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UNIVERSITY OF MISSISSIPPI SCHOOL OF LAW
A JOURNAL DEVOTED TO SPACE LAW AND THE LEGAL PROBLEMS ARISING OUT OF HUMAN ACTIVITIES IN OUTER SPACE.

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CONTENTS

FOREWORD

By Joanne Irene Gabrynowicz[*]

"The longer you can look back, the farther you can look forward."
--Winston Churchill[1]

This volume of the JOURNAL OF SPACE LAW is truly unique. It celebrates the 50th anniversary of the publication of one of the most important books in all of space law: *Space Law and Government* by the late Andrew G. Haley. Appleton, Century, and Crofts published it in 1963. Along with *The Law and Public Order of Outer Space,* by McDougal, Laswell, and Vlasic published that same year, it is one of the two seminal texts on space law.

In 1963, the world had already experienced *Sputnik I* and its leaders were grappling with how to respond to the threats *Sputnik I* represented. In the few short years since the end of World War II and the atomic bombings of Hiroshima and Nagasaki, *Sputnik I*—and the launch vehicle that successfully carried it into space—represented the ability to place nuclear weapons into space and have them rain down on Earth. In short, *Sputnik I* represented an unprecedented potential conflict of global proportions that could result in the destruction of Earth and everything on it. When it comes to conflict humans ultimately have two—and only two—ways of addressing it: by reaching an agreement or fighting about it. Even the strategically diplomatic device of agreeing to disagree, while facilitating the ability to get past a difficult situation, as a practical matter, serves to place the only two real options further into the future. Hopefully, by agreeing to disagree, time will reveal how to re-

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[1] CHURCHILL BY HIMSELF 577 (Richard Langworth, 2008).

solve the problem or render it moot. Nonetheless, the underlying conflict continues to lie dormant. At the level of nations the options of addressing conflict by agreement or fighting are law or war.

In this light, *Space Law and Government* can be seen as one of the first attempts to define what would be needed to move humankind away from potential war and toward a legal regime that would address the threats that *Sputnik I* and its launch vehicle represented. This issue of the JOURNAL OF SPACE LAW revisits some of Haley's ideas and examines, with the benefit of a half-century of hindsight, how they have fared over 5 decades. This examination is done by some of the people who knew Haley best.

In his article, *Reflections on Space Law and Government* William J. Potts, Jr. recalls his former law partner, his life and times and the events that catalyzed Haley's movement into what would later be known as space law. In his article, *Space Law and Government 50 Years Later*, Dr. Stephen E. Doyle takes a macro view of the original book. No one is better qualified to do so as Dr. Doyle supported Haley in Haley's space related activities and writing. Dr. Doyle was employed by Haley as a summer law clerk at Haley, Bader and Potts from June to August in the years 1962, 1963, and 1964. Dr. Doyle also served as an associate attorney in the firm to support Haley in space related matters from July to December 1965.

Present day experts also examine some of Haley's early substantive positions. In *A Natural System of Law? Andrew Haley and the International Legal Regulation of Outer Space*, Dr. Steven Freeland considers Haley's well-known position that space law, being new to the human experience, would have to be based on natural law theory. He concludes that although the natural law system Haley wished for did not come into being, modern space lawyers are well advised to "heed Haley's strong convictions that fundamental sentiments of 'humanity'…should underpin the legal regulation of outer space…to avoid the possibility of… alternate scenarios… that may be too frightening to contemplate."

Today, space lawyers are striving to address the legal issues of what is now called "orbital debris" but what Haley pre-

sciently identified as "space trash." In his article, *"Space Trash": Lessons Learned (and Ignored) from Space Law and* Government, James E. Dunstan traces Haley's reasoning in dealing with "space trash" and opines that following this reasoning customary international law could evolve under a variety of possible scenarios.

James D. Rendleman addresses a major issue well known to Haley: military space. As a lawyer advising the military in the earliest days of developing space technology to be acquired and used by the military in space, Haley experienced a very different military than the one that uses space today. Today's military is vastly more complex and operates in a complicated world with multiple existing and rising spacefaring nations. In his article, *Brave New World of Hosted Payloads*, Mr. Rendleman describes the ever-growing demands from today's military for space-based information that is requiring re-thinking the acquisition process as well as the technology it governs.

Another substantive topic for which Haley is known is the field of metalaw. Another lawyer known for his work in the metalaw field, George S. Robinson takes a look at Haley's approach to metalaw. He observes that metalaw is derived from natural law theory, particularly what Haley called the "Interstellar Golden Rule'. Dr. Robinson traces the development of these concepts and suggests they are not necessarily rooted in natural law theory and proposes that as reliable empirical data become available a more secular understanding of metalaw emerges.

The inspiration for Ryan T. Noble's article, *Archived Documents as Evidence and Legal Authority: Lessons Learned Applicable to the Law of Outer Space* came from his work with the Halley Collection housed in the space law archive at the National Center for Remote Sensing, Air and Space Law at the University of Mississippi School of Law. During that time Mr. Noble had the opportunity to work with many primary sources that were created in the very early stages of space law development. In addition to being documents with historical value, Mr. Noble recognized the authoritative and evidentiary value of the documents. His article traces the use of similar kinds of docu-

ments in other fields of law and extrapolates how this use can be possible for space law.

In aggregate, the Churchill quote at the top of this foreword truly does describe the articles published in this issue. They look back at what was to determine what might be.

EDITORIAL ANNOUNCEMENT

So looking forward, this is the best time and place for me to inform the readership of the JOURNAL OF SPACE LAW that with volume 39, number 2, I will assume the title of Editor-in-Chief Emerita. It has been an honor to follow in the role so capably created by the late Stephen Gorove. In the 12 plus years that I have had the privilege to follow in his footsteps, the JOURNAL OF SPACE LAW achieved a number of successes. In addition to numerous articles, book reviews, and commentaries published by eminent authors, the JOURNAL OF SPACE LAW featured a number of special volumes that published the papers of a number of special symposia and colloquia: *The 1st International Conference on the State of Remote Sensing Law*; *The 2nd International Conference on the State of Remote Sensing Law*; and, *Divergences and Convergences - Space Law and Intellectual Property Regimes*; among others.

I have a number of personal favorite issues. Among them is Volume 37, Number 1. It is dedicated to the historic enactment of Title 51 of the United States Code: *National and Commercial Space Programs*. Title 51 is the positive law codification of all U.S. national space law promulgated since 1958 and it was the first title the U.S. Congress added to the U.S. Code in 83 years. It was the intention of the JOURNAL OF SPACE LAW to serve the space law community by making this dedicated issue a complete reference work for Title 51. For this reason, the JOURNAL OF SPACE LAW, for the first time, made an entire electronic volume available at the time of its publication at no cost. The Stanford law librarian called Volume 37, Number 1 a "gem."[2]

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[2] Law Library Blog, *Title 51* (July 6, 2011), http://liblog.law.stanford.edu/tag/journal-of-space-law/.

Additionally, the JOURNAL OF SPACE LAW—through collaborations with scholars in various nations—published translations of then newly enacted Chinese, French, German, Japanese, Kazakh, Mexican, and Russian space law, regulations, and agreements. The JOURNAL OF SPACE LAW also facilitated space law capacity building worldwide when it entered the digital era by making its issues available on-line, without charge. It also provided a Cumulative Index and supplemental materials that supported the articles in each issue.

This impressive work product was created by the dedicated and talented faculty and staff of the National Center for Remote Sensing, Air and Space Law. They were aided by a multitude of law students who edited, wrote articles and casenotes, and provided research assistance. There are far too many names from more than 12 years of mastheads to list here. However, I warmly thank and acknowledge each and every one of them for their contribution. It's been a great ride.

Joanne Irene Gabrynowicz

Oxford, MS, USA

12 September 2013

CALL FOR PAPERS

JOURNAL OF SPACE LAW
UNIVERSITY OF MISSISSIPPI SCHOOL OF LAW

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The National Center for Remote Sensing, Air, and Space Law of the University of Mississippi School of Law is delighted to announce that it will publish Volume 40, Issue 1 of the JOURNAL OF SPACE LAW in the first half of 2014.

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To be considered for the next issue, submissions should be received on or before February 1, 2014. However, the JOURNAL OF SPACE LAW will continue to accept and review submissions on an on-going basis.

SPACE LAW AND GOVERNMENT 50 YEARS LATER

Stephen E. Doyle[*]

INTRODUCTION

Andrew G. Haley wrote *Space Law and Government*[1] in multiple pieces over time, pieces which were collected in 1961, consolidated, edited, and annotated in the summer of 1962, and published as a book in 1963. The work was heralded at the time as a significant contribution to the development of space law. Today we have the opportunity to assess the significance of the work from the perspective of 50 years later in time. This chapter-by-chapter assessment of Haley's work identifies its visions, its unrealized expectations, and its lacunae.

In a Foreword to the work, then U. S. Vice President, Lyndon Johnson, wrote "I note that a major portion of *Space Law and Government* is devoted to discussing international cooperation in space exploration on official and non-governmental levels. This is indeed useful." This insightful observation characterized not only the book created by Haley, but the man himself. In all his activities in the astronautical realm Haley was assuredly a citizen of the world and an ardent supporter of international cooperation in astronautics.[2]

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[*] The author was employed by Andrew Haley as a summer law clerk at Haley, Bader and Potts June to August 1962, 1963, and 1964, where he supported Haley in his space related activities and writing. The author also served as an associate attorney in the firm, to support Haley in space related matters from July to December 1965. He joined the Federal Communications Commission in December 1965. Currently, the author is an Honorary Director of the International Institute of Space Law; a retired attorney at law, civil servant, industrialist, author and lecturer. www.stephenedoyle.com.

[1] ANDREW G. HALEY, SPACE LAW AND GOVERNMENT (New York: Appleton-Century-Crofts, 1963).

[2] Biographical information about Andrew G. Haley may be found at SHIRLEY THOMAS, 7 MEN OF SPACE,139 (Chilton Books, Philadelphia, 1965); *Our Respects to Andrew Gallagher Haley*, BROADCASTING (Nov. 11, 1957); Stephen E. Doyle, *Astronautics Loses an Original: Andrew G. Haley*, ASTRONAUTICS AND AERONAUTICS, 60-65 (Nov. 1966); and Stephen E. Doyle, *Andrew Gallagher Haley: A Biographical Sketch (1904-1996)*, *in* THE EAGLE HAS RETURNED, THE SECOND PART, PROCEEDINGS OF THE

Haley was a diligent researcher and exceptional writer during his early professional life. A review of his early writings (in the 1930s and early 40s) about radio communication law, immigration law, the law concerning broadcast lotteries, and international agreements relating to broadcasting,[3] clearly show extensive research and broad and creative approaches to the topics of his choice. After his tour of duty as the President and General Manager of the Aerojet Engineering Company in California (1942-1945), Haley returned to Washington, D.C. and re-entered the practice of law. As his practice and law firm grew, he was able to call upon those who worked for him and with him to assist in his writing.

Initially infrequently, but more often as time went on, Haley would invite an associate to look into a topic area, discover and record the prevailing views in existing literature, and produce that material in a draft form which Haley could use as the basis of a paper or an article for a publication. In this way, the time-consuming brute work of research, and recording what was in the literature, could then be supplemented with a modicum of effort presenting Haley's personal views, assessments and proposals on the selected topic. If one examines Haley's later papers carefully, one can almost see the transition from the labors of his associates, providing essential background for a piece, to the presentation of Haley's own views on the subject. His nephew and an associate in the firm, Michael Bader, and another associate, William Potts, often prepared the researched content of later published articles, but invariably one finds the concluding and substantive Haley contributions to the work. This same process was employed in the assembly, comprehensive editing and footnoting, and eventual publication of *Space Law and Government.*[4]

DEDICATION CONFERENCE OF THE INTERNATIONAL SPACE HALL OF FAME (Alamogordo, New Mexico, Oct. 1976); 45 SCIENCE AND TECHNOLOGY SERIES (American Astronautical Society, 1977).

[3] For a comprehensive bibliography of all Haley's publications prior to 1962, see SPACE LAW AND GOVERNMENT, *supra* note 1, at 528-539.

[4] SPACE LAW AND GOVERNMENT, *supra* note 1, at xvi-xvii, Preface (for Haley's description of the genesis and creation of his book).

THE PROMISE AND CHALLENGE OF SPACE

The opening chapter of the book is devoted to "The Promise and Challenge of Space Endeavor." In the preamble to Chapter 1 Haley wrote: "The underlying principles of all man's activities in space should be (a) all benefits derived are on behalf of all mankind, and (b) the free use of outer space is assured to every nation for all peaceful and scientific purposes." These two fundamental principles, as perceived by Haley and contemporaries, were later incorporated explicitly in Article 1 of the Outer Space Treaty of 1967.[5] Haley began with a recitation of benefits to be derived from space activities including new jobs, new categories of work, new consumer goods, increased educational programs and facilities, and a host of economic values. He derived these observations from other published sources, but he considered them inadequate as a list of total benefits because in 1963 "the greatest benefits to come from space activities, however, are probably still unseen and unpredictable." After reciting examples to support this observation, Haley wrote:

> It thus appears safe to predict that space activities will make far-reaching practical contributions to the welfare of mankind. But space flight is a long-term process which will unfold over many generations, and it would not be realistic for us today to try to predict its ultimate impact in any detail.[6]

Declining to be drawn into detailed predictions was wise and sensible, considering the broad scientific and practical benefits, most of which subsequently appeared during the three decades following the appearance of Haley's book. The significant area of national defense, and later military space programs are infrequently referred to and not pursued in any detail throughout

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[5] "The exploration and use 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 all mankind. Outer space . . . shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law ." Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, art. 1, opened for signature Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

[6] SPACE LAW AND GOVERNMENT, *supra* note 1, at 3.

Haley's work. His interest and focus were on the potential benefits of civil governmental and commercial space programs. He steered clear of discussing and projecting the defense program areas, likely because he knew that almost all such activities in 1963 were classified for reasons of national security and could not be elaborated in a civilian text on astronautics.

In a subtle differentiation, Haley sought to separate, characterize, and contrast the early contributions of the Soviet Union to spaceflight and the U.S. contributions. He noted that prestige is obtained in two aspects from such activities: the prestige of "first-time achievement" and the separate prestige associated with the intrinsic value of contributions made "by a particular space accomplishment." Haley observed that: "[p]utting the first satellite into orbit was a spectacular achievement; giving the world an operative meteorological or communications satellite system may in the long run be the more rewarded contribution in terms of prestige."[7]

Haley immediately followed his discussion of the benefits of space flight operations with comments manifesting his driving international motivations, as noted above by Lyndon Johnson:

> A less talked-about but nonetheless real political benefit of space flight is the fact that it encourages closer ties among nations. Some specific examples of cooperation in space research and related pursuits will be cited in later chapters of this volume. However space does more than provide new opportunities for international cooperation. More fundamentally, perhaps, it cannot help but make more apparent than ever the impracticality of war.[8]

Substantial argument is presented at this point to emphasize the important potential international influence of space flight. Haley was an internationalist, an opponent of war, and a crusader for world peace and increased understanding. He referred to and quoted others who held similar opinions, and quoted the following observation by Arthur C. Clarke, whom Haley de-

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[7] *Id.* at 7.
[8] *Id.*

scribed as a science writer and originator of the communication satellite concept:

> We all know the narrow, limited type of mind which is interested in nothing beyond its town or village, and bases its judgments on these parochial standards. We are slowly – perhaps too slowly – evolving from that mentality toward a world outlook. Few things will do more to accelerate that evolution than the conquest of space. It is not easy to see how the more extreme forms of nationalism can long survive when men begin to see the earth in its true perspective as a single small globe among the stars.[9]

Haley optimistically believed space flight would stress the fundamentally unifying characteristics of humans over local customs, history and the place in which they were born. It is an unfortunate reality, 50 years later in time, to find that religious, racial, and political parochialism and intolerance are still rampant in world society. Humans have not yet collectively perceived the futility of war, or the destructive nature of hate and ridicule. There are still leaders among us who promote division; they teach intolerance even to the extent of promoting racial annihilation. We have individuals who wish to destroy nations and peoples against whom they hold a basic difference, whether in religious belief, political preference or racial origin. The concepts of tolerance, right reason, and rule of law mean nothing to the rulers who lead their nations or factions in continuing aggression and feckless destruction of life and property by terrorism. Andrew Haley's optimism is increasingly difficult to maintain in a world consuming itself with hatred, envy, and conflict.

Haley did not assume unrealistic goals for his work. He wrote of his book that "[t]he present work will attempt … to outline some of the needs of law for the space age, and to present some of the thinking of those who have considered the problem to date." First among the arguments propounded by Haley was his assertion that if order were to prevail, international agreements establishing peaceful regulation were an immediate es-

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[9] *Id*. at 8, *quoted from* A. C. CLARKE, THE CHALLENGE OF THE SPACESHIP 7-8 (Harper & Row, New York, 1959).

sential. Included as an Appendix to Haley's book was the most significant effort to that time to establish order in the pursuit of space flight activities, UN General Assembly Resolution 1721 (XVI), which had been unanimously adopted on 20 December 1961. This instrument was the substantive precursor to the *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, which entered into force on 10 October 1967, one year after Haley's death.

THE PROBLEM OF SPACE DEBRIS

In 1963 Haley was already concerned about the accelerating number of objects being placed in space and the attendant problem of eventually increasing the presence of space debris in Earth orbit. He concluded his brief assessment with the statement that:

> Ideally, … no objects should be allowed to go into outer space without a code of law requiring that they be controllable; they should be earth-returnable, or capable of being projected into orbits around the sun or into some other area where they could not be injurious to life, property, and near-terrestrial navigation.[10]

It is the case that it took almost 50 years for the United Nations to take any definitive action concerning the management of space debris. The UN General Assembly in 2008 adopted resolution 62/217, endorsing the Space Debris Mitigation Guidelines developed by the UN Committee on the Peaceful Uses of Outer Space. These voluntary guidelines outline space debris mitigation measures for the planning, design, manufacture, and operational phases of spacecraft and launch vehicles. The guidelines call for limiting the long-term presence of spacecraft in low-Earth orbit (LEO), up to some 1,600 kilometers (1,000 miles) above Earth's surface, after the end of their mission. The guidelines also call for the removal of such spacecraft from orbit or for their disposal in other orbits that avoid their long-term presence

[10] *Id.* at 11.

in the LEO region, where the majority of satellites are placed and where they are in greatest danger of collision. Haley had suggested that these measures be implemented decades earlier.

The balance of the opening chapter contains an impressive, broad and inclusive summary of statements by national leaders, legal scholars, pundits, and others to the affect that cooperation on establishment of legal principles relating to activities in space will be easier if accomplished sooner, but increasingly more difficult as time passes and national programs and activities expand and increase. Haley urged early action to address the need for a rule of law in space and quoted many authorities of a similar mind.[11]

Missing from Haley's recitation of benefits of space, which are clearly visible to us today, are any discussions of the use of satellites for direct broadcasting to individual homes and receivers, use of satellites for Earth resources sensing, today called remote sensing, and the global value of operational navigation satellite systems. Haley also could not see the eventual growth of commercial competition in the rendering of launch vehicle services by multiple nations, as well as the broad international competition existing today in the design and building of specialized satellites and satellite systems. Whether intentional or not, Haley also failed to project the uses of outer space for national defense purposes such as early warning systems, treaty verification systems and coastal monitoring.

THE BASES OF INTERNATIONAL LAW

In Chapter 2 of the book, Haley turned his attention to "The Traditional Bases of International Law." Drawing upon his early studies as a law student with James Brown Scott in the 1920s, Haley argued in favor of considering Natural Law as an essential basis for space law, contrasting it with the positivist approach of Yale law professor Myres McDougal and others. The second chapter is in effect an exercise in jurisprudential preference assessment. Although interesting to read and to contemplate, the philosophical discussion presents neither specific

[11] *Id.* at 11-21.

substance nor form to satisfy the needs for space law declared in the first chapter of the book.

The discussion moves from contrasting approaches to law, to a real-world discussion of "The process of formulation of law." In this portion of the work[12] Haley more meaningfully addressed how the law was emerging among nations in the international community in 1963, and turned attention to the significance of "traditional practices," and the use of traditional practices as bases of decisions resolving conflicts among nations. Haley noted that one immediately significant aspect of the importance of traditional practices was the emergence of the implied consent of States to the over flight of their national territories, then well in place as a consequence of lacking objection by any State to the over flight of its territory by the more than 100 satellites launched into Earth orbit by 1963. So important was this topic in Haley's mind that he devoted the entire third chapter of his book to the topic "National Consent to Overflight."

THE UPPER LIMIT OF SOVEREIGNTY

From the earliest days of commentary on space law, pundits and commentators have consistently identified the question of the upper limit of national territorial airspace as a "critical question." It is unarguably the case that all nations have absolute sovereignty over the airspace above their national territories. Numerous national laws and international treaties have enshrined this principle since the end of World War I and the 1919 *Treaty of Versailles*. Possibly the most broadly subscribed document containing this principle today is the *Chicago Convention of 1944*, which provides in Article 1 that: "[t]he contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory." In contrast, the unanimously adopted United Nations Resolution 1721 (XVI), dated 20 December 1961, provided in part that "Outer Space and celestial bodies are free for exploration and use by all States in conformity with international law and are not subject to national appropriation."

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[12] *Id.* at 37-38.

Thus, there must be a point at which the absolute sovereignty of States over national airspace gives way to outer space, which is free for exploration and use by all, and over which there should be no exercise of national appropriation. John Cobb Cooper, the first to write about space law in the United States in the late 1940s, featured this issue in his early works as the most critical and essential issue of space law to be resolved. Much of the consequent early commentary on space law in English keyed off Cooper's concern and extensively addressed alternative solutions to this problem. Suffice it to say that today, in 2013, the issue remains yet to be officially resolved by agreement among States, probably eventually in a United Nations Resolution at a date to be determined. My presumption is that the upper limit of national sovereignty over airspace will be set eventually by international agreement at 100 km.

Haley was among those to whom the "upper limit" question was one of importance and deserving attention for its early resolution. Haley's response to the issue was to seek a scientifically verifiable demarcation that would be objectively demonstrable. Haley favored reliance on a demarcation he referred to as the von Kármán primary jurisdictional line. This line, suggested by world renowned aerodynamicist Theodore von Kármán, would define airspace as existing up to the altitude at which an aircraft, depending upon aerodynamic lift to sustain flight, could maintain altitude; but above this altitude the centrifugal force of a flying object would take over as the principle motive force supporting its maintenance of flight status. Von Kármán stipulated that this altitude would be in the range of 275,000 feet above the Earth's surface, or an altitude of about 52 miles. The fourth chapter of the Haley book contains more than 40 pages offering an elaborate historical consideration of the many alternative solutions proposed to the "upper limit" issue, and concludes with an assessment that the Von Kármán jurisdictional line is the preferred solution to the problem. This conclusion was stated explicitly in the preamble to Chapter 4, where Haley wrote:

> It is shown that one proposed solution, the "von Kármán line," should serve as the terminal point for civil and criminal venue, and in general for exercise of national sovereignty, because the

> scientific and jurisprudential considerations determining the line are entirely realistic, identifiable, and sufficient.[13]

SOVEREIGNTY OVER CELESTIAL BODIES

Having dealt exhaustively and conclusively with the historical literature describing the issue of the limits of national sovereignty, Haley took up in chapter 5 of his book the matter of "Sovereignty over Celestial Bodies." In the latter 1950s an international conference was convened to establish an agreed basis under which exploration and peaceful uses of Antarctica could go forward, despite the pendency of historical claims over all or portions of the Antarctic continent by a dozen different countries. The result of that international deliberation was establishment of the *Antarctic Treaty of 1959*. Phillip C. Jessup and Howard Taubenfeld produced an interpretive book on the value of the Antarctic Treaty as a model for an appropriate legal regime for outer space. Their 1959 book was titled *Controls for Outer Space and the Antarctic Analogy*. David F. Maxwell, Chairman of the American Bar Association's Committee on the Law of Outer Space, assessed the values of the Antarctic Treaty as a precedent for space law in these terms:

> The treaty itself fulfills the highest hopes of mankind. Forged on the anvil of long and tedious negotiation, it epitomizes the ultimate in diplomatic achievement. Its terms embody all the guideposts necessary to ensure the exploration of Antarctica for the benefit of all mankind – limiting specifically its use for peaceful purposes, prohibiting any measure of a military nature, establishing freedom of scientific investigation, facilitating the exchange of information among participating countries, and providing for an inspection system to ensure compliance.[14]

Haley was unable to camouflage his opinion. In an immediate following declaration of his views, Haley wrote emphatically:

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[13] *Id. at* 75.

[14] David F. Maxwell, *Outer Space – The Key to World Peace Under Law*, FOURTH COLLOQUIUM ON THE LAW OF OUTER SPACE 15, 22 (University of Oklahoma Research Institute, Norman Oklahoma, 1963).

> Seen in proper perspective, this treaty, the supposed archetype for the problems of space law, is no more than the grandest internationally agreed upon "question-begging" that diplomacy has devised. To allay and minimize the problems that did, *and still do* [in 1963], exist in Antarctica, this treaty was drawn up. To ascribe to the treaty so high a place in the efforts of international diplomacy as Mr. Maxwell suggests would, in this author's opinion, encourage the taking of just such temporary and stop-gap measures in the area of our immediate space problems – prime among which is the problem of national sovereignty.

Despite the fact that Haley repeatedly wrote of outer space as preferably enjoying the status of free and equal use by all, *res communis*, as practiced on the high seas, he seems preoccupied here by an apparent conviction of the absolute need for some form of control of territory on celestial bodies. As matters developed, the Antarctic analogy was largely reflected in the Outer *Space Treaty of 1967*, and in the subsequent operation of that treaty. What appeared doable to some was apparently far preferable in 1967 to trying to resolve at the outset the long-term issue of how property ownership would be established in space.

All are free to use the high seas. All are welcome and able to take from the seas marine life, which, when it is secured, is considered owned by the extractor. Similarly, it appears to this author that materials reduced to use in space should be considered owned by the extractor who has expended the cost and exerted the energy to accomplish the extraction. The user gains no title to territory, nor any right to exclude others from similar pursuit on the basis of equality.

Haley's apparent desire was to find a way to administer property ownership in space, but his health denied him the opportunity to work that problem, because he died just three years after publishing the book, and one year before the *Outer Space Treaty of 1967* entered into force. It is unfortunate that as we consider how far we have not come since 1963, we can see how disappointed Haley would have been, had he lived. He wrote that "[a]dvancement in technology could well be the necessity

that will mother the invention of a one-world mentality."[15] It was a pious and worthy hope, but humankind may be further from its realization today than we were in 1963!

SPACE VEHICLE REGULATION

Chapter 6 of Haley's book[16] is devoted to "Space Vehicle Regulation." Therein are presented administrative issues and the need for administrative regulations and laws. Haley pointed out and discussed eventual needs for national and international registration of spacecraft, licensing of departing spacecraft, preflight inspections, regulation of dangerous instrumentalities, all of which point to the need for an international administrative body, of which Haley described the desired nature and composition. He also discussed the need for a mechanism to deal with judicial inquiry and settlement of disputes. After briefly exploring subjects including the roles of UN specialized agencies, police power and the problem of enforcement, dealing with trespass and nuisance in outer space, liability, the statute of limitations, and allowance of egress to space, the chapter concluded with a few pages summarily treating military uses of outer space.[17] The problems of what constitute "peaceful uses," the undeniable right of a nation's self defense, and the need to limit military uses of space were discussed, but no immediate solutions were identified. Haley concluded:

> military considerations cannot be completely ignored, and nations must evaluate carefully the positions they wish to take and the extent to which military policy is to be dovetailed with technological and scientific long range planning.[18]

One may speculate that Haley would have been pleased to see the particular proscriptions of certain classes of military activities expressly forbidden in space by the language of Article IV of *the Outer Space Treaty of 1967*.[19]

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[15] SPACE LAW AND GOVERNMENT, *supra* note 1, at 134.
[16] *Id.* at 136-158.
[17] *Id.* at 154-158.
[18] *Id*. at 158.
[19] Outer Space Treaty, *supra* note 5, at art. IV provides:

SPACE COMMUNICATIONS

Chapter 7 of the book addresses "Space Communications." It begins with basic technical information describing the elements of a radio system and the nature of the radio magnetic spectrum. Haley then included a substantial section describing the various uses of space communication technologies and the attendant need for international cooperation to obtain and maintain order in the use of the radio magnetic spectrum. Haley traced the history of the efforts, in many of which he was directly involved, to accomplish internationally agreed allocations for space communications. The chapter then explored trends and requirements of future developments in space communications and the enabling technologies emerging. Haley described the recently adopted *Communications Satellite Act of 1962* and explained its rationale and limitations. What emerges from a reading of this chapter is a clear awareness that Haley, by experience and interest, had gained more information about the interactions and interdependence of space law and satellite communications than any comparable topic or area addressed by this book. Haley knew more about the communications issues and the communication laws than he ever did about any other area of demanding, immediate problems emerging in the space field. The more than 70 pages of Chapter 7 constitute a remarkably thorough primer on the technology of space radio as well as a broad and detailed presentation of the existing and the needed provisions of national and international laws to permit

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States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.

The Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military maneuvers on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall also not be prohibited.

orderly progress to occur. Discussion in Chapter 7 eventually focuses on the legal aspects of communications by satellite. This is a topic area to which Haley had apportioned a great deal of his professional time and energy. From early in the 1950s Haley was urging the U. S. and other governments to pay attention to the absolute need, in fact the *enabling need* for clear, internationally agreed radio frequency allocations to permit interference free space flight and activities in outer space.

In his early insistence on the need to establish international agreement relating to radio usage, Haley was absolutely correct. He was instrumental during his lifetime in proposing and obtaining international agreement to numerous space-related radio allocations and regulations. Haley wrote extensively about these matters. In early 1966, shortly before his death, he personally compiled many of his relevant articles and papers concerning satellite communications, and produced them as a self-published book, entitled *Satellite Communications*. As the senior partner of the law firm Haley, Bader and Potts, Haley would from time to time employ law clerks in the firm to assemble and prepare materials for publication. His book on satellite communications, containing descriptions of all his earlier work on satellite communication matters, was a limited publication with hard covers binding duplicated papers and article reprints expediently assembled in an Acco fastener binding. The book is an impressive and comprehensive collection on which publication processing time ran out, because of his rapidly failing health. Andrew Haley died September 10, 1966, shortly after he released his final book, *Satellite Communications*.

LIABILITY FOR DAMAGES

Chapter 8 of *Space Law and Government* is devoted to issues of "Liability for Personal and Property Damages in Space Activities." In the author's Preface, Haley notes that he was assisted by Ibrahim Shihata of Harvard University, a specialist in liability issues, who prepared a draft describing liability and personal property issues existing in 1963 and anticipated for the future. This chapter of the book is undoubtedly the most thoroughly researched and documented legal discussion in the work.

In a book review of *Space Law and Government* I wrote in 1965,[20] I noted that this chapter was the only one in the book, which I believed then and still do believe, could stand on its own merit as a legal treatise of a relevant subject area of space law.

FORENSICS, JURISPRUDENCE AND CONTAMINATION

Haley then turned in Chapter 9 to "Space Medical Jurisprudence." The opening sentence of the preamble to the chapter reads: "[t]he development of forensic medicine in space has been a seriously neglected topic in space literature." It was Haley's intention with this chapter to heighten the sensitivity of not only space travelers, but that of the eventual authorities who will be required to deal with forensic medical issues in space in due course.

The chapter is largely reportorial, describing a good deal of fascinating history, looking back into the annals of medicine for millennia. A future need for forensic medicine in space is postulated, but there are no specific recommendations of action to accomplish necessary means to provide forensic space medicine. The chapter also discussed at some length the issues of contamination and back contamination and the attendant requirements of decontamination of artifacts to be sent to space, and the careful handling and quarantine required for artifacts or materials returned from space. In connection with control of contamination Haley offered eight recommended courses of action to obtain and insure sterilization of objects and seven supplementary actions, all intended to avoid contamination, including recommendations for dealing with newly discovered life forms. The chapter then described international actions up to 1963, including the establishment of the *ad hoc* Committee on Contamination by Extraterrestrial Exploration (CETEX) by the International Council of Scientific Unions (ICSU) in March 1958. Shortly thereafter, in 1959, ICSU established its standing Committee on Space Research (COSPAR), as an institution to follow-up and further develop the international cooperation in

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[20] Stephen E. Doyle, book review, *Space Law and Government. By Andrew G. Haley. New York: Appleton-Century-Crofts, 1963. Pp. xvii, 584*, 1965 DUKE L. J. 214, 217 (1965).

space related activities initiated during the 66-nation cooperative International Geophysical Year (IGY) of 1957-58. COSPAR assumed the jurisdiction of the contamination issues formerly assigned to CETEX. Haley's international focus is then brought to the questions of personal injury and criminal behavior in space. Observing the total lack of useful experience to deal with such issues, Haley concluded that: "[f]inally, with respect to the criminal aspects of space medical jurisprudence, in all probability new methods of detecting and proving criminal offenses involving human beings will have to emerge, through further scientific investigation and refinement of methods." One could fairly question today, in 2013, if we have come very much further than Haley was in 1963 in our understanding of or willingness to address the topic of space medical jurisprudence.

INTERGOVERNMENTAL ORGANIZATIONS

For several years during the 1950s Haley served on and as chairman of the International Astronautical Federation's (IAF) Committee on International Relations. He assumed a responsibility, diligently pursued, to bring the IAF into formal relationships with many of the existing international organizations with an interest in astronautical affairs. In identifying the organizations in the international community which he sought to work with, he also tells of his efforts to achieve cooperation. Chapter 10 contains a history and description of Haley's work to engage intergovernmental organizations with interests in astronautics into working relationships with the IAF. Within the United Nations Organization he described the General Assembly and the Economic and Social Council (ECOSOC), and went on to describe his efforts with the Educational, Scientific and Cultural Organization (UNESCO), the international Civil Aviation Organization (ICAO), the International Telecommunication Union (ITU), and the World Meteorological Organization (WMO). Haley concluded this section of the work addressing the United Nations Committee on the Peaceful Uses of Outer Space, including the initial *ad hoc* committee, as well as the creation and early growth of the permanent committee on outer space.

Other organizations are described and discussed briefly, including the International Council of Scientific Unions (ICSU) and its Committee on Space Research (COSPAR), and Haley concluded this tour of governmental organizations with discussion of the National Aeronautics and Space Administration, its associated National Aeronautics and Space Council, and the Congressional committees assigned oversight of astronautics in the U. S. House of Representatives and the Senate. There was still relatively little else to report of a governmental or intergovernmental nature, because the eventual emergence of the International Telecommunications Satellite Organization (INTELSAT); the International Maritime Satellite Organization (INMARSAT); and regional organizations such as the Arab Satellite Telecommunications Corporation (ARABSAT), the European Space Agency (ESA), and International Communications Satellite Organizations among the then Communist countries (INTERSPUTNIK) were yet to be formed as of 1963.

NONGOVERNMENTAL ORGANIZATIONS CONCERNED WITH ASTRONAUTICS

Chapter 11 takes up "Nongovernmental Organizations." This portion of the book expands on an earlier record of the involvement of Haley in the founding, promotion and development of international organizations and programs of cooperation in astronautics. In an earlier book, published in 1958,[21] Haley told not only of his international efforts to establish the International Astronautical Federation, but also his leadership roles in the American Rocket Society and other nongovernmental forums such as the American Bar Association. Haley's writings on astronautics from the outset in the 1950s placed heavy emphasis on the need for international attention to the needs of and international cooperation in realizing the benefits of astronautics. After he left the Aerojet Engineering Corporation in California and returned to law practice in Washington, D. C., Haley assumed continually increasing roles in the American Rocket So-

[21] ANDREW G. HALEY, ROCKETS AND SPACE EXPLORATION: THE INTERNATIONAL STORY (Van Nostrand, 1958).

ciety (ARS), serving during the 1950s sequentially as Vice President, President, as a Director, as General Counsel and as Chairman of the Board of the ARS. His senior positions in the ARS management structure facilitated his early involvement in the founding of the International Astronautical Federation (IAF). He also served in the 1950s as a Vice President, the President, and the General Counsel to the IAF. Among Haley's crowning achievements in the international field, he was instrumental in creating the International Academy of Astronautics in 1960 and in founding the International Institute of Space Law the same year.

Today, it cannot be denied that the benefits of astronautics are shared among the nations of the Earth through the efforts of multiple international organizations; organizations which Haley never named in particular, but organizations Haley projected as essential to bring the benefits of space endeavors to humanity. As significant example of relevant international organizations we can name the European Space Agency (ESA), the International Telecommunications Satellite Organization (INTELSAT), the International Maritime Satellite Organization (INMARSAT), the Arab Communication Satellite Corporation (ARABSAT), the European Telecommunication Satellite Organization (EUTELSAT), The European Meteorological Satellite Organization (EUMETSAT), and the *International Space Station* (ISS) consortium, among others.

There are in addition numerous regional cooperative ventures and bilateral cooperative programs, as well as a thriving international competitive market in the provision and sale of rocket launch services, purchased from among nations in an open competitive market. There are also internationally competitive services for imaging and remote sensing of the Earth, and for navigational services covering most of the Earth's surface. This extensive expanse of international cooperative activities are certainly not attributable to Andrew Haley, but without his vision and efforts in the 1950s it is likely that much of what we collectively enjoy from astronautics today could not have been so readily realizable in so short a period.

METALAW

Chapter 12 presents Haley's proposal of 'Metalaw,' subtitled "The Possibility of other World's with Intelligent Life." This subject has been extensively discussed by other authors in the intervening years since 1963, and another paper in the current number of this Journal is addressing the topic thoroughly.[22] Consequently we will not spend time or effort here, which would only duplicate the work of others.

A REFERENCE LIBRARY ON ASTRONAUTICS FROM 1963

Space Law and Government concluded with more than 110 pages of texts gathered in Appendices, which are well worth considering in their individual significance and importance to astronautics, as well as to Haley. The Appendices include:

I. International Conventions, Agreements, Resolutions and Proposals

A. The Antarctic Treaty of 1959.
B. Int'l. Telecommunication Union, Radio Regulations (Geneva, Dec, 1959)
C. Radio Frequency allocations proposed by the International Astronautical
D. Federation (1959)
E. Extracts of a Kennedy/Khrushchev letter Exchange (March 1962)
F. Joint Communique on US/Soviet Talks (June 1962)
G. Significant Recent United Nations Documents: eight are included.
H. Preliminary Views of the US for Frequency Allocations for Space Radio Communications (extracts)
I. Proposed Program for Preparation for the ITU 1963 Extraordinary Radio Advisory Conference (EARC, Geneva, 1963).
J. Was left blank.

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[22] George S. Robinson,*The Biochemical Foundations of Evolving Metalaw: Moving at a Glance to the Biological Basis of Sentient "Essence"*, 39(1) J. Space L. 181 (2013).

K. United States and International Action in the International Consultative Committee on Radio (CCIR) and International Telecommunication Union on Space Telecommunications.

II. United States Laws

A. National Aeronautics and Space Act of 1958, as amended.
B. Communications Satellite Act of 1962

III. International Organizations

A. Constitution and Member List of the International Astronautical Federation
B. Statutes and Structure of the International Academy of Astronautics
C. Statutes of the International Institute of Space Law
D. Charter of the Committee on Space Research of ICSU
E. CCIR Study Groups of the ITU

IV. Miscellaneous

A. Definitions of "Atmosphere" and "Air"
B. Abbreviations and Acronyms

V. Bibliography

A. Bibliographies of Space Legal Literature
B. Selected and Partial Bibliography of the works of the Author

SUMMARY AND CONCLUSION

In the author's Preface Haley gave credit to the editorial assistants he had working in his firm on the texts of chapters 1, 2, 3, 5, 10, and 11.[23] He also gave explicit recognition to his assistant in developing Chapter 8.[24] By implication, it is quite clear that Haley considered himself the lead author and editor of chapters 4, 6, 7, 9 and 12. Much of his original thinking and projections of problems and solutions are found in that latter list of chapters.

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[23] SPACE LAW AND GOVERNMENT, *supra* note 1, at xv.
[24] *Id.* at xvi.

Throughout *Space Law and Government* one finds that the lawyer Haley is also the industrialist Haley, the technician Haley, and the historian Haley. The title of the book does not reflect the extensive content of useful background of history and technology in each topic area. From our perspective of 50 years later in time, this 1963 book remains a valuable reference source, as well as a broad and reliable picture of the state of law and government related to outer space activities in 1963.

"SPACE TRASH": LESSONS LEARNED (AND IGNORED) FROM SPACE LAW AND GOVERNMENT

James E. Dunstan[*]

Then, too, the Soviet Union and the United States have already sent into outer space many vehicles which are not controllable. A collision in which two orbital bodies would hit and exfoliate, but continue in some irregular orbit for many more hundreds of years, would constitute a threat to life and property in outer space-and many similar threats are possible. Objects have been placed in orbit-both satellite vehicles and spent rocket stages-that could come back to earth at almost any place. Such objects might land on the Kremlin, on the Vatican, or on Buckingham Palace; as far as the dispersion factor is concerned, we still do not know enough. We do know that satellites do not come back as small particles or completely exfoliated, because they would burn up; but objects in space may come back as great chunks if they were large enough to start with and if they are not brought down in a controlled re-entry. Finding answers to these problems, naturally, is not easy. Ideally, however, no objects should be allowed to go into outer space without a code of law requiring that they be controllable; they should be earth-returnable, or capable of being projected into orbits around the sun or into

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[*] James E. Dunstan began his legal career in 1983, joining Andrew G. Haley's firm Haley, Bader & Potts upon graduation from the Georgetown University Law Center, where he was the first chairman of the Georgetown Space Law Group. Jim matured as a young lawyer steeped in stories of the exploits of "Uncle Andy" (since Andrew G. Haley was the uncle of Michael Haley Bader, then the senior partner at Haley Bader & Potts, along with Bill Potts, who writes separately in this edition of the *Journal of Space Law*). Jim became a partner at Haley Bader & Potts in 1988, and served at its Finance Partner for ten years until the members of Haley Bader & Potts joined Garvey Schubert Barer in 2000, where Jim served as head of the Telecommunication and Information Technology group for five years. Jim left Garvey in 2010 to found Mobius Legal Group, PLLC. Dunstan first wrote about Haley's *Space Law and Government* in 1987, in "*Space Law and Government: A Generation Later,*" Proceedings of the Eighth Princeton/Space Studies Institute Conference on Space Manufacturing (AIAA, 1987). The author wishes to thank Ryan T. Noble for assisting in the research and retrieval of key original source materials that went into this article.