

TOWARDS A LEGAL REGIME IN SPACE

MAXWELL COHEN, Q.C.*

The search for a legal regime in outer space has become one of the more fascinating exercises for international lawyers and for the political, and scientific and administrative imagination. Few experiences in the development of International Law have offered so immediate a view of the law-creating processes as the attempt to evolve a general framework governing both the common and the "exclusive" uses of space, and within which to fashion the individual rules themselves. The traditional time-scales characteristic of the slow processes of customary or conventional law-making have been altered by the rate of technological advance in the management of space, and by the heightened sense of urgency and planetary drama that attends the entire question of this extra-terrestrial leap.

From the law-creating experiences of other and seemingly analogous regimes, such as the Law of the Sea and the Law of the Air or airspace, certain conceptions and even embryonic rules have emerged to accelerate the law-making process through such a projection of this earlier experience. Of course the Law of the Sea is among the older and more durable of classical modalities, while the Law of the Air is a more recent creation already highly developed and widely understood. They differ profoundly, however, in the degree to which the Law of the Sea has its roots in history and custom over a very long period of time, as International Law goes, while the International Law of the Air has relatively little that is customary about it, except perhaps on the general question of jurisdiction, but is, instead, heavily the creature of conventional arrangements. In the case of the Law of the Sea the customary character was of the very essence; indeed, the few attempts at international conventions, codifying or progressively developing the rules, have had only a modest juridical result, although there was a striking international effort in this direction with the drafting and "acceptance" of the four conventions on the Law of the Sea at Geneva in 1958 and 1960. The slow progress of states in ratifying these

*Professor of Law; Director of the McGill University Institute of Air and Space Law; of the bars of Manitoba and Quebec. Paper prepared for the VIth Colloquium, Institute of Space Law, Paris, Sept. 24-26, 1963. It appears in a revised form in Cohen (ed.), *Law and Politics in Space*, (1963).

conventions, in any serious numbers, and the even more important failure to determine the breadth of the territorial sea, demonstrated the inherent resistance to codification in this traditionally simple, vigorous area of customary law—although this is not to minimize the great importance of numbers of bilateral and multilateral conventions for the management of individual areas of the open sea and their resources.

By contrast Air Law tends to be almost entirely the creature of statute and treaty, except, of course, for the municipal law of Tort and Contract in their local application to the problems of air flight responsibility. Even here the heavy impact of the Warsaw Convention on the domestic jurisprudence is so evident that the larger part of decided cases in most countries tends to be related very often to interpretations of the liability provisions of that Convention. The customary content, therefore, of Air Law, remains, on the whole, confined to the early and classical question of jurisdiction in airspace, its definition and its limits.

To the extent that the developing law of outer space reflects some of the experiences of states and international lawyers with the Law of the Sea and the Law of the Air, it may be suggested that outer space is likely to demonstrate the special characteristics of a regime that urgently requires a body of both customary law and treaty law. What already is evident is that the main concepts governing the common interest of mankind in outer space—which inevitably must reflect themselves in some emerging regime of law—are concepts that are the product of self-evident needs as the age of space unfolds. Such concepts will now rapidly become the common Space Law of mankind, a regime customary in character and differing in the law-creating techniques behind it, in contrast with the Law of the Sea for example, perhaps only in the time-scale involved. For, while the Law of the Sea could afford the luxury of two or three hundred years to evolve, in the movement from *mare clausum* to *mare liberum*, and yet produce in consequence only five or six main principles, widely accepted, flexible and reasonable in their enforceability, no such leisurely pace is available to man exploring space. For here the urgencies, both positively and negatively, require the early fashioning of agreed-upon rules that go beyond the capacity for effectiveness of broad customary principles standing alone. Thus, the common interest of mankind in the peaceful and fruitful exploration of space for all scientific purposes is so widely self-evident that a customary rule may be said to exist providing for the common right of all to move in and out of space, and there to engage in every form of peaceful and scientific pursuit. Equally, the converse may be said now to have become a customary rule, namely, that space cannot be appropriated by any one state, nor may any part of space or any celestial body therein be regarded as subject to the exclusive jurisdiction of any one or more states.

This is only the beginning of the difficulties, for such a broad statement of principle, stated both positively and negatively, does not begin to solve the specific and urgent problems of space already presented to mankind by the vector effects of the technological revolution that has its military as

well as its pacific aspects. Indeed, these specific urgent problems on the whole are matters which the customary and general principles already accepted, and given further juridical status by Resolution 1721 (XVI) 1960 of the General Assembly, do not pretend to resolve. Advantageous orbits for communication purposes and the adoption of wavelengths unilaterally by states for outer space communication; experiments in space that lead to actual or potential pollution in or contamination of space or the upper and lower atmosphere, whether these experiments are for military or non-military purposes; the use of space for "observation" purposes both military and non-military (meteorological); and, finally, the problem of the arms race and its relation to space, and correspondingly the development of arms control procedures and disarmament programs—all of these are not children easily to be disciplined by an all-embracing mother principle.

What is abundantly clear now are the number of urgent matters for which the chancelleries and the international lawyers concerned, both in office and in universities, must find "answers" within the measureable future. The United States program for a satellite communication system already is well established; but it is inconceivable that states with any claims to a technology of their own will be content to accept this scientific pre-eminence as a reason for acquiescing to any degree in the pre-emption of advantageous channels or orbits. Here it is evident that the competing values to be considered are the need to encourage, and correspondingly not to inhibit, the maximum of human activity in the development of space communications wherever there are states or persons with the technical capacity; with the need, at the same time, to recognize, enhance, and to some extent protect, the value of a common interest in global communications, in sharing in the skill and the joys that such a program envisages. No amount of customary law can resolve this delicate balance of values and claims, considering the admixture of principle, detail and administration involved. The existing machinery of the International Telecommunication Union, the interest of the International Civil Aviation Organization in the use of space communications for international commercial aviation, and the possibility of competing systems between rival technical leaders, *e.g.*, the British Commonwealth Telecommunications program—all suggest strongly the inability of men to await the sorting out of the issues by the further crystallizing of customary rules. Equity and administration both call for the language of specific documents to satisfy the claims of competing values already at hand.

In "pollution" and "contamination" the stake of vulnerable man is even more apparent and more urgent. The most significant recent event has been the Partial Test Ban Treaty signed by the United States, the Soviet Union and the United Kingdom in Moscow on August 5, 1963, and acceded to by many other states since. There is no doubt that the overriding human and political concern to have the ban was not only its relationship to the arms race as such, but even more immediately its meaning

for the tragic pollution of the atmosphere to which prolonged testing of nuclear weapons seems to lead. It does not matter that contending scientists, academic and governmental, may debate the reality of the damage by fallout to the species and to the general ecology of the planet; or that some should argue the greater danger that lies in the many other forms of radiation, man-made or cosmic, to which the species is exposed. What does matter is that with testing the heavens ceased to be a symbol of hope, and became instead an unseen cloud threatening genetic harm. Strontium 90 in recent months has been revealed to have greatly increased in quantity as measured by milk and other food supplies, particularly in a great belt running across the continent north and south of the United States and Canadian borders. No amount of customary law projected from the duty of states not to employ their territories, land or atmosphere, to the damage of their neighbours, would have been able to interdict the unilateral decisions of great powers bent upon the development of nuclear weapons systems.

The refusal of France and Mainland China to sign the Treaty is an illustration of how little concern states often have for what may be an older and eminently reasonable rule, if that rule cuts across a vital interest. The *Trail Smelter Arbitration*¹—a Canadian-United States dispute—doubtless the classical statement in Anglo-American international law on the duty of states not to permit atmospheric pollution to the damage of their neighbours, had little or no effect on the decisions of the United States and the Soviet Union, whether the testing took place on their own territories or over the high seas, the Arctic for the Soviet Union and the Pacific for the United States. Only a treaty, specific in its detail and providing for clear procedures of enforcement, could establish a rule that was meaningful and effective in such a case. The future model of course is a treaty as rigorous as the Antarctic Treaty of December, 1959 eliminating all nuclear weapons or other military activities from, or testing of nuclear weapons in, the Continent of Antarctica. The Test Ban Treaty indeed buttresses now the rules of customary law which, though they may have existed before in a general sense, nevertheless suffered from the fatal weakness of state indifference—at least, the indifference of those states that counted.

The problem is much the same with respect to "contamination", if less dramatic and less generally apprehended. Vehicles and instrumentalities leaving a bacteria-filled planet named Earth must be so sterilized as to assure that terrestrial micro-organisms do not find new worlds to conquer. And, in turn, space probes daring the surfaces of other bodies must not return home with new enemies for man and nature to combat, enemies whose unknown power possibly could have devastating results, overcoming a human or general immunity unprepared for the invasion.

1. See (1931) 25 *American Journal of International Law* 540, and Read, "The Trail Smelter Dispute" (1963) 1 *Canadian Year Book of International Law* 213.

These obvious international concerns manifestly cannot await the refinement of custom. Already such matters are being discussed in detail, both scientifically and juridically within and without the United Nations. Clearly, what must soon emerge is an agreement that disciplines by common scientific procedures all states in launching minor or major vehicles and instruments into orbits or probes. Pollution and contamination jointly may require not merely the language of agreement, but the machinery of detailed administration by international agencies established for such purposes.

It is when lawyers and chancelleries turn to the entire complex of problems created by the arms race, the uneven temperature of the cold war and the horrendous significance of rockets bearing nuclear warheads that the sense of urgency may be at its highest. If the test ban foretells of things to come, of an easing of tensions between the two or three major powers with a nuclear capability, perhaps the time is not far off when arms control and disarmament programs may become a working reality, instead of a frustrating, negotiating minuet. Already the Test Ban Treaty has led to raising hopes for an early agreement on precautions against surprise attack in central Europe and also, possibly, on the development of nuclear-free zones. The recently concluded arrangements between the United States and the Soviet Union dealing with co-operation in space meteorology and space communication indicates the emergence of a fresh sense of the opportunities to balance the now classical dangers. Meteorological satellites in orbit may be used for observation that is peaceable or observation that is military and, therefore, "espionage"—depending upon the eye of the viewer. What customary rule could help define the "defensive" use of observation against an alleged potential aggressor in contrast with an "offensive" employment of such investigation and reporting procedures in space?

Similarly, and even more striking, are the problems of assuring mankind that orbiting instrumentalities will not carry within them a megaton threat to any peoples on earth. It is now the publicly announced United States and Russian policy not to place nuclear weapons into orbit with re-entry capabilities.² In the present state of suspicion, despite the test ban, a Canadian will be forgiven for believing that such an informal posture by way of declarations is less than satisfactory for the peace of mind of humanity. Arms control concepts envisage a kind of regulated stalemate in weapons systems that perpetuates deterrence and the fear that gives a tenuous security to this generation. Yet, while the language of arms control is sometimes objectionable for its inhumanly cold evaluation of the probabilities, it is perhaps a necessary and realistic employment of intelligence in defence of its own destructive powers while powerful states stand armed and poised, too often at the brink.

2. See President Kennedy's address to the United Nations General Assembly, September 20, 1963, and that of Mr. Gromyko on September 19, 1963.

Hence, both arms control and general disarmament must envisage a slow and steady process, through agreements whose effectiveness will be measured by the specific limits placed upon weapons production and development, as well as upon the size, character and location of nuclear and conventional forces. There is little room here for customary law. This is the very stuff of urgent, specific, short-run cumulative decisions, cast in the meticulous language of the experts and filled with the imagination and experience that a generation of disarmament discussions, both official and scholarly, have now provided the negotiators.

Perhaps among the most intriguing of all of the problems of Space Law now emerging—where the interplay of the customary and the conventional, interlaced with ever-altering technological facts, may best be observed—is the re-opening of the question of jurisdiction and control by the sub-jacent state spaceward. Three stages in the discussion about zones of jurisdiction in space seem to mark the short history of the past dozen years. While it is true that the von Kármán line of 274,000 feet became a kind of working cliché for air lawyers in determining the upward limits of jurisdiction in the atmosphere or airspace, not much thought really was given to the problem of space until the early 1950's, when Professor John Cobb Cooper and a few others began to direct attention to it. Of course, imaginations were stimulated by the V-2, whose 100-mile apogée gave it a unique status in the technology of flight in its day. It was Professor Cooper, however, who began to see in the rocket legal problems that soon would have to be faced, and in the early 1950's he introduced his theory of zones in space approximating roughly the idea of the Contiguous Zone in the Law of the Sea. Professor Cooper's original 300-mile zone where the sub-jacent state could claim some measure of control—subject to peaceful passage or uses—soon gave way to a 600-mile zone, and by that change, in a sense, he indicated the difficulties inherent in such proposals.

All of this was pre-Sputnik. But when in 1957 the Russians launched their first instrumentality into orbit, the theory of zones of control collapsed in the face of the new technological reality. If a state *could* launch an instrument, what was there in fact and, therefore, in law, to stop it from so doing? Indeed, out of that period there emerged the vital concept that space was for the use of all, and this principle came to be repeatedly reinforced by the launching programs of the United States and the Soviet Union in the years that immediately followed. To a very large extent, therefore, this second period was one in which there was crystallized within two or three years the notion that space belongs to all and is open to all for peaceful uses—a kind of *res communis* beyond the von Kármán line of 52 miles above the surface of the earth.

However, certain questions remained in doubt at this stage, and these were not removed by the important Resolution 1721 (XVI) of 1960 which, in a sense, only declared what so rapidly by "custom" already had come to be the rule. The most important of the unanswered questions was juris-

diction over "the no-man's land" between the end of the von Kármán line and the lowest average perigée of orbiting instruments, usually about 85-100 miles above the surface of the earth. No good answers were given to this problem of no-man's land between a free and "commonly-owned" outer space and the 52-mile limit. Such a neat theoretical problem, which in the early days of International Law would have provided for generations of debate, was terminated in a few short years by further technical advances. For as soon as the powers concerned had solved the re-entry problem questions arose as to the right to use areas below 100 miles, and, indeed, below 52 miles in the space or airspace above other states in order to enter or re-enter the atmosphere, or return to the territory of a launching state or the high seas as the case might be. Further, the re-entry question was made even more sophisticated by the growing technology in the managing of space capsules through manual rocket control, and perhaps more recently by the designing of instrumentalities such as "Dyna-soar",³ that could be launched as an orbiting vehicle, but would then return from its orbit to earth in a manually controlled flight pattern, and was designed aerodynamically to function as a more or less conventional craft upon entering the earth's atmosphere, where the molecular density would be sufficient to maintain winged flight. Such progress again altered the jurisdictional perspective and reopened the question of state control in space. It is in this third period that states now find themselves, since they must resolve the dilemma of a proper balance between the reality of launching into orbital flights without the approval of a neighbour, and the equal reality that neighbours have an interest in the use of the space above airspace if it is to be employed for re-entry or any other purposes, such as low flying observation programs.

It was for these reasons, no doubt, that the David Davies Draft Code⁴ risked re-opening the issue with a frank effort to establish a manageable line, which it would have preferred to be 75 miles but was prepared to settle for 50.

The significance for International Law of this debate, apart from its immediate policy consequences, is the quite fascinating light it throws on the fluid response of rulemaking processes to a changing technology, and the doubts that may arise under conditions of such fluidity that a problem may be "solved" either by customary or conventional law. Probably the answers to be given in due course to this evolving need for some sub-jacent state control above the limits of airspace, will be those that assert an "exclusive" interest by the sub-jacent state wherever descent involves a possible interference with the safety of regular flight activities in a state, with its communications systems, with the safety of persons on the ground, and finally with an overriding claim not to be alarmed by such activities

3. Recently this project was cancelled by the U.S. Defence Department, *N.Y. Times*, Dec. 11, 1963.

4. See Draft Code of Rules on the Exploration and Uses of Outer Space (1962), the David Davies Memorial Institute of International Studies.

without due notice that they are taking place in the area. Here custom and convention merge, to establish in treaty form principles and rules clear enough to state the problem, and broad enough to embrace and respond to rapid and inevitable change.

It may be that the search for a regime of law in space, with the very specific and urgent problems now clearly calling for varieties of action, will become a significant pilot project for new forms of international co-operation, and even more significantly for co-operation to prevent the arms race from merging absolutely with the space race. There is about this search, therefore, a sense of the highest urgency, but equally a demand for the highest imagination, political, jural and technological. It is given to few men and generations to witness so much important law-making under conditions where so many can share in the decision-making processes, apply their imaginations and skills, and to reap in their own time, the benefits of "practical reason" made law.



JUDICIAL NOTICE

"Most parents probably consider their own children *mansuetae naturae* and those of their neighbours *ferae naturae*."

(*Per Riddell J., in Corby v. Foster (1913) 13 D.L.R. 664, at 674.*)

