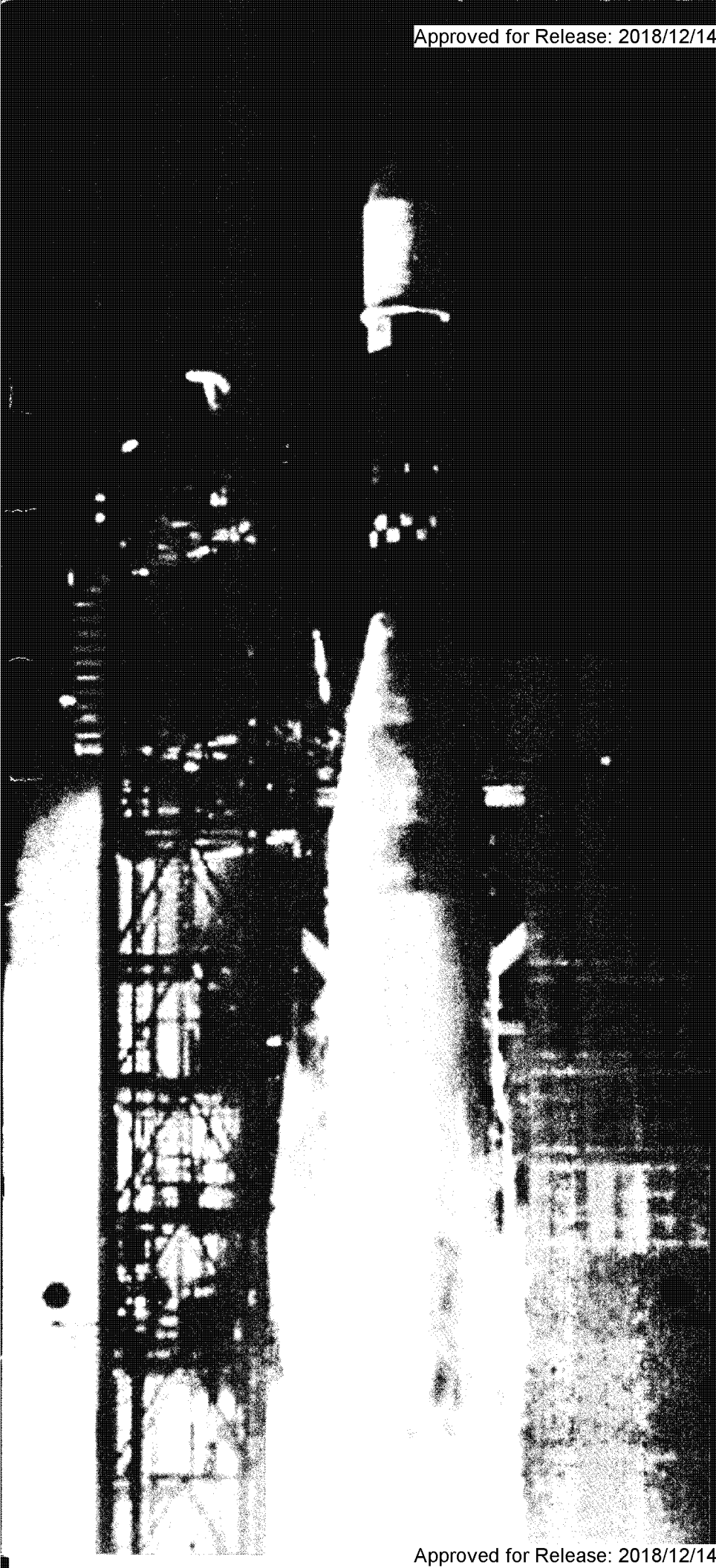

The NATIONAL RECONNAISSANCE OFFICE

NRO

ITS ORIGINS, CREATION, & EARLY YEARS

The NATIONAL RECONNAISSANCE OFFICE

NRO

ITS ORIGINS, CREATION, & EARLY YEARS

Gerald K. Haines
NRO Historian

Approved for Release: 2018/12/14 C05112526

FOREWORD

The National Reconnaissance Office (NRO) is pleased to declassify and publish this brief history of the origins and early development of the NRO. We believe that this volume will help fill in some of the gaps in information previously available on the NRO and make possible a more complete understanding of the essential role the NRO played in the Cold War.

We hope this will be the first in a series of historical studies of the NRO as more and more documents relating to its activities are declassified and released. It is important for the American people to be aware of, and understand, the NRO's critical mission as well as the significant contributions it has made to our national security.

We at the NRO are committed to a new openness policy which not only carefully documents our activities, but informs the public of our challenges and successes, while continuing to protect national security sources and methods. This volume begins the process.

Director
NRO

PREFACE & ACKNOWLEDGEMENTS

The National Reconnaissance Office (NRO) is a little known, yet extremely important and unique agency. Its contributions to US intelligence collection efforts during the Cold War were truly revolutionary. Yet, little is known about the NRO or its origins. There is almost nothing in the general literature on the history of this secretive organization. In June 1996 Keith Hall, the Deputy Director of the NRO, asked that an unclassified history of the NRO be produced and made available to the general public. Drawing on the earlier classified works of Cargill Hall, Robert Perry, and Boyd Sutton, I have attempted to tell the story with as much detail as possible while at the same time keeping it at the unclassified level. It was not an easy task.

The publication itself would not have been possible without the dedicated assistance of my research assistant, [redacted] *who patiently ferreted out important documents and photographs from the complex and often baffling NRO records system. Many other people made important contributions to the production of the study as well. I am especially grateful for the fine cooperation and assistance provided by the NRO Office of Security, which carefully reviewed the manuscript and made many positive, constructive suggestions when we encountered classification concerns.* [redacted] *carefully copy edited the manuscript and the NRO Graphics staff, particularly* [redacted] *and* [redacted] *did an excellent job on the layout and design work. Any factual errors are, of course, mine and mine alone. I assume full responsibility for the accuracy of the volume and the interpretations presented.*

Gerald K. Haines
NRO Historian

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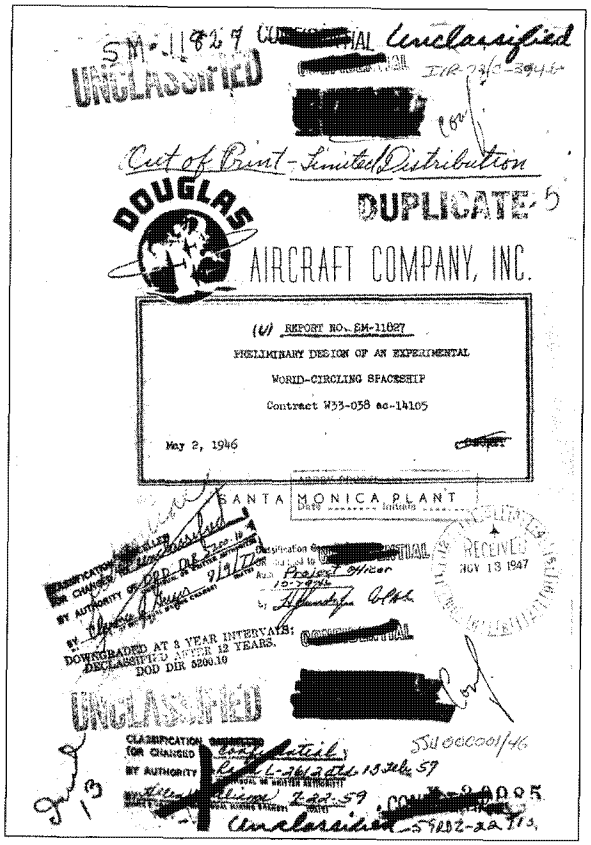
INTRODUCTION

Formally established in 1961 in the midst of the Cold War as a super secret, covert agency, the National Reconnaissance Office (NRO) developed and managed the revolutionary US satellite reconnaissance effort. Focusing primarily on the Soviet Union, the NRO, for nearly thirty years, provided US policy makers and military planners with unique and essential intelligence on Soviet war-making capabilities which threatened or might threaten US national security interests. The intelligence product from NRO reconnaissance satellite systems tracked Soviet weapon and missile developments, military operations, order of battle information, nuclear capabilities, and industrial and agricultural production.[1]

It is difficult to exaggerate the value of this unique source of intelligence to US policy makers and military planners. The role played by the NRO during the Cold War was absolutely crucial. Moreover, the NRO and the satellite reconnaissance systems it developed radically changed the entire concept of intelligence. The satellite systems allowed the United States to collect an ever-increasing volume of detailed intelligence never before available, and permitted US civilian and military decision makers far more flexibility in reacting to potential Soviet threats during the Cold War. In addition, the NRO's unique mission drove innovative scientific and technological development in space and created a model for government-industry cooperation in a crisis atmosphere.

This brief study outlines the origins of the US reconnaissance effort in the 1940s and 1950s and traces the creation and development of the NRO in the 1960s. It also examines in some detail the struggle between the Central Intelligence Agency (CIA) and the Air Force for control of overhead reconnaissance and the NRO. In 1991, the Cold War ended as the Soviet Union collapsed. In 1992, the Department of Defense declassified the term NRO and officially recognized the existence of this unique office. Only now may the vital role which the NRO played during the Cold War be revealed. This is part of that story.



The RAND proposal for a world-circling spaceship

1946

ORIGINS OF THE US SATELLITE RECONNAISSANCE EFFORT

In 1946, the US Army Air Forces' project RAND published a speculative essay which called for a multi-stage "Experimental World-Circling Spaceship." At the same time, the US Navy proposed the construction of a single-stage earth satellite vehicle. With no apparent military application, these proposals fell on deaf ears within the War and Navy Departments. Moreover, with budget cut-backs and demobilization, there were no funds to build the huge rockets needed to launch such satellites. Nevertheless, the RAND Corporation continued to investigate the possibilities of satellites for communications or surveillance.[2]

Even after the creation of a separate US Air Force, a new Department of Defense, and a Central Intelligence Agency in 1947, proposals for the development of satellites continued to languish. No one was interested. Facing major opposition to any such effort, the newly established Air Force stopped work on proposals for intercontinental ballistic missiles and satellites and concentrated instead on strategic bombers and air-breathing guided missiles. The Navy, however, continued to fund a modest satellite research effort until 1948. In that year the Navy suggested a joint program with the Air Force and the RAND Corporation to continue development. Determined to appropriate to itself "logical responsibility for any satellite developments," the Air Force, led by Chief of Staff Lt. Gen. Hoyt S. Vandenberg, rejected the suggestion.[3]

After rejecting the Navy offer, in early 1949 the Air Force resumed funding satellite research at RAND. The RAND Corporation studies included various proposals for using satellites as observation platforms or weather reconnaissance vehicles. These proposals became part of the Air Force's weapon development project, WS-117L, at Wright Development Center in Dayton, Ohio. At Wright, the proposals were simply filed away. There was still no rocket powerful enough to put such satellites into orbit.[4]

"The RAND studies included various proposals for using satellites as observation platforms or weather reconnaissance vehicles."

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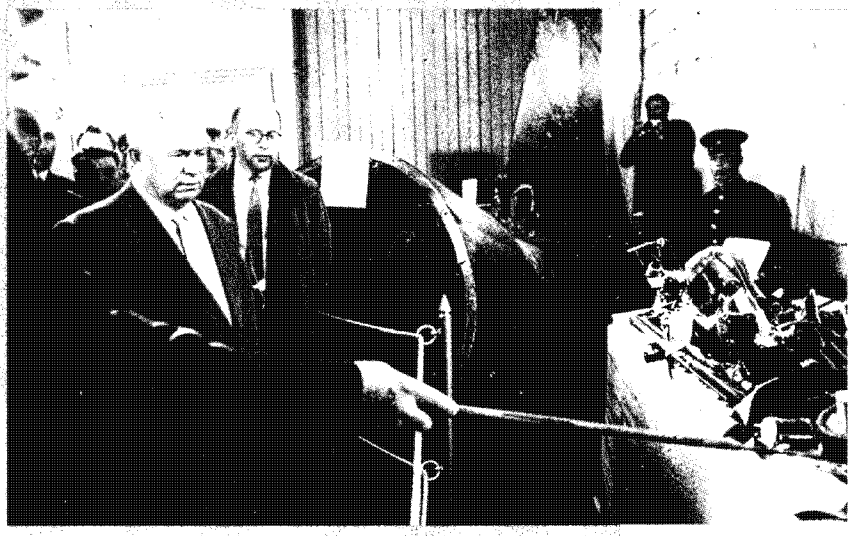


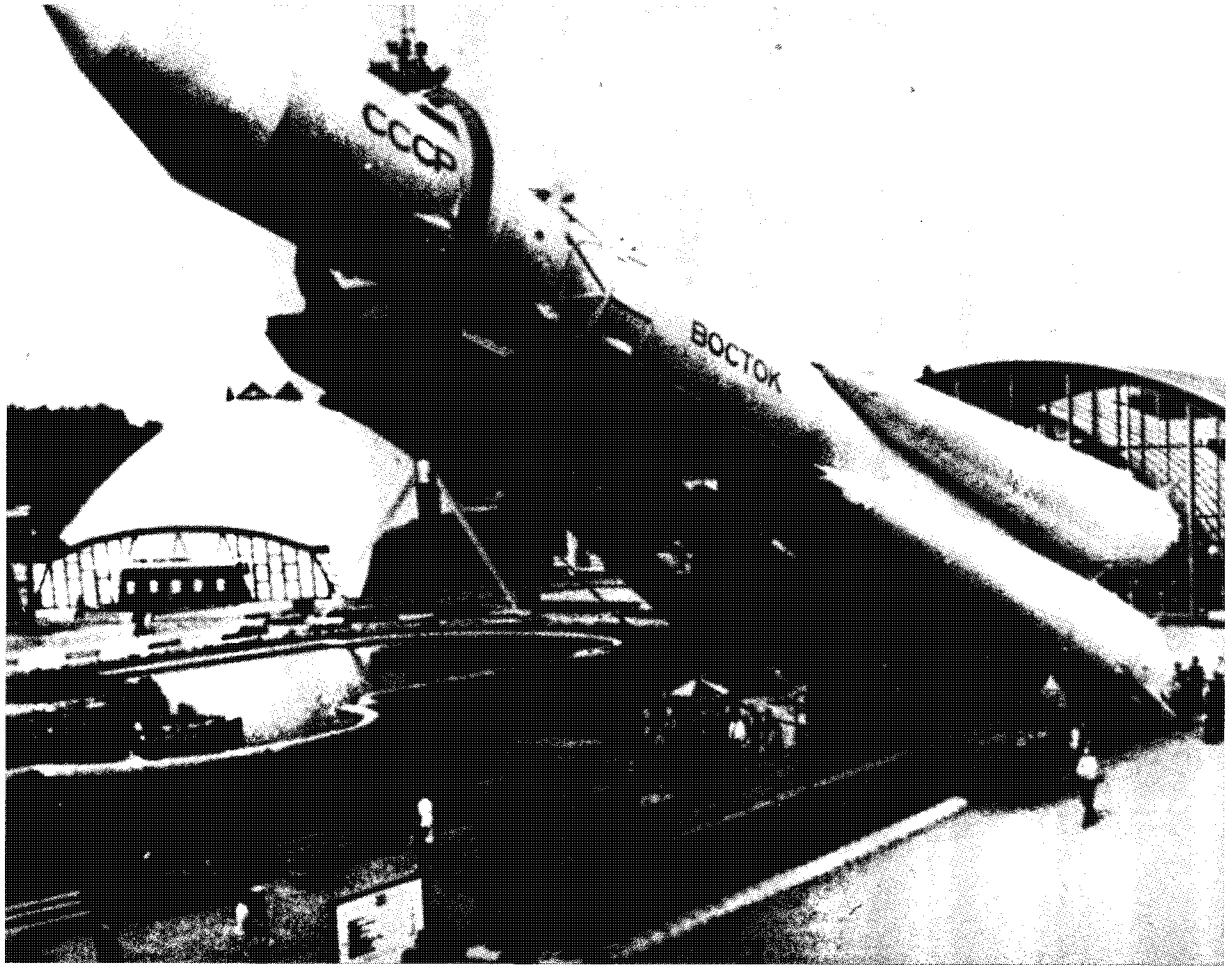
Khrushchev and the wreckage of the U-2 piloted by Gary Powers

1960

THE SOVIET THREAT, THE U-2 AND PHOTO-RECONNAISSANCE

By 1953, the Eisenhower administration was alarmed over the apparent increasing ability of the Soviet Union to launch a surprise attack against the United States. The Soviets had exploded an atomic bomb in 1949 and a hydrogen device in 1953. By mid-1953 they had an intercontinental bomber, the Bison, and were hard at work on a long-range missile system. A RAND study warned that a Soviet surprise attack might destroy 85 percent of the US Strategic Air Command's bomber force. US intelligence officials had few assets that could warn of a Soviet attack well in advance.

On 26 July 1954, President Dwight D. Eisenhower established a Technological Capabilities Panel (TCP) chaired by James R. Killian, Jr., President of the Massachusetts Institute of Technology, to study this



Soviet Missile which placed Sputnik I in orbit in 1957.

"The objective of the program was to obtain overhead photographic intelligence of the Soviet Union..."

James R. Killian, Jr

Edwin H. Land

BGen Osmond Ritland

CIA's Richard Bissell

President Dwight D. Eisenhower

problem. Working with Edwin H. (Din) Land, the inventor of the instant camera, and dozens of the nation's leading scientists, Killian and his panel soon became appalled at the poor state of US intelligence resources, especially those directed at the Soviet Union. Killian and Land believed that US intelligence capabilities could be vastly improved by the application of advanced technology.[5]

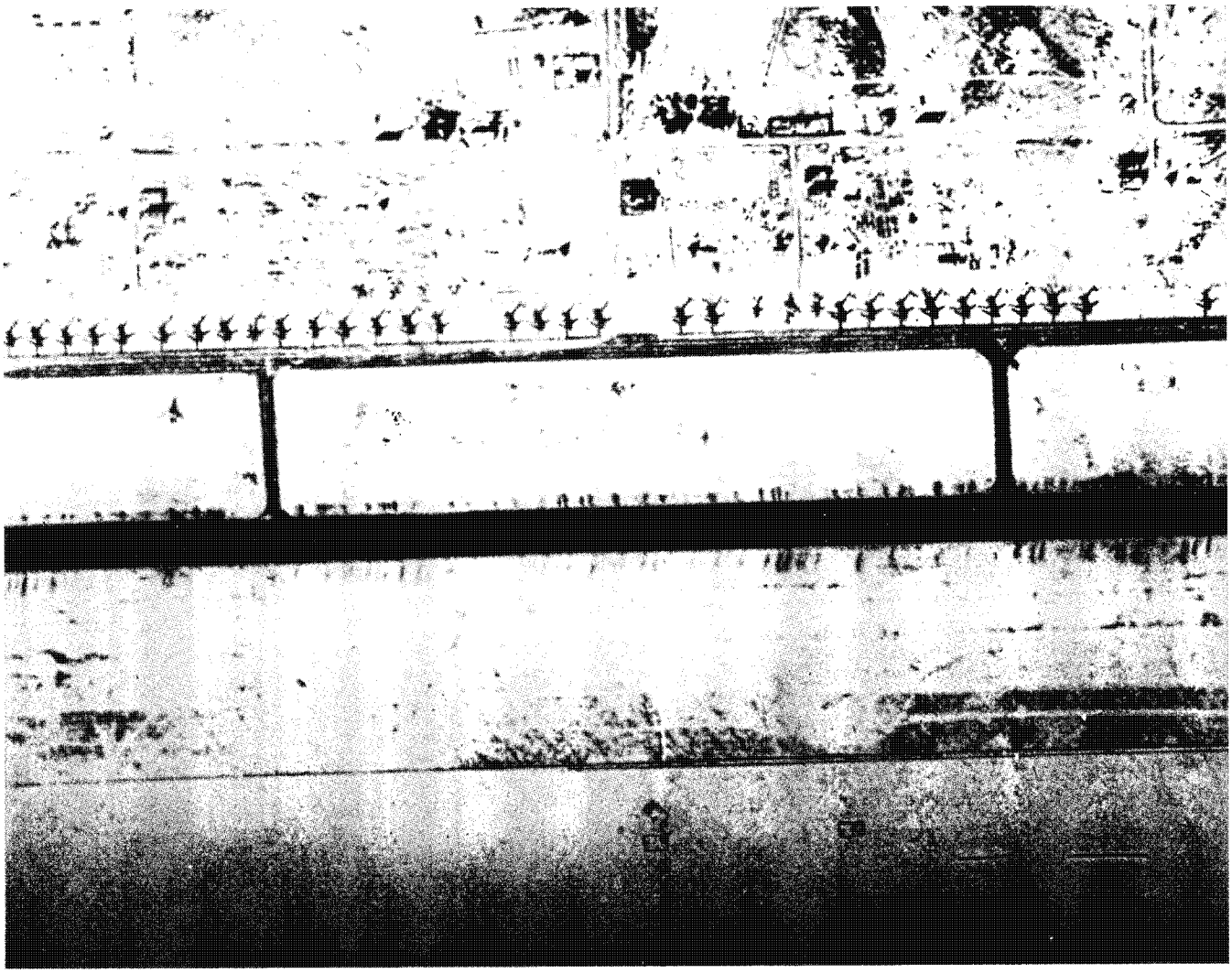
One result of the panel's recommendations was the Eisenhower administration's decision in November 1954 to resurrect a rejected Lockheed Corporation proposal for a high flying, single-engine reconnaissance aircraft, the U-2, and give its development to the CIA. The objective of the program was to obtain overhead photographic intelligence of the Soviet Union, specifically its strategic Bison bomber fleet.

To achieve maximum security, CIA official Richard Bissell and Air Force

Brigadier General Osmond Ritland made the project self-sufficient. It had its own contract management, administrative, financial, logistics, communications, and security personnel. Funding was also kept separate from other CIA or Air Force projects. Bissell reported directly to the Director of Central Intelligence (DCI), Allen Dulles. Using "unvouchered funds," Bissell simplified the procurement and security procedures. The use of unvouchered funds allowed Bissell and Ritland to streamline the competitive bidding procedures, significantly speeding up the procurement process.[6]

Bissell and Ritland also gave Lockheed "performance specifications" for the U-2 rather than using the standard Air Force practice of providing contractors "technical specifications." This, according to Kelly Johnson, Lockheed's U-2 Program Manager, allowed Lockheed to focus on performance goals rather than individual specifications. The arrangement became a unique partnership between the Lockheed Corporation and the government. It gave the contractor great flexibility in designing and building the aircraft. Such streamlined management and acquisition practices were employed throughout the development of the U-2. Time and results mattered, not

Top: The U-2
Above: Kelly Johnson

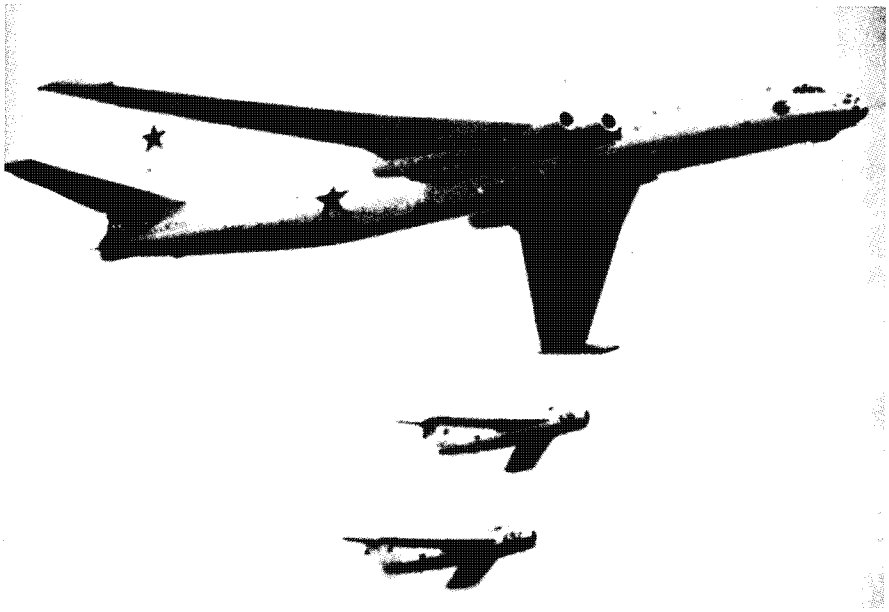


The "Million Dollar Photo" of the Saratov-Engels airfield at Ramenskoye, southeast of Moscow.

"Time and results mattered, not bureaucratic paperwork. This set the precedent for NRO's later focus on system performance goals."

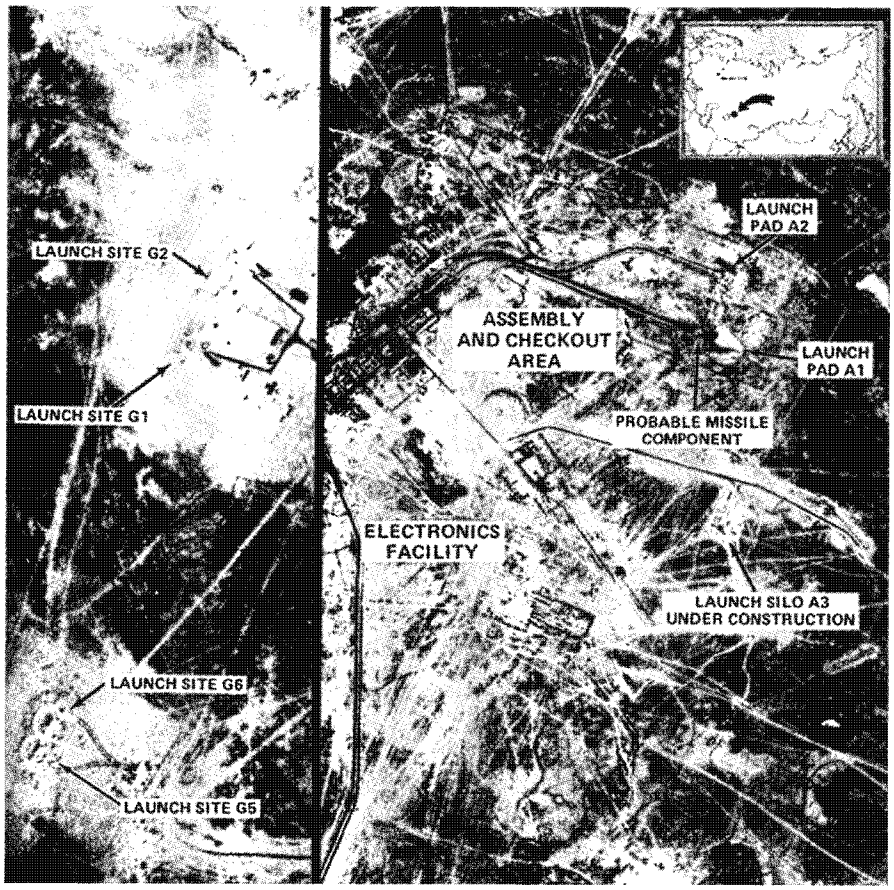
bureaucratic paperwork. This unique arrangement set the precedent for NRO's later focus on system performance goals rather than technical specifications in its contract negotiations regarding reconnaissance satellites.

It took less than ten months from the time President Eisenhower authorized the project on 27 November 1954 until the U-2 made its maiden flight on 5 August 1955. Beginning on 20 June 1956 through May 1960, the U-2 made a total of 24 overflights of the Soviet Union. Thousands of feet of film from the overflights poured into the CIA's small Photo Intelligence Division.[7] The photographs obtained by the first U-2 flights provided a bonanza of data for US intelligence agencies. In fact, a photograph of the Saratov-Engels air-



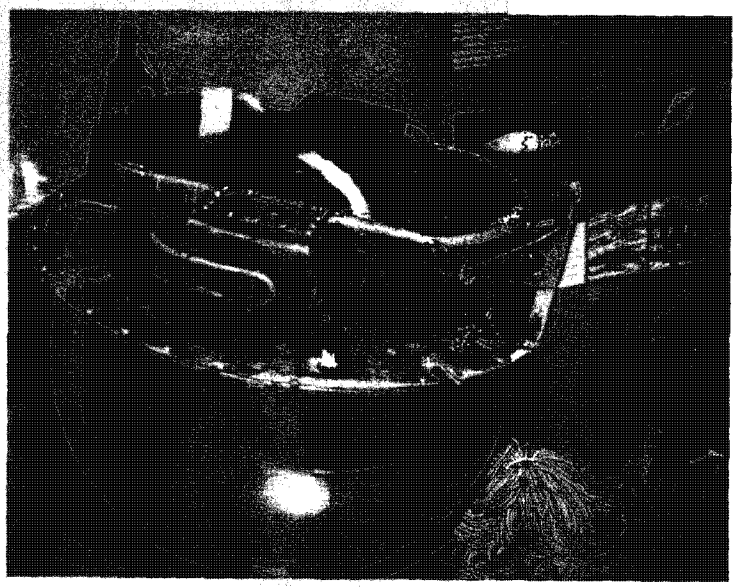
Soviet Myasishchev - 4 Bomber (Bison).

The Tyuratam Missile Test Center in Soviet Central Asia began operations in 1957.



field at Ramenskoye, southeast of Moscow, taken on 5 July 1956, put to rest the "Bomber Gap" debate. It showed less than three dozen of the new Soviet Myasishchev-4 (Bison) heavy bombers. The United States Air Force was at the time claiming that nearly 100 of the Bisons were already deployed. The U-2 missions could find no additional Bisons at other major Soviet airfields. DCI Allen Dulles referred to this photograph in later years as the "million dollar photo."[8]

By 1957 U-2 missions were providing US intelligence analysts with a wealth of information about Soviet missile and technological and scientific activities. Known as Project SOFT TOUCH, these flights ranged over such prime Soviet targets as the missile-test facilities at Tyuratam and Saryshagan, and the nuclear refining installations at Tomsk.[9]



First CORONA capsule recovered successfully

1960

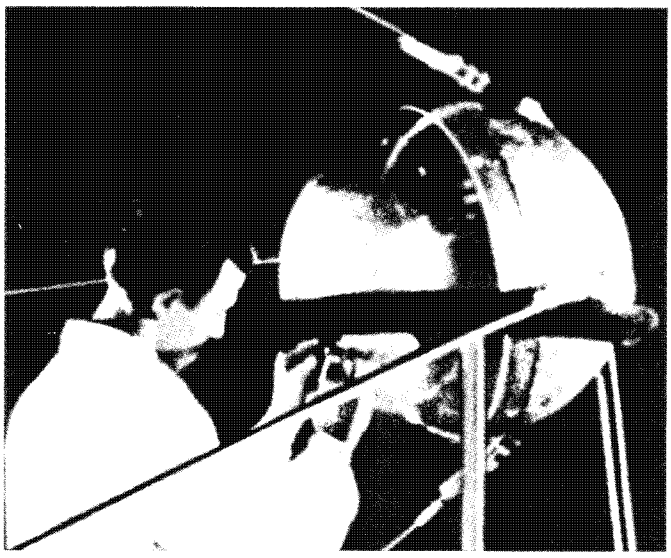
At the same time the CIA was developing the U-2 reconnaissance aircraft and beginning to exploit overhead photography, Air Force officials, in late 1954, called for continuous surveillance of denied areas of the world to determine a potential enemy's war-making capability. This rekindled the Air Force's interest in satellite development.[10]

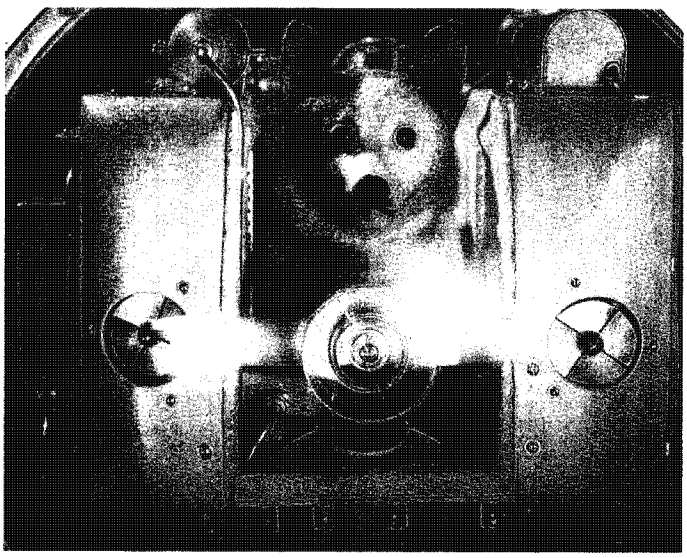
On 2 April 1956, the WS-117L System Program Office (SPO) of the Air Force published the first complete US development plan for a reconnaissance satellite. The plan proposed a fully operational system by late 1963 at a cost of nearly $115 million. The Air Force made Lockheed the prime contractor for this multi-faceted space-system concept. A major component of the plan was a satellite observation system, code named SENTRY/SAMOS (Lockheed renamed the entire effort PIED PIPER).[11]

The Air Force envisioned a 92 satellite program divided into seven phases. The first phase was to be a direct-read-out photo satellite which would process the film aboard the satellite and transmit the images to a ground station. It was not to become operational, however, until 1960. The final phase, a large ferret satellite, would be operational at a later date. The 1956 price tag for the entire project rapidly escalated to $600 million. Little came of these PIED PIPER efforts, however, as the Department of Defense struggled to eliminate "non-critical" defense expenditures during the mid-1950s and

"On 2 April 1956... the Air Force published the first complete US development plan for a reconnaissance satellite."

Left: Sputnik I. Launched 4 Oct 1957.
Below: Sputnik II. Launched 3 Nov 1957.





"... a Saturday Evening Post article referred to the "gap" between Soviet and US missile capabilities and asked "How Can We Catch Up?"

the Eisenhower administration stressed a "space for peace" theme. In addition, many civilian and military leaders doubted the reliability of such advanced concepts.[12]

With little prospect of funding and exposed as a military "spy in the sky" program by *Aviation Week*, WS-117L appeared doomed.[13] At this point, however, the Soviet Union inadvertently came to the program's rescue. In August 1957, the Soviets test-launched a long-range ballistic missile. On 4 October 1957 they rocked US policy makers by orbiting the 185 pound Sputnik I (the first artificial earth satellite). In November 1957 the Soviet Union announced the launching of another satellite (Sputnik II). This new satellite carried a dog and a TV camera and weighed 1,980 pounds. These events set off an intense reaction among US officials and the general public.

After Sputnik I, Senators Stuart Symington (D-MO) and Henry Jackson (D-WA) claimed that the Soviet Union had a large lead over the United States in the development of long-range missiles. Journalists Joseph and Stewart Alsop also began a campaign in their syndicated column "Matter of Fact," warning of the Soviets' lead over the United States in the missile field. Stewart Alsop, in a *Saturday Evening Post* article in December 1957, referred to the "gap" between Soviet and US missile capabilities and asked "How Can We Catch Up?" This was the beginning of what became a long-simmering missile gap debate.[14]

The Soviet success came at a time when US attempts to launch an ICBM were faltering. The first Atlas ICBM test, for example, on 11 June 1957, failed over Cape Canaveral, as did a second attempt on 25 September. At this point, the Navy had primary authority for the launching of US satellites. Its Project VANGUARD called for using a naval missile to orbit a grapefruit-sized satellite. The program was woefully behind schedule, however, when the Soviets launched Sputnik I.[15]

Although the President's new Board of Consultants on Foreign Intelligence Activities (PBCFIA), chaired by Killian, assured the President that US missile development was on track and on a par with or ahead of Soviet efforts, it urged greater federal support for the various programs and a major review of all reconnaissance systems, with a view toward replacing the increasingly vulnerable U-2.[16] (The Soviets shot down a U-2 piloted by Francis Gary Powers on 1 May 1960. This effectively ended US manned reconnaissance flights over the Soviet Union.)

When Eisenhower asked Deputy

Defense Secretary Donald Quarles about the prospects for a US satellite reconnaissance vehicle that could take pictures from space and beam them back to earth, Quarles replied that the Air Force had a major research program in the area, known as SENTRY/SAMOS, that was progressing nicely.[17] Killian and Land disagreed. Killian considered the satellite program peripheral. He believed that if Project RAINBOW, designed to make the U-2 invisible to radar, proved successful, it would diminish the importance of satellites altogether.[18] Moreover, Land, supported by James Baker, a Harvard University astronomer, head of the Air Force Intelligence Panel, and a member of the TCP, and Philip G. Strong, from the CIA's Office of Scientific Intelligence, believed that the major part of the Air Force's WS-117L/PIED PIPER Project, the direct read-out satellite, could not return the scale of imagery needed to answer the President's questions concerning Soviet missile development.[19]

Despite such concerns, Killian, Land, Baker, and their colleagues believed that US scientists and engineers, given sufficient funds and the freedom to innovate, could solve the problems and get a film-return photo satellite in orbit. They also urged the President to start work on a replacement for the U-2 as soon as possible.[20]

After listening to his advisers, on Monday, 28 October 1957, Eisenhower ordered the Air Force and the CIA to provide him with details of their efforts to date concerning advanced reconnaissance systems. For the CIA, this meant the supersonic reconnaissance aircraft, the OXCART or A-12 (later the Air Force version was known as the SR-71 or Blackbird) and for the Air Force, it meant the various satellites of the WS-117L/PIED PIPER project.

Discussions among the President, his civilian advisers, and CIA and Air Force officials continued into December. All agreed that there was little prospect that either the A-12 or SENTRY/SAMOS could be deployed soon. Nevertheless, the scientists, led by Killian and Land, urged the President to pursue both an advanced aircraft and the satellite projects. This investment in competing reconnaissance platforms corresponded with Eisenhower's belief that the nation would have to use a "Manhattan Project" approach in order to make rapid progress in the missile and satellite areas.[21]

Killian and Land also believed that a small part of the WS-117L program, a satellite with a returnable film capsule, could be quickly developed. They recommended that this program be taken from the larger Air Force

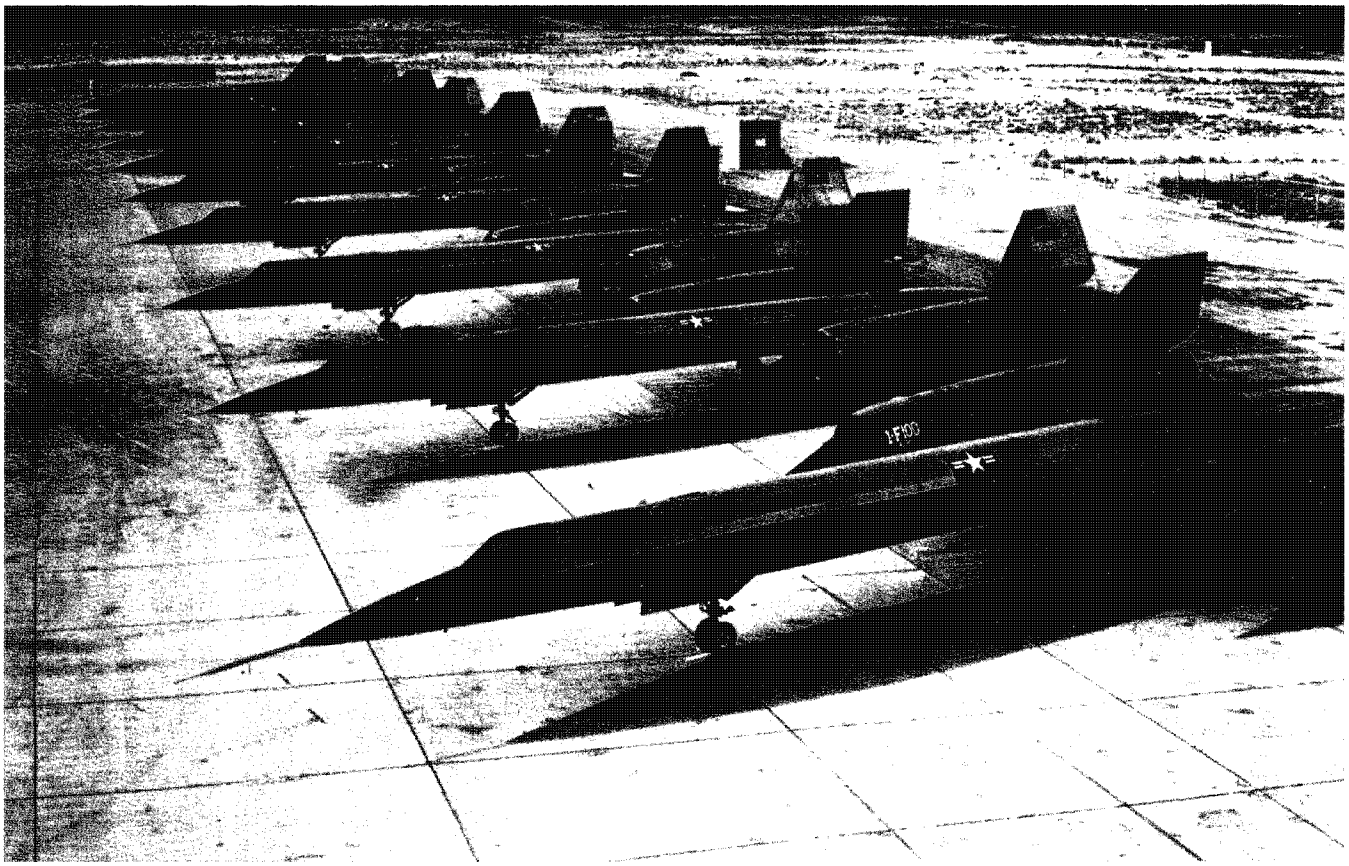
"...Killian assured the President that US missile development was on track and on a par with or ahead of Soviet efforts..."

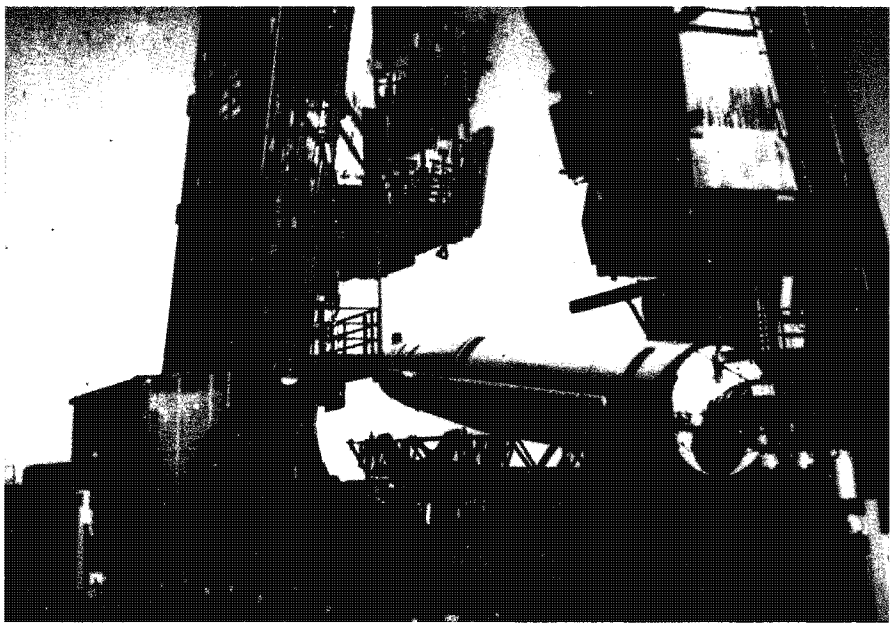
project and given to the same team that had built the U-2: the CIA's Richard Bissell and the Air Force's Brigadier General Osmond Ritland. The civilian scientists believed such a move would take the pressure off the larger Air Force effort and serve as an interim reconnaissance system until the problems of the PIED PIPER project could be worked out.

Under the covert plan approved by Eisenhower, the CIA would procure the satellite cameras and reentry vehicles, while the Air Force provided the host spacecraft and the booster missiles. At the same time, CIA retained responsibility for developing a follow-on plane for the U-2 with the cooperation of the Air Force.[22]

The satellite program, Project CORONA, was to be a stopgap effort until the much larger and complex Air Force WS-117L developed and deployed its SAMOS satellites. Little did anyone realize the extent of the problems US scientists would encounter in both programs, or that CORONA would become the pioneering program for manned space flight and that it would still be

A-12's



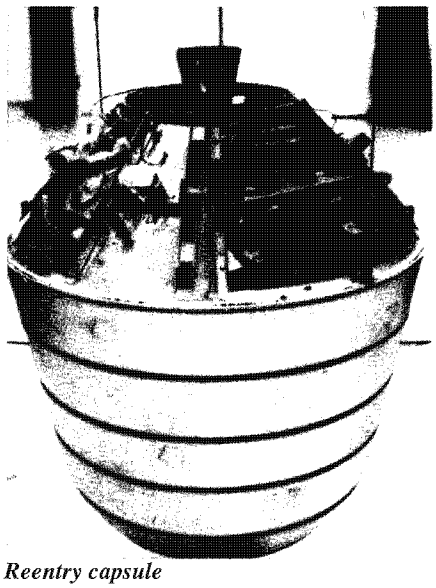


CORONA launch preparation

launching satellites 14 years later.

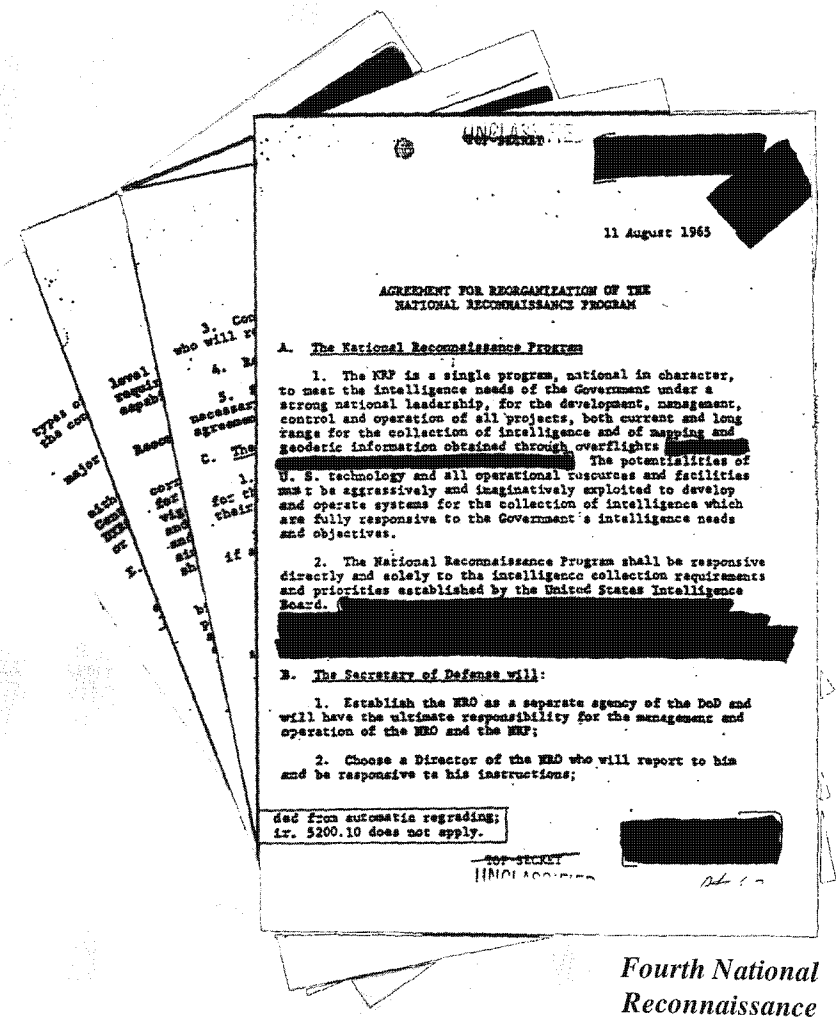
The CORONA experience, like the U-2 program, also demonstrated to later NRO officials the advantages in a flexible government-business partnership arrangement. It essentially established the fundamental management and acquisition principles that the NRO followed for the next twenty years. It worked. Bissell later described the process:

> The program was started in a marvelously informal manner. Ritland and I worked out the division of labor between the two organizations as we went along. Decisions were made jointly. There were so few people involved and their relations were so close that decisions could be and were made quickly and cleanly. We did not have problems of having to make compromises or of endless delays awaiting agreement. After we got fully organized and the contracts had been let, we began a system of management through monthly suppliers' meetings -- as we had done with the U-2. Ritland and I sat at the end of the table, and I acted as chairman. The group included two or three people from each of the suppliers. We heard reports of progress and ventilated problems -- especially those involving interfaces among contractors. The program was handled in an extraordinarily cooperative manner between the Air Force and the CIA. Almost all of the people involved on the Government side were more interested in getting the job done than in claiming credit or gaining control.[23]



Reentry capsule

The CORONA program again used a tight-knit government-industry team approach. It provided maximum latitude to the engineers to grapple with the technical problems and issues.



11 August 1965

AGREEMENT FOR REORGANIZATION OF THE
NATIONAL RECONNAISSANCE PROGRAM

A. The National Reconnaissance Program

1. The NRP is a single program, national in character, to meet the intelligence needs of the Government under a strong national leadership, for the development, management, control and operation of all projects, both current and long range for the collection of intelligence and of mapping and geodetic information obtained through overflights [redacted] The potentialities of U. S. technology and all operational resources and facilities must be aggressively and imaginatively exploited to develop and operate systems for the collection of intelligence which are fully responsive to the Government's intelligence needs and objectives.

2. The National Reconnaissance Program shall be responsive directly and solely to the intelligence collection requirements and priorities established by the United States Intelligence Board. [redacted]

B. The Secretary of Defense will:

1. Establish the NRO as a separate agency of the DoD and will have the ultimate responsibility for the management and operation of the NRO and the NRP;

2. Choose a Director of the NRO who will report to him and be responsive to his instructions;

ded from automatic regrading;
ir. 5200.10 does not apply.

[redacted]

TOP SECRET
UNCLASSIFIED

Fourth National Reconnaissance Program Agreement

1965

THE CREATION OF THE NATIONAL RECONNAISSANCE OFFICE

Prior to the establishment of the NRO in 1961, the CORONA program operated under a loose, unstructured arrangement by which the CIA and the Air Force jointly ran the effort. The Agency handled the funds for the covert projects, acquired the CORONA cameras and the Satellite Recovery Vehicles (SRV's), and provided much of the program's security procedures. The Air Force built the spacecraft, launched the rockets, and retrieved the payloads. For a time, the relationship worked well. CIA's Deputy Director for Plans (DDP), Richard Bissell, and then Under Secretary of the Air Force, Joseph Charyk, formed a close, high-level, informal working partnership. According to Bissell, the program, despite some shortcomings, worked. "Although I didn't like the situation," he remarked later, "I was perfectly well aware that it could not be any other way. The Agency could not get into the business of launching large missiles at that stage of the game."[24]

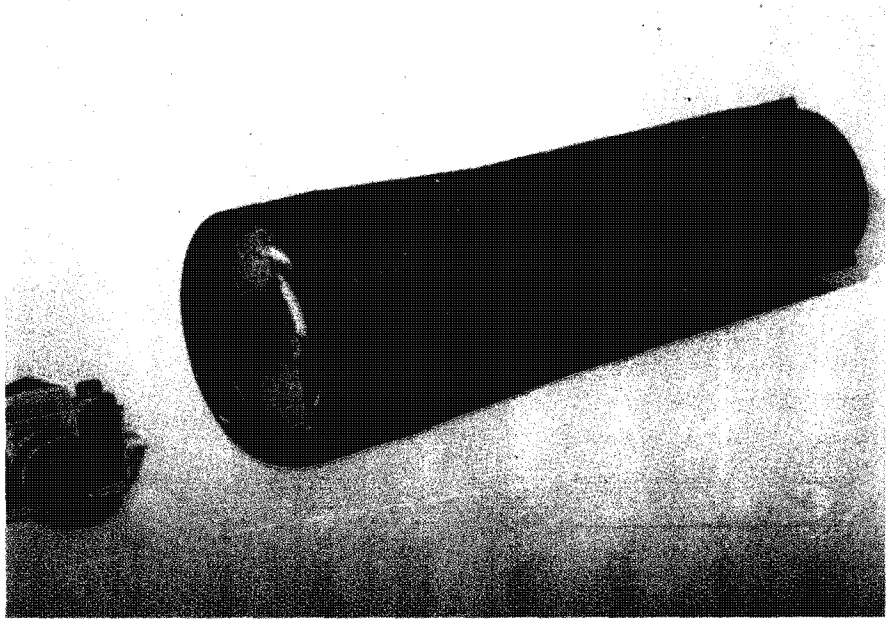
By the 1960s, however, many in the Air Force had come to view their role as preeminent, and tried to assert control over the entire project. From the Air Force point of view, it was doing 90 percent of the work. It had hundreds of personnel working on CORONA, while the CIA had only two officers—both Air Force lieutenant colonels on loan to the Agency—stationed in California. For its part, CIA wanted to maintain an independent capability for the design and development of satellite systems. Much of the early 1960s saw a struggle for control of US satellites between CIA and the Air Force and attempts to work out some type of compromise agreement regarding the NRO.

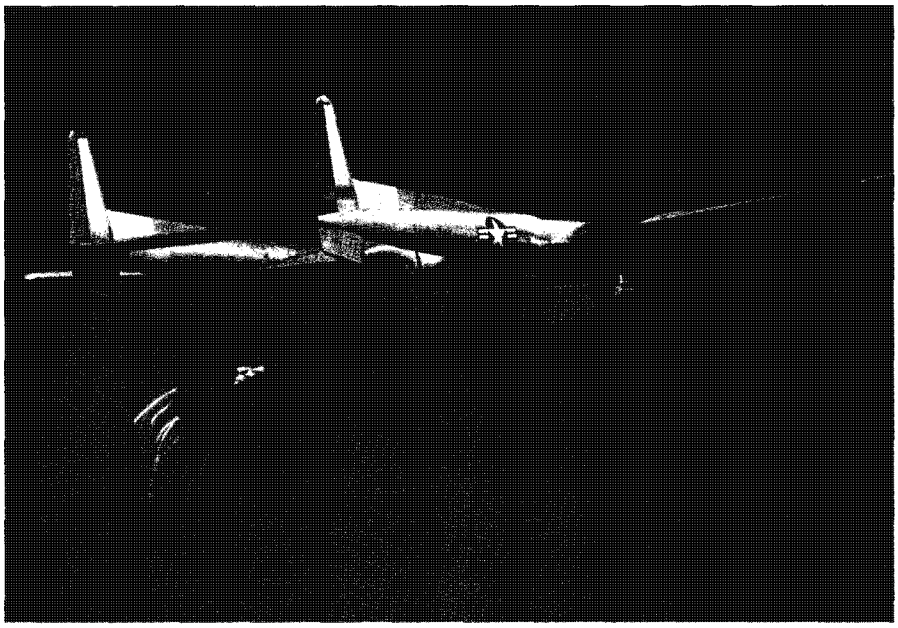
The conflict first surfaced over the introduction of the CORONA KH-3 camera in mid-1961. When John F. Kennedy's Science Adviser, Jerome Wiesner, expressed reservations about the advanced camera, Colonel Lee Battle, the over-all project director for the Air Force and the person in charge of the launch facilities in California, canceled the first KH-3 launch, scheduled for July 1961.[25] Bissell's Special Assistant for Technical Analysis, Eugene P. Kiefer, criticized the cancellation. For Kiefer, the Air Force was intervening in areas in which it had no authority. He appealed to Bissell to have the launch reinstated. Bissell turned to his friend Charyk, who in turn succeeded in rescheduling the KH-3

"Much of the early 1960s saw a struggle for control of US satellites... and attempts to work out some type of compromise agreement regarding the NRO."

DNRO Joseph Charyk

CORONA Camera lens





CORONA recovery

launch. The incident, however, caused both the CIA and the Air Force to rethink the management structure for the CORONA program.[26]

Upset by the carping and complaining over the cancellation of the KH-3 launch, Killian and Land suggested to Director of Central Intelligence (DCI) Allen Dulles and Deputy Secretary of Defense Roswell L. Gilpatric, that the lines of responsibility in the CORONA program needed straightening.[27]

Neither Bissell nor Charyk was enthusiastic about signing a formal agreement. They believed that their informal collaboration over the past five years had provided them with needed flexibility and had avoided excessive bureaucracy. Nevertheless, Charyk asked an aide to draft a formal agreement. Unfortunately, the aide, Colonel John Martin, was never actively involved in the CORONA program and knew little of the informal working relationship between Bissell and Charyk. His draft agreement carefully described the existing relationship in great detail, but still failed to capture the sense of informal cooperation that had made the relationship work. Although Bissell and Charyk both read the draft, they made few changes. Both assumed they would continue to operate under their informal agreements.

After some discussion between

Deputy Director of Central Intelligence (DDCI) Gen. Charles P. Cabell and Roswell L. Gilpatric, Deputy Secretary of Defense, on 6 September 1961, the CIA and the Air Force officially signed a charter establishing a National Reconnaissance Program (NRP). Under the agreement, a covert National Reconnaissance Office (NRO) would finance and control all overhead reconnaissance projects. The NRO was to be managed by a joint directorship of the CIA and the Air Force reporting to the Secretary of Defense. It accepted intelligence requirements through the United States Intelligence Board (USIB).[28] Budget appropriations for the central administrative office of NRO, which was made up of a small number of CIA, Air Force, and Navy personnel, came through the Air Force. Furthermore, the Air Force provided the missiles, bases, and recovery capability for the reconnaissance systems. The CIA, in turn, conducted research and development, contracting, and security. The agreement also left the CIA in control of the requirements and tasking collection program.[29]

What the agreement did not address was the fundamental disagreements CIA and the Air Force had over the entire satellite reconnaissance effort and the very different objectives each had for these programs. The Air Force, especially, was unwilling to relinquish control of what it viewed as one of its primary missions.[30]

By the 1960s, the reconnaissance program had assumed major importance for the Air Force. With the advent of intercontinental ballistic missiles (ICBMs), the manned bomber had lost its primacy in strategic planning. In addition, with the creation of the civilian-controlled National Aeronautics and Space Administration (NASA) space program in 1958, the Air Force lost direction of the overall US manned space effort. The Air Force was, therefore, reluctant to see overhead reconnaissance snatched away as well.[31]

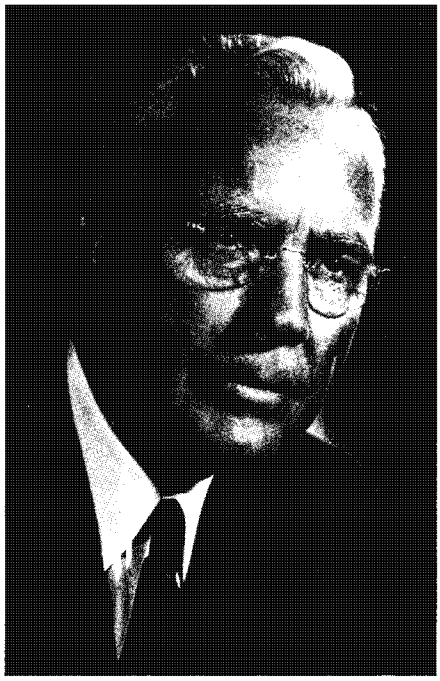
Further complicating the issue was the very nature of the reconnaissance program itself. The Air Force was more interested in tactical intelligence, while CIA paid more attention to procuring strategic or national intelligence. Also at issue were questions over requirements, who determined targets and the frequency of coverage. If the Air Force assumed major responsibility, its decisions would reflect its tactical orientation; if the CIA decided, however, national intelligence requirements would have precedence.[32]

The shake up in CIA management which followed the failed Bay of Pigs invasion in 1961 made the situation

DDCI Gen. Charles P. Cabell

Deputy Sec Def Roswell L. Gilpatric

"By the 1960s, the reconnaissance program had assumed major importance for the Air Force."



Above: DCI John A. McCone

Right: Appointment of Charyk as first NRO Director.

even worse. By February 1962, Dulles, Cabell, and Bissell had all resigned or retired. The new DCI, John McCone, convinced of the importance of technical collection programs, and under some pressure from President Kennedy's new Foreign Intelligence Advisory Board (PFIAB, which had replaced the PBCFIA, but was still headed by Killian) to consolidate management of CIA's technological development efforts, created a new Directorate for Research (DR) in 1962 and appointed Dr. Herbert Scoville, Jr., as the new DDR.[33] Added to the inter-

~~SECRET~~ UNCLASSIFIED

OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON 25, D.C.

14 June 1962

MEMORANDUM FOR The Secretaries of the Military Departments
The Director of Defense Research & Engineering
The Chairman, Joint Chiefs of Staff
The Assistant Secretaries of Defense
The General Counsel
The Special Assistant to the Secretary of Defense
The Assistants to the Secretary of Defense
The Director, Defense Intelligence Agency
The Director, National Security Agency

SUBJECT: (S) National Reconnaissance Office

Reference: Department of Defense Directive No. TS-5105.23 subject: (S) National Reconnaissance Office, dated 14 June 1962

In addition to his other duties, the Under Secretary of the Air Force, Dr. Joseph V. Charyk, is hereby designated (S) Director, National Reconnaissance Office.

Roswell Gilpatric
Deputy Secretary of Defense

EXCLUDED FROM AUTOMATIC REGRADING; DOD DIR. 5200.10 DOES NOT APPLY

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nal CIA turmoil over reorganization was the fact that the NRP agreement was quickly coming apart. With the departure of Bissell, the CIA had no real representation at the NRO meetings. Scoville, unaware of the close, personal involvement of Bissell with Charyk in the overhead reconnaissance arena, detached himself from the effort. Instead, he sent his deputy, Col. Stanley W. Beerli, and after his departure, Col. Jack Ledford, to represent the Agency at NRO meetings. They had little authority to act and were no match for the Under Secretary of the Air Force. Both, in fact, were junior to Col. John Martin, now Chief of Staff, Office of Space Systems, Office of the Secretary of the Air Force.[34]

The cooperation which so exemplified the U-2, OXCART, and early CORONA programs vanished. Charyk soon complained to both Gilpatric and DCI McCone about the lack of cooperation. He believed Agency people were relying more on what the NRP agreement said than on getting the job done. Getting information on overhead reconnaissance from CIA officials was, Charyk told Gilpatric, "like pulling teeth." In discussions with Gilpatric and McCone in September 1962 Charyk indicated that the NRP agreement needed clarification.[35]

In May 1962, just ten weeks after Bissell's departure, McCone and Gilpatric signed a second NRP agreement that enumerated more clearly the responsibilities of the NRO for conducting the National Reconnaissance Program. The new agreement gave the NRO control over all reconnaissance spending, including funds that were part of the CIA's budget. The agreement also established a single director of the NRO who would be jointly appointed by the Secretary of Defense and the DCI. McCone readily accepted the concept of appointing Charyk the first Director NRO (DNRO), but was not enthusiastic about any successors coming from the Defense Department. In return for accepting the Under Secretary of the Air Force as the single

DDR Herbert Scoville, Jr

DDS&T Albert D. Wheelon

DNRO Brockway McMillan

Director of NRO, McCone demanded assurances on continued CIA control over research and development, contracting, and targeting.[36]

The new agreement made no mention of a deputy director, however. Charyk, convinced that a deputy would lead to yet another layer of bureaucracy and that there was not enough work for two people, opposed the creation of a deputy slot. Although McCone did not object to Charyk's position, the lack of a deputy soon caused additional problems and friction.

As expected, Secretary of Defense Robert McNamara and McCone named Charyk the first DNRO. Charyk's first directive attempted to deal with the deep divisions within his organization by creating separate programs. He established a Program A (USAF satellite assets), a Program B (CIA assets), a Program C (US Navy assets), and a program D (USAF aircraft assets). Charyk hoped this would stop the bickering.[37] It did not.

Sec Def Robert McNamara

The CIA saw its role in satellite reconnaissance eroding. Many in the CIA looked upon the NRO as a thinly disguised extension of the Air Force. DCI McCone was unwilling to concede all reconnaissance programs to the Air Force. In addition, he did not want tactical requirements to overwhelm national intelligence requirements. For McCone, the NRO was a national asset, not simply a tool for the military.[38] Urged on by Albert Wheelon, who had replaced Scoville as DDR, McCone began to challenge the Air Force and the NRO and their ability to run the satellite programs effectively. He pointed out that the Air Force was responsible for most launch failures in the program to date and accused McNamara and Gilpatric of spending too much time defending the TFX fighter plane proposal before Congress, rather than concerning themselves with the complex problems of overhead intelligence collection.[39]

For its part, the Air Force now moved to secure control over the entire reconnaissance effort. In 1963, Dr. Brockway McMillan, Charyk's successor as DNRO, for example, supported the Air Force position when he recommended that the entire photo satellite program be turned over to the Air Force in order to streamline the chain of command and achieve greater success. For McMillan, the NRO was primarily an Air Force activity and the CIA was irrational and obstructionist when it came to working satellite reconnaissance.[40] The rivalry between the Air Force and the CIA intensified.

Ironically, DNRO McMillan was no strong supporter of the Air Force when it came to satellite

reconnaissance activities. McMillan trusted neither the Air Force nor the CIA. Given the recent agreement, he believed the NRO controlled the satellite programs.

It was not that simple. The drive by the Air Force and DNRO McMillan to completely control the reconnaissance program actually jeopardized the Secretary of Defense's capacity to utilize reconnaissance data. In order to make independent judgments on weapons procurement and strategic planning, Secretary McNamara decided he needed an independent analytical capability in the Office of the Secretary of Defense. If the Air Force controlled the reconnaissance program completely, it would have an enormous advantage in pressing its own claims. McNamara, aware of the threat, often sided with McCone against the Air Force in order to maintain his own position as arbiter of DOD planning and resource allocations.[41]

This led to the third NRP agreement, signed by McCone and Gilpatric in March 1963. This time the duties and responsibilities of a deputy director of the NRO were carefully spelled out, with the expectation that a CIA officer would fill the slot. (Wheelon appointed Eugene Kiefer to the position). The agreement also stated that the Secretary of Defense was to be the executive agent for the NRP and that the NRO was under the direction, authority, and control of the Secretary of Defense. The NRO was to be developed, managed, and conducted, however, jointly by the Secretary of Defense and the DCI and it was to be a separate operating agency of the Department of Defense.

Despite the new agreement, the Air Force continued to press for complete control of the overhead reconnaissance programs. McMillan was caught in the middle. He wanted a strong NRO and often clashed with both the Air Force and the CIA. McMillan's determination to make the NRO the leading organization in satellite development and the antagonism built up between the CIA and the Air Force hamstrung the NRO decision-making process in 1964 as conflicts arose over contracting, funding, and the CIA's role and responsibilities in the reconnaissance area. Added to the problem was a major personality conflict between Wheelon and McMillan.[42]

The situation got so bad that DCI McCone and new Deputy Defense Secretary, Cyrus Vance, finally agreed to meet as an NRP Executive Committee (Excom) in order to make funding decisions for the NRP. McCone suggested to McNamara at the same time that the only way to

"The third NRP agreement stated that..... the NRO was to be developed, managed, and conducted, jointly by the Secretary of Defense and the DCI."

Eugene Kiefer

solve the problem was to remove the NRO completely from the parochialism of the Office of the Secretary of the Air Force and place it firmly in the Office of the Secretary of Defense. McCone also constantly complained to Dr. Eugene Fubini, Director of DOD's Defense Research and Engineering, that he "never knew the first damn thing that was going on with regard to the NRO budget." McCone feared that the entire overhead reconnaissance program was becoming little more than an instrument of the Air Force and that national intelligence requirements were sinking to second or third or fourth priority.[43] McMillan also complained to Fubini that the CIA was attempting to undermine the NRO by refusing to disclose program data.[44]

Before any actions were taken, in April 1965, the formidable McCone resigned as DCI and President Lyndon Johnson replaced him with Vice Admiral William F. Raborn, Jr. The CIA's battle with the Air Force and DNRO McMillan was one of the first major issues confronting the new DCI. Raborn appointed John Bross, the Director for the National Intelligence Programs Evaluation (NIPE), to negotiate a settlement along the lines suggested by McCone.[45]

Bross' efforts soon resulted in Raborn and Vance signing a fourth NRP agreement in August 1965. This new agreement recognized the need

Deputy Sec Def Cyrus Vance

Dr. Eugene Fubini, Director of DoD DR&E

DCI, Vice Adm. William F. Raborn, Jr

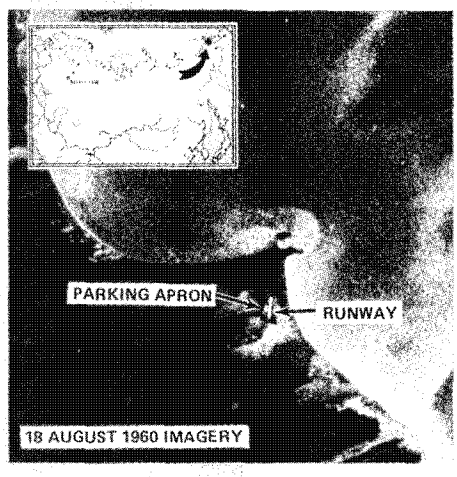
for a single national satellite reconnaissance program to meet the intelligence needs of the United States, and gave the DCI and the Secretary of Defense decision-making authority over all national reconnaissance programs. It established the NRO as a separate agency within the DOD and designated the Secretary of Defense as the executive agent for the NRP. It also set up a three person Executive Committee (EXCOM) for the management of the NRP. The EXCOM membership included the DCI, the Deputy Secretary of Defense, and the President's Science Advisor. The EXCOM reported to the Secretary of Defense. The new arrangement also recognized the DCI's right as head of the Intelligence Community to establish collection requirements in consultation with the USIB.[46]

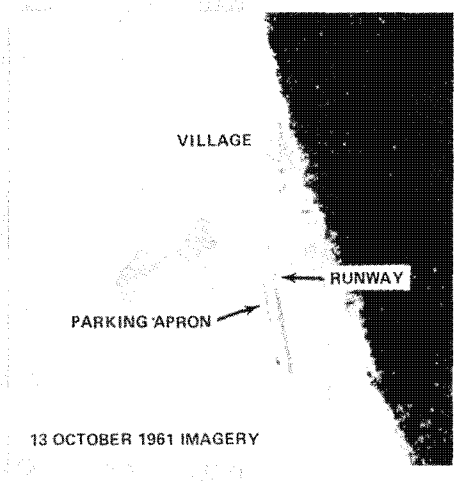
The agreement represented a compromise between the Air Force and the CIA. It led to the CIA and the Air Force cooperating successfully on several satellite collection projects. As a decision-making structure, it worked well. The NRO produced results. The compromise agreement, however, left the inherent competition between the two organizations over satellite collection systems intact.[47]

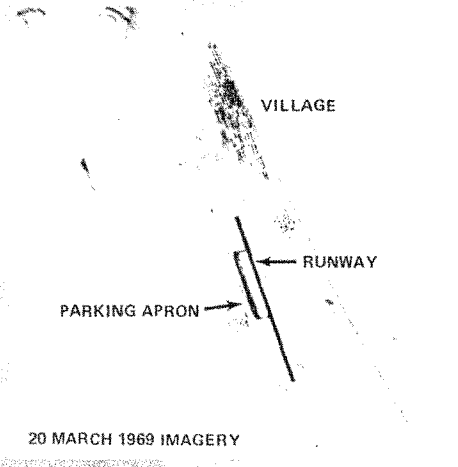
The competition was not entirely detrimental to the development of the US satellite program. Urged on by rivalry and a sense of national mission, both the CIA and the Air Force pushed the cutting edge of technology in satellite development and data return from space.

DNIPE, John Bross

"As a decision-making structure, it worked well. The NRO produced results."





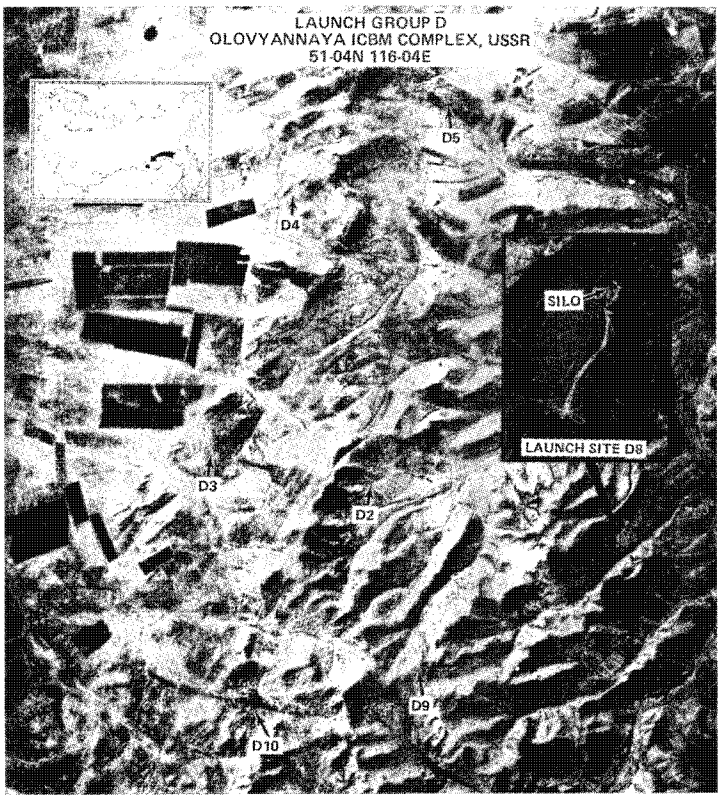


Improved imagery

1961-1969

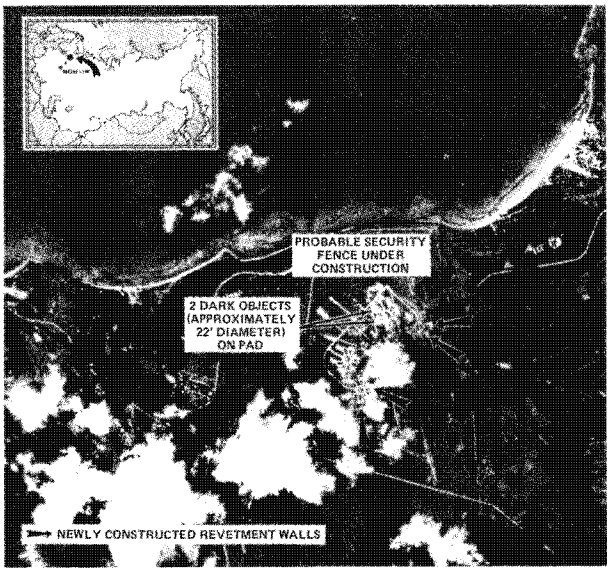
INNOVATIONS AND SUCCESSES

The Soviet threat and the Cold War dominated US foreign policy for nearly half a century. For much of that time, the NRO and its revolutionary overhead reconnaissance systems, whose very existence remained classified, were the single most important source of information on Soviet military programs and capabilities. The NRO produced, according to some estimates, nearly 90 percent of all intelligence data on the Soviet Union during this period. NRO satellite systems established, with considerable accuracy, the actual military capability and preparedness of the Soviet Union.[48] Cost was rarely a question asked. The NRO mission held the highest national priority. The NRO was to gather intelligence on "denied areas," especially the Soviet Union, which represented the greatest threat to the national security of the United States. This mission engaged not only the top political leaders, including the President, but also the nation's major intelligence and military officials as well as its senior scientists and defense industrial talent. The NRO



Left: SS-11 complex, located in Olovyannaya, just north of Mongolia, was found in KH-4A imagery obtained by CORONA mission 1012-1 in October 1964.

Below: KH-4A imagery, of the surface-to-air missile installation near Tallinn in Soviet Estonia, obtained in August 1964.

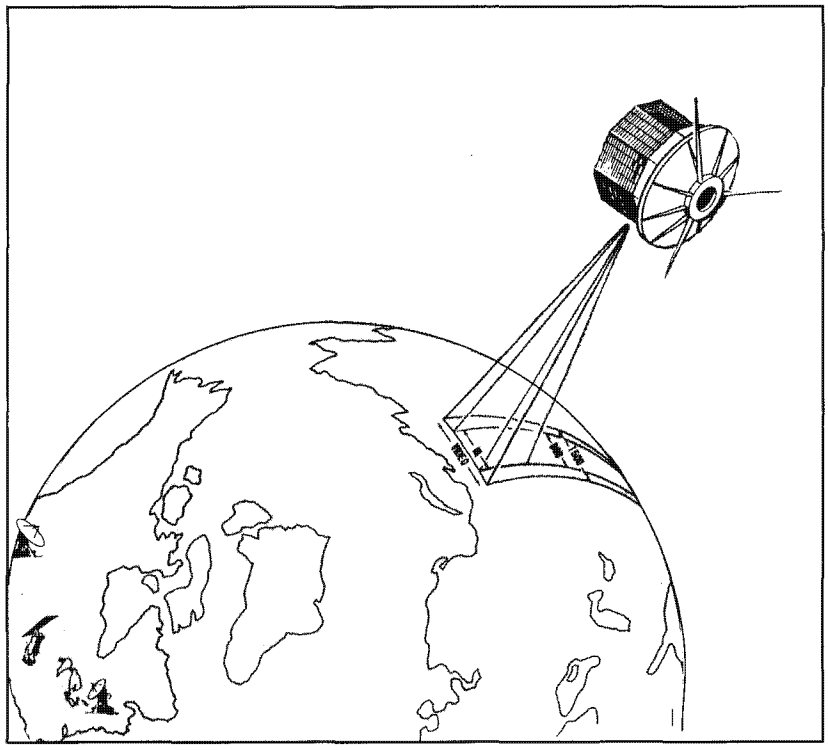


and its satellite reconnaissance systems also radically changed the entire concept of intelligence gathering. It allowed the United States to collect an ever-increasing volume of detailed intelligence vital to US national security interests. There is little doubt that the NRO played a major role in the US "victory" in the Cold War.

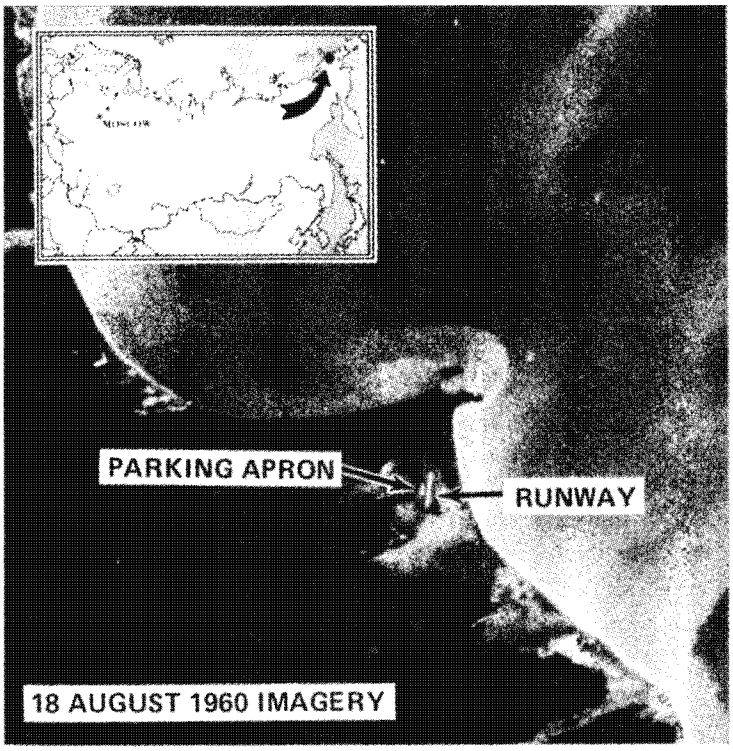
The NRO also played a crucial role in the development of US weather satellites. At the same time the NRO launched and developed CORONA, NRO officials realized that the successful operation of overhead reconnaissance satellites depended upon accurate and timely meteorological forecasts of the Sino-Soviet landmass. In 1961, NASA was responsible for the development of weather satellites in conjunction with the Department of Commerce in the National Meteorological Satellite Program. The program was to meet all civil and military weather forecasting needs.

DNRO Charyk did not believe the civilian effort could deliver the needed strategic meteorological forecasts for the NRP. Impatient with the long processes of review and revision of the civilian program, Charyk became the driving force for a separate NRO weather satellite program. Operating independently, Charyk set up a Defense

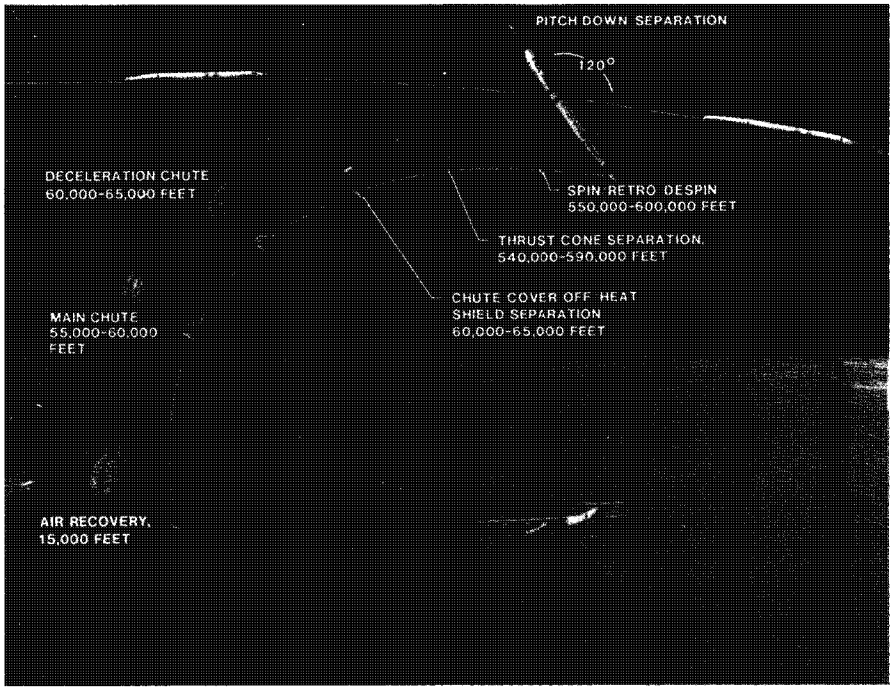
"There is little doubt that the NRO played a major role in the US "victory" in the Cold War."



Weather Satellite



First image obtained from the first successful CORONA mission in August 1960



CORONA recovery sequence

Meteorological Satellite Program. It was a single-purpose, minimum cost, high risk effort. Charyk saw in his proposal a means for providing global weather information during the 1962-1963 period when the civilian program was still in pre-flight development. The goal was a weather observation satellite system that would enhance the effectiveness of CORONA and the projected SAMOS systems.

After many delays, on 23 August 1962, the first NRO/Air Force weather satellite lifted off from Vandenberg AFB, California. On the following day, the first remote readout data on cloud cover over the Soviet Union was recovered. Establishing and activating a direct readout station in Florida, the NRO provided US officials with much-needed information on Soviet and Caribbean cloud cover during the Cuban Missile Crisis. By 1964, NRO had placed four weather satellites into orbit. Still awaiting the first National Operational Meteorological Satellite System (NOMSS) satellite, NRO weather satellites provided daily, mesoscale observations of cloud distribution and organization over the Eurasian landmass. The NRO program was the pioneering overhead meteorological endeavor.[49]

CORONA launch

CONCLUSION

Despite its problems, the NRO worked. Its mission was of paramount importance to the United States. It could not fail. Nevertheless, the NRO from its origin in 1961 experienced constant turmoil and crisis. Organizationally, the most important feature of the NRO during the Cold War years was that it consisted of three different program offices that belonged to three different agencies - the CIA, the Air Force, and the Navy. This produced a natural, and at times, heated competition. CIA/Air Force elements of the infant NRO fought constantly for control over the overhead reconnaissance systems. At the same time, competition often fostered major technology developments and breakthroughs which advanced satellite development.

The result of a "forced marriage," the NRO, nevertheless, operated in a national interest that transcended the parochial views of the CIA, Air Force, and Defense Department. It operated continuously in a crisis atmosphere.[50] Despite its numerous successes, however, it was never able to resolve the fundamental intelligence differences represented by the CIA and the Air Force regarding a strategic or tactical intelligence focus. Efforts by the Department of Defense and the US military command structure to gain greater control over space reconnaissance development and operations continued. Nevertheless, with its critical national security requirements, NRO developed unique, flexible, and streamlined acquisition and management procedures to build, operate, and maintain a US space reconnaissance capability. Streamlined procurement practices used by the NRO cut approximately one year out of the time it would otherwise have required to bring a satellite system online. The NRO brought the best engineering and designing talent in government and private industry together in a unique partnership. The US aerospace industry actually performed much of the research and development, design engineering, systems integration, manufacturing, testing, launch integration, and much of the actual operation of the NRO's satellite systems under a flexible government-industry partnership.

In the early years of CORONA, the NRO and its private industry partners created the technology needed to produce images and intercept signals from space. The NRO also pushed photo reconnaissance technology from fuzzy, barely identifiable images with a low resolution, to clear, detailed photographs with a high resolution. In addition, the NRO went from reconnaissance satellites which it hoped would last a few revolutions around the earth to satellites that remain in orbit for years. By necessity it set the stage in communication technology for the information revolution. Over the years, the NRO's organizational structure and sense of corporateness also changed dramatically.

Operating during the crisis atmosphere of the Cold War, the NRO and its reconnaissance satellites were truly a remarkable intelligence achievement. They allowed US policymakers and military planners to keep a close, accurate watch on the Soviet Union throughout much of the Cold War.[51]

END NOTES

1. Unlike the National Security Agency (NSA), the NRO does not analyze its own intelligence "take." Analysis is done by the Central Intelligence Agency (CIA), the Defense Intelligence Agency (DIA), the Department of State, and the National Imagery and Mapping Agency (NIMA). The military services also individually have the capability to exploit overhead reconnaissance. The US overhead reconnaissance systems also viewed other denied areas, such as Communist China.

2. See the RAND study "Preliminary Design of an Experimental World-Circling Spaceship," Report no. SM-11827 and the US Navy Bureau of Aeronautics report, published as JPL Memoranda 8-1 through 8-5 in US Congress, Senate Committee on Armed Services, Preparedness Investigating Subcommittee, *Inquiry into Satellite and Missile Programs*, 85th Congress, 1st and 2nd Sessions, Part I, November 1957-January 1958 (Washington, DC: GPO, 1958). See also R. Cargill Hall, "Early US Satellite Proposals," *Technology and Culture*, vol. IV, no. 4 (Fall 1963), pp. 410-434. RAND was the acronym for Research on America's National Defense.

3. In November 1948, Project RAND was removed from the Douglas Aircraft Corporation and made a non-profit USAF research unit known as the RAND Corporation of Santa Monica, California. Hoyt S. Vandenberg, son of the influential senator from Michigan, Arthur Vandenberg, served as the DCI from 10 June 1946 to 1 May 1947. See Hall, "Early US Satellite Proposals," pp. 410-434.

4. See Hall, "Early US Satellite Proposals," pp. 412-414.

5. See *

6. Under Public Law 110, 20 June 1949, Congress provided the DCI the authority to use federal monies without the use of vouchers. No other government agency had this authority.

7. See *

8. See Peter Gross, *Gentleman Spy: The Life of Allen Dulles* (New York: Houghton Mifflin, 1994), pp. 469-70, Christopher Andrew, *For the President's Eyes Only: Secret Intelligence and the American Presidency from Washington to Bush* (New York: Harper Collins, 1995), pp. 221-224, and *

9. See *

10. See *

11. See *

12. See *

13. See *Aviation Week*, 14 October 1957, p. 36. Eisenhower was also very concerned about the possible Soviet response to satellites orbiting over Soviet territory. Each U-2 overflight of the Soviet Union had produced a Soviet protest of an American hostile act.

14. See *Washington Post*, 16 September 1957 for Symington's and Jackson's remarks. For Alsop's article see *Saturday Evening Post*, 14 December 1957, vol. 230, no. 24, p. 27.

15. See *

16. See *

17. See *

18. With Killian's support, the CIA funded a study for the design of a high-speed aircraft with a small radar cross section. It led eventually to Project OXCART (also known as the SR-71 or Blackbird), the design and development of the world's fastest and highest flying aircraft. See *

19. See *

20. See *

21. See *

22. See *

23. See *

24. See *

25. See *

26. Bissell, as early as November 1955, had suggested that some type of formal agreement was needed to define the responsibilities of CIA and the Air Force. Since the U-2 program had run so smoothly without a formal agreement, nothing more was done. See *

27. Killian had been Eisenhower's top science advisor.

28. In 1958 President Eisenhower merged the Intelligence Advisory Committee (IAC) with the United States Communications Intelligence Board (USCIB) to form the United States Intelligence Board (USIB). See*

29. See *

30. See *

31. See *

32. See William M. Leary, ed., *The Central Intelligence Agency, History and Documents* (Tuscaloosa, Alabama: University of Alabama, 1984), pp. 86-87 for a review of the issues.

33. Prior to this reorganization, the CIA's scientific and technical intelligence operations were scattered among several offices. The reconnaissance program, under the Development Projects Division, was in the Directorate of Plans (DP); the Office of Scientific Intelligence which conducted basic research, was in the Directorate for Intelligence (DI); the Technical Services Division, which engaged in research and development to provide operational support for clandestine operations, was also part of the DP; Staff D, which ran electronic intercept operations resided in the DP as well. The new DDR, Dr. Herbert Scoville, Jr., had little authority over the overall program, as the DI refused to relinquish OSI and the DP would not give up its TSD. See *

34. See *

35. See *

36. See *

37. See * Charyk held the post of DNRO for more than a year until he resigned to head the Communications Satellite Corporation (Comsat) in early 1963.

38. See * The NRO was staffed by people from the CIA (Office of Development and Engineering, Directorate of Science and Technology), Air Force, (Office of the Secretary of the Air Force), and Navy. In addition, the NRO has a number of people from the Army, DIA, and increasingly from NSA. See *

39. Wheelon was determined to enlarge CIA's role in overhead reconnaissance. He established a Foreign Missile and Space Analysis Center (FMSAC) and hired Carl E. Duckett of the US Army's Redstone Arsenal to head it. He also enlarged the DR and renamed it the Directorate of Science and Technology. See *

40. The Air Force had successfully pressed for and finally obtained responsibility for the U-2 overflight program just prior to the Cuban Missile Crisis and was demanding a fighter version of the supersonic OXCART. See *

41. See Leary, *The Central Intelligence Agency*, p. 87.

42. In addition to personal differences, McMillan and the Air Force saw Wheelon as a major threat to their reconnaissance program. Wheelon was building a technological empire at DS&T and moving into developmental engineering -- an area in which the Air Force believed it had exclusive control. Wheelon further alarmed Air Force officials when he persuaded McCone to establish a separate engineering pay scale which enabled the Agency to hire top engineers from private industry. The Air Force simply could not compete. See *

43. See *

44. See *

45. The crisis in the Dominican Republic occupied much of Raborn's first days in office. McCone established NIPE in 1963 to assist him in running the Intelligence Community.

46. See Leary, *The Central Intelligence Agency*, p. 87 and *

47. See *

48. The satellites also made possible the monitoring and verification provisions of the Soviet-US arms limitations and nuclear test-ban treaties. See *

49. See * DNRO Brockway McMillan made the program an entirely Air Force effort in 1965 during the Vietnam War.

50. See *

51. From its beginning, the NRO also offered support to US military forces by providing targeting and mapping information needed to plan and execute strategic war plans.

* Material is classified

This publication is based primarily on classified records maintained by the NRO, CIA, and Air Force, as well as a number of classified interviews of the major participants. Unfortunately, all of these records remain classified. Given deadlines, it was not possible to have them reviewed and declassified or sanitized for inclusion in the publication. All unclassified and secondary sources are clearly identified. Where still-classified sources are cited, a footnote with an asterisk (*) is inserted to indicate the use of a classified source.