PROPERTY RIGHTS IN OUTER SPACE: FOCUS ON THE PROPOSED MOON TREATY+

*Stephen Gorove**

One of the recent subjects under consideration by the United Nations has been the drafting of a treaty relating to the moon. The Legal Sub-Committee of the United Nations Committee on the Peaceful Uses of Outer Space established a Working Group for an article-by-article consideration of proposals relating to such a draft international treaty concerning the moon. The Working Group formulated the text of a preamble and twenty-one articles.[1] However, the Draft Treaty is, as yet, incomplete. There remain several issues to be settled before it can be finalized. Nonetheless, a substantial amount of agreement on several provisions has been reached and, even in its present incomplete state, the draft reflects a number of proposals carrying significant additions to or changes in earlier agreements. The purpose of this paper is to concentrate on those provisions of the Draft Treaty which pertain to natural resources and the interdiction of property rights.[2]

The first and foremost innovation of the draft is in its declaration that the natural resources of the moon and other celestial bodies "shall be the common heritage of all mankind."[3] At first sight this principle seems to be in line with Article I of the Outer Space Treaty[4] which declares outer space to be the "province of all mankind" and with Article II of the Outer Space Treaty which prohibits national appropriation of the moon and other celestial bodies by claim of sovereignty, use, occupation or any other means.

However, upon further scrutiny, the quoted provision appears, at the present stage of our development, by no means without ambiguity. The phrase referring to the common heritage of mankind has presumably been borrowed from a similar phrase used in connection with the exploration and exploitation of the seabed and the ocean floor.[5]

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*Chairman of the Graduate Program in Law and Professor of Law, University of Mississippi Law Center.

+This article is an elaboration of the author's paper presented at the 16th Colloquium on the Law of Outer Space on October 11, 1973, in Baku.

[1]For text of the Draft Treaty Relating to the Moon, see U.N. Doc. A/AC.105/101 (1972); see also Doc. A/AC.105/115 (1973).

[2]Art. X.

[3]Art. X, par. 1.

[4]Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (briefly referred to as Outer Space Treaty) was signed on January 27, 1967, and entered into force October 10, 1967, [1967] 18 U.S.T. 2410, T.I.A.S. No. 6347, reprinted in 61 Am. J. Int'l. L. 644 (1967).

[5]G. A. Res. 2749 (XXV); U.N. Doc. A/C.1/544 (1970).

It has been pointed out that the inclusion in binding international legal documents of such a vague phrase without any definite content may well be premature. It has also been pointed out that before any rights can be meaningfully vested in mankind, not only the problem of definition but also that of representation will have to be resolved.[6]

The fact that the inclusion of the above quoted phrase was not meant to create immediate property rights for mankind in the natural resources of the moon and other celestial bodies seems implied from the use of the phrase "shall be" rather than "is." In line with this reasoning the United States representative to the Legal Sub-Committee of the Committee on the Peaceful Uses of Outer Space stated that while the United States proposed in its draft that the natural resources of the "moon and other celestial bodies shall be the common heritage of all mankind", it was not prepared to accept an express or implied prohibition of the exploitation of natural resources prior to an agreement by a subsequent international conference on appropriate machinery and procedures for the international sharing of benefits of such utilization.[7] In other words, in the view of the United States, the draft treaty on the moon could not reasonably be interpreted to require that exploitation had to await the establishment of a treaty-based regime. According to the United States the main purpose of such regime was to ensure the orderly and safe development and rational management of the natural resources of the moon and other celestial bodies, to expand opportunities in the use thereof and determine an equitable sharing by all parties in the benefits derived therefrom taking into consideration, in particular, the interests and needs of the developing countries.[8]

A second innovation incorporated in the draft is that, unlike the Outer Space Treaty under which the prohibition of appropriation extended "to the moon and other celestial bodies", without a distinction as to surface, sub-surface or natural resources,[9] the draft treaty limits its prohibition to the "surface or sub-surface" of the moon or other celestial bodies.[10] There is no explanation given in the draft of the meaning of the terms "surface or sub-surface" but apparently these terms do not mean to include any natural resources found on the surface or in the sub-surface inasmuch as such resources—no

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[6]Gorove, The Concept of 'Common Heritage of Mankind': A Political, Moral or Legal Innovation? 9 San Diego L. Rev. 390 at 402 (1972); *cf.* Cocca, Mankind as the New Legal Subject: A New Juridical Dimension Recognized by the United Nations, Proc. 13th Coll. on the Law of Outer Space 211 (1971); Magreda, Something More About Humanity as Subject of Law, *id.* at 215; Scifoni, The Principle Res Communis Omnium and the Peaceful Use of Space and Celestial Bodies, Proc. 12th Coll. on the Law of Outer Space 50 (1970).

[7]See statement by Herbert Reis, U.S. Representative to the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space, U.S. Mission to the U.N., Press Release USUN-37 (73), April 19, 1973.

[8]*Ibid.*

[9]Art. II.

[10] Art. X, pars. 2 and 3.

matter where found–are to be the "common heritage of all mankind."[11]

While the draft treaty prohibits any property claim to the surface or sub-surface of the moon as well as any grants, exchange, transfer, sale or purchase, lease, hire, gift or any other arrangement or transactions with or without compensation pertaining to the surface or sub-surface,[12] it is not entirely clear whether this prohibition is in fact more than a simple paying of lip service to the principle of prohibition of national appropriation enunciated by the Outer Space Treaty.[13]

What makes the prohibition included in the new draft somewhat illusory, if not illogical, is the fact that it also stipulates that the placement of space vehicles, equipment, facilities, stations and installations on or below the surface of the moon, including structures connected with its surface or sub-surface are not to create a right of ownership of parts of the surface or sub-surface of the moon or other celestial bodies.[14] This stipulation in fact means that states or organizations could establish facilities, stations and installations on the moon or other celestial bodies and occupy an area over a long period of time or, if human settlement becomes feasible, perhaps even indefinitely, exercising dominion and control over the area subject only to the limited right of visitation guaranteed under the Outer Space Treaty.[15]

Thus it is difficult to see in what manner the draft treaty's prohibition would become effective. States and other organizations, as well as individuals, could occupy and control the surface or sub-surface of the moon with their vehicles, equipment, facilities and installations, as long as they wished. They could exercise control over it subject only to the aforementioned right of restricted visit. The only thing, therefore, that the draft does is to say that such possession and control will not create a right of ownership over parts of the surface or sub-surface of the moon. But it seems that everything could be exercised by the state, organization or individual much the same way as if such a right of ownership did in fact exist.

The same may be said in relation to the prohibition of grant, exchange, transfer, sale or purchase, lease, hire, gift, or any other arrangement or transaction with or without compensation relating to parts of the surface or sub-surface of the moon or other celestial bodies. Accordingly, nothing would seem to prevent a state from turning over a station, facility and equipment including structures connected with the surface or the sub-surface to another state which could in the same way exercise dominion and control with the exclusion of other states, organizations or individuals and, in fact, exercise what would

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[11] *Id.* at par. 1.

[12] *Id.* at par. 3.

[13] Art. II.

[14] Art. X, par. 2.

[15] Art. XII.

normally amount to property rights in relation to the surface or sub-surface. In sum, it would appear that the draft treaty proscribes only the use of the terms property right or property but does little in relation to prohibiting the very type of dominion and control which, if exercised with the exclusion of others and with no time limitation, is so characteristic of and inherent in the concept of property.

In one respect the draft goes beyond the provisions incorporated in the Outer Space Treaty. The letter prohibited only "national appropriation" but there was no indication of what the phrase was meant to imply. The word "national" could be interpreted to mean reference to the nation-state with the exclusion of international organizations or even of individuals.[16] The draft treaty stipulates that "neither states, international intergovernmental or non-governmental organizations, national organizations having the status of juridical persons or not, nor natural persons may claim the surface or sub-surface of the moon (or other celestial bodies) as their property."[17] Thus it makes it clear that the prohibition of national appropriation at least insofar as it relates to the "surface or sub-surface" is applicable not only to states but also to international organizations as well as national organizations other than states, and to individuals.

Also, by distinguishing natural resources from what is termed "surface or sub-surface", the draft seems to resolve the puzzle created by Article II of the Outer Space Treaty, namely, whether or not the prohibition of national appropriation relates to an area or part of the moon or to its natural resources.[18] What the draft does not clarify is the depth of the sub-surface, and the question of how any exploitation of natural resources especially of those embedded in the sub-surface could be carried out without the exercise of dominion and control over the surface and sub-surface.

In conclusion, it may be stated that the present draft treaty is an advancement over the provisions of the Outer Space Treaty pertaining to the prohibition of national appropriation insofar as it attempts to distinguish between the natural resources, surface and sub-surface of the moon and also because it makes it much more definite to whom the prohibition is to apply. It is unfortunate, however, that the attempted distinction is not clear enough and that the status of natural resources has been obscured by reference to the vague concept of the common heritage of mankind. It is also unfortunate that the prohibition in relation to the right of ownership over parts of the surface or sub-surface of the moon appears to be little more than a smokescreen, since the very thing that ownership implies, including indefinite control and exclusion of others from the occupied area (apart from a limited right of visitation provided for by the Outer Space Treaty), does not appear to be outlawed under the draft treaty. It is hoped that the eventual treaty will attempt to overcome the indicated inconsistencies or appear less presumptious than the current draft which claims to do away with the right of ownership while in fact it appears to do so in an extremely limited fashion, if at all.

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[16]Gorove, Interpreting Article II of the Outer Space Treaty, 37 Fordham L. Rev. 349 (1969).

[17]Art. X, par. 2.

[18]See comments by Professor Goodhuis in the Report of the 54th Conference of the International Law Association 427 (1971) and my response, *id.* at 409-10.

I.

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Satellites: Furnishing of Launching and Associated Services

Agreement effected by exchange of notes
Signed at Washington January 17, 1973;
*Entered into force January 17, 1973.**

* * *

The Secretary of State to the British Ambassador

DEPARTMENT OF STATE
WASHINGTON

January 17, 1973

Excellency:

I have the honor to refer to the Memorandum of Understanding between the National Aeronautics and Space Administration (NASA) of the United States of America and the Department of Trade and Industry (DTI) of the United Kingdom of Great Britain and Northern Ireland, dated December 18, 1972, concerning the conditions under which launches and associated services for United Kingdom satellites will be furnished by NASA on a reimbursable basis.

The Memorandum of Understanding, the text of which is enclosed as Annex 1 to this note, provides inter alia that it shall be subject to confirmation by the Government of the United States and the Government of the United Kingdom through an exchange of diplomatic notes.

In consideration of the continuing, mutually beneficial relationships between NASA and the agencies of the United Kingdom on peaceful space research endeavors, including the several cooperative scientific satellite projects accomplished to date and the space tracking and communications support provided by the United Kingdom to NASA, I have the honor to inform you that the Government of the United States confirms the provisions of the Memorandum of Understanding referred to in paragraph 1 of this note.

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*Taken from Treaties and Other International Acts Series No. 7544 (Jan. 17, 1973). For earlier reference, see 1 J. Space L. 185 (1973). Footnotes are omitted.

I further have the honor to propose that the launching and associated services to be provided by NASA for United Kingdom satellite projects shall be consistent with the relevant provisions of the United States launch assistance policy as confirmed by a statement of the President of the United States on October 9, 1972, such provisions being enclosed as Annex 2 to this note.

If the Government of the United Kingdom would also confirm the provisions of the Memorandum of Understanding and concur in the proposals in this note, I have the honor to propose that this note and Your Excellency's reply, together with the Memorandum of Understanding, shall constitute an agreement between our two Governments regarding this matter, which shall enter into force on the date of your reply and shall remain in force for seven years and thereafter subject to six months' notice of termination by either Government.

Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State:

U. Alexis Johnson

Enclosures:
Annex 1. Memorandum of Understanding
Annex 2. US Position of Launch Assistance

His Excellency
The Right Honorable
The Earl of Cromer, P.C., K.C.M.G., M.B.E.
British Ambassador

Ann. 1

MEMORANDUM OF UNDERSTANDING BETWEEN THE UNITED KINGDOM SECRETARY OF STATE FOR TRADE AND INDUSTRY AND THE UNITED STATES NATIONAL AERONAUTICS AND SPACE ADMINISTRATION CONCERNING THE FURNISHING OF SATELLITE LAUNCHING AND ASSOCIATED SERVICES

In consideration of the continuing, mutually beneficial cooperative relationships between United Kingdom agencies and the National Aeronautics and Space Administration (NASA) on peaceful space projects, the United Kingdom Secretary of State for Trade and Industry and NASA set forth in this Memorandum of Understanding a general understanding between NASA and the United Kingdom Department of Trade and Industry (DTI): (1) as to the conditions under which NASA will furnish to DTI launching and associated services for United Kingdom spacecraft on a reimbursable basis; and, (2) as to the responsibilities of the parties in connection with such launchings.

DTI and NASA intend that, at appropriate times in the future, they will on each such occasion enter into a separate launch services contract which shall express the specific terms and conditions under which NASA will furnish launchings and associated services for individual launchings requested by DTI, and which will be in accord with the general understandings set forth in this Memorandum.

Article I

RESPONSIBILITIES

A. DTI WILL TAKE THE FOLLOWING RESPONSIBILITIES:

1. The design, fabrication and testing of the spacecraft and of the onboard experiments.

2. Furnishing advice to NASA of its requirements for a particular launching at as early a date as possible and in any event sufficiently in advance of the target date of the launching to accommodate financial, procurement, and operational requirements of both parties. Such advice will include details as to the spacecraft mission, payload description, orbital characteristics, launching parameters, planned launching dates and back-up launching requirements, and other information needed by NASA for planning purposes.

3. Incorporating provisions in the spacecraft design specifications and test programs to assure and demonstrate spacecraft compatibility with the launch vehicle physical constraints and in-flight environment and with tracking and data acquisition facilities.

4. Providing flight-ready spacecraft at the launching range, in accordance with the time schedule established under the launch services contract.

5. Furnishing all ground-support equipment (GSE) peculiar to the mission and personnel required for its operation except for certain items of GSE which NASA may specifically agree to provide and/or operate.

B. NASA WILL TAKE THE FOLLOWING RESPONSIBILITIES:

1. Furnishing launch vehicle and tracking and data acquisition specifications necessary for the DTI to carry out its responsibilities under Article I, A.3 above.

2. Scheduling the launching within the general time period requested by the DTI, subject to the requirements of the United States program. If such requirements should arise, NASA will so notify the DTI as soon as possible.

3. Providing appropriate United States launch vehicles. The parties will jointly select the vehicle to meet the mission requirements.

4. Providing necessary facilities and support, including launch crew services, for pre-launch integration of the DTI spacecraft at the launching range, and for DTI check-out of the spacecraft.

5. Launching the spacecraft from a U.S. range.

6. Furnishing tracking and telemetry data reception from the satellite to ascertain achievement of orbit and vehicle performance, using existing U.S. facilities. Additional or unique equipment, if required, will be supplied by the DTI.

7. Performing initial orbital calculations.

8. Furnishing mutually agreed technical consultation, other services, and/or GSE in support of specific or general DTI launch requirements.

Article II

IMPLEMENTATION

A. For each launching, each party will designate a Project Manager, to be responsible for coordinating the agreed functions and responsibilities of each party with the other, pursuant to the detailed arrangements established under the launch services contract. The DTI Project Manager will be concerned primarily with the spacecraft and the NASA Project Manager will be concerned with the vehicle, range and ground station. Together they will be responsible for the spacecraft-vehicle, spacecraft-range and spacecraft-ground stations interfaces.

B. NASA will have operational authority over the vehicle, the launching, and associated services. The DTI will have operational authority over the spacecraft until it is mounted on the final stage motor, at which time it will become NASA's responsibility until the DTI assumes responsibility as specified in the launch services contract. In accordance with normal practice, the DTI Project Manager can place a "hold" on the launching operation at any time. In carrying out their respective responsibilities, both parties will be subject to the safety and other operational regulations and procedures of the range from which the launching takes place.

C. Arrangements for the furnishing of supporting services by NASA in connection with the launching will be provided for under the launch services contract. NASA may also furnish, on a reimbursable basis, minor services in support of general DTI launching requirements, at DTI's request and under arrangements to be agreed upon separately.

D. Each party agrees to use its best efforts to facilitate customs free entry into the United Kingdom and the United States of equipment directly related to and required in carrying out each launch services contract.

Article III

FINANCIAL PRINCIPLES

A. The DTI will be responsible for all costs incurred by it in carrying out its own responsibilities, and will reimburse NASA for costs incurred by NASA in connection with furnishing the requested launching and associated services, and any other supporting services provided at the DTI's request. The general principle under which reimbursement will be made will be that the DTI will reimburse NASA for all costs incurred by NASA in connection with and properly chargeable to the services furnished by NASA for the purposes of any scheduled DTI launching, whether or not such launching actually occurs or is successful, including an amount, to be agreed upon in advance, covering NASA's related agency-level overhead and administrative expenses. NASA may also charge a rental to be agreed in advance, for the use of equipment loaned to the DTI.

B. Reimbursement of NASA's costs will be made initially on the basis of an estimate to be furnished by NASA in advance, under a payment schedule to be established in the launch services contract. The amount paid by the DTI on an estimated basis will be adjusted subsequently to reflect the costs actually incurred by NASA in connection with each launching.

C. The financial principles set forth above are subject to any changes in NASA policy affecting the basis of reimbursement for launching services provided by NASA for users other than the U.S. Government.

Article IV

LIABILITY

A. NASA shall be liable for all damage to or the loss of U.S. government-owned property under the control of NASA, except for damage to or the loss of a vehicle or vehicle stage occurring after DTI has assumed the risk of loss, as provided in the launch services contract, for that vehicle or vehicle stage.

B. DTI shall be liable for all damage to or the loss of property under the control of DTI, including U.S. government-owned property which has been made available by NASA for the use of DTI or its contractors.

C. Except to the extent authorized by U.S. laws pertaining to governmental liability for the negligent acts of U.S. employees, the U.S. Government and its contractors

will not be liable for damage to or the loss of a spacecraft or other property which has been delivered by DTI or its contractors into the custody of NASA or its contractors for the purposes of an agreed launch. The U.S. Government and its contractors shall not be liable in any event for damage to or the loss of such DTI property which results as an indirect consequence of damage to, or the malfunctioning or loss of, a vehicle or vehicle stage occurring after DTI has assumed the risk of loss, as provided in the launch services contract, for that vehicle or vehicle stage.

D. As between NASA and DTI, NASA will be primarily responsible for considering and settling claims, arising directly out of the launching and associated services furnished by NASA, for personal injuries or death, or for damage to or loss of property, other than the property referred to in Paragraphs A, B and C of this Article. Where such claims are based on injuries, death, or damage or loss resulting from the acts or omissions of DTI, its servants, contractors or agents, DTI will reimburse NASA for any amounts paid by NASA in settlement of such claims, but such settlement shall be subject to the advance approval of DTI, except under an award by a U.S. court of competent jurisdiction.

E. NASA will assist DTI in the defense against claims for personal injuries, death, or damage to or loss of property brought against DTI, except when such claims resulted from the acts or omissions of DTI, its servants, contractors or agents.

F. DTI will indemnify and hold the U.S. Government harmless against any claims for personal injuries, death, or damage to or loss of property, or for other liability, arising out of the operation of a satellite, or from its failure to operate, after DTI has taken control of the satellite in orbit.

G. DTI shall have no liability to NASA with respect to third party claims against NASA for patent infringement or unauthorized use of proprietary information by NASA in connection with the furnishing of launching services to DTI, except to the extent that such claims may involve patents or information pertaining to a U.K. spacecraft or associated spacecraft ground support equipment. In this latter event, DTI agrees that it will indemnify and hold the U.S. Government harmless against any such claims.

Article V

DOCUMENTATION AND REPORTS

A. NASA and the DTI will exchange, through their respective Project Managers, all documents and information relevant to the successful completion of the agreed missions and such documents and information will be used only for the aforesaid purpose.

B. Immediately after each launching, the DTI will provide NASA all data from the satellite relevant to ascertaining the performance of the launch vehicle and such data will be used only for the aforesaid purpose.

C. DTI will, upon NASA's request and at NASA's expense, provide NASA with any raw data received by the DTI from the satellite and any reduced data therefrom. Except with the prior permission of DTI, NASA will not duplicate, disclose, or use any unpublished data so provided.

D. In any use of data passed to NASA under the above paragraphs A-C of this Article, NASA will respect and protect the confidentiality of proprietary information designated as such by DTI, as provided for in the launch services contract.

Article VI

CONFIRMATION

This Memorandum of Understanding and any mutually agreed amendments thereto, shall be subject to confirmation by the Government of the United States and the Government of the United Kingdom of Great Britain and Northern Ireland through an exchange of diplomatic notes.

A. Goodson
For the Secretary of State
for Trade and Industry
Date 15 November 1972

James C. Fletcher
For the National Aeronautics
and Space Administration
Date December 18, 1972

Ann. 2

UNITED STATES POLICY GOVERNING THE PROVISION OF LAUNCH ASSISTANCE

I. United States launch assistance will be available to interested countries and international organizations for those satellite projects which are for peaceful purposes and are consistent with obligations under relevant international agreements and arrangements, subject only to the following:

A. With respect to satellites intended to provide international public telecommunications services:

1. The United States will provide appropriate launch assistance for those satellite systems on which Intelsat makes a favorable recommendation in accordance with Article XIV of its definitive arrangements.

2. If launch assistance is requested in the absence of a favorable recommendation by Intelsat, the United States will provide launch assistance for those systems which the United States had supported within Intelsat so long as the country or international entity requesting the assistance considers in good faith that it has met its relevant obligations under Article XIV of the definitive arrangements.

3. In those cases where requests for launch assistance are maintained in the absence of a favorable Intelsat recommendation and the United States had not supported the proposed system, the United States will reach a decision on such a request after taking into account the degree to which the proposed system would be modified in the light of the factors which were the basis for the lack of support within Intelsat.

B. With respect to future operational satellite applications which do not have broad international acceptance, the United States will favorably consider requests for launch assistance when broad international acceptance has been obtained.

II. Such launch assistance will be available, consistent with U.S. laws, either from U.S. launch sites (through the acquisition of U.S. launch services on a cooperative or reimbursable basis) or from foreign launch sites (by purchase of an appropriate U.S. launch vehicle). In the case of launchings from foreign sites the United States will require assurance that the launch vehicles will not be made available to third parties without prior agreement of the United States.

III. With respect to the financial conditions for reimbursable launch services from U.S. launch sites, foreign users will be charged on the same basis as comparable non-U.S. Government domestic users.

IV. With respect to the priority and scheduling for launching foreign payloads at U.S. launch sites, such launchings will be dealt with on the same basis as U.S. launchings. Each launching will be treated in terms of its own requirements and as an individual case. When it becomes known when a payload will become available and what its launch window requirements will be, the launching will be scheduled for that time. Should a conflict arise, the United States will consult with all interested parties in order to arrive at an equitable solution.

* * *

The British Ambassador to the Secretary of State

BRITISH EMBASSY,
WASHINGTON, D. C.

17 January 1973

The Honorable
William P. Rogers
Secretary of State
Department of State
Washington, D. C.

Excellency:

I have the honour to acknowledge receipt of Your Excellency's Note of the 17th of January, with attached Memorandum of Understanding, which reads as follows:—

"Excellency:

"I have the honor to refer to the Memorandum of Understanding between the National Aeronautics and Space Administration (NASA) of the United States of America and the Department of Trade and Industry (DTI) of the United Kingdom of Great Britain and Northern Ireland, dated December 18, 1972, concerning the conditions under which launches and associated services for United Kindgom satellites will be furnished by NASA on a reimbursable basis.

"The Memorandum of Understanding, the text of which is enclosed as Annex 1 to this note, provides inter alia that it shall be subject to confirmation by the Government of the United States and the Government of the United Kingdom through an exchange of diplomatic notes.

"In consideration of the continuing, mutually beneficial relationships between NASA and the agencies of the United Kingdom on peaceful space research endeavors, including the several cooperative scientific satellite projects accomplished to date and the space tracking and communications support provided by the United Kingdom to NASA, I have the honor to inform you that the Government of the United States confirms the provisions of the Memorandum of Understanding referred to in paragraph 1 of this note.

"I further have the honor to propose that the launching and associated services to be provided by NASA for United Kingdom satellite projects shall be consistent with the relevant provisions of the United States launch assistance policy as confirmed by a statement of the President of the United States on October 9, 1972, such provisions being enclosed as Annex 2 to this note.

"If the Government of the United Kingdom would also confirm the provisions of the Memorandum of Understanding and concur in the proposals in this note, I have the honor to propose that this note and Your Excellency's reply, together with the Memorandum of Understanding, shall constitute an agreement between our two Governments regarding this matter, which shall enter into force on the date of your reply and shall remain in force for several years and thereafter subject to six months' notice of termination by either Government.

"Accept, Excellency, the renewed assurances of my highest consideration.

For the Secretary of State:

U. Alexis Johnson
Under Secretary of State for Political Affairs

Enclosures:
Annex 1. Memorandum of Understanding
Annex 2. U.S. Position on Launch Assistance"

I have the honor to state that the Government of the United Kingdom confirm the provisions of the Memorandum of Understanding and concur in the proposals in Your Excellency's Note. The Government of the United Kingdom therefore agree that your Note, together with the Memorandum of Understanding and this reply, shall constitute an agreement between our two Governments in this matter, which shall enter into force on the date of this reply and continue in force for seven years and thereafter subject to six months' notice of termination by either Government.

Accept, Excellency, the renewed assurances of my highest consideration.

Cromer

II.

Tab A

Memorandum of Understanding Between the National Aeronautics and Space Administration and the European Space Research Organization for a Cooperative Programme Concerning Development, Procurement and Use of a Space Laboratory in Conjunction with the Space Shuttle System*

*Taken from Hearing Before the Committee on Aeronautical and Space Sciences of the U.S. Senate on Space Missions, Payloads, and Traffic for the Space Shuttle Era, 93rd Cong., 1st Sess., Cat. No. Y.4. Ac8:Sp, 1/11/pt. 1 at 121-134 (Oct. 30, 1973).

Preamble

Pursuant to the offer of the Government of the United States of America to Europe to participate in the major U.S. space programme which follows the Apollo programme, and in particular in the development of a new space transportation system (Space Shuttle), the execution of which has been entrusted by the Government of the United States of America to the National Aeronautics and Space Administration (NASA), European States, members of the European Space Research Organization (ESRO), have manifested their desire to develop a Space Laboratory, hereinafter referred to as "SL", in the form of a Special Project within ESRO, for the purpose of participation in the Space Shuttle programme. These States by means of an international arrangement have charged ESRO or its successor organization with the execution of the SL programme. In order to provide for appropriate Association of the two Agencies in the execution of both programmes and in order to assure the necessary coordination between them, NASA, acting for and on behalf of the Government of the United States of America, and ESRO, acting for and on behalf of the Governments of those States participating in this Special Project, have drawn up this Memorandum of Understanding which sets out the particular terms and conditions under which such association and coordination will be effected. This Memorandum of Understanding will be subject to provisions of the Agreement between the Governments of the above participating States and the Government of the United States of America concerning this cooperative programme.

Article I

OBJECTIVES

The purpose of this Memorandum of Understanding is to provide for the implementation of a cooperative programme in which ESRO undertakes to design, develop, manufacture and deliver the first flight unit of an SL, and other materials described in this Memorandum. This flight unit will be used as an element to be integrated with the Space Shuttle. This Memorandum sets out furthermore the provisions for ESRO access for use of the SL and for the procurement by NASA of additional SLs, and establishes the cooperative structure between NASA and ESRO for dealing with all questions concerning interface between the Shuttle and SL programmes and concerning the missions to be defined.

Article II

GENERAL DESCRIPTION OF THE SL PROGRAMME, ITS INTERFACE WITH THE SPACE SHUTTLE, AND ITS USES

1. *Summary description of the SL programme*

The SL programme provides for the definition, design and development of man-

nable laboratory modules and unpressurised instrument platforms (pallets) suitable for accommodating instrumentation for conducting research and applications activities on Shuttle sortie missions. The SL module and SL pallet will be transported, either separately or together to and from orbit in the Shuttle payload bay and will be attached to and supported by the Shuttle orbiter throughout the mission. The module will be characterised by a pressurised environment (permitting the crew to work in shirt sleeves), a versatile capability for accommodating laboratory and observatory equipment at minimum cost to users, and rapid access for users. The pallet, supporting telescopes, antennae and other instruments and equipments requiring direct space exposure, will normally be attached to the module with its experiments remotely operated from the module, but can also be attached directly to the Shuttle orbiter and operated from the orbiter cabin or the ground. Both the module and the pallet will assure minimum interference with Shuttle orbiter ground turnaround operations.

2. *Interface with Shuttle*

The Shuttle will: serve in missions to deliver payloads to earth orbit; maintain station on orbit for mission durations in the order of seven days or more: provide safety monitoring and control over payload elements throughout the missions; and provide seating and complete habitability for screws, including free movement between the SL module and the Shuttle. In the interest of minimising developmental and operational costs, and maximising reliability, an effort will be made to optimise commonality between SL and Shuttle components.

3. *Use objectives*

The SL will support a wide spectrum of missions for peaceful purposes and will accept readily the addition of special equipment for particular mission requirements. The SL will facilitate maximum user involvement and accessibility. The flight equipment complement will be capable of augmentation as appropriate to satisfy approved programme needs. It will be possible for users to utilise the SL with or without supplementary equipment for a single experiment or, in the alternative, to utilise only a small portion of the SL in combination with other experiments. The standard resources of the SL may be utilised to any degree appropriate by an experimenter adhering to standardised interfaces which are to be defined and procedures which are to be set forth. Considerable flexibility in equipment and mission structuring shall be available to the user for effective mission operation.

Article III

PHASING AND SCHEDULING

1. *Phase B studies*

Based on present schedules, the Phase B (preliminary design) studies of the SL are expected to be completed around the end of 1973.

2. *Phases C and D*

At the completion of the Phase B studies, the parties will mutually agree on a design for immediate implementation and development by ESRO in Phases C and D (final design and hardware development and manufacture).

3. *Completion schedules*

It is currently planned that the first operational space flight of the Shuttle will occur in late 1979. To permit adequate time for experiment integration, check-out and compatibility testing, the SL flight unit shall be delivered to NASA about one year before the first operational Shuttle flight.

4. *Schedule changes*

Each party will keep the other fully and currently informed of factors affecting the schedules of the Shuttle and the SL respectively and their potential effects on flight readiness.

Article IV

PROGRAMME PLANS

The foregoing gross descriptions of the SL programme and of the phasing, scheduling and working arrangements are amplified in greater detail in the preliminary version, dated 30 July 1973, of the Joint Programme Plan. The parties recognise that many issues remain to be resolved in the Joint Programme Plan, which is to be developed and updated as appropriate by the Programme Heads. This plan is to be progress in both Europe and the United States, on the results of independent and joint studies of user requirements, and on the final definition of, and the requirements for integration with, the Shuttle.

Article V

RESPECTIVE RESPONSIBILITIES

1. *ESRO responsibilities*

Among ESRO's responsibilities are the following:

(a) design, develop and manufacture *one SL flight unit* (consisting of one set of module and pallet sections), *one SL engineering model, two sets of SL ground support equipment,* initial SL spares, along with relevant drawings and documentation; and qualify and test for acceptance this equipment according to NASA specifications and requirements;

(b) deliver to NASA the terms listed above;

(c) design, develop and manufacture such elements as ESRO and NASA may agree to be necessary for the programme in addition to those listed in (a) above;

(d) establish in the U.S. and accommodate in Europe agreed liaison personnel;

(e) provide all necessary technical interface information;

(f) provide agreed progress and status information;

(g) following delivery of the above flight unit, *maintain and fund an SL sustaining engineering capability* through the first two SL flight missions, and ensure for NASA's account the future availability to NASA of such engineering capability to meet NASA's operating requirements, on the same conditions as would apply to ESRO;

(h) ensure the production in Europe and possibility of procurement by NASA of subsequent flight units, components and spares; and

(i) provide for preliminary integration of experiments which ESRO supports, as well as acquire the corresponding data, within the overall responsibilities of NASA described in paragraph 2(j) of this Article, and process it.

2. *NASA responsibilities*

Among NASA's responsibilities are the following:

(a) establish in Europe and accommodate in the U.S. agreed liaison personnel;

(b) provide general technical and managerial consultation;

(c) provide all necessary technical interface information;

(d) provide agreed progress and status information;

(e) monitor ESRO technical progress in selected areas as defined in the Programme Plans;

(f) review and concur in the implementation of ESRO activities critical to the NASA programmatic requirements for the SL as defined in the Programme Plans;

(g) specify, in order to assure successful operation of the SL in the Shuttle system, operational plans, and hardware and operational interfaces as defined in the Programme Plans;

(h) conduct systems analyses for development of operational concepts and utilisation plans, and assess the impact of changes at all SL external interfaces;

(i) develop selected peripheral components, not part of, but necessary to the successful operation of the SL (e.g. access tunnel, docking ports); and

(j) manage all operational activities subsequent to the delivery of the SL, including experiment integration, crew training, check-out, flight operations, refurbishment, data acquisition, preliminary processing and distribution of data.

3. By agreement of the NASA Administrator and the Director General of ESRO, changes may be made in the above responsibilities, as may be desirable for the implementation of this cooperative programme.

Article VI

COORDINATION—LIAISON—REVIEWS

1. *Programme heads*

Each of the parties has designated in their respective Headquarters an SL Programme Head. They will be responsible for the implementation of this cooperative programme and they will meet and communicate as they require.

2. *Project managers*

In addition, each of the parties will designate an SL Project Manager responsible for day-to-day coordination in the implementation of this cooperative programme.

3. *Joint SL Working Group (JSLWG)*

The two Programme Heads will together establish a Joint SL Working Group with appropriate technical representation from each party. The Programme Heads will be co-chairmen of the JSLWG. The JSLWG will be the principal mechanism for:

(a) the exchange of information necessary to inform both parties fully of the status of both the Shuttle and the SL;

(b) monitoring interface items, problems and solutions;

(c) early identification of issues or problems of either party which may effect the other; and

(d) assuring early action with respect to any problems or requirements.

4. *Liaison*

The parties shall each provide and accommodate liaison representation at levels as mutually agreed. The representation will be such as to assure each party adequate visibility of the other's progress especially with regard to interfaces and their control. ESRO shall have representation on appropriate Shuttle change control boards to assure adequate opportunity to present the views and interests of ESRO with respect to any change. The ESRO representatives on the boards will have a voice but will not vote. NASA will have similar representation on the comparable ESRO SL board. ESRO and NASA will enable and arrange for visits to their respective contractors as required.

5. *Progress reviews*

Each party shall schedule progress reviews of its work in the Shuttle and SL programmes and shall provide access to the other to such reviews. Annual reviews will be conducted by the NASA Administrator and the ESRO Director General.

Article VII

FUNDING

1. *Costs*

NASA and ESRO will each bear the full costs of discharging their respective responsibilities arising from this cooperative programme, including travel and subsistence of their own personnel and transportation charges for all equipment for which they are responsible.

2. *Availability of funds*

The commitments by NASA and ESRO to carry out this cooperative programme are subject to their respective funding procedures.

3. *Principle on pricing*

Neither party will seek to recover government research and development costs incurred in the development of items procured from the other in connection with this cooperative programme.

Article VIII

NASA PROCUREMENT OF SLS

1. *Principle*

Subsequent to the delivery by ESRO of the SL unit and other items referred to in Article V, 1(a), *NASA agrees to procure from ESRO whatever additional items of this type it may require for programmatic persons,* provided that they are available to the agreed specifications and schedules and at reasonable prices to be agreed. *NASA should give an initial procurement order of at least one SL at the latest two years before the delivery of the SL unit referred to above.* Recognising the desirability of gaining operational experience with the first flight unit before ordering additional units, but that the price and availability of production units will be dependent on the maintenance of a continuing production capability, NASA will endeavor to provide significant lead time for any subsequent procurement order.

2. *NASA abstention from SL development*

NASA will refrain from separate and independent development of any SL substantially duplicating the design and capabilities of the first SL unless ESRO fails to produce such SLs, components and spares in accordance with agreed specifications and schedules and at reasonable prices to be agreed. For any NASA SL programme requirements which are not met by SLs developed under this cooperative programme, NASA will have the right to meet such requirements either by making the necessary modifications to the SLs developed under this cooperative programme, or by manufacturing or procuring another SL meeting such NASA requirements.

3. *Notice of prospective requirements*

NASA will endeavour to give ESRO advance notice of any prospective requirements for substantially modified or entirely new SLs so as to provide ESRO with an opportunity to make proposals which might meet such requirements.

Article IX

CONTINGENCIES

1. *Non-completion of first SL or failure to meet specifications*

NASA's obligations with respect to the SL shall lapse and ESRO will turn over to NASA without charge and without delay all drawings, hardware and documentation relating to the SL if ESRO abandons the development of the SL for any reasons, or ESRO is otherwise unable to deliver the SL flight unit prior to the first operational Shuttle flight, or the completed SL does not meet agreed specifications and development

schedules. The right of NASA to use the said drawings, hardware and documentation shall be limited to the completion and operation of the SL programme. ESRO shall ensure that it will be in a position to provide as hardware any proprietary item for which it does not hold transmissible rights of reproduction.

2. *Non-availability of subsequent SLs*

If SLs, components and spares required by NASA after the first flight unit are not available to NASA in accordance with agreed specifications and schedules and at reasonable prices to be agreed, NASA shall be free to produce such units in the United States. For this purpose, ESRO will arrange in advance on a contingency basis any necessary licensing arrangements.

3. *Design changes*

While it is understood that ESRO will be represented on the Shuttle change control boards, NASA reserves the right to require changes affecting the interfaces or operational interactions between the Shuttle and the SL after hearing and considering ESRO's views with respect to the prospective effect of such changes on the SL design or cost. NASA recognises the desirability of avoiding changes resulting in a disproportionate impact on the SL programme. To the extent that changes affect the Shuttle and SL programmes, NASA and ESRO will bear the increases in the costs of their respective Shuttle and SL development contracts.

Article X

ACCESS TO TECHNOLOGY AND ASSISTANCE BY NASA

1. *Principles*

(a) ESRO will have access to technology, including know-how, available to NASA and needed to accomplish successfully its tasks under this cooperative programme; for the same purposes, NASA will have access to technology, including know-how, available to ESRO. NASA will do its best to arrange for such technical assistance as ESRO and its contractors may require for the satisfactory completion of the SL programme. Access to technology and arrangements for technical assistance shall be consistent with applicable U.S. laws and regulations.

(b) NASA will make available to ESRO general information related to the design, development, and use of the Shuttle and orbital system, particularly that required for the understanding of that system.

(c) Requests for use of technology, including know-how, in other than SL development and production tasks will be considered on a case-by-case basis.

(d) To the extent that NASA can make the required information readily available, it will do so without charge; in other cases, NASA will use its best efforts to facilitate its availability on favourable conditions.

(e) The access to technology, including know-how, referred to above will be effected in such a way as not to infringe any existing proprietary rights of any person or body in the United States or Europe.

2. *Joint definition of areas*

The two parties shall provide for the earliest possible joint definition of areas in which help in the procurement of hardware and technical assistance from U.S. Government Agencies or nationals may be required.

3. *Form of assistance*

In providing such help to ESRO as may be agreed, NASA may respond on an in-house basis or may refer ESRO and/or its contractors to U.S. contractors. NASA reserves the right to arrange for such assistance in the form of hardware, rather than know-how.

4. *Quality control and acceptance*

Where ESRO needs to procure U.S. hardware, NASA agrees to use its good offices in connection with arranging the services of U.S. quality control and acceptance and cost control and auditing personnel in U.S. plants where available and appropriate.

5. *Facilitation of export licenses*

Early advance notification of contemplated ESRO procurements of U.S. hardware or technology, including know-how, will facilitate assistance by NASA in connection with arrangements for export licenses consistent with applicable U.S. laws and regulations.

6. *Use of U.S. facilities*

Where it is jointly determined that it is appropriate and necessary for the conduct of the cooperative programme, NASA will use its good offices in connection with arranging for the use of U.S. Government or contractors facilities by ESRO and/or its contractors.

Article XI

PRINCIPLES CONCERNING ACCESS TO AND USE OF SHUTTLE/SL

1. *Planning*

There shall be adequate European participation in NASA planning for Shuttle and SL user requirements, with a view to providing for inputs relevant to both the SL design and to European use of the SL. Appropriate representation and relevant procedures are being jointly prepared and will be subject to agreement by NASA and ESRO.

2. *Flight crews*

Flight crew opportunities will be provided in conjunction with flight projects sponsored by ESRO or by Governments participating in the SL programme and utilising the SL. It is contemplated that there will be a European member of the flight crew of the first SL flight.

3. *Special provisions for the use of the first SL flight unit*

(a) In order to assure the integrity of operating and management of the Shuttle system, NASA shall have full control over the first SL unit after its delivery, including the right to make final determination as to its use for peaceful purposes.

(b) With regard to the first flight of the first SL unit, the system test objectives will be the responsibility of NASA. The experimental objectives of this first flight will be jointly planned on a cooperative basis. Thereafter, the cooperative use of this first SL unit will be encouraged throughout its useful life although not to the exclusion of cost reimbursable use. NASA will otherwise have unrestricted use of the first SL unit free of cost.

(c) NASA may make any modifications to the first SL which it desires. Should NASA find it desirable to effect major modifications to this unit, these shall be discussed with ESRO which will be given the opportunity to provide modification kits. With respect to minor modifications, the normal procedures for configuration control will be relied on to provide adequate information on changes.

4. *Subsequent availability and preferred access to participants*

While it is premature to define the ultimate terms and conditions for operation and use of the Shuttle with the SL after the first SL mission, it is expected that the following principles will apply:

(a) NASA will make available the Shuttle for SL missions on either a cooperative (non-cost) or a cost-reimbursable basis. In the latter case, costs which may be charged include, but are not limited to, integration, check-out, crew training and data reduction,

processing and distribution, as well as the costs of the launching service provided.

(b) In regard to space missions of ESRO and Governments participating in the SL programme, NASA shall provide access for use of SLs developed under this cooperative programme for experiments or applications proposed for reimbursable flight by ESRO and Governments participating in the SL programme, in preference to those of third countries considering, in recognition of ESRO's participation in this cooperative programme, that this will be equitable in the event of payload limitation or scheduling conflicts. Experiments or applications proposed for cooperative flight will be selected on the basis of merit in accordance with continuing NASA policy; such proposals of ESRO and Governments participating in the SL programme will be given preference over the proposals of third countries provided their merit is at least equal to the merit of the proposals of third countries. ESRO and the Governments participating in the SL programme will have an opportunity to express their views with respect to the judgment of merit regarding their cooperative proposals.

Article XII

PUBLIC INFORMATION

Each party is free to release public information regarding its own efforts in connection with this cooperative programme. However, it undertakes to coordinate in advance any public information activities which relate to the other party's responsibilities or performance.

Article XIII

PATENTS AND PROPRIETARY INFORMATION

Each of the parties and their contractors shall retain unaffected all rights which they may have with respect to any patents and/or proprietary information, whether or not they antedate this Memorandum of Understanding. Where it is mutually determined that patentable or proprietary information should be transferred in the interest of successfully implementing this cooperative programme, this may be done under arrangements which fully recognise and protect the rights involved. In addition, each of the parties shall secure from its contractors the rights necessary to discharge the obligations contained in this Memorandum of Understanding in accordance with its internal rules.

Article XIV

STATEMENT OF DISPUTES

1. Any disputes in the interpretation of implementation of the terms of this

cooperative programme shall be referred to the NASA Administrator and the Director General of ESRO for settlement.

2. Should the NASA Administrator and the Director General of ESRO be unable to resolve such disputes, they may be submitted to such other form of resolution or arbitration as may be agreed.

Article XV

DURATION

This Memorandum of Understanding shall remain in force until 1 January 1985, but at least for five years from the date of the first flight of the SL. This Memorandum shall be extended for three years unless either NASA or ESRO gives notice of termination prior to 1 January 1985, or prior to the expiration of the five years, whichever is applicable. Thereafter, the Memorandum of Understanding shall be extended for such further periods as the parties may agree.

Article XVI

ENTRY INTO FORCE

This Memorandum of Understanding shall enter into force when both the NASA Administrator and the Director General of ESRO have signed it and it has been confirmed under the terms of the Agreement between the Governments of the participating European States and the Government of the United States of America concerning this cooperative programme.

Dated August 14, 1973.

A. Hocker,
For the European Space Research Organisation.

James C. Fletcher,
For the National Aeronautics and Space Administration.

(NOTE BY COMMITTEE STAFF.—The European governments were anxious to have the Government to Government Agreement and the Memorandum of Understanding not reflect a date later than August 15, 1973, as the signature date for committing to the development of the Space Laboratory as this was the deadline date toward which they were working. Consequently, when the final text of the Memorandum of Understanding was prepared (in Europe), the date 14 August 1973 was entered (as 15 August 1973 was a holiday for some of the European countries). The Memorandum of Understanding was actually signed September 24, 1973, after the last European country signed the Government to Government Agreement. See note at end of Government to Government Agreement.)

Tab B

Agreement Between the Government of the United States of America and Certain Governments, Members of the European Space Research Organisation, for a Cooperative Programme Concerning the Development, Procurement and Use of a Space Laboratory, in Conjunction With the Space Shuttle System

Preamble

The Government of the United States of America
and
the Governments of the Federal Republic of Germany, the Kingdom of Belgium, Spain, the French Republic, the Italian Republic, the Kingdom of the Netherlands, the United Kingdom of Great Britain and Northern Ireland, the Swiss Confederation, parties to the Arrangement between certain Member States of the European Space Research Organisation and the European Space Research Organisation concerning the execution of the Spacelab Programme, opened for signature on 1 March 1973 (the above European Governments and such other Governments as adhere to this Agreement being referred to hereinafter as the "European Partners"),

Conscious of the challenge and potential of space exploration and convinced that international cooperation in the development and use of new mechanisms for space exploration will further strengthen the bonds of friendship between the countries involved and will in general contribute to world peace;

Recalling with satisfaction the considerable amount of cooperation in the space field already conducted and now in progress between the countries involved;

Desiring to extend and expand cooperation already conducted in the space field between the countries involved;

Convinced also that such cooperation will result in scientific, technological and economic advantages to their mutual benefit as well as the benefit of all mankind;

Recalling the invitation extended by the Government of the United States of America to Europe to cooperate in the United States post-Apollo programme;

Considering that the Government of the United States of America has established policies to make available to other nations launch assistance for scientific and applications space missions for peaceful purposes;

Noting the decision of the European Space Conference to participate in the post-Apollo programme as expressed in the Resolution adopted in Brussels on December 20, 1972;

Considering that the European Partners have entrusted to the European Space Research Organisation (hereinafter referred to as "ESRO") to undertake, as a special project, the development of a Space Laboratory (hereinafter referred to as "SL");

Considering that the Government of the United States of America has entrusted to the National Aeronautics and Space Administration (hereinafter referred to as "NASA") the development of the Space Shuttle;

Considering that the SL concept is essential for the full exploitation of the Space Shuttle potential;

Having Noted the Memorandum of Understanding between NASA and ESRO drawn up for the purpose of implementing a cooperative programme concerning the development, procurement and use of an SL in conjunction with the Space Shuttle system;

Have Agreed as Follows:

Article I

PURPOSES AND OBJECTIVES

The Government of the United States of America and the European Partners shall engage in a cooperative programme concerning an integrated space transportation and orbital system to provide: (1) for the design, development, manufacture and delivery of the first flight unit of the SL as an element to be integrated with the Space Shuttle; (2) for the use of the Space Shuttle and SL systems for peaceful purposes; (3) for the production and procurement of additional SLs; (4) for appropriate exchanges and interaction in the development and use of the Space Shuttle and SL systems; and (5) for consideration of the timely expansion and extension of this cooperation as their mutual interest warrants.

Article II

GENERAL DESCRIPTION OF THE SPACE SHUTTLE AND SL PROGRAMMES

A. The Space Shuttle programme refers essentially: to the definition, design and development of a Space Shuttle which will: serve in missions to deliver payloads to earth orbit; maintain station on orbit for mission durations in the order of seven days or more; provide safety monitoring and control over payload elements throughout missions; and provide seating and complete habitability for crews, including free movement between the Shuttle and SL.

B. The SL programme provides for the definition, design, development and procurement of mannable laboratory modules and unpressurised instrument platforms (pallets) attached to and integral with the Shuttle and suitable for conducting research and applications activities on Shuttle sortie missions.

Article III

COOPERATING AGENCIES AND IMPLEMENTATION

A. NASA is designated as the cooperating agency of the Government of the United States of America to implement its side of the cooperative programme. ESRO, or its successor organisation, is designated as the cooperating agency of the European Partners to implement their side of the cooperative programme.

B. Detailed provisions for the implementation of this cooperative programme are set forth in the Memorandum of Understanding between NASA and ESRO, initialed on 15 August 1973, confirmed herewith. Upon formation of a successor organisation to ESRO, the Memorandum of Understanding will be considered as being between NASA and that organization.

Article IV

OBLIGATIONS OF THE EUROPEAN PARTNERS

As their part of the cooperative programme the European Partners shall have among their obligations the following:

(1) to design, develop, manufacture and deliver an SL and associated equipment according to mutually agreed specifications and time schedule;

(2) to establish the necessary means and infrastructure in Europe in order to ensure the possibility of the procurement at reasonable prices by the Government of the United States of America of additional such SLs, components and spares as the Government of the United States of America may need;

(3) to ensure the availability of a sustaining engineering capability for the SL to meet the mission operating requirements of the Government of the United States of America; and

(4) to provide for the necessary contingency arrangements to enable the production in the United States of SLs, components and spares in the event that the European Partners fail to complete the first SL or to produce subsequent SLs for procurement by the Government of the United States of America in accordance with agreed specifications and schedules at reasonable prices.

Article V

OBLIGATIONS OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA

As its part of the cooperative programme the Government of the United States of America shall have among its obligations the following: (1) to provide relevant information and advice; (2) to provide, subject to its availability and applicable United States laws and regulations, such assistance and for export of such technology, including know-how and hardware, as may be mutually agreed is required for the development and manufacture of the SL;

(3) to procure only from the European Partners such additional SLs, components and spares as substantially duplicate the design and capabilities of the first SL, as are needed by the Government of the United States of America, including needs arising from its international programmes, and as are available in accordance with agreed schedules and at reasonable prices; (4) to refrain from separate and independent development of any SL substantially duplicating the design and capabilities of the first SL unless the European Partners fail to produce such SLs, components and spares in accordance with agreed specifications and schedules and at reasonable prices; (5) to use the first SL developed in Europe as an element integrated with the Space Shuttle system for the peaceful exploration and use of outer space; and (6) to keep the European Partners informed of its plans for future use of the Space Shuttle system, and, in particular, of future concepts which may lead to modifications of the present SL concept, with a view to expanding and extending this cooperation beyond the present Agreement.

Article VI

ACCESS TO TECHNOLOGY AND INFORMATION

A. The European Partners will have access to that technology, including know-how which is available to the Government of the United States of America and is needed in order to accomplish successfully their tasks under this cooperative programme; for the same purposes the Government of the United States of America will have access to technology, including know-how, available to the European Partners.

B. The technology including know-how, which the Government of the United States of America and the European Partners will require from the other for successful accomplishment of tasks under this cooperative programme will be jointly defined. However, the Government of the United States of America and the European Partners each reserve the right in exceptional cases to arrange for their respective technology so defined to be made available in the form of hardware, rather than know-how.

C. The technology, including know-how, so identified and transferred under this cooperative programme and normally subject to licensing and proprietary control will not be made available beyond the European Partners, their nationals and ESRO acting in their

behalf in the SL programme without the express prior approval of the Government of the United States of America. If the European Partners, their nationals or ESRO wish to use this technology, including know-how, for purposes other than the development and production tasks under the cooperative programme and other than in connection with their use of the Space Shuttle and SL, such uses may be arranged on a case-by-case basis in accordance with normal commercial practice and the applicable United States laws and regulations.

D. The Government of the United States of America will give consideration on a case-by-case basis to requests for access to United States technology, including know-how, beyond that which is directly necessary for the execution of the SL programme.

E. Any technology, including know-how, transferred under this cooperative programme to the Government of the United States of America or its nationals by the European Partners will be subject to similar conditions as to availability and use.

F. The access to technology, including know-how, referred to above will be effected in such a way as not to infringe any existing proprietary rights of any person or body in the United States or Europe.

G. The Government of the United States of America will make available to the European Partners general information relating to the design, development, and use of the Space Shuttle and orbital system, particularly that required for the understanding of that system.

H. In those cases where the information requested can be made readily available by agencies of the Government of the United States of America, it will be made available free of charge; in other cases, the Government of the United States of America will use its best efforts to facilitate its availability on favourable conditions.

I. While the Government of the United States of America and the European Partners believe that the SL can be developed within existing European capabilities, it is recognised that some commercial procurement of components and services in the United States is likely. In consideration thereof, the Government of the United States of America shall, in procurement of commercially available components and services related to the development of the Shuttle, follow the principle of giving full recognition to advantages offered in Europe in cost, quality or availability.

J. The provisions of this Article shall be subject to applicable laws and regulations.

Article VII

USE OF THE SPACE SHUTTLE AND SL

A. The Government of the United States of America shall, consistent with inter-

national agreements and arrangements, make the Space Shuttle available for SL missions (experiments and applications) of the European Partner and their nationals on either a cooperative or cost-reimbursable basis.

B. In regard to space missions of the European Partners the Government of the United States of America shall provide access for use of SLs developed under this cooperative programme for experiments or applications proposed for reimbursable flight by the European Partners, in preference to those of third countries considering, in recognition of the participation of the European Partners, in preference to those of third countries considering, in recognition of the participation of the European Partners in this cooperative programme, that this will be equitable in the event of payload limitation or scheduling conflicts. Experiments or applications proposed for cooperative flight will be selected on the basis of the merit of each proposal in accordance with continuing United States policy; such proposals of the European Partners will be given preference over the proposals of third countries provided their merit is at least equal to the merit of the proposals of third countries. The European Partners will have an opportunity to express their views with respect to the judgment of merit regarding their cooperative proposals.

C. The commercial use of Space Shuttles and SLs will be on a non-discriminatory basis. The establishment by the Government of the United States of America or by the European Partners of standards and conditions for the commercial use of SL units will be the subject of prior exchange of view on such standards and conditions, looking toward the maximum practicable harmonistation of the respective policies. In exceptional circumstances, should this prove impossible, the exchange of views will take place at the first opportunity thereafter.

D. In order to assure the integrity of operation and management by the Government of the United States of America of the Space Shuttle system, this Government shall have full control over the first SL unit, after its delivery to the Government of the United States of America, including the right to make final determination as to its use for peaceful purposes. The Government of the United States of America may make any modifications to the first SL unit it desires. However, in the case of intended major modifications, the European Partners will be given advance notification to permit the opportunity for them to express their views and to provide modification kits.

E. With regard to the first flight of the first SL unit, the system test objectives will be the responsibility of the Government of the United States of America. The experimental objectives of this first flight will be jointly planned on a cooperative basis. Thereafter, the cooperative use of this first SL unit by the European Partners and ESRO will be encouraged throughout its useful life, although not to the exclusion of cost reimbursable use by them. The Government of the United States of America will otherwise have unrestricted use of the first SL unit free of cost.

F. The Government of the United Staes of America will provide SL flight crew opportunities to nationals of the European Partners in connection with their space

missions involving an SL. It is contemplated that a European crew member will be included in the flight crew of the first SL flight.

G. The results of NASA and ESRO experiments on cooperative SL missions shall be made freely available to the Parties to this Agreement, subject to any proprietary rights and to the usual priorities to be granted to individual experimenters for the purpose of advance exploitation and publication of the data obtained.

H. The use of Space Shuttles and SLs by European nationals may be arranged through ESRO or by the appropriate European Partner.

Article VIII

COSTS

A. The Government of the United States of America and the European Partners shall bear the costs of their respective participation in the cooperative programme under this Agreement.

B. Neither the Government of the United States of America nor the European Partners will seek to recover government research and development costs incurred in the development of items procured from the other in connection with this cooperative programme.

C. With respect to the financial conditions for reimbursable launch services from United States launch sites, European Partners, their nationals and ESRO will be charged on the same basis as comparable non-government United States domestic users.

D. The obligations of the Government of the United States of America and of the European Partners shall be subject to their respective funding procedures.

Article IX

CONSULTATION AND PLANNING

A. The Parties agree to consult with a view to facilitating a continuing and expanding cooperation in the use of outer space.

B. In order to enhance the opportunities for the European Partners to determine and express their interest in the planning and use of the Space Shuttle system, and particularly the SL, the Government of the United States of America will associate representatives of the European Partners, through consultation and as observers, with mission definition planning for use of the system as well as with planning and management of the overall development of the system.

C. The Government of the United States of America will consult with the European Partners on the appropriate measures to be taken in the event the Space Shuttle programme is not continued, and will, consistent with United States policy and the objectives of Articles VII and VIII, make available to the European Partners or ESRO existing alternative launchers for missions of the European Partners being developed for SL flights.

Article X

MOVEMENT OF PERSONS AND MATERIALS

A. The Government of the United States of America and the European Partners shall facilitate the movement of persons and materials involved in the cooperative programme under this Agreement into and out of their territories.

B. The Government of the United States of America and the European Partners shall use their best efforts to accord, to such material as may be government-owned, entry free of customs duties and other charges.

C. The Government of the United States of America and the European Partners shall use their best efforts to accord to non-government-owned material: (1) entry free of customs duties and other charges; and (2) purchase free of national and other taxes.

Article XI

LIABILITY

A. The Government of the United States of America shall have full responsibility for damage to its nationals and to its governmental property arising in the course of implementation of this Agreement. The European Partners shall have full responsibility for damage to their nationals, to their governmental property, and, through ESRO, to employees of ESRO and to ESRO property, arising in the course of implementation of this Agreement.

B. In the event of damage, arising from the launch, flight or descent of the Shuttle carrying the SL, to nationals of countries which are not parties to this Agreement, for which damage there is joint liability of the Government of the United States of America and the European Partners under the principles of international law or of the Convention on International Liability for Damage Caused by Space Objects, the Government of the United States of America and the European Partners agree to consult promptly on an equitable sharing of the payment for any settlement required. If agreement is not reached within 180 days, the Government of the United States of America and the European Partners will act promptly to arrange for early arbitration to settle the sharing of such

claims following the 1958 model rules on arbitral procedure of the International Law Commission.

C. In the event of damage to nationals of countries not parties to this Agreement, arising from the implementation of this Agreement and not covered by Paragraph B above, such damage shall be the responsibility of the Government of the United States of America and/or the European Partners depending on where the responsibility falls under applicable law.

D. Notwithstanding Paragraph A above, with respect to the first SL to be provided by the European Partners, the Government of the United States of America shall be responsible for damage to such first SL after its acceptance by the Government of the United States of America, but shall not be liable for damage occurring in connection with a Space Shuttle launch, flight or descent.

Article XII

DISPUTES

The resolution of any dispute as to the implementation of the cooperative programme will be the responsibility of the agencies referred to in Article III of this Agreement. Only a dispute which, in the view of the Government of the United States of America or the European Partners, seriously and substantially prejudices the execution of the cooperative programme may be referred for resolution to a representative of the Government of the United States of America and to a representative of the European Partners. If these representatives are unable to resolve the dispute, it may be submitted for such arbitration as may be agreed.

Article XIII

AMENDMENTS

The present Agreement may, on the initiative of the Government of the United States of America or of the European Partners, be amended by consent of the parties. An amendment will enter into force when the Government of the United States of America and the European Partners have notified their approval to the depositary Government.

Article XIV

ENTRY INTO FORCE AND DEPOSITARY

A. This agreement shall be signed on August 15, 1973 by the Government of the United States of America and European Partners. The Agreement shall enter into force on

this date for the Government of the United States of America and those European Partners which sign not subject to ratification or approval.

Article XV

ADHERENCE OF OTHER GOVERNMENTS

A. With the consent of the Parties, and subject to such terms as may be agreed by the Parties, other governments may adhere to the present Agreement as European Partners. However, the consent of the Government of the United States of America is not required for the adherence of a present member Government of ESRO.

B. Adherence of a Government may be deposited after the appropriate Parties under Paragraph A above have notified the depositary Government of their consent and shall become effective on the date of deposit of the instrument of adherence.

Article XVI

DURATION

This Agreement shall remain in force until January 1, 1985, but at least for five years from the date of the first flight of the SL. This Agreement shall be extended for three years unless either the Government of the United States of America or the European Partners give notice of termination prior to January 1, 1985 or prior to the expiration of the five years, whichever is applicable. Thereafter the Agreement shall be extended for such further periods as the Parties may agree.

Article XVII

REGISTRATION

A. The depositary Government shall notify the signatories and adhering Governments of the signatures, ratification or approvals and adherences.

B. The present Agreement shall be registered by the depositary Government pursuant to Article 102 of the Charter of the United Nations.

In witness whereof the undersigned, duly authorised thereto by their respective Governments, have signed this Agreement.

Done in Neuilly-sur-Seine, this fifteenth day of August nineteen hundred and seventy-three, in the English, French and German languages, each version being equally authentic, in a single original which shall be deposited in the archives of the Government

of the French Republic which shall transmit duly certified copies thereof to the Government of the signatory and adhering States.

B. The Agreement shall remain open for signature for European Partners, not signing on August 15, 1973, for the period from August 16, 1973 to September 24, 1973. The Agreement shall enter into force for a European Partner which signs the Agreement in this period not subject to ratification or approval, on the date of its signature.

C. For those European Partners which sign this Agreement subject to ratification or approval under Paragraph A or Paragraph B above, the Agreement shall have provisional application upon signature. The Agreement shall enter into force for such a European Partner on the date of the deposit of its instrument of ratification or approval with the depositary Government.

D. After September 24, 1973 participation in the cooperative programme may be effected only in accordance with the provisions of Article XV.

E. The Government of the French Republic shall be the depositary Government.

(NOTE BY COMMITTEE STAFF.—The Government to Government Agreement specifies in Article XIV that the Agreement will be signed on August 15, 1973. However, it was not signed on that date by any of the countries as this was a holiday for some countries. The actual dates of signature are as follows:

August 14, 1973:
United Kingdom of Great Britain and Northern Ireland.
Federal Republic of Germany.
France.
Kingdom of Belgium.
Switzerland.
United States.
August 18, 1973: Kingdom of the Netherlands.
September 18, 1973: Spain.
September 20, 1973: Italy.
September 12, 1973: King of Denmark.)

Tab C

COMMUNIQUE

Today marks the beginning of a new era in space cooperation between the United States of America and member nations of the European Space Conference as arrangements are completed for European participation in the Space Shuttle Program.

The extensive cooperation achieved in space activities in the past has already

brought great satisfaction to the international community. The contributions to science and the welfare of man that have resulted are of considerable significance. It is our conviction that further cooperation will result not only in additional scientific, technical and economic benefits, but should further strengthen the ties of friendship between peoples.

The Agreement between the United States of America and the participating member nations of the European Space Conference signed in Paris August 14, 1973, and the Memorandum of Understanding between the National Aeronautics and Space Administration and the European Space Research Organization signed this date in Washington, pertaining to the development, procurement and use of a space laboratory in conjunction with the Space shuttle extend U.S./European space cooperation to the Post Apollo era in a closer and even more promising form.

Washington, September 24, 1973.

Kenneth Rush.
Acting Secretary of State of the United States of America.

Charles Havin.
Chairman of the European Space Conference.

(NOTE.—Signed jointly at 12:00 noon, September 24, 1973, at U.S. Department of State.)

III.

U.S. and Europe To Cooperate in Space Shuttle Program*

Following is a Department announcement issued September 24, together with the text of a communique signed at Washington that day by Acting Secretary Rush and Charles Hanin, Chairman, European Space Conference.

DEPARTMENT ANNOUNCEMENT

Press release 342 dated September 24

At a ceremony at the Department of State on September 24, Acting Secretary Rush and Charles Hanin, Belgian Science Minister and Chairman of the European Space Conference, signed a communique noting the completion of arrangements for European participation in the Space Shuttle program and marking the beginning of a new era in U.S.-European space cooperation. In the same ceremony Dr. James C. Fletcher, NASA Administrator, and Dr. Alexander Hocker, Director General of the European Space

*Taken from 69 Dept. St. Bull. 487-8 (1973).

Research Organization (ESRO), signed a memorandum of understanding to implement this unprecedented international cooperative project.

Nine European countries, through ESRO, undertake to design, develop, manufacture, and deliver a "spacelab" flight unit which will be an important element of the U.S. Space Shuttle system. The Spacelab will be carried in the Space Shuttle Orbiter, which will look like a delta-winged airplane about the size of a large jetliner. The Spacelab will have two elements: a pressurized manned laboratory module permitting scientists and engineers to work in a normal shirt-sleeve environment and an instrument platform, or pallet, to support telescopes, antennas, and other equipment requiring direct space exposure.

The Spacelab module and pallet will be transported, either separately or together, to and from orbit in the orbiter payload bay and will be attached to and supported by the Space Shuttle Orbiter throughout missions lasting seven to thirty days. At the end of each flight the orbiter will make a runway landing, and the Spacelab will be removed and prepared for its next mission.

The NASA-ESRO agreement represents a major step in the sharing of space costs between the United States and European countries participating in this cooperative project. The estimated cost of $300-$400 million for the Spacelab will be borne by the ESRO countries involved.

The European Spacelab represents a significant contribution to the space transportation system in an area not funded by the United States. It provides for the timely availability of a supporting system important to realizing the full potential of the shuttle; it will also facilitate joint use programs, many entailing the activities of U.S. and European astronauts.

Under the terms of the memorandum of understanding, NASA will procure from ESRO any additional Spacelab units of the same basic design which may be needed for U.S. program.s The United States will not develop any unit of its own which would substantially duplicate the design and capabilities of the first Spacelab.

It is currently planned that the first operational space flight of the shuttle will occur in late 1979. To permit adequate time for experiment integration, checkout, and compatibility testing, the Spacelab unit will be delivered about one year earlier.

Subsequent to the delivery of the Spacelab by ESRO, NASA will manage all operational activities, including crew training and flight operations. Flight crew opportunities will be provided in conjunction with flight projects sponsored by ESRO or by governments participating in the Spacelab program and utilizing the Spacelab. It is contemplated that there will be a European member of the flight crew of the first Spacelab crew.

While it is too early to define detailed terms and conditions for subsequent operation and use of the shuttle with the Spacelab, the United States will make the shuttle available for Spacelab missions on either a cooperative (noncost) or a cost-reimbursable basis. In the latter case, the costs of the launching services provided would be charged as they are at present for reimbursable launches of foreign satellites.

The memorandum of understanding is subject to and implements a government-level agreement between nine European nations and the United States which was opened for signature at Paris August 14.

Belgium, Denmark, France, the Federal Republic of Germany, Italy, the Netherlands, Spain, Switzerland, the United Kingdom, and the United States have signed the intergovernmental agreement. The agreement makes provision for participation by additional nations.

XVIth Colloquium on the Law of Outer Space, Baku, October 7-13, 1973

This Colloquium which took place during the 24th Congress of the International Astronautical Federation in the well-known oil-town of Baku (U.S.S.R.) devoted four of its sessions to space law. Lawyers from all over the world, among them many Russian lawyers, were present. Also, during one morning session the teaching of space law was the subject of a lively discussion.

At the first session, following an introduction by Dr. Pépin and a survey by Prof. Zhukov on the development of space law, Mr. Gál gave a summary of the Introductory Report written by Mr. Herczeg on the theme of "International Space Law and General International Law." Added to the profound report of Mr. Herczeg were nine questions for discussion.

Several papers were delivered relating to this subject, including those by Mr. Dekanozov (U.S.S.R.) on the relationship between the status of outer space and other spaces withdrawn from the sphere of state sovereignty, Mrs. Diederiks-Verschoor (Netherlands) on the influence of space law on general international law, Mr. Fasan (Austria) on space law and definition of justice, Miss Kamenetskaya (U.S.S.R.) on the role of international organizations in the formation of international space law, Mr. Kolosov (U.S.S.R.) on the interrelationship between rules and principles of international outer space law and general rules and principles of international law.

A discussion followed, among others, about the possibility of intelligent beings in cosmic space, the role of the ICAO in space matters, the term "international organizations" and the phrase "for the benefit of all mankind". It was felt it would be desirable to study more thoroughly the interpretation of the terms of the 1967 Space Treaty. The conclusion was that space law can stimulate international law.

The second session has been devoted to the very interesting problem of direct television broadcasting. An Introductory Report by Mr. Busak was a good base for further discussion.

Other papers included reports by: Mr. Dersi (Hungary) on the legal aspects of direct television broadcasting from outer space, Mr. Dudakov (U.S.S.R.) on the legal aspects of direct television broadcasting, Mr. Gál (Hungary) Mr. Zhurakhov (U.S.S.R.) on the legal framework for the regulation of social consequences of the direct television broadcasting, Mr. Patermann (Germany) on the question of applicable law in case of damages caused by direct TV transmissions (read by Mr. Knorri), Mr. Sarkar (India), on the requirements for establishing a broadcast satellite service, Mr. Vasil'eva (U.S.S.R.) on the social consequences of spillover and the problem of the regulation of direct television broadcasting by means of artificial earth satellites in international law, and Mr. Ruddy (U.S.A.). In the discussion Mr. Blizensko (U.S.S.R.) asked about material or nonmaterial

damage caused by satellites. There was also some discussion about the law applicable in case of damage caused by space objects and on indirect and direct international damage. It was pointed out that there were three kinds of bands; informational, investigal and cultural. The question about jurisdiction in case of difficulties has not been answered.

In the third session two themes have been treated. First the subject of "Teledetection of Earth Resources by Satellites" was introduced by the very sound report of Mrs. Galloway. On this subject papers were delivered by: Mr. Bordunov (U.S.S.R.), on the practical use of space means in the light of the principles of the sovereignty of states over the natural resources, Mr. Christol (U.S.A.) on the monitoring of ocean pollution by sensing satellites: proof of damages in international law, Mr. Hervy (Belgium) on the legal aspects of research of earth resources and environment, Mr. Pikus (U.S.A.) on the possibility of technical control over resource surveying from space. From the discussion it could be concluded that remote sensing from space was still in an experimental stage.

The second subject treated in the third session was the Moon and other celestial bodies. Mrs. Vasilevskaya (U.S.S.R.) gave the introductory report. Several papers were delivered on this subject, namely, by Professor Gorove (U.S.A.) on the legal status of the natural resources of the moon and other celestial bodies, Mr. Kopal (Czechoslovakia) on juridical problems concerning the moon, Mr. Szalsky (Hungary) on the legal problems of the moon and other celestial bodies, and Mr. Wolff (France) on the Draft Moon Treaty. There was no more time left for discussion. In general the authors were in favor of concluding a treaty concerning the Moon.

The fourth session was devoted to "Orbital Earth Stations", introduced by Mr. Ferrer. The paper of Mr. Bueckling (Germany) on the formal legal status of space station in orbit was read by Mr. Bodenschatz, whereas Mr. Gál (Hungary) spoke on the juridical regime of orbiting stations, Mr. Rudev (U.S.S.R.) on the legal problems of the use of orbital manned space stations, Tamm (U.S.A.) on the further reflections upon the legal aspects of skylab and the space shuttle, Mr. Toufar (Czechoslovakia) on the legal aspects of orbital stations. Several other papers included reports by: Mr. Gorove (U.S.A.) on the Convention on International Liability for Damage Caused by Space Objects, Mr. Magno and Mr. Verdacchi (Italy) on "Piraterie aerienne et pireterie spatiale", Mr. Robinson (U.S.A.) on scientific renaissance of legal theory: the manned orbiting space station as a contemporary workshop, Mr. Stoebner et Mr. Tchernonog (France) on "Programme spatial national et cooperation internationale", Mr. Tchernonog (France) on "Le projet de convention sur l'immatriculation des objets spatiaux", and Mr. Sarkar (India) on the implication of space activities on human environments. There was no discussion after this session because of lack of time.

After opening the IIIrd International Symposium on the teaching of space law, Mr. Pépin gave an introductory report mentioning the sources of space law. He asked the question if the documentation has been sufficient and if it has reached technical high schools. Several professors responded and spoke of their work. At the end of the meeting Prof. Zhukov gave a summation by emphasising that in the future we will need an

exchange of experiences with technical colleagues. For now, it appeared better to link space law with air law than to teach it as a division of international law as is done in most universities.

I. H. Ph. Diederiks-Verschoor

President, International Institute of Space Law

Other Events

The Third ERTS Symposium was held in Washington, D. C. on December 10-14, 1974, under the auspices of NASA's Goddard Space Flight Center. Topics of discussion included: agriculture, forestry, range resources; land use and mapping; mineral resources, geological structure and landform surveys; water and marine resources; environment surveys, and interpretation techniques.

Officials of NASA and the European Space Research Organization (ESRO) met at ESRO facilities in the Netherlands during the week of February 11, 1974, to discuss future cooperative space programs between the United States and Europe. ESRO and NASA are now working jointly on several space projects, including the Space Shuttle, the Spacelab, the International Ultraviolet Explorer (IUE) satellite and the International Magnetospheric Explorer (IME).

The Association of the U.S. members of the International Institute of Space Law sponsored a Space Law Workshop on "Space Stations—Present and Future" which was held as part of the Annual Meeting of the American Society of International Law on April 26, 1974 in Washington, D. C. Under the co-chairmanship of Professor Carl Christol of the University of Southern California and Brigadier General Martin Menter, U.S.A.F. (Ret.) and with the core participation of Dean George J. Alexander of the University of Santa Clara, Eilene Galloway of the Library of Congress and NASA's Deputy General Counsel S. Neil Hosenball, the meeting covered a wide range of topics of current interest and relevance to space stations.

Also on April 26, 1974, under the co-sponsorship of the Association of the United States Members of the International Institute of Space Law and the Federal and Inter-American Bar Associations another conference was held at the University of Pennsylvania in Philadelphia. The conference was chaired by Judge Harold Berger and dealt with Aerospace, Environmental and International Law and Trade. The major keynote addresses were given by William D. English, Vice President and General Counsel of COMSAT, Roy D. Jackson, Jr., president of Oil Insurance Ltd. of Bermuda, Manuel F. Cohen, former General Counsel of the Securities and Exchange Commission and Professor Stephen Gorove of the University of Mississippi Law Center.

In the summer of 1974, a NASA space vehicle, under a cooperative program between the Netherlands Government and NASA, is expected to put into Earth orbit an

Astronomische Nederlandse Satelliet (ANS) designed and constructed for astronomical research by a consortium formed by Fokker-VFW B.V. of Amsterdam and Philips Research Laboratories of Eindhaven, Holland. There will be three observation systems: one from the University of Groningen, one from the University of Utrecht, and one from the United States.

The XVIIth Colloquium on the Law of Outer Space will be held in Amsterdam, Holland (not in West Germany as previously reported), on September 30-October 5, 1974, during the annual Congress of the International Astronautical Federation, Over five hundred space scientists, technologists, lawyers and students from 48 countries are expected to attend the congress which is organized by the Netherlands Astronautical Association under the High Patronage of H. R. H. Prince Bernhard of the Netherlands. The general theme of Colloquium will be: Space Stations, Present and Future. Additional subjects on the program include: direct broadcasting by satellites, prospects of space law and interpretations of space treaties (consultations, international organizations, etc.). Detailed information regarding travel and other arrangements may be obtained from the Organizing Committee of the XXVth IAF Congress, c/o N.I.V.R. Kluyverweg 1, P. O. Box 35, Delft, the Netherlands.

Die Grenze des Staatsgebietes im Raum (The Frontier of the State's Territory in Space), by Dr. Manfred A. Dauses, Series: Schriften zum öffentlichen Recht (Writings on Public Law), Vol. 204, with summary in English and French (Dunker and Humblot; Berlin and Munich, 1972, pp. 141. DM 33.60).

Dr. Dauses, a well-known name in the field of international space law and space politics, discusses in his new book a highly controversial subject. Admittedly, the issue of the upper limit of territorial airspace is of primary importance in the interpretation of the 1967 Outer Space Treaty and has been dealt with by several writers. A solution, however, has not been found by the community of nations thus far. The author's solution is somewhat arbitrary; however, as has been correctly stated by Dr. Dauses in his preface, any question of delimitation is not only an adaptation of existing rules of law, but also a creation *de novo*.

In this perspective, the author's reasoning is clear and consistent. Contrary to former analyses, he bases his conclusions on the platform of existing law as a pertinent demarcation. It is not a mere scientific question, but primarily one of legal interpretation of the terms to be defined, namely airspace and outer space—terms to be found in international air and space law conventions, as well as in rudimentary rules of international custom.

On this basis, namely the understanding of the legal terms, the next step may be taken: the interpretation of the legal terminology in the light of political necessities and technical-scientific requirements. The problem of state security as a yardstick of the upper extent of national sovereignty is extensively ventilated. Dangers resulting from possible advanced space rocket systems or space espionage devices are recognized as deserving consideration in the process of demarcation. The criteria provided by state security are, however, correctly found to be too vague to serve as a working basis for legal demarcation.

Scientific and technical criteria, on the other hand, which are analyzed by the author in profound scientific detail, seem to be more appropriate in view of drawing up a clear-cut frontier line. Notably the often-cited median line between the airflight and space flight regimes (the von-Karman primary jurisdictional boundary line), and the aerological structure of the upper atmosphere indicate a caesura between airspace and outer space located between 80 and 90 km above sea level.

The third and final segment deals with the geometric construction of the frontier and its legal regime. In light of the foregoing considerations, the author persuasively suggests a frontier surface, to be agreed to in an international convention, "every point of which is at a distance of 80,000 meters from the nearest point of the International Ellipsoid of Reference", which is the geometrically idealized working shape of the Earth.

The merit of Dr. Dauses' study is not only the richness of the literature compiled, but also its juridico-logical consistency and its pragmatic sense of the vital necessities and requirements of states. It is these same states, who on the one hand have pledged themselves to the rule of freedom of space exploration for exclusively peaceful purposes and in the interest of all mankind and, on the other hand, are still regrettably reluctant to waive their sovereign rights by definitely recognizing an upper limit of territorial jurisdiction.

I. H. Ph. Diederiks-Verschoor

President, International Institute of Space Law

Traité de Droit international public de l'espace, by Marco G. Marcoff (Editions Universitaires, Fribourg, Switzerland, 1973, pp. 835.)

The author of this book is professor of international law at the University of Fribourg (Switzerland). His textbook, written in the French language, contains a very solid and rich documentation. It also presents much more than the title suggests. Not only the public law of outer space has been treated by the author but he also deals with subjects of private law, such as the liability for damage caused by spacecraft.

The book contains three parts subdivided into 14 Chapters. The three parts have the following headings:

1) The base of international public law in space law,

2) The legal construction of the domain of cosmic space, and

3) The legal order of cosmic space.

The existing space conventions are treated and set in a wider scope of historical development than previous texts on the subject. The author has taken great pains to give exact definitions. He introduces, for instance, the French word "spationef", and compares it with spacecraft.

Professor Marcoff stresses the legal status of cosmic space, which he treats in detail. He also extensively examines telecommunication by satellites. Interesting observations are made on the subject of registration. The author mentions, for example, that the proposal of the Committee of Space Law of the International Law Association to register the spacecraft in the national register of the State whose territory has served for the launching for spacecraft is not compatible with Article VIII of the Space Treaty of 1967. Article VIII states that a State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object and over any personnel thereof.

Professor Marcoff examines the essential details for the registration of spacecraft, mentioning the different systems that exist in this regard. The draft treaty on registration prepared by the United Nations is not yet accepted. The subject of remote sensing satellites—another draft not yet agreed on—is also touched upon. All the subjects discussed are treated with great precision and with an admirable skill. The book contains so much documentation and so many thoughts on space law that it is not possible to go into more detail. From the foregoing observations, however, it may be clear that it is a rich source for space lawyers.

The three Annexes contain the text of the treaties of space law that have already been concluded. Furthermore, a list of abbreviations, an extensive bibliography, a list of studies written by the author, an index on subjects, and a list of spacecraft and space programs have been added.

This textbook will keep its value even when space law advances with giant strides.

It can be recommended highly to everyone who wishes to be informed about the progress in the field of space law and in the background of its problems.

Dr. Dieter O. A. Wolf

Munich, Germany

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ANNOUNCEMENT

The Journal of Space Law is pleased to announce the addition of United States Senator Frank E. Moss of Utah to the Editorial Advisory Board. Senator Moss has been a member of the United States Senate since January, 1959, and is the Chairman of the Senate Committee on Aeronautical and Space Sciences. His committee is the Senate body responsible for overseeing United States nonmilitary scientific research, development, and administration of all matters in the field of space and aeronautical activities. He has been associated with the aeronautical and space sciences for more than 30 years, beginning with his service in the United States Army Air Force in World War II and continuing through his subsequent service as an officer of the United States Air Force. He is a graduate of the University of Utah and received his Juris Doctor degree from George Washington University where he was an editor of the George Washington Law Review. Prior to his election to the Senate, he engaged in the public and private practice of law in Utah for a number of years. We cordially welcome this outstanding lawyer and public servant to membership on the Editorial Advisory Board.

The Journal is equally pleased to welcome the addition of Dr. I.H.Ph. Diederiks-Verschoor to the Editorial Advisory Board. She is a native of Holland and a teacher and scholar by profession. Since the beginning of the space age she has shown a keen interest in the legal problems arising out of man's activities in outer space as exhibited by her lectures at several European and American institutions of higher learning, her participation in many international conferences, and her publications. She is an active member of the International Institute of Space Law of the International Astronautical Federation and was recently elected its President.