proposed by Professor Cooper. But it should be based not upon sovereignty in the air or space but upon the permitted use of space whether by warlike projectiles, by man-made earth satellites or by pollution (e.g., radioactive fall-out) or dilution (e.g., weather control) of the atmosphere.

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I do not wish to abuse your attention, but I think that, before terminating this exposé, I should make two observations, one on a question of terminology, the other on the possible contents of a new convention.

(1) Terminology — In the various studies published on the problem, we may find many different expressions, like: "upper space," "upper atmosphere," "outer space," and also in the proposal of Professor Cooper: "territorial air space," "contiguous air space." These last two terms have been greatly criticized by the air lawyers, always proud of the autonomous character of their discipline. I wonder if it would not be preferable to use only two expressions:

—"atmosphere," for the zone which is subject to national sovereignty in accordance with the Chicago Convention; and

—"space," for the zone outside the atmosphere. Such a suggestion was made many years ago by an eminent "avocat" of Brussels, Mr. Emile Laude, who wrote in 1910 as follows:

"Le droit aérien ne s'appliquera jamais qu'au droit régissant l'air proprement dit, c'est-à-dire la couche des gaz respirables. . . . Est-ce à dire que nous ne puissions prévoir les solutions juridiques que nos descendants auront à donner à toutes les questions soulevées par l'utilisation de la couche à gaz irrespirables et de la couche d'éther où baigne notre planète? . . . Un droit nouveau régira des relations juridiques nouvelles. Ce ne sera plus du droit aérien . . . Mais à coup sûr il s'agira de Droit de l'espace."

(2) Contents of a new Convention. — Such a convention should deal specially with the problems resulting from the circulation (I will not say: navigation, or flight) of space vehicles, called space crafts or space ships (I would prefer "space craft" in opposition to "aircraft").

Among the provisions which might be inserted therein, it seems to me that the convention should provide for:

—a previous notification of any launching of space crafts (satellites, rockets, missiles, etc.);

—an undertaking for the exchange of information resulting from observations made with space crafts;

—some regulation concerning the choice of wave lengths;

—another for the identification of the craft;

—an undertaking for an indemnification of any damage resulting from the circulation of space craft;

—a general delegation of authority to an agency — already in existence or to be created — for the issuance of any necessary regulations.

* * *

I sincerely hope that some international agency or a government will take, in the near future, the lead for the preparation of a convention. Its universal acceptance would benefit, not only the immediate future of scientific research in space, but also the safety of the present circulation within the atmosphere and of the people on the surface; it would also prepare the future of the circulation of man in space.

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