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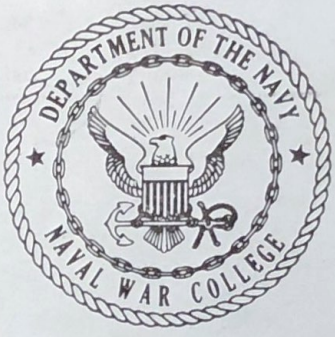

THE SPACE PROGRAM AS A FACTOR

IN PUBLIC DIPLOMACY

by

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THESIS

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The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signed John L. Jeff

Date 6 April 1970

6 April 1970

This thesis has been submitted to The George Washington University in partial satisfaction of the requirements for the degree of Master of Science in International Affairs.

Abstract of

THE SPACE PROGRAM AS A FACTOR

IN PUBLIC DIPLOMACY

The impact of the launch of Sputnik on 4 October 1957 was such that overnight the Soviet Union replaced the United States as the scientific and technological leader as reflected in world public opinion. Because of skillful exploitation of Soviet space successes through propaganda, much of the world appears to have believed that the USSR had assumed strategic leadership. The U.S. response to the challenge was not fully delineated until May of 1961 when President Kennedy stated the goal of the United States to land a man on the moon in the coming decade. Despite a record of more numerous and more scientifically productive space launches by the U.S. during the nineteen sixties, world opinion continued to accord the Soviets leadership in space, science and technology until just a few months before the landing of an American astronaut on the moon in July of 1969. This final success and the recapture of leadership in the eyes of the world was achieved by the combination of the ability of America to respond to a perceived challenge through marshalling its vast governmental, industrial and scientific resources with the openness with which the program was carried out. The United States must continue the scientific exploration of space if it is to retain its position of leadership.

PREFACE

Purpose. The purpose of this paper is to trace the impact of the Soviet and United States space programs on world opinion from the time of Sputnik until the successful landing on the moon of the American Apollo astronauts, and to draw conclusions about their validity as an index of the relative power positions of the two countries in world opinion. First, the impact of Sputnik and other early Soviet space successes and their exploitation by Soviet propaganda is addressed. Next, the early American response, leading up to the formulation in 1961 by President Kennedy of landing a man on the moon in the coming decade is treated. A discussion of the space programs of the two countries and their impact on world opinion follows. The final chapter draws conclusions about the decade of space competition between the adversaries, its impact on world opinion and implications for the future.

Sources. For the period 1957-1966 the most definitive source of foreign public opinion on which of the two nations was the leader in space as well as in science and technology is a series of opinion polls contracted by the U.S. Government. Early in the period Great Britain, as America's closest ally and a country sharing extensive social and political ties with the U.S., was selected as a barometer country, and regular surveys were made there. Periodic surveys were also made throughout Western Europe and occasional ones were made in other parts of the world. These, along with public statements of foreign officials

and world media comments are felt to provide a reliable index of foreign public opinion during this period. No surveys are available after 1966, and greater reliance on foreign news media analysis was necessary after that year. However, these sources, along with the writings of those observers listed in the Bibliography are felt to provide an adequate assessment of world opinion from 1966 to 1969.

The author wishes to acknowledge the valuable technical assistance of Mr. Walter A. Pennino of the National Aeronautics and Space Administration, and Mr. James Schein and Dr. Leo Crespi of the United States Information Agency. It is emphasized, however, that the views expressed herein are in no way attributable to either these gentlemen or their agencies, but are solely those of the author.

TABLE OF CONTENTS

THE SPACE PROGRAM AS A FACTOR IN PUBLIC DIPLOMACY

CHAPTER I

INTRODUCTION

On October 4, 1957 it was not just a Sputnik that left the earth and went into orbit; that is also the day that the Cold War went into space. Since that date, achievements in space have been the main criteria by which the world judges which of the great powers, the United States or the Soviet Union, is leading in their power struggle. Space triumphs have become the most visible index of a nations scientific and technological, and therefore military, prowess.

The world was by no means ready for the appearance of Sputnik. Since World War II, America's allies had rested confident that the United States was strong enough to protect them from the Russian colossus. In large measure this was based on the belief that the United States could build more and better weapons, and was far ahead of the Russians in science and technology, and therefore in all things military. The Third World nations also shared this confidence in the United States, regardless of their political position between the two giants. The appearance of Sputnik changed all this. Long-held beliefs were now to be reevaluated.

It will be the purpose of this paper to trace the effects of space achievements from Sputnik through the triumphal landing of the Americans on the moon on the relative power standings of the two protagonists in

the eyes of the world. Through an analysis of statistical opinion surveys and editorial comment, and an evaluation of the statements of public officials and others, an attempt will be made to demonstrate that from the appearance of Sputnik until almost the day that an American stepped onto the surface of the moon, the balance of world opinion almost continuously held that the Soviets led the U.S. in science and technology and had overall strategic superiority.

Robert Horelick wrote in 1961 that the Soviet space program was no mere gimmick, a useful sideline outside the mainstream of the Soviet policy, but was a major element in the total strategy of the Soviet leadership.[1] Subsequent events have confirmed that early evaluation. Soviet space achievements have been used to enhance the effectiveness of other Soviet policy instruments to the degree that for many years the world appears to have believed the Soviet Union was indeed the worlds strongest power, despite all other evidence to the contrary.

A further attempt will be made to demonstrate that it was through realization that the U.S. had suffered drastically in world prestige, as well as in the image of its relative power vis-a-vis the Soviet Union, that the U.S. formulated a long-range plan to win the race to the moon and to recover the position of the scientific, technological and military leader of the world. Although all measurable elements of real power have all along indicated that the U.S. had a far broader power base than the

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[1]Robert Horelick, The Soviet Union and the Political Uses of Outer Space, (Santa Monica, California: Rand Corporation, 1961), p. 8.

Soviet Union, it was only through the demonstration of its capabilities in the Apollo moon program that the U.S. was able to regain its image as the world leader.

The paper will trace the trends in world opinion from the early Soviet successes and the initial reverses suffered by the U.S. in the space program, through the American formulation of the goal to be the first to the moon, and the long uphill fight to achieve success and vindication of world leadership. An evaluation of the current status of the space programs of the two countries will be made, with an analysis of how these programs may affect the image of the two nations in the eyes of the world.

The present study will largely be limited to how the world looked upon the relative power position of the U.S. and USSR as a result of space achievements. There are many other aspects of space which deserve further research and analysis. Some of these are: the effect of early Soviet successes on the American educational establishment; cooperative space programs between the U.S. and USSR, our allies and Third World countries; scientific benefits to other fields deriving from space research; improvements in communications, as well as their effects on news media and business; and possible applications of methodology and hardware in these programs to the problems of the cities, poverty and pollution. Because of space limitations, these other deserving and interesting areas can be treated only peripherally at best.

CHAPTER II

THE IMPACT OF SPUTNIK

In a rather ironic way U.S. publicists had set the stage for the great impact of Sputnik on world opinion. In 1954 scientists from seventy-two nations had sketched out the most intricate global research effort ever conceived. The International Geophysical Year (IGY) was to be a massive cooperative effort, then scheduled for 1957-58. The U.S. Committee to the IGY suggested that as part of the American effort, a global satellite should be launched. On July 29, 1955 the U.S. made the announcement that plans were being made relating to the projected future launching of man-made satellites. On the very next day the USSR made a similar announcement. In order to determine the impact of this American scoop on selected world opinion, surveys were made in Great Britain, France, West Germany, Italy, Austria and Belgium. The resultant report cautioned that, as in all sampling surveys, obtained percentages were not to be interpreted as of exact precision, but that with the size of the samples used, they were not likely to be off more than five percent, and were useful estimates. They were able to somewhat proudly report that there was a widespread awareness of the U.S. Earth Satellite announcement, and that with few exceptions the U.S. was cited as the first to announce the plan. Despite somewhat mixed reactions reflected as to whether the development would lead to happy or unhappy consequences, the surveys indicated that the announcement was a propaganda victory for the U.S.

Survey results were as follows:[1]

"Have you heard or read of any recent plan to launch a man-made satellite around the earth?"

	Great Britain	West Germany	Austria	Italy	France	Belgium
No. of Cases	800	865	752	802	800	806
Yes	62%	48%	49%	59%	63%	68%
No	38	52	51	41	37	32
	100%	100%	100%	100%	100%	100%

	Great Britain	West Germany	Austria	Italy	France	Belgium
Returns for upper socio-economic level only:	193	76	165	105	295	---
Yes	79%	80%	65%	88%	71%	75%
No	21	20	35	12	29	25
	100%	100%	100%	100%	100%	100%

"What country first announced this plan?" (Asked of respondents indicating awareness of plan.)

	Great Britain	West Germany	Austria	Italy	France	Belgium
England	4%	1%	-%	2%	2%	2%
U.S.A.	43	37	37	41	45	49
France	-	*	1	-	1	-
Russia	3	3	2	3	6	9
Italy	-	-	-	1	-	*
Others	1	1	*	-	-	*
No Opinion	11	6	9	12	13	11
	62%	48%	49%	59%	67%	72%

*Less than half of one percent

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[1]U.S. Information Agency, The Space-Satellite Announcement-A Note on Awareness and Reactions, (Washington: 29 September 1955), p. 1-2.

Returns from upper socio-economic level only:

	Great Britain	West Germany	Austria	Italy	France	Belgium
England	7%	-%	-%	4%	1%	1%
U.S.A.	57	66	57	74	54	59
France	-	-	-	-	2	-
Russia	3	3	2	1	4	12
Italy	-	-	-	1	-	*
Others	-	1	-	-	-	3
No Opinion	12	10	6	8	13	8
	79%	80%	65%	88%	74%	83%

*Less than half of one percent

"All things considered, do you think this development is more likely to be used for good or bad purposes?"

	Great Britain	West Germany	Austria	Italy	France	Belgium
Good purposes	26%	18%	21%	27%	26%	26%
Bad purposes	10	13	17	5	19	16
No opinion	26	17	11	27	18	26
	62%	48%	49%	59%	63%	68%

Returns for upper socio-economic level only:

Good purposes	40%	33%	24%	49%	32%	32%
Bad purposes	8	29	28	6	19	17
No opinion	31	18	13	33	20	26
	79%	80%	65%	88%	71%	75%

Unfortunately, after Sputnik, it was to be a long ten years before U.S. publicists could report on a foreign public opinion survey which reflected confidence that America would win over Russia in the space race. For many years to come most of the world would indicate a belief that the Soviets were ahead in the entire field of science and technology.

As stated earlier, U.S. prestige was largely based on its position as the scientific and technological (and therefore military) leader of the world. The Soviet space program was a direct challenge to U.S. supremacy. Having widely heralded the intent to enter space with the 1955 announcement, the U.S. had no choice but to accept the challenge. Space had become a major factor in international politics. Aside from the shock to the prestige of America caused by the launching of Sputnik, there were ominous overtones to the event leading to more direct and serious doubts as to America's strategic superiority. On August 27, 1957, the Soviets had announced the successful testing of an Intercontinental Ballistic Missile (ICBM). The report was received with considerable skepticism in the West, but the launching of Sputnik caused a reappraisal of the ICBM report.

Premier Khrushchev was quick to take advantage of the success to reinforce the new doubts. In an interview with James Reston of the New York Times on October 7, 1957, he declared:

> When we announced the successful testing of an Intercontinental Rocket, some U.S. statesmen did not believe us; the Soviet Union, you see, was saying it had something it did not really have. Now that we have successfully launched an earth satellite, only technically ignorant people can doubt this. The U.S. has no Intercontinental Ballistic Rocket, otherwise it would also have easily launched a satellite of its own. We can launch satellites because we have a carrier for them, namely--the ballistic rocket.[2]

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[2] Pravda, 11 October 1957, as quoted by Horelick, p. 16. The same statement as quoted by James Reston in "Soviet Offers Control Over Satellites", The New York Times, 8 October 1957, p. 10:6, does not include the last two sentences of the quote. It is interesting to note that the interview as later published was considerably embellished and edited. This in itself became an issue between Mr. Reston and the Soviets in the following few days.

The reaction in the U.S. to the launch of Sputnik, with its obvious implication that the Soviets did indeed have an ICBM capability, was rapid and in some cases even hysterical. Even so prestigious and sober a writer as Walter Lippman greeted the event with foreboding. On October 10, 1957, he wrote:

> In short, the fact that we have lost the race to launch the satellite means that we are losing the race to produce ballistic missiles. This in turn means that the United States and the Western world may be falling behind in the progress of science and technology, . . . this is a grim business.[3]

Despite the efforts of the Eisenhower administration to denigrate the Soviet achievement and assure the public that the U.S. would soon have better and more sophisticated satellites, Congressional reaction was both sharp and immediate. The Senate majority leader, Lyndon B. Johnson, well expressed the mood of Congress:

> The Roman Empire controlled the world because it could build roads. Later, when men moved to the sea the British Empire was dominant because it had ships. Now the Communists have established a foothold in outer space. It is not very reassuring to be told that next year we will put a better satellite into the air. Perhaps it will even have chrome trim and automatic windshield wipers.[4]

In the Soviet Union Sputnik, as well as later Soviet space successes, was widely publicized and was greeted with enthusiasm. National pride was aroused not only by the obvious Russian success, but by the Western acknowledgments of Soviet primacy. To a country with long-held and

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[3]Walter Lippman, "The Portent of the Moon", The New York Herald Tribune, 10 October 1957, p. 22:3.

[4]Time Magazine, 28 October 1957, p. 18.

deep-seated feelings of inferiority towards the heretofore more technologically advanced Western countries, the successes in space and foreign acknowledgments of the achievements were welcome evidence that the Communist system would indeed overcome the Capitalist world. There was also renewed hope that the Soviet technological advances might even lead to an improved way of life in the USSR. These feelings were later summed up by Khrushchev when he welcomed Yuri Gagarin, the first Russian cosmonaut, to Moscow after the first orbital mission. On that occasion the Russian premier said:

> For the first time in history . . . our Soviet man has, in a ship created by the hands of Soviet scientists, workers, technicians and engineers, thrust into cosmic heights . . . We shall break through, as we have nowbroke through into space, and the development of our entire national economy and the satisfaction of the needs of the people.[5]

The success of Sputnik I on October 4, 1957, weighing 184 pounds, followed by the much larger Sputnik II, weighing over half a ton and carrying the dog Laika, made a tremendous impact on world opinion. This was reflected in part by opinion surveys made in Western Europe between November 15 and December 1, 1957. These surveys indicated that an extraordinarily high percentage of people were aware of the space achievements and that it was the USSR that had performed the feats. Even more remarkable was the fact that a high percentage of those questioned had added a Russian word to their vocabulary--Sputnik. Survey results were as shown:

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[5]"Talks at Moscow Ceremony", The New York Times, 15 April 1961, p. 2:7-8.

[6]U.S. Information Agency, The Impact of Sputnik on the Standing of the U.S. Versus the USSR, (Washington: December 1957), p. 1.

"Have you heard whether or not any country has succeeded yet in launching any man-made satellites around the earth?"

	Great Britain	West Germany	France	Italy	Norway	
No. of cases	800	813	802	807	845	
Yes, has succeeded	95%	96%	96%	94%	100%	(99.7%)
No	5	4	4	6	0	(0.3)
	100%	100%	100%	100%	100%	

If "Yes": "Which country launched the earth satellite?"

Russia	92%	95%	90%	92%	99%
Some other country	*	*	1	*	0
Don't know	3	1	5	2	1
	95%	96%	96%	94%	100%

*Less than one-half of one percent

"Do you happen to know what the first earth satellite is generally called?"

Sputnik	78%	90%	79%	78%	96%
Something else	3	1	-	2	1
Don't know	14	5	17	14	3
	95%	96%	96%	94%	100%

It is of passing interest to note that in dog-loving England, ten percent of those surveyed condemned the Russians for sending the dog Laika into space to die. Of more direct concern is that the clearly prevailing opinion in four of the five countries surveyed was that Russia was ahead of the U.S. in scientific development. Only among West Germans was the U.S. in the van, and by a very small margin. Considering America's reputation over the years for scientific and technological superiority,

the pattern of judgments shown could only have been effected by a tremendous stimulus. One question asked received the following responses:[7]

"All things considered, do you think the U.S. or Russia is ahead in scientific development at the present time. Considerably ahead or only a little?"

	Great Britain	West Germany	France	Italy	Norway
No. of cases	(800)	(813)	(802)	(807)	(845)
U.S. considerably ahead	7%	14%	4%	12%	12%
U.S. a little ahead	13)20	22)36	7)11	11)23	19)31
Russia a little ahead	39	27	29	24	34
Russia considerably ahead	19)58	5)32	20)49	13)37	9)43
Both equal (Volunteered)	6	15	16	21	14
No opinion	16	17	24	19	12
	100%	100%	100%	100%	100%
Net U.S. ahead	-38	4	-38	-14	-12

It can be concluded that in the aftermath of the two Sputniks, it appeared to America's allies in Europe that the Russians had replaced the United States as the scientific and technological, and therefore military leader of the world. It also appears that this opinion was shared to some degree by the rest of the world, the Russians, and even by many in the United States. This loss of American prestige would not easily be redeemed.

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[7] Ibid, p. 2.

CHAPTER III

THE EARLY U.S. RESPONSE

In response to the cacophony of public and congressional outcry to do something to get America into space and to overcome the apparent Soviet lead, the Eisenhower administration was taking a stance of aplomb and unconcern. Eisenhower stated that he "never considered a race"; it was "a very powerful thrust in rocketry", but that "the satellite itself . . . does not raise my apprehension, not one iota . . ."[1] Charles E. Wilson, the retiring Secretary of Defense said it was "a neat scientific trick".[2] The "Assistant President", Sherman Adams called it "an outer space basketball game".[3] John Emmett Hughes a long time aide and confidant of the President says:

> The Eisenhower administration tried to comport itself in the manner of a busy man reluctantly looking up from his evening paper, glancing around with an expression of studied indifference, and finally shrugging his shoulders as he returned to more absorbing matter.[4]

Others were far less kind in the months to come. In a debate as to whether the Republican Party should disavow the incumbent President,

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[1]"Transcript of President's News Conference", The New York Times, October 10, 1957, p. 14:8.

[2]"Eisenhower Gets Missile Briefing", The New York Times, October 9, 1957, p. 1:5.

[3]"Adams Asks U.S. To Close Ranks", The New York Times, October 15, 1957, p. 21:3.

[4]Emmett John Hughes, The Ordeal of Power, (New York: Athenium, 1967, p. 246.

the ubiquitous William F. Buckely, Jr., in commenting on the phlegmatic attitude of the President during this period, said:

> In a perverse sense the invincible ignorance of Dwight Eisenhower is a kind of tribute to his character. I suspect--I don't suspect: I know--that Dwight Eisenhower, in his heart of hearts, does not believe for one moment that the reason the Soviet Union is producing atom and hydrogen bombs is to drop them on people. Eisenhower cannot bring himself to acknowledge this primary reality, and all that it signifies. Rather than rip that last veil . . . he slips back into his copybook homilies; back to the world he learned at his mother's knee.[5]

Donald W. Cox and others have advanced the theory that in addition to the basic conservatism and desire to do things in a systematic manner that was characteristic of Eisenhower, the failure of the administration to take decisive steps to overcome the apparent lead of the Soviets after Sputnik was the tendency of his senior staff aides, particularly Sherman Adams, to shield him from unfavorable reports and to refer matters to the President only when they had reached crisis proportions.[6] Also, when Eisenhower was felled by his second coronary in November of 1957, many important decisions necessarily devolved on Adams and other staff members.

Cox also reports that President Eisenhower was so busy with other pressing matters that he was able to give only sporadic and intermittent attention to the space program.[7] He rarely met with the Space Council,

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[5]William F. Buckley, Jr., "The Tranquil World of Dwight D. Eisenhower", The National Review, January 18, 1958, p. 58.

[6]Donald W. Cox, The Space Race, (New York: Chilton, 1962), p. 27-28.

[7]Ibid., p. 70.

and took only such emergency action as was required to shore up obviously lagging programs such as the Saturn and Mercury projects during his last months in office. At any rate the Eisenhower approach to the space program could only be characterized as "safe but sure".

As it developed, the early pace was neither safe nor sure. On December 6, 1957, the Navy-developed Vanguard earth satellite test rocket exploded on its launch pad at Cape Canaveral in the full view of millions on national television. As Cox reports:

> We were to launch ourselves a full four feet into the space age . . . as the tiny satellite lay beeping faintly on the pad . . . inspired a sympathetic follower of America's attempts to get into space to say at the time "why doesn't someone kick it and put it out of its misery?" No one kicked it. It just lay there, bleating its heart out on the pad, until it died.[8]

One most important policy development resulted from the Vanguard failure.[9] For several days and nights prior to the attempted launch, over 150 press, radio, TV and other media representatives were lined up on the north end of Cocoa Beach waiting for the event. Security measures in force kept secret from them the progress of the countdown and the expected launch time. After the failure and the resultant unfavorable media response, the Pentagon decided that an open policy was better. Thereafter media representatives were provided a raised grand-stand within a mile of most of the launch pads and were kept informed at all times of the status of the countdown.

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[8] Cox, p. 30

[9] Ibid, p. 29-30.

The Navy attempt having initially failed, the Army team, headed by Dr. Werner von Braun, was called in. Ironically, von Braun's request to use the Army's Jupiter C missile to put a satellite into orbit had been specifically turned down by the Department of Defense just a year before. But on January 31, 1958, the Jupiter C put a thirty-one pound orbiter, Explorer I, into space. It was not until March 17, 1958, that the Navy managed to get the three pound Vanguard into successful orbit.

Throughout the remainder of the Eisenhower administration, despite the large number of successful U.S. space launches, far more than the Soviets in fact, America appears to have continued to lose the battle for world opinion as the leader in space. The U.S. did achieve a number of firsts prior to Eisenhower's departure from office. Among these were Explorer I's discovery of the Van Allen radiation belts around the earth, the 1958 Argus nuclear explosions some three hundred miles in space, the first meteorological and navigational satellites Tiros and Transit, Pioneer V which went around the sun, and the first communications satellite Echo I. But the Soviets were not just first into space with Sputnik. They were also first to orbit a living animal, first to escape the earth's gravitational field and send a satellite around the sun, first to impact on the moon, first to circumnavigate the moon and to photograph its hidden side, and the first to recover live animals from orbit. It is not difficult to understand why most analysts of the prestige of the U.S. versus the USSR during this period conclude that the Soviets were consistently ahead.

As the Eisenhower administration drew to a close, it became apparent that the space competition with Russia was to be an important factor in the selection of the next President. Donald W. Cox states that the "religious issue" (the Catholicism of John F. Kennedy) was far less important than the "prestige" issue posed by the apparent lag of the U.S. in space.[10]

Senator Kennedy began to stress the issue late in the campaign. On September 7, 1960, at Portland, Oregon, he said for the fourth time in a campaign speech:

> . . . the people of the world respect achievement . . . the first vehicle in space was called Sputnik, not Vanguard, the first country to place its national emblem on the moon was Russia, not America. The first passengers to return safely from a trip through space were named Strelka and Belka, not Rover for Fido.[11]

His speech at Canton, Ohio, on September 27, 1960, is representative of an often repeated theme:

> The Soviet Union was first in outer space, that is the most serious defeat that the United States has suffered in many, many years . . . not merely because outer space is important militarily, but because . . . people around the world equate the mission to the moon, the mission to outer space, with productive and scientific superiority.[12]

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[10]Cox, Chapter 13.

[11]U.S. Congress, Senate Committee on Commerce. Speeches of Senator John F. Kennedy, Presidential Campaign of 1960, (Washington: U.S. Government Printing Office, 1961), p. 999.

[12]Ibid., p. 377.

Despite Vice-President Nixon's repeated claim that the U.S. had surpassed Russia in all aspects of the space race except rocket thrust and would soon move ahead in that area, he appears not to have convinced the American public. Nor did world opinion appear to reach this conclusion. There appears to be little doubt that Kennedy's cause was aided by three "classified" reports that mysteriously came to light late in the campaign.

These reports somehow came into the hands of The New York Times, and they were published on page one of that newspaper in October and November of 1960. The first report was cited as having been prepared by the United States Information Agency (USIA) in June 1960 and was called "Post Summit Trends in British and French Opinion on the United States and the Soviet Union".[13] It disclosed that in Britain fifty-five percent believed that the Russians were ahead in military power, with only twelve percent believing that the U.S. was ahead. In France forty percent thought the USSR led; only twenty-five percent thought the U.S. led. On space development the British reaction showed eighty-one percent thought the Russians were ahead; only seven percent thought the U.S. was ahead. In France, seventy-four percent said Russia led in space; only seven percent said the U.S. was ahead. A surprising fact was that despite U.S. successes with Pioneer V, Tiros, Transit IB and Midas satellites since February of 1960, only twenty-one percent of the British and French had any knowledge of these American space achievements.

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[13] "Text of Report", The New York Times, October 27, 1960, p. 1:8.

The second report, cited as "The World Reaction to the United States and Soviet Space Programs--A Summary Assessment", pointed to a worldwide belief that Russia was well ahead in the space race and that they would be ten years in the future![14] The third report was said to be another USIA survey, a partial text of which was published by the Times, was dated 29 August 1960. It was based not only on public opinion polls, but on public speeches, newspaper reports and diplomatic reports. The overall tenor was again that U.S. prestige had declined. In twenty-three countries surveyed, in response to the question: "Which country do you think will be stronger twenty-five years from now--the United States or the Soviet Union?", in thirteen of the countries the response favored the U.S., eight favored the Russians, and in two opinion was about evenly divided. This was the only part of the lengthy report which provided any data favorable to the U.S. This sensitive report became a major issue in the last week of the Presidential campaign.

At the end of 1960, all evidence still indicated that throughout the world grave doubts existed that the U.S. was the scientific and technological leader. Indeed it would appear that much of the world considered that the USSR had surpassed the U.S. in a strategic sense. It remained for the new Kennedy Administration to develop a space program that would retrieve the prestige and strategic leadership of the United States.

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[14]"U.S. Survey Cites Loss in Standing", The New York Times, 27 October 1960, p. 29:3.

CHAPTER IV

THE KENNEDY DECISION

When John F. Kennedy took over as President in January of 1961, he inherited a space program that was moving ahead fitfully, but which showed no real hope of catching up with the Russians. Despite his strong language in condemnation of his predecessors inability to seize the initiative in overcoming the apparent Soviet lead, he found that doing something about it from a position of leadership was another thing. Hugh Sidey, as well as other observers of the period, feels that no one was more frustrated than the new President by the confining realities of the actual U.S. position in space exploration.[1] It was to take Kennedy several months to come to grips with the problem. Sidey considers that there were two primary reasons for this: firstly, Kennedy actually knew less about the technical and scientific problems of the space program than any other of the major problems that faced him; secondly, the decision to commit the vast resources necessary to overcome the Russian lead was a momentous one, and it could not be taken precipitously.

But John F. Kennedy was fully aware of the political realities of continuing to take second place to the Soviets. His offer to embark on a program of cooperation with the USSR in his inaugural address on

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[1]Hugh Sidey, John F. Kennedy, President, (New York: Athenium, 1963), p. 115.

January 30, 1961, later repeated before the United Nations, might well have been designed to focus world attention on the peaceful intent of the U.S. and to give him time to formulate his objective:

> Today this country is ahead in the science and technology of space, while the Soviet Union is ahead in the capacity to lift large vehicles into orbit. Both nations would help themselves as well as other nations by removing these endeavors from the bitter and wasteful competition of the Cold War.[2]

While there can be no doubt of the sincerity of President Kennedy in making the offer, its prompt rejection by the USSR was certainly foreseeable, and the resultant publicity might have served to divert attention from the prevalent world view that the U.S. was indeed behind while the new President studied the problem and developed a program.

In his early review of the space program, Kennedy's appraisal appears to have focused on the Soviet lead in large rocket boosters.[3] The problem here went back to 1948, when the American scientific community debated the feasibility of putting an atomic warhead in a missile. Because the atomic weapons of that time were so huge, it appeared to the best of the scientific minds that for the foreseeable future the development of a rocket big enough to span continents carrying them was not practical. Besides, the U.S. had a large fleet of heavy bombers that could deliver the weapons. When in a few years the

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[2]U.S. Congress, Congressional Quarterly Service, President Kennedy's Program, (Washington: U.S. Gov't. Printing Office, 1961), p. 5.

[3]Sidey, p. 116-117.

highly competent weapons laboratories built miniaturized atomic and hydrogen bombs, the U.S. did develop relatively low-thrust rockets to deliver them. The Russians meanwhile, having neither the large fleets of intercontinental bombers nor the miniaturized weapons, simply went ahead and developed the giant rockets which later proved so valuable in their space program.

President Kennedy did have one important legacy from the Eisenhower Administration; an organization established by legislation in 1958 which could manage the U.S. space program. On April 2, 1958, President Eisenhower proposed to Congress that legislation be enacted to establish a separate agency under civilian direction for the scientific exploration of space. Senator Lyndon B. Johnson, the Senate Majority Leader and Chairman of the Senate Committee on Space and Astronautics, strongly supported the legislation and its peaceful implications. On July 29, 1958, the Congress passed, and the President promptly approved, the National Astronautics and Space Act of 1958. The opening statement of that act declared "it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind".[4] The act established the National Aeronautics and Space Council (herein referred to as the Space Council), chaired by the President himself; the other permanent members were the Secretaries of State and Defense, the Administrator of NASA, and the Chairman of the Atomic Energy Commission.

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[4]U.S. Congress. Senate, Committee on Aeronautical and Space Sciences National Aeronautics and Space Act, as Amended, Committee Print, (Washington: U.S. Gov't Printing Office, 1962), p.1.

The Act also established NASA and gave to that Agency the dominant role in U.S. space activities. The military aspects of the space program were to be handled by the Department of Defense, in a correlative but subsidiary role. An important feature of the Act was its provision that, subject to review by Congress, the President could transfer to NASA from the Department of Defense those projects related to the civilian program which it had previously undertaken. Many such projects were transferred to NASA, including Projects Vanguard, Tiros, Centaur and others. Among the more important transfers was that of the Development Operations Division of the Army Ballistic Missile Command at Redstone Arsenal, Alabama, together with its personnel and facilities. This agency was to be responsible for the development of the Saturn superrocket, which was to be so important in later space successes. The Space Act was later amended in 1960 to more clearly spell out the separation of the civilian and military space programs.

Of particular interest is one aspect of policy embodied in the legislation bearing on the freedom of information. As opposed to legislation concerning such agencies as the Atomic Energy Commission and the Department of Defense, the Space Act specified that information concerning NASA activities could be made public unless specifically prohibited. In her study of the legislative history of the Act, Alison Griffith reports that Congressional leaders, especially in the House of Representatives, felt that there should be positive affirmation in the law showing Congress' intent that as much information as possible be

made public.[5] There was considerable unanimity on this point and no real issue of it was made during the hearings. This policy of openness was to have an important bearing on the ability of NASA to let the world watch, in real time on international television, its later space successes. Of course it also had to show its failures.

These two provisions of the Space Act, the separation of military and civilian programs and the policy of freedom of information, were to assume extreme importance. The two are also closely linked. In December of 1969, an official of NASA who wished to remain unidentified stated his opinion to this author that the Russians had trapped themselves into a rigid policy of secrecy by failing to separate their civilian and military programs, regardless of any possible later desires to open up their peaceful space activities to the view of the international public. His view was that the U.S. could safely allow hundreds of foreign media representatives to troop about Cape Kennedy, because all of the secret hardware and missiles were safely a continent away at Vandenberg Air Force Base in California. The Russians meanwhile built their peaceful civilian and their secret military launch pads side by side, and could not allow the international press to see one without exposing the other. A policy of openness on even the demonstrably peaceful space shots is therefore technically impossible for the Soviets.

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[5]Alison Griffith, The National Aeronautics and Space Act; A Study of the Development of Public Policy, (Washington; Public Affairs Press, 1962), p. 70.

Thus the new President had the nucleus of an organization to revitalize America's space efforts, but under the program he had inherited there was no hope of catching up; the Russians would be ahead for years.[6] He found many advisers, as had the former President, who said that the U.S. was doing just about everything it could to catch up with the Soviets. More money and people would not necessarily speed up the program; certain technological breakthroughs were necessary. Kennedy, however, did not take kindly to the idea that the difficulties were insurmountable, and he found other advisers who felt that the missing essential was the will and determination to be first. Theodore C. Sorenson, a close adviser to Kennedy, reports that the new President felt that Americans had not yet fully grasped the world-wide psychological impact of the space race.[7] Kennedy did grasp it, and was determined to do something to regain the prestige that had been lost to the USSR.

After his election, one of Kennedy's first steps was to establish the Transition Task Force, which was to make many important recommendations that were later incorporated into the policies of the new administration.[8] It is perhaps noteworthy that the recommendations of the Task Force on space are listed first in the report; ahead of even those on the economy and national defense. The Task Force, headed by

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[6]Sidey, pp. 116-118.

[7]Theodore C. Sorenson, Kennedy (New York: Harper & Row, 1965)p. 524.

[8]M.B. Schnapper, ed. New Frontiers of the Kennedy Administration, (Washington: Public Affairs Press, 1961) p. 1-11.

Jerome B. Weisner, later the President's Scientific Adviser, advised the President that because of the lag in big booster rockets, there was little hope of beating the Russians to a manned orbital mission, the first best bet was to beat the Soviets in landing a man on the moon. They were to be proven correct during the first hundred days, when Moscow announced on 12 April 1961 that Yuri Gagarin had completed an orbital flight.

The Transition Task Force made several specific recommendations. The most important of these insofar as the civilian space program is concerned were: to make the Space Council an effective agency; provide vigorous, imaginative and technically competent top management personnel to NASA; to review and redefine objectives with particular attention to the booster and manned space programs; and to establish organizational machinery within the government to administer an efficient government-industry civilian space program. Another important recommendation was to give a single service responsibility for all military space programs, thus ending the inter-service rivalry which had been responsible for the fragmentation of efforts to date. The implementation of all of these recommendations was to be necessary before the country was to make any significant progress in the space race.

President Kennedy was fairly quick to implement some of the Weisner Task Force recommendations. As early as December 1960 he had announced that he would seek to have the Space Act amended so that Vice-President

Johnson, rather than himself, could head the Council.[9] It should be recalled that Johnson led the legislative effort to establish the Council in 1958, and he had all along been a strong advocate of the space program. On April 10, 1961, Kennedy asked Congress to amend the Space Act. Congress responded with unusual alacrity, perhaps spurred by news of Gagarin's flight on 12 April, and reported out a bill on 20 April, which the President signed into law on 25 April 1961. The new bill gave the Space Council a home in the Executive Office of the President, and the Vice-President, who could allocate much more time to the business of the Council, replaced the President as Chairman.[10]

Kennedy also moved rapidly to get a top administrator for NASA. On January 30, 1961, he announced that James E. Webb, a first-rate management expert from industry, was to be nominated as Administrator.[11] The Senate also responded enthusiastically, actually holding hearings on February 2, several days before the nomination was formally received, and confirmed Webb on February 9, 1961. Dr. Hugh L. Dryden was retained as Deputy Administrator, and Dr. Robert L. Seamans, who had joined NASA as Associate Director in September 1960 was also retained.

Immediate steps were also taken to redefine the objectives of the space program. The new Administrator, Dr. Webb was asked to review all

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[9] "Kennedy Assigns Johnson to Head Two Major Units", The New York Times, December 21, 1960, p. 1:5.

[10] Robert L. Rosholt, An Administrative History of NASA, 1958-63 (Washington: U.S. Gov't Printing Office, 1966), p. 189-190.

[11] Ibid., p. 187-188.

NASA programs and to make recommendations.[12] This the new Administrator did, but he found that most of the work had already been done by NASA personnel. In fact, starting in late 1960 NASA had begun to quietly polish plans for its "Ten Year Program", which included the post-Mercury manned orbital flight program, and which called for a lunar landing after 1970.[13]

The groundwork had been laid. What was still required was an administrative decision to go ahead. Hugh Sidey reports that while Kennedy was convinced that something had to be done to retrieve America's lost prestige, and was convinced that the lunar space program was feasible, he was stopped in his tracks by the enormous cost.[14] His advisers estimated that it would cost between $20 to $40 billion over ten years--and even that sum could not really guarantee a man on the moon within the coming decade. The deciding factor, however, was the international acclaim of Yuri Gagarin's orbital flight, and the resultant public outcry and Congressional pressure to do something to overcome the Russian advantage. Within six weeks John F. Kennedy made what was to be perhaps the most important decision of his Presidency.

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[12] Ibid, p. 188.

[13] Ibid, p. 185.

[14] Sidey, pp. 117-118.

On May 25, 1961, President Kennedy delivered a State of the Union Message before a joint session of Congress.[15] He discussed the domestic economy, national defense and foreign affairs. Lastly he discussed space. He made the points that it was time for America to take a leading role in space, that the country had the resources and talent, and that the head start held by Russia should not discourage the nation. He said that while there was no guarantee that the U.S. would be first, he could guarantee that failing to make the effort would make the U.S. last. He called for the nation to commit itself to "achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the earth." Although it would be expensive, would consume time, talent and resources that could well be spent on other things, he believed that it would be worth the cost, and asked the Congress and the nation to arrive at a decision to make a truly national effort to achieve the goal that he had set. He indicated that the new program would require an additional $531 million in the 1962 budget, and from $7 to $9 billion extra over the next five years.

It did not take Congress long to provide the required funds. Indeed, the stage had already been set for their early approval. On April 14, 1961, just two days after the Gagarin flight, the House Astronautics Committee had forced a reluctant Dr. Seamans, NASA's

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15"Transcript of Kennedy Address to Congress on the U.S. Role in The Struggle for Freedom", The New York Times, May 26, 1961, p. 12:1-8.

Associate Director, to admit that NASA had all along wished to ask for the additional funds, but that the Bureau of the Budget had knocked them all out of the earlier budget request.[16] Congress appears to have anticipated the President's request, and welcomed the chance to act on it.

The Kennedy decision and Congressional approval of it immediately altered all of NASA's long-range planning, and its time-tables were significantly compressed. The former time-table called for a post-1970 lunar landing, with 1971 the earliest possible date. This could only be accomplished by spending more money in a shorter period of time. But NASA was ready to accept the challenge, and immediately proceeded to develop the vast industry-government team that was to be required to achieve the new goal.[17] In 1961 there were many unknowns concerning the problems that would be encountered in achieving a manned lunar landing, but the down payment on solving the problems had been provided, and the long fight to reassert U.S. superiority had been set on a firm course.

The Kennedy decision and the apparent U.S. resolve to mobilize the vast resources needed to achieve the new goal were to attract considerable attention throughout the world, but this was overshadowed by the tremendous acclaim that the flight of Yuri Gagarin was still receiving. Even the suborbital flight by Alan Shepard in Mercury 3 on 5 June 1961

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[16] Rosholt, p. 193.

[17] Ibid., p. 193.

did little to convince the world that the U.S. could catch up. Overseas opinion polls still showed that most thought the USSR to be well ahead. This is most graphically illustrated by the latest surveys conducted in Great Britain, America's staunchest ally:[18]

"All things considered, which country do you think is ahead in space developments at the present time--the U.S. or the USSR?"

	Feb. '60	Apr. '60	May '60	July '60	Aug. '60	Sept. '60	Jun/July '61
No. of cases	(1221)	(1160)	(1150)	(947)	(1115)	(1021)	(1283)
U.S. ahead	5%	11%	7%	10%	13%	11%	7%
USSR ahead	84	64	81	58	67	54	78
Neither ahead (Vol.)	2	5	4	4	6	12	6
No opinion	9	20	8	28	14	23	9
	100%	100%	100%	100%	100%	100%	100%
Net U.S. lead	-79	-53	-74	-48	-54	-43	-71

Other polls showed similar feelings. In June and July 1961 the "Net U.S. ahead" figure in West Germany was -55; in France it was -78; in Italy it was -51; and in the Philippines it was -31. In mid-1961 the U.S. had made a beginning on the lunar space program which was eventually to regain for it the prestige it had lost after Sputnik, but it was to be many years before it was to convince the world of its ability to beat the Russians in the space race.

[18] U.S. Information Agency. A Note on Recent Trends in U.S. Space Standing, (Washington: September 1962), p. 2-4.

CHAPTER V

THE INTERIM PERIOD, 1961-1968

Because of the limitations inherent in the length of the present study, it is not possible to trace the entire history of the space programs of the U.S. and USSR during this period. Nor can a step by step exposition of the uses made by the two governments of their space programs in public diplomacy be made from the time that the Kennedy Administration made the decision to place a man on the moon in the 1960's until the U.S. was on the verge of achieving that goal. What will be attempted will be to provide limited examples of the techniques used by the Soviets to exploit the Russian space program, outline the major achievements of each country during this period, comment briefly on some of the important aspects of the two nations programs, and to demonstrate the impact of the two on world opinion as to which power was the leader.

By late 1961 the Russians had convinced a large segment of opinion throughout the world of their technological superiority through their space successes and they had most skillfully exploited them for political purposes. In concluding his excellent discussion of the Soviet political uses of outer space, A.L. Horelick well expressed the mood prevailing at the end of 1961:

> No analysis of the political uses of the Soviet space program can ignore the impressive technological foundation upon which the Soviet Union has built its prestige and rested its Sputnik diplomacy. No matter how skillful and clever they may be, strategies and tactics for squeezing political advantages from technological achievements cannot yield more than superficial and fleeting success if the technological

> foundation is itself flimsy and weak. But, like weapons in hot war, which cannot realize their real potential unless appropriate strategies and tactics guide their employment, scientific and technological achievements--the sublimated weapons of the cold war--do not automatically yield political victories. They must be consciously harnessed to the overall political strategy of the side seeking to exploit them, and used imaginatively in conjunction with other instruments of policy to achieve integrated goals.[1]

Today there is some evidence that, despite their successes, the Soviet technology may have all along been relatively crude when compared to that of the U.S.; this will be further discussed later in this chapter. But there can be no doubt that the Russians obtained a great deal of political mileage from their space spectaculars over the years. A recurring theme in Soviet propaganda was that of the superiority of the Communist system, and of the Soviet man. An early example of this conscious effort can be found in the pre-launch statement of Yuri Gagarin prior to his first orbital flight:

> . . . the responsibility is not to a few dozen people but to the whole collective . . . When I accept this flight it is because I am a Communist and have behind me the unprecedented heroism of my fellow countrymen, the Soviet people . . . I will do everything in my power to accomplish the task set by the Communist party and the Soviet people.[2]

And upon his return from space, Gagarin in his speech before a huge crowd at the Kremlin, ably linked his success to the Communist party and system:

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[1]Horelick, p. 43.

[2]Gagarin, Yuri and Lebedev, Vladimir, Survival in Space, (New York: Praeger, 1969), p. 96-97.

> We have dedicated our first flight through space to the Twenty-Second Congress of the Communist Party of the Soviet Union . . . I am convinced that each one of you is ready to accomplish, under the leadership of the Leninist party, any exploit in the name of the might and prosperity of our beloved motherland . . .[3]

Nikita Khruschev followed Gagarin to the speaker's stand, and in his remarks left no doubt of his intent that the world should recognize that Gagarin's feat was the product of the Soviet system:

> For the first time in history a man from the planet earth, our Soviet man, has in a ship created by the hands of Soviet scientists, workers and engineers, thrust into cosmic heights and carried out the first peerless cruise to the stars.[4]

From the very beginning the Soviets have also appeared to attempt to time their space achievements so as to have some useful political effect. For example, Lunik 2, launched on 12 September 1959 just happened to impact on the moon as Khruschev was preparing to leave on a visit to the U.S., and the Soviet Premier presented to the American President a duplicate of the Soviet flag which was "flying on the moon". The giant Sputnik 5 was launched on the eve of the ill-fated Paris Summit Conference of 1960. Titov, in Vostok 2, the second orbital mission, was launched on 6 August 1961, just as the Warsaw Pact ended the meeting at which the decision was made to close the East Berlin border. This pattern continued throughout the entire decade.

The following years saw numerous space successes, and some failures, by both of the space powers. By the end of 1961 the Soviets had orbited

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[3]"Gagarin Welcomed to Moscow", The New York Times, April 15, 1961, p. 2:7-8.

[4]Ibid.

a second man, Gherman Titov, who completed seventeen revolutions around the earth. The U.S. managed only two sub-orbital manned launches, Alan Shepard and Vergil Grissom in Mercurys 3 and 4. Russia sent off a Venus probe, but contact was lost after a week. The U.S. got into orbit an amazing total of thirty-three satellites, including a Mercury capsule with a dummy astronaut, one with a chimpanzee aboard, two missile warning MIDAS satellites, a SAMOS reconnaissance platform, and two orbitors carrying experimental atomic power sources.

In 1962 two Soviet cosmonauts went into simultaneous orbits. The U.S. orbited three astronauts, John Glenn, Scott Carpenter and Walter Schirra. A U.S. probe went past Venus and radioed back data. Three U.S. lunar probes were launched. The USSR had a successful Mars fly-by. The U.S. put up the first commercial communications satellite. The Russians oribted eleven satellites in a new Cosmos series. The U.S. detonated a thermonuclear device in space.

The following year the Soviets put a man and woman simultaneously into orbit. The U.S. launched only one Mercury manned flight and ended the series to concentrate on more advanced projects. President Kennedy proposed a joint U.S.-USSR expedition to the moon, but Congress prohibited spending any U.S. money on the project. The fourth Russian lunar probe went around the moon and back into earth orbit. The U.S. put four hundred million copper needles into earth orbit in a controversial communications experiment. A blow for peaceful uses of space was struck when the U.S., Great Britain and Russia concluded a treaty prohibiting further nuclear tests in space.

The year 1964 saw a three-man Soviet crew put into orbit in Voshkod 1. The U.S. put no man into space that year, delaying its new Gemini two-man capsule program until 1965. The U.S. had two more lunar probes, and both countries launched Mars probes. The U.S. began flying the heavy thrust Titan III-A rockets, and the million and a half pound thrust Saturn I launchers were test-fired into orbit. Eighteen nations agreed to participate in the U.S. communications satellite program.

A Russian cosmonaut made headlines by achieving a ten minute "space-walk" on March 18, 1965. Three months later Edward White topped the feat with a twenty minute space-walk from Gemini 4. The Soviets had a total of two three-man Voshkod flights in 1965; the U.S. flew five Gemini two-man capsules, and among the U.S. spectaculars was the first orbital maneuvers made by Virgil Grissom and John Young in Gemini 3. On 25 October an Agena rocket was fired to be used as a target for space rendezvous by Gemini 6, but the Agena failed, and Gemini 6 was not launched. Instead it was delayed until Gemini 7, with Frank Borman and James Lovell, was orbited on 4 December; then Gemini 6 was put up on 15 December and the two craft executed America's first space rendezvous.

The Soviets had no manned space flights in 1966; the U.S. had five Geminis, each with a two-man crew. Noteworthy was the first space docking with a target vehicle by Neil Armstrong and David Scott in Gemini 8. After docking was completed, one of the stabilizing jets failed to cut off, and the connected vehicles went into a wild spin. Armstrong managed to disconnect the two vehicles and regain control, but in so doing he

used up three-quarters of the re-entry fuel supply. The scheduled three day mission then had to be curtailed after only a little less than eleven hours, and an emergency splashdown was made. A side benefit could have been the valuable experience gained in maneuvering a space capsule under emergency conditions, which may have contributed to the expertise which Armstrong later displayed in maneuvering the lunar module to a safe landing on his epic voyage to the moon. The most spectacular Russian success of 1966 was the soft landing of Luna 9 on the moon in February.

In 1967 the Soviets sent only one manned flight into orbit, Soyuz 1 on 23 April, and it ended in tragedy when Vladimir Komorov was killed when his parachute did not open after re-entry, and he became the first man to die in space. The U.S. launched no astronauts that year, but also suffered a tragedy. Virgil Grissom, Edward White and Roger Chaffee were killed in a fire which destroyed their Apollo capsule on its pad at Cape Kennedy during a training session on January 27, 1967. Neither the U.S. nor the USSR were to launch a manned flight for over a year. Both countries were to call a halt and reevaluate their programs.

Little is known about the Soviet reappraisal, because of the usual secrecy which surrounds most aspects of Russian space program. But the investigation of the American tragedy was handled with amazing openness. The Apollo 204 Review Board was established by verbal order of the Director, NASA on the same day as the accident, and confirmed in writing

on the third day of February.[5] The Board convened on 28 January 1967 and by 5 April had published its report. That report is an amazing document, a massive nine parts, plus numerous appendices, all completely unclassified. It was even made available to all interested news media representatives, and even to the Soviet liaison officer with NASA. A wealth of technical data on the Apollo program was thus made available to the Russians.

The preface to the report of the Apollo 204 Review Board expressed concern that the report would be viewed as an indictment of the entire program, but that it would nevertheless openly present the deficiencies uncovered.[6] Its findings were that there were several electrical arcs, and that no single source of ignition could be identified, but that there was no evidence of sabotage. There were many types of combustible materials contiguous to possible ignition sources, and in the more than sixteen pounds pressure per square inch atmosphere of pure oxygen in the Apollo capsule, the fire spread so rapidly that there was no chance to extricate the astronauts before they were killed. Faults were also found in the emergency exit mechanisms.[7]

As a result of the tragic fire and the findings of the Apollo 204 Review Board, a tremendous amount of redesign and modification work was

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[5]National Aeronautics and Space Administration, Report of the Apollo 204 Review Board, (Washington: U.S. Gov't Printing Office, 5 April 1967), p. 117-8.

[6]Ibid, p. iii.

[7]Ibid., p. 6:1-4.

required before the Apollo program could proceed. Much time, effort and expense was involved, and U.S. prestige no doubt suffered a great deal from the tragedy. But the honest and straightforward manner in which the investigation was conducted, and the open presentation of its findings by the board may have contributed to the later public appreciation of the success of the Apollo program. At any rate, it certainly demonstrated that the U.S. really meant its often stated disavowal of secrecy in all aspects of its civilian space programs.

It was late in 1968 before either the U.S. or the USSR resumed manned space exploration. On October 11 Walter Schirra, Don Eisele and Walter Cunningham successfully tested the Apollo capsule, completing 163 orbits of the earth. On October 26 Georgi Beregovoy went aloft in Soyuz 3 and made 61 circuits of the earth. He also made headlines when he rendezvoused with the unmanned Soyuz 2. Then just four days before Christmas, on 21 December, Frank Borman, James Lovell and William Anders began their epic trip to the moon. The Americans made eleven orbits around the moon while being observed throughout much of their trip by hundreds of millions of people all over the world on international television; returned to earth in a spectacular but completely pre-planned and precisely executed manner to become overnight international heroes. It began to dawn on the world that the seemingly impossible task set by President Kennedy in 1961 was to be brought to fruition, and that the United States might yet be the first to land a man on the moon.

Before attempting to trace world opinion as to which of the two contenders in the space race was really the technological and scientific

leader as expressed in public opinion samplings and media comment, it should prove worthwhile to examine at least briefly some more scientific indications as to which nation actually had the more sophisticated and scientific technological base for its space program. One of the more controversial aspects of the relative merits of the contending programs revolved around the size of the rocket thrusters available, and the relative efficacy of space hardware. The U.S. had from the beginning stressed miniaturization of all components of its space vehicles because of the hard reality of the limitations of its small-thrust rockets. Claims made by the U.S. that it obtained a great deal more in scientific payoff from the obviously smaller satellites because of advanced technology were generally greeted by foreign observers, and especially the Soviets, as a sour grapes response to the massive Russian satellites. There is now available, however, some evidence that the U.S. has indeed been able to get a good deal more accomplished with its sophisticated space systems than do the Russians with their relatively crude hardware. And of course, the U.S. has in recent years developed massive thrusters, and so can now launch not only large but also highly sophisticated space vehicles.

Of particular interest is Dr. Charles Sheldon's "strip-tease" sketch as presented in the March 1968 edition of Space/Astronautics.[8] The Russians presented the Voshkod space capsule, first flown with a three-

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[8]"USSR's Building Blocks for Space", Space/Astronautics, March 1968, p. 26-30.

man crew on 12 October 1964, as an entirely new and improved vehicle over the Vostok initially flown by Yuri Gagarin in 1961. The Soyuz, first launched with Vladimir Komorov on 23 April 1967 was vaunted as being even newer and better than the Voshkod. But Dr. Sheldon demonstrates through a series of photographs of Russian space vehicles taken at the Paris Air Shows over the years that the supposedly vastly different Soviet capsules are all really variations of the same basic model. Gradually stripped of surrounding accessories and shielding, the Vostok, the Voshkod and the Soyuz are revealed to be the same eight foot sphere, about the same size as the U.S. Mercury capsule. There are no doubt some interior modifications, and the Soyuz has a docking collar added, but in reality a Vostok is a Voshkod is a Soyuz.

When compared to the obviously more sophisticated Apollo spaceship, the relative crudeness of the Soviet capsules is apparent to the expert observer. Dr. Sheldon also demonstrates that because of this relative crudity of the Soviet vehicles, the USSR needs twice the payload to match the performance of the highly sophisticated American vehicles.[9] Thus, two Soviet "super-boosters" are required to match one U.S. Saturn rocket insofar as the ability to perform the same scientific task. Also, for whatever reason, the Soviets have launched far fewer total numbers of satellites of all types. In the category of manned space launches alone, by the end of 1968 the U.S. had put up eighteen capsules, including the trip to the moon by Apollo 8, while the Soviets had put up only ten,

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[9] Ibid.

albeit many were of a highly spectacular nature, and all were fully exploited through Soviet propaganda. The record for unmanned space activities is even more favorable to the U.S., but as we shall see, world opinion for the most part did not give the U.S. its due.

Public opinion samplings were regularly taken throughout the world as to the relative space standing of the U.S. and USSR from the time of Sputnik until late 1966. None were taken in 1967 and 1968. Those taken during 1969 are still classified as confidential, although it is difficult to understand just why they so classified, for it is extremely difficult to believe that there is anything revealed by them which could prove detrimental to the national image in the wake of the spectacular success of the Apollo program during that year. There are however other available indicators that most of the world still held the view that the Russians were in the lead in the race for the moon almost up until the American program achieved its spectacular success.

The most detailed indications of space standing during the period between 1961 and 1968 are available from Great Britain, which was used as a "barometer" country because of the vast exchange of media coverage with the United States, and because of the close socio-political ties between the two countries. Even in Britain, as can be seen from the chart below, the U.S. experienced many ups and downs in space standing, but never led over the USSR until September 1965, following the Gemini V endurance record of 120 orbits. This lead was short-lived, and the U.S. again fell behind after the failure of Gemini VI. America again led for a brief time after the Gemini VI and VII rendezvous, then fell

considerably behind again in the wake of the Russian Luna 9 soft landing on the moon early in 1966. Survey results are as shown:[10]

"All things considered, which country do you think is ahead in space development at the present time--the U.S. or the USSR?

Great Britain

	Jun/Jul '61	Jun[a] '62	July[a] '62	Aug '62	Feb '63	Feb '64	Sept '64	Oct/Nov '64
No. of cases	(1283)	(647)	(1074)	(1000)	(1186)	(1178)	(1080)	(1087)
U.S. ahead	7%	20%	26%	6%	13%	15%	28%	15%
USSR ahead	78	50	40	82	59	59	36	55
Neither/Equal	6	10	7	3	8	12	12	13
No opinion	9	20	27	9	20	14	24	17
	100%	100%	100%	100%	100%	100%	100%	100%
Net U.S. lead (U.S. ahead minus USSR ahead)	-71	-30	-14	-76	-46	-44	-8	-40

Great Britain

	Mar '65	May '65	May/Jun '65	Jun '65	Jul '65	Sept '65	Nov '65	Jan 4 '66
No. of cases	(1000)	(1041)	(1179)	(1015)	(1000)	(933)	(1389)	(1335)
U.S. ahead	11%	17%	8%	16%	23%	42%	23%	42%
USSR ahead	73	61	61	41	40	30	42	23
Neither/Equal	5	10	19	17	11	12	15	20
No opinion	11	12	12	26	26	16	20	15
	100%	100%	100%	100%	100%	100%	100%	100%
Net U.S. lead	-62	-44	-53	-25	-17	12	-19	19

[a]Wording of question was in terms of anti-Communist and Communist countries rather than U.S. and USSR.

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[10]Charts are reconstructed from a series of polls contracted for by the U.S. Government over the time period shown. "British 'Mass' and 'Elite' Opinion on the Space Race", Washington, 10 August 1966.

Great Britain

	Jan 13-18 '66	Feb '66	July '66	1967/ 1968
No. of cases	(1444)	(1448)	(1488)	No polls taken
U.S. ahead	35%	16%	21%	
USSR ahead	37	54	48	
Neither/Equal	11	20	18	
No opinion	17	10	14	
	100%	100%	100%	
Net U.S. lead	-2	-38	-27	

Polls conducted in other Western European countries show substantially the same general public opinion trends. Noteworthy is the impact of the soft landing of the Soviet Luna 9 on the moon before and after February 4, 1966. In answer to substantially the same questions as were asked in Britain, the results in terms of net U.S. lead were as follows:[11]

West Germany

Jul '61	Jun '62	Feb '63	Feb '64	Jan '66	Mar '66
-55	-8	-6	-4	53	-18

France

Jul '61	Jun '62	Feb '63	Jun '65	Feb '66
-78	-56	-63	-32	-18

Italy

Jul '61	Jun '62	Feb '64	Jul '65	Before Feb 4, '66	After Feb 4,'66
-51	-30	-20	-8	24	-13

[11] Ibid.

Before Feb 4 '66	After Feb 4 '66
10	-53

Surveys in other parts of the world are limited, but in general the results are consistent with those cited above. In answer to the same question quoted above, in Manila in February 1964 the net U.S. lead was a plus 2; in June 1965 it was a -7. In Japan in February 1964 it was -46; in June 1965, a -55; in October 1965, a -29. In India in July 1965 it was a -30; even before Luna 9 on 4 February 1966 it had dropped to -36. In Caracas it was -30 in March 1964; by July 1965 it was plus 6. The impact of Luna 9 is again shown in three areas; in Kuala Lampur the pre/post Luna 9 U.S. net lead was -9/-19; in Singapore it was -9/-25; in Tehran it was -10/-43.[12]

There is some limited evidence available that by the time that overseas public opinion surveys contracted by the U.S. government were terminated in 1966, that at least a part of world opinion was coming to accord slightly greater respect for U.S. scientific capabilities as opposed to those of the Soviets, although the inconsistencies revealed showed many doubts still remained, particularly as to whether the U.S. would win the race to the moon. Listed below are the principal results of surveys conducted in a number of countries and cities around the world just

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[12] Ibid.

after Luna 9 in February 1966. They are of particular interest in what they reveal about the responsiveness of opinion to individual space spectaculars. All surveys had a statistically significant number of individuals consulted, and are considered valid as a general index of opinions existing at the time.

"Which country--the U.S. or the Soviet Union--do you think will be the first to land a man on the moon?"[13]

Net Favorable to the U.S.

Country/City	Pre-Luna 9	Post-Luna 9
Italy	22	-12
Montevideo	4	
Sweden	2	-47
Buenos Aires	-4	
Tehran	-10	-35
Kuala Lampur	-11	-16
Singapore	-11	-25
Great Britain	-13	
Athens	-13	
West Germany		-16
France	-22	
Australia		-23
India	-32	

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[13]U.S. Information Agency, Some Foreign Opinion on U.S.-USSR Space Cooperation and the Military Use of Space, (Washington: U.S. Government Printing Office, March 1966), p. 18.

"All things considered, which country do you think is ahead at the present time in scientific development--the United States or the Soviet Union?"[14]

Net Favorable to the U.S.

Country/City	Pre-Luna 9	Post-Luna 9
West Germany		39
Italy	36	21
Sweden	31	7
Tehran	29	0
Montevideo	20	
Athens	9	
France	9	
Buenos Aires	6	
Singapore	5	-4
Great Britain	2	
Kuala Lampur	1	-6
India	-4	
Australia		-12

Since there are no further available public opinion polls from overseas surveys after 1966, it is necessary to turn to various media sources for an evaluation as to the world's view of which of the two contestants led in 1967 and 1968. Such a review leads to the conclusion that the U.S. gained somewhat after the tragic death of Vladimir Komorov in Soyuz 1 in April of 1967 and even more after the spectacular flight of Apollo 7 on 11 October 1968, but probably lost again after various Soviet successes including Georgi Beregorov's feat in making a space rendezvous in Soyuz 3 with the unmanned Soyuz 2 later in October 1968. In the interest of brevity, and without any real loss of perspective, it is felt, the story will be picked up in September of 1968 in the next chapter.

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[14]Ibid., p. 19.

CHAPTER VI

THE TURNING POINT

Despite the increasing momentum of the U.S. space effort, and some real evidence of its scientific and technical superiority, the world was slow in recognizing American space achievements. Even in late 1968, perhaps in part because of the openness of the entire U.S. socio-political system, doubts were expressed in international media whenever there was any evidence of flagging U.S. determination to achieve the goal set by President Kennedy in 1961. As most observers of the American political scene are aware, there is a constant tug-of-war between divergent interests for government funds and priority of effort, and these often pyrotechnic conflicts on occasion divert even competent foreign observers from the true direction of events. Elements of this phenomenon are discernable in foreign media comments on American space developments during late 1968.

In September of 1968 NASA Chief James E. Webb made known his plans to retire, and in so doing he made several statements on the U.S. space program. European newspapers were quick to voice their interpretation of his comments.[1] On 17 September the independent London Financial Times said:

> Mr. Webb's public statements are the first time that such eloquent and official expression has been given to what has been

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[1] "NASA Chief on U.S. Space Effort", Worldwide Treatment of Current Issues, 18 September 1968, p. 6-7.

suspected for a long time; namely, that the U.S. is well behind the Soviet Union and unable to catch up . . .

In France, pro-Gaullist Paris-Presse headed its story:

BOSS OF AMERICAN SPACE RESEARCH RESIGNS AND ISSUES A CRY OF ALARM--RUSSIANS ARE GOING TO WIN RACE TO MOON.

The largest paper in France, the pro-Gaullist France-Soir said in a report from its Washington correspondent:

> The Americans have fallen behind the Russians in the race to conquer space. They have been unable to allocate the necessary money because of the problems posed by racial riots and the war in Vietnam. In recent national budgets the conquest of space has lost the priority it had in earlier years . . . James Webb resigned because of all these considerations . . .

Another Soviet space spectacular soon captured the world's imagination.[2] The lead was of course taken by the Soviet Union in praising the successful return to earth of the unmanned Zond 5 after a circumlunar voyage as an unprecedented achievement. Moscow radio and TASS made the point that the reentry of the spacecraft into the earth's atmosphere at "second cosmic velocity" is of "great importance" for further space flights. One broadcast quoted a Soviet scientist as saying: "In analyzing this event, one can conclude that the flight of space station Zond 5 has opened a new page in the annals of cosmonautics."

The space feat received front page news coverage around the world. The main headline in the London Times on 23 September 1968 was: "MOON SUCCESS GIVES RUSSIA SPACE LEAD." The paper said: "The Soviet space success will increase pressure on NASA to accelerate the three-man

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[2]"Return to Earth of Zond 5", Current Issues, 23 Septmber 1968, p. 1-2.

Apollo program". The London Daily Telegraph in its lead story said, "Zond 5 gives Russia a spectacular space first in the race to put a man on the moon", but the paper carried a story from Washington which said, "Provided there are no more setbacks like the Apollo spacecraft fire last year, America may still beat the Russians in landing the first man on the moon." The mass-circulation France-Soir in Paris ran a long headline: "Following Sensational Return Trip of Zond 5, Russian Cosmonauts Ready to Fly Around the Moon as Early as This Year, Can Defeat the Americans, Who Planned the Exploit for December." In Vienna the Kronen-Zeitung observed: "The successful return of Zond 5 . . . is a triumph of Russian technology. And yet, it is only a victory of the establishment of barbarism." The Socialist Express of Vienna declared: "In the race for the moon, the Soviet Union has considerably outdistanced the U.S. . . . The U.S. will lose, or perhaps has already lost, the space race with the Soviets."

But when Apollo 7 was launched by the U.S. on 11 October 1968, foreign press reaction began to reveal a swing toward recognition that America was making progress.[3] The conservative Sunday Express of London on 12 October noted with satisfaction that Walter Schirra was forty-five years old:

> From a huge nation teeming with youth, the experts selected two men who are touching middle age and a third who will soon be getting on for 50 . . . What a wonderful thing for fathers everywhere . . . they can tell callow juniors: "Now when you reach your true prime like Schirra and me . . ."

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[3]"Apollo 7 Flight", Current Issues, 14 October 1968, p. 1-3.

The next day the Daily Express termed the flight "a superlative scientific achievement" and "another giant stride toward putting men on the moon." In West Berlin the Berliner Morgenpost asserted:

> The U.S. has not yet reached its target, but the flawless launching of Apollo 7 increases the American's chances of reaching the moon on schedule. . . it is difficult to predict who will be the winner of the race in space . . . The Americans put their cards on the table and let everyone witness their efforts, but the Russians throw a veil of secrecy around their attempts.

In Italy nearly all papers gave front-page coverage to the flight and the tone of reporting was sympathetic to the U.S. Turkish papers played the story on page one, but an editorial in the leftist Aksam said it wished that while the astronauts "whirl around the world" other Americans would change direction since they "are going in the opposite direction of the world's rotation." The Athens press headlined the story and hailed the achievement editorially. In Hong Kong, Sing Tao Jih Pao urged Americans to look ahead and "not reduce appropriations for the U.S. space program." Editorially it said:

> If the Russians reach the moon first, this will be used in propaganda as evidence that Communism is superior. Moreover, the Soviet Union cannot be trusted to abide by the U.N. agreement banning destructive weapons in space.

Somewhat enigmatically, the Tokyo Asahi said that "competition will begin again between the U.S. and Soviet Union in manned space flight if the present Apollo 7 proves to be a success". Soviet media carried a brief announcement that the flight was underway but did not comment.

World media reports compiled on 16 October[4] showed a mounting interest in the flight of Apollo 7. Most parts of the world reacted favorably to the live television coverage. In Austria the independent Salzburger Nachrichten said:

> Up to now the Soviet Union has always had a slight advantage in space experiments . . . and many indications are that a Soviet citizen will step onto the moon earlier than an American. The Americans, however, gain more prestige in the world by their openness in carrying out their space program . . . The Americans watch-what-we-do attitude is a matter of principle--as appropriate to a democratic country as the existence of a parliament . . . Things are different with the Soviets . . . They reveal a test only when the craft is in orbit or when it is back on earth. If something goes wrong, the world will not know . . . This Soviet attitude is characteristic of Communist policies. It may appear to be practical, but it is disquieting, repugnant, and sly.

The Times of India said that NASA has "every reason to be proud of its record of 234 launchings with 74 percent successes . . .":

> Apollo's success will naturally boost the American's morale which has been needlessly ultrasensitive to the series of Soviet firsts . . . a noteworthy aspect of the American way of doing things in space is the openness of it all.

In Poland the event received front-page coverage, with much detail in photographs and drawings. Moscow radio's brief accounts described the difficulties encountered: the ship's orbit was altered earlier than planned "after some failures appeared in the ship's electrical system." The broadcast talked about the cold symptoms of the crew members.

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[4]"Apollo 7 on Television", Current Issues, 16 October 1968, p. 8-10.

As Apollo 7 passed the halfway mark of its mission even the Russians grudgingly began to laud the American feat[5] . . . Moscow's TASS international service in Russian said that "for the sixth straight day the three courageous American astronauts" continued their mission in space, "performing complicated experiments which are important for subsequent space flights." In India Ambala's Tribune said "the moon race is in full swing" with the Zond 5 flight around the moon and the Apollo 7 "dress rehearsal for the first manned moon shot . . . But wouldn't it be nice if the Russians, shedding their secrecy, would join hands with the Americans to stage an integrated space show--a detente in moonshine?"

The triumphant splashdown of Apollo 7 was greeted by with almost universal acclaim by world media.[6] In referring to Walter Schirra's caustic comments to ground control about added experiments in space which he felt overcrowded an already busy program, the Daily Mail stated "Let us hope that the first man on the moon will still have the guts to bawl out the boss." West Berlin's Tagesspiegel said:

> It is much more gratifying to hear the irate swearing of a spaceship commander than prescribed socialist greetings to the comrades in the central committee on the remote earth.

In the following days foreign press observers continued to praise the success of Apollo 7 and most thought the flight put the U.S. ahead of the USSR in the moon race.[7] A few qualified this judgment. Belgium's

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[5]"Apollo 7 Passes Halfway Mark", Current Issues, 18 October 1968, p. 6-7.

[6]"Apollo 7 Splashdown", Current Issues, 23 October 1968, p. 1-4.

[7]"Apollo 7's Achievement, Current Issues, 25 October 1968, p. 5-9.

Gazet van Antwerpen wrote that the Americans stood on the threshold of the moon, but that the Russians probably did also. The paper was lavish in its praise of American openness however. West Germany's Frankfurter Neue Presse thought that "despite the Apollo success, it is possible that the first man to land on the moon will be a Soviet citizen." The independent Standard of Dar es Salaam thought the cost of space programs justified because man is seeking "to find answers to many problems which indirectly or directly result in improving his lot." El Tiempo of Bogota insisted that the most valuable element was the man in the capsule: "As the ancient Greeks observed, man is still the measure of all things."

The Soviets were not without space successes in the following weeks. Gergi Beregovoy went aloft in Soyuz 3 on 26 October, made 61 orbits and a rendezvous with the unmanned Soyuz 2. In November Zond 6 made another unmanned circuit of the moon and was recovered. But the American manned Apollo moon program appears to have captured the imagination of the world and reaction was far less adulant to the Russians than that which had been evoked by earlier successes. Any boost which they might have given to Soviet prestige was in any event soon canceled out by the spectacular trip to the moon of Apollo 8 on Christmas week of 1968.

In the first two days following the lift-off of Apollo 8, newspapers in the capitals of the world used banner headlines, wrote exhaustive accounts and displayed pictures, including those from the first live telecast from 138,000 miles in space.[8] London's

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[8]"Journey to the Moon", Current Issues, 23 December 1968, p. 4-9.

Communist Morning Star saluted the astronauts. In Paris the anti-Gaullist Aurore said:

> Knowing that they are being watched by Americans 250,000 kilometers out from the earth, the Soviet leaders are likely to regret that they did not send cosmonauts around the moon two weeks ago. For the first time since October 4, 1957, they are missing a space first . . .

The influential Die Welt of Hamburg said Frank Borman was different from Christopher Columbus in that "he knows his destination. We . . . ask ourselves anxiously where this trip across a new ocean will lead." Independent La Meuse of Leige declared that:

> . . . it is the climax of history . . . The gates of the universe are open before us today, thanks to that breed of giants who have throughout history combined poetry, drama, and imagination, with the requisite love of risk, conquest and surpassing oneself.

Moscow's TASS initial story was an account of the flight plan, including splashdown. Later it called attention to Borman's virus attack and the "uneasiness" of the others. It said the flight was going normally and the trajectory was accurate.

During Christmas week papers around the world closely followed the flight of Apollo 8 and comments were almost entirely favorable to the United States, however the event was increasingly described as an achievement of all mankind.[9] London's tabloid Daily Mirror stated:

> Their journey to the moon is the greatest Christmas miracle accomplished by man . . . As we down below revive the ancient ceremonies of Christmas, one thought must strike us all. It is that these three brave men, following

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[9]"Man's First Journey to the Moon", Current Issues, 27 December 1968, p. 1-11.

> their star, are making all mankind feel how small and insignificant are the barriers of nation, race and creed that divide us all . . . How small our differences, how puny our quarrels.

Independent Der Abend of West Berlin said that "the three brave men" were "fulfilling the heritage of John F. Kennedy":

> In 1961, the late President's announcement that an American would land on the moon in this decade was received with skepticism by experts. It was viewed as the mere booming of a statesman, as consoling talk to conceal the striking lead of the Soviet Union in space research at that time. But it has not even taken eight years to tell the doubters they were wrong . . .

One small gain for the U.S. in the Cold War contest against Communism was recorded by the statement of the government-owned Ghanaian Times of Accra:

> Once again, the people of the U.S. have demonstrated that the maximum and highest fulfillment of man takes place best in a free, untrammelled society, where the individual is given as much encouragement as possible . . . This is the lesson we in Ghana derive from the success of our dear friends. We intend to benefit from this lesson . . .

Soviet media reported the progress of the astronauts. Comment from Soviet space experts was summarized who pointed out the "basic differences" between U.S. and USSR space systems. It was implied that Apollo relied solely on human control while Russian craft have automatic control devices.

Media reports after the splash-down of Apollo 8 were effusive in their praise of the astronauts and the scientific and technical prowess of America.[10] The Times of London called it a "triple triumph; first

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[10] "Apollo 8: Splashdown on Target", Current Issues, 30 December 1968, p. 5-10.

for the astronauts, secondly for the United States because "the U.S. National Aeronautics and Science Administration has done what no other country could have done", and the third triumph "belongs perhaps to man as a whole." The London Sunday Telegraph saw great benefits deriving from the rivalry between the space powers:" . . . the unique stimulus of international rivalry . . . Can anyone suppose that if space exploration were left to some U.N. agency . . . progress would have been nearly so rapid or far-reaching?" Two papers, the conservative Sunday Express and the left-oriented People suggested the British should honor the astronauts by giving them knighthoods. The independent weekly Economist was less laudatory:

> So what does the flight of Apollo 8 prove? That the technical grasp of the Americans exceeds the reach of their imagination . . . three brave men have shown that a rocket can fly out into deep space . . . the comparative poverty of thought of their masters has been exposed very nakedly . . . no one is able to think of anything scientifically worthwhile for them to do.

In Japan Yomiuri called the flight "a 110 percent success", but said that "the two super powers should regard space exploration as a project of the human race and not a narrow issue of national prestige." The Philippines Herald of Manila thought the flight had "definitely pushed the U.S. out front in the space race." It suggested that "whatever the results . . . of this friendly competition . . . mankind at large stands to benefit". It was "no doubt on this basis that Russia, no less, has taken the lead in complimenting the U.S. for its latest remarkable space success." Others could not resist injecting current quarrels into their commentary. Bangkok's Siam Rath wrote on 26 December:

> The fact that Russia has not yet launched a space ship with cosmonauts in it to orbit the moon shows that it is far behind the U.S. in space research . . . This success proves that the U.S. possesses the might to reduce Red China to dust at any time should it go beyond proper limits in its outrageous activities . . .

Chile's leading, conservative El Mercurio asserted that "justifiably this interplanetary journey has been compared to Columbus' transoceanic explorations." It went on:

> It is not by chance that the North Americans have taken indisputable leadership in the space race. They possess the courage necessary to undertake almost superhuman tasks and, above all, have a genius for organization . . .

One of the most interesting comments on the significance of the journey of Apollo 8 to the moon can be found in a West German paper. It has an ironic significance to one who recalls the rather agonizing reappraisal of the American educational system after the launch of Sputnik in 1957. After rather effusively praising the American feat, the Frankfurter Allgemeine added that European universities and scientists "must adopt American methods if they do not wish to disappear into oblivion . . . This is the challenge to Europe and Germany."

After Apollo 8, a limited conclusion could be drawn that, as expressed by the commentary of foreign news media, the U.S. was the leader in space, and had convinced the world of its scientific and technical superiority. But the Russians were not content to leave it at that. On January 14, 1969, Soyuz 4 went into orbit with Vladmir Shatalov, and on the next day Soyuz 5 with three cosmonauts aboard joined it. The Soviets then scored another spectacular when the two craft rendezvoused and exchanged crew members.

Although the Soviet feat received a great deal of news coverage, but only limited commentary in foreign news media, some comments did indicate that not all were convinced that the USSR could be written off as the leader in space.[11] The Times of London headlined: "LINK-UP GIVES RUSSIA LEAD IN SPACE." The Daily Express of that city declared that "this superb achievement matches the American Apollo journey around the moon and shows that the two great powers are neck and neck in man's endeavor to explore space." Others saw dangers of military applications of the experiment which the Russians had announced was a preliminary to establishing an orbiting space station. The London Economist said:

> Without wanting to accuse the Russians of bad faith, just how does anyone know that the only military uses to which they will put their space platforms are passive ones like reconnaissance and communications?"

West Germany's Franfurter Neue Presse declared: "The Soviet docking maneuver is in the last analysis designed to prepare for the Soviet control of space and hence of the earth." Tempo of Rome was not convinced, and was even critical of the level of technology displayed by the Soviets:

> . . . the archaic solar panels used by the Soyuz . . . recall the electrical systems of automobiles with hand cranks and oil lanterns. True, this is only a technical detail, but it nevertheless proves that the level of Soviet space technology has not risen much in the past five years . . . This is simply normal development of a basic program of human space flight in which the Russians had fallen behind.

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[11]"Docking Feat of Soviet Spacecraft", Current Issues, 17 January 1969, p. 9-10.

The turning point in world opinion as to which country was the victor in the space race appears to have come with the success of Apollo 9, which first tested the lunar module in earth orbit. It proved that all of the science and technology, and the hardware, required for America's final assault on the moon was ready and would work. The lunar module, in its separation from and return to the command module, worked perfectly. After that event there was discussion about the relative merits of manned versus unmanned space exploration; there were many comments about, and much controversy over, the value of space exploration as opposed to investing the vast resources required in the venture to improving the lot of mankind on the earth; but there were almost no questions raised anywhere about the scientific and technical superiority of the U.S. Perhaps even more importantly,a significant theme repeated in the comment of foreign media was that the American superiority was a direct result of its open and free society. And, more and more America's space exploits were seen as victories not just for the U.S., but for all mankind. This view was even expressed by some behind the Iron Curtain.

CHAPTER VII

MAN ON THE MOON

The dramatic flight of Apollo 9 received unprecedented television coverage throughout the world, largely as a side benefit of the American space program, which had itself provided the satellite television relay stations.[1] In England, the BBC television devoted an hour-long news program to the return of the spacecraft, and a science correspondent suggested that the Soviets might "risk" a moon landing earlier than planned "purely for propaganda." The weekly Economist maintained that:

> . . . the success of Apollo 9, and particularly of the tissue-thin lunar module, justifies all those millions of hours of computer time predicting what space would be like before man ever set foot in it . . . Nothing has emphasized the gap between the American and Soviet approach in space as this last Apollo trial . . .

In West Germany, General-Anzeiger of Bonn remarked that:

> . . . this excursion exceeds all other American and Soviet space flights in boldness (and) has ended the guessing about which of the two space exploration nations leads the other by a few millimeters in the race to the moon . . . The U.S. has now achieved a lead of a few meters . . . NASA has outstripped the Soviets in thrust.

La Nacion of Buenos Aires went further than most when it contrasted U.S. and Soviet space records:

> Sixteen U.S. manned space flights against nine for the Soviet Union, and 1994 flight hours as against 533, plus the extravehicular activities, indicate a noticeable imbalance which becomes more marked when linkups in space, controlled from the ground, are added.

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[1] "The Success of Apollo 9", Current Issues, 14 March 1969, p. 1-3.

The momentum of the American space program continued to build with the launch of Apollo 10 on 18 May 1969, followed by the injection of its command module "Charlie Brown" into lunar orbit and the flight of its lunar module "Snoopy" to within 30,000 feet of the moon's surface. The mission went perfectly, except for minor problems in undocking "Snoopy" from "Charlie Brown", and an exciting few moments when the lower half of the lunar module was jettisoned, simulating the launch from the moon's surface, resulting in brief but wild gyrations of "Snoopy".

Overseas new media closely followed the flight of Apollo 10 from the beginning.[2] The Daily Express of London expressed the view of many commentators around the world when it said:

> Such is America's superb technological mastery of space vehicles that these blast-offs are becoming almost routine. Everything is expected to function exactly as planned . . . But there is one thing that cannot be programmed . . . The success of the venture depends on the men . . .

A French radio correspondent remarked in a broadcast that the launchings have attained such precision that he hardly knew what to say. "The precision is even greater than the French railroads!" he said. On 19 May, Moscow domestic radio said that the main aim of the flight was to test the "Snoopy" two-man vehicle in independent flight in lunar orbit:

> People wish success to the American space explorers who are prepared to compensate with their courage for any insufficient reliability of the craft, which has not yet been tested in true space.

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[2]"Apollo 10: Off To The Moon", Current Issues, 19 May 1969, p. 8-10.

In the next few days world media reaction continued to praise the progress of Apollo 10, but some began again to question its value as compared to the needs of the people of earth.[3] El Sol de Mexico asked if U.S. and USSR space accomplishments were not "excessive and even superflous", adding:

> They are a response to the military needs of the great powers, while it is urgent here and now to undertake measures to guarantee an adequate, dignified life for millions of marginal people--entire nations--before applying our resources to adventures in space.

But Novedades, also of Mexico City, agreed that it was well to think of "the needs of man", but suggested that this could be better accomplished by "interrupting the armaments race rather than crippling the space odyssey." The newspaper Asahi of Tokyo also wondered why "big countries like the U.S. and USSR undertake such costly space projects" when they "do not have direct bearing on the livelihood and welfare of their peoples." However, Hankuk Ilbo of Seoul voiced a hope that the Apollo mission "will move the earth toward the paradise of common prosperity for mankind, with the peace and security which peoples everywhere earnestly desire".

Massive television, press and radio coverage continued as "Snoopy" made its low level flight over the surface of the moon.[4] Comment of an editorial nature was light. But France-Soir of Paris did say of the gyrations which occurred when the lunar module separated from its

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[3]"Apollo 10: Approaching the Moon", Current Issues, 21 May 1969, p. 7-10.

[4]"Apollo 10: Circling the Moon", Current Issues, 23 May 1969, p. 5-7.

descent stage: "A catastrophe was narrowly averted. It was thanks only to the cool-headedness and technical skill of the two astronauts that 'the lunar tour' did not end in tragedy."

But La Nazione of Florence did not agree. In a page-one editorial it said:

> Snoopy, the lunar module of Apollo, did not fail . . . Technical accuracy, human courage and formidable coordination between the earth and the moon were the essential elements of the success of the American space technique.

As the world followed the flight of Apollo 10 on its return to earth press observers in free world capitals praised the successful test of the lunar module and Moscow media carried only brief, factual accounts.[5] The Sunday Telegraph of London said "millions of men of all nations" were sharing "what is not only a triumph of the American scientists, but also a strong dose of the American way of life." It added "we have been spared any trace of propaganda", saying: Moreover, the mere fact that these hazardous operations are being televised live is, in itself, a tribute to the American idea of an "open society."

The paper dismissed as "irrelevant" arguments that vast sums spent exploring space would build many hospitals, roads and schools. It added "for good or evil, man has now stepped firmly outside his own planet, and will never step back." Il Tempo of Rome compared the "triumphant Americans" to the "triumphant Caesar of ancient times." It said the Americans were "playing down their victory" over the USSR

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[5]"Apollo 10: The Voyage Home", Current Issues, 26 May 1969, p. 1-3.

in an "anxious attempt to resolve what has been termed a 'two-cultures' situation." This showed, it said, that the Americans "are worthy of the leadership that the West and human history have bestowed upon them." Factual and brief TASS reports from Moscow described the flight of the lunar module, its return to the command module and the beginning of the return flight.

After the return of Apollo 10 to earth the paeans of praise for the American space feat continued for several days. Many commentators assumed that the Americans had won the race to the moon, but many others saw the voyage as an achievement of all mankind; even Moscow media praised the flight and commended what they now rather ironically called the "American cosmonauts".[6]

The conservative London Daily Express welcomed back the "heroes of Apollo 10", saying:

> Theirs has been the most momentous journey in history, enabling scientists and laymen all over the world to form a detailed and dramatic picture of the moon's surface . . . And this is only the beginning . . . Mankind is on the brink of an age of discovery like that which opened up with Columbus. This time it is new worlds that are being discovered.

The tabloid Daily Mirror of London termed it "the most momentous space probe since the space age began 12 hectic years ago. Next stop, the moon--thanks to Charlie Brown and Snoopy . . ." Even the liberal iconoclast of Manchester and London, the Guardian, which had often been critical of resources expended on space programs now had rather oblique praise:

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[6]"Apollo 10: Return to Earth", Current Issues, 28 May 1969, p. 1-4.

> Could something of the same precision not be brought to bear on, say, the housing program? Probably not, because the things that matter most, like good homes, are issues so sprawling and confused that chaos in some degree or other, will prevail . . .
>
> The glamorous prestige adventure will always command the necessary resources, though its achievement may be of limited usefulness. It would be a mistake, though, to take an excessively pessimistic view of our choice of priorities. The so-called spin-off from extravagant ventures might never have been obtained otherwise.

Corriere della Sera of Milan found a gap "between us humble mortals and those who are going to the moon . . .". The Italian paper said:

> They are not singular heroes like Lindbergh. They are a race of men . . . a species of supermen of the year 2000, already much different from you or me, or the people we know . . .

In West Berlin Tagesspiegel thought the space achievements of the two superpowers had produced a "schizophrenic world". Some people "take off for the moon," it noted, while others tried to learn how to operate a farm tractor. But Spandauer Volksblatt commended the astronauts who "make no nationalistic or ideological fuss." They were contrasted with "those who repolish the courage of their cosmonauts in a predominantly politico-ideological manner and who want to adorn space with Lenin pennants."

Figaro of Paris said the "three astronauts deserve the highest award for TV reporting." Vienna's Die Presse agreed that the "most impressive aspect of the feat" was that the trip was made "in full view of the world." Yomiuri of Tokyo saw "growing signs that the Soviet Union is moving from U.S.-Soviet competition to U.S.-Soviet cooperation . . .", and urged a partnership in space. Mainichi of Tokyo also urged

cooperation since "scientific knowledge is the common property of humanity." Moscow radio and television, and commentary in Pravda and Izvestiya praised the flight as being almost perfect, and commended the courage and good humor of the U.S. "cosmonauts."

In Eastern Europe radio, press and some television stations, covered the splashdown and hailed the flight as an "amazing" demonstration of man's conquest of the forces of nature. Even Communist media by now had appeared to accept that the U.S. would be first to the moon.

But the Soviets were not yet to be entirely counted out. Although there was mounting excitement reflected by extensive feature articles and lengthy commentaries in foreign media during the week before the launching of Apollo 11 on its historic journey, a large amount of commentary was also devoted to speculations about the intentions of the Russians in launching the unmanned Luna 15 on 13 July 1969, just three days before Apollo 11's scheduled blastoff.[7] Many felt that the USSR would attempt to bring back a sample of lunar soil in a last-ditch effort to divert attention from the U.S. flight.

London's Daily Mirror maintained that the "surprise launching of an unmanned Soviet moon probe highlights yet again the difference between the American and Soviet space programs." "It is this:" the paper said:

> 1) Every major American space shot is planned and conducted in the glare of world publicity. It is shared

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7"Apollo 11: Takeoff Nears", Current Issues, 14 July 1969, p. 1-5.

with the world. If it is a manned spacecraft, it is seen by the world from blast-off to splashdown through the TV cameras.

2) Every Soviet space shot, manned or unmanned, comes unannounced until the craft is safely launched--and remains very much a private Soviet affair.

The Guardian saw Luna 15 as proof that the Russians were keeping up in the space race and was a demonstration that the USSR could do as well as the U.S., or better, and as soon or sooner. Its story said:

> There is no doubt that this scientific journey is encapsulated in politics. Its arrival at the moon a few hours before the scheduled lift-off of Apollo 11 is an obvious attempt to divert world attention from the American flight. Yet it seems most unlikely that the Russians, quiet masters of space logic, would be satisfied with an anti-climax . . .
>
> Certainly it would be highly uncomfortable and extremely distracting for Armstrong, Collins and Aldrin to have another craft in an orbit not very different from theirs as preparations for the descent were being made. Indeed, if the Russian craft went into a low orbit similar to that of the American mother craft, it could lead to an abandonment of the American flight.

In West Germany Rheinische Post of Dusseldorf saw Luna 15 as "mainly a propaganda effort . . . It will dominate the Soviet press in the next few days and eclipse Apollo 11, particularly if the Soviets manage to bring back moon soil." It also commented that fear of failure kept the Russians silent about its purposes, while the U.S. had "announced every detail of the latest test of U.S. technology and human capability." Koelner Stadt-Anzeiger of Cologne stressed that the purpose of Luna 15 had not been revealed, but pointed out that if the probe brought back a sample of lunar soil it would be a "technological feat of the first order" and would "raise the question of why human life is

risked if the mission can be carried out by an unmanned craft."

Le Soir of Brussels said the Russians "could have chosen a better moment" unless they were indeed attempting to cut the ground from under the American's feet. Libre Belgique doubted that the launching was "routine".

In Japan newspapers also saw the Russian space shot as an attempt to beat the U.S. in returning a piece of the moon to earth. Sankei had a banner headline saying "USSR LAUNCHES LUNA 15 FOR SOFT MOON LANDING AND RECOVERY IN ORDER TO SURPASS THE U.S. IN UNMANNED SPACESHIP." Yomiuri led with "UNMANNED PROBE TO MOON TO COLLECT ROCK SAMPLES? LUNA 15 LAUNCHED TO ECLIPSE APOLLO 11." In Hong Kong the South China Daily Mail wrote "The moon shot will make a deep impact on Asian capitals . . . It will give the Americans something extremely vital in Asia--a vast amount of prestige."

On the day scheduled for the launch of Apollo 11, world media was almost unanimous in wishing the astronauts well and most anticipated a successful moon landing; the earlier flurry of interest over the USSR's announcement of the Luna 15 probe had largely subsided.[8] In London, the Daily Mail said the spacecraft "is a symbol of the might and majesty of America . . . And the men riding in it symbolize the great American dream which may yet provide the answer to the great American conundrum." The Daily Telegraph said the mission marks "the finish of an era of one thousand million years during which man has evolved solely within the

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[8]"Apollo 11: Before Liftoff", Current Issues, 16 July 1969, p. 1-11.

ambience of earth's gravity . . . As with all explorations, there is a fantastic element of risk . . . Good luck and warm wishes . . ."

West German television networks set up special studios with maps and models for demonstrations during the flight. A German correspondent reported from Cape Kennedy that "the Americans are far ahead in the field of manned space explorations," but the Soviets have taken "bigger steps forward" with their unmanned missions to distant planets. West Berlin's Tagesspiegel covered all bets in saying that "the Kremlin is playing a risky game" in launching Luna 15 toward the moon because "if the experiment fails, the gains it made by Sputnik many years ago will be destroyed. If it wins and the Americans fail, the Soviet Union will again be far ahead." Spandauer Volksblatt asserted that the astronauts would conquer the moon "for all of us", but philosophically added "It is unimportant in the final analysis which flag is planted on the lunar surface first. What is important is that the success will not be the end, but an incentive to new accomplishments."

In Paris Parisien-Libere reflected feelings of awe in saying that the world would be breathless during the nine days of the moon voyage, declaring "another fantastic feat. You will share those exciting hours with them, thanks to world television." But Combat deplored the indifference and opposition of some, observing that "men are losing their capacity for awe . . ." The paper ran a byline article asserting that the Soviet Union has lost the race to the moon and that people in Moscow were not concealing their disappointment:

> Everyone in Moscow knows that the game is lost as of now, and is wondering: What are we to think of the rival system? Are our scientists incapable of conquering the moon? What a terrible failure for the socialist world! July 20 will be a date the Soviets will not forget.

Austrian television announced plans to carry twelve hours of coverage on the day of the moon landing. This prompted one daily to suggest that the day be declared a national holiday so that all Austrians could sit in front of their sets and watch history unfold. It was also reported that TV rental firms had exhausted their supply in filling orders from businesses and factories who hoped to cut down on absenteeism by installing sets where workers could watch on the job. Norwegian radio announced that for the first time in its history it would remain on all night to cover the moon landing. In Stockholm Svenska Dagbladet deplored the sensibilities of those who dismissed the Apollo trip as a stunt, saying "one thing is sure: They find themselves, in the historical sense, in great company--they join the fashionable group who lamented the voyage of Columbus . . ."

Interest was at a peak in the Far East. All major television stations in Japan scheduled the launch live via satellite, and predicted that it would be seen by 70 million of Japan's potential 87 million viewers. With over 100 journalists from Japan at Cape Kennedy, all leading dailies gave prominent coverage to the emminent launch. South Korean media reported the installation of a giant television screen in a band shell in Seoul so the public could watch the launch. Conservative Kyunghyang Shinmun of Seoul noted the astronauts would leave a plaque on the moon inscribed "we come in peace for all mankind," and this act

"explicitly signifies the U.S. intention of sharing the glory of the Apollo moon landing mission with all mankind." It added, "we think Russia's launching of Luna 15 was motivated by sheer rivalry and represents a conscious effort to exploit space exploration for political purposes."

Throughout the Middle East media reaction was largely favorable to the American effort. Son Havadis of Istanbul suggested a new calendar dating from the day man landed on the moon. Leftist an-Nahar of Beirut expressed admiration for the U.S. astronauts, and rather quixotically thought the Americans were making too much noise over the event, and saw the Russian silence about details of the Luna 15 mission as being motivated by modesty. But the conservative al-Jarida of the same city retorted that "Washington considers man to be more important than the regime, while Moscow thinks the opposite." In Africa some papers were critical of the U.S. spending so much on space; the New Nigerian of Lagos said, "The American Administration cannot expect the black people to be desperately ecstatic about Apollo 11 . . ." But the influential Daily Times of Lagos saw it differently, and quoted the former Minister of Agriculture, Sanya Onabamiro, as saying "we may hail the astronauts . . . We call them brothers, Americans and friends." In Latin America most comment was centered on concern as to whether ground stations would be operational in time for the moon landing to be seen by television satellite.

With Apollo 11's perfect lift-off for the moon, an outpouring of dispatches and editorials seemed to affirm the sense of personal

participation all over the world.[9] Foreign media repeatedly expressed the feeling that the astronauts were the "messengers of mankind." The event was seen by millions, more than had ever watched a single event, on live television. Libyan television monitored an international event for the first time. South Americans enjoyed their first satellite television broadcast.

Some French observers were among those who called attention to the cost of space programs and the prevalence of poverty on earth. But many papers that had often been critical of the U.S. were laudatory. Among these was the intellectual-left Combat of Paris.

> They spare us philosophical considerations . . . They do not preach to anyone and they leave everyone free to interpret this grand premiere as he pleases . . . One cannot imagine an attitude more simple, modest, sympathetic, or respectful of one's neighbor's intellectual rights. No propaganda, no brainwashing, no untoward pride among these men . . . Can you imagine China or Russia in a similar situation?

Moscow television carried a five minute clip of the liftoff, and Pravda introduced the American "cosmonauts" to its readers and linked them with the recent visit of Frank Borman and his meetings with Soviet astronauts. Their common feature, wrote Pravda was "their courageous simplicity, the calm confidence of people who have paved the first paths into the unknown . . ." East Berlin deplored the sensationalism of the event which it said "to a certain extent far exceeds the bounds of good taste . . ." Moscow radio, which had not mentioned Luna 15 since its

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[9]"Apollo 11: Liftoff to the Moon", Current Issues, 17 July 1969, p. 1-14.

launch four days before, said that the "space station" had entered lunar orbit.

As Apollo 11 neared the moon, world media reported on upcoming events including President Nixon's television conversation with the astronauts on the moon and the plan to place insignia and medals belonging to American and Russian astronauts who had earlier lost their lives, on the surface of the moon.[10] Pictures transmitted from the spacecraft were seen for the first time by millions of people in areas newly linked to satellite relays. The concurrent mission of Luna 15 occasioned "space race" headlines in many world capitals. Most observers concluded that even if the Russian craft brought moon samples back to earth, the feat of landing men on the moon would be so spectacular that nothing could compare with it. An ever increasing theme all over the world was that the Americans in truth represented all mankind.

Soviet and East European media gave the event relatively wide coverage including television clips, photographs and biographies of the astronauts. Pravda gave wishes for "every success to the Apollo 11 crew on its history making mission." Moscow radio, broadcasting in English to North America said, "The dramatic event is now the focus of attention of many Soviet newspapers." It summarized straightforward treatment in Pravda, the trade union paper Trud, the youth paper Komsomolskaya Pravda, and a local daily, Moskovskaya Pravda. But in a domestic broadcast it

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[10]"Apollo 11: Anticipation of a Lunar Landing", Current Issues, 18 July 1969, p. 1-13.

referenced the "poor people's march" in Florida led by Ralph Abernathy. The Soviet Luna 15 claimed almost no attention in Communist media.

As Apollo 11 went into orbit around the moon, the mission continued to generate banner headlines in nearly all world capitals and the radio and television time devoted to the voyage continued to set records.[11] Many papers carried special pull-out supplements and long articles, but commentary was light. Of all the London papers, only the Sunday Express carried an editorial; its theme was that the astronauts represented all mankind. That paper also carried an article under the heading "Has the Red Robot Won by a Short Lead?" With a statement by Sir Bernard Lovell that "you cannot absolutely exclude the possibility that Luna 15 might have been transmitting to a capsule on the moon."

In Tripoli the Libyan Ministry of Information paper, al Alam, said:

> From Egypt come reports that Sheikh Ahmed Huraidi, Mufti of the UAR, has stated that the flight of Apollo 11 is consistent with the teachings of the Koran . . . The Koran, he explained, says that the first man was chosen by God to settle the earth and benefit mankind by using his talents through natural things such as the sun, stars, water, mountains and the moon . . . Now he is trying to utilize the moon . . .

In Rio de Janeiro the Diario de Noticias reported that President Coste e Silva had instructed his Minister of Communications to exert every effort to get the malfunctioning Intelsat III working to permit the Brazilian people to view the moon landing live. Moscow radio said that foreign commentators who said that the flights of Apollo 11 and

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[11]"Foreign Media Reaction: Apollo 11", Current Issues, 20 July 1969, p. 1-7.

Luna 15 were illustrations of competition between the two great powers were wrong. It said ", . . . space can hardly be an arena for such contests. One cannot toy with space. It is harsh and commands respect . . ."

The landing of the lunar module Eagle and the first walk on the moon by Armstrong and Aldrin, the latter even broadcast live on television to the largest audience in history, caused an outpouring of media coverage of unprecedented proportions.[12] In London papers devoted the entire front page to the subject and numerous editorials lauded the achievement. The Daily Sketch declared the "American moon triumph offers this old earth's bickering and jealous peoples a parable of hope." It said "This mighty and unsecretive nation . . . has shown a wondering world just what twentieth century man is capable of." The liberal Guardian, often a severe critic of American space efforts, published a somewhat grudging accolade: " . . .no other adventure was as great as this," adding that July 20 marks "a watershed in human history." It further asserted that to divert vast sums of money and the energies of the best engineers and pilots:

> . . . may be counted serious mismanagement of the world's resources, but the diversion was inevitable. Kennedy's motives may have been questionable. But someone was going to the moon and was surely going to get there long before hunger had been conquered in Asia or civil rights had been restored in Alabama.

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[12]"Foreign Media Reaction: Apollo 11," Current Issues, 21 July 1969, p. 1-15.

In Paris, there were a few sour notes. Combat contended that the "trumps" that both the U.S. and the Soviet Union will draw from space exploration "are likely to tighten the vice of power in which they keep the world . . ." La Nation contrasted the conquest of the moon with all that remained to be done on earth, asking the question "How many victories over war or triumphs of justice appear to be clearly more urgent than the conquest of space?" The financial paper Les Echos was more representative when it said: "The fact that the first men to reach the moon are Americans and not Soviets represents a psychological and technical trump of the first magnitude for the U.S., and this is only right . . ."

Throughout the rest of Europe many papers felt that the achievements should not be viewed as an example of the diversion of effort away from the pressing problems of the world, but rather as one of what could be accomplished in other areas with the same sort of effort. The Rheinische Post of Dusseldorf was one of these. It argued that the energies of the space program:

> . . . consumes would otherwise found their outlet in foreign policy . . . What has been achieved at Houston and Cape Kennedy justifies the highest hopes if similar methods are applied to such problems as hunger, urban rehabilitation, and education . . .

Other German papers reflected conviction that the U.S. had won the space race. Bonn's General Anzeiger asserted that "the somewhat small-minded Luna 15 project reflects the extent of Soviet disappointment. Has the Moscow leadership failed to grasp how poorly Soviet secrecy compares with America's unrestricted frankness?" Bild Zeitung of Hamburg held that "a new millenium has begun," and remarked that "regardless

of Wernher von Braun and several other Germans, Apollo 11 is no joint undertaking. It is a U.S. victory following stiff competition with the Soviets . . ." The paper added "We have due respect forthe Sputniks and Luna 15 . . . but it is first and foremost the U.S. which will lead mankind toward a new technological and scientific future."

Halfway around the earth in the Republic of Korea, a national holiday was declared. In Japan audience estimates were that at least one-half the population heard the announcement, "The Eagle has landed." In Manila crowds watching television screens in public places burst into applause as the astronauts planted the American flag on the moon. In Laos, radio listeners for the first time followed a world event at the moment it was actually taking place, as the national radio network tied into the live Voice of America broadcast.

In Tel Aviv Maariv said "All of a sudden everything looks different, changed . . . The moment man has set foot on the moon, it is no longer the same . . ." Semi-official Davar stated that "future historians will be able to ignore many great events and developments, but not that dramatic and epoch-making event last night." Yediot Aharonot felt "bound to say" that"the achievement entitles America to lead the world, even morally." In Cairo the major Arabic paper al-Rai al-Am said that the U.S. had "achieved one of the greatest victories of the human mind in recent history." However, Cairo's Middle East News Agency carried a statement by a government spokesman who accused Israel of attacking in the Suez area for "military gain while the world was busy with the moon flight." Throughout Africa, comment was almost entirely laudatory, with

a few scattered statements of concern that the vast resources expended could better be put to use on earth. Togo-Presse of Lome wrote "The solidarity men feel with the three American astronauts should be devoted also to solving the problems of the human condition on earth."

Soviet and East European media followed the "Eagle" from undocking through the moon walk to re-entry of the astronauts into the lunar module. Live television coverage went to audiences in Poland, Czechoslovakia, Rumania, Hungary, Bulgaria and Yugoslavia; other capitals replayed video tapes recorded from satellite relay. The "political observer" of the Soviet All-Union Radio and Central Television commented at length on the event. He emphasized that achievements in space were brought about not so much by the efforts of individual nations, but were rather "achieved by scientists and workers of different countries." But as evidence that the Soviet Union "marches in the vanguard of scientific-technical progress," thanks to the activities of the Communist Party, the commentator cited progress in coal output, irrigation, crop yields and hydroelectric installations, lastly enumerating "research in space around the moon" by Luna 15 as only one of the benefits of advanced science and technology.

In Warsaw, the Trybuna Ludu was the first paper from a Communist country to express a feeling of participation in the American feat:

> ". . . on the moon, the astronauts do not represent . . . a nation, a race or a continent. They are the ambassadors of the whole of mankind . . . With Armstrong and Aldrin, we are experiencing a triumph that can only be compared to the triumph of Columbus . . . Let them know the way we identify ourselves with them, the way we admire their conscious bravery and sober valor and the way we respect them for the fact

> that they nobly represent us, the people--thinking, enterprising and penetrating creatures eager to explore the universe, inhabitants of the third planet of the solar system.

As the mission of Apollo 11 neared fulfillment, worldwide exhilaration and excitement was reflected in world media.[13] There was lively speculation about the future of space flight but fewer editorial questions of why space can be mastered but not the earthly problems of war and poverty.

In Germany the General-Anzeiger of Bonn taunted the Russians:

> Wernher von Braun unwittingly threw salt in Soviet wounds by equating leadership in space with leadership on earth. This is the way the Soviet leaders see things . . . as was indicated by their generally narrow-minded reaction to the American feat.

But the German paper was being somewhat unfair, because the Soviet and East European media had, albeit belatedly, joined in the general acclaim for the accomplishment of the Americans. In Moscow the most extensive television coverage was given to the venture, including tapes of the moon walk, with laudatory comment by the Soviet's best space scientists. Pravda front paged the moon landing under the headline "THEY HAVE MOONED!", and Izvestiya had a front page picture of the astronauts walking near "Eagle." In addition to a front page article titled "The First Steps," the paper had an inside commentary by Soviet space scientist, Dr. Konstantin P. Feokistov, who said:

> This, without a doubt, is a major development of cosmonautics . . . The very fact of the first landing

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[13]"Apollo 11: The First Men on the Moon", Current Issues, 22 July 1969, p. 1-16.

of human beings on another celestial body cannot but stimulate the imagination. What recently has been pure fantasy is now a reality.

TASS announced the "end" of the Luna 15 flight "which yielded important data" and "reached the moon's surface in the preset area." Apparently at this point the conclusion had been reached that the less said about the ill-fated flight, the better.

Throughout Eastern Europe, news media picked up the refrain that the American success was a triumph for all mankind. Heads on stories in Czechoslovakia included "First Man on the Moon", "United States Fulfills Long Dream of Mankind: American Eagle on Moon", and "Historic Victory of Mankind." In Sofia, it was "A Space Triumph", and Bucharest's Press Agency, Agerpress, noted headlines in that city such as "A Brilliant Victory of Man", and "An Epoch-Making Event in the History of Civilization." Even East Berlin, which had declined to participate in live television coverage, now carried highlights of the project and laudatory evaluation of the mission by Soviet space scientists.

As Apollo 11 finished its epic journey and made a successful splashdown in the Pacific, where the astronauts were greeted by President Nixon, a feeling of certainty that the astronauts and mankind had lived through a great event pervaded editorial discussion in the world's news media.[14] There were many tributes to the American society, which in the view of many, made the great effort possible. For some, these

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[14]"Apollo 11: Waiting for the Splashdown", Current Issues, 24 July 1969, p. 7-13.

thoughts led to reflections on Soviet secrecy and the news blackout on the moon voyage in Communist China and some other countries. Meanwhile in Dar es Salaam, the Swahili-language Ngurumo printed columns of religious opinion which was divided between those who thought the act would bring down God's wrath on man and those who thought the moon landing fulfilled God's wish.

In Belgium leading papers were stating what was to be a common theme of editorialists around the world. La Derniere Heure wrote:

> The Americans play the difficult game of openness, frankness, and fully exposed research. Their failures were instantly known to the entire world. They did not become discouraged even then. They have just demonstrated overwhelming superiority owing to their genius, the brilliance of their scientists and the courage of their astronauts . . . Such conduct deserves only respect. It is a matter of pride for the entire free world, which has nothing to hide in its achievement or its aims.

Het Volk of Brussels asked:

> Isn't it time for the Russian leaders finally to realize that freedom and openness are not forms of weakness--even though at times they appear to be so--but rather sources of strength, above all creative strength?

In Tehran, intellectually-oriented Anyandegan wryly commented:

> It is noteworthy that the regime that washes its dirty linen in public every day remains in office and is capable of such colossal achievements . . . The ability of the media of mass communications to reveal so much has not led to any inefficiency, weakness of the economy, political instability or social backwardness. Neither prolonged and nationwide strikes nor rioting by students, nor the bloodshed of the Negroes can overthrow the government.

There were many who commented on the inability of many hard-line Communist countries to recognize the American achievement. In Bogota,

Colombia, the Liberal Party's El Tiempo observed that "it is an old Marxist habit to ignore what one does not believe in," and therefore found perfectly understandable the fact that "the Chinese, Albanians, Koreans and North Vietnamese should insist in not believing that there were two intrepid Americans on the moon." Typical of many commentaries on the rivalry between the two great space powers was that of the prestigious O Estado de Sao Paulo of Brazil: "The moon's conquest emphasizes the unquestionable superiority of the free world over totalitarian Communism." But in the opinion of this writer, the Jornal do Brasil summed up the real reason for the American success, its ability to organize and carry out great projects when clear goals are set. The U.S. suffered almost as great a blow to national pride when Sputnik beat America into space as it did when the Japanese attacked Pearl Harbor. And it reacted in much the same way. The Brazilian paper recognized this when it said:

> The American system acted like a gigantic magnet on the imagination of hundreds of thousands of Americans capable of making a contribution to the NASA program . . . The gigantic recruitment of talent--from government, from the universities, from industry--formed that admirable army of people which made the feat possible . . . The strength of democracy lies in its confidence in men. It is a force of optimism. The Soviets must be learning this lesson . . .

CHAPTER VIII

CONCLUSIONS

The major conclusions of this study of world opinion reaction to the space programs of the United States and the Soviet Union from Sputnik to Apollo are believed to be self-evident from the preceding discussion. Since at least one attribute of scholarship is the expression of the obvious in precise terms, an enumeration of conclusions will be attempted. Recommendations will be more limited in scope, as these are less obvious and more limited.

It was intended to trace the fluctuations of world opinion as to which of the contestants led not only in the space race, but also which was considered to be the leader from 1957 through 1969 in science and technology, and if possible, which was thought to enjoy strategic superiority. It was considered that an analysis of statistical surveys of foreign public opinion over the years would provide the best vehicle for such an evaluation. Because of the paucity of such surveys asking the desired questions during the period 1957-1966, and the absence of any surveys from unclassified sources since 1966, it has been necessary to turn to an evaluation of foreign media reaction to U.S. and Soviet space achievements, particularly after 1966.

Despite the limitations of the source materials, the conclusion seems inescapable that in the eyes of most informed foreign observers, from the time that Sputnik burst upon an unsuspecting world until only a few months before Neil Armstrong set foot on the earth's satellite,

the USSR led not only in space, but was considered to be the scientific and technological superior of the U.S. Indeed, many observers drew the conclusion that the Russians led in a strategic sense. So great was the impact of Sputnik and subsequent Soviet successes, and so well were they exploited by the Soviet propaganda machine, that the world was extremely slow to change its opinions even when confronted with unmistakable evidence of U.S. leadership. Considering the nature of Communist ideology, and the consistent record of the Soviets in attempting to export that ideology, America must make every effort to ensure that they are never again given such potent ammunition to be used to forward the theme of socialist superiority.

It is also evident that when America did achieve final success in the race for the moon, and received its due acclaim from the world, it did it in typical American fashion, and this is to its credit. No amount of polemics, no corps of propaganda specialists could have achieved the same effect as did the simple statement of the goal, assembly of the required resources, exertion of the concentrated effort and the carrying out of the task in the plain view of the world. America simply did that which it does best, in the same way that it has responded to crises throughout its history. There could be no better accolade for an achievement made through the carrying out of the values and goals of an open society, which remains open even when there is dirty linen to be washed. Dr. Thomas O. Paine, the Director of NASA,

accurately stated the opinion of the world as reflected in foreign media comment when he said:[1]

> The openness of NASA's program has brought home to the people of all nations the nature of our free society, the scientific and technological power of the United States, our governmental and industrial ability to organize and apply this power, and our intentions to do so in beneficial ways which do not threaten the security of vital interests of other nations.

The question now arises, where does the U.S. go from here? Part of the answer to that question was provided as early as 1967, when the President's Advisory Commission made recommendations for the Post-Apollo program.[2]

> A fundamental consideration in discussing the U.S. space program is that since it is undertaken for many reasons a cost analysis of its benefits has only limited utility. For certain applications, e.g., the use of satellites in a storm warning system, cost analysis is feasible, if inexact. For other applications cost analysis is less easy . . . How can we attach a dollar value to the attainment of a position of leadership in space? What of space exploration--what value can one attach to the excitement and the general stimulation of the national spirit that results from a manned lunar landing? And what of space science . . .?

The Commission went on to discuss some of the possibilities in detail and concluded, "Therefore the Panels favor a balanced program based on the expectation of eventual manned interplanetary exploration

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[1]Thomas O. Paine, "Space and National Security in the Modern World," Air Force/Space Digest, May 1969, p. 107-109.

[2]President's Science Advisory Committee, "The Space Program in the Post-Apollo Period, (Washington: U.S. Govt. Printing Office, February 1967), p. 5.

. . ."[3] But there are those who see such a program as being too expensive, and as many of those who commented in foreign media over the years have said, a case can be made that such vast resources should not be poured into space exploration when they could better be utilized to improve the lot of man on earth. A strong answer to this argument is furnished by Dr. James E. Webb, who was the Administrator of NASA during the crucial years from 1961 to 1968 in pointing out what he considers to be little understood:

> We conceived, developed and carried out this ten-year program in terms of a relatively small impact on our national resources. The total cost of the entire . . . program in this first ten years is less than . . . six percent of what we spent on defense during the same period. . . . These advances in aeronautics and space account for less than 3 percent of the total of our federal expenditures for the ten year period; . . . less than five one-thousandths of our gross national product. Over 90 percent of the funds used went outside of the government, to pay for work in the laboratories and factories of 20,000 prime and subcontractors and their suppliers and to pay for research and training on the campuses of 200 universities . . . the know-how spread into large areas of industry . . . through increases in industrial production and profits within and without the aeronautical field, large portions of the public investment were recovered in taxes.[4]

Dr. Webb also sees the techniques developed in the space program as being applicable elsewhere:

> Many great economic, social, and political problems press in on us. We cannot save our inner cities without new approaches and organizing methods, without the effective application of new knowledge, large resources, and a diversity of skills drawn from many disciplines. The same

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[3] Ibid., p. 14.

[4] James E. Webb, Space Age Management, (New York, McGraw-Hill, 1969), p. 23-24.

> goes for air pollution, water conservation, and highway congestion, for dangerous imbalance in the world population-food ratio, and for other problem areas. Piecemeal attacks simply will not work . . .[5]

The real problem in getting the American people to support the cost of continuing the space program, and recognizing the importance of this vast new frontier to the future security and prestige of the nation is simply that too few have the imagination to appreciate the possibilities that exist in space. They are like those in Spain who criticized Queen Isabella for financing an unknown Italian in his efforts to find a new world. They are too much like that illustrious American, Daniel Webster, who made an impassioned speech on the floor of the U.S. Senate objecting to the funding of the transcontinental railway, when he said:

> What do we want with this vast, worthless area; this region of savages and wild beasts, of shifting sands and whirlpools of dust, of cactus and prairie dogs? To what use could we hope to put these great deserts or those great mountain ranges, impenetrable and covered with eternal snow to their very bases? Mr. President, I will never vote one cent from the public treasury to place the Pacific coast one inch nearer to Boston than it is now.[6]

Man has gone to the moon, and he will make greater journeys in space. And where the explorers go, trade and commerce, and people looking for a new and better way of life, always follow. Unfortunately,

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[5] Ibid., p. 15.

[6] Daniel Webster, quoted by George P. Miller, "Open Space and Peace," The Evolution of Space Science, Frederick J. Ossenbeck and Patricia C. Krock, eds., (Stanford, Calif., Stanford University Press, 1964), p. 98.

the movement to new frontiers nearly always leads to conflicts between nations and peoples over the resources found there. There is yet hope that this last pattern can be avoided through agreement with the Soviets that space will be used only for peaceful purposes. But the resources of the solar system and of the universe, are a billion-fold greater than those of the earth; some conflict over their exploitation is inevitable.

If the United States is to retain its prestigious position as the scientific, technological and economic leader of the world, a position which must be maintained if democracy is to survive on earth, America must continue to lead in the exploration of space and its inevitable exploitation. Otherwise, future nations on other worlds will be governed by Commissars and Soviets, not by democratically elected officials.

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