~~Top Secret~~

~~GIA Internal Use Only~~

[redacted]

14 00062182D

[redacted]

~~Access Controlled by DD/S&T~~

Office of Special Projects

1965 - 1970

VOLUME ONE CHAPTER I-II

~~Handle via~~

[redacted] ~~Talent-Keyhole~~ [redacted]

~~Channels Jointly~~

~~Top Secret~~

[redacted]

OSP-1 [redacted]

Copy ~~Series B~~

SERIES C

PERMANENT HISTORICAL DOCUMENT

DO NOT DESTROY

~~TOP SECRET~~

~~CIA Internal Use Only~~
~~Access Controlled by DD/S&T~~

[redacted]

OFFICE OF SPECIAL PROJECTS

1965 - 1970

VOLUME ONE CHAPTERS I-II

OSP-1

by

[redacted]

Approved by:

[redacted]
Director
Science and Technology
June 1973

HISTORICAL STAFF
CENTRAL INTELLIGENCE AGENCY

~~TOP SECRET~~

TABLE OF CONTENTS

Copy [redacted]
~~Handle via [redacted]~~
~~Control System~~

[redacted]

Copy [redacted]
~~Handle via~~ [redacted]
~~Control System~~

[redacted]

Copy [redacted]
~~Handle via [redacted] Control System~~

[redacted]
Copy [redacted]
~~Handle via~~ [redacted]
~~Control System~~

PREFACE

To individuals newly indoctrinated into the sphere of activities carried on by the Office of Special Projects, Directorate for Science and Technology, the magnitude of the CIA involvement in satellite reconnaissance usually comes as something of a surprise. Despite the various newspaper stories, aviation magazine articles, and books with "inside" information (such as the Stewart Alsop book, The Center), which have published accounts of CIA involvement in spying from satellites, no official government statement has publicly acknowledged CIA's role in the program.

In July 1962, the National Security Council, in formulating the national policy with regard to satellite reconnaissance, approved the practice initiated by the Defense Department in March 1962 of not identifying individual military space launchings by mission or purpose, and stated that while the United States should not publicly deny that it is engaged in satellite reconnaissance, neither should it publicly disclose the status, extent, effectiveness or operational characteristics of its reconnaissance program. In the event of the discreet disclosure to certain allies and neutrals of selected information with

regard to the US space reconnaissance program, these should be made orally at a time and in a manner that would preserve the essential security of the US program, while impressing on those receiving the information the importance of the program for the security of the Free World. Disclosures should also preclude the acquisition by the Soviet Bloc of usable evidence of an official US acknowledgement that it is conducting a satellite reconnaissance program. Such evidence could be used by the Soviet Union in the United Nations or other international body to foreclose, diminish or compromise the US ability to carry on this vitally needed intelligence collection. [redacted]

The question inevitably comes to mind among the newly initiated (unless their briefings were quite comprehensive): How did CIA get into the satellite reconnaissance business? For the answer we must go back to the U-2 project, which was undertaken by CIA jointly with the Air Force, beginning in November 1954, as the result of recommendations of a White House level external advisory panel, with President Eisenhower's agreement. There was no basic National Security Council Intelligence Directive (NSCID) which specifically authorized the Director of Central Intelligence to conduct overflight reconnaissance operations;

[redacted]
Copy [redacted]
~~Handle via~~ [redacted]
~~Control System~~

however, NSCID #5 did give CIA primary responsibility for conduct of clandestine intelligence activities abroad. The Agency's collection of intelligence by means of aerial reconnaissance may therefore be considered as falling within the responsibilities assigned to it under the National Security Act of 1947, as amended.

The relatively small project staff brought together by Mr. Richard M. Bissell, Jr., Special Assistant to Director Allen W. Dulles, to develop the U-2 reconnaissance system and put it into operation, was made up of experts in all phases of aeronautics, photography, industrial procurement, and the vital areas of support such as finance, communications, and security. With the added experience gained by these experts in successfully bringing the U-2 system into being, this group represented a unique capability not then existent elsewhere in the US Government.

At the beginning of 1958, when the demise of the U-2 photo-reconnaissance capability was considered to be imminent, the Air Force Ballistic Missile Division was pursuing a plan for an interim photo-reconnaissance satellite; however, the project had fallen behind schedule, and moreover found itself in a very poor position with

[redacted]
Copy
Handle via
~~Control System~~

regard to security, having been exposed to a certain extent in the media and throughout the military/industrial components involved in its production. On the initiative of Dr. James R. Killian, White House adviser on science and technology, and Dr. Edwin H. Land, who had been instrumental in setting up the U-2 project, Mr. Bissell and his U-2 group were called upon to take over the interim photo-reconnaissance satellite project jointly with the Air Force, and under the Advanced Research Projects Agency's over-all sponsorship.

Additional factors leading to CIA's involvement in a satellite reconnaissance program, other than the availability of the U-2 team of experts, were the ability and authority of that CIA group to use unorthodox methods in contracting with industry for expeditious procurement of components, its ability to maintain maximum security, and above all, the desire of CIA to have a part in the program and to orient it toward the collection of intelligence to fulfill priority requirements. Further, CIA's role was assured by the timely furnishing of $7 million from the Director's Reserve by Mr. Dulles to buy the photographic payloads and install them in the satellites.

[redacted]
Copy [redacted]
~~Handle via~~ [redacted]
~~Control System~~

The first successful launch and retrieval of a photographic payload by a reconnaissance satellite did not occur until August 1960, on the fourteenth firing of the series, after which a mixture of successes and failures followed. During the period from 1962 to 1965, when the satellite payload was the responsibility of the Office of Special Activities, Directorate for Science and Technology, a concerted effort was made within the National Reconnaissance Office* by its Director and Air Force members of its staff to remove CIA from satellite reconnaissance activities in favor of the Air Force. The Deputy Director for Science and Technology not only refused to be squeezed out, but initiated improvements to the system as well as studies looking toward the development of more sophisticated satellite systems for the future.

By 1965 the Director of Central Intelligence, then Mr. John A. McCone, had made his point with Secretary of Defense McNamara that CIA did indeed have a role to play in satellite reconnaissance, and gained the Secretary's consent to negotiate a new agreement to govern the National

*The National Reconnaissance Office is the management staff for the National Reconnaissance Program and is made up of assignees from the agencies participating in that program, preponderantly Air Force personnel.

[redacted]
Copy [redacted]
~~Handle via~~ [redacted]
~~Control System~~

Reconnaissance Program—one which eventually gave fuller recognition to CIA's role.

Principles to guide negotiation of a new agreement were formulated by Mr. McCone and Dr. Albert D. Wheelon, Deputy Director for Science and Technology, based on the following premises:

> The acquisition of intelligence by overhead reconnaissance is a responsibility of the Director of Central Intelligence. Satellite photography makes a most important input into the intelligence inventory. The DCI in discharging his statutory responsibilities for producing estimates concerning the security of the United States must direct this intelligence-acquiring facility to meet his needs. To do this the DCI, directly or through subordinates responsible to him, and with the continuing advice of the United States Intelligence Board, should determine the frequency of satellite missions, the targets and the priority in which they must be treated, and the control of the satellite when in orbit to insure coverage of the targets and therefore the acquisition of information considered essential by the DCI.

Mr. McCone believed that the Defense Department was the proper authority of government, because of its facilities, organization, and available funds, to coordinate satellite missions, carrying out launch and recovery; however, in cases where a major component of a system was assigned to another agency, the procurement and technical direction of that component of the system must be the undivided responsibility of the agency assigned to develop it. The

[redacted]
Copy [redacted]
~~Handle via~~ [redacted]
~~Control System~~

DCI, with advice from the USIB, must establish criteria for new and improved satellite systems to meet intelligence requirements, and together with the Secretary of Defense he must make the final judgment on what system or systems should be developed to meet such criteria.

The new NRO Agreement propounded by Mr. McCone early in 1965 and concluded 13 August 1965 by his successor, Admiral William F. Raborn, and Deputy Secretary of Defense Cyrus Vance, gave CIA the charter for continuing and improving the original photo-reconnaissance satellite system, and for developing [redacted] for an advanced follow-on search system; and a year later the total direction of a new [redacted] satellite system was awarded to CIA by the Executive Committee of the NRP. The Office of Special Projects of the Directorate for Science and Technology, established 15 September 1965, was given responsibility for carrying out these programs.

The Central Intelligence Agency's role in satellite reconnaissance activities has thus been regularized within the NRP, under the direction of its Executive Committee, which represents the voices of the Defense Department, the CIA, and the White House.

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

THE OFFICE OF SPECIAL PROJECTS (OSP)

1965 - 1970

I. Reconnaissance Satellite Activities Initiated by Development Projects Staff, CIA

A. Background: Air Force Satellite Program

In 1946 the United States Air Force entered into a contract with the Rand Corporation, a private research agency, for a study to determine the feasibility and utility of launching man-made satellites into orbit around the earth for reconnaissance and other purposes. Early Rand proposals were based on the assumption that the satellites would be non-recoverable, remaining in orbit for possibly a year before decaying, and returning the data collected via an electronic data link to a ground station. Such a proposal by Rand, called "Feed Back," was put forward in 1954 and became the basis for the Air Force's Weapons System 117L (WS-117L), the development plan for which was approved in July 1956. Lockheed Aircraft Company's Missile Systems Division was given a contract to develop and test the system.

Until late in 1957, when the Soviet Union was preparing to launch its first Sputnik into orbit, the Air Force Ballistic Missile Division, which had been given

[redacted]
Copy [redacted]
~~Handle via~~ [redacted]
~~Control System~~

responsibility for the WS-117L program, had been unable to obtain the authority and the funds to move into the final development stage of the project. Meanwhile, in view of the trend of research and development in the missile field, which had bolstered the feasibility of effecting re-entry of a recovery vehicle into the earth's atmosphere, Rand had concluded a further study on a recoverable photographic satellite, using an Atlas booster, which eliminated the processing of film within the satellite and subsequent scanning and playback, and called instead for the physical retrieval of the film payload, which appeared to offer a greater return of data than could be obtained through telemetering. One problem remained to be solved with regard to the stabilization of a camera system inside the satellite while in orbit; however, a great deal of interest was evoked by the idea of retrieving the film load.

After the successful firing of Sputnik I in October 1957, and the initiation by the Senate Preparedness Subcommittee of an investigation into the US "missile lag," there was pressure from all quarters to accelerate the US missile and space program, and much public discussion of civilian versus military control of the space

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

program. The President's Board of Consultants on Foreign Intelligence Activities, in its report for the second half of 1957, urged an early review of new developments in advanced reconnaissance systems to replace the vulnerable U-2 collection system, noting in particular the follow-on manned aircraft (A-12), and the several proposed reconnaissance satellite projects of the Defense Department (WS-117L). However, there appeared to be little prospect that either of these would produce operational systems sooner than the spring of 1959, and it was likely that the U-2 would be obsolete for overflying the USSR by that time. This made the requirement for an interim photo-reconnaissance system even more urgent.

On 8 November 1957, President Eisenhower appointed Dr. James R. Killian, outstanding American scientist, and President of Massachusetts Institute of Technology, to the position of Special Assistant to the President for Science and Technology. Upon taking office, Dr. Killian immediately tackled the problem of filling the expected reconnaissance gap, meeting and discussing the problem with those Executive Branch officials concerned and with White House consultants, such as Dr. Edwin H. Land who had been instrumental in the initiation of the U-2 project under joint CIA/Air Force

management. All possible means of developing quickly an interim intelligence collection system were explored.

On 8 January 1958, in secret testimony before the Senate Preparedness Subcommittee, General Bernard A. Schriever, Commander of the Air Force's Ballistic Missile Division, made known to the Subcommittee that the BMD had received the go-ahead to complete the development of, and to launch, an earth satellite with a recoverable capsule, using the Thor intermediate range ballistic missile as a booster. On 14 January 1958, portions of General Schriever's testimony, after Defense Department censoring, were given to the press by the Subcommittee. The published portions predicted that the first test vehicles would be put into orbit between July and October, 1958. The size and purpose of the recoverable capsule was not made public, but there was of course much press speculation on the possibility that the capsule could be equipped with photographic or infrared equipment.

This unfortunate airing in the press of the Air Force interim plan under WS-117L for a reconnaissance satellite, coupled with the desire of top Administration officials for the most expeditious and secure carrying out of such a program, brought forth the idea of making

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

use of the Bissell U-2 group's specialized photographic knowledge and experience, and its expeditious and secure contracting procedures. The idea would be to carry out the interim photo-reconnaissance satellite project on the same basis that the U-2 project had been managed: that is, joint CIA/USAF management under the joint direction of Mr. Bissell and Brigadier General Osmond J. Ritland, Vice Commander of BMD and former Deputy Project Director of the U-2 project in 1955-56. The Bissell/Ritland team had been very effective in their previous association.

This plan entailed the overt cancellation of the interim Thor-boosted satellite portion of WS-117L by the Air Force and the subsequent secret re-initiation of the project under the Bissell/Ritland set-up. (The Air Force would continue to pursue the portion of WS-117L leading to a direct readout capability, making use of the Atlas missile as a booster.) The plan was favorably received by Deputy Secretary of Defense Donald Quarles, Assistant Secretary of the Air Force for Research and Development Richard E. Horner, Generals Schriever and Ritland, and Messrs. Dulles and Bissell, among others.

Meanwhile, on 7 February 1958, Department of Defense Directive 5101.15 established the Advanced

Research Projects Agency with the mission of directing and performing advanced research and development projects in the fields of space science and technology, ballistic missile defense, and other advanced research and development. Subsequently, ARPA's Director, Dr. Roy W. Johnson, and his Chief Scientist, Dr. Herbert York, as the new managers of DOD space activities, became involved in discussions of the Thor-boosted satellite portion of WS-117L (which Mr. Bissell's Development Projects Staff renamed CORONA).

On 28 February 1958, a memorandum from the Director of ARPA to the Secretary of the Air Force directed that BMD's interim Thor-boosted reconnaissance system be cancelled, and authorized the use of available Thor boosters (built for the Air Force by Douglas Aircraft Company) for test flights of Lockheed-developed satellite vehicles (with Agena second stages) under the WS-117L program, including provision for the recovery of biological specimens in furtherance of manned satellite flights projected for the future. The provisions of this ARPA Directive formed the basis for the original classified cover story for Project CORONA.*

[redacted]

B. Project CORONA Approval

1. Initial Specifications Revised

During the month of March 1958, discussions among representatives of ARPA, Air Force and CIA were held with regard to the configuration of the CORONA system. ~~The interim WS-117L system called for~~ a Thor-boosted satellite containing a payload consisting of a spin-stabilized, six-inch focal length camera (without image motion compensation), using fast film and a very short exposure time. This combination would produce grainy photography with an expected resolution of approximately sixty feet on the ground. (For intelligence purposes, this would give a very poor yield.)

The Air Force prime contractor for the interim system, Lockheed's Missile and Space Division, had subcontracted for the nosecone with General Electric, and for the photographic system with Fairchild Camera and Instrument Company. The first technical meeting of Mr. Bissell and General Ritland with the contractors' representatives took place on 24, 25 and 26 March 1958, in San Mateo, California, with Mr. James Plummer as the principal representative of the prime contractor. Tentative decisions made at that meeting included:

a. Scheduling aimed at production of elements of the system by 1 July 1958 and a 19 weeks program of assembly and testing to readiness for first launch.

b. Agreement that Cook Air Force Base (later renamed Vandenberg Air Force Base) was the most advantageous launch site.

c. Initial procurement would be 10 vehicles, with three additional, if available during the life of the project.

d. The urgent need for new contracts to be negotiated to replace those ordered cancelled by the Air Force at the end of February brought the promise that Mr. Dan M. Kelly, DPS Contracting Officer, would visit the suppliers the following week to commence negotiations.

Subsequent to that meeting, a competitive proposal for a more sophisticated camera design with a 24-inch focal length, stabilized with relation to the horizons and the earth's center, was made by Itek, a new company established in January 1958, which grew out of Air Force contracts with the Boston University Physical Research Laboratory. This camera system gave promise of ground resolution approaching twenty feet.

During the first week of April 1958, Mr. Bissell drafted a Project Outline for CORONA which would go ahead with the FCIC camera, and simultaneously give Itek a contract to develop the more sophisticated camera as a follow-on. In consideration of the added cost, however, ~~Mr. Bissell made the decision~~ to cancel the Fairchild spin-stabilized camera and pin his faith on the Itek design.

2. Project Approval

The Project Outline was revised effective 15 April 1958, and after clearing it with ARPA, the Air Force, and Dr. Killian, Mr. Bissell, on behalf of the DCI, sent the proposal forward for Presidential approval via the Special Assistant to the President, Brigadier General Andrew J. Goodpaster on 16 April 1958. Later on the same day, a telephone call from General Goodpaster to Mr. Bissell confirmed approval at the highest level.

The Outline called for the development and subsequent operational use of a short-lived reconnaissance satellite from which, at the completion of its mission, a recoverable capsule containing exposed film would be separated for return and pick-up in a preselected ocean area. The basic vehicle was a two-stage rocket consisting of a

Douglas Thor booster and a Lockheed Agena second stage. The payload would consist of a pod containing a 24-inch focal length camera and a recoverable capsule into which exposed film would feed as the camera operated. Ground resolution of twenty feet was anticipated which would ~~allow the distinguishing of one structure from another~~, and the identification of such major Soviet targets as missile sites under construction in areas hitherto inaccessible to US reconnaissance. [redacted]

The program, to consist of 12 firings, was expected to become operational around June 1959 and be completed in the spring of 1960. The division of administrative responsibilities for CORONA was to be as follows: (a) ARPA would exercise general technical supervision over the development of the vehicle; (b) the Air Force Ballistic Missile Division, acting as agent for ARPA, would perform detailed supervision of vehicle development and provide ground facilities for launching, tracking, and recovery, in collaboration with the US Navy; and (c) CIA would supervise the technical development and covert procurement of the reconnaissance equipment, and have overall responsibility for cover and security. [redacted]

[redacted]
Copy
Handle via [redacted]
~~Control System~~

C. Administrative Arrangements

1. [redacted]

[redacted]

[redacted]

[redacted]
Copy
~~Handle via~~
~~Control System~~

[redacted]

[redacted]

A revision of the CORONA Cover Plan was therefore developed to explain the CORONA (Thor-boosted) firings as wholly separate from WS-117L, and directed toward a number of legitimate scientific purposes. The Thor series was to be called Project DISCOVERER and its purpose explained as the development of a practical laboratory for conduct of experiments leading to improved

military systems. The Atlas-boosted series would continue to be known as SENTRY and no attempt would be made to conceal or deny its true nature. [redacted] In order to give public circulation to this explanation, a press conference was held on 3 December 1958 in Washington, and Dr. Roy W. Johnson, Director of ARPA, announced plans for the initiation of Project DISCOVERER, giving some background on the configuration and purpose of the DISCOVERER satellite.

The New York Times coverage of the ARPA press conference described the DISCOVERER as the first satellite in a long-range program aimed eventually at placing mice, monkeys, and then man, in space. 15/ [redacted]

[redacted]

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

[redacted]

In the spring of 1959, an effort was made by the US Army—on behalf of the Army Map Service—to obtain ARPA approval for a reconnaissance satellite program to obtain precise geodetic data on the Soviet Union for the ultimate purpose of pinpointing strategic targets. Because such a program would impinge upon CORONA from a security standpoint, and would compete for launch facilities, it was agreed among those concerned, with the Secretary of Defense concurring, that the program would be administered within the organizational framework of CORONA in order to protect the security of the latter and to establish priorities for scheduling shots. An agreement between CIA and ARPA on the control of the mapping project (named ARGON) was signed on 7 July 1959 by which CIA was authorized to contract for the exploitation of ARGON's product for the Army Map Service, and to maintain security control over the project. Approval was received from the White House on 21 July 1959. Original estimates of the cost for ARGON's first four shots were about [redacted], to be funded from the DOD's appropriation. (After four unproductive shots, the program was extended through 1962-63 for eight additional shots with improved instrumentation, and seven of those were successful in varying degrees.)

Satellite launches in the series using the DISCOVERER cover story, which began in February 1959, continued in a trial-and-error and learning phase until the first successful launch of a photographic payload on 18 August 1960, and the retrieval of the exposed film on ~~19 August 1960~~. Meanwhile, on 24 September 1959, the Department of Defense announced the reorganization of its military space programs to give the Air Force the prime role and to give back to the military services most of the projects previously assigned to ARPA. The non-military space program had previously been assigned to the National Aeronautics and Space Agency, established in April 1958. The Air Force thus assumed the general technical supervision over development of the CORONA vehicle which was formerly ARPA's responsibility.

For the first thirty-seven launches of satellites in the DISCOVERER program for which CIA had intelligence payload responsibilities, specific cover and security arrangements continued to be made in an effort to satisfy press and public curiosity and to limit conjecture. The cover stories were wearing thin, however, after two years of satellite launchings.

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

2. US Policy on Disclosure

United Nations Resolution 1472 of the XIVth Session of the General Assembly was adopted on 12 December 1959 and established a Committee on the Peaceful Uses of Outer Space; it further directed that Committee to review areas for international cooperation and legal aspects of space exploration, and to prepare for an international scientific conference on peaceful uses of outer space to be convened in 1960-61. Because of a boycott of the Committee by the USSR, however, its organization was delayed until 28 November 1961, when its first meeting was held. 18/

The US Delegation had taken a leading role in establishing the Committee and once the Soviet boycott was lifted, the US Delegation maintained its position as a leading advocate for international cooperation in peaceful space activities. Subsequently, Resolution 1721 of the XVIth Session, which the State Department took part in drafting, was adopted by the General Assembly on 20 December 1961. It aimed at making the Committee on Peaceful Uses of Outer Space a focal point for international cooperation and commended to member states for their guidance in the exploration and use of outer space two

[redacted]
Copy
Handle via
Control System

principles: (a) that international law, including the Charter of the United Nations, applies to outer space and celestial bodies; and (b) outer space and celestial bodies are free for exploration and use by all states in conformity with international law and are not subject to national appropriation. An additional clause in the Resolution, drafted in the State Department, called on member states launching objects into orbit or beyond to furnish information promptly to the Committee on the Peaceful Uses of Outer Space, through the Secretary-General, for the registration of launchings. A public registry of such information was to be kept by the UN. The US position paper on this matter had been circulated in October 1961 to interested agencies in the US Government (except CIA).

The State Department consulted with the National Aeronautics and Space Administration and with the Department of Defense in January 1962 on the kinds of information which should be registered with the UN. The Defense Department, while agreeing that the US should take the lead in reporting space objects, suggested that only those in sustained orbit be registered in order to allow the US freedom of action in the event it should be

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

necessary to launch a 2-or-3-orbit satellite to minimize chance of hostile interdiction. The DOD did not agree to a precise reporting schedule binding on the US, or the furnishing of the purpose for each launching. [redacted]

The first report was submitted to the UN by the US on 5 March 1962 and included only those objects in orbit as of 15 February 1962. The Ambassador to the UN, Adlai Stevenson, complained to State that the US shift—from apparent willingness to submit data on all launches, to a position in which some short term launches which might decay between reporting dates would not be reported—would create serious difficulties with the Soviets who were expected to exploit this US "concealment." The Soviets were insistent on a joint declaration banning the use of satellites for military reconnaissance and Ambassador Stevenson felt the best response was to say we were prepared to consider such a question in the context of disarmament in a proper forum, being careful to avoid the implication that such use was not peaceful within the meaning of the UN Charter, which permits self-defense. [redacted]

Dr. Herbert Scoville, then Deputy Director for Research, noted to the DCI on 27 April 1962 that he did not believe the proposal for considering such a joint

[redacted]
Copy
~~Handle via~~ [redacted]
Control System

declaration was a wise action. He believed the US should continue to uphold the position that satellite activity is not a military action and never agree that it is the type of activity which the US might consider renouncing in the course of disarmament negotiations. For in fact observation satellites are in themselves a strong measure in favor of disarmament since they tend to limit the dangers from unknown enemy capabilities. [redacted]

At about the same period that the UN Outer Space Committee was beginning to function, plans were being developed (between September 1961 and March 1962) for a National Reconnaissance Program (NRP), which would manage all joint and unilateral overhead reconnaissance projects of the US. A strong White House interest in the security of those reconnaissance projects, through which intelligence of the most vital nature was being obtained, was stimulated by the President's Foreign Intelligence Advisory Board late in 1961. A security control system (known as the [redacted] System) was inaugurated for the specific purpose of protecting information pertaining to the joint Air Force/CIA reconnaissance projects under the NRP, with other projects being added, in time. CIA was given responsibility for security arrangements for all reconnaissance projects

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

falling within the NRP and for administering the [redacted] System.

The attitude of Defense officials involved in the National Reconnaissance Program toward the security of that program began, early in 1962, to lean away from the use of plausible cover stories toward a philosophy of total security. When the 38th DISCOVERER was launched from Vandenberg on 27 February 1962, the Air Force barred all essential details other than the successful mid-air catch over the Pacific of the capsule, which had spent four days in orbit. Between that event and April 1962, publicity given to the "spy-in-the-sky" aspects of the Air Force SAMOS program (the residual WS-117L program, renamed), which the news media equated with DISCOVERER, led to the publication of what was referred to as "the Gilpatric Directive." DOD Directive 5200.13, dated 23 March 1962, established security policy for military space programs and declared the details of all such programs, including identification, mission, scope, capability, payload, launch, control or recovery operations, and results, to be classified.

[redacted]

[redacted] Copy [redacted] Handle via [redacted] Control System

On the firing of the 39th DISCOVERER on 17 April 1962, the following United Press International release appeared in the New York Times 18 April edition:

> VAFB, Calif., April 17 (UPI)--The Air Force today launched a satellite toward polar orbit, but refused to say whether it was a Discoverer or "Sky Spy" vehicle in line with a new policy severely restricting information on military space shots.
>
> The Air Force would not even give the time of the launching.
>
> The brief prepared statement said only:
>
> "A satellite employing a Thor Agena B booster combination was launched today by the Air Force from Vandenberg Air Force Base, Calif."
>
> Asked whether the satellite was in orbit, the Air Force information officer referred to the directive released last Tuesday making information classified on all military satellites.
>
> The same directive eliminated names for satellite programs, such as the Discoverer and Samos-Midas Sky Spy vehicles launched from here previously. 22/

On 10 April 1962, Mr. Gilpatric wrote to General Maxwell Taylor, then Special Assistant to President Kennedy, saying that the State Department proposal on registration of space launches could not be considered apart from the US satellite reconnaissance program, and forwarding a proposed paper on "National Policy on Satellite Reconnaissance," recommending that it be

[redacted]
Copy
Handle via
Control System

considered by the NSC [redacted] Committee prior to any action with regard to other space matters, such as UN registration.[redacted]

Subsequent to Mr. Gilpatric's initiative, the NSC issued National Security Action Memorandum (NSAM) 156 which set up a committee under the State Department's chairmanship to develop US policy with respect to the US reconnaissance programs and outer space. Such policy, it was felt, should maintain freedom of action unilaterally to conduct such operations; prevent foreign political and physical interference with conduct of such operations; prevent accidental or forced disclosure of details of such operations or their end products; avoid situations, statements, or actions which, in the context of our satellite reconnaissance program could later be exploited as evidence either of alleged US aggressiveness or duplicity; and facilitate the resolution of any conflicts which might arise between the essential technical and security requirements of the US satellite reconnaissance program and the international commitments and foreign policy objectives of the US in a manner which is in the over-all best interests of the national security.[redacted]

[redacted]
Copy [redacted]
~~Handle via~~ [redacted]
~~Control System~~

On 16 May 1962, Dr. Killian, then Chairman of President Kennedy's Foreign Intelligence Advisory Board, expressed to the President the Board's concern over the impact of discussions in the UN Outer Space Committee upon the US satellite reconnaissance program. The Board urged that care be exercised to insure that control of the development of space capabilities for national defense and national intelligence purposes was not foreclosed, diminished, or compromised in any way. Dr. Killian said that if international agreements prohibiting the use of outer space for military purposes precluded continuance of the highly effective US intelligence reconnaissance activities, it would be the United States, not the Soviet Union, which would stand to lose a crucially needed collection capability. The Board recommended that the President review US policy and approve a position. There were currently contending points of view varying between full revelation and complete secrecy.

The DCI, Mr. John McCone, urged the same action in a letter to the Special Assistant for National Security Affairs, Mr. McGeorge Bundy, on 17 May 1962. Mr. McCone also gained agreement from the Secretary of Defense, Mr. McNamara, that CIA as well as State and

Copy
~~Handle Via~~
~~Control System~~

Defense should participate in the formulation of policies to be followed by the US Delegation to the UN Outer Space Committee. With the concurrence of State, Mr. McCone directed that Dr. Scoville (who as DD/R had inherited the responsibility for CIA's role in overhead reconnaissance from Mr. Bissell) arrange for CIA participation in the various working groups set up to comply with NSAM 156. [redacted] In passing this directive to Dr. Scoville, the DDCI underlined the importance of a carefully prepared position and careful negotiation by the US Delegation, and mentioned the fact that prior action in the UN by the US Delegate had placed the satellite reconnaissance program in a difficult position. He said the objective of CIA was to insure that the US position was calculated to permit the continuance of this vital program. [redacted]

The report of the NSAM 156 Working Group and its recommendations for US policy on outer space were discussed at the 10 July 1962 meeting of the National Security Council, which approved 18 points of policy. [redacted] Among other decisions made, the NSC accepted as a sound practice the current procedure in effect as a result of the "Gilpatric

[redacted]

[redacted]
Copy
~~Handle Via~~ [redacted]
~~Control System~~

Directive" whereby no identification was to be made of individual military space launches by mission or purpose. The US position with regard to satellite reconnaissance has continued in the same vein to 1970, despite the fact that unofficial disclosures in the media from time to time have made the whole matter an open secret.*

The National Aeronautics and Space Agency in early 1966 proposed to initiate an earth-sensing program, which would be open to the public. The NSAM 156 Committee in April 1966 considered the NASA plan and reached the decision that, as long as NRP's security was protected, there were no other objections from either political or security considerations to such a program for the next several years.

The Survey Applications Coordinating Committee composed of DOD and NASA representatives, set the criterion in July 1966 for "sensitive imagery" at a five meter ground resolution. NASA activity in earth sensing proceeded virtually uninhibited within this interpretation and application of the established guidelines.

*The New York Times of 17 March 1967 quoted President L. B. Johnson as saying, in off-the-record remarks made at a reception in Nashville, Tennessee, on 15 March 1967, that the benefits of satellite photography already obtained would have justified spending ten times what had been spent so far on military and civilian space programs.

[redacted]
Copy [redacted]
Handle Via [redacted]
Control System

3. Financing CORONA

The CORONA Project Outline of 15 April 1958 had estimated the total cost for twelve shots at [redacted]. The boosters (12 at [redacted] each) were to be financed by ARPA under the Air Force WS-117L program. The payloads, consisting of recoverable capsules ([redacted]), cameras ([redacted]), pods and assembly ([redacted]), were to be furnished by CIA out of its Reserve. Other costs, such as launching and tracking operations, were not estimated since they represented use of military resources in being and were charged to other programs. Mr. Bissell's understanding had been, as stated in his Project Outline, that the whole cost of the basic vehicle would be funded within presently approved programs and it was anticipated that the boosters already approved for the WS-117L program would simply be diverted to the CORONA program.

At the time of approval of CORONA by highest authority on 16 April 1958, however, it was expressly stipulated that all funding for research and development and procurement of hardware should be provided by the CIA and ARPA. The intent of this instruction was that funding

[redacted]

for these purposes should not be provided by the Air Force.

On 25 April 1958, Mr. Allen Dulles, in a memorandum to the Comptroller of CIA, directed that release of $7 million from the Agency Reserve for Contingencies be sought as an unprogrammed requirement for which other funds were not currently available. At the same time he made Mr. Bissell, who then held the title "Special Assistant to the Director for Planning and Development," responsible for obtaining the required documentation to support the expenditure of those funds, and directed that the Agency Audit Staff should audit accounting records of the project at the appropriate time.

Arrangements were made by the Development Projects Staff Comptroller to have CORONA funds set up under an allotment symbol which was in the series of accounts applicable to Project [redacted] (the U-2 program), in order to preclude the many questions which would result from establishing the new project through the Agency Comptroller's office as a separate entity. The staff, in

[redacted]

making commitments for CORONA, were to earmark those charges so that the DPS Comptroller would be able to separate those costs and render accountings on them to the Project Director, Mr. Bissell.

A reassessment of the project costs, in view of non-support by Air Force funds, meant that an additional [redacted] for each of 12 Thor boosters would devolve upon ARPA. Mr. Bissell brought this to the attention of Dr. Roy Johnson, Director of ARPA, on 25 June 1958, and said that if ARPA could not fund the overt procurement for CORONA, the financial status of the project must be reviewed.

ARPA included an additional [redacted] in its 1959 funds for CORONA boosters, along with [redacted] for WS-117L (an increase of [redacted] having been requested by the Air Force for WS-117L). An additional seven Thor firings under WS-117L (four testing and three biomedical) were programmed by ARPA, but there was some question as to the cost of the biomedical capsules. [redacted] At this point the Bureau of the Budget took a lively interest in these cost estimates and both programs were thoroughly aired at a meeting in Dr. Killian's office on 5 August 1958, attended by the Director of the Budget, Mr. Maurice Stans; the Deputy Secretary of Defense, Mr. Donald Quarles, Brigadier

General Andrew J. Goodpaster, Special Assistant to the President; and Mr. Bissell.

As one result of that meeting, Mr. Bissell was directed to prepare a revised CORONA Project Outline explaining the changes in cost estimates since the project was originally approved. This he did on 8 August 1958, and copies of this paper were sent to the White House, BOB, ARPA, and Defense. After some further questions by the BOB on the matter of expenditures for biomedical shots for cover purposes, the BOB accepted the revised paper upon the assurance by CORONA project staff representatives that AFBMD would probably finance those shots. The financial crisis did not end forthwith, however, and a protracted review of both SENTRY and CORONA continued, with a number of individuals and organizations becoming involved in managerial decisions concerning the allocation of costs, the best use to be made of the series of test flights, cover and publicity, and possible program modifications.

In September 1958, an additional release of CIA Reserve funds in the amount of [redacted] was obtained from the BOB for exploitation equipment to be

[redacted]

[redacted]
Copy
Handle Via [redacted]
Control System

procured for the Photo Interpretation Center, and for other miscellaneous expenses. Soon thereafter, cost overruns under the prime contract for CORONA required another approach to the BOB for additional funds of [redacted] from the Reserve, as well as a transfer of DOD/ARPA funds of [redacted] to cover prime contract costs transferred from an overt ARPA/Air Force contract to a covert CIA contract for security reasons. [redacted] of the BOB asked for assurance from Mr. Bissell that the total SENTRY/CORONA program cost for FY 1959 would not exceed the forecast ceiling of [redacted]. Mr. Bissell's information from Defense had estimated the cost to ARPA for the two projects at [redacted], plus CIA costs for CORONA of [redacted], which totalled [redacted] well within the limit. However the Defense Department program estimates were in constant flux from week to week. Mr. Bissell, in writing up his negotiations with BOB on CORONA funding, appended to his memorandum

> For the record, the undersigned will never again assume any responsibility for the success of a major program without having a reasonable degree of control over its funding either through reliance on Agency funds or by means of an iron-clad agreement with the Department of Defense.

[redacted]

By the end of November 1958, most of the management problems relating to CORONA were apparently ironed out and Mr. Bissell wrote to General Jacob Smart, then Assistant Vice Chief of Staff of the Air Force, saying that (hopefully) the responsibility for day-to-day management of CORONA could now revert to BMD and CIA in their respective spheres of responsibility. ARPA would of course continue to monitor the program and concern itself with policy decisions.

One of ARPA's decisions was to cut out four of the planned 12-flight DISCOVERER series, as well as two of the three biomedical flights in order to free funds to finance an Air Force follow-on program which would add flights to make up for this cut in 1960.

On learning of the proposed cut in the CORONA program, Mr. Bissell persuaded the DCI, Mr. Dulles, to ask for a meeting with Defense and the White House to consider the matter. Mr. Dulles, in a memorandum to the Deputy Secretary of Defense and the Special Assistant to the President for Science and Technology, called for such a meeting, and said

[redacted]

I am well aware of course that CORONA is being financed for the most part by the Department of Defense and that the availability of funds for this activity is bound to be affected by changes in the general financial situation and plans of the whole Defense establishment. It may well be that the proposed curtailment of the CORONA schedule is wise in the light of the many competing, high priority requirements for funds. Nevertheless, in view of the manner in which the decision to establish CORONA as a separate Project was originally made, I would like to suggest that we meet to discuss the status of this Project before the curtailment decision is finally made.

A review of the situation which extended over the next three months brought the conclusion that the high priority requirements for photographic coverage of the USSR would not be met in 1960, as had been anticipated, by the Air Force's SENTRY/SAMOS program, which had bogged down in technical difficulties. It was believed, however, that an extended CORONA program could be financed within approved Air Force and Department of Defense budgets.

On 11 March 1959 Mr. Bissell put forward a proposal for the extension of CORONA which would restore the four flights to the 1959 series and add eight more for 1960. Additional funding in the amount of [redacted] was required by ARPA, to be furnished from Air Force and Defense emergency funds. The additional payloads

[redacted]

[redacted]
Copy [redacted]
~~Handle via~~ [redacted]
~~Control System~~

would continue to be procured by CIA covert methods as long as security of CORONA's purpose required it.

The proposal for extension of CORONA received White House approval and, in addition, the same cover and security arrangements were directed to be continued. Thus, CIA's role in CORONA was further perpetuated on White House authority through the additional 8-shot series planned for CORONA for calendar 1960.

In the summer and fall of 1960, a special panel under Dr. Killian surveyed the entire aerial reconnaissance program of the United States (in the wake of the May Day U-2 incident). Recommendations for future efforts were made and at the same time the Air Force was directed to streamline its organization for the handling of these programs. USIB had, at its meeting on 28 June 1960, approved recommendations presented by the Satellite Intelligence Requirements Committee on what constituted desirable resolutions to be obtained from satellite reconnaissance photography. [redacted] These developments resulted in the eventual cancellation of the Air Force's direct readout satellite system [redacted] as well as its E-5

[redacted]

[redacted]
Copy
Handle Via
~~Control System~~
[redacted]

recoverable version, neither of which had yet flown a successful mission. The Air Force program was then diverted to development of the E-6 [redacted], and the [redacted] system. The E-6 was later cancelled, also without a successful flight, and [redacted] was delayed by technical difficulties.[redacted]

Meanwhile CORONA, in August 1960, had its first successful flight accompanied by retrieval of a photographic payload. A program of improvement in payload engineering to increase reliability and photographic quality was pursued by CIA, and CORONA continued to function under the joint CIA/Air Force management arrangement through 1960 and 1961.

As the satellite and manned reconnaissance programs of the US Government evolved, there was some effort to find a common basis for developing and operating all strategic overhead reconnaissance systems, the cost of which had risen by 1961 to almost [redacted] (exclusive of SAMOS). An attempt was made to find an acceptable basis for a "National Reconnaissance Program" which would combine the capabilities of both CIA and the Department of Defense. The first National Reconnaissance Office (NRO) Agreement, signed in September 1961, was only a continuation of the

basic, but effective, partnership existing between CIA and the Air Force, stemming out of the U-2 program. A second, more detailed, agreement was signed in May 1962 and gave the lead to the Air Force while preserving for CIA all "covert" aspects. The third agreement, signed in March 1963, gave the Air Force virtual control over all CIA programs and established the NRO as an operating organization with implied line authority over those elements of CIA involved in reconnaissance. An NRO funding agreement signed a month later eliminated direct appropriations from Congress to CIA for its programs in the reconnaissance field and thereby passed budgetary control of that effort to the NRO. [redacted]

While there have been changes since the 1963 NRO Agreement (e.g., a new agreement was signed in August 1965 and further new project responsibilities were assigned to CIA), the financial picture has remained pretty much the same since that time, with the NRO in control of funds for all overhead reconnaissance activities (other than war zone operations). The Offices of the Directorate for Science and Technology of CIA, which are currently (1970) responsible for satellite and manned reconnaissance and other projects funded under the NRP,

are required to plan and program for their respective projects, with the guidance and assistance of the DD/S&T Comptroller, and within limits and guidelines set by the NRO Comptroller. These budgets go forward for approval by the DD/S&T and the DCI, and are then transmitted to the Director of NRO for staffing and eventual inclusion in the over-all NRO budget. The NRO budget must be approved by the NRP Executive Committee, which is made up of three voting members (the Deputy Secretary of Defense, the DCI, and the White House Science and Technology Adviser). The DCI receives full briefing, accompanied by a completely documented "black book," in preparation for his study of the NRO budget. He is also given the DD/S&T's recommendations as to the position he should take in the Executive Committee with regard to each option open to him within the entire NRO budget in order to accomplish the purposes of the NRP in the best interest of national security.

As of 1970, the total cost of the CIA satellite programs financed within the NRO budget amounted to [redacted] of which approximately [redacted] had been expended prior to FY 1966 when the Office of Special

Projects was established within the DD/S&T to manage the satellite projects assigned to CIA. [redacted] shows OSP expenditures by fiscal years from 1966 through 1970 of NRO funds for satellite projects, applied research and advanced technology, and satellite vulnerability studies; [redacted] shows total expenditures by projects from the initiation of the NRO budget in FY 1963 through FY 1970.

4. Contracting for the CORONA Payload

a. "C" Camera System

When the Development Projects Staff of CIA took over the development of the CORONA payload, one of the first orders of business was renegotiation of the prime contract previously held by the Air Force with Lockheed Aircraft Company's Missile Systems Division (LMSD). An interim letter contract was negotiated by the DPS Contracting Officer, Mr. Daniel M. Kelly, on behalf of the US Government. [redacted]

to 15 March 1958, at which time the Air Force contract had been cut off. [redacted]

The letter contract with LMSD was changed from a cost-plus-fixed-fee contract to a fixed price, re-determinable contract by amendment of 17 June 1958, and remained in effect until 30 June 1958, when a definitive contract was signed in the initial amount of [redacted]. A Work Statement attached to the contract outlined the scope of work including the subcontracting for the camera and the satellite re-entry vehicle (SRV).

Two advantages accrued to the security and expedition of contracting as carried out by the DPS Contracts Staff under the terms of Public Law 110 (81st Congress). [redacted]

[redacted]

A letter subcontract was agreed by LMSD on 29 April 1958 with Itek for the design and manufacture of the reconnaissance camera and associated equipment. Itek, in turn, subcontracted with Fairchild Camera and

Instrument Company on 5 May 1958 for the design engineering and fabrication of the operational cameras. The basic research leading to the choice of parameters of the high-acuity (HYAC) panoramic camera, design of the lens system, and supervision and technical direction over the design efforts of FCIC under its subcontract, were to be performed by Itek. Itek was also responsible for providing engineering services for the installation and checkout of cameras in the operational vehicles and their final testing prior to flight. The definitive subcontract with FCIC was signed by Itek on 25 October 1958 (retroactive to 1 May 1958) for [redacted]. LMSD's definitive subcontract with Itek was signed 17 November 1958 in the amount of [redacted] (which included the amount of the FCIC subcontract with Itek). [redacted]

Since nothing was known about the actual operation of a panoramic camera in an orbiting satellite, a great variety of technical problems had to be solved by Itek. A testing laboratory had to be designed and fabricated to simulate operational velocity and altitude in order to check their effect on camera resolution, as well as the dynamic effect of the camera's operation on the vehicle.

Because of the relative newness of Itek as an industrial company, the Auditor General of the Air Force representative, [redacted], conducted a survey of proposed practices and procedures which Itek intended to follow with regard to CORONA's government-furnished equipment (GFE), and found them generally adequate, but recommended follow-up of their implementation.* Itek had more than 1,000 items of GFE in its possession, assigned under an Air Force photographic project which had been cancelled prior to Itek's getting the CORONA contract. Arrangements were made through the Air Materiel Command for Itek to retain those items which would facilitate work on CORONA.[redacted]

The performance of Itek under this first subcontract was beset with difficulties, resulting in slippages and late delivery of cameras, as well as overruns in expenditures. Funding for a design review and modification of the HYAC camera to increase performance and reliability was requested by LMSD and approved by Project Headquarters in May 1959; however, the first improved camera was not delivered for test until June 1960.

*Use of Air Force auditors for secure auditing of CORONA contracts followed the arrangements previously established for the U-2 program in 1955 and continued thereafter.

The final audit of the first Itek subcontract with LMSD was completed 11 April 1960, showing total costs of [redacted] plus a fixed fee of [redacted] This included an overrun of [redacted] of which only [redacted] was allowed, making the final pay-off to Itek [redacted] for the first series of "C" cameras. [redacted]

A letter from LMSD to General Electric dated 29 April 1958 authorized submission of a proposal for the first series of CORONA recovery vehicles. It was answered by a GE proposal for a contract of [redacted] plus about [redacted] fixed fee. A revised definitive contract for [redacted] was later approved by Contracting Officer Kelly on behalf of Project CORONA on 9 January 1959. The first overrun became evident in the GE contract in February 1959—a sizeable overrun of [redacted] on a [redacted] total contract. GE had a large overrun also on a "white" contract to produce re-entry vehicles for the Air Force. [redacted]

The company appeared to have had more than its share of trial and error approaches to problems. Difficulties were encountered in developing rockets and rocket propellants due to stringent weight and size

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

limitations placed on the nose cone by the available amount of booster power. Each development had to be an advance in the state of the art. For instance, the ablation shield of the nose cone had to be made a structural part of the cone, which was a new departure, and a rejection rate of two to one was suffered in the early development period. Changes in the biomedical program reflected added costs in fabricating the capsules for that program. GE had not fully appreciated the difficulties involved when its optimistic quotations were made. [redacted]

In view of the extension of CORONA into 1960 and additional release of Reserve funds, approved by the BOB in March 1959, the GE overrun was covered and the contract was continued with a new total budget of [redacted] A "project control system" was established at GE (as well as at Itek), on the insistence of Project Headquarters, to prevent further such overruns from occurring. The GE contract was completed with the furnishing of vehicles for the first series of twelve CORONA launches and final settlement was made on 10 May 1963 with final audit 11 July 1963. The total price for the first buy was [redacted].

[redacted]
Copy [redacted]
~~Handle via [redacted]~~
~~Control System~~

Contract [redacted] between CIA and LMSD was issued with a ceiling price of [redacted]. This amount was obligated and was all charged to various fiscal year funds of CIA, except for [redacted] of DOD no-year funds obligated in FY 1959. Final price redetermination showed an accepted final price of [redacted] which covered the LMSD, Itek and GE costs for the first twelve CORONA systems.[redacted] Two capsules were expended on diagnostic flights. The other ten were launched, but only one payload was put into orbit successfully and its exposed film safely recovered.

b. "C Prime" Camera System, 1959-61

A second round of contracts and subcontracts was entered into for the first extension of CORONA when the March 1959 proposal for eight additional shots for 1960 was approved. Lockheed continued as the prime contractor with subcontract arrangements similar to the initial "C" camera system. The "C Prime" system was an upgrading of the former configuration incorporating a better velocity/height compensation system and modifications in the recovery system. The mission duration was extended to two days and the recovery vehicles were able to carry up to 40 pounds of film. Design improvements

were also added to the camera system to increase reliability and photographic quality, including an "on-off" capability.

A letter contract [redacted] was written with LMSD on 26 July 1959 for eight flight systems and a definitive contract was later executed and the number of units increased to eleven. One flight system was stored as a spare, and the other ten were launched between 26 October 1960 and 15 November 1961. Five out of the ten were successful with the capsules being recovered. This second buy of eleven payloads cost approximately [redacted]

c. CORONA Film Processing

In addition to the original prime contract with LMSD, separate arrangements were made in June 1958 for liaison to be set up between Eastman Kodak Company and Itek in order for the former to furnish a supply of special film for Itek to test for compatibility with the CORONA camera system. No new contract was negotiated with [redacted] for film or processing of the CORONA product at that time because, other than test film, there would be no requirement for CORONA processing until the first operational mission succeeded in bringing back exposed film. Meanwhile, [redacted]

there was money available in the CIA contracts with [redacted] so that the small amount of CORONA work could be blanketed thereunder until the program developed further.

A moderate amount of friction developed during 1958-59 between Itek and [redacted] because of doubts expressed on the part of Itek as to [redacted] ability to retain maximum system resolution using their proposed processing equipment and techniques on the Itek camera product. Project CORONA photographic experts and personnel from the Photo Interpretation Center visited both plants to satisfy themselves as to the best combination of equipment and procedures to accomplish CORONA processing for the Intelligence Community.[redacted]

In anticipation of the successful retrieval of a great deal of satellite photography, plans were made during 1958-59 for modifying existing equipment and providing additional new equipment at the [redacted] processing facility originally set up to handle [redacted] photography, and at PIC in Washington, so as to handle the flow of CORONA film most effectively. Contracting with [redacted] for processing and other services related to satellite photography began in FY 1960 with a small

contract for film, paper, chemicals and other supplies in the amount of [redacted] In FY 1961 costs under that contract rose to more than [redacted] and in FY 1962 to [redacted] The first film processing contract initiated in FY 1961 obligated [redacted] for FY 1961 and 1962, and a successor contract obligated almost [redacted] in the first half of FY 1963. Development and production of various pieces of photographic equipment for PIC's use in analysis of satellite photography between FY 1961 and 1962 cost over [redacted]

The first definitive NRO Agreement signed on 2 May 1962 by the DCI and the Deputy Secretary of Defense made the Director, NRO, responsible for the format of the collected NRP product to include initial chemical processing, titling, production, and delivery to users as specified by USIB. The agreement also specified that CIA would continue to be Executive Agent for DNRO for those covert projects already under its management and would be responsible for funding such covert projects. In the field of photographic processing, further discussions resulted in a memorandum of understanding being signed on 11 August 1962 by Dr. Scoville, the DD/R, and Dr. Joseph V. Charyk, the DNRO. This provided for the consolidation of the separate USAF photo processing facility at [redacted] with the CIA covert facility there under the supervision of the DD/R; the management of the

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

Air Force Special Product Production Laboratory (AFSPPL) at Westover Air Force Base was assigned to [redacted]. Operational control of the facilities was to be retained by the Director, NRO, and the NRO staff was given responsibility for coordinating the production activities and determining and assigning production workloads of both the [redacted] and AFSPPL according to USIB requirements. [redacted]

In Dr. Scoville's words

> The excuse for this decision was that the AF had other contracts in the processing area, and it would be better to keep all of these centered in one location. I strongly urged the contrary in view of the fact that the processing facility at [redacted] which all had agreed should do the highest quality processing for the intelligence community was under the control of CIA and, therefore, that the R&D work would also be appropriate for CIA. On this I was overruled, and CIA has obeyed the NRO directive.[redacted]

With the first successful recovery of photography from Mission 9009 of 18-19 August 1960, and the beginning of the photo-analysis of the results from this source of intelligence by the Photo Interpretation Center of CIA, and the Service photo-analysis laboratories, Lockheed, Itek, and FCIC were invited to nominate technical representatives for TALENT/KEYHOLE* clearance for the purpose of enabling technical reviews of each mission and a feedback of results in order to make improvements wherever possible.[redacted]

d. "C Triple Prime" CORONA System, 1960-62

With the stretching out of CORONA to fill the requirements for satellite reconnaissance of the

*The codewords representing the control systems which protect the security of the photographs and reports of electrical signals collected under the National Reconnaissance Program.

[redacted]
Copy
Handle via [redacted]
Control System

USSR, which the Air Force SAMOS program had failed to achieve, a new contract with LMSD [redacted] was entered into, retroactive to 7 June 1960, for the procurement of six additional satellite reconnaissance systems similar to those previously furnished. The letter contract of 27 June 1960 called for a camera similar to the "C" and the "C Prime" manufactured by Fairchild under subcontract to Itek. However, work on that camera system was cancelled in September 1960 and Itek began the manufacture of a new version called the "C Triple Prime" camera. The negotiated contract was signed with LMSD on 2 June 1961 for an estimated cost of [redacted] and a fixed fee of approximately [redacted]

The new Itek camera had an improved lens of the Petzval type, 24-inch focal length, f/3.5, with an expected resolution in the area of ten feet. The "C Triple Prime" system was designed to operate at an altitude of 100 to 110 nautical miles for a duration of four days. Continual improvements in the Thor and Agena vehicles were also being made to allow more positive injection of desired parameters with greater weight capabilities. The six "C Triple Prime" systems purchased were launched between 30 August 1961 and 13 January 1962—one failed to

orbit, one failed after orbiting, and four operated successfully and their payloads were retrieved. [redacted] Performance under this LMSD contract was completed in May 1962 and it was closed out in December 1966 without an overrun.

During this phase of Project CORONA, the National Reconnaissance Program came into being and control of the program and all of its various projects was centralized under the National Reconnaissance Office, its Director and Staff. During the same period, CIA's satellite reconnaissance activities, which had been under the over-all direction of Mr. Bissell, first as Special Assistant to the Director, and later as DD/P (1959-61), were transferred to the newly designated Deputy Director for Research, Dr. Herbert Scoville, Jr., under whose Directorate for Research these activities were set up, first in the Office of Special Activities (OSA), along with the U-2 and A-12 manned reconnaissance projects.

At the time of the NRO Agreement of May 1962, an understanding had been reached between Dr. Scoville and Dr. Charyk, Director of NRO, that the OSA Contracts Staff would be available to do covert procurement in furtherance of NRP objectives. [redacted]

[redacted]
Copy [redacted]
~~Handle via~~ [redacted]
~~Control System~~

[redacted] was then Chief of the OSA Contracts Staff, having replaced Mr. Daniel M. Kelly in the fall of 1960. His headquarters contracting staff, together with an additional Contracting Officer, nominated by the Office of Logistics and assigned to [redacted] office in California, negotiated covert procurement contracts for CIA and Air Force satellite reconnaissance programs.

e. ARGON and LANYARD

While the major effort of CIA in the satellite reconnaissance field was devoted to CORONA in this early period, two other projects were given major support from the contractual and security standpoints. Project ARGON, the geodetic mapping program of the Army Map Service, has already been mentioned (page 18, above). CIA carried out covert procurement contracting for a total of fourteen ARGON vehicles over the period from 1959 through 1963, at an anticipated cost of [redacted]. The systems contract was given to LMSD who subcontracted for ground data reduction equipment with [redacted], and with Fairchild for a 3-inch focal length camera with low distortion lens, providing terrain coverage over a 70 degree field of view. Twelve of the

[redacted]
Copy
~~Handle Via~~ [redacted]
~~Control System~~

ARGON systems were fired between February 1961 and August 1964 and seven of the twelve were successful to varying degrees. This program provided a reasonable amount of geodetic control for the mapping community. It was terminated in 1964. [redacted]

The second additional satellite project to which CIA supplied major contractual and security support was Project LANYARD. On 5 April 1962, the DCI concurred in an agreement between the DD/R and the Under Secretary of the Air Force whereby CIA agreed to the management procedures for Project LANYARD, an Air Force interim follow-on to CORONA, and a back-up to the slowly developing [redacted] satellite system. LANYARD was designed to use the CORONA vehicle with a payload developed from the Air Force E-5 camera system. Resolution of five to six feet and swath width of about 40 miles was expected from the LANYARD system, which would provide the Air Force with technical intelligence, as contrasted with CORONA's pioneer search photography. [redacted] was to be responsible for technical management of all aspects of LANYARD while CIA

was to undertake contract administration for the payload and covertly procured portions of the recovery system.

The first five LANYARD systems (with an additional three added later) were contracted to Lockheed Missiles and Space Company (LMSC)* by [redacted] (CIA Contracting Officer assigned to [redacted] office) between 2 August 1962 and 11 March 1963 for an estimated total cost of [redacted]. Under the LANYARD program the increased performance capability of the "Thrust Augmented Thor" (TAT) was demonstrated. LANYARD had only three firings (none fully successful), and the program was cancelled shortly after the Air Force launched its second [redacted] satellite and brought back usable photography on [redacted]

On 23 October 1963, Dr. McMillan (DNRO), directed [redacted] to terminate LANYARD contracts for the convenience of the US Government and to issue stop-work orders immediately on all work associated with LANYARD. A subsequent review brought a delay in the cancellation of the LMSC contract, wherein some additional work for the benefit of the [redacted] system was carried out, bringing the final price of the contract to [redacted].

*A change in the name of the Lockheed corporate entity with which contracts for satellite systems were written (from Lockheed Missile Systems Division to Lockheed Missiles and Space Company) occurred on 12 June 1961.

f. CORONA/MURAL Program, 1961-63

As the Thor-Agena vehicle was given improved capabilities, it became possible to develop a two-camera system capable of furnishing stereoscopic photography, and Dr. Charyk authorized the development of such a system within the CORONA program. Lockheed's Advanced Projects Division was given a CIA contract, effective as of 20 March 1961 for six dual "C Triple Prime systems with stereo capability." Under the MURAL development (as the stereo system was called), in order to reduce program costs and maintain more effective project control, Dr. Charyk and Mr. Bissell agreed that Lockheed, Itek and GE would each be contracted with separately by Project CORONA, whose Contracts Staff would be responsible for monitoring the contracts and keeping costs in line. At the same time, Lockheed was given a "Systems Engineering and Technical Direction" (SETD) contract, administered at first by the [redacted] Office at Palo Alto, in order to guarantee an optimum effort by the contractor toward perfecting the total system design. The systems engineering contract with Lockheed reverted to a CIA contract in November 1962, negotiated by [redacted] and it ran until August 1964, when development work on the MURAL

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

system (as well as the later-initiated "J" dual capsule system, and the LANYARD system) was virtually complete. [redacted]

The number of MURAL systems procured was increased in 1962 to 22 units at a total cost of approximately [redacted]. Six additional MURAL systems were procured under a further modification program which introduced the dual payload system (first named JANUS, later shortened to "J"). A total of 26 MURAL payloads was procured and launched between February 1962 and December 1963. Six failed in various components, but twenty capsules were successfully recovered.

g. CORONA "J" Program, 1962-70

The Thrust-Assisted Thor (TAT), which made it possible to double the weight of the CORONA payload, led to the next improved configuration. The "J" program specifications as presented by LMSC, first in November 1962, with a final revision dated 12 January 1963, called for the development and production of 20 photographic reconnaissance satellite systems using the TAT booster; the Agena D satellite (Lockheed); two

[redacted]

[redacted]

modified Mark 5A recovery systems (GE); one modified 70mm CORONA M panoramic camera subsystem (Itek); two Stellar Index camera subsystems for attitude-indexing reference (Itek); and a space structure subsystem (payload frame, timers, interface, flight program equipment, etc.). The major difference between the "J" and the "M" was that the "J" included two re-entry capsule subsystems instead of one, increasing the film capacity to 160 pounds, or 16,000 feet.

The Agena D vehicle was optimistically expected to provide about 8 days of stabilized flight out of a 30-day planned orbital life, during which time photographs were to be taken. The mission plan might call for a five-day operation of the camera and transport of exposed film into recovery vehicle #1; after ejection of recovery vehicle #1, the satellite could be programmed into a controlled tumble for up to 20 days, with the power to the payload turned off. The satellite could then be stabilized for a further photographic operation of the camera and transport of the second spool of exposed film into recovery vehicle #2; and finally, the ejection of recovery vehicle #2 could be signalled, and its return to earth would complete the operation.

(The longest mission as of the close of 1970 was one for 19 days.)

Of the first order of 20 "J" systems, one system (two capsules) failed to orbit, six were not recovered from orbit, but thirty-two capsules were successfully recovered over the Pacific re-entry area. The first of this series was launched on 24 August 1963 and the twentieth on 9 June 1965. Meanwhile a further contract for 19 additional "J" systems and for the conversion of two of the last "M" series to "J" was given to LMSC on 23 November 1964 (effective as of 3 March 1964). Itek and GE continued to furnish the camera and re-entry subsystems. Of the 42 capsules represented by the second procurement of "J" systems, one system (two capsules) failed to orbit, and forty capsules were successfully retrieved. This series was launched between 18 May 1965 and 16 June 1967. The third buy of "J" systems was for 11 additional units, awarded to LMSC, Itek, and GE in September 1966. The first of this series was launched on 9 May 1967.

With the completion of the J-1 series in September 1969, Dr. John L. McLucas (then Director of

[redacted].

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

NRO and Under Secretary of the Air Force) wrote to the DCI on 23 October 1969

> The successful performance of CORONA Mission 1052 concluded a series of 52 satellite reconnaissance missions which have provided critical intelligence essential to our national security. When the history of space reconnaissance is compiled, it will be noted that the CORONA Program conquered the initial technological problems, produced vital national strategic intelligence for years, and provided a sound basis for development of advanced systems.
>
> The J-1 system served the national needs with distinction for six years, and its remarkable record has been due, of course, to the outstanding efforts of the people responsible for its development, production, and operation. I offer my thanks and appreciation for a job well done to you and your staff. Please also extend my congratulations to the appropriate contractors and other government personnel. [redacted]

The CORONA "J-3" system* was the last variation of the CORONA pioneer search satellite, and while the first contract for thirteen J-3 reconnaissance satellite systems was initiated in July 1965, the conclusion of the contracts in this series and the delivery of the J-3 systems came after the Office of Special Projects was established in September 1965 and took over the management

---

[redacted] and a summary of J-3 development and operations can be found at III.A.3, below (pages 150-153).

of the CORONA program's payload from OSA and the Special Project Staff, DD/S&T. OSP also picked up from the Special Project Staff the research and development activities looking toward a more advanced search system to follow CORONA. However, because of opposition experienced within the NRO toward CIA's role in the satellite reconnaissance program, particularly between 1963 and 1965, the financing by NRO of the follow-on program, for which CIA had carried out the research, was held up until after the agreement of September 1965 was signed, and a new DNRO was appointed. The program was later approved, but CIA was given only the development of the [redacted] and further delays were encountered in trying to reach agreement with the Air Force and the NRO Staff on the final system design and integration. As a result of these delays, the CORONA program was stretched out in order to continue the broad and continuous surveillance of Communist territory until the new search system could be developed and made operational. Thus a program intended as a one-year stopgap was extended through a series of improved configurations for more than ten years.

Prior to the assumption of responsibility for the CORONA payload by OSP in September 1965,

approximately [redacted] of NRP funds had been expended by CIA on the CORONA collection system, exclusive of booster, launch, tracking, and retrieval costs.

D. Operations and Management, 1958-62

1. Organization and Management Personnel

The initial arrangement for joint CIA/USAF management of the CORONA project agreed in April 1958 has been described in preceding pages of this history. The Project Outline set forth the responsibility of the Air Force to perform detailed supervision of vehicle development (under nominal ARPA direction) and to provide ground facilities for launching, tracking, and recovery, while CIA was to supervise the technical development and covert procurement of the reconnaissance equipment and have over-all responsibility for cover and security.

a. Period Under Development Projects Staff

When CORONA was initiated, Mr. Bissell bore the title "Special Assistant to the DCI for Planning and Development," as well as the title of "Project Director" in connection with the U-2 activity. Within CIA, he also added the title of Project Director for CORONA.

[redacted]

He, together with General Ritland, who headed the Air Force efforts in support of CORONA, gave strong leadership and management to the project, under the rather loose (and short-lived) over-all direction of ARPA. The day-to-day working relations between Mr. Bissell's Development Projects Staff and General Ritland's Ballistic Missile Division personnel assigned to support CORONA remained at a high state of cooperation and accomplishment through 1958 and into 1959.

The contracting and security functions performed by the DPS on behalf of CORONA represented CIA's principal responsibilities, as agreed in the Project Outline. Mr. George F. Kucera was Chief of the Contracts Branch of DPS from the initiation of CORONA until May 1959, when Mr. Daniel M. Kelly was assigned to that post, upon Mr. Kucera's resignation from the Agency. The DPS Security Officer was [redacted] and the Cover Officer was [redacted] during this period.

In contracting with Lockheed for the initial order of CORONA systems, the Work Statement in that contract contained a paragraph concerning the management

[redacted]

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

and technical direction of CORONA which was later subjected to differing interpretations after the Bissell-Ritland team departed from the scene. That paragraph read as follows:

> Technical direction of the program is the joint responsibility of several agencies of the Government. In the interest of effective management, however, such direction will be provided primarily by and through the Air Force Ballistic Missile Division acting as the agent for all interested components of the Government. A Project Officer will be established in BMD as the single day-by-day point of contact for the contractor. This Officer will have authority to make on-the-spot decisions within the scope of the work statement on all matters pertaining to the program other than those of major importance. From time to time the Government agencies concerned will jointly review the progress of the program. The Government will make arrangements to permit the prompt rendering of major decisions concerning the program which cannot be made by the Project Officer.

Despite the rather loose management set-up envisaged and the broad authorities which the BMD Project Officer might be led to assume under the wording of this paragraph, Mr. Bissell exerted direct program control over CORONA through the monthly suppliers' meetings (a device which he had originated during the U-2 development for liaison and control purposes). While

[redacted].

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

the BMD (later SSD) project office in Palo Alto (initially run by Colonel Lee Battle, USAF) was the day-to-day contact point for the contractor, CIA maintained direct and frequent contact with the working level people at the Lockheed Advanced Projects (A/P) Facility at Palo Alto through visits of Headquarters personnel, and after 1 June 1959, by the assignment of a Project Headquarters liaison officer to the A/P Facility (the first being Lieutenant Colonel Charles L. Murphy, a USAF detailee to CIA/DPS).

The Operations Staff of DPS, whose principal responsibility at the time of CORONA's inception was operational direction of CIA's U-2 activities, also played an important role in the early stages of CORONA. [redacted] Chief of DPS Operations, and his staff participated in July 1958 with BMD/ARDC personnel and representatives of the Tactical Air Command, USAF, in planning for a C-119 squadron to be assigned the support function of retrieving nosecones after re-entry into the earth's atmosphere. The 6593rd Test Squadron (Special) was activated by a General Order as of 1 August 1958 and assigned to duty station at Hickam Air Force Base, Hawaii. Agreements were reached with Edwards Air Force Base (the

Air Force Flight Test Center), and with PACAF for the training and support of that squadron.

The DPS Operations Center in the Matomic Building in downtown Washington was designated as the CORONA project control center, and communications were activated through the special signal center in DPS to the Lockheed A/P Facility and BMD's Los Angeles headquarters. (The later removal of the operation control function over CORONA to a new "Satellite Operations Center" [redacted] under NRO Staff in April 1963 became a point of intense friction between CIA and Air Force/NRO.)

The DPS Operations Staff took the initiative in drawing up operational control procedures for CORONA in the summer of 1958, laying requirements on the Air Weather Service for climatological studies and weather support from Air Force Weather Central through previously established channels. In September 1958, agreement was reached between DPS Operation and AFBMD that DPS would draft an operations order formalizing the operational relationships and control procedures among the various participants with regard to CORONA. The BMD

[redacted]
Copy [redacted]
~~Handle via~~ [redacted]
~~Control System~~

officers involved in this negotiation took no exception to the idea that the CIA CORONA Headquarters should have complete operational control with regard to timing of launch and target weather considerations. A Reports Control Manual, cleared with AFBMD and Lockheed in October was printed and distributed by DPS in November 1958. DPS Operations Staff also took the initiative in doing some preliminary target studies and mission planning in conjunction with the Ad Hoc Requirements Committee (ARC). The members of that group had all been cleared for CORONA by January 1959.

As an interesting aside during the operational planning phase of CORONA within DPS, at the end of June 1958, a cabled message was received at the DPS Matomic Building Signal Center from the [redacted] Station alerting DPS to the arrival of [redacted], who was to be integrated into the DPS Operations Staff as [redacted] Liaison Officer in relation to another DPS project. [redacted], Chief of DPS Administration, noted the expected arrival to Mr. Bissell on 25 June 1958 and suggested alternate arrangements for compartmentation in view of the sensitivity of CORONA. Mr. Bissell said in reply

My present feeling is that we should not try to have a CORONA Operations Center separate from our [redacted] Operations Center. For the present, I would think we could get by if we were able to give our [redacted] guest a desk not in the Control Room and make clear to him that on occasion we will have activities in the Control Room in which his participation would not be appropriate. Later in the year this may become difficult. I am inclined in the direction of cutting him in and one or two of his superiors rather than go in for elaborate compartmentation.

The [redacted] Liaison Officer's superiors in the [redacted] were informed that there were projects of a sensitive nature other than the one on which [redacted] was engaged, and of which he might learn something in his day-to-day activities. Concurrence of the superiors was obtained that [redacted] should treat any such information gained as privileged, and would not be expected to pass it to his superiors in the [redacted] (This situation presaged the eventual sharing of CORONA and subsequent satellite intelligence collections with the [redacted] which was approved just three years later by USIB at its meeting on 13 June 1961.)

b. Reorganization under Development Projects Division, DD/P

Before the CORONA photo-reconnaissance system became operationally ready for launching, a twofold reorganization took place which impinged directly upon the

management of CORONA activities. Effective 1 January 1959, Mr. Bissell was appointed to the position of Deputy Director for Plans, and in addition to taking on all of the problems which that position entailed, he was instrumental in bringing about an amalgamation of all Agency air activities and placing the newly-formed division within the DD/P. The Development Projects Staff, with its sensitive, manned and satellite reconnaissance projects was joined with the DD/P's Air Division and the Aircraft Maintenance Support Division of the Office of Logistics, to form the Development Projects Division. Although this reorganization was effective on paper as of 16 February 1959, it took most of the balance of the year to sort out and solve the major problems involved in setting up the DPD.

The effect of this reorganization on CORONA was also twofold: (1) Mr. Bissell, on being appointed DD/P, became more and more involved in all the time-consuming matters of the Plans Directorate and consequently had less time to give to day-to-day CORONA affairs. He maintained his over-all control as Project Director and was successful in his efforts to obtain continued high level approvals and the necessary funds to

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

carry CORONA forward. (2) As a result of the amalgamation, the former DPS staff officers responsible for support of CORONA found themselves with added duties related to the worldwide activities inherited with the Air Division, and thus their time and efforts had to be spread more thinly among the various projects. The DPS CORONA project staff had never been set up as a separate entity, but all those staff members given support duties for CORONA also had responsibilities for one or more additional activities. When DPD evolved, the same held true because one of the principal purposes of the amalgamation was to achieve savings in manpower as well as funds.

CORONA clearances were given only to those personnel actively involved in the project, on a need-to-know basis, within the DPD, as well as within the Pentagon and among the contractors. [redacted]

[redacted]

Following the reorganization of DPS, Mr. Eugene P. Kiefer, Special Assistant for Technical Analysis to Mr. Bissell in his Project Director capacity for the U-2, the A-12, and CORONA, maintained his office within the Development Branch of DPD in the Matomic Building, and continued to have the responsibility for monitoring and advising Mr. Bissell on all technical details of CORONA. The Development Branch Chief was [redacted] from the inception of DPD until May 1961, when his Deputy, Mr. John Parangosky, was made Chief of the Development Branch. The staff of the Development Branch was made up of specialists, principally in the areas of aerodynamics, electronics, and aerial photography. The group involved with photography included officers with long-time experience in Air Force "recce" programs, such as [redacted] and, later, [redacted]. Their support of CORONA entailed constant monitoring of the contractors' efforts, and advice on camera, film, and system interface problems encountered in this pioneering reconnaissance program.

[redacted]
Copy [redacted]
Handle via [redacted]
Control System

The Operations Branch of DPD continued its CORONA support with mission planning, weather studies, monitoring the continuing training and equipment testing for payload recovery. It also furnished air transportation between the East and West Coast and various contractors' plants, and the Project Supply Depot in California, in the interest of secure and expeditious delivery of vital project components. The contracting, security and cover functions in support of CORONA, begun under DPS, were carried forward under DPD. There were a few staff changes and a few additional slots were obtained by DPD for the support of CORONA. [redacted] replaced [redacted] as Chief of the DPD Security Staff in July 1960, and [redacted] replaced Mr. Kelly as Chief, DPD Contracts Branch in September 1960.

At the time of DPD's establishment, the Chief of DPS, who held the title of "Deputy Project Director," was [redacted]. He was named "Acting Chief, DPD" in the reorganization and remained in that capacity until his two-year tour with the Agency was completed on 1 June 1960. He did not play a very active part in CORONA affairs and most of the details involved in administrative support of CORONA were handled by the

[redacted]
Copy
Handle Via [redacted]
~~Control System~~

DPS (and later DPD) Chief of Administration, [redacted] was succeeded in June 1960 by [redacted] who also carried the title "Acting Chief, DPD," and who also had little input to CORONA, being almost completely absorbed in U-2 matters. He remained as Acting Chief until July 1962, when the next reorganization of air activities took place, and CORONA was transferred, along with the other overhead reconnaissance projects to the aegis of the Deputy Director for Research, leaving the remainder of the covert air support operations in the DD/P.

2. Development and Early Operations, CORONA

a. Delays and Disappointments

The first schedule set up for the CORONA/DISCOVERER series in June 1958 optimistically called for the first two test launches of the Thor/Agena satellite, with no camera payload, in November and December, 1958, with several biomedical shots following (partially for the purpose of furnishing cover for CORONA, as well as for the value of the experiments to aeromedical research). The first CORONA launch including the camera payload was scheduled for March 1959 [redacted] At the 20 August 1958 progress meeting between contractor and project representatives

in Palo Alto it was learned that the Lockheed master schedule indicated possible slippage of from one to three months on various components, including vehicle structure design. By the September progress meeting, the schedule had definitely slipped one month. In addition to the problems of fabrication and testing experienced with the camera and the recovery vehicle, and the interface problems of integrating the payload sub-assembly with the booster, there were planning problems in choosing the operating parameters for the satellite. In August 1958 the selection was made of an orbit altitude at perigee of 100 miles and apogee of 225 miles, giving an average expected altitude over target areas of approximately 140 miles. The most desirable launch angle would have been 163 degrees, but this would have involved an initial path over heavily populated sections of Southern California. Range safety called for a minimum 180 degree launch angle which would cut back on the allowable payload weight, already a problem. In January 1959, the decision was made to launch CORONA units on true azimuth of 184 degrees.

Training and testing exercises by the 6593rd Test Squadron began late in 1958 with simulated air

snatch, and alternate water recovery, of dummy pods, released by highflying aircraft over the Pacific. A major problem encountered was that of parachutes tearing due to the rapid sink rate (33 feet per second); also unsatisfactory performance was experienced with the sea marker and Rescuelite for use in case of a surface retrieval. A drop rate of about 20 feet per second was desired to allow the aircraft time for three or four passes beneath it, if needed, in order to snag the parachute. The difficulty was in constructing a parachute sturdy enough to withstand the force of the air snatch and yet stay within the weight limit of approximately five pounds. In November and December 1958, corrective action was still being taken on these very serious shortcomings. [redacted] The ARA-21 transmitter planned for installation inside the capsule in order to fix its position within the recovery area proved better than expected during a test period in October 1958 when its signals were picked up by an airborne C-119 at 205 nautical miles distance, and by a destroyer on the surface at 59 nautical miles. [redacted]

Meanwhile, another month's delay was experienced in the launch schedule. When the first test launch was going through the countdown prior to firing

[redacted]
Copy
~~Handle Via~~ [redacted]
~~Control System~~

on 21 January 1959, a malfunction occurred in which rockets and explosive bolts, which were to separate the two stages in the air, fired prematurely on the ground. This meant a further delay, and in addition, some of the CORONA components were still not operationally ready. The Itek camera failed in vibration and shake tests to qualify in the lower frequencies in February, and some additional support to the center of the main plate was required. Also Itek was still continuing thermal testing of film transport at low temperatures, despite Lockheed's optimistic belief that temperatures within the equipment chamber could be maintained within specifications.

The first engineering test flight was rescheduled for 25 February 1969, postponed to 28 February, when it was finally launched according to plan. No capsule was flown, and once the spacecraft reached orbit it failed to stabilize and went into a tumble; however it was considered a promising start.

Further recovery tests in the Hawaiian area of the Pacific in January had brought the decision to select a "Mode 3" parachute for use in the air snatch of the DISCOVERER nosecone. Tests had set up three drops

and two were successfully airsnatched while the third was recovered by surface ship after a successful radar pick-up of the nosecone. On 26 February 1959 a final demonstration recovery test was conducted south of Hawaii, involving the dropping of two nosecones from a B-47, one for surface pick-up and one for air snatch, both successful. CORONA staff monitoring the demonstration were: [redacted], who was a passenger/observer in the C-119 recovery plane, [redacted] DPS Security, who was an observer on the destroyer, and [redacted] DPS Security, who observed procedures on the ground at the Hawaiian Control Center [redacted] Tracking Station. Security procedures during this visit were found to be a bit lax and both the Center and the 6593rd Test Squadron were jacked up on the necessity for personnel badging in operations areas, and for improved security in general.

In March 1959 ARPA for budgetary reasons cancelled all but two of the biomedical shots. In addition, at a meeting on 25 March 1959 with ARPA Director Roy Johnson and General Schriever, Mr. Bissell agreed to the request to eliminate living specimens from one of these two, but insisted that the other be maintained as

actual biomedical cover for CORONA. The first biomedical test flight, DISCOVERER II, was launched on 13 April 1959, and contained four mechanical mice (transistorized multivibrators installed to give telemetry readout). The vehicle went into orbit, was stabilized, and appeared to be going well; however, human error in transmitting the ejection signal caused premature re-entry near the northern tip of Norway. Despite reports that the capsule was seen descending, and a subsequent thorough search, it was not found. The second biomedical test flight launched 3 June 1959 contained four live black mice. The Agena second stage failed to orbit and it went down in the Pacific.

By the time the first CORONA vehicle with camera payload was ready for launch in June 1959, an operational sequence of events had developed, some procedures being spelled out in the "Regulations Control Manual" and some developing on an ad hoc basis through informal interchange among the participants (CIA, Air Force, and contractors). The series of events related to a CORONA launch and recovery as developed during the DISCOVERER series, and an indication of where and by whom accomplished, are set forth in the following three pages in the approximate order of occurrence.

CORONA Operational Sequence, 1959-65:

Action	Where Accomplished	Whose Responsibility
Delivery of payload (camera and SRV) to LMSC for integration	Airlift from East Coast plants (Itek/FCIC and GE) to A/P Facility, Palo Alto	CIA CORONA Staff aircraft with USAF cover and support
Receipt and inspection of payload	At A/P Facility, Palo Alto	CIA CORONA Staff 1959-62; in 1963 SSD took over this function as Chairman of the Configuration Control Board
Payload assembly and testing	A/P Facility, Palo Alto	LMSC under contract with CIA
Delivery of payload to Vandenberg	From A/P Facility to Vandenberg by van with controlled temperature	LMSC-leased van with CIA Project Security Staff
Loading of film	Vandenberg, Building "L" (After Jan. 1967 the factory-to-pad concept was implemented and film loading was done at the A/P Facility, Palo Alto)	Vandenberg Ops (SS/L) technicians with CIA CORONA Staff monitoring and LMSC engineering assistance. (After Jan. 1967, LMSC engineers with CIA Staff monitoring)
Final "buy off" of system	Vandenberg (After Jan. 1967 accomplished at A/P Facility at Palo Alto)	CIA CORONA Staff representative 1959-62; later SSD representative (After 1967 became CIA responsibility)

[redacted]

Action	Where Accomplished	Whose Responsibility
Target scheduling, based on weather and priorities	CIA Ops Center until April 1963, then NRO/SOC	CIA until April 1963; then NRO/SOC with CIA inputs
Camera on/off directions	[redacted]	CIA Ops at A/P Facility generated command for STC to execute—joint CIA/ Air Force
Launch and on-orbit command	STC, under Air Force control	Air Force
Tracking	Air Force worldwide tracking network; stations include [redacted]	Air Force
Recovery	Pacific Recovery Area (approximately 225 by 70 nautical miles) northwest of Hawaii	Air Force (6593rd Test SRN) with assistance from Navy (Hawaiian Sea Frontier planes and surface vessels)
Return of capsule	From point of recovery capsule placed in hermetically sealed container, transported by aircraft or surface vessel to Hickham AFB, then by AF jet to Travis AFB, Calif.	Air Force

Action	Where Accomplished	Whose Responsibility
Transport of capsule from West Coast to [redacted] processing center	From Travis (or LMSC on some occasions) to [redacted]	CIA-controlled aircraft with USAF cover and support
Delivery of processed film to analysts	From [redacted] to Bolling AFB (later Andrews AFB), thence to NPIC, Washington	CIA-controlled aircraft with USAF cover and support

The first CORONA satellite with camera payload installed (DISCOVERER IV/Mission #9001) was launched from Vandenberg in mid-afternoon, Pacific Time, on 25 June 1959. High hopes rode with the satellite as it roared off the launch pad, and the Pacific recovery team was set to try for an aerial catch of the nosecone; however, the satellite failed to orbit and another expensive disappointment resulted. (This launch had cost approximately [redacted])

At the end of June 1959, General Ritland, on behalf of AFBMD, requested [redacted] to perform, on a crash basis, a special independent analysis of the basic specifications and performance of the CORONA vehicle. Particular reference to design and performance margins, analysis of the telemetry and tracking data of the past four flights, and flight planning for future flights formed the basis for [redacted] conclusions. The analysis was accomplished under the supervision of [redacted] who reported back to AFBMD on 10 July 1959. He recommended vehicle performance improvement and rework of trajectory and orbital parameters before any further flights. He felt additional velocity could be provided

[redacted]
Copy
Handle via [redacted]
~~Control Sys~~

through weight reduction and thrust improvement. He said that in pursuing this extremely high risk program with its complex interfacing problems, it was necessary to establish parameters which would give the highest probability for proper orbit, and there should be no room for malfunctions or reliability failures. The scheduling of firings should be made only after all necessary prerequisites for a high-confidence launch were fulfilled.

The CORONA program undertook an investigation of rocket engine performance with regard to the Agena vehicle's Bell "Hustler" rocket engine, looking toward improved performance. Meanwhile the DISCOVERER series of launches was continued while research into all problem areas was pushed. Of the next four flights (DISCOVERERS V through VIII), orbit was achieved on all four although Nos. VII and VIII achieved unstable or eccentric orbit. However, telemetry showed that the camera failed on three out of the four. General Ritland recommended a stand-down while a review was held of all systems except the basic propulsion. At a meeting on 30 November 1959 a black picture was painted by BMD as to the availability of funds to continue the program in view of the record to date. However, Mr. Bissell felt

that the gloomy picture was overstated and did not expect that flights would be curtailed in the 1959-60 programs.

Of the next four flights (Nos. IX through XII) three failed to orbit and No. XI, after orbiting successfully, suffered a spin rocket failure, although its camera functioned normally according to telemetry received. DISCOVERER XII, launched on 29 June 1960, contained some changes in engineering design intended to correct temperature and re-entry problems previously experienced, but it failed to orbit due to an electrical malfunction. It carried no camera, only the diagnostic payload.

b. First Successful Missions

DISCOVERER XIII was also configured with a diagnostic payload, and was fired on 10 August 1960. It achieved a good orbit and continued as planned to its 17th orbit, with hopes rising as the ground trackers' signals flashed from California to Washington. The capsule ejected on command over Alaska and splashed down in the Pacific about 330 miles northwest of Honolulu. It was successfully picked up on radar by the various recovery planes and ships in the area although an air catch could not be made due to the distance of the C-119's from

the impact point. The MSTS ship "Haiti Victory" was ordered to pick up the capsule, and with the aid of a Navy frogman, the capsule and its parachute were hoisted aboard the hovering helicopter sent out for the pick-up and landed safely on the deck of the "Haiti Victory." It was delivered by ship to Honolulu, and thence, by air, to LMSC's plant in California.

At long last, after so many discouraging failures, success had been achieved, even though the capsule carried no camera. The New York Times, front-paged the story under the heading "'Copter Recovers Capsule Ejected by US Satellite," and went on to underscore the underlying significance of this achievement.

> The Air Force, after months of frustrating failure, succeeded today in returning and recovering the first payload from orbit in space.
>
> A 300-pound capsule, ejected from the Discoverer satellite, high over the northern Pacific, was returned to earth and retrieved from the Pacific Ocean near Hawaii by helicopter.
>
> It marked the first time that an object had been placed in orbit around the earth and then returned and recovered.
>
> The technological feat marks an important step toward the development of reconnaissance

[redacted]

satellites that will be able to spy from space. The same ejection and recovery techniques eventually will be used for returning photographs taken by reconnaissance satellites. Indirectly the technique will also contribute to the eventual return of manned space craft. 66/

A week after the successful retrieval of the diagnostic capsule, DISCOVERER XIV with a CORONA camera payload was successfully launched on 18 August 1960. The event's coverage by the New York Times and other media in the US received second billing to coverage of the U-2 spy trial which was taking place in Moscow at the same time. The account of the launch by the AP Wire Service was taken from the Air Force "cover" handout, which spoke of special secret instrumentation carried by the satellite to gather data for the Air Force follow-on surveillance satellites and the Navy's navigation satellite program.

The orbiting DISCOVERER XIV circled the globe every ninety-four and a half minutes and on its seventeenth pass the ejection command successfully separated the capsule and pointed it earthward; its radar signal was picked up by the recovery group, and Captain Harold E. Mitchell of the 6593rd Test Squadron, piloting a C-119 flying boxcar called "Pelican 9,"

successfully hooked the descending capsule on his third pass. Upon arrival at Hickam with his prize, Captain Mitchell was decorated with the Distinguished Flying Cross, and members of his crew were awarded the Air Medal for their achievement. 67/

The fact that the film from this first successful mission after processing showed major degradation in the form of pressure streaks across the format could hardly dampen the elation in the CORONA camp at that point. Some who had lost heart received a much-needed "shot in the arm." However, the celebration was short-lived. Of the next four flights, concluding the 1960 series, three orbited, two were retrieved, and one of those two had a camera failure.

An engineering study was initiated with Itek in the latter part of 1960 with a view to increasing the reliability of the CORONA camera payload, and an order for six of the improved "C Triple Prime" units resulting from this study was given to Itek.

Closely involved with camera problems, of course, was the problem of film characteristics and continuous research was carried on at Eastman to find

the best combination of material, thinness, and emulsion for the environment in which the film must function. There were also problems related to the handling and loading of film into the cameras at the Vandenberg launch area. These had received close attention late in 1959 when [redacted] inspected the film handling and pre-flight procedures at "L" Building at Vandenberg. His investigation found no member of the ground crew with sufficient background or experience to adequately prepare aerial photographic equipment for flight. Also, the "clean room" for pre-flighting was more like a factory work space and lacked cleanliness and the kinds of equipment needed for loading and storing film. Incorrect procedures had led to the damaging of spools and the fogging of film.[redacted]

While corrective measures were taken in the interim, an all-new facility for film pre-flighting was prepared and put in use at the end of 1960. After an inspection of operations in the new set-up, Mr. Ed Green, the Eastman project officer, in one of his inimitable trip reports to Project Headquarters, wrote that he found a great improvement in general film loading operations which could not be ascribed solely to occupancy of a new building, "because it takes very little effort to make a

pig-wallow out of a palace." He credited the current ground crew with a more professional operation and with accomplishing more with less fumbling. He also gave credit to the Itek and Lockheed engineers who were by that time assisting in monitoring the film-loading operations.

In the 1961 CORONA series, out of seven C Prime camera payloads launched, only 29% of the film was returned for processing; however, with the introduction of the C Triple Prime camera payload (the first of which was launched on 30 August 1961), four out of five were successfully retrieved with a usable film recovery of approximately 66%. Continued experience with all phases of the system was beginning to pay off.

[redacted]

[redacted]
Copy
Handle via
Control System

II. Satellite Activities Transferred to DD/S&T

A. Transition Period, 1961-62

The year 1961 was a transition year in many ways and its events had both immediate and long-range effects on CIA's participation in overhead reconnaissance.

Toward the end of FY 1960, the assumptions of DPD with regard to the continuing photo-reconnaissance of denied areas for the period from FY 1961 through 1970 were as follows: (1) lacking an international arms agreement, there would be continuing need for photo-reconnaissance of the Soviet Bloc; (2) if an arms agreement were reached, there would still be need of photo-reconnaissance for inspection purposes, which could include both manned, lower altitude flights to give high resolution photography, and gross coverage by satellites to fill in time and area gaps between low-level flights; (3) if an arms agreement were reached, the necessity for covert reconnaissance satellites would probably disappear in view of the requirement for inspection, and public acceptance of that requirement. The general conclusion of DPD, therefore, was that CIA would probably end its participation in the reconnaissance satellite program by the close of calendar year 1961.

These conclusions were drawn two weeks before 1 May 1960 when the Russians shot down the U-2 over Sverdlovsk; Khrushchev later boycotted and caused the cancellation of the Summit Meeting in Paris, and a period of very strained relations ensued between the US and the USSR. Any hope for an arms agreement was postponed, and at the same time the intelligence obtained from satellite reconnaissance became even more vital to the US in face of bellicose Soviet threats and claims to missile superiority.

Thus, the requirement continued for the extension of CORONA (in view of the continued non-production of photography by the Air Force programs). The Under Secretary of the Air Force, Dr. Charyk, and Mr. Bissell agreed to carry out a six-shot improved CORONA/MURAL (with stereo photography) program, the six systems to be available in 1962. Separate contracts with Lockheed, Itek and GE for production of the hardware were negotiated by CIA effective March 1961. At the same time, Dr. Charyk insisted that a systems engineering contract be spelled out as well. Since Lockheed was opposed to the Air Force inserting an outside systems engineering group into the picture, it was agreed that

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

Lockheed would furnish a Systems Engineering and Technical Direction (SETD) group, under contract with the Air Force and responsive to [redacted] (the SSD unit under Colonel Lee Battle, set up to support CORONA/DISCOVERER).

[redacted] had taken an increasingly stronger management role in CORONA from month to month, and by mid-1961 were making many decisions concerning the payload which the DPD staff felt were CIA's prerogatives. Mr. Kiefer advised Mr. Bissell on 18 July 1961 that the relationships with Colonel Battle's group needed review in light of current differences over scheduling the new C Triple Prime camera payloads for missions. The emulsion on the SO-132 film to be used with the C Triple Prime was usable only through mid-September, but its maximum potential resolution was expected to be 250 lines per millimeter if used in the favorable time frame (which was 100 lines per millimeter better than could be achieved later in the autumn). In view of the nature of the installations already photographed, Mr. Kiefer felt it would be of greater value to get a better look at those places in order to learn their exact nature and status, rather than continue to search for additional targets of the same type.[redacted]

[redacted]
Copy [redacted]
~~Handle Via [redacted]~~
~~Control System~~

Dr. Killian had recommended caution in committing the new C Triple Prime camera to operational use since the C Prime had begun to demonstrate reliability; however, Mr. Kiefer felt that Colonel Battle's interpretation of this admonition was far too literal. In his memorandum to Mr. Bissell, Mr. Kiefer said

> We have, up to this point, operated under an unwritten but perfectly acceptable arrangement wherein Lee /Colonel Battle/ is the authority on all matters relating to vehicles and launching and we hold authority over matters involving payload. He has now assumed this latter role as well. Specifically, without prior consultation with us, he has ordered the first Triple Prime camera scheduled for launch on 1 August to be displaced by a C Prime camera...If we are to exert anything other than a completely passive role from here on, a meeting between yourself and Dr. Charyk resulting in a reaffirmation of the relative roles of SSD and ourselves is absolutely necessary. [redacted]

Mr. Kiefer added that opinions from several sources were that the C Triple Prime camera was probably as good as the Air Force E-5 and E-6 systems; also that Dr. Eugene G. Fubini, Director of Research, DDR&E, on the strength of those opinions, had stated that it would be sensible to cancel the E-5 and E-6 variants of the SAMOS program if the C Triple Prime in its stereo configuration worked out. [redacted]

Mr. Kiefer was able to obtain a less conservative and more optimistic approach to use of the new system

and two were successfully launched and retrieved before mid-September 1961. This incident, however, was indicative of the situation which was developing between the CIA CORONA staff and the Air Force with regard to management of the program.

Meanwhile, another event of 1961 impinged upon the management of CORONA. In the aftermath of the Cuban liberation attempt, and its tragic ending at the Bay of Pigs in April 1961, pressures from above resulted in the departure of Mr. Bissell from CIA in February 1962. (Mr. Dulles had meanwhile retired effective 29 November 1961, being replaced by Mr. John A. McCone.) The CIA role in CORONA management had already begun to suffer as a result of the inability of the staff to gain Mr. Bissell's time and attention at crucial moments because of his involvement in DD/P operations. After Mr. Bissell's departure, the loss of his influence on the management of the program and his persuasiveness with higher authorities at the conference table were sorely missed by those in DPD who were left to carry on the program.

Two organizational changes in this transition period were related directly to CIA's role in overhead reconnaissance. First in September 1961, an agreement

[redacted]
Copy
~~Handle Via~~ [redacted]
~~Control System~~

was signed between CIA and the Defense Department for the establishment of a "National Reconnaissance Program," under which all overhead reconnaissance projects would be financed and controlled centrally. A definitive agreement was spelled out in May 1962 establishing the National Reconnaissance Office and giving broad powers to the Director of NRO in technical and financial management. The DNRO was to be appointed by the Secretary of Defense, with DCI concurrence, and the first appointee to that position, Dr. Joseph V. Charyk, also wore the hat of Under Secretary of the Air Force.

The second organizational change was an internal CIA reorganization initiated by the new Director whereby all scientific and technical activities of the Agency were brought together under a new Deputy Director for Research. This reorganization was initiated early in 1962 but because of bureaucratic difficulties, required several months of shifts and changes to accomplish.

B. CORONA Under OSA Management, 1962-65

1. OSA Established under DD/R

Headquarters Notice [redacted] of 14 February 1962, announcing the appointment of Mr. Richard Helms to succeed

Mr. Bissell as DD/P, also indicated that a Deputy Director for Research and Development would be created and some R&D functions of the DD/P would be transferred to the new Directorate.

Two days later Mr. McCone signed Headquarters Notice [redacted] establishing the Office of Deputy Director for Research effective 19 February 1962, and saying that certain of the activities of the Development Projects Division, DD/P would also be transferred to the DD/R, along with other activities in research and development. Two months later, the Deputy Director, Lt. Gen. Marshall S. Carter, USA, published HN [redacted] which, effective as of 15 April 1962, transferred the "Special Projects Branch" and supporting elements of the DPD to the DD/R and added that additional activities may be transferred to the DD/R at a later date.

This piecemeal publication of a major organizational change was indicative of the footdragging attitude in many quarters toward moving ahead with the Director's plan. By the time the terms of reference of the DD/R were published in HN [redacted] on 30 July 1962, the DCI had been forced to compromise on the scope of the new Directorate since neither the Office of Scientific

Intelligence of the DD/I nor the Technical Services Division of the DD/P could be pried away from those two Directorates. The three Offices of the Directorate as of 1 August 1962, therefore, were the Office of Elint (OEL), the Office of Research and Development (ORD), and the Office of Special Activities (OSA).

OSA as originally established under the DD/R represented the transfer of the special projects of DPD (i.e., the U-2, the A-12, and CORONA). Between the announced transfer of DPD to the DD/R and its actual reconstitution as OSA, there was added to the normal confusion of a reorganization the trauma of relocating in the new headquarters building at Langley. The Acting Chief of DPD, [redacted], finished his tour with the Agency just as the change-over took place, and an Assistant Director for Special Activities was not named until 4 September 1962. The new AD/SA, [redacted] like his two predecessors, was more attuned to the manned aircraft programs and did not take as lively an interest in CORONA as in the U-2 and A-12 programs.

Mr. Kiefer continued as technical adviser on CORONA matters in his position as Assistant for Technology to the AD/SA. The Development Division of OSA, as well as

the Contracts, Logistics, Operations, and Administrative Divisions, continued their support for CORONA; however the satellite project still was not set up as a separate unit, manned by a full-time staff. The one full-time staff member was Lieutenant Colonel Charles L. Murphy, who had, since July 1959, been stationed at the Lockheed Advanced Project Facility in Palo Alto as the CIA representative to coordinate CORONA activities with Lockheed and with BMD's [redacted] group.

This was the rather loose arrangement for supporting CIA's role in CORONA which had evolved following Mr. Bissell's departure, and which had continued through the short DD/R period of just over a year, and into the new era under the National Reconnaissance Program.

2. NRP Formalized

The agreement reached on 6 September 1961 between the DCI, Mr. Dulles, and the Deputy Secretary of Defense, Mr. Roswell Gilpatric, concerning the setting up of a National Reconnaissance Program was in very general terms. The NRP was to consist of all overflight reconnaissance projects (manned and unmanned, overt and covert, for photographic and [redacted] collection). The

[redacted]
Copy [redacted]
Handle via [redacted]
Control System

program was to be directed by the Under Secretary of the Air Force and the DD/P of CIA, acting jointly with powers delegated to them by their superiors. A National Reconnaissance Office was to be established on a covert basis to manage the NRP, with a small staff drawn from Defense and CIA. Requirements and priorities would be set by USIB, and the program elements and operations would be reviewed regularly by the Special Group of the NSC. The Air Force, as the operational agency for management and conduct of the NRP, was to operate directly out of the Office of the Secretary of the Air Force in a streamlined special management arrangement with a direct line to reconnaissance system directors in the field and without intervening reviews and approvals.[redacted]

Between the signing of this initial agreement and a further agreement between Mr. McCone and Mr. Gilpatric signed on 2 May 1962, setting forth the responsibilities of the National Reconnaissance Office for the conduct of the NRP, CIA's overhead reconnaissance projects were transferred to the Deputy Director for Research. The NRO Agreement of 2 May 1962 therefore stipulated in paragraph 7

[redacted]
Copy
Handle via
Control System

The Deputy Director (Research), CIA, will be responsible for seeing that the participation of CIA in this Agreement is carried out.

The first directive on organization and functions of the NRO was issued by Dr. Joseph V. Charyk (who was appointed Director of NRO by DOD Directive of 14 June 1962). It established Program A (USAF) under [redacted] and Program B (CIA), and said that the Director of Program B was responsible for the NRP effort conducted by the NRO through utilization of CIA resources; further that the activities and office of the Director, Program B, were covered by his overt duty as Deputy Director, Research, in CIA. Dr. Scoville, in turn, transferred the title of "Director, Program B" to the AD/SA, who held immediate responsibility for management of CIA reconnaissance activities (including CORONA), giving himself the title "Senior CIA Representative to NRO," in view of his over-all responsibilities to the DCI for all phases of the NRP.

3. CIA Satellite Reconnaissance Role Challenged by Air Force

In view of the less than vigorous top-level leadership on the CIA side of CORONA during the disorganized period from 1961 through the summer of 1963, it

[redacted]
Copy
Handle Via
Control System

is not surprising that the Air Force [redacted] group, backed by [redacted], stood ready to move into the vacuum. The Air Force group had become stronger and better organized for carrying out satellite operations with their direct line to the Secretary of the Air Force, and also had the added advantage of having the controlling voice in the decisions of the NRO, particularly during the tour of Dr. Brockway McMillan as DNRO (from 1 March 1963 to 30 September ~~1965~~).

The controversy between CIA and the Air Force with regard to the management of CORONA, and to CIA's role in the development of follow-on satellite systems, developed quickly once the NRO was established, with its preponderance of Air Force staff, and with fiscal and budgetary control over all projects under the NRP. That period of CORONA history, from the early NRO days until the establishment in CIA of a separate office to manage CIA's satellite reconnaissance responsibilities, is fully described and documented in [redacted]. This history will, therefore, not dwell upon the day-to-day struggle within the NRO framework which

impinged upon the management of CORONA, but will, in the following section summarize the principal events of this unsettled period as they occurred.

4. Directorate for Research Becomes Directorate for Science and Technology

Because of the failure of Mr. McCone's plan for a scientific directorate to reach its full scope in 1962, and the resultant frustrations suffered by the DD/R in that area as well as in his effort to establish a proper role for CIA in the NRO, Dr. Scoville resigned from the Deputy Director's post effective as of 14 June 1963. Mr. McCone then proceeded, with the urging of the PFIAB, to try to bring under the DD/R set-up those additional scientific activities of the Agency which had thus far evaded being amalgamated. The Office of Scientific Intelligence and the Agency's automatic data processing activities were brought under the DD/R, and the resultant directorate was redesignated the Directorate for Science and Technology. Plans were also made for a center for the analysis of missile and space intelligence from all sources. Dr. Albert D. Wheelon, a young, brilliant, and aggressive scientist, was appointed the first Deputy Director for Science and Technology on 5 August 1963.

Shortly after Dr. Wheelon's assumption of his duties as DD/S&T, the DNRO, Dr. McMillan, made a

frontal attack on the CORONA management problem with a request to Mr. McCone that CIA relinquish all responsibility in regard to CORONA and transfer complete control of the program to the Director of Program A and [redacted] At that time [redacted] had no formally agreed responsibility for the CORONA payload, the original agreement in force being between SSD's [redacted] and CIA/OSA. [redacted]

~~The previous year, 1962, had seen an increase~~ in successful missions despite the day-to-day difficulties between the CIA and Air Force echelons, and contractor problems. Of the 17 CORONA/MURAL stereo payloads launched, all 17 orbited and 14 of them were retrieved. Of the three failures, two were caused by tearing of parachutes during air catch attempts, and one by failure of the parachute to deploy. Of the film payloads launched, 69% was recovered.

Then came 1963, and a series of unfortunate losses, including not only CORONA, but LANYARD and Army Map Service's ARGON satellites. Of 16 launches of CORONA, ARGON and LANYARD systems in 1963 there were two failures to orbit due to failures of the Thor boosters, and another seven mission failures caused by the Air Force-procured Agena vehicles. Three Agenas failed to orbit, one achieved

[redacted]

[redacted]
Copy
~~Handle Via~~ [redacted]
~~Control System~~

a bad orbit and power system failures were experienced on the other three. There was one failure of a mission due to failure of the capsule to eject, and two partial failures as a result of camera operation. It appeared that Murphy's Law was working overtime; however, analysis conducted following each mission indicated that others besides Murphy were involved in the malfunctions which occurred, some of which were traceable immediately to human error. Quality control and the philosophy of zero deficiencies at launch time seemed to have flown out the window. When the CORONA "J" system with dual recovery buckets was introduced in August and September 1962, the first two flights were only partly successful; both number one buckets were retrieved (although light leaks degraded the film in the first), but both number two buckets were lost, one through inverter failure of the signal decoder in the recovery vehicle to respond to command.

It was at this point that Dr. McMillan made his open proposal that [redacted] take over CORONA. An added factor was increased Air Force confidence as a result of the first retrieval of usable photography from their [redacted] satellite, [redacted]. The Air Force had achieved a

remarkable success with [redacted] to balance against its astounding failure with SAMOS. [redacted] Dr. McMillan maintained that, as DNRO, he could not be held responsible for the success of CORONA missions unless he had ultimate control over all matters relating to the project, including both boosters and payloads. [redacted]

By the end of 1963, of the total of 56 launches in the CORONA series, there had been 26 failures, of which approximately 50% were related to booster problems. Figures for the year 1963 were nine CORONA/MURAL launches of which seven orbited and six of the seven were recovered for a film return of 66%. Also, two CORONA J systems were launched (two buckets each) with a 50% recovery of film. [redacted]

The first proposal by Dr. McMillan for the transfer of CORONA to the Air Force was rebutted by both Mr. McCone and General Carter. The DCI felt strongly that the Air Force should not monopolize the satellite reconnaissance program and was anxious that CIA participate actively, particularly in the development of future advanced systems. Dr. Wheelon was of the opinion that assigning the CORONA program to [redacted] would not be the answer to the recurring technical problems, particularly since the largest

[redacted]

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

number of failures had been of the Air Force Thor and Agena vehicles. He recommended that CIA strengthen its participation in the technical and programming aspects of CORONA by establishing a project office headed by a senior CIA officer with appropriate technical and administrative support to carry the responsibility for the payload; that this project office work out the crucial interface problems between vehicle and payload with the Air Force on the partnership basis which characterized this program in its early days; and that CIA re-examine its contract with Lockheed for systems engineering and technical direction to ascertain the effectiveness of LMSC's performance. This recommendation by Dr. Wheelon made in November 1963, for a special project office to manage the CIA satellite activities, was eventually adopted; however, it was almost two years before it was accomplished.

Meanwhile, Mr. McCone directed the DD/S&T to explore the requirements and possible configurations for a second generation search satellite to follow CORONA. He noted in a memorandum to the DNRO late in 1963 that much of the effort and imagination of NRO had been devoted exclusively to technical intelligence and high resolution spotting, but no attractive proposals had been put forward for a successor to the only pioneer search capability.

Between 13 November 1963 and 8 February 1964 a Photo Working Panel (known also as the Drell Panel), chaired by [redacted] head of the Office of Research and Development, was convened by Dr. Wheelon to make an analysis of the CORONA photographic product and to isolate factors adversely affecting its quality. The Panel's findings were of great value, not only in improving the CORONA system, but in providing vital information required for the successful development of new advanced systems which came on somewhat later.

In March 1964, telegraphic notice was received by CIA from the Air Force that [redacted] was being dissolved and its personnel transferred. A new group, [redacted], under [redacted] reporting directly to [redacted] were to take over the operational support of CORONA. The reason given for the change was the corroded security of the [redacted] unit which ostensibly was under the command of [redacted] but which in fact was responsible to NRO; an additional factor was that cover such as [redacted] and DISCOVERER had furnished were no longer necessary since the promulgation of DOD Directive 5200.13 had clamped a cover of secrecy on all military satellite operations. Despite the logical explanation offered for this change, Dr. Wheelon felt that the DNRO, having twice requested the transfer of

CORONA to [redacted] command, and having twice been refused by the DCI, was now in effect transferring the CORONA program to [redacted] without CIA concurrence. The move by that time was a fait accompli and on 9 April 1964 [redacted] named [redacted], Chief of [redacted] to be Chairman of the CORONA Configuration Control Board.

On the CIA side, the CORONA staff attempted to strengthen its representation at the Lockheed A/P Facility; [redacted] (a former Lockheed engineer recruited by OSA) was temporarily assigned to the A/P Facility to assist Colonel Murphy. The latter was recalled to the Air Force in July 1964 and was followed by Lieutenant Colonel Vernard Webb (another Air Force assignee to CIA) who represented OSA at the A/P Facility until December 1964 when he was summarily transferred without explanation, at the behest of the DNRO.

Also in July 1964, [redacted] and [redacted] initiated action to place the systems engineering and technical direction of CORONA under the [redacted] (a company supported by Air Force contract). Dr. Wheelon agreed that Lockheed's role in the SETD area had gone down hill in a predictable manner "since it is almost impossible for the contractor and the architect to have common financial interests without prejudice to the customer." He felt

[redacted]
Copy [redacted]
~~Handle Via [redacted]~~
~~Control System~~

Lockheed's performance was not adequate to support [redacted] in view of the latter group's own lack of qualified personnel. However, he also felt that CIA could do a better job of managing the CORONA payload than the Air Force, as witness the Air Force need to bring in [redacted]

The DNRO, without agreement of CIA, on 14 August 1964 directed that information be sent to CORONA contractors informing them that the [redacted], under the management of the [redacted] would be responsible henceforth for the general systems engineering and technical direction of their contracted efforts. LMSC was relieved of its SETD contract and was asked to create a systems integration group under contract with the Air Force to conduct mating and testing of the CORONA system at Palo Alto. Lockheed demurred in signing a contract, being well aware of the controversy, but did continue to furnish the required systems integration "on the cuff" pending the eventual establishment of project responsibilities. At the 1 September 1964 NRP Executive Committee meeting, Mr. McCone and Deputy Secretary Vance agreed that no changes in contracting responsibilities for CORONA would be made until the whole management problem was settled.

There were two important starts for CIA in the satellite reconnaissance field in 1964, despite the rough going under the NRP. In late June 1964, the CIA proposal for a [redacted] satellite for collection of [redacted] was described to the DNRO and approval was obtained to fund a feasibility study. Also, in-house work on a search system to succeed CORONA (named [redacted] later changed to [redacted] culminated in June 1964 in a proposal to the DDCI that year-end CIA funds in the sum of [redacted] be allocated to commence lens design and working models of two film drive systems, looking to the eventual development of a complete satellite system. At the same time funds for the development of this new system were requested in the NRO budget.

While the importance to the Intelligence Community of the continued and improving collection capability of CORONA was certainly not overlooked by the DCI, he also laid great emphasis on the pursuit by DD/S&T of new, advanced systems, looking ahead to meeting future intelligence requirements. At the close of 1964, therefore,

---

[redacted].

[redacted].

the Agency, while still waging a fight to hold its CORONA payload responsibilities, at the same time was making progress with two new satellite projects (both of which, however, had a long, hard way to go).

Dr. Wheelon, in response to the DCI's charge to him, had spent a great deal of effort in building and refining his staff in both the technical and support areas to make it capable of handling CORONA and other satellite programs. He had recruited [redacted] from OSI in October 1963 (formerly head of the Systems Analysis Section of Space Technology Laboratories), to organize a Systems Analysis Staff within the Office of the DD/S&T. This staff was responsible for stimulating and coordinating DD/S&T research and development efforts embodying new concepts and advanced technologies, and coupling these to the Directorate's intelligence collection operations.

When Dr. Wheelon, with the knowledge and concurrence of the DCI, on 1 September 1964 created a Special Projects Staff (SPS) as an interim mechanism for managing the Agency's NRP activities, the personnel ceiling and incumbents of the Systems Analysis Staff were

[redacted]
Copy [redacted]
~~Handle Via~~ [redacted]
~~Control System~~

made available to SPS and [redacted] was named Chief of this temporary management staff. Selected administrative personnel in OSA engaged primarily in satellite activities were earmarked for support to SPS. The technical field personnel on duty on the West Coast were placed under the operational jurisdiction of SPS, and four OSI officers were detailed to add technical strength. A limited number of new employees to satisfy essential requirements were hired at that time. Among these was [redacted] who was recruited in August 1964 to assume the position of senior CIA CORONA Project Officer. [redacted] had for the previous ten years worked in operational analysis, planning, and direction of rocket and missile activities for the Defense Department and for General Dynamics. He was expected to provide the strong leadership and technical management expertise needed to bolster the CIA CORONA team. He was placed in an available Scientific Pay Schedule slot and attached first to the Office of the DD/S&T until the organizational picture could be made clearer.

On 6 October 1964, Mr. McCone gave Deputy Secretary of Defense Vance his proposal for putting

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control System~~

[redacted] in the West Coast office under [redacted] direction with responsibility for payload contracts through the CIA Contracts Officer stationed with [redacted], and for security of payload through the CIA Security Office in Los Angeles; for the assembly, integration and checkout process at the A/P Facility (assisted by two CIA technical people). [redacted] was to participate in suppliers' meetings and in Configuration Control Board meetings; and [redacted] in its systems engineering role on behalf of the Air Force, was expected to recognize [redacted] role in the payload area. [redacted] Implementing discussions based on this proposal were then initiated at the senior working level.

A very favorable portent at the end of 1964 was the beginning, between Mr. McCone and Secretary of Defense McNamara, of discussions intended to lead to a restatement of the NRO Agreement which would clearly line out CIA's role in reconnaissance in keeping with the DCI's statutory responsibilities for collection of intelligence essential to the national security, and which would, hopefully, put an end to the continual struggle within NRO over lines of authority.

[redacted]
Copy [redacted]
~~Handle via [redacted]~~
~~Control System~~

Operationally, 1964 began with a successful CORONA J-1 dual payload launch and retrieval in February, followed in March and April by two complete losses due to Agena failure. The record improved through the year and out of 26 total buckets launched, 21 were recovered for a 73% usable film return.

As a result of the proposal regarding the role of [redacted] in CORONA, drafting sessions between CIA and NRO staff arrived at a coordinated draft agreement in mid-January 1965. The Director of the NRO Staff, [redacted] USAF, reported that the DNRO, Dr. McMillan, had agreed to the language of the draft, and on the strength of this information General Carter, the DDCI, signed the agreement on behalf of CIA. At the 12 January 1965 NRP Executive Committee meeting he so advised the DNRO, who then disavowed his reported approval, saying that he had only agreed in principle. Thereafter Dr. McMillan would not address the question of the new management proposal but made several further efforts to give [redacted] the complete SETD function over CORONA, including all CIA payload contracts. General Carter continued to rebuff these attempts.

[redacted]

Mr. McCone did not enter the controversy further, and shortly thereafter his resignation was announced to be effective on 28 April 1965. Just a week before his departure, however, he gave explicit instructions to Dr. Wheelon to write into the CIA contracts with LMSC, GE, and Itek language which would clearly establish with the contractors the fact that CIA had the responsibility and the authority to provide technical direction for the CORONA payload contracts.

Meanwhile, [redacted] as the senior CORONA Project Officer, had been indoctrinated into the program and began to take a hand, in coordination with the Special Projects Staff. That staff, in addition to satisfying the technical demands of CORONA, was also pursuing the definition phase of the follow-on search satellite (in competition with an Air Force effort along the same lines), and the [redacted] satellite, in anticipation of a developmental go-ahead and funds from NRP. Dr. Wheelon had not attempted in 1964 to formalize the SPS since he felt it would be difficult to justify and obtain approval for the additional 23 slots which [redacted] proposed T/O for SPS called for until the Agency's charter in the satellite field became more firm.

The personnel assigned to SPS therefore remained slotted against their various office T/O's.

On 26 February 1965, Dr. Wheelon, in a memorandum to General Carter, outlined his proposal for the establishment of a satellite office within the DD/S&T, which General Carter had agreed to take up with Mr. McCone. Dr. Wheelon called attention to the capability which the Agency had developed and to the promising projects awaiting go-ahead approval through which the Agency could make a significant contribution to the NRP. At that point Dr. Wheelon wished to make a tidier arrangement with regard to all satellite-oriented activities of the Agency in Washington and on the West Coast under an office which would be responsible for all development, operation, and management of the Agency's satellite efforts, providing technical direction as well as management of on-orbit operations therefor. Dr. Wheelon reminded General Carter that the DCI had informed the PFIAB in the summer of 1964 that he intended to create such an office which would require perhaps 20 to 30 technical people. With the increased project activities, however, Dr. Wheelon now estimated a total T/O of about 80 would be required including the 30 currently on detail from other offices.

[redacted] Copy [redacted] ~~Handle via Control System~~

C. Establishment of Office of Special Projects

1. NRO Agreement of August 1965

Dr. Wheelon's plan for a satellite office under the DD/S&T, and the negotiations related to the rewriting of the NRO Agreement were among the pieces of business which were still pending at the time both Mr. McCone and General Carter resigned from the Agency on 28 April 1965. Negotiations in regard to the new NRO Agreement were resumed by the new leadership of Admiral William Raborn and Mr. Helms, with the assistance of [redacted] Deputy for National Intelligence Programs Evaluation. These negotiations were not concluded until August 1965, and the satellite office under the DD/S&T was not formally organized until after the agreement was signed.

During the summer of 1965, while negotiations were underway, there was a move afoot within the DD/S&T to try to obtain the return of the Satellite Operations Center to CIA control. [redacted]

[redacted]

There were three definite improvements from the CIA view which resulted from the new agreement:

first, the stronger role of the NRP Executive Committee, established to "guide and participate in the formulation of the NRP through the DNRO;" the DNRO was to sit with the Committee as a non-voting member; second, the position of the Deputy Director of NRO (appointed by the DCI with the concurrence of the Deputy Secretary of Defense) was ~~strengthened in that he was to serve full time in a~~ line position directly under the DNRO and act for and exercise the powers of the DNRO in the latter's absence, as a true deputy; and third, the assignments for the development of new optical sensor subsystems (made to take full advantage of all technical capability and experience of the agencies involved) gave to CIA the development of improvements in the CORONA general search optical sensor subsystem; and the development of the optical sensor subsystem for a new advanced general search system to follow CORONA, once the concept and contractor for the full system were selected (with the advice of the Land Panel of the President's Science Advisory Committee).

[redacted]

[redacted]
Copy
~~Handle via~~ [redacted]
~~Control~~ System

Higher authorities in both the Defense Department and the White House were unwilling for the NRP to become a strictly military operation, and thus CIA's role in satellite reconnaissance was reinstated and specific projects assigned. An additional improvement in relations within the NRO occurred a month after the signing of the agreement with the resignation of Dr. McMillan and his replacement by Dr. Alexander Flax, who, on taking over as DNRO, was told by Deputy Secretary of Defense Cyrus Vance that he must make the NRO work and relieve the contentiousness that existed therein.

2. [redacted]

[redacted]

NOTICE OF REMOVED PAGES

Pages 124 through 140 are not provided because their full text does not contain CORONA, ARGON, LANYARD programmatic information.