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## I. INTRODUCTION

The fascinating Apollo Program has been brought to a brilliant conclusion by the Apollo-17-Mission. This means, however, that—taking into consideration a long period of time—the lunar research projects have only come to a temporary end. In the course of technological development, there will be further landings on the moon, especially after space shuttle systems have proven their usefulness. The installation of stationary operation bases (manned and unmanned) on the moon will, among other things, constitute a further step toward the exploration of our nightly companion. Under consideration for the future are projects providing for space tug missions to the moon, consisting of cylindrical parts that are put together in the manner of a box of bricks to make up several station bodies for living, working, drilling, mining and research, thus forming a moon colony.

It therefore does not seem premature to raise questions about the legal status of these lunar stations, all the more as a minor system of the so-called Apollo Lunar Surface Experiments Package (ALSEP) has already been set up. This device has proved to be practicable and will broadcast scientific data to the Earth during the next several years.

This article will deal only with the formal legal status of such stations<sup>1</sup> and thus will not deal with legal problems resulting from *activities* of the stations or relating to the legal *internal regime* of a station, such as command or general organizational framework.<sup>2</sup>

## II. LEGAL STATUS

The question of the legal status of a moon base should be considered primarily in the context of the Space Treaty of January 27, 1967,<sup>3</sup> which—incidentally—represents

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<sup>1</sup>See G. Gal, Space Law 209 (1969); I. H. Ph. Diedericks-Verschoor, Legal Aspects of Laboratories on the Moon, Proc. 14th Colloquium on the Law of Outer Space 24 (1971) [hereinafter cited as 14th Colloquium]; M. Markoff, Orbiting Laboratories and Earth Environment Survey, 14th Colloquium 12; M. Niciu, Considerations Sur La Régime Juridique des Laboratoires Lunaires, 14th Colloquium 27; M. Smirnov, The Legal Status of Orbital Laboratories as the Next Step to the Development of the Collaboration Between the Cosmic Powers, 14th Colloquium 22; I. Von Muench, Grundfragen des Weltraumrechts, Archiv des Voelkerrechts 170 (1959); G. Zhukov, The Legal Regime for the Moon, 14th Colloquium 50.

<sup>2</sup>See G. Robinson, NASA's Space Station and the Need for Qualifiable Components of a Responsive Legal Regime, 14th Colloquium 33.

<sup>3</sup>See A. Meyer, Der Weltraumvertrag, Zeitschrift für Luftrecht und Weltraumrechtsfragen 65 (1967) [hereinafter cited as ZLW]; M. Wollenschlager and H. Hablitzel, Der Weltraumvertrag 27 (1967); Festschrift für G. Kuechenhoff, Recht und Staat 869 (1972).

not only the international treaty law applicable between the contracting States but also the *basic rules* which can be considered as general international law, both from the viewpoint of international customary law as well as the fact that they have been recognized by the overwhelming majority of States.<sup>4</sup>

Under the provisions of the Space Treaty, the erection of lunar stations cannot establish any *territorial* claims of sovereignty concerning the surface of the moon. According to Article II of the Treaty, outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation. Naturally, this provision has to be construed as to also include the prohibition of the appropriation of *parts* of the moon's surface, or her underground. However, the Space Treaty permits the *use* of celestial bodies in the national interest, though within the framework of the common clauses of Articles I and IV of the Space Treaty. National operational bases on the moon will raise legal status problems, the solution to which—under the rule of the prohibition of appropriation relating to national sovereign competences—will have to be searched for by looking *underneath* the *surface*.

Insofar as the status of space objects is concerned, the Space Treaty establishes personal and substantive sovereign competences. This results from the provisions of Article VIII of the Treaty regulating the status as follows:

Sentence (1): "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. . .".

Sentence (2): "Ownership of *objects launched into outer space, including objects* landed or constructed on a celestial body . . . is not affected by their presence in outer space or on a celestial body . . .".

Hence, also in connection with Article XII of the Space Treaty, it should be clear that the above-cited sentence (2) concerning *rights of ownership* of space objects applies, among other things, to equipment in a lunar installation; for such equipment means "objects constructed on a celestial body" within the meaning of sentence (2).

While the *status claims* (registration, administration, control, and jurisdiction) as set forth in sentence (1) apply to "objects launched into outer space", they do not necessarily apply to *equipment stationarily* erected on the moon surface which, in the further course of technological development, might possibly be constructed not only from "objects launched into outer space" but also at least partly from *lunar* materials. This question should be answered in the affirmative on the basis of an interpretation of Article VIII (which relates to the meaning and purpose of the Space Treaty), since the concept of an "object launched into outer space" in the terminology of the Space Treaty (and also indicated by the word "including") is to be understood as a *general concept* covering all objects made by man *in and for* outer space.

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<sup>4</sup>M. Dausen, *Bestehen und Inhalt von Weltraumgewohnheitsrecht*, ZLW 267 (1971); S. Gorove, *Criminal Jurisdiction in Outer Space*, 6 Int'l Lawyer 313, 318 (1972).

Article VIII of the Space Treaty, thus applicable also to stations, makes evident without expressly mentioning the term that the Space Treaty is founded on the principle of *nationality* which underlies the legal regime governing the status of space objects (including stations). The same principle governs also the Liability Convention of 1972. The status of a lunar station is, hence, determined by its connection with a certain State, *i.e.*, by its nationality.<sup>5</sup>

Article VIII of the Space Treaty also involves the question of how nationality is *assigned*. This is done by entering the station in a *national* registry and—according to the general principles of law—by granting the station a license for navigation. Contrary to the regulations for aircraft, this is done irrespective of whether it is a *civil* or a *State* station. When doing so, each State—according to its own law—determines the conditions under which entry in the national registry is to be carried out. However, the States are not allowed to fix these conditions at their own discretion; they rather have to conform to treaty or international law.<sup>6</sup> The current law does not yet provide for an obligatory registration in an *international* registry.<sup>7</sup>

According to the general rules of the Space Treaty, both the entry of a station in a national registry and its license for navigation are connected with the granting of the nationality mark *identifying* the station as a registered national installation unit.

Such an assignment—as in the case of ships and aircraft—has the following three legal effects:

- 1) From the viewpoint of *governmental law*: the right of the Flag State to administer the station as part of its own territory, and to control and exercise jurisdiction over it (see Art. VIII of the Space Treaty);
- 2) Acceptance of responsibility for the station and the persons therein; further, the guaranty to observe contractual or general international obligations as well as good behavior to be measured by international standards, including, among other things:
  - a) liability for damages, and
  - b) responsibility for qualifications of the personnel and for their activities;

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<sup>5</sup>See M. Bodenschatz, Bericht über den VII Congress of the IAF-1966, ZLW 45 (1967); A. Bueckling, Zur Rechtsstellung in Erdumlaufbahnen Befindlicher Weltraumstationen, ZLW 1 (1973); G. Gal, Space Law 209 (1969).

<sup>6</sup>W. Schwenk, Grundlagen fuer die Verleihung der Staatszugehoerigkeit an Luftfahrzeuge, ZLW 197 (1965).

<sup>7</sup> See I. H. Ph. Diedericks-Verschoor, The United Nations and the Registration of Spacecraft, Proc. 13th Colloquium on the Law of Outer Space 142 (1970).

- 3) From the viewpoint of international law: a defense to the exercise of foreign sovereign rights over stations of recognizable nationality (argument taken from Article XII of the Space Treaty).

As to the last point, it should be noted that the defense to the exercise of foreign sovereign rights over stations of recognizable nationality is not restricted by Article XII of the Space Treaty. This Article provides that all stations and equipment on the moon shall be open to representatives of other States on a basis of *reciprocity only*, a regulation which is self-explanatory, even without the provision of Article XII of the Space Treaty.

Therefore, the Space Treaty consciously provides lunar stations with more pronounced status rights than, for example, the Antarctic Convention does in the case of Antarctic stations. Unlike space stations, according to Article V (3), of the Antarctic Convention, Antarctic stations can be visited by observers of all contracting States *at any time*.<sup>8</sup>

### III. REGISTRY

Modern large-scale research projects in the field of space navigation have given rise to numerous international organizations and to cooperation on an international level. Such cooperative activities are bound to influence in a decisive manner the conventional forms of international cooperation, thus raising questions about status which are not sufficiently answered by the Space Treaty.

First, it should be pointed out that both the Space Treaty (Articles VI and XIII) and the Liability Convention (Article XXII) require the admissibility of the operation of moon stations by international operating agencies

- a) either in the form of *joint* (multilateral) operating agencies,
- b) or in the form of *international organizations*.

Article XIII of the Space Treaty in this connection rules that the provisions of the Treaty shall apply also to international organizations. It is not clear what this regulation means with regard to the manner of registration of international operating agencies. Article VIII of the Space Treaty mentions *only* entry in the national registry of one State; as to international agencies, therefore, entry neither in an *international* nor in a *joint* registry carried by the States concerned is provided for. The content of Article VIII of the Space Treaty apparently conforms to the provisions of Article 18 of the Chicago Convention applying to civilian aircraft, according to which civilian aircraft cannot be validly registered in several States.

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<sup>8</sup>See N. Matte, *Aerospace Law* 265, 317 (1969); A. Schweickhardt, *Der Heutige Stand des Weltraumrechts in Seinen Wesentlichen Grundzeugen*, ASDA Bull, 53 (1970).

This regulation seems to be insufficient. In this connection, reference should be made to recent developments in the field of air navigation as manifested by the Resolution of the Council of ICAO passed on December 14, 1967. This Resolution (including Annexes) provides (concerning civilian aircraft) that international operating agencies (either in the form of joint operating agencies or, in the form of agencies of international organizations) shall be entered into a registry which shall be *jointly* established by the States concerned but carried by *one* State. The aircraft thus entered in a joint registry shall not bear the nationality mark of the State carrying the registry but it shall bear a *joint* mark. Regardless of this, it is considered that each aircraft shall have the nationality of each of the States establishing the international operating agency. It is recommended that similar provisions also be created for outer space navigation.

The framework of the registration procedure should make clear which State's law is to be applied to the international operating agency concerned since the exercise of judicative and executive powers over individual member States and their nationals is—especially in the case of international organizations—a very complex legal problem which, in view of ambiguous statutory provisions, especially under the so-called “implied power” interpretation, is apt to raise numerous and intricate questions in each particular case.<sup>9</sup>

#### IV. CONCLUSIONS

According to Article VIII of the Space Treaty, the above described legal status of moon stations is applicable only to the *installation* itself, *i.e.*, neither to the lunar surface actually occupied by such installation nor to the operation and supply area around the installation or between the individual component parts of a multi-member station. The question should, therefore, be asked if it could be concluded from other legal considerations that the *vital* supply and operation area of a station (station environment) shares the legal destiny of the station.<sup>10</sup> An affirmative answer to this question results from both the station concept and the circumstance of actual effectivity. The concept of the station includes operability and viability of the station. Affecting the operation of a station by sharing the use of its operation and supply area with other States would limit the right of *free and unrestricted use* of outer space (Article I of the Space Treaty.) Such a sharing of a station's operation area with other States is not allowable for this reason. To the extent to which the use of an operation area surrounding the station is thus illegal for other States, it is only a matter of consistency to extend the legal status of the station also to its environment. The same legal consequence also results from the circumstance of actual effectivity.<sup>11</sup> The flag identifying the nationality of a station waves over station *and*

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<sup>9</sup>See I. Seidl-Hohenveldern, *Das Recht der Internationalen Organisation einschliesslich der Supranationalen Gemeinschaften*, N. 114. 1026, 1564, 1603 (1967).

<sup>10</sup>Compare S. Gorove, *Criminal Jurisdiction in Outer Space*, 6 *Int'l. Lawyer* 313, 321 (1972).

<sup>11</sup>P. Sontag, *Der Weltraum in der Raumordnung des Voelkerrechts* 270 (1966).

ground!<sup>12</sup>

The assignment of lunar ground and soil to the status of a station demonstrated by flags or sovereignty emblems, however, under the rule of the prohibition of occupation does not imply any *territorial* competences of sovereignty; the operational environment rather shares with the station only its *installation status* including the status rights set forth in Article VIII of the Space Treaty. Environmental zones of a station lying *beyond* actual effectivity in the sense of "contiguous zones" can be covered by a station's legal status just as little as the so-called spheres of interest which, in view of lunar morphology, are limited by the edges of craters.<sup>13</sup> The actual limit of a station's status rights at any time is the right of other States to free access to all regions of the moon as guaranteed by the Space Treaty. This, by the way, is provided for also in Article II of the draft treaty concerning the moon prepared by the USSR, which actually does not announce anything new but rather clarifies the provisions of the Space Treaty.<sup>14</sup>

However, no one can overlook the danger that the prohibition of occupation is practically set aside by the aforementioned legal status of insular national zones of use. Flags and sovereignty emblems are bound to assign and exclude. They will thus tend to establish that archaic motive of conflict between States which A. Mitscherlich describes as being again and again a rivaling claim to territory: "Even though the conflict does not start with this aim, it will inevitably end up in a struggle for independence of a territory, that is, for its governmental and political sovereignty."<sup>15</sup> Even in this, our sober world, national flags continue to be elements of juridical symbolism; by being "public signs of order", they establish sociological substrates which, as a rule, will not exist without legal consequences.

This leads to the crucial question—raised already by E. Brooks<sup>16</sup>—of how the exercise of actual controls over parts of the lunar surface can be prevented from eventually developing into quasi-territorial structures. With the conclusion of the Space Treaty, the chance was missed to either internationalize the moon and other celestial

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<sup>12</sup>See also National Aeronautics and Space Administration Authorization Act 1970 § 1E, 31 U.S.C. § 699, §§ 5, 6, 42 U.S.C. § 2459, 2462 (1969), Publ. No. 91-119 (Nov. 18, 1969), 83 Stat. 196; A. Bueckling, *Der Mord in Automatismus von Souveraenitaetsstrukturen*, *Deutsche Richterzeitung* 157 (1971); A. Bueckling, *Flaggen auf dem Mond*, *ZLW* 19 (1970); M. Marcoff, *Traite de Droit International Public de L'Espace* 662-65 (1973).

<sup>13</sup>P. Sontag, *Der Weltraum in der Raumordnung des Voelkerrechts* 270 (1966); G. Zhukov, *Weltraumrecht* 307 (1968).

<sup>14</sup>See E. Brooks, *Prospects for Legal Progress on Celestial Bodies*, 14th Colloquium 181 (1971); E. Galloway, *The Future of International Cooperation in Treaty Making*, 14th Colloquium 204 (1971).

<sup>15</sup>A Mitscherlich, *Die Idee des Friedens und die Menschliche Aggression* 21 (1969).

<sup>16</sup>E. Brooks, *Prospects for Legal Progress on Celestial Bodies*, 14th Colloquium 181, 192 (1971); E. Galloway, *The Future of International Space Cooperation in Treaty Making*, 14th Colloquium 204 (1971); N. Matte, *Aerospace Law* 313 and 360 (1969).

bodies or place them under the trusteeship of the United Nations *from the very beginning*<sup>17</sup> I share Mr. Brooks' view that the problems resulting from the prohibition of occupation can eventually be solved satisfactorily only under the rule and control of an international organization. The permanent use of celestial bodies should be permitted under international licenses only; manner, site, and duration, of the use should be subject to international procedures of registration, assignment, and permission. Such a regulation would help to realize the intent expressed in Article I of the Space Treaty: namely, to develop outer space into a common space for all States, in a most reasonable way. As to operation and working method of such an international authority, reference can be made to the International Telecommunication Union, an agency of the United Nations, one of the main tasks of which is to allocate radio frequencies by assigning or blocking certain wave-lengths.

Space law experts all over the world should lose no time in marshalling their efforts to prevent the establishment of undesirable legal regimes in outer space which could not be eliminated at a later time.

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<sup>17</sup>See also G. Kuechenoff, *Naturrecht und Liebesrecht* 126 (1962); G. Kuechenoff, *Rechtsphilosophische Grundlagen des Kosmischen Rechts*, *Archiv fuer Rechts und Sozialwissenschaften* 466 (1965).