TOP SECRET

TOP SECRET

This document consists of 51 pages

No. 1 of 1 Copies, Series AC-A

INFORMATION ON OUTER SPACE

HISTORICAL DIVISION
JOINT CHIEFS OF STAFF
26 February 1959

EXCISED UNDER THE PROVISIONS OF THE FREEDOM OF INFORMATION ACT 5USC552 (b) (1) (87-F01-2215)

C 2491

Copy 6 of 8 copies

EXCLUDED FROM AUTOMATIC REGRADING: DOD DIR 5200.10 DOES NOT APPLY

TOP SECRET

OA-CUI-1433-1A

TOP SECRET

TABLE OF CONTENTS

Part		Pages
I	CHRONOLOGICAL RESUME OF THE MILITARY EFFORTS AND MILITARY SERVICE CONTRIBUTIONS IN SPACE	1 - 10
II	STEPS LEADING TO THE ESTABLISHMENT OF NATIONAL SPACE AGENCIES	1 - 8
III	SUMMARY OF THE WAYS THE JOINT CHIEFS OF STAFF HAVE PARTICIPATED IN MATTERS DEALING WITH OUTER SPACE	1 - 2

TOP SECRET

PART I

CHRONOLOGICAL RESUME OF THE MILITARY EFFORTS AND MILITARY SERVICE CONTRIBUTIONS IN SPACE

TOP SECRET

CHRONOLOGICAL RESUME OF THE MILITARY EFFORTS
AND MILITARY SERVICE CONTRIBUTIONS IN SPACE

Dec 48 In the first annual report of the Secretary of Defense, James V. Forrestal stated that the Earth Satellite Vehicle Program, which was being carried out independently by each military service, had been assigned for coordination to the Committee on Guided Missiles.

22 Dec 54 Secretary of Defense Wilson issued a statement stating that the combined efforts of the military services were being devoted to studies of earth satellites, that the studies were being coordinated in Mr. Wilson's office.

8 Jun 55 In a memorandum referring to the requirements placed upon the Defense Department by the President's approval of NSC 5520, the "U.S. Scientific Satellite Program," the Deputy Secretary of Defense assigned responsibility for coordinating the implementation of the "developmental program" and its scientific aspects to the Assistant Secretary of Defense for Research and Development.

9 Sep 55 In a memorandum implementing responsibilities of the Department of Defense under NSC 5520, the "U.S. Scientific Satellite Program," Deputy Secretary Reuben B. Robertson, Jr., approved a joint three-Service technical program to produce and launch a satellite based on the Navy's proposal to use a combination of the improved Viking (booster), the Aerobee-Hi (second stage), and the solid-propellant modified Sergeant (third stage). The Navy would manage the program and provide, on a reimbursable basis, the required funds. The Army and Air Force would participate in the technical program and assign work priorities necessary to meet the schedule established by the Navy. The Technical Advisory Group already established by the Assistant Secretary of Defense (Research and Development) would continue to advise him and the three Military Departments on the technical program.

5 Apr 56 The Secretary of Defense informed the President that the earth satellite program instituted by the decision on NSC 5520 and publicly announced on 29 July 55 now had an estimated cost of $60.5 million, compared to the original estimate of $20 million. To meet this obligation the Department of Defense needed $31.2 million in additional funds, and it would need a further $20 million, in addition to funds supplied by the National Science Foundation, if a current proposal to double the number of launching attempts, from 6 to 12, were adopted. The Secretary of Defense offered four alternatives: 1) to proceed with the 6-satellite program, at a total cost of at least $60 million; 2) to undertake a 12-satellite program, at a cost of at least $90 million; 3) to slow down the program, missing the IGY target date; or 4) to cancel the program. Noting that the last two courses would

TOP SECRET

involve questions of national prestige, he gave the Defense position as favoring the 6-satellite program. (On 8 May 1956 the President approved the recommendations of the NSC for the continuation of the current "6-satellite program." In formulating this recommendation the NSC had taken into consideration the JCS comment that the proposed action was acceptable from a military point of view.)

17 May 56
Air Force

Lt. Gen. D. L. Putt, Deputy Chief of Staff for Development, USAF, testified before the Symington Airpower Committee that the Air Force had been working on satellites and related matters since 1946.

29 May 56

After considering the views of the Joint Chiefs of Staff with respect to the military importance of Project VANGUARD, the Secretary of Defense advised the Assistant Secretary of Defense (S&L) that the project would be included on the Master Urgency List as Item 1 in Category I.

20 Dec 56
Navy

A Navy Department news release announced plans for a giant chain of scientific "eyes" to track the first man-made space satellite. Most of the tracking would be done by "Minitrack" radio equipment. The path of the satellite would be automatically calculated by an IBM electronic computer.

19 Feb 57
Navy

Testifying before the House Appropriations Subcommittee concerning the plans and progress of the U.S. earth satellite project, Rear Adm R. Bennett, Chief of Naval Research, stated that the "major purpose, the real, true purpose of the whole satellite program is strictly scientific . . ." Since only the military had the required rocketry knowledge, they were acting as "contractors to the scientific community of the United States" in respect of this rocketry knowledge.

19 Mar 57

The Assistant Secretary of Defense (Comptroller), W.J. McNeil, told a subcommittee of the House Committee on Appropriations that the cost of Project VANGUARD was running "far, far beyond any estimates," in spite of the fact that the Defense Department had held the project to half the scope desired by others. Mr. McNeil said that Defense funds had been advanced for the project in the belief that the Defense Department was acting as the agent of the National Science Foundation, the sponsor of the project, and would therefore be reimbursed or receive a supplemental appropriation. However, it now appeared that the Defense Department had become a "financial partner" of the National Science Foundation.

23 Oct 57

A Defense Department release stated that "the Vanguard rocket that will carry this country's satellite into the sky was put through a successful test in Florida this afternoon."

TOP SECRET

8 Nov 57 Army	Secretary of Defense McElroy directed the Army to proceed with preparations for launching a scientific satellite by use of a modified JUPITER-C test vehicle. The directive represented a switch in basic policy that heretofore had assigned the launching of a satellite solely to the Navy.
6 Dec 57	The first US attempt to launch a satellite was unsuccessful as the VANGUARD rocket bearing the test satellite burst into flame and burnt at the launcher. The failure of the rocket was due to an undetermined first stage failure.
22 Jan 58	The National Security Council noted that the President, on the recommendation of the Secretary of Defense, had established certain programs as having priority over all others for research and development and for the achievement of operational capability. The IGY scientific satellite (VANGUARD-JUPITER C) programs and satellite programs (other than VANGUARD and JUPITER C) determined by the Secretary of Defense to have objectives with key political, scientific, psychological or military import were included among those programs having the highest priority. This action (NSC Action 1846), approved by the President on 24 January, superseded conflicting portions of earlier NSC actions and NSC 5520.
31 Jan 58 Army	The first US earth satellite was successfully launched into orbit. The small instrumented satellite, fired in support of US IGY commitments, was intended to provide micrometeorite and radiation data. Dubbed "EXPLORER I," it was fired by means of a JUNO I vehicle, a modified JUPITER-C rocket. The satellite weighed 18.13 pounds (30.8 pounds, including the burnt-out final stage of its rocket), had an apogee of about 15,000 miles and a perigee of about 200 miles, and was expected to remain in orbit until 1963. In May 1958, its transmitter went dead.
3 Feb 58	According to the New York Times, the Defense Department had decided to release funds for advance planning on more ambitious satellite projects and had agreed on a space exploration program. Heavier and more elaborately instrumented satellites were envisioned, according to the Times. The Army was reportedly asking permission to launch two television-equipped reconnaissance satellites in 1958.
4 Feb 58	In testimony before the House Subcommittee on Appropriations, Air Force Secretary Douglas stated that failure of the US to put up the first satellite did not have "anything to do with organization, or with service rivalry." The decision was made, he said, "to emphasize the military missiles," and "to do the satellite as a scientific civilian enterprise."
25 Feb 58	The Assistant Secretary of Defense (ISA), in anticipation of a requirement for the development of a national policy regarding outer space, circulated to appropriate

offices within the Defense Department an outline of some of the elements requiring consideration in formulating such a policy. This outline, which had been prepared in consultation with interested agencies within the Department and with the Office of the Special Assistant to the President for Science and Technology, included these general headings: (1) present or potential uses of space; (2) US requirements; (3) estimates of Free World and Soviet capabilities; (4) international controls and agreements for peaceful uses of space; (5) domestic organization; (6) strategic and tactical goals; (7) policy guidance; and (8) special problems.

4 Mar 58 — In response to a memorandum from the Assistant Secretary of Defense (ISA) that enclosed an outline of elements to be considered in formulating a policy regarding outer space (see item of 25 February 1958), the Chairman, JCS, forwarded his views on this subject to the Secretary of Defense. The Chairman's specific recommendations were aimed at preventing any US agreement to an international accord on outer space that was either unsound or not part of an over-all comprehensive inspection and disarmament agreement. He warned, also, that the US, in an effort to reach national or international agreement on outer space, should not "establish measures" that would unduly restrict any US space program.

5 Mar 58 — Army — An Army satellite, EXPLORER II, was launched but failed to go into orbit when the fourth stage failed to ignite. The satellite, a duplicate of the one launched successfully on 31 January 1958, was fired by means of a JUNO I vehicle, a modified JUPITER-C rocket. The purpose of the firing was to place a temperature and micrometeorite measuring payload in orbit.

17 Mar 58 — Navy — After two earlier failures, on 6 December 1957 and 5 February 1958, a Navy VANGUARD rocket successfully fired a 6.4-inch, 4-pound instrumented sphere into orbit. The objective of the firing was to demonstrate the second stage engine and the separation of the second from the first stage, as well as to test the rocket's guidance system. The satellite circled the earth at a maximum height of about 2,500 miles and a minimum height of about 400 miles, and had a life expectancy of 100 years.

26 Mar 58 — Army — The Army successfully launched EXPLORER III, the nation's third artificial satellite, by means of a JUNO I (modified JUPITER-C) vehicle. The purpose of the firing and general characteristics of the vehicle were about the same as those of the unsuccessful test of 5 March 1958. The satellite's orbit, 1,399 miles high at its apogee and 115 miles high at its perigee, was apparently not as planned, and the satellite burned up on re-entering the atmosphere on 27 June 1958.

27 Mar 58 Army Navy Air Force	The White House and Defense Department, in separate announcements, stated that the US would make four or more lunar "probes," sending specially equipped, unmanned vehicles into space to circle the moon. These projects would be carried out by ARPA in coordination with the National Advisory Committee for Aeronautics, the National Academy of Sciences, and the National Science Foundation, and work on them had been progressing for some time. Under the program, the Army would launch one or two lunar probes and the Air Force three, and the Navy would develop a mechanical ground scanning system for use in lunar probes. An initial allocation of $8 million had already been made by ARPA to the agencies concerned.
2 Apr 58	President Eisenhower submitted to the Congress a budget amendment covering $1,455,747,000 in augmentation of the FY 1959 appropriation request for the Defense Department. Among the high-priority projects to be accelerated, expanded, or initiated with these funds were a variety of projects under the direction of ARPA, including reconnaissance satellites and space explorations.
24 Apr 58 Air Force	The Commander of the Air Force Ballistic Missile Division, testifying before the House Select Committee on Astronautics and Space Exploration, said that the development of a military reconnaissance satellite, known as Project PIED PIPER, had been given equal priority with the development of ICBMs. The Chief Scientist of ARPA, Dr. Herbert F. York, told the committee that the Agency planned to launch satellites at the rate of one a month in 1959 and was working on plans for more powerful rocket engines and other sources of power for satellites, as well as on a program to "get a man in space."
27 May 58 Navy	A Navy VANGUARD satellite-launching attempt was unsuccessful. The small sphere--generally the same and with the same objective as that which failed to orbit on 28 April 1958--reached an altitude of about 2,200 miles but did not go into orbit. Although all three stages of the rocket functioned well in this latest attempt, the second stage became pointed steeply upward, causing the third stage to fire at an angle too sharp for orbiting. This was the fourth failure in five attempts to launch a satellite with a VANGUARD rocket.
18 Jun 58	The Department of Defense authorized ARPA to engage in studies and advanced investigations of the effects of space weapons employment on military electronic systems. This authorization was not an exclusive assignment of responsibility, since the military departments might be concurrently engaged in similar investigations.
26 Jun 58 Navy	Another attempt to orbit a VANGUARD satellite was unsuccessful when the second stage of the rocket shut down prematurely. Characteristics of the satellite and the purpose of the test were generally the same as in the unsuccessful test of 27 May 1958.

28 Jun 58 President Eisenhower approved a proposal by the Deputy Secretary of Defense to collect data by means of air-launched three- to four-pound instrumented satellites.

3 Jul 58 [redacted]

[redacted] The Defense Department pointed out that, although a satellite with reconnaissance equipment was not expected to be placed in orbit over the USSR until March 1960, it was still necessary to plan for the launching of eight test satellites of this general type. The Department recommended, therefore, that the reconnaissance satellite program, including the eight test vehicles that would orbit over the USSR, be approved for planning purposes--with the understanding that early in 1960 the Department would seek Presidential authorization concerning the scope of the operational capability of the program. [redacted]

[redacted]

26 Jul 58
Army

A JUNO I (modified JUPITER-C) missile carried the United States' heaviest satellite, EXPLORER IV, into orbit. The satellite, an 80-inch long projectile weighing 37.5 pounds in orbit, circled the earth with an apogee of 1,346 miles and a perigee of 160 miles. It was the first US vehicle to be launched with an orbit that would pass over the USSR. Aimed at gathering data concerning the zone of radiation around the earth, the test provided important information on radiation levels at altitudes between 600 and 1,000 miles. The satellite's transmitter went dead in October 1958, but its orbital life was estimated to be one year from the date of launching.

1 Aug 58
Air Force

The Commander, Ballistic Missile Division, USAF, announced that the Air Force had developed an all-inertial guidance system for ICBMs months, possibly years, sooner than expected. The achievement, a major breakthrough, would permit far greater efficiency in missiles and space ships.

14 Aug 58
Air Force

The Air Force fired what it called a "National Advisory Committee for Aeronautics composite test rocket." The NACA vehicle, announced the Air Force, was used as part of a program of atmospheric sampling that was expected to provide basic research information applicable to any space project, including manned space travel, and to further define radiation levels in outer space.

17 Aug 58 Air Force	A four-stage THOR-ABLE, fired by the Air Force in the first US attempt to hurl a rocket into orbit around the moon, exploded 74 seconds after launch because of a malfunction in the engine compartment. The firing was, nevertheless, rated as a partial success, since the smooth countdown and launch within the predetermined 15-minute time period was considered a major achievement in itself. The purpose of the firing was: (1) to obtain photographs of the moon's surface; (2) to place an instrumented vehicle in lunar orbit for gathering scientific data; and (3) to demonstrate the successful operation of the vehicle.
24 Aug 58 Army	A JUNO II (JUPITER-C) rocket carried a 37.5 satellite (EXPLORER V) aloft, but the satellite failed to orbit when the first and upper stages of the rocket collided. The test was aimed at gathering radiation data.
26 Aug 58 Air Force	Bell Aircraft Corporation announced the successful use of liquid fluorine as a fuel to increase the potential power of rocket engines by as much as 40 per cent. Use of this fuel according to the Bell announcement, might make it possible for the US to launch satellites considerably heavier than SPUTNIK III, which weighed about 1 1/2 tons. The work on the use of the fluorine oxidizer in large-scale rocket thrust-chamber firings was sponsored by the Power Plant Laboratory of the Air Forces Wright Air Development Center in Dayton, Ohio.
16 Sep 58 Navy	Another VANGUARD launching attempt was unsuccessful. The main engine shut down immediately after ignition and the missile did not leave the pad. The purpose of the test was generally the same as in earlier VANGUARD tests in 1958.
26 Sep 58 Navy	A VANGUARD satellite was fired into space but fell to earth after passing over South Africa. The failure was due to a second-stage propulsion malfunction. The characteristics of the sphere and purpose of the test were generally the same as in earlier unsuccessful VANGUARD attempts in 1958.
11 Oct 58 Air Force	The Air Force successfully fired PIONEER, a THOR-ABLE lunar probe, into space. Intended to reach and circle the moon, the space vehicle's angle of ascent was too steep, and, after travelling about 70,000 miles, it fell back toward the earth and burned up after re-entering the earth's atmosphere. PIONEER nevertheless was the first vehicle to reach such an altitude, the first to permit measurement of radiation above a height of 2,500 miles, and the fastest ever launched into outer space (with a speed of over 23,450 miles per hour). It also provided the first direct measurements of the earth's magnetic field at that altitude. Its failure to achieve lunar orbit was due to the departure of the first stage from its planned trajectory, preventing the rocket from escaping the influence of the earth's gravity. The failure of the fourth stage retro-rocket prevented PIONEER from going into orbit around the earth after it failed to reach the moon.

22 Oct 58 ✓	A JUNO I (modified JUPITER-C) rocket was fired in an unsuccessful attempt to place a 12-foot NACA high-visibility sphere and instrumentation in orbit. The exact cause of failure was not ascertained.
8 Nov 58 Air Force ✓	The Air Force's third attempt to launch a moon rocket failed after the vehicle--substantially the same as that fired on 11 October 1958--reached an altitude of about 1,000 miles and a velocity of 16,000 miles per hour. The third stage of the rocket failed to fire, and the vehicle fell back into the atmosphere over east central Africa less than 45 minutes after launching.
10 Nov 58 Air Force ✓	An International Symposium on Space Problems was held under the auspices of the Air Force School of Aviation Medicine and the Southwest Research Institute. Scientific papers on perils from radiation and on rescue in space were presented.
25 Nov 58 Army Navy Air Force ✓	NASA, it was reported, planned a program of launching space probes at the rate of eight to twelve a year starting in 1959 to follow the projects of the IGY after its termination on 31 December 1958. Space probes were contemplated to the vicinity of the moon and of such near-by planets as Mars and Venus. The Navy's VANGUARD project was to be taken over and continued as NASA's satellite program until new vehicles could be developed. NASA had ordered several THOR-ABLE and JUNO II rockets from the Air Force and Army to be used in attempts to launch satellites weighing several hundred pounds later in 1959. (Dr. T. Keith Glennan, Chief of NASA, testifying before the Senate Space Subcommittee on 19 February 1959, reported that NASA was planning to launch approximately 15 satellites and space probes in 1959, and a similar number in 1960.)
2 Dec 58 Army ✓	The Army revealed a new type of communication system developed at the Jet Propulsion Laboratory in preparation for the forthcoming lunar probe and for future space ventures. The new system was capable of receiving signals from space vehicles 500,000 miles away. By 1960 the Army expected the system's range to be extended to 40 million miles; by 1962, to four billion miles.
6 Dec 58 Army ✓	The Army fired PIONEER III (a JUNO II--JUPITER-C--rocket) in an attempt to place it in orbit around the moon. The vehicle reached an altitude of nearly 67,000 miles before it fell back to earth, burning up when it re-entered the atmosphere above French Equatorial Africa. Failure was due to the cut-off of the first stage of the rocket 3.7 seconds too early. Data transmitted by PIONEER III provided further information on the Van Allen radiation belt around the earth, the existence of which was discovered as a result of data obtained by EXPLORER satellites and PIONEER I. (Dr. James A. Van Allen was in charge of the US satellite and space-probe experiments.)

13 Dec 58 Army ✓	Seeking data for man's eventual flight in space, the Army successfully sent a monkey passenger 300 miles into space in the nose cone of a JUPITER missile. The monkey survived both the launching and the period of weightlessness as the missile fell back toward earth.
18 Dec 58 Air Force ✓	An ATLAS-B vehicle with a thrust of 350,000 pounds successfully placed a satellite into orbit. The payload weight of the satellite was 150 pounds, although it was initially announced as 8,700 pounds, a weight that included the ATLAS shell, which also went into orbit. The purpose of the launching was to test the rocket guidance system and communications relay equipment. The satellite, circling the earth at a maximum altitude of 625 miles and a minimum height of 118 miles, rebroadcast a Christmas message from President Eisenhower. This was the first time a missile guidance system steered a vehicle into orbit.
16 Dec 58 Air Force Navy ✓	Vandenburg AFB, a part of the inter-service Pacific Missile Range administered by the Navy, made its operational debut. The base has special significance as a launching site, for its location permits putting vehicles into north-south, "polar" orbits whereas Cape Canaveral does not.
6 Feb 59 Air Force ✓	The Air Force fired a 90-foot TITAN-ICBM from Cape Canaveral. The 110-ton missile generated 300,000 pounds of thrust in its first stage rocket. The range of the missile was estimated at 9,000 miles. In addition to its war potential, it was felt that the TITAN can be used as a multi-stage space vehicle capable of launching a probe weighing thousands of pounds to Venus and beyond.
12 Feb 59 Air Force ✓	The School of Aviation Medicine at Randolph Air Force Base successfully completed tests with mice simulating conditions of space travel for the bio-satellite program. Special techniques and equipment were developed to keep the mice alive for an extended period and to telemeter biological data. Similar preparations were also underway for the use of a rhesus monkey. The program's objective was to learn to what extent a human pilot would be incapacitated by conditions experienced in space flight.
15 Feb 59 Air Force ✓	At the School of Aviation Medicine at Randolph AFB, Texas, the Air Force is conducting research to find plants that can provide oxygen for space travel. Some such technique to supply oxygen and to remove carbon dioxide appears essential for travel to other planets and for manned satellites inasmuch as the equipment so far devised is prohibitively heavy.
17 Feb 59	The JCS approved for transmission to SecDef a memorandum giving their comments on ARPA programs for fiscal years 1959 and 1960. The memorandum stated, among other things, that (1) the JCS noted these programs, and, in general, supported them; (2) the JCS believed that more emphasis should be given to

satellites for mapping and geodesy, for communications, for navigation, for reconnaissance (including electrical intelligence), and for early warning, because of the potential contribution of these projects to US military capabilities, and that this could be done without injury to other projects; (3) and the JCS considered the man-in-space work to have military application, and therefore concurred with the Director of ARPA in giving emphasis to such projects as the Air Force DYNASOAR project.

17 Feb 59

Army
Navy

VANGUARD II, a 20-inch, 2 1/2-pound sphere, was launched into orbit. Travelling higher than originally planned, it reached an apogee of about 2,000 miles, and had a perigee of 335 miles. It was the first of four meteorological satellites to be launched in a program to gain detailed information of weather on earth. VANGUARD II carried two photoelectric cells to scan the earth and obtain extensive data about the pattern of clouds and the earth's retention of heat received from the sun. Instrumentation for the satellite was prepared at the Army Signal Research and Development Laboratory, Fort Monmouth, N.J.

Later weather satellites were expected to provide more detailed and better defined impressions of cloud cover, enabling scientists to distinguish between individual types of clouds and to spot the early development of large storms. Another meteorological experiment planned for a subsequent VANGUARD satellite would measure the amount of energy received by the earth from the sun and the quantity radiated back into space from the earth. A similar experiment was also expected to be attempted by the Army later in the year; still another experiment would measure the earth's magnetic field.

The most advanced meteorological satellite experiment planned for 1959 was under development by ARPA. The proposed satellite would carry one or more miniature television cameras to photograph the earth's cloud cover with far better definition than the VANGUARD satellite. The satellite might also carry infrared devices to determine cloud cover at night. Even more advanced experiments were planned for the future. The chief of the US Weather Bureau, Dr. Francis W. Reicheiderfer, told reporters that the development of meteorological satellites offered "promise of one of the most revolutionary advances in the history of the science of meteorology."

TOP SECRET

PART II

STEPS LEADING TO THE ESTABLISHMENT OF NATIONAL SPACE AGENCIES

TOP SECRET

STEPS LEADING TO THE ESTABLISHMENT OF NATIONAL SPACE AGENCIES

25 Nov 57 ARPA	The JCS, in response to a request from the Secretary of Defense for their comments on a draft directive establishing a Department of Defense Special Projects Agency, which the Secretary proposed to forward to the Senate and House Armed Services Committees, submitted their proposed revision of the draft directive. (The agency was subsequently established, on 7 February 1958, as the Advance Research Projects Agency.) They suggested that the new agency be limited specifically to the anti-ICBM and satellite programs, and that in those fields, instead of actually managing and operating projects itself, the agency should give unified direction and coordination to projects managed and operated by the military departments.
7 Jan 58 ARPA	President Eisenhower requested Congress to grant him transfer authority applying to $110 million, of which $10 million was slated for the new Advanced Research Projects Agency. ARPA was to be responsible, under the Secretary of Defense, for the research and development phases of advanced science programs, including satellites and other outer-space projects.
4 Feb 58 NASA	President Eisenhower told Republican Congressional leaders that he had directed Dr. Killian, the Special Assistant to the President for Science and Technology, to undertake a study of whether to keep the space exploration program in the Defense Department or to place it under a new civilian authority.
5 Feb 58 ARPA NASA	President Eisenhower, at his press conference, said that the Secretary of Defense would continue to control military outer space projects, but indicated the possibility that nonmilitary projects might be put under civilian control.
7 Feb 58 ARPA	The Department of Defense Advanced Research Projects Agency, OSD, was established with responsibility for the direction and performance of such advanced projects in the field of research and development as might be designated by the Secretary of Defense. The Agency was authorized to (1) direct research and development projects within the Defense Department, as designated by the Secretary of Defense; (2) arrange for the performance of research and development work by other agencies of the Government as necessary to carry out assigned projects; (3) make contracts or agreements with individuals, private organizations, or federal or state institutions; and (4) acquire or construct facilities, subject to the approval of the Secretary of Defense. Roy W. Johnson, a vice president of General Electric Company of New York, was appointed Director of ARPA.
6 Mar 58 NASA	The National Security Council, among other things, noted that the President's Special Assistant for Science and Technology would report to it at a later date on the organizational aspects of achieving US objectives in space exploration and science.

17 Mar 58
ARPA

The Secretary of Defense stated at the Armed Forces Policy Council meeting that any announcements on the nature and timing of ARPA projects and other new developments and actions in the missile and satellite area should come from the Office of the Secretary of Defense. He said that many of these projects were related to the US "cold war" effort, that premature or unauthorized release of the plans could prevent full exploitation of the projects, and that particular care should be taken in regard to projects involving reconnaissance satellite and moon shots.

27 Mar 58
ARPA

The White House and Defense Department, in separate announcements, stated that the US would make four or more lunar "probes," sending specially equipped, unmanned vehicles into space to circle the moon. These projects would be carried out by ARPA in coordination with the National Advisory Committee for Aeronautics, the National Academy of Sciences, and the National Science Foundation, and work on them had been progressing for some time. Under the program, the Army would launch one or two lunar probes and the Air Force three, and the Navy would develop a mechanical ground scanning system for use in lunar probes. An initial allocation of $8 million had already been made by ARPA to the agencies concerned.

28 Mar 58
ARPA

According to the New York Times, the Air Force was dissatisfied with the fact that only $8 million--of which the Air Force would get $3 million--had been allocated by ARPA for lunar probes (see item of 27 March 1958). Army officials were reportedly disturbed over being "left in the dark" about details of the moon probe attempts, since ARPA had made the assignment directly to General Medaris, Ordnance Missile Command head, without going through the Secretary of the Army and Chief of Staff.

2 Apr 58
ARPA

President Eisenhower submitted to the Congress a budget amendment covering $1,455,747,000 in augmentation of the FY 1959 appropriation request for the Defense Department. Among the high-priority projects to be accelerated, expanded, or initiated with these funds was a variety of projects under the direction of ARPA, including development of weapons systems, reconnaissance satellites, and space explorations.

2 Apr 58
NASA

President Eisenhower, in a memorandum to the Secretary of Defense and the Chairman of the National Advisory Committee for Aeronautics (NACA), informed them of his request to Congress for the establishment of a National Aeronautics and Space Agency. The President directed that: (1) NACA should prepare and present to the appropriate Congressional committees a full explanation of the proposed legislation. (2) NACA should make such detailed plans as might be necessary to reorient its programs and organization. (3) The Department of Defense and NACA should review pertinent programs under way or planned, including those authorized by him on 27 March, and should recommend which of these programs

should be placed under the new Agency. The Department of Defense and NACA should also prepare an operating plan for supporting the new Agency. (4) NACA should discuss with the National Science Foundation and the National Academy of Sciences, and others, the matter of participation of the scientific community in planning and coordinating the use of space vehicles in civilian space science. (5) The Department of Defense should identify and report to him what programs appeared to be needed in support of well-defined military requirements. ARPA would continue to serve as the focal point for such programs within the Department.

2 Apr 58
NASA

In a special message to Congress, President Eisenhower proposed the creation of a civilian National Aeronautics and Space Agency with the broadest authority to direct aeronautical- and space science activities sponsored by the United States, except for those projects primarily associated with military requirements. The Agency would absorb the National Advisory Committee for Aeronautics, and would be assisted by a National Aeronautics and Space Board. The Agency would have authority to spend whatever money was necessary to recruit scientists and technicians, subject only to regulations prescribed by the President.

7 Apr 58
ARPA

The Assistant Secretary of Defense (R&E), the Director of Guided Missiles, OSD, and the Director, ARPA, issued a memorandum (approved by the Secretary of Defense) delineating their relationships and areas of responsibility, pending reorganization of the Department of Defense. Briefly summarized, the memorandum stated:

The Assistant Secretary of Defense (R&E) was the staff adviser to the Secretary of Defense on all military research, development, and engineering matters, and was responsible for recommending basic policies for the DOD on these matters and for suggesting an integrated program aimed at avoiding gaps and eliminating undesirable duplication. To carry out these responsibilities, he should be fully informed on all related efforts within the DOD, including those projects assigned to the Director of Guided Missiles and the Director, ARPA. The Director of Guided Missiles was a staff assistant to the Secretary of Defense with certain delegated line authority for the direction of all DOD activities related to guided missiles. He looked to the Assistant Secretary of Defense (R&E) for advice and assistance in broad research and development fields. The Director, ARPA, was primarily a line official responsible for planning and directing advance research projects involving space science and technology, ballistic missile defense, and other advanced research and development, as assigned by the Secretary of Defense. Normally, these projects would be outside the assigned missions of the military departments or would be of interest to or involve two or more military departments. The relationship between all three of these officials was one of close interdependence.

23 Apr 58 ARPA NASA	Mr. Roy W. Johnson, Director, Advanced Research Projects Agency, testified before the House Subcommittee on Appropriations that, in his opinion, it would be a "grave mistake" to take the task of exploring space away from the military agencies.
24 Apr 58 ARPA	The Chief Scientist of ARPA, Dr. Herbert F. York, testified before the House Select Committee on Astronautics and Space Exploration that ARPA planned to launch satellites at the rate of one a month in 1959, and was working on plans for more powerful rocket engines and other sources of power for satellites, and also on a program to "get a man in space."
1 May 58 ARPA	The Department of Defense reassigned, from the Director of Guided Missiles, OSD, to the Director, ARPA, responsibility for all satellite and other outer-space vehicle programs to be conducted by the Department, including the VANGUARD series of satellites. The Director of Guided Missiles would continue to be responsible for support of these programs with the necessary rocketry, launching and other range facilities, and the like.
7 May 58 ARPA NASA	Mr. Roy W. Johnson, Director of the ARPA, and Dr. Herbert York, Chief Scientist of the Agency, expressed deep concern, in testimony before the Senate Special Committee on Space and Astronautics, regarding "unnecessary restrictions" that the President's proposed civilian space agency might place on military space projects. Both Mr. Johnson and Dr. York believed it was necessary, in view of national security, that DOD be permitted to proceed independently with space programs for which there was a military requirement, or a "reasonable chance of fulfilling military needs."
8 May 58 NASA	Mr. Garrison Norton, Assistant Secretary of the Navy for Air, testified before the Senate Special Committee on Space and Astronautics that although the Navy endorsed the "intent" of the recommended new space agency, it had "grave misgivings" regarding certain portions of the proposed bill. The Navy's main concern he said, was that the act establishing the agency should make it quite clear that areas of military concern would be under the control of the Secretary of Defense, and that the Secretary would determine which weapons systems were to be taken over by the new agency.
7 Jun 58 ARPA	ARPA was assigned the project of advanced research in the field of high-performance solid propellants, including the supporting research necessary for effective use of these new high-energy materials when they became available.
10 Jun 58 ARPA	Lt General Samuel E. Anderson, director of the Air Force Research and Development Command, told reporters that three attempts to fire missile "probes" at the moon would be made in 1958, one each in August, September, and October. The Director, ARPA, however,

said that "no final decision" had been made on whether or not the first US moon "probe" would come in August. On 11 June, Air Secretary Douglas publicly rebuked General Anderson, and stated that ARPA had made no final decision on the dates of the moon "probe."

12 Jun 58 ARPA — President Eisenhower designated as a project to be assigned to ARPA the establishment of a minitrack-doppler fence with an early capability to detect and locate satellite orbits passing over the US.

12 Jun 58 ARPA — The Director, ARPA, in a memorandum to the Service Secretaries and the Chairman, JCS stated that the decision of the Secretary of Defense concerning publicity on ARPA projects and new missile and satellite developments (see item of 17 March 1958) was apparently not being carried out. In this connection, he submitted a statement of the bases on which ARPA would approve or issue public statements. Briefly summarized, these included: 1) Disclosure of news of US space activities should be designed to inform the public and to achieve favorable psychological effects; 2) US statements concerning ARPA programs should be national in character and should not promote the merits of a particular program at the expense of others; 3) the initial release about an ARPA program should be made only by ARPA; and 4) statements announcing intentions rather than capabilities would normally be disapproved.

18 Jun 58 ARPA — ARPA was assigned the project of investigating the feasibility of a nuclear bomb-propelled space vehicle.

18 Jun 58 ARPA — The Department of Defense authorized ARPA to engage in studies and advanced investigations of the effects of space weapons employment on military electronic systems. This authorization was not an exclusive assignment of responsibility, since the military departments might be concurrently engaged in similar investigations.

20 Jun 58 ARPA — The AP quoted a spokesman for ARPA as saying that the Army had submitted a plan to shoot a man into space in a REDSTONE missile and bring him safely back to earth. This was one of several space-man projects submitted by the three Services, he said.

23 Jun 58 ARPA — ARPA was assigned responsibility for advanced research and development on new super-thrust rocket engines, including the "million pound thrust" engines.

16 Jul 58 ARPA NASA — After compromising conflicting House and Senate versions, Congress approved and sent to the White House legislation establishing a National Aeronautics and Space Administration and a nine-member advisory council headed by the President. The new agency would be built around the National Advisory Committee for Aeronautics. Under the new law, the Defense Department would retain control over "activities peculiar to or primarily associated with development of weapons

systems, military operations, or defense of the United States," but the President would have the authority to resolve any conflicts between ARPA and NASA. The nine-member advisory council would include, in addition to the President, the Secretaries of State and Defense, the Chairman of the AEC, the Director of NASA, one additional member from the government, and up to three others from outside the government.

29 Jul 58
NASA

President Eisenhower signed legislation establishing the National Aeronautics and Space Administration (see item of 16 July 1958). In a special statement issued by the White House, he described the establishment of the Administration as a "historic step" that would help the US to lead the world in space exploration.

8 Aug 58
NASA

President Eisenhower named T. Keith Glennan, a Cleveland educator and former AEC member, to head NASA. Dr. Hugh L. Dryden, Director of the National Advisory Committee for Aeronautics, was the President's choice for Deputy Administrator. Both appointments were confirmed by the Senate on 15 August.

4 Sep 58
NASA

President Eisenhower named as members of NASA Lt Gen James H. Doolittle; William A. M. Burden, former Assistant Secretary of Commerce for Air and in 1950-1952 a special research and development assistant to the Secretary of the Air Force; Dr. Alan T. Waterman, Director, National Science Foundation; and Dr. Detlev W. Bronk, President, National Academy of Sciences. These nominations were recess appointments and would be subject to Senate confirmation after Congress reconvened in January 1959.

7 Oct 58
ARPA

The Director, ARPA, in a speech at Stamford, Connecticut, stated that the US planned "to have a man in space" in two or three years. The decision to undertake a project aimed at this objective, he said, had "just been reached."

14 Oct 58
NASA

As a result of reports that the Director, NASA, had requested that the Army turn over to NASA about 2,100 scientists and engineers at the Army Ballistic Missile Agency, Redstone Arsenal, and the entire facilities and personnel of the Army's Jet Propulsion Laboratory at Los Angeles, the Department of Defense issued a statement that the Director, NASA, had "expressed interest in certain capabilities of the ABMA and JPL," and that he had been discussing the matter with the Secretary of the Army and the Acting Secretary of Defense.

15 Oct 58
NASA

President Eisenhower, at his press conference, stated that no decision had been made about transferring Army space programs to NASA (see item of 14 October 1958). Various proposals concerning the scope of NASA's activities, including "what should be taken over" by it, were being studied, but no conclusions had been reached. The President said that he himself

would make the final decisions. In Huntsville, Alabama, meanwhile, Army scientists, questioned by reporters, protested against any possible transfer. Dr. von Braun warned that breaking up the Army missile team at a time when a unified effort for rocket supremacy was needed would be "less than prudent."

18 Oct 58 NASA — Secretary of the Army Brucker, at a news conference, said that the Army had prepared a position paper in response to the request of the Director, NASA, that Army scientists doing space research be placed under NASA. "The Army hopes this thing can be settled without too much conflict," he said.

22 Oct 58 NASA — The JCS, in a memorandum to the Secretary of Defense, strongly recommended expediting the establishment of an effective Civilian-Military Liaison Committee that would assure direct military representation and positive coordination between the National Aeronautics and Space Administration and the Department of Defense. The legislation establishing NASA (see item of 2 April 1958) had directed the establishment of the Civilian-Military Liaison Committee.

22 Oct 58 NASA — The Armed Forces Policy Council discussed the Civilian-Military Liaison Committee to the National Aeronautics and Space Administration and the Department of Defense. The Council approved changes in the Committee's terms of reference in order to strengthen its links with the Military Departments. The terms of reference in their final form, dated 22 October, established a Civilian-Military Liaison Committee to enable NASA and the Defense Department to consult with each other and keep each other informed on matters relating to aeronautical and space activities. It would consist of a chairman appointed by the President, four Defense representatives(one each from the Services and one from the Department), and four NASA representatives.

22 Oct 58 NASA — Lt General A. G. Trudeau, the Army's Chief of Research and Development, and Maj Gen Medaris, in remarks made at the meeting of the Association of the US Army and at a news conference afterwards, referred to the possibility that some members of the Army's team of missile and space scientists might be shifted to NASA. Both officers warned against breaking up this team and interrupting the "momentum" that had been built up. They suggested that the Army's team be kept intact, but that it might work as a unit for NASA. General Trudeau said that the President would make a decision on the question on 28 October, when he was scheduled to meet with members of NASA.

23 Oct 58 NASA — A New York Times correspondent reported that, according to an "authoritative source," the Director, NASA, was planning a gradual absorption into NASA of Army space scientists, engineers, and facilities. The Director's plan, reported the Times writer, called for NASA to take over the "capabilities" of the Army Ballistic Missile Center and Jet Propulsion Laboratory over a period of at least a year and possibly two.

30 Oct 58
NASA

William M. Holaday, OSD Director of Guided Missiles, was appointed Chairman of the Civilian-Military Liaison Committee established by the legislation that set up NASA.

16 Nov 58
NASA

A New York Times correspondent, writing on the eve of the formal transfer to NASA of 150 scientists of the Naval Research Laboratory engaged in the VANGUARD earth-satellite project, reported growing resentment among the armed Services over alleged personnel raids by the new agency. NASA had already assumed authority over various Army projects, including the EXPLORER satellite series and two lunar probes, and also had received responsibility for certain Air Force projects, including three lunar probes.

3 Dec 58
NASA

President Eisenhower approved a compromise permitting the Army to continue direction and control of its Ballistic Missile Agency and its staff of 2,000 space scientists under Dr. Wernher von Braun, but transferring from the Army to NASA the Jet Propulsion Laboratory at Pasadena, California, which would continue to be operated by the California Institute of Technology. The Army Ballistic Missile Agency would undertake such missile and space research as its schedule of priorities allowed, and Maj Gen John B. Medaris, as head of the Army Ordnance Missile Command, would determine how much of the capacity of the ABMA would be available to NASA.

16 Jan 59
NASA

The Director of ARPA, in a briefing on ARPA programs presented to the JCS, stated that, under then-current plans, responsibility for the tactical cloud cover satellite program would be transferred to NASA in 1960. He also stated that he expected ARPA to continue its work through FY 1959 on development of a 1.5-million-pound-thrust booster, but that NASA would provide the funding for this program in FY 1960. He further stated that ARPA was jointly interested with NASA in the latter's man-in-space program, and had $8 million funded for this program in FY 1959, but was not planning to provide any funds for it in FY 1960.

TOP SECRET

PART III

SUMMARY OF THE WAYS THE JOINT CHIEFS OF STAFF HAVE PARTICIPATED IN MATTERS DEALING WITH OUTER SPACE

TOP SECRET

SUMMARY OF THE WAYS THE JOINT CHIEFS OF STAFF
HAVE PARTICIPATED IN MATTERS DEALING WITH OUTER SPACE

The Joint Chiefs of Staff have, of course, had no direct responsibility for developing and overseeing projects in the realm of outer space. Because of the wide-ranging implications of this new area of national endeavor, these responsibilities have been assigned to two specialized and highly placed agencies--the National Aeronautics and Space Administration and, within the Department of Defense, the Advanced Research Projects Agency. The role of the Joint Chiefs of Staff, arising from their statutory duties as military advisers to the President, the Secretary of Defense, and the National Security Council, has been to keep under continuous review the relationship of space program development to the broad goals and interests of national defense and to submit comments and recommendations relating to that relationship. The concern of the Joint Chiefs of Staff has been to assure that in all undertakings the nation's vital defense requirements in the realm of space are given full weight. In some instances these defense requirements directly affect the definition of objectives in a space research project; in others they point up the need for concurrent exploration of the potential military applications of advances in space technology. The Joint Chiefs of Staff have also submitted recommendations on the relative priority of prospective programs and have suggested balanced adjustments in the demands made on available facilities and scientific talent by space research projects and military missile and missile defense programs. To further illustrate the scope of participation by the Joint Chiefs of Staff in the determination of space programs and objectives, certain instances are related below.

The Joint Chiefs of Staff have consistently favored the development of a US capability to orbit satellites in space. As early as April 1955 they advised the Secretary of Defense that a program designed ultimately to produce a large surveillance satellite was "strongly warranted" by the intelligence applications such a vehicle would have. In consonance with this attitude the Joint Chiefs of Staff during the following month endorsed the NSC policy paper that established the US objective of launching a small scientific satellite during the International Geophysical Year, July 1957 through December 1958 (Project VANGUARD). One year later, in May 1956, when the possibility of curtailing or retarding the VANGUARD project was under discussion, the Joint Chiefs of Staff endorsed continuation of the program as scheduled. Later in the month they advised the Secretary of Defense that VANGUARD's military importance was such as to justify placing it in the highest priority category on the Department of Defense Master Urgency List.

When the National Security Council turned to the broader endeavor of defining a comprehensive US policy on the exploitation of outer space, representatives of the Joint Chiefs of Staff participated at all levels of the detailed staff work, and the Joint Chiefs of Staff submitted comments on the provisions of the basic policy paper before its adoption by the Council and the President. In this connection, and on several other occasions, the Joint Chiefs of Staff warned against the dangers of entering into any international arrangement for control of objects in outer space that was not part of a more comprehensive inspection and disarmament agreement.

The Joint Chiefs of Staff have also made contributions to the soundness of the organizational practices followed in connection with space development. When establishment of the Advanced Research Projects Agency was under consideration within the Department of Defense, the Joint Chiefs of Staff took part in defining the terms of reference of the new agency. Further, when the National Aeronautics and Space Administration was founded, a recommendation by the Joint Chiefs of Staff provided a strong impetus toward the establishment of the Civilian-Military Liaison Committee, which is designed to effect coordination between NASA and the Department of Defense. During October 1958 the Joint Chiefs of Staff, through the Secretary of Defense, gained approval of the principle that the newly organized Working Group on Outer Space of the Operations Coordinating Board should have among its membership an individual with a professional military background.

Within the Department of Defense the relationship of the Joint Chiefs of Staff to the work of the Advanced Research Projects Agency is, of course, particularly close. After appropriate review, the Joint Chiefs of Staff have recently signified to the Secretary of Defense their support for the ARPA program for Fiscal Years 1959 and 1960, while recommending increased emphasis on certain aspects of the projected research in military space technology.

TOP SECRET

INFORMATION ON OUTER SPACE

SUPPLEMENT I

FEBRUARY 1959 THROUGH OCTOBER 1959

HISTORICAL DIVISION
JOINT SECRETARIAT
JOINT CHIEFS OF STAFF
15 December 1959

Copy 6 of 8 copies

EXCLUDED FROM AUTOMATIC
REGRADING: DOD DIR 5200.10
DOES NOT APPLY

TOP SECRET

TOP SECRET

TABLE OF CONTENTS

Part		Pages
I	CHRONOLOGICAL RESUME OF THE MILITARY EFFORTS AND MILITARY SERVICE CONTRIBUTIONS IN SPACE	1 - 4
II	FURTHER DEVELOPMENTS CONCERNING NATIONAL SPACE AGENCIES	5 - 15
III	JOINT CHIEFS OF STAFF ACTIONS RELATING TO OUTER SPACE	16 - 21

TOP SECRET

TOP SECRET

PART I

CHRONOLOGICAL RESUME OF THE MILITARY EFFORTS AND MILITARY SERVICE CONTRIBUTIONS IN SPACE

TOP SECRET

TOP SECRET

28 Feb 59

Air Force

The Air Force, utilizing a THOR missile as first-stage booster, successfully launched ARPA-directed DISCOVERER I from Vandenberg AFB; on 1 March the Air Force announced that it achieved orbit. DISCOVERER I, a reconnaissance satellite weighing 1,300 pounds and carrying a payload of 40 pounds of instruments, had been launched into a new north-south orbit from which it would be able to scrutinize the entire surface of the earth.

(S) "Progress of ICBM and IRBM Missile Programs," 28 Feb 59, in files of Dir Guided Missiles, R&E, OSD; NYT, 1 Mar 59, 1; 2 Mar 59, 1.

3 Mar 59

Army

The Army made the fourth US attempt to shoot a rocket past the moon and into orbit around the sun, which proved to be the first successful US try. The 13.4-pound payload, called PIONEER IV, veered slightly off its intended course and did not reach the hoped-for velocity of 24,890 mph, but did attain enough speed to enable it to escape the earth's gravitational pull. It passed within 37,000 miles of the moon 41 hours after launching and headed into space to join the Soviet's "Mechta" (Lunik) in an independent solar orbit. The payload continued to send signals back to earth until it had travelled 400,000 miles into space, a new record in space communications.

The rocket that launched the twenty-inch, gold-plated payload was the JUNO II, a four-stage rocket built around the JUPITER IRBM.

NYT, 3 Mar 59, 1; 4 Mar 59, 1; 5 Mar 59, 1; 7 Mar 59, 1.

19 Mar 59

Navy

The New York Times disclosed that a series of secret nuclear detonations, conducted by the Navy under the supervision of DOD and AEC, had taken place 300 miles above the earth early in September 1958 and had gone undetected by other nations. The explosions, part of Project ARGUS, had been monitored by EXPLORER IV (the satellite launched by the Army on 26 July 1958) and produced new knowledge of the earth's magnetic field and behavior of radiation in the upper atmosphere and in space. The scale and significance of the achievement prompted some of the participants to describe it as the greatest scientific experiment of all time.

Following the disclosure, the Deputy Secretary of Defense in a news conference defended the secrecy that had enveloped the tests, telling newsmen that the military significance of ARGUS was substantial.

NYT, 19 Mar 59, 1; 20 Mar, 1, 10.

6 Apr 59

Air Force
Navy

Seven "MERCURY astronauts," the men who would be trained for the first flight by man in space, were chosen by NASA. All of the astronauts, who were flying officers from the Air Force, Navy, and Marines, had at least 1,500 hours flying time, a degree in engineering or the physical sciences, and extraordinary physical and mental ability to withstand the rigors of space flight. They were to participate in the technical development of the satellite in order to have an intimate knowledge of the capsule once in space.

NYT, 7 Apr 59, 1, 19; 10 Apr, 1, 3.

TOP SECRET

13 Apr 59
Air Force

DISCOVERER II, utilizing a modified THOR missile as first-stage booster, was successfully launched by the Air Force into a polar orbit from Vandenberg AFB. Another in ARPA's series of reconnaissance satellites, DISCOVERER II had a total payload of 440 pounds, including a 195 pound re-entry vehicle, the object of the first attempt to recover a satellite from outer space. The re-entry capsule, which was directed back toward the atmosphere by a retro-rocket and then parachuted to earth, was to be recovered by airplane while still in its descent.

On 14 April the attempt to recover the satellite was abandoned.

(S) "Progress of ICBM and IRBM Missile Programs," 31 Apr 59, in files of Dir of Guided Missiles, R&E, OSD. NYT, 14 Apr 59, 1; 15 Apr 59, 1.

28 May 59
Army

Two monkeys that survived a 1,700-mile space flight, which had carried them 300 miles into space at speeds up to 10,000 miles an hour, were recovered from the nose cone of the Army's JUPITER rocket 90 minutes after lift-off. Although important data on physiological reactions of primates to space-flight conditions were obtained-- data necessary before sending man into space-- the bio-medical aspect of the experiment was secondary to the main purpose of the test, which was to determine the ability of the nose cone to withstand meteor-like destruction on re-entering the atmosphere.

(S) "Progress of ICBM and IRBM Missile Programs," 30 May 59, in files of Dir of Guided Missiles, R&E, OSD.

3 Jun 59
Air Force

The Air Force made an unsuccessful attempt to launch into orbit DISCOVERER III containing four mice in the nose cone. This was the first known attempt to recover animals from a satellite after orbiting. The mice were scheduled to be retrieved after 26 hours aloft when they would have travelled a distance equivalent to a round trip to the moon. However, because of a malfunction in the second stage, the rocket was apparently destroyed and the mice were killed upon re-entry into the earth's atmosphere.

NYT, 4 Jun 59, 1; 5 Jun, 9.

6 Jun 59
Air Force

A recording of a message from the President was sent via the moon to the Canadian Prime Minister 1,700 miles away. The message, transmitted from MIT's Lincoln Laboratory, which operates under contract with the Air Force, travelled a total of 460,000 miles on its way to Prince Albert, Saskatchewan, and took 2.7 minutes. Although not the first time the moon had been used to relay signals, it was the first demonstration of transmission of such quality between stations so far apart.

NYT, 7 Jun 59, 1.

8 Jun 59
Air Force

The X-15 rocket plane, destined to be the first manned space vehicle, performed well in a 5-minute glide to earth after release from a B-52. The X-15 was designed to fly at speeds up to 4,000 miles an hour and altitudes of 100 miles or more. The glide was a critical test of the stability and control of the craft.

NYT, 9 Jun 59, 1.

TOP SECRET

25 Jun 59
Air Force

Launching of the fourth DISCOVERER satellite was attempted by the Air Force at Vandenberg AFB, but it failed to go into orbit.
NYT, 26 Jun 59, 8.

9 Jul 59
Army

The Department of Defense announced that the Army's projected SATURN vehicle, which would utilize the first stage rocket of the TITAN in its second stage, was expected to develop 1.5 million pounds of thrust. The first firing was scheduled for late 1960.
NYT, 10 Jul 59, 11.

7 Aug 59
Air Force

The Air Force announced that EXPLORER VI, weighing a total of 142 pounds (including a 94-pound instrumental payload) was launched into elliptical orbit by a THOR-ABLE four-stage missile vehicle. The 26-inch sphere, the most sophisticated yet launched, was equipped with four paddle-wheels containing photo-electric cells to utilize the sun's energy in communications apparatus. With its apogee of 22,000 miles, the longest orbit of all the satellites, EXPLORER VI was expected to provide information on the earth's magnetic field, the energy of the atomic particles in the two Van Allen radiation belts, the effects of the ionosphere on radio waves, the feasibility of television scanning of the earth, the size and speed of micrometeorites (cosmic dust), and the use of solar energy as a source of power for space vehicles.
(S) AF Weekly Summary, 7 Aug 59, in files of Dir of Guided Missiles, R&E, OSD. NYT, 8 Aug 59, 1.

13 Aug 59
Air Force

The Air Force announced the successful launching of DISCOVERER V from Vandenberg AFB. Plans to retrieve the orbiting capsule after 27 passes around the earth were reported unsuccessful on 21 August. The capsule, after ejection from the rocket, had failed to emit signals that would have enabled the Air Force to locate it as it parachuted to earth.
(S) AF Weekly Summary, 14 and 21 Aug 59, in files of Dir of Guided Missiles, R&E, OSD. NYT, 14 Aug 59, 1; 15 Aug, 6.

19 Aug 59
Air Force

DISCOVERER VI (THOR/AGENA) was launched into orbit from Vandenberg AFB in another attempt by the Air Force to recover a space capsule designed for re-entry on command. The recovery effort was unsuccessful, however, because the ejected capsule again failed to emit signals for retrieving aircraft to locate it during its descent (see item of 13 August 1959).
(S) AF Weekly Summary, 21 Aug 59, in files of Dir of Guided Missiles, R&E, OSD. NYT, 20 Aug 59, 5; 21 Aug, 3.

16 Sep 59
Army

An Army JUPITER IRBM, used as the vehicle for another attempt by Project VANGUARD to orbit a satellite, misfired and had to be destroyed before it was 1,000 feet off the ground. The satellite had contained several biological specimens, including pregnant mice and live frogs.
NYT, 17 Sep 59, 8.

TOP SECRET

TOP SECRET

17 Sep 59 Air Force	The X-15 manned rocket plane made its first powered test flight after being released from a B-52. The X-15, which is being developed to carry a man 125 miles into space, flew at 50,000 feet at a speed of 1,400 mph. NYT, 18 Sep 59, 1.
18 Sep 59 Navy	The CNO advised the JCS of the Navy's proposed research and development program for communication satellite relay systems, which had been submitted to ARPA for approval. The accompanying copy of the proposed program provided information on objectives, estimated time schedules, and funding requirements. (U) Ltr, CNO to JCS, 18 Sep 59, "Proposed Research and Development Program for Communication Satellite Relay Systems; forwarding of (U)," Encl to JCS 2283/62, 29 Sep 59, JMF 8670 (18 Sep 59).
18 Sep 59 Air Force	The Assistant CSAF for Guided Missiles reported to the Director of Guided Missiles that TRANSIT I, the first navigational satellite, had been successfully launched but had failed to achieve orbit. (S) AF Weekly Summary, 18 Sep 59, in files of Dir of Guided Missiles, R&E, OSD.
13 Oct 59 Army	EXPLORER VII, a 91½-pound "composite radiation" satellite, was launched into orbit by means of the four-stage JUNO II rocket developed by the Army. The complex of scientific equipment aboard EXPLORER VII, NASA announced, was conducting seven different experiments concerning radiation, including one that could give information on the basic weather patterns of the earth. NYT, 14 Oct 59, 1.

TOP SECRET

TOP SECRET

PART II

FURTHER DEVELOPMENTS CONCERNING NATIONAL SPACE AGENCIES

TOP SECRET

10 Jan 59 The House Select Committee on Astronautics and Space Exploration, in its final report to Congress, said the US faced national extinction unless it undertook to surpass the Soviet Union in the race into space. The Committee criticized the budget approach to the space program and recommended increased expenditure, although it did not suggest a figure.
NYT, 11 Jan 59, 1.

10 Jan 59 Under the terms of an agreement signed between NASA and DOD, the actions to be taken in 1959 on global tracking, data acquisition, communications, and data centers for space flight were delineated: NASA's requirements in these fields were primarily for research and development flights; DOD requirements were primarily for research, operational flights, and intelligence support.
(U) Agreement between NASA and DOD, ". . . On Global Tracking /etc/. . . for Space Flight," 10 Jan 59, reproduced in (U) US Cong, Sen, "Investigation of Governmental Organization for Space Activities," Hearings before the Subcommittee on Governmental Organization for Space Activities of the Committee on Aeronautical and Space Sciences, 86th Cong, 1st sess (Washington, 1959), p. 25.

3 Feb 59 The CSAF, testifying before the House Committee on Science and Astronautics, presented arguments in support of a dominant role in space for the Air Force. He maintained that, since air and space comprise a single continuum with no boundary dividing them into separate operational environments, it was a natural extension of Air Force functions, in line with technological developments, to assume responsibility for this "aerospace." Modern military power, in his opinion, was measured in terms of aerospace power, and dominance in this area was the means of national survival.
(U) US Cong, House, "Missile Development and Space Sciences," Hearings before the Committee on Science and Astronautics, 86th Cong, 1st sess (Washington, 1959), pp. 74, 75.

5 Feb 59 The Secretary of the Army testified before the House Committee on Science and Astronautics that the Army's activities in the space field, far from interfering with its missile programs, was "augmenting, supplementing, and assisting our work in connection with missiles."
(U) US Cong, House, "Missile Development and Space Sciences," Hearings before the Committee on Science and Astronautics, 86th Cong, 1st sess (Washington, 1959), p. 209.

10 Feb 59 The Secretary of Defense, by Department of Defense Directive No. 5129.1, established the Office of Director of Defense Research and Engineering, and at the same time abolished the position of Assistant Secretary of Defense (Research and Engineering). In addition to assuming the functions of the abolished office, the Director of Defense Research and Engineering was to serve as the principle advisor and staff assistant to the Secretary for science, basic and applied research,

design and engineering, and test and evaluation of weapons and weapons systems. In this capacity he would supervise all research and engineering activities in the DOD, including the review of all scientific projects and programs, and would, with the approval of the Secretary, designate which facility would undertake research and development of specific weapons and other scientific programs.

(U) DOD Directive No. 5129.1, "Director of Defense Research and Engineering," 10 Feb 59, JMF 5222 (Permanent).

18 Feb 59 — Appearing before the House Committee on Science and Astronautics, the Director of ARPA stated that at present there was no need for the military space program to be concerned beyond 600 miles above the earth, although in time it would have to concern itself with space beyond this limit.

(U) US Cong, House, "Missile Development and Space Sciences," Hearings before the Committee on Science and Astronautics, 86th Cong, 1st sess (Washington, 1959), p. 393

19 Feb 59 — Testifying before the NASA Authorization Subcommittee of the Senate Committee on Aeronautical and Space Sciences, the Administrator of NASA estimated that within 2 years the civilian space program would require a $1 billion budget, twice the sum requested in the FY 1960 budget.

(U) US Cong, Sen, "NASA Supplemental Authorization for Fiscal Year 1959," Hearings before the NASA Authorization Subcommittee of the Committee on Aeronautical and Space Sciences, 86th Cong, 1st sess (Washington, 1959), pp. 11, 12, 23, 24.

13 Mar 59 — The Federal Council for Science and Technology was established by Executive Order 10807 to promote coordination and improve planning and management of federal programs in science and technology. Creation of such a Council had been recommended to the President by his Science Advisory Committee. Dr. James Killian, the President's special science advisor, was appointed chairman of the new Council.

NYT, 14 Mar 59, 3.

17 Mar 59 — The Secretary of Defense issued Department of Defense Directive No. 5105.15 containing a revised charter for ARPA. The provisions of the new charter were substantially the same as the original charter of 7 February 1958, except that ARPA was designated explicitly as an operating research and development agency of the Department of Defense, and its projects were to be subject to the supervision and coordination of the Director of Defense Research and Engineering.

(U) DOD Directive No. 5105.15, "Department of Defense Advanced Research Projects Agency," 17 Mar 59, JMF 5224 (Permanent).

19 Mar 59 — In the Armed Forces Policy Council Advice of Action that announced the approval by the Secretary of Defense of the revised charter for ARPA, the Deputy Secretary of Defense referred to comments that had been expressed

by the Chairman, JCS, on 20 February 1959 in reviewing the proposed new ARPA charter; the Chairman had pointed out that the confusing duplication of functions between ARPA and the Director of Defense Research and Engineering would lead to coordinating and engineering problems. In regard to these questions raised by the Chairman, the Deputy Secretary stated that there were no inconsistencies in the charter concerning the relationship of ARPA and the Director of Defense Research and Engineering.

(U) Armed Forces Policy Council, Advice of Action, "Revised Charter for the Advanced Research Projects Agency (DOD Directive 5105.15)," 19 Mar 59, circulated as JCS 1620/240, 24 Mar 59, JMF 5224 (1959).

24 Mar 59 — Testifying before the Senate Subcommittee on Governmental Organization for Space Activities, the Administrator of NASA submitted a list of 49 management committees established to coordinate space activities: committees operating under the authority of the NASA Act of 1958 on which military personnel served totaled 16; military and joint committees on which NASA staff members served, 23; and military working groups on which NASA staff members served, 10.

(U) US Cong, Sen, "Investigation of Governmental Organization for Space Activities," Hearings before the Subcommittee on Governmental Organization for Space Activities of the Committee on Aeronautical and Space Sciences, 86th Cong, 1st sess (Washington, 1959) pp. 28-29.

26 Mar 59 — The Director of ARPA testified before the Senate Subcommittee on Governmental Operations that in his opinion the over-all space program fell into two separate programs: 1) the space exploration and space science program directed by NASA and 2) the research and development program for military use of space directed by ARPA. To pursue the two as one program would be a "tragic mistake," he believed.

The Director also declared that ARPA, in his view, was organizationally independent of the Director of Defense Research and Engineering and the JCS, both of whom were the Secretary of Defense's principle advisors but had no direct authority over ARPA.

(U) US Cong, Sen, "Investigation of Governmental Organization for Space Activities," Hearings before the Subcommittee on Governmental Organization for Space Activities of the Committee on Aeronautical and Space Sciences, 86th Cong, 1st sess (Washington, 1959), pp. 111, 115-117, 137, 144, 160, 175.

30 Mar 59 — The Assistant Secretary of Defense (ISA) informed the JCS that he had concurred for DOD in the recommendations contained in the Operations Coordinating Board's "Report on a Proposed Cooperative Scientific Satellite Launching Project," dated 1 October 1958, wherein the US would provide assistance to the United Kingdom and other Free-World countries in launching satellites. The Director, ARPA, was to be responsible for the coordinated implementation by all elements of the DOD in cooperating with allies in the proposed space programs.

(S) Memo, Asst SecDef (ISA) to SecA et al, 30 Mar 59, "Report on a Proposed Cooperative Scientific Satellite Launching Project," Encl to JCS 2283/25, 7 Apr 59, JMF 4960 (30 Mar 59).

13 Apr 59 NASA's project VANGUARD failed for the seventh time in nine tries to launch a satellite, this one with a dual payload of two separate satellite units.
NYT, 14 Apr 59, 1.

14 Apr 59 Testifying before the Senate Subcommittee on Governmental Organization for Space Activities, the Chief of Army Research and Development defended the Army's role in the space field because of the Army's primary combat function and assigned air-defense mission. Arguing that the new space medium transcended the traditional division into land, sea, and air and thus was not the exclusive province of any one Service, he stated that he foresaw the establishment in the near future of a unified space command under the JCS that would inherit the operational vehicles and satellites being developed under ARPA at the present time.
(U) US Cong, Sen, "Investigation of Governmental Organization for Space Activities," Hearings before the Subcommittee on Governmental Organization for Space Activities of the Committee on Aeronautics and Space Sciences, 86th Cong, 1st sess (Washington, 1959), pp. 227, 230, 236, 237.

22 Apr 59 Appearing before the Senate Subcommittee on Governmental Organization for Space Activities, the Under Secretary of the Air Force emphasized the urgency of the man-in-space program, which in his opinion had already been delayed by its transfer, first from the Air Force to ARPA, and then from ARPA to NASA.
(U) US Cong, Sen, "Investigation of Governmental Organization for Space Activities," Hearings before the Subcommittee on Governmental Organization for Space Activities of the Committee on Aeronautics and Space Sciences, 86th Cong, 1st sess (Washington, 1959), pp. 371, 372.

23 Apr 59 In testimony before the Senate Subcommittee on Governmental Organization for Space Activities, the Commanding General of the Air Force Research and Development Command declared that the military space program was excessively divided and that ARPA should be abolished. He maintained that although over-all programming and policy had been properly defined in the ballistic missile programs, mission responsibility had not been assigned in the space programs; in some cases a particular space program was divided among the Services, with ARPA retaining project direction. The JCS and the Secretary of Defense, in his opinion, had been lax in that they failed to establish missions and allot programs to the Services.
(U) US Cong, Sen, "Investigation of Governmental Organization for Space Activities," Hearings before the Subcommittee on Governmental Organization for Space Activities of the Committee on Aeronautics and Space Sciences, 86th Cong, 1st sess (Washington, 1959), pp. 397-413.

29 Apr 59 The Deputy Administrator of NASA, in testimony before the House Subcommittee of the Committee on Appropriations, delineated the functions and jurisdiction of NASA and ARPA: in his view, ARPA was a management group for the Secretary of Defense and was concerned with the development of military weapons systems and related military space projects, whereas NASA, a civilian agency, was concerned with the development of peaceful uses of space. Testimony of other NASA officials further defined the differences in research functions: ARPA concentrated on applied research for specific military ends, while NASA concentrated on basic scientific research in the whole field of space measurement and the investigation of space environment problems.

Both organizations, the Deputy Administrator pointed out, continued to coordinate their programs: NASA, for the present, employed military weapons system rockets as vehicles for its space probes, while ARPA derived much required information from NASA's basic research projects, particularly in the fields of reconnaissance and early warning satellites. However, since it would be necessary to develop new and powerful rocketry to achieve projected US programs in outer space comparable to those of the USSR, the development of these new rocket vehicles was NASA's responsibility, he maintained.

(U) US Cong, House, "NASA Appropriations," Hearings before the Subcommittee of the Committee on Appropriations, 86th Cong, 1st sess (Washington, 1959), pp. 10-12.

29 Apr 59 Testifying before the Senate Subcommittee on Governmental Organization for Space Activities, the Chairman of the Civilian-Military Liaison Committee (CMLC) stated that his committee was not, in his opinion, "contributing much to the space effort." The Secretary of Defense, the Administrator of NASA, and he were attempting, however, to devise more useful functions for his group

(U) US Cong, Sen, "Investigation of Governmental Organization for Space Activities," Hearings before the Subcommittee on Governmental Organization for Space Activities of the Committee on Aeronautics and Space Sciences, 86th Cong, 1st sess (Washington, 1959) pp. 504-505.

6 May 59 NASA announced the awarding of a contract for development of a 147-ton, three-stage rocket whose chief job would be lunar and planetary investigations. The rocket, called VEGA, was designed to shoot a payload of 2,000 pounds--either a space platform or several men--300 miles into space. The program called for eight such vehicles by the end of 1961. It was indicated that a shot at Venus might be attempted early in 1961.

NYT, 7 May 59, 5.

6 May 59 The first meeting of the UN Ad Hoc Committee on Peaceful Uses of Outer Space convened, although the three Communist members (USSR, Poland, and Czechoslovakia) boycotted it because of its Western majority, and India and the UAR stayed away on the grounds that the Committee could serve no useful purpose without the participation

of both major powers. A US plan calling for establishment of legal and scientific subcommittees was adopted, and on 7 May the US delegate proposed that the practical issue of liability for injury or damage caused by satellites crashing to earth be given first consideration among the legal problems of outer space.

(U) Dept of State Bulletin, Vol XL, No. 1042, 15 Jun 59, pp. 883-885, 888, 889; NYT, 7 May 59, 1; 8 May, 10.

7 May 59 — In testimony before the Senate Subcommittee on Governmental Organization for Space Activities, the Director of Defense Research and Engineering described the function of his office as supervising and coordinating "all research and engineering regardless of what agency /Army, Navy, Air Force, or ARPA/ undertakes the task or the nature of the task undertaken."

He stated that in his opinion NASA should not have been created, but that the national space program should have been left in ARPA. However, he did not think it advisable for the present to make any changes in the existing arrangement. He felt that ARPA, despite many of its functions having been assumed by NASA, nevertheless still had a useful role as the central operating agency for military space activities and should be continued for the time being.

(U) US Cong, Sen, "Investigation of Governmental Organization for Space Activities," Hearings before the Subcommittee on Governmental Organization for Space Activities of the Committee on Aeronautics and Space Sciences, 86th Cong, 1st sess (Washington, 1959), pp. 558-560, 578, 580, 581.

15 May 59 — In a written statement to the Senate Subcommittee on Governmental Operations for Space Activities, the Chairman of the Civilian-Military Liaison Committee declared that the US must have both a civil space program and a military space program.

(U) US Cong, Sen, "Investigation of Governmental Organization for Space Activities," Hearings before the Subcommittee on Governmental Organization for Space Activities of the Committee on Aeronautics and Space Sciences, 86th Cong, 1st sess (Washington, 1959), p. 550.

19 May 59 — In a written statement to the NASA Authorization Subcommittee of the Senate Committee on Aeronautical and Space Sciences, the Director of Defense Research and Engineering said that he was confident there was no unnecessary duplication between the programs of NASA and DOD.

(U) US Cong, Sen, "NASA Authorizations for Fiscal Year 1960," Hearings before the NASA Authorization Subcommittee of the Committee on Aeronautical and Space Sciences, Part II, 86th Cong, 1st sess (Washington, 1959), p. 681.

20 May 59 — The Assistant Secretary of Defense (ISA) informed the JCS that the Director of ARPA would be responsible for the coordinated implementation by all components of DOD

of those courses of action indicated as falling within the sphere of DOD in the Operations Coordinating Board's "Operations Plan for Outer Space," dated 18 March 1959.

(U) Memo, Asst SecDef (ISA) to JCS, 20 May 59, "OCB Operations Plan for Outer Space," Encl to JCS 2283/34, 28 May 59, JMF 8670 (Permanent).

20 May 59 — The Operations Coordinating Board emphasized that information made public concerning US space activities should stress in-hand capabilities and accomplishments rather than predictions and hoped-for accomplishments, and that any discussion of projects should stress their minimum, not maximum, objectives.

(S) OCB Minutes (20 May 59) 25 May 59, JMF 5202 (Permanent).

21 May 59 — The Administrator of NASA, testifying before the NASA Authorization Subcommittee of the Senate Committee on Aeronautical and Space Sciences, stated that the estimated budget for FY 1960 included $70 million for research and development on manned space flight. This figure would amount to over 20 per cent of NASA's total research and development program.

(U) US Cong, Sen, "NASA Authorizations for Fiscal Year 1960," Hearings before the NASA Authorization Subcommittee of the Committee on Aeronautical and Space Sciences, Part II, 86th Cong, 1st sess (Washington, 1959), pp. 708, 719.

28 May 59 — Dr. James R. Killian resigned as Special Assistant for Science and Technology to return to the Massachusetts Institute of Technology. He was replaced by Dr. George B. Kistiakowsky. Dr. Killian remained a member of the Science Advisory Committee, which he had headed during his service in Washington.

NYT, 29 May 59, 1.

15 Jun 59 — The President signed the $485.3 million NASA appropriation bill for FY 1960. The bill earmarked over $333 million for research and development and $57.8 million for construction and equipment, including a space science laboratory, launching facilities at the Pacific Missile Range, and other installations.

P.L. 86-45, H.R. 7007 (73 Stat. 73, 74), 15 Jun 59.

22 Jun 59 — A malfunction in its second stage caused a NASA VANGUARD rocket to fail to launch a satellite into orbit. The satellite was intended to measure the earth's heat balance--information important in weather forecasting. This was the eighth failure in ten tries for the VANGUARD.

NYT, 23 Jun 59, 12.

8 Jul 59 — In a status report on NASA's Project MERCURY, the head of the project claimed that no new scientific breakthroughs were needed to achieve the objective of sending man into space, but a formidable engineering job remained. Some of the problems included development of a reliable missile to launch the astronaut into a 120-mile-high orbit, recovery of the space pilot in case of

failure to orbit, and establishment of a sixteen-station tracking network to keep in constant touch with the satellite. Much progress had been made, he revealed, on certain aspects of the project, such as design of the capsule, techniques of re-entry, and an escape system to pull the capsule and astronaut away from the launching rocket in case of a misfire.
NYT, 9 Jul 59, 1.

13 Jul 59 — The Administrator of NASA testified before the Senate Appropriations Committee that the House cut of $68 million in NASA's combined FY 1959 supplemental and FY 1960 budget requests would have drastic consequences for the nation's space program. He stated that NASA's current space projects would be retarded and warned that US leadership in the space race with the USSR, ordered by Congress when it set up the space agency, would be jeopardized. He therefore urged full restoration of the House cuts.
(U) US Cong, Sen, "Supplemental Appropriation Bill for 1960," Hearings before the Committee on Appropriations, 86th Cong, 1st sess (Washington, 1959), pp. 21, 23, 24.

15 Jul 59 — The Operations Coordinating Board requested the Working Group on Outer Space to develop public information courses of action intended to minimize the impact of a successful Soviet effort to place a man in space.
(S) OCB Minutes (15 Jul 59) 17 Jul 59, JMF 5202 (17 Jul 59).

18 Jul 59 — The Senate Committee on Aeronautical and Space Sciences issued its final report on the US space program. The report endorsed the basic administrative framework of the program, but suggested that the Administration make a "great deal more effort" to coordinate military and civilian space projects and policies. It criticized the lack of a well-defined space program and called for a clarification of the roles and responsibilities of the Military Services and ARPA. Effective coordination of the military space programs, the committee concluded, could only be achieved as part of a further unification of the Services within the Defense Department.
(U) US Cong, Sen, "Governmental Organization for Space Activities," Report of the Committee on Aeronautical and Space Sciences, Subcommittee on Governmental Organization for Space Activities, 86th Cong, 1st sess (Washington, 1959), pp. 54-55.

27 Jul 59 — The Secretary of Defense circulated a draft directive designating a DOD representative for Project MERCURY support operations. His duties were to prepare and submit to the Secretary of Defense plans and requirements for DOD support for MERCURY, direct and control forces and facilities assigned to support the project, and assume responsibility for the performance of the specific support missions assigned.
(U) Memo, SecDef to CJCS et al (AFPC), "Assignment of Responsibility for DOD Support of Project MERCURY," 27 Jul 59, circulated as enclosure "C" to JCS 2283/54, 5 Aug 59, JMF 8670 (15 Jul 59).

5 Aug 59 [

21 Aug 59 The planned first test of an escape device for the MERCURY project ended prematurely, NASA reported, when the 2,000-pound capsule that would carry the first astronaut into space misfired. The escape rocket had been set to go off 30 seconds after launching, but fired twenty minutes early.
NYT, 22 Aug 59, 5.

9 Sep 59 Under the direction of NASA, a successful performance test was conducted of both the 2,000-pound space capsule ("Big Joe"), which would eventually carry the first astronaut into orbit, and its vehicle the ATLAS. The results of the test confirmed the capsule's ability to withstand the excessive heat encountered upon re-entering the atmosphere, inasmuch as its internal temperature never exceeded 100° F.
NYT, 10 Sep 59, 1; 12 Sep, 1.

18 Sep 59 VANGUARD III, a fully instrumented 50-pound satellite, was launched into orbit by NASA from the Atlantic Missile Range. This final firing in the VANGUARD series, the third success in eleven tries, marked the twelfth satellite placed in orbit by the US, compared to three by the USSR.
(S) Memo, Asst CSAF for Guided Missiles to Dir, ARPA, 18 Sep 59, "Flash Report on Launching of VANGUARD," in files of Dir of Guided Missiles, R&E, OSD; NYT, 19 Sep 59, 5.

2 Oct 59 NASA announced it was inaugurating basic research into atomic-powered rocket engines for space vehicles that would be up to four times more powerful than those using chemical sources of energy. Initial research would test the ability of rocket materials to withstand the combined effects of intense radiation and temperature extremes to which various components would be subjected in such a nuclear rocket.
AP, 2 Oct 59.

TOP SECRET

5 Oct 59 — The Director of Defense Research and Engineering, at a news conference, said that although the US and the USSR were roughly equal in the development of intercontinental missiles, the Soviets were ahead in space research because of their superiority in propulsion. According to him, US chances of overtaking the USSR in space rocket propulsion depended upon the 1.5-million-pound-thrust SATURN.
NYT, 6 Oct 59, 1.

12 Oct 59 — The Commanding General of the Army Ordnance Missile Command stated in a news interview that the future of ABMA rested, in part, on the Administration's anticipated decision on what agency would control SATURN, the Army's 1.5 million-pound booster engine that had suffered a 48 per cent budget cut and a stretched out timetable. He pointed out that NASA, since it was developing a similar engine, wanted to acquire the SATURN project, yet the military space reorganization of September had placed responsibility for development of space boosters with the Air Force.
NYT, 13 Oct 59, 18.

15 Oct 59 — [redacted]

21 Oct 59 — After a conference with his defense and science advisers, the President announced his decision to transfer ABMA from the Army to NASA. The transfer order would have to lie before Congress for sixty days before it became effective. It was expected that military missile programs formerly assigned to the ABMA would be inherited by the Air Force.
NYT, 22 Oct 59, 1.

22 Oct 59 — At his news conference the President said that he expected the von Braun space team, which had been transferred the previous day from the Army to the jurisdiction of NASA, to develop SATURN, the booster engine needed in the US civilian space program; for this project, he would ask Congress for a significant increase in NASA's appropriation for FY 1961.
NYT, 23 Oct 59, 1, 12.

28 Oct 59 — NASA successfully launched an aluminum-coated balloon, 100 feet in diameter, that was inflated 250 miles out in space. The balloon, not intended for orbit, was a prelude to the launching of similar inflatable spheres as satellites--a potential revolutionary form of space communications.
NYT, 29 Oct 59, 1.

TOP SECRET

28 Oct 59 A preliminary summary of an engineering study on high-altitude nuclear detection systems, prepared under the direction of ARPA in response to a State Department request, was submitted by the Deputy Secretary of Defense to the Under Secretary of State to serve as guidance in formulating policy for disarmament negotiations. The findings of the study indicated that, given certain conditions, a system for detecting nuclear explosions in space out as far as the moon might be possible in five years, and, depending on the validity of certain assumptions, it might even be possible within the same period to establish a solar satellite system for detecting nuclear explosions in space out as far as the earth's orbit around the sun. The Deputy Secretary of Defense cautioned, however, that although these theoretical estimates of detection capability justified a research and development program, practical estimates of the capability and technical feasibility of such a system were as yet not reliable enough to be the basis for national policy decisions on questions concerning the control of nuclear tests in space.

(S) Ltr, Dep SecDef to Under SecState, 28 Oct 59, Encl to JCS 1731/320, 3 Nov 59, JMF 3050 (1959).

29 Oct 59 In statements to newsmen, the retiring Director of ARPA joined Dr. Wernher von Braun in an appeal for a high-priority financing plan to surpass the Soviet Union in space. Particularly urged was an expenditure of $240 million for the next fiscal year on Project SATURN, recently transferred to NASA, this was $100 million more than the amount planned by DOD. The increase was advocated in order to advance the target date of SATURN from 1965 to 1963.

NYT, 30 Oct 59, 1.

44

PART III

JOINT CHIEFS OF STAFF ACTIONS RELATING TO OUTER SPACE

16 Feb 59 The Deputy Secretary of Defense requested JCS comments on proposed recommendations to be made to the President for changes in the list of ballistic missile and satellite programs having the highest national priority, which had been established by NSC Action No. 1846 on 22 January 1958. Among the proposed recommendations for changes were deletion of the IGY scientific satellite programs from the highest category, and inclusion under the category of satellite programs the following specific projects: SENTRY (satellite-borne visual and ferret reconnaissance system), MIDAS (satellite missile early warning system), DISCOVERER (satellite guidance and recovery system), and MERCURY (manned satellite).

(TS) Memo, Sp Asst/CJCS to Dir Jt Staff, "Priorities for Ballistic Missile and Satellite Programs," Encl to JCS 1620/229, 17 Feb 59, JMF 4700 (16 Feb 59).

On 26 March 1959 the Acting Secretary of Defense in a separate memorandum to the National Aeronautics and Space Council (NASC) recommended the following changes in the satellite programs on the National Priority List recorded in NSC Action No. 1846: 1) deletion of the IGY scientific satellite programs (VANGUARD-JUPITER C), 2) amendment of the authority for determining satellite programs of the highest priority so that NASC, rather than the Secretary of Defense, would make the determinations; 3) inclusion of SENTRY, DISCOVERER, and MERCURY as specific projects in the category of satellite programs of the highest priority.

(TS) Memo, Actg SecDef to NASC, "Priorities for Satellite Programs," 26 Mar 59, JMF 8670 (Permanent).

On 27 April 1959 the NASC endorsed and the President approved the changes to NSC Action No. 1846 that the Acting Secretary of Defense had recommended, but also added was an amendment regarding the determining authority to select satellite programs for the highest priority--instead of "Satellite programs . . . determined by the Secretary of Defense . . . ," the pertinent section was changed to read "Space programs determined by the President on advice of the National Aeronautics and Space Council . . . ." The specific projects designated by the President as falling in this category were SENTRY, DISCOVERER, and MERCURY. (Information of this action by the NASC was forwarded to the NSC on 30 April 1959).

(S) Memo, SecDef to CJCS et al., "Top National Priority Programs (U)," 8 May 59, Encl to JCS 1725/345, 14 May 59, JMF 8670 (Permanent).

On 30 April 1959 the JCS, in response to the request of 16 February 1959 for comments regarding proposed recommendations to be made to the President for changes in the list of ballistic missile and satellite programs having the highest national priority, recommended to the Secretary of Defense that the proposed changes be revised to the extent of including certain additional projects. Under the category of satellite programs, the JCS recommended inclusion of TRANSIT (navigational satellite)

and the Communication Satellite as specific projects of highest priority. They concurred in the remainder of the Secretary's proposed recommendations for changes in satellite program priorities.

(TS) JCSM-163-59 to SecDef, "Proposed Memorandum for the President on Priorities for Ballistic Missile and Satellite Programs (C)," 30 Apr 59, derived from JCS 1620/243, 7 Apr 59, both in JMF 4700 (29 Apr 59).

On 12 May 1959 the JCS, in a memorandum to the Secretary of Defense, recommended that the changes to the National Priority List which had been endorsed by the NASC and approved by the President on 27 April 1959 be noted and that these changes be reflected in a new NSC Action to supersede NSC Action No. 1846. At the same time the JCS invited the Secretary's attention to their comments regarding proposed changes in national satellite program priorities that they had previously submitted on 30 April 1959.

(TS) JCSM-180-59 to SecDef, "Priorities for Space Programs (U)," 12 May 59, derived from JCS 2283/30, 11 May 59, both in JMF 8670 (12 May 59).

C

]

C

]

/According to a memorandum of the Director, J-4, to the Secretary, JCS, dated 13 August 1959, project MIDAS (satellite missile early warning system) had been deleted from the proposed changes to the national priority list on 7 August 1959 at the request of the Director, Defense Research and Engineering, because the program was then undergoing review; the JCS-recommended project TRANSIT (navigational satellite) had been deleted because it was a space program under the cognizance of the NASC and not properly a matter for NSC

action. No indication has been found of the reasons for failure to include the JCS-recommended Communication Satellite in the final list of space program projects having highest national priority./

(TS) Memo, J4DM-108-59 to Secy/JCS, "Priorities for Ballistic Missile and Space Programs (C)," 13 Aug 59, JMF 8670 (11 Aug 59).

20 Feb 59 — The Chairman, JCS, in response to a request for comments on a proposed new charter for ARPA, informed the Secretary of Defense that the JCS were of the opinion that ARPA should eventually be phased out of existence. The Chairman pointed out that the confusing duplication of functions between ARPA and the Director of Defense Research and Engineering would lead to coordinating as well as engineering problems.

(U) CM-304-59 to SecDef, "DOD Draft Charter for ARPA Dated 16 February 1959," 20 Feb 59, circulated as JCS 1620/232, 24 Feb 59, JMF 5224 (1959).

4 Mar 59 — In response to a request from CINCNORAD for estimates of the number of US objects in space as of 1 July 1960 and 1 July 1963, the JCS, utilizing ARPA figures, estimated that the US would have 50 space objects in 1960 and 180 in 1963. Approximately one-fifth of the 1960 total and one-tenth of the 1963 total would be deep space probes and would not be located in the general vicinity of the earth. A total of 100 US launchings was expected by 1960 and 350 launchings by 1963. The JCS cautioned, however, that because of the variables of funding and research these totals should be considered as very broad estimates only.

(S) Msg, CINCNORAD to JCS, 9 Feb 59, CAF IN 91485 (10 Feb 59); Ltr, Director, ARPA to Dir Jt Staff, 2 Mar 59; Msg, JCS to CINCNORAD, 4 Mar 59, all in JMF 4960 (Permanent).

25 Apr 59 — The Chairman, JCS, requested the Deputy Secretary of Defense to recommend to the State Department that an approach be made to the Soviet Union in an effort to recover a DISCOVERER capsule which had landed on the Norwegian island of Spitsbergen, inasmuch as evidence indicated that it had been found by Soviet personnel and was in Soviet custody. The Acting Assistant Secretary of Defense made the requested recommendation by letter to the Assistant Secretary of State on 2 May 1959.

(S) CM-351-59 to Dep SecDef, "Discoverer Capsule," 25 Apr 59; Ltr, Actg Asst SecDef to Asst SecState, no subj, 2 May 59, both in JMF 4700 (25 Apr 59).

30 Apr 59 — The JCS recommended to the Secretary of Defense that, in view of the lack of a common procedure among the Services and other DOD agencies regarding changes to the list of ballistic missile and satellite programs of highest national priority (see item of 16 February 59), a review should be undertaken and appropriate clarifying instructions issued.

(TS) JCSM-163-59 to SecDef, "Proposed Memorandum to the President on Priorities for Ballastic Missile and Satellite Programs (C)," 30 Apr 59, derived from JCS 1620/243, 7 Apr 59, both in JMF 4700 (29 Apr 59).

22 May 59 In a memorandum to the Secretary of Defense, the JCS presented their views on military space policy in the context of international control of outer space, the subject of proposed action by Congress and the Executive Department and by representatives at the United Nations. The JCS advised that the US Military Services had a continuing requirement to use outer space for research, development, and operation of weapon systems necessary to the nation's security. In order that the security of the US be fully protected, the JCS therefore advocated preserving unrestricted military use of outer space unless and until enforceable agreements for control could be reached.

(C) JCSM-195-59 to SecDef, 22 May 59, "US Military Space Policy," derived from JCS 2283/28, 21 May 59, JMF 8670 (2 May 59).

22 Jun 59 A report prepared at the request of JCS by the Weapons Systems Evaluation Group (Vol. I, WSEG Report No. 39, "Military Applications of Artificial Earth Satellites") presented an assessment of the military advantages and feasibility of manned and unmanned satellites and space stations. The general conclusions arrived at were: 1) the military potential of manned satellites was not apparent at that time, but unmanned satellites could be expected to perform useful and even vital military functions within the 1961-1965 time period, and 2) the SATURN booster seemed to offer the earliest possibility of a militarily useful manned satellite, although there appeared to be no effort directed specifically toward exploiting it for this purpose. Recommended as necessary was the initiation of studies which would utilize the results of the MERCURY, X-15, and other programs, as well as studies which would delineate specifically the military functions that a man in space might perform advantageously as compared with the capabilities of unmanned satellites. The Report's enclosures dealt individually with the respective problems of satellite reconnaissance systems, geodetic satellites, and communication satellites, while a separate supplement to the Report, submitted to JCS on 25 August 1959, dealt in detail with the technical aspects of satellite photo-reconnaissance of Soviet territory.

(S) Volume I WSEG Report No. 39, "Military Applications of Artificial Earth Satellites," 22 Jun 59, Encl to JCS 2283/41, 25 Jun 59, JMF 8670 (23 Jun 59).

24 Jul 59 In reply to a request from the Secretary of Defense for the views of the JCS concerning operational control of military space systems, the divergent views of the Chiefs of Services were forwarded for resolution.

The CSA and CNO recommended the establishment of a Joint Military Astronautical Command responsible to the JCS for the exercise of military direction, co-ordination, and control over space systems and activities. They further recommended the following assignment of satellite-system responsibility to the respective Military Departments: 1) Interim Satellite Early Warning System - Air Force; 2) Interim Satellite Navigation System - Navy;

3) Phase I of Satellite Reconnaissance Systems - Army;
4) Interim Satellite Detection System - Navy.

The CSAF, however, recommended that no such new agency be created but that satellite and space vehicle operations should continue under the control of the Military Departments and the unified and specified commands. He further recommended the following assignment of satellite-system responsibility: 1) Interim Satellite Early Warning System and Phase I of Satellite Reconnaissance Systems - Air Force; 2) Interim Satellite Navigation System - payload to the Navy, remainder to the Air Force; 3) Interim Satellite Detection System - EAST-WEST FENCE to the Army and Navy, remainder to the Air Force.

(S) JCSM-283-59 to SecDef, 24 Jul 59, "Coordination of Satellite and Space Vehicle Operations," derived from JCS 2283/45, 9 Jul 59 and JCS 2283/46, 10 Jul 59. All in JMF 8670 (22 Apr 59).

3 Aug 59 — The Chairman, JCS, in response to a request for comment on proposed terms of reference for the DOD representative for Project MERCURY, recommended to the Secretary of Defense that the JCS be established as the normal channel of communication from the DOD representative to the Secretary of Defense; the Chairman stated that JCS participation in the chain of command was required because the unified and specified commands would be involved in the operational support of project MERCURY.

On 10 August the Deputy Secretary of Defense, concurring in the JCS recommendation, announced that the DOD representative for Project MERCURY would be responsible to the Secretary of Defense through the JCS.

(U) CM-374-59 to Dep SecDef, "Assignment of Responsibility for DOD Support of Project MERCURY," encl "A" to JCS 2283/54, 5 Aug 59, JMF 8670 (15 Jul 59). (U) Memo, Dep SecDef to CJCS et al, 10 Aug 59, same subj, Encl to JCS 2283/56, 14 Aug 59, JMF 8670 (10 Aug 59).

10 Aug 59 — The Secretary of Defense requested JCS comments on the Long-Range Advance Research Plan of ARPA. The Plan was based on stated military requirements as submitted by the Military Departments to ARPA in April 1959 and sought to take advantage of anticipated efforts of NASA. It was indicated that priorities on military applications were consistent, where possible, with previous recommendations of JCS. The specific projects covered by the Plan (including funds required for each annually from 1960 through 1964) were: DISCOVERER (reconnaissance satellite), SAMOS (reconnaissance satellite formerly designated SENTRY); NOTUS (communications satellite); TRANSIT (navigation satellite); Missile Mapping and Geodesy; SOMNIUM (electronic countermeasures satellite); MRS V (maneuverable and recoverable satellite); SUZANO (space platform); SHEPHERD (space surveillance system); LONGSIGHT (missile studies and systems analysis); PRINCIPIA (solid propellant chemistry); PONTUS (study of structural and power conversion materials); DEFENDER (missile defense system); and MIDAS (missile early warning system).

(S) Memo, SecDef to CJCS, 10 Aug 59, "Long Range Plan for Advanced Research," Encl to JCS 2283/55, 12 Aug 59. ARPA report, "Long Range Plan for Advanced Research," 30 Jul 59, both in JMF 8670 (10 Aug 59).

27 Aug 59 The JCS, in response to the request of the Secretary of Defense for comments on the Long Range Advanced Research Plan of ARPA (see item of 10 Aug 59), submitted the following views: 1) they were concerned over the occurrence of slippage in deadlines of some projects that had been recommended for increased emphasis, 2) the Soviet threat might require a re-examination of current cost levels; 3) it was imperative that the development of space-borne and necessary earth-based equipment be coordinated in order to expedite operational capability; 4) the status of the programs of the NASA should be reviewed, inasmuch as its programs were not included in the ARPA plan; and 5) cost and performance figures should be provided by ARPA to permit the Services to anticipate operating costs.

(S) JCSM-352-59 to SecDef, 27 Aug 59, "Long Range Advanced Research Plan of ARPA," derived from JCS 2283/59, 27 Aug 59, JMF 8670 (10 Aug 59).

17 Sep 59 The JCS forwarded to the Secretary of Defense their nomination for a JCS representative on the planned "Cisler Group" which was being created to study ways of improving the management of national missile ranges and space tracking systems.

On 18 September the Secretary of Defense informed the JCS that he had decided not to constitute a formal group to assist Mr. Cisler.

(U) JCSM-390-59 to SecDef, 17 Sep 59, "Nomination to the Cisler Group (U);" Memo, Mil Asst SecDef to JCS, 18 Sep 59, Encl to JCS 2283/60, 21 Sep 59, both in JMF 8670 (21 Aug 59).

18 Sep 59 In a memorandum to the Chairman, JCS, the Secretary of Defense advised that the proposed creation of a joint military organization for control of space systems (see item of 24 Jul 59) did not appear desirable at that time. Utilization of the present organization of the Military Departments was preferable in order to realize full advantage from existing support capabilities, eliminate conflicting research and development interests, and simplify fiscal accounting.

In In regard to the issue over assignment of responsibility for satellite systems, the Secretary determined that responsibility for development, production, and launching of space vehicles (except for projects of ARPA) would be assigned to the Air Force, while payloads for space projects would be assigned to the interested or competent service. Specific projects to be transferred from ARPA to the Military Departments included: the Interim Satellite Early Warnings System and Phase I of the Satellite Reconnaissance System, to the Air Force; the Interim Satellite Navigation System, to the Navy; and the Interim Satellite Communications System, to the Army.

(C) Memo, SecDef to CJCS, "Coordination of Satellite and Space Vehicle Operations," 18 Sep 59, circulated as N/H of JCS 2283/52, 24 Sep 59, JMF 8670 (22 Apr 59).