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INTERNATIONAL PROTECTION OF ASTRONAUTS AND SPACE OBJECTS*

STEPHEN GOROVE**

THE SIGNIFICANCE OF providing international protection and assistance to astronauts and space objects has been brought into sharp, practical focus during the recent abortive mission of Apollo 13. In the light of what might have happened in case the spacecraft and its crew had landed in an unintended area, or had descended under more distressing circumstances, the provisions of the Agreement on the Rescue and Return of Astronauts and the Return of Objects Launched into Outer Space (hereinafter referred to as Agreement) assume particular importance.¹

* Professor Gorove has drawn on previously published material in The International Lawyer, to which he expresses his appreciation.

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1. The United Nations Committee on the Peaceful Uses of Outer Space has been interested for a number of years in negotiating an international agreement on assistance to and return of astronauts and space vehicles. Substantial progress in the negotiations was made in the 1964 session of the Committee's Legal Subcommittee when preliminary agreement was reached on several provisions. In the summer of 1967, the Legal Subcommittee took the matter under further intensive consideration in Geneva. Draft proposals were put forward by the United States (U.N. Doc. A/AC. 105/C.2/L.9), the Soviet Union (U.N. Doc. A/AC. 105/C.2/L.18) and jointly by Australia and Canada (U.N. Doc. A/AC. 105/C.2/L.20). Final agreement was not reached, however, until after some informal discussions and further special meetings of the Subcommittee during the subsequent session of the United Nations in New York. On December 16, 1967, the full Committee decided to submit the agreement to the General Assembly which unanimously approved it in its Resolution 2345 (XXII) on December 19, 1967. The Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space (hereinafter referred to as Agreement) was signed on April 22, 1968 and entered into force for the United States on December 3, 1968 ([1968] 19 U.S.T. 7570, T.I.A.S. No. 6599). For further historical details and background data, see especially Reports of the Legal Subcommittee on the Work of its Third and Sixth Sessions to the Committee on the Peaceful Uses of Outer Space, U.N. Docs. A/AC. 105/21 (1964); A/AC. 105/37 (1967); see also Interna-
The Agreement has been hailed as a momentous accomplishment in the development of space law, second only to the Outer Space Treaty (hereinafter referred to as the Treaty). It sets forth for the first time in concrete form some of the broad principles embodied in the general language of the Treaty. The purpose of our inquiry


2. Two articles of the Treaty deal with broad principles relating astronauts and space objects. Under the first one (Art. V), for instance, astronauts are to be regarded as "envoys of mankind," an undefined phrase carrying a strong connotation reminiscent of diplomatic envoys, their protective privileges and immunities. Under the second one (Art. VIII), spacecraft personnel and space objects while in outer space or on a celestial body are to remain under the jurisdiction and control of the state on whose registry the object launched into outer space is carried. [1967] 18 U.S.T. 2410, T.I.A.S. No. 6347.

The two articles read as follows: "States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle."

"In carrying on activities in outer space and on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties."

"States Parties to the Treaty shall immediately inform the other States Parties to the Treaty or the Secretary-General of the United Nations of any phenomena they discover in outer space, including the moon and other celestial bodies, which could constitute a danger to the life or health of astronauts."

"A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth. Such objects or component parts found beyond the limits of the State Party to the Treaty on whose
is to analyze and interpret the Agreement's provisions insofar as they relate to the international protection of astronauts and space objects. The particular scope and allocation of authority and the relevant competences are spelled out in Articles 1-4 of the Agreement which deal with astronauts and in Article 5 of the Agreement which covers space objects.


5. Articles 1-4 of the Agreement, [1968] 19 U.S.T. 7570, T.I.A.S. No. 6599, read as follows: "Each Contracting Party which receives information or discovers that the personnel of a spacecraft have suffered accident or are experiencing conditions of distress or have made an emergency or unintended landing in territory under its jurisdiction or on the high seas or in any other place not under the jurisdiction of any State shall immediately: (a) Notify the launching authority or, if it cannot identify and immediately communicate with the launching authority, immediately make a public announcement by all appropriate means of communication at its disposal; (b) Notify the Secretary-General of the United Nations, who should disseminate the information without delay by all appropriate means of communication at his disposal." (art. 1)

"If, owing to accident, distress, emergency or unintended landing, the personnel of a spacecraft land in territory under the jurisdiction of a Contracting Party, it shall immediately take all possible steps to rescue them and render them all necessary assistance. It shall inform the launching authority and also the Secretary-General of the United Nations of the steps it is taking and of their progress. If assistance by the launching authority would help to effect a prompt rescue or would contribute substantially to the effectiveness of search and rescue operations, the launching authority shall co-operate with the Contracting Party with a view to the effective conduct of search and rescue operations. Such operations shall be subject to the direction and control of the Contracting Party, which shall act in close and continuing consultation with the launching authority." (art. 2)

"If information is received or it is discovered that the personnel of a spacecraft have alighted on the high seas or in any other place not under the jurisdiction of any State, those Contracting Parties which are in a position to do so shall, if necessary, extend assistance in search and rescue operations for such personnel to assure their speedy rescue. They shall inform the launching authority and the Secretary-General of the United Nations of the steps they are taking and of their progress." (art. 3)

"If, owing to accident, distress, emergency or unintended landing, the personnel of a spacecraft land in territory under the jurisdiction of a Contracting Party or have been found on the high seas or in any other place not under the jurisdiction of any State, they shall be safely and promptly returned to representatives of the launching authority." (art. 4)

6. See infra note 15.
A preliminary, though important, question, which comes to mind, relates to the scope and coverage of the Agreement. Who has to be protected, assisted or returned, under what conditions, or in what manner? Unfortunately, it would appear that the relevant provisions are not without ambiguity. Thus, for instance, both the Treaty and the title of Agreement refer to “astronauts”, whereas the text of the Agreement speaks of “personnel” of a spacecraft which denotes a broader concept. Personnel of a spacecraft seems to include not only astronauts—that is people who are trained to pilot spacecraft—but also other persons assigned to and accompanying the spacecraft, such as a scientist or physician on a space mission. On the other hand, the term would not appear to include regular passengers, and even less stowaways, if any, since such persons would not fall normally under the category of “personnel”.

As to the conditions and the manner of assistance, the Agreement provides that the requirement regarding immediate notification of the launching authority and the Secretary-General of the United Nations arises when a contracting party receives information or discovers that the personnel of a spacecraft have suffered an accident, or are experiencing conditions of distress or, have made an emergency or unintended landing in territory under its jurisdiction or on the high seas or in any other place not under the jurisdiction of any state.\(^7\)

Since the Agreement is silent on the source of information or discovery, the information may have been received from any source, domestic or foreign, or the event may have been discovered by the signatory through its official organs or agents. It is not necessary that the information be scrutinized or verified as to its content prior to notification. On the contrary, because of the importance of the time element in rescue operations and other types of assistance, the notification requirement arises immediately upon receipt of the information or making of the discovery.

“UNINTENDED” LANDINGS

The Agreement is also silent on the types of “accident” which the

spacecraft personnel must have suffered, or the “conditions of distress” that they must have experienced, or the kinds of “emergency or unintended landing” which they must have made. However, it would seem that any accident, distress, or emergency landing in which outside help is reasonably needed or requested would almost certainly be included. The only type of situation which would appear to be excluded would be an accident or distress condition arising after an intended landing. Under Article 2, the landing must, in fact, be prompted by an accident or distress or constitute an emergency or unintended landing. The provision does not specify just how much or to what extent the landing must be due to such conditions, but there can be little doubt that such events must be the major cause or preponderant reason for the landing.

Actually, more of a problem may arise in relation to the precise meaning of “unintended landing.” For instance, does a person land unintentionally when he lands under condition of distress, even though he is still able to select the site for landing and does so intentionally? What if he lands intentionally, but under a mistaken belief as to the landing area’s location or identity? In response to these questions, it may be pointed out that an astronaut may land intentionally in a selected area, having chosen the preferable site, and still be covered under the Agreement so long as his landing is due to an accident, distress, or emergency.

Thus it would appear that the crucial question is whether or not the landing would have taken place if there had been no accident, distress, or emergency. If the answer to this question is in the negative, then the landing must be regarded as unintentional even though a site may have been selected intentionally for the landing. In case the astronaut mistakes the landing area for another site, the landing should be regarded as unintentional. Similarly, if the spacecraft is forced down by some other event, such as hijacking, the threat of force, or an outright attack, the landing would have to be regarded as unintentional. In such case it should make little difference from the viewpoint of intention, whether the attack or the threat comes from the very signatory who would be required to render assistance.

Finally, the question may also arise as to whether or not a signatory could grant political asylum to an astronaut or to other spacecraft personnel who intentionally or unintentionally land on its terri-
tory. The answer would seem to be in the affirmative if the landing is intentional and does not involve an accident, distress, or emergency. However, if the landing appears to be unintentional and is due to an accident, distress, or emergency, the launching state could—under a strict interpretation—insist on the speedy return of its personnel.

WHEN THE DUTY ARISES

The obligation of a contracting party immediately to take "all possible" steps to rescue spacecraft personnel and render "all necessary" assistance to them, arises only if the troublesome landing takes place in territory under the jurisdiction of such party. Should the spacecraft personnel alight on the high seas, or in any other place not under the jurisdiction of any state, the sole obligation is to "extend assistance," if the signatory is in a position to do so, and then only if such assistance is "necessary" to assure speedy rescue.

Inasmuch as there is no judicial or other authority set up for the impartial determination of what is "possible" or "necessary" in a given case, it is quite conceivable that differences of opinion may arise between the launching state and the state charged with assistance. In the absence of an amicable disposition of the dispute, or the application of effective coercive measures, it is likely that the state which is bound to render assistance would make the final determination.

While the obligation of a signatory regarding rescue and assistance is strongest when the landing takes place in its territory, its authority over search and rescue operations is also broadest in such a case. Not only is the launching authority required to cooperate with the contracting party in the effective conduct of the search and rescue operations, whenever the assistance by the launching authority would help to effect a prompt rescue, or would contribute substantially to the effectiveness of the search and rescue operations; but such operations—unlike those carried out on the high seas or in any other place

10. The International Court of Justice might be seized with jurisdiction of such a controversy as between parties which have declared their adherence to the Court.
not under the jurisdiction of any state—are subject to the direction and control of the contracting party.

The effect of this stipulation is mitigated somewhat by the requirement that the contracting party is to act in close and continuing consultation with the launching authority, and by the additional requirement that it is to inform the launching authority and the Secretary-General of the United Nations of the steps it is taking regarding rescue and assistance and of their progress. The relatively weak position of the launching authority is also apparent from the fact that it has not been set up as a controlling authority over rescue operations conducted on the high seas. However, the solution embodied in the Agreement appears to be in line with the traditional doctrines of sovereignty and freedom of the seas, and with the time-honored practice of assistance to distressed mariners.

Finally, the obligation of safe and prompt return arises if—due to troublesome landing—the spacecraft personnel land in territory under the jurisdiction of a signatory, or have been “found” on the high seas or in any other place not under the jurisdiction of any state. Despite this clear obligation, there may be situations where safe and prompt return may be physically impossible because of the nature of the accident. Furthermore, the question may also arise as to whether mere “sighting” would constitute “finding” under the Agreement. It does seem that sighting of a distressed astronaut on the high seas or on no man’s land would require assistance by only those signatories who are in a position to render it. Consequently, if they were unable to lend assistance, the requirement of safe and prompt return would not apply. Thus the term “found” is likely to indicate something more than the word “sighted” and may carry a connotation in relation to some control.

In conclusion, it may be pointed out that the safe and prompt return must be made to representatives of the launching authority rather than to the launching authority itself. This stipulation may have eliminated any extra expenses which could have been incurred by the rescuing state in connection with the return of spacecraft

personnel to the launching authority itself. Presumably, the representatives of the launching authority would be able to travel to the place designated by the rescuing state, or to any other mutually acceptable area where the return could be effected.

SPACE OBJECTS

The Agreement also extends its protective shield to objects launched into outer space, to assure their recovery and return. The relevant stipulations center around the requirements of notification, recovery, return, elimination of possible danger or harm from hazardous or deleterious objects, and expenses.  

NOTIFICATION

The notification requirement arises upon receipt of information or discovery by a contracting party that a space object or its component parts has returned to Earth in territory under its jurisdiction or on the high seas or in any other place not under the jurisdiction of any state. The notification must be given to the launching authority and the Secretary-General of the United Nations.

15. The provisions under discussion appear in Article 5 of the Agreement, [1968] 19 U.S.T. 7570, T.I.A.S. No. 6599, and read as follows: "1) Each Contracting Party which receives information or discovers that a space object or its component parts has returned to Earth in territory under its jurisdiction or on the high seas or in any other place not under the jurisdiction of any State, shall notify the launching authority and the Secretary-General of the United Nations. 2) Each Contracting Party having jurisdiction over the territory on which a space object or its component parts has been discovered shall, upon the request of the launching authority and with assistance from that authority if requested, take such steps as it finds practicable to recover the object or component parts. 3) Upon request of the launching authority, objects launched into outer space or their component parts found beyond the territorial limits of the launching authority shall be returned to or held at the disposal of representatives of the launching authority, which shall, upon request, furnish identifying data prior to their return. 4) Notwithstanding paragraphs 2 and 3 of this article, a Contracting Party which has reason to believe that a space object or its component parts discovered in territory under its jurisdiction, or recovered by it elsewhere, is of a hazardous or deleterious nature may so notify the launching authority which shall immediately take effective steps, under the direction and control of the said Contracting Party to eliminate possible danger or harm. 5) Expenses incurred in fulfilling obligations to recover and return a space object or its component parts under paragraphs 2 and 3 of this article shall be borne by the launching authority."

16. The provision makes no reference to return to Earth in territory under the jurisdiction of another state. Therefore, in such case, there is no notification requirement imposed on the contracting party. Agreement, [1968] 19 U.S.T. 7570, T.I.A.S. No. 6599, art. 5, ¶ 1.
The notification requirement pertaining to space objects is understandably less exacting than the corresponding provision pertaining to distressed astronauts.\(^7\) The former requirement, unlike the latter, does not involve immediate notice, public announcement, or prompt dissemination of the information by the Secretary-General. Furthermore, the \textit{Agreement} does not specify what the notice shall consist of. Will it be a mere statement couched in a general language that information has been received or discovery made, or will it have to include particulars regarding the location or description of the space object or any possible damage to it? Since the \textit{Agreement} fails to spell out the notification requirement, it may be presumed that a general notice will, at least initially, suffice. However, it would also appear that before any intelligent request can be made by the launching authority with respect to recovery and return, the launching authority must have more definite information from the party regarding the nature of the discovered space object.

For the duty of notification to arise, there must be information received or discovery made by the contracting party regarding the return to Earth of a space object or its component parts. The information may have come from any source, domestic or foreign, directly or indirectly, through any means of communication and the discovery may have been made by any official organ or agent.\(^8\) There is no specific obligation to verify the source of information initially, although—in connection with any subsequent recovery—this would most likely be done as part of a routine and reasonable procedure. Irrespective of whether the party receives verified or unverified information, it is under a duty to send notice of it. It may be pointed out, however, that while the \textit{Agreement} clearly obligates the parties to announce the discovery of foreign space objects in their territory, there could be some difficulty in compelling a state to admit possession of a space object solely on the basis of data received from space tracking stations.


\(^{19}\) For a similar observation with respect to information received concerning distressed astronauts, see Gorove, \textit{Legal Problems of the Rescue and Return of Astronauts}, supra note 4, at 899.
Return to Earth

The information or discovery must relate to the "return" to Earth of a space object or its component parts. In this connection, the question may arise as to whether an object which is sent up for space exploration but which has landed without ever reaching outer space could be regarded as having "returned" to Earth. Under a strict interpretation, it would appear that because of the requirement of return of the space object to Earth, an object which actually was launched but failed to reach outer space could not be regarded as having "returned" to Earth. The reason for this is that such object has never left the Earth, if by the term "Earth" a celestial body is meant which would include its adjacent atmosphere, presumably up to a height where outer space begins.

Under a more liberal interpretation "return" to Earth could mean return to the Earth's physical mass (land or sea) rather than to the Earth as a celestial body, including its atmosphere. Some support for such argument may be found in paragraph 3 of Article 5 of the Agreement which speaks of "objects launched into outer space" but makes no mention of the requirement that they must have reached outer space. However, the fact that the word "Earth" is capitalized in the text of the Agreement would seem to militate against such interpretation. Hence, return to Earth would most likely mean return to any earthly territory (land, water, air) whether under the jurisdiction of the contracting party or on the high seas or in any other place not under the jurisdiction of any state.

If by Earth, a celestial body including its atmosphere is meant, then the question of the precise boundary line between the Earth's atmosphere and outer space will assume significance. Since we do not know at present where outer space begins, we will not know just precisely at what moment an object returns to Earth until outer space is more clearly defined. Also, if, for instance, the demarcation line for outer space is set at a height of 90 miles above sea level, any object which failed to rise above this height would not be subject to the provisions of the Agreement.

20. For a keen analysis of the problem of determining the upward extent of sovereignty, see McDougal, Lasswell & Vlasic, Law and Public Order in Space 323ff. (1963); for an earlier, comprehensive discussion and literature, see Gorove, On the Threshold of Space: Toward a Cosmic Law, 4 N.Y.L.F. 305 (1958);
The question may also be raised whether an object could be regarded as having returned to Earth if it was not launched from Earth, but originated from outer space. The answer to this query is probably "no," since the stipulation is concerned with the "return" of space objects and an object must have been on Earth before it could return. Thus a supply of diamonds or other precious stones brought here from some celestial body would not be covered under the Agreement.\textsuperscript{21}

\textbf{Meaning of "Space Object" and its "Component Parts"}

As intimated earlier, the return to Earth must involve a space object or its component parts. What is meant by such objects and component parts? Is anything carried into outer space or anything found in outer space a space object? Should we regard food, clothing, and personal belongings as space objects? Is luggage, for instance, a space object? Must everything be firmly attached to a spacecraft to constitute a component part? How much of a component part does a part have to be? Is anything found in a spacecraft but not built into it a component part? What about spare parts? Are they integral or component parts?

A "space object" may mean any object which was designed to be launched into outer space, such as for instance, a space rocket, spacecraft, spaceship or space laboratory.\textsuperscript{22} The component parts of a space object would include all elements normally regarded as making up the space object, including fuel tanks and perhaps even the fuel itself. Thus any object, without which the spacecraft would be regarded incomplete, may be taken to constitute a component part. Spare parts would likely be regarded component parts of a


\textsuperscript{22} For further discussion, see \textit{HAZARDOUS OR DELETERIOUS OBJECTS}, text infra.

22. It may be of interest to note that during the Subcommittees' discussions relating to the drafting of a liability convention Professor Aldo Armando Cocca, the Argentinian representative, criticized the phrase "space object" as vague, especially in Spanish. He felt that the expression "space vehicle" was more descriptive. As to the meaning of the phrase he felt that it referred to any device launched by man which had as its object the exploration and use of outer space for exclusively peaceful purposes. A Hungarian draft (U.N. Doc. A/AC. 105/C.2/L.10. Rev. 1) gave a definition but it was mainly technical in character and was not included in the Agreement. \textit{See} U.N. Doc. A/A.C. 105/C.2/SR.76 at 15 (1967).
space object, just as the parts actually replaced would be considered component parts. However, it would seem that the contents of a space object which do not make up its component parts or do not independently constitute space objects such as regular food, clothing, furnishings, or personal belongings not specially designed for space use or space travel would not fall under the discussed provision.

**RECOVERY**

The contracting party's obligation to recover a space object arises upon the discovery of such an object or its component parts on the territory of such party and only upon the request of the launching authority and only on the condition that the launching authority itself provides assistance if its help is requested. Thus, there is no recovery obligation or duty to provide assistance in recovering a space object, no matter where the object may have been discovered, so long as such discovery occurred outside of the territorial jurisdiction of the contracting party. Even within the territorial jurisdiction, there is no recovery obligation in case of hazardous or deleterious objects.

The recovery obligation involves the taking of such steps as the party finds "practicable," and there seems nothing in the Agreement to prevent the territorial party from saying it is "not practicable" to recover the object. This stipulation for all intents and purposes leaves the final choice regarding the actual undertaking, method, and timing of the recovery operations up to the territorial party.

**RETURN**

The duty to return a recovered space object is in line with the general provision embodied in the Treaty according to which ownership of objects launched into outer space and of their component parts is not affected by their presence in outer space or on a celes-

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25. Even though not stated in the Agreement, such operations would undoubtedly be conducted under the direction and control of the contracting party. Cf. Dembling & Arons, supra note 4, at 655.
tial body or by their return to the Earth. It is perhaps for this reason that the Agreement makes no specific reference to the contracting party, thus making it appear as if the duty to return were a general obligation not limited in any way to the contracting party.

The duty to return is restricted to objects launched into outer space or their component parts which are "found" beyond the territorial limits of the launching authority. Several questions may be raised in relation to the meaning of the word "found." Assuming, for instance, that one sighted a space object on an iceberg, has he found it? Must one take actual possession to have found it? The word "found" seems to imply more than mere sighting, or discovery in the conventional sense of the word. That it involves something more than discovery may be gauged from the fact that there is no duty to recover a discovered space object, if such discovery has taken place outside of the territorial jurisdiction of a party. Thus if a state is under no duty to recover a sighted spacecraft on an iceberg which is not in its possession, how could it have a duty to return such object? Thus it would appear that the word "found" involves some exercise of control or taking into possession. Consequently, if a spacecraft floating on the high seas or hovering in the superjacent airspace is sighted by a fishing vessel of the contracting party, it is highly doubtful that the party would have an obligation to return such an object which never came into its possession in the first place. In fact, in some cases it might be impossible for a party to discharge such an obligation. Also, based on the same interpretation, if the finding state unlawfully turned the space object over not to the launching authority but to a third state, that party would have possession and control over it and would therefore be still obligated to return it.

For the duty to return to arise, the finding must take place "beyond the territorial limits of the launching authority." What is meant precisely by such "territorial limits," the Agreement does not state. However, it may be presumed that the phrase is similar to the concept of "territorial jurisdiction." If so, any finding outside

the launching authority's jurisdiction, including a finding by the contract- ing party in the territory of a third state, would obligate the party to return the object, assuming, of course, that the third state raises no legitimate objection to such return.

While in most cases the "territorial limits" may be easily determined, certain problems may be envisaged in cases where the launching authority is an international intergovernmental organization. Thus if we define the territorial limits of such launching organization to include the territories of all of its members, the Agreement's provisions in relation to return would not apply to a member state if the space object was found within its territory inasmuch as for the duty to return to arise, the object must be found "beyond" the territorial limits of the launching authority and this, by definition, would not be the case. In such situation it would appear that a separate agreement would have to be concluded among the members of the international organization to cover the relevant obligations. Furthermore, it could be argued that the territorial limits of an international launching organization within the framework of the Agreement extend only to the territories of those of its members who are parties to the Agreement and to the Treaty. Some support for such interpretation may be found in Article 6 of the Agreement which provides that where an international intergovernmental organization is responsible for the launching of a space object, the launching authority means that organization, provided that such organization declares its acceptance of the rights and obligations stipulated in the Agreement and a majority of the state members of that organization are contracting parties to the Agreement and to the Treaty.

The Agreement further restricts the scope of the duty to return by specifically providing that the obligation arises only at the request of the launching authority. The requirement that the launching authority must request the return is understandable in view of the further stipulation that the launching authority must bear the costs of return. Thus it could very well happen that the downed space object would have no value and would not be worth returning. So there would be no point in bearing the cost of returning such object. The Agreement does not specify when the request has to be

made but, under normal circumstances, it could be expected that the request would be made after the launching authority received notice of the object's return to Earth or its recovery.

Still another obligation imposed upon the launching authority is the requirement that it must provide identifying data prior to the return whenever such is requested. The contracting party's duty to return a space object and the corresponding duty of the launching authority to identify it upon request does not necessarily mean that the launching authority may not abandon a space object if it is no longer interested in its return. It rather means that the launching authority has a choice of either identifying the object prior to its request for return or of abandoning it altogether. However, no intent to abandon a space object may be presumed unless the launching authority—within a reasonable time after receipt of notice—fails to ask for recovery and/or return, or fails to provide the requested identifying data prior to such return. Of course, nothing prevents the party which has recovered the object from returning it without asking for any identification. Once, however, the launching authority has requested the return and identified the object, the unconditional obligation to return space objects found beyond the territorial limits of the launching authority arises and the contracting party may not refuse it on account of the particular function such as, for instance, reconnaissance which the space object may have performed. Even though most likely not envisaged by the parties, an accidentally dropped or lost nuclear warhead returning from "fractional" orbit would, under a strict interpretation, come under the same category. Nonetheless, in such a case, as in other cases of hazard-

33. Zhukov points out that at the beginning of the space age some lawyers presumed that a state “abandons” or “throws away” a space object by the very fact of launching it. However, any such notion was clearly dispelled by the Treaty. See Zhukov, International Cooperation in the Rescue of Astronauts, PROC. 11TH. COLLOQUIUM ON LAW OF OUTER SPACE 124, 131 (1969).
34. Article IV of the Treaty outlaws the placing “in orbit around the Earth” of any objects carrying nuclear weapons and it is doubtful that a party could insist on the return of such weapons which have been placed in, what would amount to, "full" orbit around the earth or stationed in outer space in any other manner in violation of the provisions of the Treaty. Of course, even though a “fractional orbit” is not clearly prohibited by the Treaty, it could be argued that it is contrary to the general stipulation of Article I of the same Treaty under which the exploration and use of outer space must be carried out for the benefit and in the interest of
ous or deleterious objects, the contracting party may insist that—prior to any recovery or return—the launching authority immediately take effective steps under the party's direction and control, to eliminate possible danger or harm.35 Should war break out among the parties, the duty to return would not apply, since the operation of the Agreement would be suspended for the duration of the war.

For the proper discharge of the duty to return the space object, it must be returned to or held at the disposal of representatives of the launching authority.36 Here there is an option but it is not made entirely clear just who has the right to exercise this option. However, by reasonable interpretation it would appear that the launching authority could not very well insist on a direct return but would have to accept the contracting party's offer to hold the space object at the disposal of the representatives of the launching authority either on the territory of the contracting party or elsewhere. Such situation may well arise whenever the downed spacecraft requires special handling or knowledge to transport it and the contracting party does not possess this knowledge. The representatives of the launching authority may be diplomatic, military, or other personnel designated by the launching authority. In case the parties agree on direct return, the object would have to be returned to the launching state or, if an international organization is the launching authority, to any state member of that organization.37

The requirement that the launching authority furnish identification prior to the return of a space object may give rise to further questions regarding the nature and quantity of identifying data. Such data may relate to many different features, such as the shape and composition of a space object or markings which would disclose its nation-

35. Agreement, [1968] 19 U.S.T. 7570, T.I.A.S. No. 6599, art. 5, ¶ 4. For further discussion, see HAZARDOUS OR DELETERIOUS OBJECTS, text, infra.


37. While in the Legal Subcommittee's discussions there is support for the view that objects launched by an international organization may be returned to any state member of that organization, it could be argued that they should be returned only to a state member of the organization which is a party to the Agreement and to the Treaty. Cf. U.N. Doc. A/AC. 105/21, Annex IV at 6 (1964); Agreement, [1968] 19 U.S.T. 7570, T.I.A.S. No. 6599, art. 6.
ality or origin. As to the quantity of relevant data, it would appear that in case of doubt, involving especially conflicting claims, it may be necessary to provide detailed identification. Otherwise, a party may refuse the return on the ground that the launching authority has failed to identify the space object with sufficient certainty. Occasionally, in the past, research and analysis had to be carried out to determine the exact source of a particular space object or fragment.\(^8\)

### HAZARDOUS OR DELETERIOUS OBJECTS

As intimated previously, there is no recovery or return obligation imposed on the contracting party with respect to hazardous or deleterious objects.\(^9\) The duty to eliminate possible danger or harm in connection with such objects devolves upon the launching authority.\(^4\)

The obligation of the launching authority arises upon receipt of notice from the contracting party that a space object or its component parts discovered in territory under its jurisdiction, or recovered by it elsewhere, is of a hazardous or deleterious nature. The obligation of the launching authority is mandatory upon receipt of the notification, that is, it must immediately take effective steps, under the direction and control of the contracting party, to eliminate possible danger or harm.\(^4\)

The contracting party is not required to have definite knowledge of the harmful or hazardous nature of the object. It is sufficient if the party has reasonable grounds to believe that the object has such characteristics. Fuel, for example, may be harmful or dangerous. Liquid hydrogen is extremely explosive and has to be cooled several hundred degrees below zero to make it safe. Atomic propulsion may also be involved and in such case unchecked radiation, like fallout, may constitute a real danger in certain accidental situations.\(^4\)

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39. See the textual discussion preceding footnote 24, supra.
The object must be a space object or its component part. Unfortunately, however, the meaning of "space object" in this context is not entirely clear. Suppose the space object and its component parts are not of a hazardous or deleterious nature but the contents are, or might be. There may be a stronger case for including contents here. Also, since there is no mention in this provision of any "launching into outer space" or "return" to Earth, it might be argued that a space object in this context would also include any hazardous or deleterious object which originated from outer space. Such argument would be in line with the relevant provisions of the Treaty pledging the parties to conduct their exploration of outer space in such a manner "as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extra-terrestrial matter" and, where necessary, to "adopt appropriate measures for this purpose." While the inclusion of extra-terrestrial matter within the scope of application of the Agreement would lead to a desirable result, actually—under strict interpretation—it would not appear to be consistent with the original premise of Article 5 of the Agreement which is predicated upon the "return" of a space object to Earth.

The object believed or found to be harmful must have been "discovered" in territory under the jurisdiction of the contracting party, or "recovered" by it elsewhere. In the former case, discovery itself is enough, whereas mere sighting or other form of discovery outside of the territorial jurisdiction of the party is insufficient to make the provision operative. Thus in the latter instance the term "recovered" presumably refers to possession, and until one has possession, the launching authority is not required to take any steps. If it did, such operations would not be under the direction and control of the contracting party. Once, however, the object has been "recovered," that is, possession acquired by the contracting party, the launching authority would be obligated to take the necessary measures. Actually, the language of the stipulation appears imprecise inasmuch as the phrase "recovered by it elsewhere" means recovered in territory which would not be under the jurisdiction of the party, a result

44. See the textual discussion at footnote 21, supra.
which could hardly have been intended by the drafters. In other words, the contracting party is entitled to insist on effective steps by the launching authority to eliminate possible danger or harm, despite the fact that not only the "discovery" but also the "recovery" of the object took place within its territorial jurisdiction and not "elsewhere." The somewhat unfortunate connotation of the drafters' language could have been averted by simply substituting the word "anywhere" for "elsewhere."

What constitutes "effective steps" to eliminate danger or harm depends on the nature of the hazardous or deleterious object. In some cases, such steps may involve removal of the object; in others, they may simply entail on-the-spot procedures for the prevention of actual or potential danger or harm. Once, however, the danger or harm has been eliminated, the contracting party's obligation to return the object may immediately arise.

The operations to eliminate danger or harm would be "under the direction and control" of the contracting party no matter where the recovery may have been affected by such party. Dembling and Arons assert that if representatives of the contracting party have possession of a hazardous space object outside the territory of any state—under the Agreement's provision—the launching authority would still be obligated to render the object harmless, but "may not necessarily be subject to the direction and control of the Contracting Party." However, it seems that one could hardly visualize any operation by the launching authority in the described situation which would not be subject to the direction and control of the contracting party. The language of the Agreement is unequivocal when it states that if the recovery by the contracting party took place outside of its territorial jurisdiction, the necessary steps by the launching authority shall be taken "under the direction and control of the Contracting Party."

EXPENSES

Unlike the expenses incidental to the search and rescue of astronauts, the expenses arising in connection with the recovery and re-

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46. Dembling & Arons, supra note 4, at 657.
turn of space objects and their component parts must be borne by the launching authority.\textsuperscript{48} Astronauts are regarded as "envoys of mankind"\textsuperscript{49} and the same humanitarian concept is applied in space as is used on the high seas, where ship captains give unqualified assistance to mariners in distress, if such assistance does not endanger the ship and the crew.\textsuperscript{50} However, the expenses referred to here concern only the costs incurred in recovering and returning space objects and their component parts. It is understandable that these expenses must be borne by the launching authority since the latter will get the benefit from the recovery and return, a benefit which in some cases may run into millions of dollars. Since the expenses incurred by the contracting party must be borne by the launching authority, it is equally no surprise that the launching authority's request for recovery and/or return is a pre-condition of this obligation.

Because of this stipulation as well as the fact that the Agreement speaks of "expenses" and not "reimbursement," it is likely that negotiations will take place between the contracting party and the launching authority regarding the cost of operations prior to any steps to recover or return the object or its component parts. Such negotiations may lead to an agreement on advance payment; or one country could indicate that the requested recovery, or recovery and return, would cost quite a bit, then the other country would have to decide if they are worth the proposed expense. This could open the door for blackmail for excessive cost which the launching authority might have to pay; otherwise, the contracting party might acquire a free space object. The Agreement makes no provision to prevent such blackmail.

Finally, it should be noted that the duty of the launching authority is to bear "all" expenses incurred in connection with the recovery and return of the space objects.\textsuperscript{51} Thus, short of a different understanding with the country concerned, such costs would in no

\textsuperscript{49} Treaty, [1967] 18 U.S.T. 2410, T.I.A.S. No. 6347, art. V.
way be limited or prorated according to the value of the object but would include any expense or damage suffered in the course of the recovery and return.

CONCLUSION

The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects launched into Outer Space was hailed as a collective step in the quest for peace, an historic action constituting a major achievement of the United Nations and its member states. The Agreement’s provisions were expected to enhance the speedy progress of space technology and to have a positive influence on the ever-increasing use of space objects for practical needs such as communications, weather forecasting, and navigation.

While the discussed provisions will undoubtedly undergo revision as man’s efforts move from the scientific and technical level to the commercial and utilitarian plateau, the present inquiry hopes to have contributed to a clarification and identification of the wide gamut of legal problems which may arise out of the implementation of the Agreement’s provisions relating to the international protection of astronauts and space objects and hopes to be of some assistance toward possible future solutions.