# FREE ENTERPRISE AND THE PROPOSED MOON TREATY

*Art Dula**

*The United States will soon decide whether to sign and ratify the proposed United Nations "Moon Treaty." This Treaty is designed to control all activities on all celestial bodies in the solar system other than the Earth as well as the use of all trajectories to and around them. Like the Law of the Sea, which it closely parallels, this Law of Space would chill and hinder commercial exploitation of space resources for profit by free enterprise. The author concludes that adoption of the Moon Treaty is neither necessary, desirable, nor in the best interests of the United States and the free world.*

An Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Treaty) was introduced in the United Nations Committee for the Peaceful Use of Outer Space (COPUOS) by the U.S.S.R. in 1971.[1] On July 3, 1979 a compromise draft comprising an introduction and 21 articles passed COPUOS and was sent to the General Assembly for adoption.[2] The Moon Treaty is easily one of the most far-reaching international agreements ever written. If ratified by the United States, the Moon Treaty's provisions will control the activities of the United States, as well as those of all U.S. citizens and organizations, not only on the Moon, but also on every celestial body in the solar system (other than the Earth) and in the trajectories around and between them.[3] It is hornbook law that any pre-

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1. By memorandum dated May 27, 1971, addressed to the U.N. Secretary-General, the Minister for Foreign Affairs of the Soviet Union requested the inclusion in the provisional agenda of the 26th Session of the General Assembly of an item entitled "Preparation of an International Treaty Concerning the Moon." The text of a draft treaty relating to the Moon was attached to the memorandum. *See* Letter from Andrei Gromyko to Secretary-General, U.N. Doc. A/8391 and Annex (1971).

2. An Agreement Governing the Activities of States on the Moon and other Celestial Bodies, U.N. Doc. A/AC.105-L.113/Add. 4 (1979) [hereinafter cited as Moon Treaty], *reprinted in* Appendix to this article.

3. "The provisions of this Agreement relating to the Moon shall also apply to other celestial bodies within the solar system, other than the earth, except insofar as specific legal norms enter into force with respect to any of these celestial bodies." *Id.* art. I, para. 1. For the purpose of this Agreement reference to the Moon shall include orbits around or other trajectories to or around it. *Id.* art. I, para. 2.

existing U.S. law or regulation contravening a ratified treaty is void.[4] Thus planners who hope to exploit space resources commercially for profit through the free enterprise system would be well advised to study this Moon Treaty carefully and determine if its adoption would be in the best interests of the United States.

## BACKGROUND OF RELATED TREATIES

The Rescue and Return Agreement,[5] the 1972 Liability Convention,[6] the 1976 Registration Convention,[7] and the Moon Treaty grew out of the "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies" (Treaty on Principles),[8] which the United States ratified in 1967. By January 1, 1978, 75 countries had bound themselves to abide by the "Treaty on Principles".[9]

The history of the Treaty on Principles demonstrates the basic

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4. "This Constitution . . . and all Treaties made . . . under the Authority of the United States, shall be the Supreme Law of the Land . . . any Thing in the Constitution or Laws of any State to the Contrary notwithstanding." U.S. CONST. art. 6, cl. 2.

> By the constitution a treaty is placed on the same footing, and made of like obligation, with an act of legislation. Both are declared by that instrument to be the supreme law of the land, and no superior efficacy is given to either over the other. When the two relate to the same subject, the courts will always endeavor to construe them so as to give effect to both, if that can be done without violating the language of either; but, if the two are inconsistent, the one last in date will control the other, provided, always the stipulation of the treaty on the subject is self-executing.

Whitney v. Robertson, 124 U.S. 190, 194 (1888). *See also* Rainey v. U.S., 232 U.S. 310, 316 (1914); U.S. v. Lee yen Tai, 185 U.S. 213, 221 (1902); Horner v. U.S., 143 U.S. 570, 578 (1892); U.S. v. Domestic Fuel Corp., 71 F.2d 424, 431 (C.C.P.A. 1934); U.S. *ex rel.* Cook v. Karnuth, 24 F.2d 649, 652 (2d Cir. 1928), *rev'd on other grounds*, 279 U.S. 231 (1929); *Ex parte* Wong Gar Wah, 18 F.2d 250, 251 (9th Cir.), *cert. denied*, 275 U.S. 529 (1927); *In re* Ah Lung, 18 F. 28, 29 (D. Cal. 1883).

However, "Repeal by Implication," *i.e.*, allowing a later enacted Federal statute to prevail over a treaty, is not favored. *See generally* 134 A.L.R. 882 (1941).

5. Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space, *done* Apr. 22, 1968, 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). As of January 1, 1978, 70 nations had ratified, acceded or deposited their notification of succession to this agreement. *See* TREATIES IN FORCE 261-62 (1978).

6. Convention on International Liability for Damage Caused by Space Objects, *done* March 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). As of January 1, 1978, 51 nations had ratified or deposited accessions to this convention. *See* TREATIES IN FORCE 363 (1978).

7. Convention on Registration of Objects Launched into Outer Space, *done* 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). As of January 1, 1978, 15 states were party to this convention. *See* TREATIES IN FORCE 364 (1978).

8. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and other Celestial Bodies, *opened for signature* 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 United States, Oct. 10, 1967) [hereinafter cited as Treaty on Principles].

9. TREATIES IN FORCE 362-63 (1978). The countries are:

conflict that exists between the communist and capitalist philosophies concerning the exploitation of space resources. As introduced by the U.S.S.R. in 1962, the Treaty on Principles forbids free enterprise in space.[10] The Soviet view was that only states should be permitted to engage in space activities.[11] After the United States mooted this Soviet effort by chartering the Communications Satellite Corporation, a com-

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| Argentina | Australia |
| Austria | The Bahamas |
| Barbados | Belgium |
| Burma | Byelorussian Soviet Socialist Rep. |
| Canada | Cyprus |
| China, Rep. | Denmark |
| Czechoslovakia | Ecuador |
| Dominican Rep. | El Salvador |
| Egypt | Finland |
| Fiji | German Dem. Rep. |
| France | Greece |
| Germany, Fed. Rep. | Iceland |
| Hungary | Ireland |
| Iraq | Italy |
| Israel | Japan |
| Jamaica | Kuwait |
| Korea | Lebanon |
| Laos | Madagascar |
| Libya | Mauritius |
| Mali | Mongolia |
| Mexico | Nepal |
| Morocco | New Zealand |
| Netherlands | Nigeria |
| Niger | Pakistan |
| Norway | Romania |
| Poland | Saudi Arabia |
| San Marino | Singapore |
| Sierra Leone | Spain |
| South Africa | Switzerland |
| Sweden | Thailand |
| Syrian Arab Rep. | Tunisia |
| Tonga | Uganda |
| Turkey | Union of Soviet Socialist Reps. |
| Ukrainian Soviet Socialist Rep. | United States |
| United Kingdom | Uruguay |
| Upper Volta | Zambia |
| Venezuela | |

10. [T]he question of a space legal code was, in the eyes of the United States, complicated by the fact that the Soviet Union wished to include in it provisions concerning bans on surveillance by "spy" satellites, on the use of satellites for propaganda, and on the launching or use of satellites by any but governments. . . . [T]he United States could not agree, under its private enterprise system, to foreclose the commercial use of satellites.

F. NOZARI, THE LAW OF OUTER SPACE 34-35 (1973).

11. The first draft of the Treaty on Principles sponsored by the U.S.S.R. in 1962 provided: "All activities of any kind pertaining to the exploration and use of space shall be carried out solely and exclusively by States. . . ." U.N. Doc. A/5181 Annex III A(1962). This principle is discussed in INTERNATIONAL SPACE LAW (A. Piradov ed. 1974), NASA Technical Translation, NASA-TT-F-15912 at 84.

In 1974 G.P. Zhukov wrote that the Soviet Union's position on this matter was dictated

promise resolution was adopted without dissent by the U.N. General Assembly.[12] This compromise established significant barriers to the entry of free enterprise into space ventures. As ratified four years later in its final form, the Treaty on Principles requires that all U.S. space activities, public or private, be authorized and continuingly supervised by the U.S. Government and that the U.S. Government bear international liability for damage caused by such ventures.[13] Despite its drawbacks, the Treaty on Principles expressly mentions the Moon in several articles[14] and thus clearly establishes a legal order for the Moon as part of

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by its "justified fear" that granting freedom of arms in space to Western private industry would encourage "the kind of activity . . . correctly characterized as piracy." *Id.*

12. *See* G.A. Res. 1962, 18 U.N. GAOR, Supp. (No. 15) U.N. Doc. A/5656 (1963).

13. States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization.

Treaty on Principles, *supra* note 8, art. VI.

Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the moon and other celestial bodies.

Treaty on Principles, *supra* note 8, art. VII.

14. The Moon is mentioned *expressis verbis* in the following articles of the Treaty on Principles:

Art. I: "[T]he Moon . . . shall be free for exploration and use by all States. . . ."
Art. II: "[T]he Moon . . . is not subject to national appropriation. . . ."
Art. III: "States Parties . . . shall carry on activities in the exploration and use of . . . the moon . . . in accordance with international law. . . ."
Art. IV: "The moon . . . shall be used by all States Parties . . . for peaceful purposes. . . . The use of . . . equipment . . . for peaceful exploration of the moon . . . shall . . . not be prohibited."
Art. V: "States Parties shall . . . inform . . . of any phenomena they discover . . . [on] the moon . . . which could constitute a danger to the life or health of astronauts."
Art. VI: "States Parties shall . . . bear international responsibility for national activities in outer space, including the moon. . . . The activities of non-governmental entities in outer space, including the moon . . . shall require the authorization . . . by the appropriate State Party. . . ."
Art. VII: "Each State Party . . . that launches . . . an object into outer space, including the moon . . . is internationally liable for damage. . . ."
Art. IX: "In the exploration . . . of outer space, including the moon . . . States Parties . . . shall be guided by the principle of cooperation . . . and shall conduct . . . their activities in outer space, including the moon . . . with due regard to the corresponding interests of all other States Parties . . . . States Parties . . . shall pursue studies of outer space, including the Moon . . . so as to avoid their harmful contamination. . . . If a State Party . . . has reason to believe that an activity . . .

the positive Federal law of the United States.

## HISTORY OF THE MOON TREATY

In 1970 Argentina, backed by the United States, India, and Egypt, submitted the first draft treaty covering the Moon and other celestial bodies to the Legal Subcommittee of COPUOS.[15] In 1971 the U.S.S.R. responded by submitting a second draft international treaty concerning the Moon.[16] On November 29, 1971 the U.N. General Assembly recommended that COPUOS consider the Soviet Union's draft.[17]

The Soviet draft Moon Treaty went through numerous minor changes within COPUOS over eight years. At the end of the 1979 COPUOS session consensus was reached on its present language.[18]

It should be noted that COPUOS decisions are not reached by majority vote. COPUOS, on the basis of its own desires, works by consensus. All 47 nations represented in COPUOS must consent, usually by remaining silent, to all changes in the text of a proposed treaty. A single dissent negates consensus.[19] This procedure has played an important role in COPUOS and is largely responsible for the long delay in reaching an agreed text.

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planned . . . in outer space, including the Moon . . . would cause potentially harmful interference . . . it shall undertake appropriate international consultations. . . . A State Party . . . which has reason to believe that an activity . . . planned by another State Party in outer space, including the moon . . . would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the moon . . . may request consultation. . . ."
Art. X: "In order to promote international cooperation . . . and use of outer space, including the moon . . . the States Parties . . . shall consider any requests by other States Parties . . . to be afforded an opportunity to observe the flight of space objects launched by those States."
Art. XI: "In order to promote international cooperation . . . and use of outer space, . . . including the moon . . . [States Parties] . . . agree to inform the Secretary-General of the United Nations . . ."
Art. XII: "All stations . . . on the moon . . . shall be open to representative of other States Parties. . . ."
Art. XIII: "The provisions of this Treaty shall apply to the activities of States Parties . . . in the exploration and use of outer space, including the moon . . . .
"Any practical questions existing in connection with activities carried on by international . . . organizations in the exploration . . . of outer space, including the moon . . . shall be resolved by the States Parties. . . ."
Treaty on Principles, *supra* note 8.

15. U.N. Doc. A/AC.105/C.2/L.71 and Annex (1970).

16. *See* note 1 *supra*.

17. Preparation of an International Treaty Concerning the Moon, G.A. Res. 2779, U.N. Doc. A/8529 (1971).

18. An excellent history of the Draft Moon Treaty is found in G. REIJNEN, LEGAL ASPECTS OF OUTER SPACE 133-51 (1976).

19. *See generally* Galloway, *Consensus Decisionmaking by the United Nations Committee on the Peaceful Uses of Outer Space*, 7 J. SPACE L. 3 (1979).

## SUMMARY OF THE MOON TREATY

The Moon Treaty is vague, lengthy, and complex. Many of its critical terms are not well-defined. A complete reference copy is printed as an appendix to this article. The language of its most important articles closely parallels language in the 1970 U.N. Resolution on the Deep Seabed[20] and the draft Law of the Sea Treaty.[21] The critical articles provide that:

1. The treaty applies to all celestial bodies in the solar system excluding the Earth.[22]

2. All celestial bodies and their natural resources are the "common heritage of mankind."[23]

3. No celestial body is subject to national appropriation by any claim of sovereignty, by means of use or occupation or by other means.[24]

4. The establishment of an international regime must be undertaken to govern the exploitation of natural resources on or derived from celestial bodies as the exploitation of these resources becomes feasible.[25]

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20. G.A. Res. 2749, 25 U.N. GAOR, Supp. (No. 28) 24, U.N. Doc. A/8097 (1970). For an excellent overview of the Law of the Sea showing the development of problems that parallel aspects of the Moon Treaty, see generally Swing, *Who Will Own the Oceans*, 54 FOREIGN AFFAIRS 527 (1976); Charney, *Law of the Sea: Breaking the Deadlock*, 55 FOREIGN AFFAIRS 598 (1977); Darman, *The Law of the Sea: Rethinking U.S. Interests*, 56 FOREIGN AFFAIRS 373 (1978).

21. U.N. Doc. A/Cong.62/WP.81, Parts I, II, III (1975).

22. Moon Treaty, *supra* note 2, art. I, para. 1.

23. *Id.* art. XI, para. 1.

24. *Id.* art. XI, para. 2.

25. *Id.* art. XI, para. 5. The term "undertake" in this paragraph may be understood either in a precatory or obligatory sense. The Moon Treaty was drafted in English. The English word "undertake" means equally "attempt", "contract", "guarantee", or "promise." (*See* WEBSTER'S SEVENTH NEW COLLEGIATE DICTIONARY 967.) Since the term has more than one clear meaning, ambiguity is resolved by examining the immediate context in which the term is used and then examining the document containing the term as a whole. If an unambiguous meaning cannot be found within the four corners of the document, then resort may be had to legislative history as authentic interpretation. Direct substitution in context does not resolve the ambiguity. "States . . . hereby *promise* to establish an international regime. . ." reads at least as clearly as "States . . . hereby *attempt* to establish an international regime. . . ." Looking to the Moon Treaty as a whole, it becomes clear that Article XI, Paragraph 8 controls all other terms dealing with natural resources in the treaty.

"All the activities with respect to . . . natural resources . . . shall be carried out in a manner compatible with the purposes specified in paragraph 7 of this article *and* the provisions of article VI, paragraph 2, of this Agreement." Moon Treaty, *supra* note 2, art. XI, para. 8 (emphasis added).

This prohibits any activity by signatory states that uses natural resources unless such use is:

1. For or in support of scientific purposes or scientific investigations as per Article VI, Paragraph 2; and

2. Carried out in a manner compatible with several main purposes of the "international regime to be established." *Id.* art. XI, para. 7.

"All . . . activities . . . shall be carried out . . ." are terms of obligation, not mere precatory words, they require the signatory states to act in a manner compatible with an international

> 5. Neither the surface nor subsurface of any celestial body, nor any part thereof, can become the property of any state, corporation or private person.[26]

Neither the Moon Treaty nor any other authority defines the terms "celestial body" and "natural resources" as they are used in the treaty.[27]

## "EXPLOITATION" VS. "USE" OF NATURAL RESOURCES

One reason consensus was reached during the 1979 COPUOS session was that the Soviet Union accepted a Brazilian formulation of the treaty's "common heritage" language. This language is now in Article XI of the treaty: "The moon and its natural resources are the common heritage of mankind, which finds its expression in the provisions of this agreement and in particular in paragraph 5 of this article."[28]

Paragraph 5 of Article XI requires the undertaking of the establishment of an international régime, presumably via a second treaty, as exploitation of natural resources from space becomes feasible.

> States Parties to this agreement hereby undertake to establish an *international regime*, including appropriate procedures, *to govern the exploitation of the natural resources of the moon as such exploitation is about to become feasible*. This provision

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régime "to be established." It is arguable that the treaty as a whole comprehends positive establishment of the "international regime" and thus that "undertake," in Article XI, Paragraph 5, should be read in its obligatory sense. This would place an obligation on the signatory states to establish an international régime that would be equal to their clear obligation to abide by the régime's main purposes. As a practical matter, states engaging in activities affecting natural resources will determine whether or not their activities are compatible with the major purposes set forth in Article XI, Paragraph 7 either by participating in an existing international régime or by making such determinations unilaterally. In the former case, the international régime must be established before any use may be made of space natural resources other than for the scientific uses specifically permitted by Article VI. In the latter case each state can do whatever it wishes with space resources, which clearly contradicts the purpose of the treaty. Thus, in order to give meaningful effect to the obligations of Article XI, Paragraph 8, the Moon Treaty *as a whole* contemplates the creation of an international régime prior to allowing the use of space natural resources for other than scientific and "pilot plant" purposes.

26. *Id.* art. XI, para. 3.

27. Lack of adequate definitions is especially important in view of Article VII, Paragraph 1 of the Moon Treaty, *supra* note 2:

> In exploring and using the moon, States Parties shall take measures to prevent the disruption of the existing balance of its environment whether by introducing adverse changes in such environment, its harmful contamination through the introduction of extraenvironmental matter or otherwise.

These provisions can be rationally applied to large bodies such as moons and planets. They should not be literally applied to smaller bodies such as asteroids and meteors. These small bodies will be cut up and destroyed for their natural resources (*see* note 46 *infra* and accompanying text). Such treatment of a body would certainly grossly affect the "existing balance of its environment."

28. *Id.* art. XI, para. 1.

> shall be implemented in accordance with article XVIII of this Agreement (emphasis added).[29]

Consensus was also encouraged in 1979 when a number of Third World countries dropped their insistence upon imposing a total moratorium on all use of space natural resources pending establishment of an international régime to govern exploitation of such resources.[30]

The United States, through Neil Hosenball, National Aeronautics and Space Administration's (NASA) General Counsel and chief U.S. representative to COPUOS, made a number of unilateral statements defining the United States' interpretation of several parts of the Moon Treaty. Two of these statements seem intended to contradict the clear language of the treaty regarding exploitation of space natural resources.

> 1. The draft agreement—and I am particularly pleased about this, as a member of the National Aeronautics and Space Administration (NASA)—as part of the compromises made by many delegations, places no moratorium upon the exploitation of the natural resources on celestial bodies, pending the establishment of an international regime. This permits orderly attempts to establish that such exploitation is in fact feasible and practicable, by making possible experimental beginnings, then, pilot operations, a process by which we believe we can learn if it will be practicable and feasible to exploit the mineral resources of such celestial bodies.[31]
> 2. We also note with satisfaction that Article XI, paragraph 8, by referring to Article VI, paragraph 2, makes it clear that the right to collect samples of natural resources is not infringed upon and that there is no limit to the right of states parties to utilize, in the course of scientific investigations, such quantities of those natural resources found on celestial bodies as are appropriate for support of their missions.[32]

Mr. Hosenball's statements were not contradicted. They form part of the treaty's history.

The clear language in Article VI of the Moon Treaty specifically permits scientific "use" of lunar resources. Conversely, equally clear language in Article XI states that as "exploitation" of those resources

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29. *Id.* art. XI, para. 5.

30. *Oversight Hearings on the Activities of the U.N. Committee on the Peaceful Uses of Outer Space: Hearings Before the Subcomm. on Space Science and Applications of the House Comm. on Science and Technology*, 96th Cong., 1st Sess. at 90-100 (1979) (statement of Neil Hosenball, at 6-7). *See* text accompanying note 53 *infra*.

31. U.N. Doc. A/AC.105/PV.203 (1979).

32. *Id.*

becomes feasible, negotiations for a new international legal régime must be begun. The U.S. position contradicts this treaty language by stating that the Moon Treaty places "no moratorium on the exploitation of the natural resources of the moon, pending establishment of an international regime."[33]

While the meaning of the Treaty's terms could provide grist for the mills of the U.S. Federal Courts for years, it is clear that the Moon Treaty sets no moratorium on scientific collection or experimental use of lunar resources. The Treaty also specifically allows states to use lunar resources to support their missions in the course of "scientific investigations." The Moon Treaty does not specifically mention commercial use of lunar resources or use for profit except insofar as it requires that an international régime be established to control lunar resources as their "exploitation" becomes feasible. The difference between the "exploitation" and "use" of lunar resources is critical. According to *Black's Law Dictionary*, "exploitation" is

> [The] act or process of exploiting, making use of, or working up; utilization by application of industry, argument, or *other means of turning to account*, as the exploitation of a mine or a forest. (emphasis added).[34]

"*Use*" is, however, to make use of, to convert to one's services, to avail one's self of, to employ.[35] Thus, exploitation is use "turned to account", *i.e.*, commercial use that results in a profit accruing to the user. The framework of the legal régime to control exploitation of space resources would be laid out by a "Law of Outer Space" conference, which parallels several "Law of the Sea" conferences held over the past decade. A conference on the Exploration & Use of Outer Space is set for 1982. The U.S.S.R. has offered to host the conference in Moscow.[36]

## PROPERTY RIGHTS IN LUNAR NATURAL RESOURCES

In addition to limiting the "use" and "exploitation" of natural resources from space, the Moon Treaty goes to great length to deny any possible legal entity the capacity of owning any part of these resources.

Article XI, Section 3 states:

> Neither the surface nor the subsurface of the moon, *nor any part thereof* or natural resources *in place*, shall become the property of any State, international, intergovernmental or

33. *Id.*

34. BLACK'S LAW DICTIONARY 689 (rev. 4th ed. 1968) (citing State Finance Co. v. Hamacher, 171 Wash. 15, 17 P.2d 610, 613 (1932)).

35. *Id.* at 1710 (citing Hopkins v. Howard, 266 Ky. 685, 99 S.W.2d 810, 812 (1936)).

36. U.N. Press Release OS/919 (July 3, 1979).

> non-governmental organization, national organization or non-governmental entity or of any natural person. [Emphasis added.][37]

On April 19, 1973 the U.S. representative to the COPUOS Legal Subcommittee unilaterally contradicted the clear meaning of the words "in place" appearing in an earlier working draft of the Moon Treaty:

> As is apparent from the text, this working paper excludes the concept of a pre-regime moratorium. References to the words "in place" in the first sentence of that paragraph . . . make this clear. More particularly, the words "in place" . . . are intended to indicate that the prohibition against assertion of property rights would not apply to natural resources once reduced to possession through exploitation either in the pre-regime period or, subject to the rules and procedures that a regime would constitute, following establishment of the regime.[38]

These statements by the United States drew no response, and this silence is once again a part of the history of the treaty.

## RATIFICATION

COPUOS agreed in July 1979, by consensus, to send the Moon Treaty to the U. N. General Assembly which convened in mid-September. The General Assembly approved the Lunar Treaty and opened it for signature by states on December 18, 1979.[39] For the treaty to be legally effective in the United States, the United States must sign the treaty, and the Senate must advise and consent to it by a two-thirds majority.[40]

If the Senate fails to ratify the Moon Treaty, it does not become

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37. Moon Treaty, *supra* note 2, art. XI, para. 3.

38. *Oversight Hearings on the Activities of the U.N. Committee on the Peaceful Uses of Outer Space: Hearings Before the Subcomm. on Space Science and Applications of the House Comm. on Science and Technology*, 96th Cong., 1st Sess. at 90-100 (1979) (statement of Neil Hosenball, at 11).

39. — U.N. GAOR —, U.N. Doc. A/Res/34/68 (1979). When the first draft of this article was completed in September 1979, it appeared certain that the Moon Treaty would be quickly approved by the General Assembly. Since that time mounting opposition to the treaty has been organized in the United States by the L-5 Society, a pro-space educational organization. The resulting close public scrutiny of the treaty has led to expressions of concern by such influential bodies as the United States Senate Committee on Foreign Relations. In a letter from Senator Frank Church, Chairman, and Senator Jacob K. Javits, Ranking Minority Member, both of the U.S. Senate Committee on Foreign Relations, to Secretary of State Cyrus R. Vance (October 30, 1979) (copy on file with the *Houston Journal of International Law*) the Secretary of State was advised: "There are several aspects of this draft agreement which could prove damaging to our national economic and security interests, and we urge you to instruct the United States delegation to the 34th U.N. General Assembly not to support the opening of this treaty for signature as presently drafted."

40. U.S. CONST. art. I, § 10, cl. 1; art. II, § 2, cl. 2.

positive law in the United States. Despite this fact, signing the treaty signifies the Administration's intent to accept, and presumably abide by, the treaty's terms. This intent will influence governmental policy with regard to the Government's authorization of space resource exploitation by U.S. industry. Because NASA has a monopoly on space transportation, the practical results of the United States' signing the Moon Treaty could be just as far-reaching as the effect of the treaty's formal ratification.

### PRO: THE MOON TREATY AS A COMPROMISE THAT ALLOWS SCIENTIFIC RESEARCH

Proponents maintain that the Moon Treaty is a working compromise with the U.S.S.R. and the Third World. They stress that the Moon Treaty does not impose a moratorium on either space exploration or experimental use of space resources, pending establishment of an international legal régime to control exploitation of those resources.[41]

This compromise is clearly a concession for the Soviet Union and the Third World, neither of which has the technical capability to exploit space resources, and both of which are immensely fearful of free enterprise. As late as 1974 a leading Soviet international space law expert, E.G. Vasilevskaya, used fear of free enterprise and "the intentions of big businessmen" to justify Soviet Moon Treaty provisions forbidding the establishment of any type of property rights in space resources.

> Such detailed enumeration of legal and physical persons which could potentially claim establishment of proprietary rights over the Moon, is, in our opinion, completely justified. The problem could be especially acute when the exploitation of natural resources has begun on the Moon or in its depths. *The intention of big businessmen in relation to future use of the Earth's natural satellite is too well-known not to take it into consideration*. [Emphasis added.][42]

The compromise Moon Treaty specifically allows all States freedom to use space resources for purely academic purposes, such as to support missions of scientific inquiry and research. If the U.S.S.R. and Third World accept that the United States' unilateral statements interpreting the Moon Treaty's terms control the treaty's meaning, exploitation of space resources to support experimental research and pilot plant operations may also be allowed prior to the time commercial exploita-

41. *See* AVIATION WEEK & SPACE TECH., Oct. 1, 1979, at 51-52.
42. INTERNATIONAL SPACE LAW, *supra* note 11, at 113.

tion of space resources becomes feasible and an international regime is established.

It may be suggested that investors could simply call whatever activities they decide to undertake in space or on the Moon "research and development," "experimentation," or "pilot plant operations." Unfortunately, this is not advisable because of differences in the legal consequences of experimental and commercial use. United States tax laws and regulations controlling investment in commercial operations differ greatly from the rules that apply to investment in experimental research or pilot plant operations. Generally, profits from the former are taxed and the expenses of the latter deducted. The Internal Revenue Service and United States tax courts have proved themselves equal to the task of classifying investment as spending for legitimate research or for commercial operations.[43] If an operation consistently returns a profit to its owner, then it is commercial for the purpose of U.S. tax and investment law.[44]

U.S. patent laws also differentiate between commercial and experimental purposes. Issuance of a valid U.S. patent is barred when an invention has been in public use or on sale within U.S. jurisdiction for over one year unless the use was for experimental purposes. Here again one of the touchstones distinguishing public use from experimental use is whether the owner of the invention makes a profit from its operation.[45]

The Moon Treaty, if ratified, would be U.S. Federal law and could be enforced by the Federal courts. A group opposed to space industry, a foreign government, or even a foreign or domestic corporation that believed the United States or a U.S. company was violating the treaty could bring suit to obtain an injunction against the U.S. Government, the company involved, or both to halt the violation. Thus, it is unlikely that a prudent investor would believe that calling profit-making exploitation of space resources "scientific investigations" could be any

43. *See generally* MERTENS, *Distinction Between Losses and Expenses*, 5 THE LAW OF FEDERAL INCOME TAXATION § 28.37 (1975).

44. *Id.*

45. In Rosen v. NASA, 152 U.S.P.Q. (BNA) 757 (1966), the Patent Office held that a Syncom Satellite in orbit around the Earth was within the U.S. for the purposes of making an invention within the United States. *See* 35 U.S.C. § 102(b) (1976): "A person shall be entitled to a patent unless . . . (b) the invention was . . . in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States . . . ."

*See* City of Elizabeth v. American Nicholson Pavement Co., 97 U.S. 126 (1878). The Fifth Circuit put it best in *In re* Yarn Processing Patent Validity Litigation, 498 F.2d 271 (5th Cir. 1974): "When commercialization of the invention is alleged, it requires the weighing of two motives — experimentation and profit — that may coexist, because the experimental use exception applies if the experimental motive *predominates*." *Id.* at 288 (emphasis added).

substantial protection against the legal risks associated with such deception.

It may also be suggested that U.S. industry would be willing, with or without government assistance, to invest in space research and development without making a profit. Actually, it is not necessary, desirable, or even rational to assume that the initial exploitation of space resources by free enterprise will be so experimental that it will not make a profit. Economic reality dictates that any lunar venture undertaken by U.S. companies will be designed to make a profit from its very beginning. The hundreds of pounds of lunar samples returned to Earth by the Apollo program have provided qualitative and quantitative data on minerals from several parts of the Moon. These samples are chemically similar to well-known Earth minerals. In fact, several commercial processes developed on Earth have already been successfully tested using simulated lunar materials.[46] Because the expense of research and development in space will be vastly greater than the cost of similar works done on Earth or in Earth orbit, it is virtually inconceivable that a profit-making business would not choose to develop any needed processes for exploiting space resources before going to the Moon. Lunar working experience and bootstrapping will improve and expand space-based processes, but even the very first private endeavor that exploits space resources can be expected to seek an immediate profit from the sale of goods derived from space resources.

## CON: THE MOON TREATY AS A MORATORIUM ON FREE ENTERPRISE SPACE ACTIVITIES

The Moon Treaty is very close in spirit and critical language to the 1970 U.N. Resolution on the deep seabed. The following comprehensive argument against the treaty is the view of Leigh Ratiner,[47] an expert on the history of the 1970 seabed resolution.

46. *See* Lunar Utilization, abstracts of papers presented at a special session of the Seventh Annual Lunar Science Conference, March 16, 1976 (Lunar Science Institute, Houston, Texas); New Moons, transcripts of the special session on Towing Asteroids Into Earth Orbits for Exploration and Exploitation, March 16, 1977 (Lunar Science Institute, Houston, Texas); General Dynamics, Final Report Vol. II - Study Results, *Lunar Resources Utilization for Space Construction*, NASA Contract No. NAS 9-15560, April 30, 1979; Monthly Progress Report No. 7, January 30, 1979, *Extraterrestrial Processing and Manufacturing of Large Space Systems*, Contract No. NASA 8-328Z5, Space Systems Laboratory, Mass. Inst. of Technology.

47. Letter from Leigh S. Ratiner to Carolyn Henson (August 15, 1979) (copy on file with the *Houston Journal of International Law*) [hereinafter cited as Ratiner Letter]. *See also Oversight Hearings on the Activities of the U.N. Committee on the Peaceful Uses of Outer Space: Hearings Before the Subcomm. on Space Science and Applications, House Comm. on Science and Technology*, 96th Cong., 1st Sess. at 90-100 (1979) (statement of Neil Hosenball).

If the United States becomes a party to the Moon Treaty, the opportunities and prospects for private enterprise development of the resources of the Moon and other celestial bodies will be negligible if not non-existent. Specifically, the draft treaty would:

1. Create a moratorium on commercial exploitation of the resources of the [M]oon and other celestial bodies, until a second, much more comprehensive treaty for regulating resource activities is concluded;
2. Establish guiding principles for the negotiation of this second treaty which are completely antithetical to the commercial development of outer space resources by private enterprise; and
3. Thereby give the Soviet or Third World countries tremendous political control over the timing and direction of expanding commercial uses of outer space, as well as the question of whether to permit such uses.[48]

The Administration, particularly the negotiators of this draft treaty, argue that United States' public statements to the effect that the treaty does not establish a moratorium negate the implicit moratorium in the treaty. Unfortunately, such a moratorium is now contemplated in the treaty and underscored by the U.S. delegation's statements on the record. However, even if it is conceded that the United States' unilateral statements control the treaty's meaning, the fact remains that no private enterprise, or even a government, is going to invest billions of dollars in developing new commercial applications of space technology if most of the world disputes its legal right to deploy and profit from that technology.

It may be asserted that the guiding principles set out in the treaty for constructing the legal régime to control exploitation of outer space resources are empty phrases to be given later meaning. The Moon Treaty, however, must be considered in the context of international law and practice. These phrases all have a very well-defined meaning and have been exhaustively elaborated in other treaty negotiations. Since the Soviet Union first introduced a draft text on the Moon in 1971, the politics of resource development in areas beyond the territorial borders of nations have changed dramatically. The Law of the Sea Conference has moved to near-completion of a treaty establishing a deep seabed resource régime based on virtually identical guiding principles to those contained in the Moon Treaty. Examples of parallel provisions prove that such resources are the "common heritage of mankind," that their development should be orderly and rationally managed, and that the

48. Ratiner Letter, *supra* note 46, at 2.

benefits (both financial and technological) should be equitably distributed.[49]

Regardless of whether the Law of the Sea Treaty ever enters into force, the Third World has now developed a very sophisticated position on the content of an international resource régime that best serves its interests. Many informed observers will support the view that this detailed elaboration of these revolutionary new ideas reflects the international custom, practice, and consensus as to how so-called "common property" resources are to be regulated, managed, and developed.

The Draft Law of the Sea Treaty requires the collectivization of resource development through a global monopoly under the political control of a General Assembly-type body dominated by the Third World. It restricts the rights of states and private enterprise to carry out profit-making activities, by limiting these activities to an initial period during which the necessary technology is fully transferred to the monopoly. Finally, it provides for international regulation of production levels and prices in order to discriminate in favor of developing countries.

The Antarctic Treaty Parties have also been trying to hammer out an agreement on that continent's mineral resources before the U. N. intervenes. The difficulties experienced in this negotiation are partly caused by both the Parties' reluctance to follow the law of the sea precedent and the lack of any other alternative that will satisfy developing country expectations and thereby prevent Third World intervention through the U.N. Since private industry knows that the ultimate Antarctic minerals régime may practically deny it access to the resources, in the same manner as the deep seabed régime, no investments are now being made in exploring the potentially attractive offshore hydrocarbon deposits of Antarctica.[50]

In summary, the Moon Treaty, if adopted as the basis for negotiating a future resource régime for the Moon and other celestial bodies, would borrow meaning from these precedents. There are many other imaginative approaches which would enable the nations of the world to cooperate peacefully in expanding the commercial applications of outer space technology to resource exploration and development. Good examples already exist for commercial utilization of outer space, and there is no reason why the United States should permit outer space resource development to be thrust into a quagmire of political principles derived from the rhetoric of the "new international economic order."

49. *Id.*
50. *Id.*

In view of the enormous capital and technology requirements contemplated for the future industrialization of outer space, political stability for investments will be absolutely critical. If this treaty is ratified by the United States, however, any commercial application of outer space technology which involves use of Moon or other celestial resources will be subject to the greatest insecurity imaginable. While the spillover effect for other commercial activities in outer space cannot be fully predicted, it may be very significant.

## SPECIFIC NEGATIVE IMPLICATIONS OF THE MOON TREATY FOR FREE ENTERPRISE

Paragraph 5 of Article XI of the Moon Treaty obligates State Parties "to undertake to establish" a new régime for resource exploitation "as such exploitation is about to become feasible." One valid reading of this text is that the new régime must precede actual resource exploitation. The U. S. delegation, however, has stated its interpretation that this provision "places no moratorium on the exploitation of the natural resources on celestial bodies." Yet Mr. Hosenball's statement goes on to explain that:

> This permits orderly attempts to establish that such exploitation is in fact feasible and practicable, by making possible *experimental beginnings and, then, pilot operations*, a process by which we believe we can learn if it will be practicable and feasible to exploit the mineral resources of such celestial bodies (emphasis added).[51]

The United States' effort to preserve its legal rights to engage in resource development under the treaty clearly stops short of full-scale exploitation. Moreover, there is a strong legal inference, arising under paragraph 2 of Article VI and paragraph 8 of Article XI, that commercially-oriented enterprises are even barred from engaging in the kind of experimental or pilot operations described in Mr. Hosenball's statement above. The treaty permits the use of resources in "scientific investigations." Thus the issue is the definition of "scientific investigations." To the extent that it excludes research and development activities undertaken by a commercial entity in the hope of future profit, paragraph 2 of Article VI would prohibit such an entity's using resource samples collected from the Moon and other celestial bodies either for research and development or for the support of its missions. Paragraph 8 of Article XI reinforces this apparent prohibition on the conduct of in-

51. *Id.* at 4.

terim resource activities by states and persons who are not pursuing scientific purposes.

It is highly doubtful that the United States Department of State would support authorization of U.S. nationals to engage in the commercial exploitation of Moon resources prior to agreement on a new international régime, even if it is possible to make the legal case that the treaty does not prohibit these activities. State authorization is required under paragraph 1 of Article XIV (as it is under Article VI of the 1967 Treaty on Principles). An affirmative act by the United States to permit commercial development of the Moon's resources by private entities would probably require legislation and would be deemed an interference with the international negotiations by the United States State Department.

Finally, the practical effect of an international commitment to negotiate a new, unknown legal régime covering Moon and other celestial resources will be to deter industrialists, and probably governments, from spending research and development dollars in related activities during the interim period. The precedent of the U.N. Conference on the Law of the Sea will convince them that Third World demands at the "Moon Conference" are going to be extreme, that existing investments may not be respected under the resulting treaty, and that the industrialized countries may not be very successful in negotiating a system of exploitation that permits commercial or industrial use of the resources under realistic terms and conditions.

Article XI of the Moon Treaty embodies the basic principles to be implemented in the future resource régime. Paragraph 1 establishes that the Moon and its resources are "the common heritage of mankind," a concept to be interpreted both in the context of the Moon Treaty and the future resource agreement. Yet the common heritage concept has already been the subject of protracted debate in the international community in relation to deep seabed resources and thus is deemed by many nations to have an independent meaning.

For developing countries, "common heritage" means common ownership of the resources and majority control over their disposition. This translates into insistence that no single country, or entity under its control, has the independent right to use the commonly owned resource. Access to the resources must first be approved by the international community on the basis of one-nation, one-vote. As a result, the developing countries would collectively control who is allowed to exploit and use the resource. The concept of the "common heritage of mankind" does not, in the view of the Third World, recognize that in-

dustrialized countries with space technology should have a greater voice in regulating outer space resource development.

Paragraph 7 of Article XI further compounds the future negotiating difficulties of the highly industrialized countries with space technology. First, it establishes the principles of "orderly and safe development" and "rational management" of the Moon and other celestial resources. Most nations of the world interpret these principles as mandating central planning of resource development and international controls over resource uses and/or marketing. In short, these principles are the antithesis of a free market approach to the exploitation and use of resources on the Moon and other celestial bodies. Today, many believe that free market economics in the traditional sense will have only a small role to play in space industrialization. Yet it may be shortsighted to concede in a binding treaty that the political will of the majority of nations, rather than market-oriented forces, should dictate the pace and substance of outer space resource development.

Second, the principle of "expansion of opportunities in the use of those resources" will ultimately evolve into a Third World position that access to the Moon and other celestial resources must be limited for industrialized countries, so that developing countries have a chance to participate. (The Soviet bloc can also use the principle to insist that Western and Soviet activities using the Moon's resources be kept at the same level of intensity.) The clearest evolution of this concept is found in the draft Law of the Sea Treaty which creates an international mining monopoly for half of the deep seabed's mineral resources, based on the argument that developing countries can only expand their opportunities to use the resources on a collective and subsidized basis.

Finally, the principle of "equitable sharing of benefits" could be interpreted to require a system of international taxation of any profits made by commercial resource developers. Since the term "benefits" is not restricted to the financial realm, the principle could dictate mandatory transfer to all countries of the technology used to exploit the resources.[52]

In conclusion, these are not benign or meaningless phrases upon which to found a new international law governing the use of the Moon's resources. Experience in other forums allows us to predict with confidence the implications for resource activities on the Moon and other celestial bodies:

1. No entity would be permitted to use the Moon's resources in a commercial operation without obtaining authoriza-

52. *Id.* at 6.

tion from an international organization whose policies and decisions would be made by a U.N. General Assembly-type body.
2. To obtain that authorization, the entity would have to agree to submit a large share of any profits it makes to the international organization and to transfer to other countries on a subsidized basis any technology it uses.
3. Authorization would probably be withheld if the entity was from a country that was already exploiting Moon resources.
4. Ultimately, no national entity would be permitted to exploit the Moon's resources; instead, an international monopoly would be created.[53]

Most of the technological alternatives being considered for the commercial use of outer space ultimately require use of the Moon, and probably use of its resources in one capacity or another. It is particularly important that the Moon Treaty does not attempt to define the term "natural resources." Therefore, it seems reasonable to conclude that, if there is ever to be any industrialization of outer space, it will involve commercial exploitation of some natural resource of the Moon or other celestial bodies.

## CONGRESSIONAL TESTIMONY ON THE MOON TREATY

On September 6, 1979 the Subcommittee on Space Science and Applications of the Committee on Science and Technology of the U.S. House of Representatives held hearings during which Congressman John Breaux, NASA General Counsel Neil Hosenball, and Leigh Ratiner presented their views on the Lunar Treaty. Ratiner's opinions have been substantially set forth above.

Hosenball reviewed the background of COPUOS at the U. N. and recited a history of the negotiations that resulted in the present Moon Treaty. He discussed the comments that he and previous U.S. representatives placed on the record to represent the official U.S. interpretation of the Treaty.[54]

Congressman Breaux, who was a U.S. congressional advisor to the Law of the Sea Conference, analogized the law of space to the law of the sea.[55] He pointed out that the Moon Treaty is only one of a broad array of evolving "North-South" accords between developed and unde-

53. *Id.* at 7.
54. *See* text accompanying notes 30, 31 *supra.*
55. *Oversight Hearings on the Activities of the U.N. Committee on the Peaceful Uses of Outer Space: Hearings Before the Subcomm. on Space Science and Applications, House Comm. on Science and Technology*, 96th Cong., 1st Sess. at 142-45 (1979) (statement of U.S. Rep. John Breaux).

veloped nations. Breaux described and listed numerous close parallels between the Moon Treaty and the 1970 U.N. Resolution on the Deep Seabed.

Breaux especially pointed out that unilateral U.S. statements intended to interpret treaty language had not been effective in the past to protect U.S. interests.

> I am deeply concerned that the Moon Treaty could contribute substantially to the further erosion of the position of the United States and the other Western industrialized countries. I am reassured neither by the fact that the development regime for celestial bodies will be negotiated later, nor by the argument that, in the meantime, the United States is protected by its unilateral statements on the record, which have apparently been uncontradicted thus far. I would like to point out that, in the Law of the Sea context, the United States in the mid-to-late 1960's felt comfortable with a similar situation, but subsequently found that what it perceived to be protections were not protections at all. I would also like to observe that the Moon Treaty contains ambiguities of the same sort that led to serious difficulties for the United States with respect to the deep seabed. . . .
>
> If the Third World and the Soviet Bloc could contend that universally applicable customary law, establishing a binding moratorium [on commercial development of deepsea resources], could spring from a General Assembly resolution, how much more easily could they argue that the same consequences derive from a treaty? Such a position taken by the Third World and Soviet Bloc with respect to development of outer space resources could have a seriously adverse effect on our negotiating position on the future exploitation treaty. Investment uncertainties would result and, as has happened with respect to ocean mineral development, the exploitation of outer space resources would be seriously retarded.[56]

Breaux concluded that acceptance of the Moon Treaty is not in the best interests of the United States:

> I believe, Mr. Chairman, that the long-term economic implications for the United States would be extremely adverse, if the United States were to repeat in the outer space context the mistakes committed with regard to the deep seabed. . . . I believe that for the United States to accept the kind of situation presaged by the draft Moon Treaty is to invite a serious erosion of our material, legal and equitable position in the international community. Like the Law of the

56. *Id.* (Statement of Breaux, at 4, 5, 10).

Sea Treaty and the Code of Conduct on the Transfer of Technology, the Moon Treaty must be clarified to protect our interests or it must be opposed.[57]

## CONCLUSIONS

International law allows sovereign states complete freedom to engage in any activity that is not expressly prohibited by law. Today the United States has a perfect right to exploit space resources for profit. The Moon Treaty does not give the United States new rights, it only limits existing U.S. rights to use space resources for scientific purposes and takes away the United States' existing right to exploit such resources for profit. It should be stressed that the Moon Treaty does not create even a single new right beyond those the United States already enjoys under existing international law. Far from being a fair balance between the needs of free enterprise and the less-developed countries, the Moon Treaty is a dangerous and unnecessary abandonment of the basic legal rights free enterprise will need to work effectively in space. The Moon Treaty introduces substantial uncertainty and risk for private sector investment in space ventures that would exploit space resources for profit.

Space industrialization requires the establishment of realistic laws. To determine what law will be appropriate in space, it is necessary to examine why humanity is expanding into this new environment. Three principal forces—the academic, military, and commercial—interact to impel humanity into space. With the exception of communications, and possibly remote sensing in the near future, U.S. involvement in space is entirely academic or military. Present space law, including the Moon Treaty, has been forged almost entirely out of high academic ideals in advance of any practical commercial reality. True space law, if it allows free enterprise to operate at all, will evolve to meet the needs of practical commercial ventures. In this author's opinion, practical business space law would, if not preempted, evolve shortly after space-based exploitation of basic resources and energy begins to yield substantial profits. History teaches that the transition between academic and practical legal régimes can be gradual or traumatic, but that such transitions inevitably occur.

Ominously, the world now spends far more for military purposes in space than for academic studies. Apparently the only remaining substantial possibility for free enterprise non-military development of space requires large scale commercial development of basic natural re-

57. *Id.* (Statement of Breaux, at 10-11).

sources, *i.e.*, raw materials and energy from space. Only basic raw materials and energy from space can return a profit commensurate with the capital expense and risk that will be required to start up space industry. Only large scale development of these basic space resources can provide sufficient economies of scale to permit development of space as an industrial frontier by free enterprise capitalism.

Such large capital investments cannot be made by free enterprise without clear legal guidelines that allow commercial operations to exploit space resources for profit. Free enterprise institutions simply cannot make significant investments in space while they are under the threat of lawsuits over the meaning of treaty terms or *ex post facto* appropriation of their investments by a nebulous future international régime.

Finally, it is clear beyond reasonable doubt that the U.S.S.R. and its supporters in COPUOS have, and are, executing a careful and deliberate program intended to limit the entry of free enterprise into space. Since the U.S.S.R.'s introduction of the draft Treaty on Principles in 1962, the Soviet Union and its allies have fought constant delaying actions to chill free enterprise investment in space as a new industrial environment. It is an unfortunate commentary on the will and vision of the United States and other free world nations that the U.S.S.R.'s program has been so successful.

# APPENDIX

## *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*[1]

*The States Parties to this Agreement,*

*Noting* the achievements of States in the exploration and use of the moon and other celestial bodies,

*Recognizing* that the moon, as a natural satellite of the earth, has an important role to play in the exploration of outer space,

*Determined* to promote on the basis of equality the further development of co-operation among States in the exploration and use of the moon and other celestial bodies,

*Desiring* to prevent the moon from becoming an area of international conflict,

*Bearing in mind* the benefits which may be derived from the exploitation of the natural resources of the moon and other celestial bodies,

*Recalling* the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, the Convention on International Liability for Damage Caused by Space Objects, and the Convention on Regulation of Objects Launched into Outer Space,

*Taking into account* the need to define and develop the provisions of these international instruments in relation to the moon and other celestial bodies, having regard to further progress in the exploration and use of outer space,

Have agreed on the following:

### *Article I*

1. The provisions of this Agreement relating to the moon shall also apply to other celestial bodies within the solar system, other than the earth, except insofar as specific legal norms enter into force with respect to any of these celestial bodies.

2. For the purposes of this Agreement reference to the moon shall include orbits around or other trajectories to or around it.

3. This Agreement does not apply to extraterrestrial materials which reach the surface of the earth by natural means.

1. U.N. Doc. A/AC.105/L.113/Add. 4 (1979). On December 18, 1979, the General Assembly approved the Lunar Treaty and opened it for signature. *See* — U.N. GAOR —, U.N. Doc. A/Res/34/68 (1979).

*Article II*

All activities on the moon including its exploration and use, shall be carried out in accordance with international law, in particular, the Charter of the United Nations, and taking into account the Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of the United Nations, adopted by the General Assembly on 24 October 1979, in the interest of maintaining international peace and security and promoting international co-operation and mutual understanding, and with due regard to the corresponding interests of all other States Parties.

*Article III*

1. The moon shall be used by all States Parties exclusively for peaceful purposes.

2. Any threat or use of force or any other hostile act or threat of hostile act on the moon is prohibited. It is likewise prohibited to use the moon in order to commit any such act or to engage in any such threat in relation to the earth, the moon, spacecraft, the personnel of spacecraft or man-made space objects.

3. States Parties shall not place in orbit around or other trajectory to or around the moon objects carrying nuclear weapons or any other kinds of weapons of mass destruction or place or use such weapons on or in the moon.

4. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military maneuvers on the moon shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration and use of the moon shall also not be prohibited.

*Article IV*

1. The exploration and use of the moon shall be the province of all mankind and shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development. Due regard shall be paid to the interests of present and future generations as well as to the need to promote higher standards of living conditions of economic and social progress and development in accordance with the Charter of the United Nations.

2. States Parties shall be guided by the principle of co-operation and mutual assistance in all their activities concerning the exploration and use of the moon. International co-operation in pursuance of this Agreement should be as wide as possible and may take place on a multilateral basis, on a bilateral basis, or through international intergovernmental organizations.

*Article V*

1. States Parties shall inform the Secretary-General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of their activities concerned with the exploration and use of the moon, information on the time, purposes, locations, orbital parameters and duration shall be given in respect of each mission to the moon as soon as possible after launching, while information on the results of each mission, including scientific results, shall be furnished upon completion of the mission. In case of a mission lasting more than 60 days, information on conduct of the mission, including any scientific results shall be given periodically at 30 days' intervals. For missions lasting more than six months, only significant additions to such information need be reported thereafter.

2. If a State Party becomes aware that another State Party plans to operate simultaneously in the same area of or in the same orbit around or trajectory to or around the moon, it shall promptly inform the other State of the timing of and plans for its own operations.

3. In carrying out activities under this Agreement, States Parties shall promptly inform the Secretary-General, as well as the public and the international scientific community, of any phenomena they discover in outer space, including the moon, which could endanger human life or health, as well as of any indication of organic life.

*Article VI*

1. There shall be freedom of scientific investigation on the moon by all States Parties without discrimination of any kind, on the basis of equality and in accordance with international law.

2. In carrying out scientific investigations and in furtherance of the provisions of this Agreement the States Parties shall have the right to collect on and remove from the moon samples of its mineral and other substances. Such samples shall remain at the disposal of those States Parties which caused them to be collected and may be used by them for scientific purposes. States Parties shall have regard to the desirability of making a portion of such samples available to other interested States Parties and the international scientific community for scientific investigation. States Parties may in the course of scientific investigations also use mineral and other substances of the moon in quantities appropriate for the support of their missions.

3. States Parties agree on the desirability of exchanging scientific and other personnel on expeditions to or installations on the moon to the greatest extent feasible and practicable.

*Article VII*

1. In exploring and using the moon, States Parties shall take measures to prevent the disruption of the existing balance of its envi-

ronment whether by introducing adverse changes in such environment, its harmful contamination through the introduction of extraenvironmental matter or otherwise. States Parties shall also take measures to prevent harmfully affecting the environment of the earth through the introduction of extraterrestrial matter or otherwise.

2. States Parties shall inform the Secretary-General of the United Nations of the measures being adopted by them in accordance with paragraph 1 of this article and shall also to the maximum extent feasible notify him in advance of all placements by them of radioactive materials on the moon and of the purposes of such placements.

3. States Parties shall report to other States Parties and to the Secretary-General concerning areas of the moon having special scientific interest in order that, without prejudice to the rights of other States Parties, consideration may be given to the designation of such areas as international scientific preserves for which special protective arrangements are to be agreed in consultation with the competent organs of the United Nations.

*Article VIII*

1. States Parties may pursue their activities in the exploration and use of the moon anywhere on or below its surface, subject to the provisions of this Agreement.

2. For these purposes States Parties may, in particular:

(a) Land their space objects on the moon and launch them from the moon;

(b) Place their personnel, space vehicles, equipment, facilities, stations and installations anywhere on or below the surface of the moon.

Personnel, space vehicles, equipment, facilities, stations and installations may move or be moved freely over or below the surface of the moon.

3. Activities of States Parties in accordance with paragraphs 1 and 2 of this article shall not interfere with the activities of other States Parties on the moon. Where such interference may occur, the States Parties concerned shall undertake consultations in accordance with article XV, paragraphs 2 and 3.

*Article IX*

1. States Parties may establish manned and unmanned stations on the moon. A State Party establishing a station shall use only that area which is reasonable for the needs of the station and shall immediately inform the Secretary-General of the United Nations of the location and purposes of that station. Subsequently, at annual intervals that State shall likewise inform the Secretary-General whether the station continues in use and whether its purposes have changed.

2. Stations shall be installed in such a manner that they do not impede the free access to all areas of the moon of personnel, vehicles

and equipment of other States Parties conducting activities on the moon in accordance with the provisions of this Agreement or of article I of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies.

*Article X*

1. States Parties shall adopt all practicable measures to safeguard the life and health of persons on the moon. For this purpose they shall regard any person on the moon as an astronaut within the meaning of article V of the Treaty on Principles Governing the Activities of States on the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies and as part of the personnel of a spacecraft within the meaning of the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space.

2. States Parties shall offer shelter in their stations, installations, vehicles and other facilities to persons in distress on the moon.

*Article XI*

1. The moon and its natural resources are the common heritage of mankind which finds its expression in the provisions of this agreement and in particular in paragraph 5 of this article.

2. The moon is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means.

3. Neither the surface nor the subsurface of the moon, nor any part thereof or natural resources in place, shall become property of any State, international, intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person. The placement of personnel, space vehicles, equipment, facilities, stations and installations on or below the surface of the moon, including structures connected with their surface or subsurface, shall not create a right of ownership over the surface or the subsurface of the moon or any areas thereof. The foregoing provisions are without prejudice to the international regime referred to in paragraph 5 of this article.

4. States Parties have the right to exploration and use of the moon without discrimination of any kind on a basis of equality, and in accordance with international law and the terms of this Agreement.

5. States Parties to this Agreement hereby undertake to establish an international regime, including appropriate procedures, to govern the exploitation of the natural resources of the moon as such exploitation is about to become feasible. This provision shall be implemented in accordance with article XVIII of this Agreement.

6. In order to facilitate the establishment of the international regime referred to in paragraph 5 of this article, States Parties shall in-

form the Secretary-General of the United Nations as well as the public and the international scientific community to the greatest extent feasible and practicable of any natural resources they may discover on the moon.

7. The main purpose of the international regime to be established shall include:

(a) The orderly and safe development of the natural resources of the moon;

(b) The rational management of those resources;

(c) The expansion of opportunities in the use of those resources; and

(d) An equitable sharing by all States Parties in the benefits derived from those resources, whereby the interests and needs of the developing countries as well as the efforts of those countries which have contributed either directly or indirectly to the exploration of the moon shall be given special consideration.

8. All the activities with respect to the natural resources of the moon shall be carried out in a manner compatible with the purposes specified in paragraph 7 of this article and the provisions of article VI, paragraph 2, of this Agreement.

*Article XII*

1. States Parties shall retain jurisdiction and control over their personnel, vehicles, equipment, facilities, stations and installations on the moon. The ownership of space vehicles, equipment, facilities, stations and installations shall not be affected by their presence.

2. Vehicles, installations and equipment or their component parts found in places other than their intended location shall be dealt with in accordance with article V of the Agreement on Assistance to Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space.

3. In the event of an emergency involving a threat to human life, States Parties may use the equipment, vehicles, installations, facilities or supplies of other States Parties on the moon. Prompt notification of such use shall be made to the Secretary-General of the United Nations or State Party concerned.

*Article XIII*

A State Party which learns of the crash landing, forced landing or other unintended landing on the moon of a space object, or its component parts, that were not launched by it, shall promptly inform the launching State Party and the Secretary-General of the United Nations.

*Article XIV*

1. States Parties to this Agreement shall bear international re-

sponsibility for national activities on the moon whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Agreement. States Parties shall ensure that non-governmental entities under their jurisdiction shall engage in activities on the moon only under the authority and continuing supervision of the appropriate State Party.

2. States Parties recognize that detailed arrangements concerning liability for damage caused on the moon, in addition to the provisions of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies and the Convention on International Liability for Damage Caused by Space Objects, may become necessary as a result of more extensive activities on the moon. Any such arrangements shall be elaborated in accordance with the procedure provided for in article XVIII of this Agreement.

*Article XV*

1. Each State Party may assure itself that the activities of other States Parties in the exploration and use of the moon are compatible with the provisions of this Agreement. To this end, all space vehicles, equipment, facilities, stations and installations on the moon shall be open to other States Parties. Such States Parties shall give reasonable advance notice of a projected visit, in order that appropriate consultations may be held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited. In pursuance of this article, any State Party may act on its own behalf or with the full or partial assistance of any other State Party or through appropriate international organizations in the framework of the United Nations and in accordance with the Charter.

2. A State Party which has reason to believe that another State Party is not fulfilling the obligations incumbent upon it pursuant to this Agreement or that another State Party is interfering with the rights which the former State has under this Agreement, may request consultations with that Party. A State Party receiving such a request shall enter into such consultations without delay. Any other State Party which requests to do so shall be entitled to take part in the consultations. Each State Party participating in such consultations shall seek a mutually acceptable resolution of any controversy and shall bear in mind the rights and interests of all States Parties. The Secretary-General of the United Nations shall be informed of the results of the consultations and transmit the information received to all States Parties concerned.

3. If the consultations do not lead to a mutually acceptable settlement which has due regard for the rights and interests of all the States Parties, the parties concerned shall take all measure to settle the dispute by other peaceful means of their choice and appropriate to the circum-

stances and the nature of the dispute. If difficulties arise in connection with the opening of consultations or if consultations do not lead to a mutually acceptable settlement any State Party may seek the assistance of the Secretary-General without seeking the consent of any other State Party concerned, in order to resolve the controversy. A State Party which does not maintain diplomatic relations with another State Party concerned shall participate in such consultations at its choice, either itself or through another State Party or the Secretary-General, as intermediary.

*Article XVI*

With the exception of articles XVII to XXI, references in this Agreement to States shall be deemed to apply to any international inter-governmental organization which conducts space activities if the organization declares its acceptance of the rights and obligations provided for in this Agreement and if a majority of the States members of the organization are States Parties to this Agreement and to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies. States members of any such organization which are States Parties to this Agreement shall take all appropriate steps to ensure that the organization makes a declaration in accordance with the foregoing.

*Article XVII*

Any State Party to this Agreement may propose amendments to the Agreement. Amendments shall enter into force for each State Party to the Agreement accepting the amendments upon their acceptance by a majority of the States Parties to the Agreement and thereafter for each remaining State Party to the Agreement on the date of acceptance by it.

*Article XVIII*

Ten years after the entry into force of this Agreement, the question of the review of the Agreement shall be included in the provisional agenda of the United Nations General Assembly in order to consider, in the light of past application of the Agreement, whether it requires revision. However, at any time after the Agreement has been in force for five years, the Secretary-General of the United Nations, as depository, shall, at the request of one-third of the States Parties to the Agreement and with the concurrence of the majority of the States Parties, convene a conference of the States Parties to review this Agreement. A review conference shall also consider the question of the implementation of the provisions of article XI, paragraph 5, on the basis of the principle referred to in paragraph 1 of that article and taking into account in particular any relevant technological developments.

*Article XIX*

1. This Agreement shall be open for signature by all States at United Nations Headquarters in New York.

2. This Agreement shall be subject to ratification by signatory States. Any State which does not sign this Agreement before its entry into force in accordance with paragraph 3 of this article may accede to it at any time. Instruments of ratification or accession shall be deposited with the Secretary-General of the United Nations.

3. This Agreement shall enter into force on the thirtieth day following the date of deposit of the fifth instrument of ratification.

4. For each State depositing its instrument of ratification or accession after the entry into force of this Agreement, it shall enter into force on the thirtieth day following the date of deposit of any such instrument.

5. The Secretary-General shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or accession to this Agreement, the date of its entry into force and other notices.

*Article XX*

Any State Party to this Agreement may give notice of its withdrawal from the Agreement one year after its entry into force by written notification to the Secretary-General of the United Nations. Such withdrawal shall take effect one year from the date of receipt of this notification.

*Article XXI*

The original of this Agreement, of which the English, Arabic, Chinese, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall send certified copies thereof to all signatory and acceding States.