COMMENTS

THE BOUNDARY QUESTION IN SPACE LAW: A BALANCE SHEET*

*Chin-Shih Tang***

I. INTRODUCTION

A demarcation line between airspace and outer space that will be both rational and effective as "law-in-action" in an era where technology moves well in advance of the society that it is supposed to serve, may reasonably be expected to accord with the following perspectives. First, it must permit the continuance, and possible expansion of the present levels of scientific and technological activity in outer space, without imposing too many artificial encumbrances in the form of *a priori* institutional prescriptions at the international organizational level. Second, it must provide for as firm as possible a political commitment to the principle of self-preservation, without artificial barriers imposed solely on account of non-military purposes; for without such a commitment, the determination of any criterion as an artificial boundary between airspace and outer space would seem to be vitiated.

II. THE DEVELOPMENT OF SPACE LAW ON THE BOUNDARY QUESTION

If we look at publicists' postulates and the practice of states that have in fact developed to date, we can hardly avoid noting that, by and large, the boundary question in space law has been refreshingly free from the dead-hand control of well defined rules of law. It may be suggested, in fact, that the pursuit of a clear-cut demarcation line between airspace and outer space, and the pre-occupation with the numerical height of state's sovereignty over territorial domain at the expense of a functional orientation, accounts for the malaise of many contemporary theories on the subject. Be that as it may, the existing regime of space law governing the boundary question is the product, essentially, of pragmatic principles empirically applied in a case-by-case approach.[1] This origin accounts in considerable

---

Extract of Thesis submitted in partial fulfillment of the requirements for Masters of Law degree, Institute of Air and Space Law, Faculty of Law, McGill University.

**LL.B., 1961, University of Taiwan; LL.M., 1967, McGill University; M.L.S., 1971, McGill University.

[1] For instance, in 1959, Mr. Beresford remarked that effective control over any position of space may soon no longer be possible except in old fashioned or traditional circumstances. However, in 1960, when defending the legal status of the U-2 accident, he changed his view by maintaining that the demarcation line is set by the principle of effective control. Beresford, *The Future of National Sovereignty*, SECOND COLLOQUIM ON THE LAW OF OUTER SPACE 8 (1959). [hereinafter cited as SPACE LAW COLLOQUIM]; Beresford, *Surveillance Aircraft and Satellites: A Problem of International Law*, 27 J. AIR L. & COMM. 107, 113 (1960).

measure for the fact that there is, as yet, no single code of principles or similar comprehensive enactment of positive rules of law governing the question under review. Instead we have a congeries of various teachings advanced by publicists. Some theories are derived from attempts at universal, law-making conventions or international agreements; some of them proceed from relatively specific declarations as to the immediate height of a state's sovereignty, usually being stated on a numerical basis; some have been induced by analogy from the general, customary rules of international law in other supposedly cognate areas such as the law of the high seas; some stem from the various nature of space activities, whether scientific in nature and created for peaceful purposes, or else created more or less ad hoc in response to the pressing and immediate need for reconnaissance satellites.

An example of the first criterion for determining a demarcation line falling within the category of a norm-making venture, is the view that just as nations have increased the ambit of their sovereignty over territorial waters by means of mere effective control, so also will states extend the boundary of their sovereignty over airspace. The main weaknesses of this approach are, of course, its very simplicity, and its failure to recognize the fact that the height of such a boundary is increased in proportion to a state's ability to control its airspace as a result of technological advances, though these very limitations may, by necessary implication, account for the revival of the old concept that "might is justice."

Some parts of the physical characteristics of outer space, for example, the density of the atmosphere and the earth's gravitational pull, have provided sources for more specific and detailed postulates on the boundary question such as are embodied in the theory of aerodynamic lift or the Von Karman Line theory.[2] By and large, however, the natural phenomena-based approach has produced very few concrete, operational rules on the boundary question, particularly in view of the recent advancements in space technology. The development of more heat-resistant materials, for instance, may change the height of the Von Karman Line, and thus render this theory a peripheral principle, guiding perhaps, though not specifically restricting, the establishment of a demarcation line through such other means as an ad hoc agreement among nations.

The lack of protests by states at overflights of satellites launched during the International Geophysical Year for peaceful and scientific purposes has, perhaps, created a customary rule of law, comparable to a rebuttal, to any claims to the boundary of a state's airspace at a very high altitude. This acquiescence does, however, seem to have discouraged the willingness of nations to accept overflights of satellites launched for non-peaceful purposes.[3] This attitude is analogous to states insisting on considering the potentially militaristic nature of space activities against their security

[2] For a definition see HALEY, SPACE LAW AND GOVERNMENT 98 (1963). For its application to the boundary question see MATTE, AEROSPACE LAW 30-31 (1969).

[3] FAWCETT, INTERNATIONAL LAW AND THE USES OF OUTER SPACE 22 (1968).

from outer space, which they could ill afford to secure, or even to maintain in their continuous search for effective self-preservation. It is probably supported by ill-defined, decision-making processes, stemming from a lack of technical sophistication on the part of writers, and in particular from the old notion of air sovereignty, now seemingly untenable in the space age, that there appears to be a complete lack of authoritative prescriptions on the boundary question in space law.[4] This lack of authoritative prescriptions among a fairly representative sample of writers is illustrated in the tabulation offered below.

TABLE I

Writers' Attitudes Toward the Various Postulates of the Boundary Question*

Writers	A**						B***	C****	
	a	b	c	d	e	f		a	b
Aaronson[5]		+							+
Beaumont[6]									+

[4] It is interesting to note that among those writers who argued in support of a limited boundary theory, no agreement has been reached on its numerical height. They have suggested various heights ranging from "as low as possible" to even sixty thousand miles upward. For a detailed discussion of the various altitudes advanced by publicists see Chin-Shih Tang, The Influence of Publicists' on the Development of Space Law 28-29, June 1, 1967 (unpublished thesis in McGill Law School Library).

[5] Aaronson, *Aspects of the Law of Space*, quoted in LEGAL PROBLEMS OF SPACE EXPLORATION: A SYMPOSIUM § 84 at 830 [hereinafter cited as 1961 SYMPOSIUM]; Aronson, *Space Law*, I INTERNATIONAL RELATIONS 420 (1958).

[6] SHAWCROSS & BEAUMONT, AIR LAW 722 (3d ed. 1966).

* Writers' positive and negative opinions toward each approach are separately marked by "+" and "-" signs.

** Limited boundary theory:
- a. effective control theory
- b. physical characteristics of space theory
- c. state's practice theory
- d. gravitational pull theory
- e. arbitrarily chosen altitude based upon various considerations such as security, political, economic, etc.
- f. zone theory

*** Unlimited boundary theory.

**** Other alternatives:
- a. functional theory
- b. determined by international agreement

Beresford[7]	±		-		-			+	
Bevilacque[8]		+						+	
Cheng[9]		+		+			-		
Cooper[10]	-	+		+	+	+	-	-	+
Gabrovski[11]					+				
Goedhuis[12]		+	-						+
Gorove[13]			-		+	-	-		
Gal[14]		+		-		-	-		
Haley[15]		-	+	+			-		
Hildred[16]	-							+	
Jacobini[17]	+								
Jenks[18]		-	+						

---

[7] Beresford, *Sovereignty in Outer Space*, 1961 SYMPOSIUM 834 address at the Law School of University of Virginia. *See also*, Beresford, *The Future of National Sovereignty*, SECOND SPACE LAW COLLOQUIM 8 (1959); and Beresford, *Surveillance Aircraft and Satellites: A Problem of International Law*, 27 J. AIR L. & COMM. 113 (1960).

[8] Bevilacque, *A Contribution to the Problem of Space Law Establishing a Technical and Practical Limit to Political Sovereignty in Space*, FIRST SPACE LAW COLLOQUIM 33 (1958).

[9] Cheng, *International Law and High Altitude Flights: Balloons, Rockets, and Man-made Satellites*, 6 INT'L & COMP. L.Q. 487, 493-94 (1957); *see also* Cheng, *From Air Law to Space Law*, 13 CURR. LEG. PROB. 228, 229, 232-33 (1960).

[10] Cooper, *The Problem of A Definition of "Air-Space"*, FIRST SPACE LAW COLLOQUIM 41 (1958); *also* Cooper, *Flight-space and the Satellites*, 7 INT'L & COMP. L.Q. 82, 89 (1958). *See also* Cooper, *The Upper Airspace Boundary Question*, SIXTH SPACE LAW COLLOQUIM 2, 3, 6 (1963).

[11] Gabrovski, *Reflections on the Judicial Problems of the Extra-Aeronautical Space and the Reconnaissance Satellites*, FIFTH SPACE LAW COLLOQUIM 1 (1962).

[12] Goedhuis, *Air Sovereignty and the Legal Status of Outer Space*, INT'L LAW ASS'N, REPORT OF THE 49TH CONFERENCE 272, 274, 279 (1960); *see also* Goedhuis, *Conflicts of Law and Divergencies in the Legal Regimes of Air Space and Outer Space*, 109 RECUEIL DES COURS 263, 284 (1964).

[13] Gorove, *On the Threshold of Space: Toward a Cosmic Law*, 4 NEW YORK LAW FORUM 305 (1958); *see also* Gorove, *Problems of the Upper Extent of Sovereignty*, FIRST SPACE LAW COLLOQUIM 72, 73 (1958).

[14] Gal, *Air Space and Outer Space*, 1961 SYMPOSIUM 1149, 1150.

[15] HALEY, SPACE LAW AND GOVERNMENT 67, 77-78, 79-116, 157 (1963); *see also* Haley, *Legal Problems of Manned Lunar International Laboratory*, SEVENTH SPACE LAW COLLOQUIM 71 (1964).

[16] Hildred & Tymms, *The Case Against National Sovereignty in Space*, 1961 SYMPOSIUM 269, 270.

[17] Jacobini, *Effective Control as Related to the Extension of Sovereignty in Space*, J. PUB. L. 87, 99 (1958).

[18] JENKS, THE COMMON LAW OF MANKIND 401 (1958); *see also* JENKS, THE INTERNATIONAL LAW OF OUTER SPACE 99 (1963).

Jessup[19]				+					
Katzenbach[20]			+					+	
Kelsen[21]	+								
Kislov[22]						+			
Kopal[23]	-				+		-	+	
Korovin[24]		+	-	-					
Kroell[25]				+					
Kryslov[26]						+			
Lipson[27]			+		+				
Machowski[28]			+						
Mankiewicz[29]				-				+	
Martin[30]			+	+			+		
McDougal[31]	-	-		-	+	-	+		
Meyer[32]	+	+				-		+	

[19] JESSUP & TAUBENFELD, CONTROL FOR OUTER SPACE AND THE ANTARCTIC ANALOGY 215 (1959).

[20] Katzenbach & Lipson, *The Law of Outer Space*, 1961 SYMPOSIUM 787; *see also* Katzenbach, *Law and Lawyers in Space*, 14 Bull. of Atomic Scientists 220, 222 (1958).

[21] H. KELSEN, GENERAL THEORY OF LAW AND STATE 217-18 (1961).

[22] Kislov & Krylov, *State Sovereignty in Air Space*, 1961 SYMPOSIUM 1045.

[23] Kopal, *Sovereignty of States and the Legal Status of Outer Space*, 1961 SYMPOSIUM 1121; *see also* Kopal, *Two Problems of Outer Space Control: The Delimitation of Outer Space and the Legal Ground for Outer Space Flights*, THIRD SPACE LAW COLLOQUIM 109 (1960).

[24] Korovin, *International Status of Cosmic Space*, 1961 SYMPOSIUM 1065; *see also* Korovin, *What Hinders Progress of Space Law?*, SIXTH SPACE LAW COLLOQUIM 4 (1963).

[25] Kroell, *Eléments Créateurs d'un Droit Astronautique*, 16 REVUE GÉNÉRALE DE L'AIR 222, 230 (1953).

[26] *Supra* note 22.

[27] Lipson & McDougal, *Perspectives for a Law of Outer Space*, 52 A. M. J. INT'L L. 407, 426 (1958); Lipson & Katzenback, *The Law of Outer Space*, 1961 SYMPOSIUM 787.

[28] Machowski, *Selected Problems of National Sovereignty with Reference to the Law of Outer Space*, PROCEEDINGS OF THE AMERICAN SOCIETY OF INTERNATIONAL LAW 169, 171 (1961).

[29] Mankiewicz, *The Regulation of Activities in Extra-Aeronautical Space and Some Related Problems*, 8 McGILL L.J. 193, 194-95 (1961-1962).

[30] Col. Martin, *Astronautical Law*, 1961 SYMPOSIUM 365, 366, 367, 391.

[31] *Supra* note 27; *see also* McDOUGAL-LASSWELL-VLASIC, LAW AND PUBLIC ORDER IN SPACE 316 (1963).

[32] Meyer, *Legal Problems in Space Flight*, ANNUAL REPORT OF THE BRITISH INTERPLANETARY SOCIETY 353 (1952); Meyer, *Remarks on International Air Law*, PROCEEDINGS OF THE AMERICAN SOCIETY OF INTERNATIONAL LAW 96, 97 (1956); Meyer, *Critical Remarks on Recent Discussions Concerning Legal Problems of Outer Space*, 7 ZEITSCHRIFT FÜR LUFTRECHT 194, 203, 205 (1958); Meyer, *Legal Problems of Outer Space*, 1961 SYMPOSIUM 507.

Milankovic[33]				-			-		
Milde[34]	+						+		
Murphy[35]					+				
Osnitskaya[36]			-		+				
Pépin[37]		+			+	+	-		
Quadri[38]			-					+	
Reintanz[39]	-	+		-					
Roy[40]	-	-		-					
Ryne[41]			+						
Safavi[42]					-				
Schachter[43]	-	+	+						-
Schick[44]			-					+	
Shawcross[45]									+
Smirnoff[46]					+				+

[33] Milankovic, *The Legal Problem of Outer Space*, 1961 SYMPOSIUM 1215.

[34] Milde, *Considerations on Legal Problems of Space above National Territory*, 1961 SYMPOSIUM 1107.

[35] Murphy, *Air Sovereignty Considerations in Terms of Outer Space*, 1961 SYMPOSIUM 214.

[36] Osnitskaya, *On the Question of Interplanetary Law*, SOV. STAT & L. 52-58 (1958); Osnitskaya, *International Law Problem of the Conquest of Cosmic Space*, 1961 SYMPOSIUM 1090, 1091; Osnitskaya, *Prospects of the Development of Space Law*, FIFTH SPACE LAW COLLOQUIM 1 (1962).

[37] Pépin, *I.C.A.O. and Other Agencies Dealing with Air Regulations*, quoted in 1961 SYMPOSIUM 892; Pépin, *Legal Problems Created by the Sputnik*, 4 MCGILL L.J. 66, 69 (1957-58); Pépin, *Space Penetration: Recent Technological Developments: Political and Legal Implications for the International Community*, PROCEEDINGS OF THE AMERICAN SOCIETY OF INTERNATIONAL LAW 227, 231 (1958).

[38] Quadri, *Prolegomeni al diritto internazionale Cosmico*, 13 DIRITTO INTERNAZIONALE 260, 287 (1959).

[39] Reintanz, *East Germany: Air Space and Outer Space*, 1961 SYMPOSIUM 1134, 1137-38.

[40] Roy, *Remarks on International Air Law*, PROCEEDINGS OF THE AMERICAN SOCIETY OF INTERNATIONAL LAW 94, 95, 96 (1956)

[41] Ryne, *The Legal Horizons of Space Use and Exploration*, quoted in 1961 SYMPOSIUM 836.

[42] Safavi, *The Problem of Applying Territorial Law in Outer Space*, FOURTH SPACE LAW COLLOQUIM 132 (1961).

[43] Schacter, *Legal Aspects of Space Travel*, quoted in 1961 SYMPOSIUM 878; Schacter, *Who Owns the Universe*, Collier's 71, Mar. 22, 1952; *see also*, Schacter, *Remarks on International Air Law*, PROCEEDINGS OF THE AMERICAN SOCIETY OF INTERNATIONAL LAW 105, 106 (1956).

[44] Schick, *Space Law and Space Politics*, 10 INT'L & COMP. L.Q. 681, 692, 695 (1961).

[45] SHAWCROSS & BEAUMONT, AIR LAW 722 (3d ed. 1966).

[46] Smirnoff, *The Analogy of Space Law with Air Law-A Latent Danger*, FIFTH SPACE LAW COLLOQUIM 31 (1962); Smirnoff, *The Impact of Space Law on the Classical Notion of Air Sovereignty*, SEVENTH SPACE LAW COLLOQUIM 827 (1964).

Sztucki[47]			-		+		-		+	
Taubenfeld[48]					+					
Tymms[49]	-							+		
Verplaetse[50]	+			+						
Vlasic[51]	-	-		-	+	-		+		
W. Heinrich[52]	-			+		-			+	
Wright[53]		+								
Zhukov[54]			-					-	+	
Zourek[55]						-				

Some revealing conclusions may be drawn from the above tabulation. First, the existence of a noticeable consensus among publicists that there is an urgent need for concluding an international agreement to solve the boundary problem can be discerned by the fact that this approach has met the least opposition among writers themselves. Second, the most fruitful development in what we may call the functional approach has, in fact, proceeded via a practical orientation. The proponents for this theory put less emphasis on the distance than on the nature of space activities. While there are not a small number of publicists arguing for this theory, there are only two writers arguing against this approach. It is not certain whether this trend will be responsible for the renunciation of the position that the demarcation line between the two domains, airspace and outer space, should be determined in terms of numerical height. Third, the effective control theory has met the strongest opposition. The number of writers opposing this approach is

---

[47] Sztucki, *Security of Nations and Cosmic Space*, 1961 SYMPOSIUM 1171-72, 1174, 1176-77; Sztucki, *On the So-called Upper Limit of National Sovereignty*, FIFTH SPACE LAW COLLOQUIM 9-11 (1962).

[48] JESSUP & TAUBENFELD, CONTROL FOR OUTER SPACE AND THE ANTARCTIC ANALOGY 215 (1959); Taubenfeld, *Implications of Space Activities*, PROCEEDINGS OF THE CONFERENCE ON SPACE SCIENCE AND SPACE LAW 20 (1964).

[49] Hildred & Tymms, *The Case Against National Sovereignty in Space*, 1961 SYMPOSIUM 269, 270.

[50] VERPLAETSE, INTERNATIONAL VERTICAL SPACE 143 (1960); Verplaetse, *Can Individual Nations Obtain Sovereignty over Celestial Bodies?*, FOURTH SPACE LAW COLLOQUIM 322 (1961); Verplaetse, *Relations Between Air Law and the Law of Outer Space*, 3 IL DIRITTO AEREO 362-63 (1964).

[51] MCDOUGAL-LASWELL-VLASIC, LAW AND PUBLIC ORDER IN SPACE 316 (1963).

[52] Welch Heinrich, *Air Law and Space*, 1961 SYMPOSIUM 283, 294; Welch Heinrich, *Problems of Establishing a Legal Boundary Between Air Space and Space*, FIRST SPACE LAW COLLOQUIM 28, 29 (1958).

[53] Wright, *Legal Aspects of the U-2 Accident*, 54 AM. J. INT'L. L. 836, 847 (1960).

[54] Zhukov, *Problems of Space Law at the Present Stage*, FIFTH SPACE LAW COLLOQUIM 101 (1962); Zhukov, *Basic Stages and Immediate Prospects of the Development of Outer Space Law*, SEVENTH SPACE LAW COLLOQUIM 23 (1964).

[55] Zourek, *What is the Legal Status of the Universe?*, 1961 SYMPOSIUM 1117.

the highest, indicating strong belief among publicists that "might is not justice." Finally, the most important conclusion is that none of the above-mentioned approaches has been accepted by an overwhelming number of writers. Some of them even change their views several times. For instance, in 1951, the late Professor Cooper observed that "the outer boundary of the state can not be further than the point where the earth's attraction will govern the movement of an object in space . . . ."[56] However, in 1956, he changed this gravitational pull theory into "zone theory" by suggesting that a state's exclusive and absolute sovereignty should be recognized in "territorial space," that a right of transit should be allowed for all flight instrumentalities in an area designated as a contiguous zone, and that all the space above this contiguous zone is free.[57] In 1958, he again changed his view from "zone theory" to "atmospheric theory" by maintaining that "the present territory of every state extends upward only to a point where gaseous air becomes so thin as to provide no aeronautical lift supporting flights of aircraft or balloons."[58] Meanwhile he also held the view that an international agreement must be concluded in order to determine the exact future status of outer space.[59]

State's positions on the subject are much more difficult to ascertain. The participants in this international law-making process are countries that, on a whole, share a rather high level of diversity in their views toward the question. This diversity of views seems to have accentuated, with increasing vigour, political conflicts and differences, allowing the countries involved to adopt a position in favour of their own interests, and according to considerations of military and ideological advantage rather than on the principles of scientific advancement and peaceful exploration of outer space.

The most successful example of this essentially pragmatic approach to international law-making in relation to the boundary question is the view held by the Chilean delegate, Mr. Pinochet, who maintained, in effect, that in theory sovereignty in space extends to the infinite.[60]

The limited progress made in the field of the boundary question in recent years is largely the consequence of the unwillingness of states to take a firm position toward the question. Some countries, including Austria, Brazil, Italy, the Netherlands, Peru and the United Kingdom, adopted atmospheric theory as the criterion to demarcate the boundary between the two domains. For example, Mr. Martino of Italy advocated that: "Sovereignty could be extended to that space in which aircraft could fly and balloons

---

[56] Cooper, *High Altitude Flight and National Sovereignty*, 1961 SYMPOSIUM 6

[57] Cooper, *Legal Problems of Upper Space*, 23 J. AIR L. & COM. 308, 314 (1956). *See also*, Cooper, *Contiguous Zone in Aerospace-Preventive and Protective Jurisdiction*, 7 JAG. L. REV. 15, 20-21 (Sept.-Oct. 1965).

[58] Cooper, *Flight-Space and the Satellites*, 7 INT'L & COMP. L.Q. 89 (1958). This view remained the same in 1960, *see* Cooper, *Fundamental Questions of Outer Space*, 1961 SYMPOSIUM 765.

[59] Cooper, *Fundamental Questions of Outer Space*, 1961 SYMPOSIUM 767

[60] U.N. DOC. A C.1 PV. 982 at 41 (Nov. 12, 1958)

rise."[61] In a similar vein, Mr. Evans of the United Kingdom also maintained that "it would be possible to fix some arbitrary level at the top of one of the atmosphere layers."[62]

The official policy of the United States toward the boundary question seems to follow a slow, step-by-step approach with "utmost flexibility and freedom of action with regard to future events."[63] In the early years of the space age, the United States government seemed to maintain that "under the Chicago Convention the sovereignty of the United States extends to 10,000 miles from the surface of the earth . . . ."[64] However, this notion of numerically extending a state's sovereignty upward later gave way to the concept that outer space begins at some point equal to, or more probably somewhere below, the point at which a satellite can be maintained in orbit.[65]

State's practice theory was accepted by the Peruvian delegate, Mr. Belaunde, as he announced: "The Soviet Union and the United States had launched artificial satellites to circle the earth without eliciting protests anywhere in the world. No state, therefore, seemed to have claimed sovereignty over outer space."[66] The main criticism of this position, which gave rise to painstaking debate in the early years of the United Nations' Committee on the Peaceful Uses of Outer Space, was led by Mr. Sandler of Sweden, who remarked that "the fact that no protests had been made in no way meant that general agreement on the altitude at which outer space began had been accepted."[67]

Cooper's zone theory seems to be accepted by the French delegate, Mr. Chayet, who expressed the view that "it might be possible to establish . . . an international zone between airspace and outer space, in which the exercise of exclusive sovereignty by the subjacent state could be limited."[68] However, this approach was regarded by the delegate from the Philippines as arbitrary.[69] The gravitational pull theory was rejected by the eminent

---

[61] U.N. Doc. A/C.1/SR.1211 at 253 (Dec. 5, 1961).

[62] U.N. Doc. A/AC.98/C.2/SR.1 at 5-6 (June 30 1959). For views expressed by Mr. Waldheim of Austria see U.N. Doc. A/C.1/SR.990 at 224 (Nov. 19 1958). *See also* views held by the Peruvian delegate in U.N. Doc. A/C.1/SR.983 at 201 (Nov. 13 1958); and U.N. Doc. A/C.1/SR.1211 at 253 (Dec. 5 1961). *See also* views expressed by Mr. Schurmann of the Netherlands in U.N. Doc. A/C.1/SR.987 at 211 (Nov. 17 1958); and Mr. Freitas Valle of Brazil in U.N. Doc. A/C.1/SR.986 at 201 (Nov. 17 1958).

[63] Loftus Becker, *United States Foreign Policy and the Development of Law for Outer Space*, J.A.G.J. 4 (Feb. 1959). It is to be noted, however, that the Canadian government was of the opinion that "early consideration must be given to establishing rules determining the limits of national sovereignty in space": Statement by Howard Green, Minister of External Affairs, in *Perspectives on World Problems*, 11 EXTERNAL AFFAIRS 299, 302 (1959).

[64] Loftus Becker, *Major Aspects of the Problem of Outer Space*, 1961 SYMPOSIUM 401.

[65] *See* speech delivered by Leonard Meeker, Stanford Symposium, August 17, 1967.

[66] U.N. Doc. A/C.1/SR.983 at 201 (Nov. 13 1958).

[67] U.N. Doc. A/C.1/SR.984 at 203 (Nov. 13 1958).

[68] U.N. Doc. A/AC.98/C.2/SR.3 at 5 (June 30 1959).

[69] U.N. Doc. A/C.1/SR.991 at 229 (Nov. 19 1958). *See also* the view expressed by the Peruvian delegate in U.N. Doc. A/C.1/SR. 983 at 201 (Nov. 13 1958).

Italian delegate, Mr. Ambrosini, as he correctly pointed out: "The gravitational pull between the earth and other planets had the grave shortcoming of including . . . a 'space' which was never fixed, but changed continuously owing to the effect of the earth's rotation and revolution."[70]

Furthermore, the effective control theory was rebutted by the Swedish delegate, Mr. Petren, who maintained that the boundary of a state's sovereignty could not be defined in terms of effective control.[71] The position that only by means of concluding an international agreement could the boundary question be settled was also shared by Argentina and Byelorussian S.S.R. "The matter," as observed by Mr. Ferreira, the delegate of Argentina, "could be settled only by means of an international agreement establishing agreed limits which were the same for all states and taking into account, *inter alia*, of the factor of national security."[72]

One response to these dilemmas, as outlined above, is to argue that the present regime of space law contains a number of different teachings and practices with respect to the boundary question rather than a universal institutional prescription that demarcates the ceiling of state's air sovereignty. It should also be noted that the United Nations has made a less significant contribution to this question than to other problems posed by states' activities in outer space.

Publicists' postulates generate serious problems of their own. Conceptually, there is the problem of failing to identify the reality of the space age with the result that the contents of their postulates are not within the framework of the existing world public order. The intimate connection between the exigencies of national security, and the threat posed to the security of each nation by the epoch-making scientific and technological advances of the space age, should not be cast aside in any serious attempt to formulate a workable boundary between airspace and outer space. Failure to recognize the reality of the space age raises an important substantive problem, since the old notion that national boundaries can adequately protect a state from military, political and economic dangers cannot be upheld any longer in an era that defies not only an imaginary numerical ceiling in the upper regions of the air wherever it may be drawn, but also the element of time.

Furthermore, because of the lack of adequate instruments for the observation of potentially hostile satellites orbiting at a very high altitude, and at extremely high speeds, it is extremely difficult, even to the two most technically advanced states at the present time, to identify, with any clarity, the presence, position and nationality of a space intruder. In fact it can be argued that no state will be indifferent to certain space activities merely

---

[70] U.N. Doc. A C.1 SR.982 at 196 (Nov. 12 1958). This view was also shared by the Peruvian delegate, *see* U.N. Doc. A C.1 SR.983 at 201 (Nov. 13 1958).

[71] U.N. Doc. A AC.981 C.2 SR.2 at 8 (June 30 1959).

[72] U.N. Doc. A C.1 SR.1211 at 251 (Dec. 5 1961). *See also* views expressed by B.S.S.R. delegate in U.N. Doc. A C.1 SR 1297 at 252 (Dec. 10 1962).

because they are taking place in the proximity of one or two kilometers above any proposed boundary. It is quite clear that the well-being of an aggrieved state, indeed its very survival, may depend upon the few minutes available between detection and the possibility of partial protection and retaliation.

III. Conclusion

For all the foregoing reasons, the raison d'être of establishing a demarcation line between airspace and outer space is not likely to follow a well-planned course of law-making process, but rather to proceed along a variety of different routes, often on an ad hoc basis. Again, it is not likely, in the immediate future, to have a universal international agreement regulating the boundary question. Rather we will have a legal regime with no adequate rules of law governing the question. In the last analysis, the quest for absolute guarantee of security has played, and will always play, the most decisive role in any attempt at moulding a demarcation line between the two domains.