SOME REFLECTIONS ON THE STATE OF THE LAW OF OUTER SPACE

Manfred Lachs *

Background

It may be timely to compare this new chapter of law opened due to the development of science and technology with others which were born as the result of similar activities of men penetrating into new dimensions. New types of activity were carried out in dimensions where man has lived for centuries and has established its institutions, such as railways, carriages and cars. There has been another chapter where man began activities in areas which he had not penetrated before. These were steamships and airplanes. The steamship concerned water, which was known to man in rivers and lakes. For centuries air has also been accessible to man, because he has been breathing it and has been in contact with it as a hunter, climber or simply sportsman. There was only one dimension in air which was unknown to man; that was the height and the consequences of movement above inhabited territories, and the dangers of doing so.

Outer space was a completely new proposition because all dimensions were new: space itself, planets, stars, galaxies; all this was known only through observations and magnifying glasses; therefore, man was operating on the basis of a certain speculation and anticipation of events. There was no certainty; there were merely hypotheses. In fact there were the many old dreams. You know most of them - Lucien Somasata whose hero found himself on the moon by accident and where he found inhabitants called Hippogippi. The strangest among them was perhaps that of Francis Goodwin, the Bishop of Hereford, living around the 16th century, who reported a journey in a device drawn by 25 geese to the moon and who called his story *The Man on the Moon:* it was Domingo Gonzales who landed in 1599 on the moon. Particular effort was made to convince the readers that he really was on the moon.

Today it is suggested that the name Domingo Gonzales was a pseudonym for Francis Goodwin. *The Man on the Moon* appeared five years after the death of Goodwin and was entered into the catalogue as being written in Spanish by Domingo Gonzales and translated into English by Edward Mahen. But enough of legends!

New chapters of law were born as the result of man's penetrating either into uninhabited areas like the Arctic and Antarctic, the sea or the air. Once the first flying objects appeared above land and states saw the need to establish rules concerning aerial navigation, the law of the air was born, expressed in the Paris Convention of 1919 and in Chicago in 1944.

The start of the work on the law of outer space was taken very early, and fortunately so. Soon 22 years will have passed since the first Sputnik was sent into orbit and relayed information from outer space. On the 12th of April, 19 years will have passed since Yuri Gagarin embarked upon a journey around the earth and entered into orbit in his space vehicle; and only 11 years ago, on July 21, 1969, Neil Armstrong put his foot on the

*Judge, International Court of Justice, The Hague.

moon having descended on the Sea of Tranquility. His landing was followed by further landings on the earth satellite in the same year, in 1971 and in 1972. To some of these great events the simple, modest, but significant words of Neil Armstrong apply: "That is one small step for man, one giant leap for mankind."

General Observation

Two decades have passed since man entered into space and began a new venture. The two decades may be divided into two parts; in the first ten years satellites were sent into orbit around the earth to obtain scientific information and instruments were sent in the direction of the moon, Mars and Venus. During those years guidance accuracy improved; communication with spacecraft became more precise; the capability of man to operate in zero gravity was demonstrated; and the use of space for communication, navigation and meteorological satellites was considerably enlarged. Further transmission of information by sound and picture made serious progress; the Van Allen radiation belt was discovered. On the other hand, the nature and character of solar winds and storms were ascertained.

The first decade was concluded also by man's landing on the moon and undertaking long journeys around the earth. The landing on the moon was in itself a very great success; for we have to realize that it constitutes 27.5% diameter of the earth - thus a satellite one quarter as big as the planet earth itself. Since there is no atmosphere on the moon, it offered an excellent area for astronomic observation; in particular its very vacuum constituted an environment in which materials could be manufactured for scientific purposes. There were even scientists who visualized the possibility of certain tests being conducted with a cell. In other words, if the moon's crust were analyzed and represented an organic substance at a certain stage part way to life or sub-life, then it would contain the most primitive cells known on earth. Thus it should have been possible to determine what goes wrong in a counter cell.

The aforementioned hopes did not materialize. Most of the discoveries proved that the moon was covered by crystalline rock with volcanic activity; that layers of iron and titanium may have been found at the bottom of the ancient lava pools, but it was not ascertained how the moon came into being; as a result scientists have remained in doubt. Two theories which have been fighting each other are: (1) the moon was a fragment of the earth, and (2) the moon was formed outside of the earth and was captured by its gravity.

In these circumstances, no final conclusion could be made. Thus it has been argued by certain scientists that the experiments conducted on the moon were much more an engineering than a scientific triumph.

There were other achievements of the astronauts, namely the pictures made by them of the earth's surface. These pictures have produced invaluable information concerning the subsoil and the raw materials which are hidden by the surface of the earth.

Altogether the first decade of space exploration has given man the opportunity to use space for all sorts of experiments, in particular, as one of the scientists put it, following the pattern of Fleming's culture plate on which penicillin was born or Pasteur's sour milk. Scientists could then proceed further to the exploration and penetration of space and the universe.

While the discoveries made on the moon have not satisfied human curiosity and we have not really obtained what we expected, the adventure has gone on. We have moved further; discoveries concerning Venus and Jupiter may be worth mentioning. What was found, in fact, was a new solar system: moons, each with the surface the size of Africa with some volcanoes on them and, as an American scientist, Dr. Lawrence Soderblon said, "We have seen the oldest, the brightest, the darkest, the reddest and the most active bodies in the solar system." From the first day and throughout we have faced the great question: what will be the further practical consequences of these discoveries?

Many ideas guided those who were embarking upon these adventures. Scientists, technicians, those heroes, "the envoys of mankind" - we call them - who ventured into space without knowing whether they would ever return to earth. It is not the purpose of this writer to go into the many objectives which were in the minds of those concerned, but certainly two were very important. One was to penetrate as far as possible into this immense sphere outside our small globe to discover what is in it; to penetrate the secret links between life here - events and facts over there, and secondly, to see how these journeys into outer space could help and develop life on our planet. [So within 22 years about 10,650 satellites or bits of debris were tracked in space; about 4,500 or more are still there.] The urge to do it was stronger than the many warnings uttered at the time, and one of them was very peculiar—one may recall the words of Bertrand Russell.:

> "A Minister for Foreign Affairs will go to the moon, will be conscious of his public obligation, honestly and nobly carried out, and will retain without shame his stupid views with which he commenced the journey."

In other words, Russell, like others, claimed that the journey into outer space would not make us wiser. Yet it was inevitable. It was, as stated earlier, man's urge to penetrate the Universe and to discover the secrets of life - that urge as old as history recorded by the ancients in the writings of Heraclitus and Democritus, or Polibius. One may recall the early ideas about the Universe by the poet Lucretius, who in his *De Rerum Natura* spoke of infinite atoms in eternal motion, of evolving and disintegrating earths and suns, of man's thoughts, penetrating all barriers. A few thousand years later, Jacques Monod returned to this idea and spoke of life in his *Hasard et Necessite*:

> "In the last few years we have come to understand life and to reach the conclusion that it has no architect; it is a product of a gigantic lottery which throws numbers out at random."

Could one therefore draw the conclusion that we have made a full circle? It is doubtful that this would be right. The journey has to continue.

Voyager I and II on their way to Jupiter took with them copper plates with recorded sounds of the earth like Beethoven's Violin Concerto, and greetings in 55 languages for other civilizations, if they exist, to hear. Frank Drake, the physicist, continues with the search for signals from other planets from a special installation, a bowl-shaped antennae suspended in the hills of Puerto Rico in Aricibo with a radio-telescope as large as a football field, waiting for voices from space. Fred Hoyle, the great astronomer, continues to claim that life began outside our globe. Earlier Kant thought that Jupiter had inhabitants, and the great mathematician Gauss thought the same of Mars. But we remain suspended in doubt as to the probability of life existing elsewhere.

Some scientists are now beginning to take a different approach, claiming that, in order to establish the existence of life or civilizations elsewhere, we have to change man's approach, based on the search for a civilization similar to ours while those "over there" may be entirely different and therefore different criteria must be applied in order to make progress in the cognitive process.

Yet, however we may view it, the venture into space should be seen as one of the three great revolutions man has gone through in this age. The other two were the splitting of the atom and the breaking of the genetic codes. Each was a milestone in the history of man. Small wonder that it has been said that scientists "come to be regarded almost as magicians, feared rather than admired". Thus the venture into space is not an isolated phenomenon. It is part of a concentrated effort of man's search and continuous attempt to master nature, to control it, to use and change it for his own purpose.

Turning to another element involved in this process, there is a new unity reflected in the relationship between science and technology.

This relationship has rightly been described as follows: "Science has fed reliable information to technology, and technology has reciprocated by providing science with ingenious precision instruments. The new instruments have extended the range of the human senses and provided a speed of reaction and accuracy beyond human limitations."[1] Thus technology is following in the footsteps of science at a tremendous speed. The consequence of it is that science is directly intervening in events; technology is becoming an economic, social and political factor in the life of nations and in the life of the international community. This global process of technological development has several characteristic features. One important, even decisive, element is that each of the inventions, each of the great achievements of our generation and each of the three revolutions we have gone through can be used for the good or evil of man, for its progress or its destruction.

Here is a domain in which it is essential for law to intervene; it must enter it in a dual capacity. First there is its regulatory force concerning the objective of a certain invention, its use and practical application and secondly, its use as an instrument of control of what has been described as the by-product of many inventions. For apart from the objective to which an invention is directed which may be constructive and salutary to man, it may bring about by-products of so harmful a character that it may finally vitiate the very purpose of the invention itself. It may overshadow whatever good has been done by the invention in the particular field. In fact, this has been the function of law from the very outset.

One may raise the question, why the term "outer space"? While the venture was a great achievement, there is something presumptious in it. Why did we call it "outer space"? Space is "outer" in relation to the small planet called earth. In fact, it is the universe - minus our globe, or perhaps minus a small, narrow band of the air space surrounding it. Thus in building a law for the universe minus our globe we are relying on an anthropocentric approach. In all domains and so in law-making this anthropocentrism is the result of our special capacities so well described by a great scientist:

---

[1] R. Calder, Man and Cosmos 5 (1968).

> Amongst the multitude of animals which scamper, fly, burrow and swim around us, man is the only one who is not locked into his environment. His imagination, his reason, his emotional subtlety and his thoroughness made it possible for him not to accept the environment but to change it.[2]

Faced with the tremendous dimension which is the universe, man has tried to establish the first rules of conduct in regard to it and within it. This leads to the main purpose of the general observations on the subject: reflections on the balance sheet of the two decades.

First, it may be true that once the first satellite was launched into outer space, man thought that the links between space and our globe would become much more regular; that a quicker and more permanent communication would be established between what is now considered outer space and inner space. In this respect, we may have been disappointed. Second, events in outer space have not had the impact we expected on what is happening on earth - to be more correct, less in what we expected, and more in what we did not expect. The worlds in inner and outer space have remained separated; only a few men have undertaken the journey to the stars; the progress in this respect has been much slower than that of aerial navigation.

The two worlds also remain separated in other spheres: it is science and perhaps technology which are the main beneficiaries of the venture - and only on a long term basis. Moreover, a fascinating phenomenon has begun to dominate the scene. While we penetrate other planets and try to discover the secrets of remote worlds, among the greatest achievements we have to count the discovery, through this roundabout way and from such a distance, of the hidden treasures of our globe and the atmosphere surrounding it. It is here where developments have concentrated on issues other than those we expected. Through outer space we turn deeper into our earth. A similar phenomenon may affect law: through some new concepts applied to outer space we improve—this author would say more—we revolutionize the law here on earth.

Thus those journeys have consequences affecting our lives - not because we know more of the universe but because through it as a medium, our life, in various dimensions, progresses and becomes richer. Few could have expected these surprising results; it is as if a remote perspective was needed to familiarize ourselves with the depth of our globe, to improve the rules of law with great achievements of modern technology.

Some Key Issues

Before going into greater detail in these conclusions, a look at the beginnings is necessary. We first embarked upon this work 20 years ago; it was then that the first *ad hoc* committee met from May 6, 1959 to June 25, 1959. Three key issues faced the law makers in this respect. First was the question of entry into outer space; second the status of it; and third the activities within outer space.

The rules concerning the way into space belonged to that part of the law which has been shaped by practice, *via facti* without any special written agreement. States which began launching space objects announced the fact but did not request permission of overflight from those States the territories of which they overflew. What is more the States directly concerned did not protest; they made no reservations. This practice,

---

[2]J. Bronowski, The Ascent of Man 19 (1973).

established from the very outset, continues and entry into space has become a generally recognized principle open to all States that can benefit from such flights. Thus potentially every State, the Maldive Islands and the United States, the Congo and the Soviet Union has the right to enter outer space. In view of this practice having been established for some years, can we speak already of the existence of what may be called the "right of innocent passage"?

The time factor is today much more limited than in the past. This view has been expressed by this writer in a different context:

> With regard to the time factor, the formation of law by State practice has in the past frequently been associated with the passage of a long period of time. There is no doubt that in some cases this may be justified. However, the great acceleration of social and economic change, combined with that of science and technology, have confronted law with a serious challenge: one it must meet, lest it lag even farther behind events than it has been wont to do.[3]

The International Court of Justice made it clear that the passage of a short period of time in itself cannot be an obstacle in the formation of a customary rule of law.[4]

As to overflights, no protest was launched at a time when the scope of outer space was not yet clearly defined. This practice has continued from the day when outer space was declared "free for exploration and use to all States." In the circumstances, as this writer stated, "The law relating to access to outer space must facilitate and not frustrate the endeavours of any State to avail itself for lawful purposes of the rights flowing from it."[5]

The question which remains open and which has not been regulated yet is: what should be defined as "innocent passage"? Obviously, it is a passage of an object which moves into outer space in order to explore it and use it in a lawful way. Thus the notion of innocent passage is closely linked with the utilization of outer space itself; that is its objective.

For while accepting it, one cannot presume it as having been granted by the States concerned for all types of flights whatever their character and whatever the nature of the object. The overall objective, peaceful use of outer space, international co-operation and all the general principles so clearly established in the first documents, made it clear that the notion of innocent passage could be accepted with the growing acceptance of the limitation of activities of States in the interest of the international community only. Not all writers share this view on the subject.

Turning now to the second key issue faced by the law makers, that is the status of outer space, the principal question concerns the status of that huge void called space and all the objects situated within it. Articles 1 and 2 of the Space Treaty indicate that: "The exploration of outer space including the moon and other celestial bodies shall be carried out for the benefit and in the interests of all countries irrespective of their degree of economic or scientific development and shall be the province of mankind."

---

[3]*North Sea Continental Shelf* case, [1969] I.C.J. 230.

[4][1969] I.C.J. 42, para. 73. It stressed that, "Although the passage of only a short period of time is not necessarily, or of itself, a bar to the formation of a new rule of customary international law on the basis of what was originally a purely conventional rule. . . ." *Id.* at 43, para. 74.

[5]M. Lachs, The Law of Outer Space 60 (1972).

Free exploration based on equality is guaranteed by the access to all areas of celestial bodies. A corollary to this is the provision of Article 2 that: "Outer space is not subject to national appropriation by claim of sovereignty by means of use or occupation or by any other means."

Do the words "the province of mankind" define a clear legal status? A similar term was later used in connection with the Ocean Floor and Seabed in the declaration of December 17, 1970. Some writers suggest that the obligations defined in Article 1 and 2 of the Space Treaty are of a purely moral character, that they have no legal consequences. Others, including this writer, think that there is more in it, though further precision on the subject would be desirable. This is confirmed by the recent draft of the Treaty on the Moon accepted on July 3, 1979, by the UN Committee on the Peaceful Uses of Outer Space which does not limit itself to the term "province of mankind" and "the benefit and interest of all countries irrespective of their degree of economic and scientific development," but declares the resources of the moon to be "the common heritage of mankind." This is important progress. The same term is used in the draft elaborated by the Third Conference on the Law of the Sea.[6]

Here we have the first illustration of the impact of an institution intended for outer space only - getting down into other dimensions. This notion is now gaining root in international law and more precision should be given to the terms "province" and "heritage" of mankind. Any possible distinction between them should be made clear. It has been this writer's view from the beginning that the term should not be defined as *rex extra comercium.* It is a question of the object remaining within the disposition of the international community as a whole. Moreover, a distinction could be made between what could be regarded as an object which can be used and an object which cannot be used. For instance, space itself constitutes an area which is used for purposes of travel while a star or planet may contain resources which could be used for one or the other purposes. The concept itself, while now applied in regard to outer space, to the resources of the moon, to the ocean floor and seabed, may expand further; in particular, in the context of a new international economic order certain resources may become the common heritage of mankind in order to make the distribution of wealth more equitable. It is interesting to record that the institution and the term originated in the first treaty for outer space.

For obvious reasons only very few States are able to use and explore outer space. The question of the participation of others in these explorations is a matter for the future. It is therefore, important to give the term "common heritage" such a meaning thatit becomes practical and it does not remain within the sphere of theory. It is therefore worth recalling that:

> Parties to the treaty conducting activities in outer space, including the moon and other celestial bodies agree to inform the Secretary-General of the United Nations as well as the public and the international scientific community to the greatest extent feasible and practical of the nature, conduct, location and results of such activities.[7]

---

[6]*Cf.* Art. 136 of the Informal Composite Negotiating Text Doc., A/CONF. 62/WP.10/REV. 1: "The Area and its Resources Are the Common Heritage of Mankind."

[7]Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, Art. 11, [1967] 18 U.S.T. 2410, T.I.A.S. 6347, 610 U.N.T.S. 205 (effective Oct. 10, 1967).

This provision has some legal implications though the decision as to what extent it is "feasible and practical" to convey such information remains within the sole decision of the State concerned. Thus further elaboration of the principle is called for.

It is interesting to note that, in view of the immense size of outer space, no thought was given to the problems that may arise in regard to the accumulation of an excessive number of instruments and vehicles. Yet we have now reached the stage where, in some areas, overcrowding occurs: of man-made instruments this is the case of a geostationary orbit where at present about 108 vehicles are concentrated together with a lot of debris. Thus it has become an issue which calls for serious attention.[8]

Conclusion

The following are some problems which deserve some reflection. "In the post-Renaissance era," said Sir Peter Medawar, President of the British Association for the Advancement of Science, in his presidential address of September 3, 1969, "it was taken for granted that the poor old world was superannuated; that history had all but run its course and was soon coming to an end. Today, we are conscious that human history is only just beginning." This statement by one of the great scientists of our day describes the real situation. We are only starting to develop science, as human beings and members of the international community, we are at the beginning of the road. In this respect outer space is one of the big chapters of man's activities which shows its potentialities. Man entered into it driven by an inborn urge for adventure and greater control of nature. Technology gave him the instruments necessary to reach so far out of the era of our normal life and here science has proved what Einstein so rightly defined as, "a phenomenon which pervades all aspects of our life." Once man moved there it was necessary to establish a code of conduct. So far, we have too few rules on the subject and they require further elaboration and adaptation to the needs and goals they are intended to serve. We must expand the realm of law and make it serve the interests of man. The law on the subject must particularly develop in the areas referred to earlier; those which have an impact on events on our globe; the common heritage of mankind; to make the benefits of the use of outer space accessible to all; to prevent abuse and strive towards an equitable progress.

The law which has been established so far is only a scaffolding for the law to come. We have started at the right point in time, and we have established a set of rules, but they have to be supplemented by new provisions. The Law of Outer Space is not only a system of rules concerning activity in a new dimension; the environment to which it is related may also become a model, an illustration to others.

At the very outset when the United Nations Committee for the Peaceful Uses of Outer Space was established, two Subcommittees were brought into being; one legal, and the other scientific and technological. This initiative, aiming at closer cooperation between jurists and scientists is both significant and symbolic. Also in this respect the

[8]It is in this context that mention should be made of the action of a group of the so-called equatorial States: Colombia, Ecuador, Zaire, Uganda, Guatemala and Indonesia; Declaration at Bogota on December 3, 1976, in which they proclaimed claims to segments of the geostationary orbit. For a text of the English translation of the Bogota Declaration, *see* ITU, Broadcasting Satellite Conference, Doc. No. 81-E at Annex 4 (January 17, 1977), reprinted in 6 J. Space L. 193 (1978).

lawmaker has made a new and most useful approach; he has given an example to be followed by others. For progress in either field, in the interest of both, requires the cooperation of both.