HAIL? NO—IT'S SKYLAB

*John R. Tamm**

Recent events have brought attention to the potential danger that reposes in near-Earth orbiting space objects. As private enterprise expands its activity in outer space, the possibility of injury or damage to persons or property increases. The Liability Convention is reviewed and observed to be insufficient to meet the challenge of the settlement of outer space claims and disputes. It is suggested that the Convention be amended to establish a permanent panel of arbitrators available to the private citizen, natural or juridical, and thereby provide a forum for settlement of outer space claims without the intervention of the diplomatic process.

The old adage of "what goes up must come down" is not applicable to all objects launched into space, but the statement applies generally to man-made matter in near-Earth orbit.[1] The dangers of meteorite particles striking the Earth's surface have been ever present, but now new dangers exist because of the possibility and probability that large particles of space structures will survive atmospheric reentry and strike Earth at some undetermined point along the space object's orbital path.

As recently observed, Cosmos 954 impacted Earth's surface in January 1978 and particles of Skylab fell on Australia in July 1979.[2] Mankind was most fortunate that these areas of contact in Canada and Australia were sparsely settled and that property damage was minimized. Each incident involved spacecraft launched and operated by sovereign States, the Soviet Union and the United States. Conceivably,

* Attorney, Daytona Beach, Florida. B.BA., 1977, LL.B., 1952, Stetson University; LL.M., 1960, D.C. L., 1978, Institute of Air and Space Law, McGill University, Montreal, Canada. Chairman, Subcommittee on Space Stations and Energy of the Aerospace Law Committee, Section of International Law, American Bar Association. Member of the International Institute of Space Law. Treasurer, Association of United States Members of the International Institute of Space Law. Member, Florida Aviation Advisory Council. Formerly Chairman, Committee on Aviation and Space Law, The Florida Bar.

1. *See* Doyle, *Reentering Space Objects: Facts and Fiction*, 6 J. SPACE L. 107 (1978).

2. Canada has filed a claim in excess of six million dollars. CAN. DEP'T OF EXTERNAL AFFAIRS, STATEMENT OF CLAIM No. FLA-268 (1979), *reprinted in* 18 INT'L LEGAL MATERIALS 899-930 (1979). For a discussion of this incident, see generally Galloway, *Space Debris: The Soviet Satellite Cosmos 954 and the Canadian Incident*, (Oct. 20, 1978); and Finch & Moore, *The Cosmos Incident and Operation of International Law*, (Oct. 20, 1978); papers presented at the Symposium on International Law & Environment, University of Virginia (1978).

publicly or privately owned space objects may strike an inhabited area of Earth's surface and inflict serious injury upon persons and property in the near future. The possibility that injuries or damages may occur while a space object is in outer space also exists. In either event, the Convention on International Liability for Damage Caused by Space Objects is the controlling document establishing responsibility and providing a method of compensation.[3]

Early in the development of space technology it was presumed that any man-made object reentering Earth's atmosphere would be consumed by the tremendous heat generated by the object's frictional contact with Earth's atmosphere. We have now observed that this burndown does not always occur, particularly when the reentering object is a large mass. Perhaps in the future, advanced technology will provide the means to extend the orbital life of useful objects and permit the dismantling of derelict objects. When operational, the Space Shuttle will provide access to objects in near-Earth orbit and be able to either refuel, repair, or remove the objects from flight. Although now constructed, the Shuttle is not yet operational and thus, missions of this kind are not presently available.

Regardless of mankind's future ability to remove spent objects from low Earth orbit, the derelicts will remain a constant danger to Earth and to objects in orbit. Claims may arise from actions of private as well as governmental activities in outer space. In the foreseeable future, claims may also arise from the development and implementation of outer space colonization. Absolute procedures for the settlement of outer space claims, particularly those of private enterprise, do not presently exist although treaties relating to the liability aspect have been ratified.[4] Given the present state of world conditions, positive solutions most likely will be long in coming. This fact, however, should not deter a consideration of impending problems. A review of present sources of liability with some thought of definitive alternatives is appropriate.

SETTLEMENT OF CLAIMS ARISING FROM OUTER SPACE ACTIVITIES

The Outer Space Treaty[5] establishes a principle of international

3. Convention on International Liability for Damage Caused by Space Objects, *done* Mar. 29, 1972, 24 U.S.T. 2389, T.I.A.S. No. 7762 (entered into force with respect to the United States Oct. 9, 1973) [hereinafter cited as Liability Convention].

4. For a hypothetical discussion of a claim for a private individual, *see generally* Wilkins, *Substantive Bases for Recovery of Injuries Sustained by Private Individuals as a Result of Fallen Space Objects*, 6 J. SPACE L. 161 (1978).

5. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *done* Jan. 27, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 (entered into force with respect to the

liability for damage to foreign states or their nationals which occurs through launching activities. Responsibility is not limited to damage caused by space objects owned by the Launching State but extends also to damage caused by space objects owned by others.[6]

Each flight of a space object creates a potential outer space damage claim once the object has departed from the launching state's territorial jurisdiction. Thus, the obligation attaches to all phases of the flight from shortly after lift-off to splash-down.[7] Although the Outer Space Treaty sets forth a principle of international liability,[8] the application thereof is established by international agreement in the Liability Convention adopted in 1972.[9]

Convention on Liability

The Convention encompasses claims for damage both to and by non-governmentally operated space activities. "Damage" is defined to include not only personal injury and impairment of health, but also property damage of states, private individuals, entities and international intergovernmental organizations.[10] "Launching State" includes the state from whose territory or facility the space object is launched as well as the state which procures or launches the object. An attempted launch is considered the same as a successful one.[11] "Space Object" includes the component parts of the object as well as the launch vehicle and its parts.[12]

As these terms are defined, a Contracting State and its subordinate agencies are responsible not only for damage caused by the space package, but also for damage or injury that may result from the launch vehicle and its divisible units.[13] If damage is caused to persons or property on the surface of the Earth[14] or to aircraft in flight, liability attaches unless the launching state proves that the damage occurred by reason of the gross negligence of the claimant or that the damage was

United States Oct. 10, 1967) [hereinafter cited as Outer Space Treaty]. *See generally* Dembling & Arons, *The Evolution of the Outer Space Treaty*, 33 J. AIR L. & COM. 419, 438-39 (1967).

6. Responsibility extends to space objects owned by private or quasi-public organizations as well as those owned by foreign states and international organizations. *See* Outer Space Treaty, arts. VI, VII.

7. *See* note 16 *infra* and accompanying text.

8. Outer Space Treaty, *supra* note 5, art. VII.

9. *See* Liability Convention, note 3 *supra*.

10. *Id.* art. I.

11. *Id.*

12. *Id.*

13. The ratio of exposure multiplies in proportion to the number of pieces of hardware separating in air space and outer space.

14. Liability includes water areas.

incurred by an act or omission of the claimant done with intent to cause injury.[15] Even in these circumstances, exoneration would not obtain if the launching or responsible state acts contrary to international law.[16] When damage results between one space object and another in outer space, or other than on the Earth's surface, fault must be evident before responsibility for the injury attaches to the launching state.[17]

The Convention does not apply to nationals of the launching state or to foreign nationals in the launching site vicinity or participants in the launching operation.[18] This provision does not appear to affect other foreign nationals[19] in the Launching State. When two or more states are involved with a launch, each state is jointly and severally liable.[20] Under the Convention, all claims for damage are to be submitted through the governments of the parties sustaining damage.[21] Excluding nationals of the responding state, a claim may be submitted on behalf of a state's nationals, for any persons sustaining injury in the submitting state's territory,[22] or for any permanent resident of the submitting state whose country of nationality or place of damage occurred submits no claim upon such person's behalf.[23] All claims are first processed through diplomatic channels and are required to be presented within one year from date of occurrence or discovery of claim.[24] Presentation of a claim neither requires exhaustion of nor precludes election of local remedies.[25] Election of local action, however, bars a party from processing the claim internationally under the Liability Convention.[26]

The Liability Convention provides for referral of a claim to a claims commission if the diplomatic process fails to achieve an acceptable settlement.[27] This commission would consist of a member selected by each proponent and a chairman selected by the two members.[28] If the two members fail to select a chairman or if either party fails to select a member within a reasonable time, either party may request the Secretary General of the United Nations to select a chairman who

15. Liability Convention, art. VI(1).
16. *Id.* VI(2).
17. *Id.* art. III.
18. *Id.* art. VII.
19. *Id.*
20. *Id.* art. V(1).
21. *Id.* art. IX.
22. *Id.* art. VII.
23. *Id.* art. VIII.
24. *Id.* art. IX.
25. *Id.* art. X.
26. *Id.* art. XI.
27. *Id.* art. XIV.
28. *Id.* art. XV.

would constitute a single member commission.[29] The commission shall determine its own procedure and all other administrative matters including the location of the sessions.[30] If the parties have so agreed, the decision of the commission shall be final and binding.[31] Otherwise, the commission shall render a recommendatory award that shall be considered in good faith by the parties.[32]

International organizations may declare their acceptance to the Convention if a majority of the Member States of the organization are parties to the Convention and to the Outer Space Treaty.[33] If the organization is liable for damage under the Convention, then the members who are also parties to the Convention are jointly and severally liable.[34]

Fact Finding

The Convention affords a means for a claimant to seek redress for injury against the Launching State through diplomatic channels, provided the claim is against a State or international organization other than that of which the claimant is a national.[35] Alternative remedies, however, are available.[36] A claim may be pursued in the courts, administrative tribunals, or agencies of a Launching State or under another binding international agreement.[37] The claimant must therefore consider the alternatives and make an election of remedies. The Launching State and the claimant must be diligent in the preparation and preservation of the available evidence.[38] Some of the more obvious questions which arise are:

(a) Was the damage caused by an object launched from the respondent state?
(b) Was the claimant on the surface of the Earth or in an aircraft[39] at the time of occurrence?
(c) Is the claimant guilty of gross negligence or of a deliberate act or omission contributing to or causing the damage?

29. *Id.* arts. XV and XVI(1).
30. *Id.* art. XV(3) and (4).
31. *Id.* art. XIX(2).
32. *Id.* art. XX.
33. *Id.* art. XXII(1).
34. *Id.* art. XXII (3).
35. *Id.* art. VII(a).
36. *See* Liability Convention, *supra* note 3, art. XI(2).
37. *Id.* art. XI(2).
38. *Id.* art. XI(1).
39. Aircraft would necessarily include objects such as balloons, dirigibles, and like craft. In either event, the liability of the Launching State would be absolute.

(d) What damages were incurred as a result of the incident and what monetary value should be considered?
(e) If the damage to another space object occurred in a place other than on the surface of the Earth, was the respondent state or its natural or juridical persons responsible for the object?
(f) If the respondent state was negligent, is there any offsetting contributory negligence on the part of the claimant?
(g) Does the responding state have a cross-claim or claim of indemnification against another state or person which had control or supervision of the space object that caused the damage?[40]
(h) If the claim is for damage that occurred prior to the expiration of the limitation period established in a treaty,[41] was the discovery of the damage within the allowable period for claim presentation?
(i) Is an on-site investigation possible?
(j) If on-site inspection is not feasible or prohibited, is a third party investigation feasible or available?
(k) Is tangible evidence available for evaluation?

Each claim would present its own schedule of pertinent inquiries necessary to evaluate the validity and extent of damage. Although the claimant would be required to substantiate the claim and support it with competent evidence regarding responsibility and damage, the responding state, through its appropriate agencies, should make an independent determination of the factual situation. This determination might begin with an area study of the probability of impact or collision by any given space object launched by or from the respondent state and then assembling data to either confirm or deny the claim.[42] If a sample of the debris of the space object or its component parts were available, technical analysis of the metal composition and and structure would be valuable to confirm or deny the origin, state of registry and ownership of the object.

Authority for on-site inspection and obtaining evidence may be derived from Article 5 of the Astronaut Rescue Agreement which pro-

40. It is necessary to consider joint launch and hold harmless agreements, waivers of liability, and products liability type of reimbursement actions.

41. One year is the period of limitation to file a claim except that if the damage is not discovered or the responsible party cannot be determined within the year the claim will be presentable within a reasonable time after discovery.

42. The Skylab incident provides an excellent example of the availability of such proof. Tracking of the object's decay permitted a reasonable assessment of the time and place of impact and provided proof that the debris striking the surface of Australia was from an object launched and controlled by the United States. *See Skylab's Fiery Fall*, TIME, July 16, 1979, at 20. It has been reported that a claim of damage made by a national of a foreign state was disproved by showing that no United States space object could have impacted at the place alleged from orbits employed in launchings from the United States.

vides, in part, for the return of space objects to the launching authority upon request and identification.[43] The Convention on Registration of Objects Launched into Outer Space provides for assistance from the Secretary General of the United Nations to aid in identification.[44] Expenses incurred in recovery are payable by the launching authority.[45]

Pursuant to the Registration Convention each Member State launching objects into outer space shall maintain a registry of the launched object and shall provide information to the Secretary General of the United Nations relating to the object.[46] The Outer Space Treaty, in several of its articles, refers to the "State of Registry."[47] The Convention on Registration imposes upon its members an international obligation to maintain a national registry and mandates an International Registry at the United Nations.[48] These sources of information provide relevant data useful in the preparation of a claims adjudication. Other technical documentation and testimony will be required to fully evaluate responsibility and damage probability.

If the claim is founded upon a fact situation which invokes absolute liability, the preparation then would relate principally to damage assessment and monetary recompense. Preparation of an outer space damage claim would be, in many respects, similar to an aircraft claim, except in many incidents, on-site investigation may not be permitted or, the place of damage may be so remote that investigation at the scene will be impractical or impossible.[49] What must be borne in mind is the fact that claims pursued under the Liability Convention will be presented by governments on their own behalf and on behalf of their nationals. The process will be initially at the diplomatic level and, if unresolved, will be adjudicated by a claims commission. The opportunity for an administrative adversary proceeding is available at the arbitration stage.[50] Regardless of the mode of determination, the preparation of background material, supporting testimony, and docu-

43. Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, *done* April 27, 1968, art. V, 19 U.S.T. 7570, T.I.A.S. No. 6599, 672 U.N.T.S. 119 (entered into force with respect to the United States Dec. 3, 1968).

44. Convention on the Registration of Objects Launched into Outer Space, *opened for signature* Jan. 14, 1975, 28 U.S.T. 695, T.I.A.S. No. 8480 (entered into force with respect to the United States Sept. 15, 1976) [hereinafter cited as Convention on Registration].

45. *Id.*

46. *Id.*

47. Outer Space Treaty, *supra* note 5, arts. V, VII; *See also* Convention on Registration, *supra* note 44, art. IX.

48. Convention on Registration, *supra* note 44, arts. II, III.

49. For example, damage between two space objects in orbit or harmful interference by one space object with another (communications activities).

50. Liability Convention, *supra* note 3, art. VIII.

mentation will negate an improper claim or minimize an exaggerated demand for damages.

Legal Considerations

One should not consider that a claim may arise only out of an impact situation. It is possible that a space object or communication system of INTELSAT[51] or of another public or private communications network may malfunction and cause interference with a communications space object launched by another Contracting Party. If the malfunction is attributable to the negligence of the Launching State, the state of registry, or the international or private entity responsible for the object, damages are assessable against the state from which the object was launched. In the instance of damage being caused by an object owned and controlled by a private entity, evidentiary matter essential to the prosecution or defense of any claim may be beyond the direct control of the responding state. Therefore, subpoena power may be necessary to obtain evidence favorable to the defense of the claim. This power would necessarily evolve from national authority.[52]

Because of the unique relationship between a government and its natural and juridical persons carrying on activities in space and the procedural difficulties associated therewith, an entirely new concept should develop. Perhaps provision should be made for international adjudication of private claims in established claims commissions or arbitration panels with provision for limited waiver of a Contracting State's sovereign immunity if the controversy is between a national of a foreign state and the sovereign authority of another.[53] In this regard, the Federal Tort Claims Act of the United States[54] immediately comes to mind. The Act permits an action to be brought against the sovereign (the United States Government) with certain exceptions.[55] Two of these exceptions preclude its general application to outer space claims:

1. A claim arising from an act or omission of military or civilian personnel exercising due care in executing a statute or directive regardless of whether the statute or directive is valid (excludes liability without fault).
2. A claim arising in a foreign country.

51. International Telecommunications Satellite Consortium.

52. It is likely the launching agreement would provide for mutual cooperation in the defense of any claims and for indemnification of the launching authority.

53. *See generally* Bockstiegel, *Arbitration and Adjudication Regarding Activities in Outer Space*, 6 J. SPACE L. 3 (1978).

54. 28 U.S.C. §§ 1291, 1346, 1402, 1504, 2401, 2402, 2411, 2412, 2671-80 (1970). *See* Alexander, *The Legal Frontier in the United States Space Program*, SYRACUSE L. REV. 841, 847, 854 (1969).

55. 28 U.S.C. §§ 2671-80 (1970).

The Military Claims Act[56] and the International Agreement Claims Act[57] are somewhat limited in their application to outer space claims. The Foreign Claims Act[58] and the claims provision of the National Aeronautics and Space Act[59] have the widest cognizance to settlement of claims arising from activities in outer space involving the United States.[60] Even these remedies, however, do not encompass claims of interference, claims arising within the jurisdiction of the Launching State, or claims resulting from actions of private entities functioning in outer space under the auspices and with the consent of the Launching State. A claim arising from an act of a natural or juridical person of the United States is assumed to be cognizable in a federal or state court possessing jurisdiction over the responsible person; an action joining the United States Government or other sovereign state as a party defendant, however, may be precluded because of jurisdictional limitations. Naturally, the situs of the cause of action and the status of the responsible party would be major factors. If all subsequent acts are judicially interpreted as relating back to the act of launching, some jurisdictional problems may be overcome. Even if the doctrine of relation back is applied, this interpretation, nevertheless, fails to resolve questions of sovereign immunity or liability without fault.

Other potential claims might include interference with activities of manned space stations in orbit, on the moon, or on celestial bodies; impact damage between spacecraft; and, non-consensual removal of space debris and clutter. These claims are beyond the scope of the principle of strict liability and generate difficult problems of proof requiring substantive evidence of negligence, contributory negligence, tortious interference, and the damage sustained.

With the advent of increased participation of private enterprise in outer space activities, a claims system more suitable to administrative settlement of claims arising from interspacial activities should evolve in the foreseeable future. For the time being, most presentable claims will be processed under existing international agreements by governments, either for their own interests or on behalf of their nationals and residents, through diplomatic channels prior to submission to claims arbi-

56. 10 U.S.C. §§ 2733-37 (1956). *See especially* section (b), subsections (2) and (4).

57. 10 U.S.C. § 2734 (a),(b) (1956). Contemplates principally action under Status of Forces agreements and action of defense department personnel in a foreign country.

58. 10 U.S.C. § 2734 (1956).

59. 42 U.S.C. § 2473 (13)(a),(b) (1958). Amended to authorize payments by the NASA Administrator up to $25,000. Act of Aug. 8, 1979, Pub. L. No. 96-48 (effective Oct. 1979). Larger claims may be certified to the General Accounting Office.

60. *Id.*

tration.[61] Some exceptions may obtain on behalf of natural and juridical persons where the respondent state has implemented legislation authorizing local forums to consider a claim which is cognizable under the Outer Space Treaty and the Liability Convention.[62]

INTELSAT Arbitration Procedures[63] provide some criteria for international settlement by a tripartite tribunal. It is contemplated, however, that only disputes arising under the INTELSAT Agreement will be arbitrated under this procedure. It appears feasible that responsibility for and determination of claims based upon unreasonable interference could be arbitrated and that a determination of damage could be submitted to the panel for arbitration.

Presentation of claims to states prior to a request for arbitration is in accord with the Liability Convention and with established legal principles,[64] and should result in settlement by administrative process without the necessity of judicial interpretation or determination. In situations where only a portion of the claim is in dispute, administrative claim processing may possibly resolve many questionable issues and reduce arbitration to the determination of one or two major controversies.

In view of the fact that damage from outer space activity has occurred and the likelihood of additional claims is increasing, a permanent tribunal could perform a significant function in the processing of claims on behalf of, or as representative of states and private persons. Investigation and evaluation may more easily be accomplished by an international bureau where evidence may be assembled and preserved for all parties. Reference is made to this writer's suggestion[65] that a common fund be established so that space damage claims may be paid therefrom to successful claimants. The offending state or group of states would reimburse the fund if the injury was attributable to activities of several states, or to an international organization of which these states are members.[66] Claims and control of the monetary fund could

61. For an analysis on the need for improvement, see DeSaussure, *An Integrated Legal System for Space*, 6 J. SPACE L. 179 (1978) and also, Bockstiegel, *supra* note 53.

62. *See* notes 3 and 44 *supra*.

63. International Telecommunications Satellite Organization Agreement, Annex C, *Space Law, Selected Basic Documents*, at 2 (1978). At each meeting of the Assembly, each party selects two legal experts to serve on the panel from which tribunal members and panel presidents are selected. Members will reflect geographical areas and legal systems.

64. *See* United States Federal Tort Claims Act, *as amended*, 28 U.S.C. §§ 2672, 2675(a) (1970).

65. A Covenant for Space, (1973 Proceedings of the Sixth Colloquium of Space Law, Institute of Paris), and J. Tamm, *An International Organization for Aerospace*, Impact of Aerospace Science on Law and Government Conference, Washington, D.C. (1968).

66. *Id.*

be handled through the tribunal secretariat.[67] Establishment of a permanent tribunal to adjudicate outer space claims would provide an individual person (natural or juridical) a forum and a means of redress for payment of claims, and perhaps obviate a proceeding through diplomatic processes.

Support for permanent arbitration tribunals is evidenced by the initial claims settlement proposals presented to the U.N. Legal Subcommittee of the Committee on Peaceful Uses of Outer Space.[68] The Argentina proposal,[69] although later modified, was more comprehensive, providing for a permanent panel of legal experts selected from all geographical areas and representative of all legal systems. Other conventions have established permanent arbitration tribunals for settlement of disputes. In 1907, for instance, the Convention for Pacific Settlement of International Disputes established the Permanent Court of Arbitration at The Hague; but it has rarely been implemented by states. A discussion relating to the Court and a model draft on arbitral procedure appear in Volume II of the 1958 Yearbook of the International Law Commission.

Notwithstanding the many procedures that have been included in bilateral and multilateral agreements, the Convention on Settlement of Investment Disputes[70] is one of the most comprehensive yet adopted. The Convention and the procedural rules[71] for conciliation and arbitration are very good examples of procedures that may be used for resolving public and private space liability claims. If adopted, the procedures provide each claimant or state the right to select an arbiter from a permanent panel, and the chief juridical officer of an outer space agency or the Chief Justice of the International Court of Justice is empowered to select a third arbiter to serve as chairman.[72] The chairman can not be a national of either the disputing state or be so directly involved as to be

67. The concept was originally proposed as an integral part of an outer space agency. *Id.*

68. Report of the Legal Subcommittee on the Work of Its Sixth Session, U.N. Doc. A/AC. 105/37 (1967). *See* the United States Proposal, *Id.* art. X, annex II, at 19; the Hungarian Proposal, *Id.* art. XI, annex II, at 16; and the Belgium Proposal, *Id.* art. IV. annex II, at 1.

69. U.N. Doc. A/AC.105/37, annex II, at 19 (1967); *modified*, U.N. Doc A/6804, at 51 (1967).

70. Convention on the Settlement of Investment Disputes Between States and Nationals of Other States, *opened for signature* Aug. 27, 1965, 17 U.S.T. 1270, T.I.A.S. No. 6090, 575 U.N.T.S. 159 (entered into force with respect to the United States Oct. 14, 1966); *reprinted in* 4 INT'L LEGAL MATERIALS at 532 (1965).

71. *See generally* International Centre for Settlement of Investment Dispute: provisional regulations and rules; Provisional Rules of Procedure for the Institution of Conciliation and Arbitration Proceedings; Provisional Conciliation Rules and Provisional Arbitration Rules; *reprinted in* 6 INT'L LEGAL MATERIALS at 241-83 (1967).

72. *Id.* at 241-45.

considered prejudiced toward the cause of either party.[73] This method for settlement of disputes between foreign nationals and Contracting States need not be limited. The arbitral tribunal or conciliation panel could also resolve questions between states, subject to their mutual consent. It would probably be necessary to allow the Contracting State to either accept the procedure of arbitration or conciliation or submit the question to the International Court of Justice for an advisory opinion. Once States have consented to accept the benefits of an arbitral or conciliation process (particularly where the disputes are not related to national policy), an arbitral commission on a permanent basis could render very effective and beneficial service to all parties in any dispute.

The Liability Convention provides some positive principles useful in the administration of claims arising from activities in outer space. The Convention, nevertheless, utilizes an *ad hoc* tribunal to resolve claims that are not settled in the diplomatic process.[74] The future, however, will require a more definitive procedure for the settlement of damages arising between natural and juridical persons engaged in outer space activities. The emphasis in outer space law must now focus upon the activities of private enterprise. No longer do the benefits of outer space flight accrue only to the sovereign. There must now be accommodation to the private entities engaging in outer space activity. In particular, an effective and expedient procedure must be established to resolve the claims and to settle the disputes that will inevitably result from increased activity by the private sector.

The Liability Convention provides that a conference of the States Parties may be convened to review the Convention and that the question of review shall be included in the provisional agenda of the United Nations General Assembly.[75] In view of the extensive participation of private interests in outer space activities, coupled with the fact that the United States is considering operation of the Shuttle by private enterprise, it appears to be a propitious time to formulate amendments to the Convention that will afford a right of redress to injured parties without absolute reliance upon diplomatic intervention. A revised Convention should provide private citizens or entities with direct access to tribunals and a right of binding arbitration with provision for a panel of legal experts, either permanent or on a rotational system similar to other established international tribunals. These jurists should be representative

73. *Id.*

74. *See* note 3 *supra.*

75. One-third of the states may request a review conference after Oct. 9, 1978, and the question of review would be on the agenda again in the Fall of 1983. *See* Liability Convention, *supra* note 3.

of the various legal systems and geographical areas of the Contracting States.

The activities of mankind are no longer shackled to the Earth and its atmosphere. Thus, the development of a responsive system of legal procedures for the activities of private interests in outer space is essential.