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DEPARTMENT OF THE AIR FORCE
OFFICE OF THE SECRETARY

MEMORANDUM

October 20, 1971

NOTE FOR DR. HALL

During Colonel Bradburn's briefing to you on the National Reconnaissance Program you asked several questions for which we promised answers. They are attached. If we missed any or you wish further information please call on us.

[REDACTED]

LT Colonel, USAF
Deputy Director for
Plans and Policy
National Reconnaissance Office

Dr. Hall read, without comment.

[REDACTED]

11/18/71

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CORONA FLIGHT HISTORY

The first attempt to launch a Discoverer satellite, on 21 January 1959, was aborted by the premature ignition of the accessory rockets on the upper stage. The second stage vehicle was severely damaged and the Thor so affected that it had to be withdrawn for major overhaul.

Discoverer I -- actually the second scheduled flight vehicle -- left the Vandenberg launch pad on 28 February 1959 and successfully established an orbit with an apogee of 605 miles and a perigee of 99 miles. Although somewhat more eccentric than planned, it represented success. No capsule was carried and no recovery attempted.

Discoverer II was also reasonably successful in establishing orbit following its 13 April launch. Unhappily, a malfunction in the satellite's timer caused the capsule to be ejected half-way around the earth from the planned recovery zone.

It descended near Spitzbergen. Although the Air Attache in Norway made a thorough search of the probable descent area, no sign of the capsule could be found. The missing capsule had carried "mechanical mice," electronic devices rigged to record biomedical effects data.

Discoverers III and IV, launched on 3 June and 25 June, failed to reach orbital velocities because Agena thrust did not meet expectations. The 3 June flight carried another biomedical payload, but the 25 June vehicle contained the first of the CORONA cameras. Because of the failure to orbit, no data on camera operating characteristics were obtained.

Discoverers V and VI were sent into orbit on 13 August and 19 August. In both instances the Agena upper stage functioned properly but the recovery sequence was in some fashion abnormal with the result that neither capsule was recovered. Discoverer V capsule was injected into high orbit because of improper positioning when re-entry sequencing

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began. For the purposes of the CORONA program, the inability to recover was no more disappointing than the fact that telemetry clearly showed camera failure to have occurred on either the first or second revolution of the Earth in each instance.

The next two Discoverer flight trials, on 7 and 20 November, were as disappointing as their predecessors. Discoverers VII and VIII both experienced subsystem failures which prevented recovery of the capsule. And in neither instance did the camera system function properly.

Not until February 1960, after two months of intensive corrective engineering, were the launchings resumed. Unhappily, neither of the boosters used in the February flights (Discoverers IX and X, 4 and 19 February) functioned properly and in neither case did the Agena go into orbit. Some additional complications were provided when it proved necessary to destroy Discoverer X during its climb out, showering portions of Vandenberg Air Force Base with assorted residuals of the flight vehicle.

On 15 April 1960, Discoverer XI went into orbit but the recovery system again malfunctioned. Telemetry, however, indicated that for the first time the camera had functioned perfectly, all 16 pounds of film passing through the subsystem into the recovery capsule.

Discoverer XII, carrying diagnostic instrumentation, climbed away from the Vandenberg launch stand on 29 June 1960, but only briefly. Erratic horizon scanner operation had caused a nose-down position during separation of the Agena from the Thor booster.

Because of such factors, the launch of Discoverer XIII on 10 August 1960 took on added importance. The second of the diagnostic flights programmed into Discoverer had become a hinge on which the fate of the future program possibly depended.

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Launch, orbit, capsule separation, and re-entry of Discoverer XIII, on 10 August 1960, were near perfect. Although confusion among the C-119's in the impact area prevented aerial recovery, the capsule was retrieved from the water 94 miles south of its predicted descent point. Discoverer XIII carried neither camera nor film, being fully occupied by instrumentation and telemetry equipment essential to the diagnostic mission of the flight.

Discoverer XIV, launched on 18 August, paralleled the performance of its predecessor in most important respects. Additionally, it carried a CORONA camera, and the camera worked perfectly. Although the Agena had less than optimum pitch-down angle at the time of capsule separation, and the capsule actually descended 430 miles south of the predicted impact area, the C-119's were on hand to complete a smooth aerial recovery -- the first in history.

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LAND PANEL MEMBERSHIP

Following is a list of members of the Land Panel (formally the Panel on NRP Matters under the President's Science Advisor Dr. Edward David). Dr. Edward M. Purcell recently resigned from the Panel.

Dr. Edwin H. Land, Chairman
President
Polaroid Corporation

Dr. James Gilbert Baker
Harvard Observatory
Harvard University

Dr. Sideney D. Drell
Stanford University

Dr. Richard L. Garwin
IBM Watson Laboratory

Dr. Donald P. Ling
Executive Director
Military Research Division
Bell Telephone Laboratories

Dr. Allen E. Puckett
Hughes Aircraft
Aerospace Engineering Division

Dr. Joseph Shea
Vice President & General Manager,
Equipment Division
Raytheon

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Dr. Marvin L. Goldberger
Professor of Physics
Institute for Advanced Studies

Dr. John Martin
Executive Secretary

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NSAM 156 COMMITTEE MEMBERSHIP

The National Security Action Memorandum 156 Committee was established in May, 1962 to formulate national policy on satellite reconnaissance matters. The Committee has met at infrequent intervals through the years to readdress specific issues or initiatives, but has always reaffirmed the basic policy established by National Security Council Action 2454, approved July 10, 1962.

This summer the question of flying a fairly high resolution camera aboard the NASA SKYLAB spacecraft was raised to the Committee. In addressing the question to the Agencies participating on the NSAM 156 Committee, Ambassador U. Alexis Johnson's office identified the following as the current Committee Membership:

Ambassador U. Alexis Johnson, Chairman - State
Honorable David Packard - OSD
Dr. John L. McLucas - NRO
Dr. James C. Fletcher - NASA
Dr. Henry A. Kissinger - NSC
Mr. Philip J. Farley - ACDA
Mr. Gerard Smith - ACDA
Mr. Richard Helms - CIA
Colonel William Anders - NASC
Dr. Edward David - OST

A working group composed of members from each organization performs staff actions for the Committee.

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MANPOWER SUPPORT TO THE
NATIONAL RECONNAISSANCE PROGRAM

The figures listed below are the full time and full time equivalent man years of effort in support of the National Reconnaissance Program.



PROGRAM A
(B/Gen Lew Allen, Jr.)

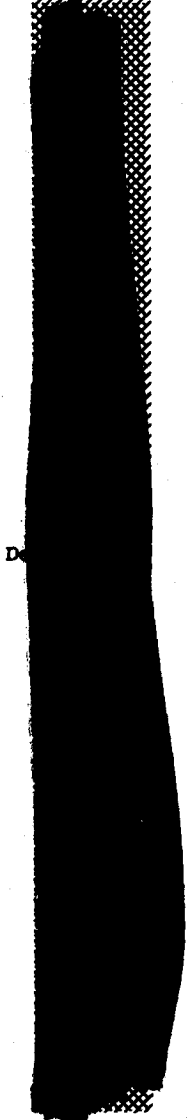
Organic

Air Force Special Projects Production Facility,
Westover AFB, Mass (Film processing)

SAMSO 

SAMSO (Foreign Technology Division)


6595th Test Wing (Launch and Recovery Operations)
6555th Test Wing (Launch Operations)





CIA RECCE PROGRAMS
(Mr. Carl E. Duckett)

OSA (Aircraft)

OSP (Satellites)

OEL (Office of ELINT)

ORD (Office of Research and Development)

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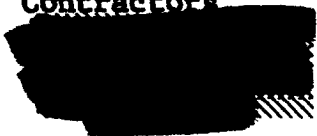
PROGRAM C
(Capt Robert K. Geiger)

Organic

Naval Research Laboratory



Contractors



De

PROGRAM D
(Col Frank Hartley)

Organic



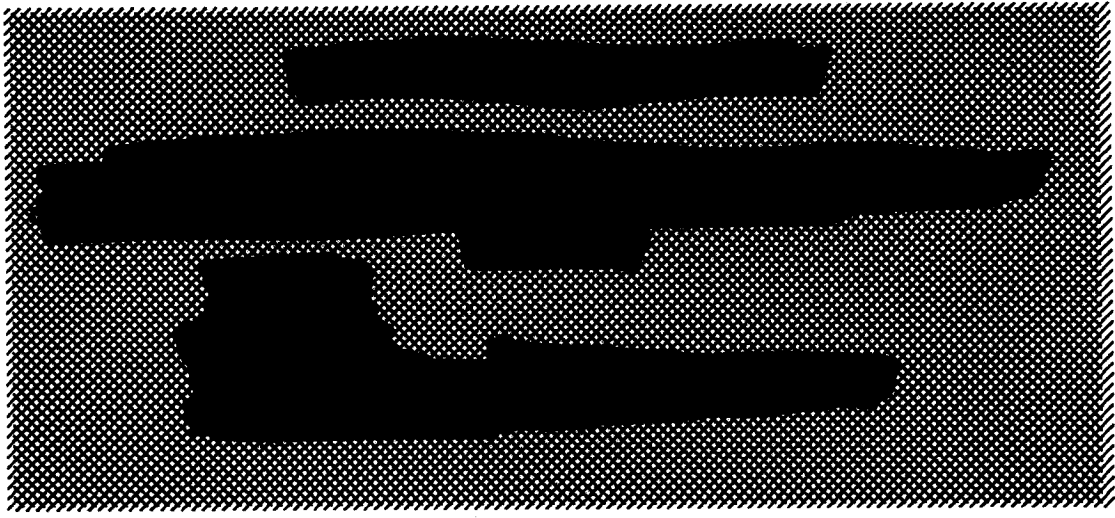
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