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the character or condition of the property to be carried or the circumstances, terms or conditions under which the carriage is to be performed, are such as reasonably to justify a special agreement," provided that no bill of lading or other negotiable document was issued.

The conclusion must be that, far from conforming itself to existing international legislation on the matter of carriage of goods, the Hague Conference has, with the new paragraph to Article 23, adopted an unique principle. Air law is hardly to be congratulated with this uniqueness. One must wish that carriers will refrain from making use of the opportunity offered to them by the new provision. But it would hardly be fair to blame them, rather than those who created the opportunity. One cannot help feeling that with this new paragraph a source of litigation has been introduced into the Convention, of which lawyers and air law reviews will be the main beneficiaries.

LEGAL PROBLEMS OF OUTER SPACE

BY PROFESSOR DR. ALEX MEYER†

THIS paper is written for an issue of the *Journal of Air Law and Commerce* containing articles on legal subjects in honour of the 75th birthday of Professor J. C. Cooper. On this occasion it seems appropriate to remember that everyone who is dealing with the legal problems of outer space should be obliged to study the publications of Professor Cooper on this matter¹ a great number of which—because of their excellent quality—have been translated into German in the "Zeitschrift für Luftrecht und Weltraumrechtsfragen" edited by our Institute. Naturally this does not mean that there is agreement with all proposals of Professor Cooper. But his ingenious and clear arguments in which he treated some of the most difficult problems, always gave to all authors dealing with the same problems new and important insights.

I. PRELIMINARY CONSIDERATIONS

The legal problems connected with the exploration of outer space are multiform though their relative importance and order of priority vary. The question of the treatment of human beings eventually existing on celestial bodies seems to present no need for practical solution at the

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¹ I mention among others the following publications: *High Altitude Flights and National Sovereignty*, IATA Bull. No. 13, p. 46 (June 1951), 1951 Int'l L. Q. 411, German translation in 1952 *Zeitschrift für Luftrecht* 237 (hereafter ZLR); *State Sovereignty in Space Development 1910-1914*, published on the occasion of Professor Dr. Alex Meyer's 75th birthday (December 15, 1954) in a booklet presented by friends, colleagues and students entitled: *Verkehrswissenschaftliche Veröffentlichungen des Ministeriums für Wirtschaft und Verkehr Nordrhein-Westfalen, Beiträge zum internationalen Luftrecht; Air Law—A Field for International Thinking*, 4 *Transport and Communications Rev.* 1; *Legal Problems of Outer Space*, 1956 *Proceedings of the Am. Soc'y of Int'l L.* 85, German translation in 1956 ZLR 171; *Flight Space and the Satellites*, 7 Int'l and Comp. L. Q. 82 (1958), German translation in 1958 ZLR 175; *Missiles and Satellites—the Law and Our National Policy*, 44 *ABAJ* 317 (1958), German translation in 1958 ZLR 394; *International Control of Outer Space*, 1960 *Zeitschrift für Luftrecht und Weltraumrechtsfragen* 288 (hereafter ZLW) (together with German translation); *Additional Remarks*, 1961 ZLW 103 (together with German translation); *Self Defense in Outer Space and the United Nations*, *Air Force Space Digest* (Feb. 1962), German translation in 1962 ZLW 187.

moment though some authors have already dealt with this question.² Indeed we do not know anything about human beings living on other celestial bodies. Nor do we suppose that human beings exist on the other planets of our solar system. According to the opinion of experts, there are in the galaxy millions of celestial bodies similar to the sun around which planets may be in orbit. But the question cannot be answered whether human beings exist on these planets. The enormous distance between the earth and these celestial bodies make it impossible to find the answer to that question. The problem of the allocation of frequencies for communications with and among space vehicles is a question which has been designated as urgent. But this is a special matter the treatment of which should be left to experts in the field. The same should be true for the question of the safeguards to be taken against contamination of outer space or from outer space by microbes. A special "Committee on Contamination by Extraterrestrial Explorations" is dealing with this matter under the auspices of the "International Council of Scientific Unions." Legal problems also arise from the intended establishment of space platforms, conceived in 1952 by Wernher von Braun in his Mars Projects. They are stations of support to be established at a certain height in space, in order to supply and repair space craft which will fly directly from the space platform to a planet. These legal problems do not seem to be of particular actual importance as at the moment such space platforms do not exist. Certainly the establishment of such space platforms of support in outer space is to be considered lawful because outer space, as will be explained below, is a free area. On the other hand, space platforms themselves would be subject to the control of the State which established them. This State would therefore not be obliged to open these stations to public traffic so that everyone might land there. But if the State exercising control over such a station were to open it for general traffic, it would not have the right arbitrarily to refuse a landing.

II. PRACTICAL PROBLEMS

Legal problems of more importance and more practical reality are the following:

1. The legal status of outer space.
2. The use of outer space and of the celestial bodies therein.
3. The border line to be fixed between air space and outer space.
4. The legal treatment of spacecraft or parts thereof falling to earth in foreign States.
5. Liability for damages caused by spacecraft.

A. *The Legal Status Of Outer Space*

No controversy of importance concerning the legal status of outer space seems to exist any more. The nearly unanimous view is that outer space is to be considered a "free area" as the High Seas. The decisive reason for this point is the following: It might be impossible—even by drawing fictitious vertical borders—to establish in outer space a determined area above the borders of a State which would correspond to the respective

² See Haley, *Space Law and Metalaw—a Synoptic View*, Harv. L. Record, Nov. 1, 1956; German translation 1957 ZLR 59.

boundaries of a State on earth. The enormous distances between the surface of the earth and outer space make it impossible to determine whether events in outer space happened in an area corresponding to a certain State on earth, even without taking into account the rotation of the earth. The extension of sovereignty of a State into outer space does not seem feasible.

B. The Use Of Outer Space And Of The Celestial Bodies Therein

1. Of course the fact that States cannot exercise sovereign rights in outer space does not preclude other activities of the States in this free area, particularly the exploration of outer space. Activities of the States are also normal on the High Seas. Neither does the fact that outer space is to be considered a free area mean that it should be in a condition of lawlessness and anarchy. Just as legal rules exist for navigation on the High Seas, laws must be made for outer space to be governed by laws which provide a legal order therein. But the legal rules to be formed for outer space cannot be based on the sovereign rights of a State in outer space. They can only be established by an international agreement concluded on earth. In my opinion the law of outer space will therefore not be an extraterrestrial law, as has been asserted, but a terrestrial law determined for the human beings on the earth undertaking flights into outer space. Naturally this law must consider the particular conditions of outer space. As regards the nature of the activities of the States in outer space, the United Nations as well as nearly all States, particularly the United States of America and the Soviet Union, have repeatedly declared that the use of outer space should be only a "peaceful" one. On the other hand, the question as to what is meant by the term "peaceful" has never been decided, neither by the United Nations nor by any State. Therefore, the question of how to interpret the term "peaceful" arises. Is it to mean "non-military" or "non-aggressive"?³ In my opinion the term "peaceful" must be understood in the sense of "non-aggressive." To interpret the term "peaceful" in the sense of "non-military" would lead to the consequence that no military action could be "peaceful." But such interpretation would be in contradiction to all practice. Ordinary armed manoeuvres in time of peace which do not affect another State in a hostile manner are to be considered as peaceful in spite of the fact that all military manoeuvres finally serve for the preparation of war. Even the atomic tests undertaken by the United States of America and the Soviet Union in time of peace are to be considered as not constituting objectionable "aggressive" conduct. Therefore, in my opinion, neither can the ordinary use of reconnaissance satellites launched in peace time be signified as non-peaceful in every case. Such satellites have a military connotation but at the moment of their launching in peacetime they have generally no aggressive conduct. As far as I know, balloons or aircraft ascenders in the air have never been considered in peacetime as "non-peaceful" objects, though they, too, have the capacity of observing the surface of the earth. The possibility of viewing the surface of the earth and of examining the events happening there with appropriate instruments is an unchangeable fact connected with all kinds of instruments launched into the space

³ The problem was discussed in detail in the paper given by N. Kittrie before the Fourth Colloquium on the Law of Outer Space at the XIIth International Astronautical Congress, Washington, October, 1961.

above the earth. It seems impossible to consider the use of all these instruments as "non-peaceful" in every case. On the other hand, exceptional cases may exist in which the use of these instruments has to be considered as "non-peaceful." If one agrees that the ordinary use of instruments launched into space above the earth (reconnaissance satellites included) cannot be considered as "non-peaceful," only because they have the capacity for observing the surface of the earth, no action undertaken under the concept of self-defense would be possible in these cases, independently of the question as to how Article 51 of the United Nations Charter is to be interpreted.

2. With respect to the use of the celestial bodies, the principal question is whether a celestial body can be occupied by a State. The question has to be answered in the negative. First of all, the merely symbolic hoisting of the ensign of a State on a celestial body can never be considered sufficient for establishing an occupation. The establishment of sovereignty rights on a stateless place needs an *effective* occupation. This means that the stateless place must be taken into possession with the intention of exercising actual and permanent control, and this would only be the case if the occupying State established such installations in the territory concerned as are necessary to assure the exercise of an exclusive sovereignty. For this reason, the planting of the national emblems of the Union of the Soviet Socialist Republics on the moon by a Soviet cosmic rocket on September 14, 1959, was not sufficient to establish territorial rights of this State on the moon. This was also the view of the Soviet Union. It declared immediately after the rocket had reached the moon that it would not make any territorial claims to the moon as a result of the landing of its rocket there. However, the first condition of the occupation of a territory is that such territory be capable of being occupied at all. It is extremely doubtful whether celestial bodies fulfill this condition. In my view, it has rightly been stated that no State can raise any territorial claims to any other celestial body, since outer space and the celestial bodies therein represent a *res omnium communis*, serving all the members of the human society, and not a *res nullius*.

C. The Border Line To Be Fixed Between Air Space And Outer Space

As regards the boundary to be fixed between air space and outer space, it cannot be doubtful that such a border line must be fixed at a future time. But the establishment of this border line will become really important only when space traffic substantially increases. The border line will be necessary to make possible a clear decision as to whether a certain act on board a spacecraft occurred while still within the sovereign area of a State or within the free area of outer space. At present, however, a real traffic into outer space does not exist. Even today one can agree with the view expressed in the 1959 Report of the Ad Hoc Committee of the United Nations⁴ that "the determination of precise limits for air space and outer space does not present a legal problem calling for priority consideration at this moment." In considering the height to which the border line between air space and outer space is to be drawn in the future, one must take into consideration, on the one hand, that it will not be possible to draw geographically or topographically an exact border line due to

⁴ United Nations General Assembly, July 14, 1959, A 4141, p. 68.

the irregular shape, both of the earth and of the atmosphere. On the other hand, in a technical and medical respect typical conditions of outer space may exist at altitudes belonging to the air space. Therefore, the border line can at some future time only be fixed numerically by an international agreement of the States, even if the limit provided for between air space and outer space should not exactly correspond to the geographical or topographical facts. As a final decision on this matter will be influenced by political, economic, scientific and military factors, experts on these matters should be heard before any final decision.

*D. The Legal Treatment Of Spacecraft Or Parts Thereof
Falling To Earth In Foreign States*

On the occasion of the hearings in the United States of America before the "Select Committee on Astronautics and Space Exploration,"⁵ the legal adviser of the State Department, Mr. Loftus Becker, stated the following:

As respects the ownership of a space vehicle returning to earth, some commentators have suggested that at least as respects unmanned space vehicles, the appropriate analogy is a bullet-ownership of which is abandoned by the act of firing. An alternative rationale would be that any such vehicle entering the airspace of a sovereign State without the latter's permission should be placed in the category of smuggled goods.

These views seem to me to be erroneous. Certainly the ownership of a *bullet* is given up at the moment of firing, because it will itself be destroyed in the moment of destroying things. Contrary to this, a spacecraft with valuable instruments or even with animals is launched with the hope that it will return to earth, and the State or other entity which launched it never has the idea of giving up the ownership of the spacecraft and the things therein. On the contrary, the State is greatly interested in recovering them. Neither can one say that unmanned spacecraft or parts of these falling in the territory of a foreign State could be placed in the category of smuggled goods. Smuggled goods are those which somebody tries to send into a foreign country with the intention of not paying the required duties. Spacecraft are not launched for this purpose.

According to maritime law, stranded goods are always given back to the owner, provided the owner is found. Only in cases where he cannot be found can the country on whose beaches such goods have been thrown claim possession. Therefore, the owner of spacecraft remains its owner after its launching and has, according to international private law, the right to claim the restitution of the spacecraft or parts thereof from anyone who has taken them in possession. The realisation of this right would be impossible only if provisions of public law would hinder it, for these provisions would prevail. Certainly there exists the generally recognised provision of Article 1 of the Chicago Convention that the States have the complete and exclusive sovereignty over air space above their territory so that flights into the air space above these territories are only possible with their consent. But as far as I know, no rule of international law exists which entitles a State generally to confiscate objects falling on its territory accidentally from the space above it. A possible exception could exist when an offence would be suspected, *e.g.*, in the case of spying.

⁵ Eighty-fifth Congress, 2d Sess. H.R. 11881, p. 1275.

The landing State must, therefore, be obliged to return unmanned space vehicles and their contents, landed accidentally on its territory, to the launching State.

E. Liability For Damage Caused By Spacecraft

The Legal Committee of the German Scientific Society for Air Navigation of which I have the honour to be the chairman, dealt with the question of liability for damages caused by spacecraft at its meeting of June 15, 1962, in Munich.

The Legal Committee recommended the application of the following principles:

1. The liability for damages caused by spacecraft should be regulated as a part of a general convention concerning the conditions under which outer space flight shall be licensed.

2. The Convention should apply not only to damages caused by spacecraft in flight to the surface of the earth, but should also cover damages caused by spacecraft in air space to aircraft and persons or goods therein and in outer space to other spacecraft. The application of the rules of the Convention to damages caused by spacecraft in air space seems appropriate as the damages to which aircraft are exposed by spacecraft are not inferior to the damages to which persons and goods are exposed on earth.

3. The Convention should apply to private aircraft as well as to State aircraft.

4. The Convention should apply to damages caused in the territory of a Contracting State (earth, water, air space) or in a free area (High Seas, stateless territory, outer space) by a spacecraft licensed in the territory of a Contracting State. It does not seem necessary that the person who suffers damage should have the nationality of a Contracting State.

5. As to the type of conduct giving rise to liability for damages caused by spacecraft in flight to the surface of the earth or in air space, the principles of the Rome Convention of 1952 should be applied. Therefore, no proof of fault should be required. Compensation should be paid upon proof only that the damage was caused by a spacecraft in flight or persons or things falling therefrom, or by collisions between aircraft and spacecraft. In case of collisions between two or more *spacecraft*, the proof of fault should be required for compensation as anyone operating a spacecraft has to realise that in case of collision with another spacecraft he himself has to suffer the damage if he cannot prove fault on the part of the other operator or of the servants and agents of the latter.

6. Contributory negligence of the person who suffers damages or of his servants or agents reduces the compensation or excludes it entirely.

7. As regards the person liable for damages, the operator of the spacecraft causing damage (in case of collisions, the operators of each spacecraft) shall be liable. The liability should be limited to a certain amount. The operator should be obliged to be insured in a satisfactory manner up to a certain limit to be fixed by the Convention. Similar to Article 15, alinea 4, of the Rome Convention of 1952 any of the following securities shall be deemed satisfactory instead of insurance:

- a. A cash deposit in a depository maintained by the Contracting

State where the spacecraft has been licensed or with a bank authorised to act as a depository by that State;

b. a guarantee given by a bank authorised to do so by the Contracting State where the spacecraft has been licensed, and financial responsibility of which has been verified by that State;

c. a guarantee given by the Contracting State where the spacecraft has been licensed, if that State undertakes that it will not claim immunity from suit in respect of that guarantee.

According to the example given in the German Atomic Law (Article 38) and in the Euratom draft of an additional Convention to the Convention of Paris on third party liability in the field of nuclear energy (July 29, 1960), framed by the organization for European Economic Corporation, in case that the damage is higher than the foreseen guarantee, the State which has licensed the spacecraft shall be subsidiarily liable for the compensation of the higher damage.

8. Actions against the operator of private spacecraft, so far as the claim does not exceed the limits of the insurance or the guarantee, should be brought before the competent Court of the place where the damage occurred. Actions for damages caused in stateless territories are to be brought before the Court of the State of which the claimant is a national. The International Court of Justice should decide on appeal. Actions against the operator of a State spacecraft and of private spacecraft, as far as the claim exceeds the limits of the insurance or guarantee, should be brought exclusively before the International Court of Justice.

Comparing the principles laid down by the Legal Committee of the German Scientific Society for Air Navigation with the Memorandum delivered by Professor Cooper to the Third Colloquium on the Law of Outer Space in Stockholm in 1960, one can state that these principles are to a high degree in accordance with the proposals of that Memorandum. Differences exist only with respect to the following points:

1. Professor Cooper answers in the affirmative the question whether compensation for damages caused by spacecraft to third persons on the earth should be excluded, as provided by the Rome Convention for damage caused by aircraft, if the damage results from the mere passage of the spacecraft through outer space in conformity with provided traffic regulations. In other words damages caused by noise could be excluded from compensation. The views of the members of the Legal Committee of the German Scientific Society for Air Navigation were divided on this question. So the Committee resolved to leave this question open to further discussion. In my opinion the provision of the Rome Convention should not be taken over by a Convention concerning spacecraft. It would be very difficult to state whether a spacecraft was flying in conformity with the regulation provided for outer space.

Professor Cooper in his Memorandum at Stockholm proposed that the domestic State of the person damaged should at first grant compensation within the scope of the liability limits of the Convention and subsequently exercise a right of recourse. The German Legal Committee was opposed to such a regulation as it would be necessary for the domestic State of the person damaged to have itself sued and to have certified the justification of the claims by legal procedures, otherwise such a State would