

MEMORANDUM

March 21, 1968

Atto
FOR DR. FLAX

This talking paper was written primarily as a backgrounder for Dr. Foster. That is why it leans so heavily toward the early history of NASA-NRO relationships. You know this history; Dr. Foster does not, and might easily be trapped into a statement that "everything has always been fine."

Dave Carter and I met with Dr. Foster for 1 1/2 hours yesterday (March 20) and reviewed this paper, a budget summary, and the standard NRO briefing. Dr. Foster plans to have Dave give the briefing as the first agenda item. This briefing will take the place of the classical prepared statement. He is looking to you to speak to the OXCART situation.

Paul Jr.
PAUL E. WORTHMAN
Colonel, USAF

Apparently Mr. Mahon's position is: "NASA shouldn't do that."

OXCART

BUNDLE VIA ~~SYSTEM~~
CONTROL SYSTEM

~~TOP SECRET~~

DEPARTMENT OF THE AIR FORCE
OFFICE OF THE SECRETARY

MEMORANDUM

Gen Berg

Dr Flax has commented
and asked for certain
actions.

I have asked Mr Mazza
to ask SP to prepare a
message of admonition &
caution to contractors.

You may wish to ask
Col Worthman to prepare the
draft Clifford to Webb

I presume you will
want to check the SP contact
with reporters with Gen Martin

W Carter

DEPARTMENT OF THE AIR FORCE
OFFICE OF THE SECRETARY

MEMORANDUM

Dr Flax:

Gen Berg called attention to the attached article from Aerospace Daily.

Gen M^cCornell has asked Gen Berg, Gen Stewart and Gen Hedrick to discuss this with him at 1530 today.

May H

Coordinate with
As ~~with~~
Clifford
to
Webb
letter
may
also
be in
only by draft

Gen Berg - Please
query SP as to whether
anybody has been so
incautious as to talk
to reporter. Also prepare
general message of advice
& caution to controllers

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TALKING PAPER ON THE "AEROSPACE DAILY" ARTICLE

20 Mar 68

BACKGROUND:

In 1963 and 1964, NASA planners were producing and sponsoring studies on a Manned Orbiting Research Laboratory (MORL). The scope of missions envisioned for MORL caused concern in the OSD. For example, a 1963 NASA-sponsored Boeing study called for optical reconnaissance systems and military applications of earth reconnaissance. In 1964, NASA sent a study work statement to Douglas calling for examination of (1) satellite surveillance and reconnaissance, (2) anti-ballistic missile technology, and (3) anti-satellite activities.

In March 1964, Dr. McMillan (DNRO) and Dr. Mueller (NASA Associate Administrator for Manned Space Flight) discussed, but could not resolve, the problems created by these and similar NASA studies. In April 1965, NASA briefed Drs. McMillan and Hall on a proposed program of five earth-orbital APOLLO flights; the primary experiments on the flights were to be earth sensors: radar, optical and IR. On May 6, 1965 Mr. McNamara expressed his concern over the impingement of NASA's activities on the security of the NRP and proposed that the Air Force act for NASA "in procuring, developing and testing, in earth orbit, sensor equipment for NASA reconnaissance-related activities." He repeated his concern on July 31, 1965.

In the meanwhile, Drs. Seamans and McMillan met to work out interim procedures for identifying and reviewing NASA's earth-sensing projects. On August 5, 1965 they agreed to review NASA activities in terms of a definition which made a 0.1 milliradian resolution the boundary limit for reconnaissance-like sensors. In September 1965, an NRO-NASA Committee was set up to carry out this review.

In October 1965, Admiral Raborn (the DCI, expressed his concern over the increasing use of photographic equipment in NASA programs, especially that approaching intelligence quality. In December 1965, Dr. Flax expressed his serious concern about the rapidly accelerating NASA program planning activity directed toward reconnaissance from satellites. He noted that in spite of the Seamans-McMillan arrangements, there had been little noticeable effect in constraining NASA activities.

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On January 14, 1966 Messrs. McNamara and Webb organized a DOD-NASA Manned Space Flight Policy Committee which would overtly review mutual problems in manned space flight and privately review the reconnaissance-like activities of NASA. On April 18, 1966, Mr. Schultze and Dr. Hornig sent a memorandum to Mr. Rusk pointing out the international policy problems and conflicts inherent in an open NASA-conducted earth-sensing program, and a covert NRO-conducted satellite reconnaissance program. Mr. Rusk was requested to convene the NSAM 156 Ad Hoc Committee to review this problem. The Ad Hoc Committee sent its findings to the White House on July 11, 1966. Key points were:

1. Continue to protect the NRP by all means.
2. There is potential political value in doing peaceful earth-sensing, but the NASA program must be planned with great care.
3. NASA's experimental program should comply with the McMillan-Seamans agreement of August 5, 1965.
4. The possibility of using aircraft instead of satellites should be studied.

On September 26, 1966 NASA and the DOD signed an agreement on "DOD-NASA Coordination of the Earth Resources Survey Program." It confirmed the MSFPC as the coordinating agent for NASA's earth-sensing activities and set up a working group, the Survey Applications Coordinating Committee, under the MSFPC to carry out a first-level review.

On December 7, 1966, Mr. Vance and Dr. Hornig agreed to an experimental project in which federal civil agencies would review NRO photography to determine applicability to each of their particular areas of interest.

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PRESENT STATUS:

There have been six meetings of the MSFPC. There have been eleven meetings of the SACC. The SACC has reviewed, in detail, the following NASA activities:

- 14 Apollo Application Program Flight Projects
- 101 NASA Research and Technology Resumes
- 3 NASA Proposed Work Statements
- 1 NASA Contractor Proposal
- 3 NASA Proposed Publications
- 1 NASA International Agreement
- 11 Results of NASA Symposia
- 3 Speeches

SPECIFIC COMMENTS ON THE "AEROSPACE DAILY" ARTICLE:

1. Heated Debate. The relations between NASA and the DOD in the earth-sensing area are conducted on a professional, intellectual level. They have not been characterized by "heated debate."
2. Killed NASA Projects. The DOD (the article refers erroneously to the Air Force, throughout) has not killed NASA projects. Only NASA can terminate a project.
3. Refusal to Declassify Technology. The NRO purposely keeps the bulk of its technology "white," to make it available to normal DOD (and NASA) space organizations.
4. The Mysterious Air Force Officer. We don't believe he exists. The case "he" makes for security, in this article, is not the one DOD would make.
5. The Multispectral Tracking Telescope. At the 7th meeting of SACC, Mr. Jaffe "called attention to a definition study with the University of Arizona which had been in progress since early 1966. This study involves a multispectral telescope. The current contract is being

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terminated." This telescope was to have yielded ground resolution of one meter. After discussion in SACC, NASA made its decision on its own initiative.

THE FACTS IN THE MATTER:

1. The DOD and NASA are reviewing NASA's earth-sensing activities in an orderly manner.
2. The DOD has purposely kept the bulk of its NRO technology "white" to make it available to NASA.
3. In 1963, when NASA asked for help with a lunar survey camera, the DOD made its (then) finest reconnaissance camera available to NASA and ran the development program for NASA.
4. The DOD helped NASA select its Lunar Orbiter camera.
5. The DOD has assisted in establishing a TKH vault containing reconnaissance photographic materials in the Department of Interior for review by cleared persons in the Departments of Agriculture, Commerce, and Interior as well as by NASA.
6. The DOD has participated in ARGO -- an experiment for testing the value of NRO photography to the civil community.

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OUR SPACE AGE

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Battle Rages Over Use Of 'Sky Spies'

By BOB LINDSEY
Staff Aerospace Writer

A heated, so far unpublicized, battle is raging at high levels of the U.S. government over the use of "sky spy" satellites for peaceful tasks.

The Air Force is refusing to allow certain kinds of cameras and satellite sub-systems, developed for military reconnaissance of foreign nations, to be used in new "earth resources" satellites to photograph crops, grazing land, forests, mineral fields, coasts and other subjects of economic interest.

Also, informed sources in Santa Clara Valley's aerospace industry said last week, the Air Force has quietly quashed several "earth pointing sensor" development projects by the National Aeronautics and Space Administration in a bitter dispute under way in the highest councils of the U.S. government.

The battle has not been made public yet, principally because the Air Force cloaks its Sunnyvale - headquartered satellite spying in tight secrecy.

Satellites using conventional and infra-red cameras have photographed Soviet missile - launcher construction and provide a continuously updated picture of emerging military strength in Russia and other nations.

(So intense is security imposed at the Sunnyvale Air Force Satellite Test Center, which operates and recovers information from the "spy" satellites, when Vice President Hubert Humphrey visited the nearby Lockheed plant recently, he was at first banned from admission to the satellite center.

An Air Force security officer said, in effect, "I don't care who he is. He doesn't have the right 'clearance.'"

(Presidential aides quickly called Secretary of the Air Force Harold Brown. An embarrassed security officer got the message. Humphrey got in, although even then he was not told everything about the spying operations.)

Coincidentally, Humphrey, as chairman of the National Aeronautics and Space Council, has the key role now in arbitrating the dispute over military versus

dispute at another level—whether satellites can really perform better than cheaper resource surveys better than cheaper airplanes.

Nevertheless, the debate is important for several reasons. NASA badly needs a space project for which it can claim economic benefits. If the Pentagon blocks — or imposes so many restrictions survey satellites can't meet their full potential—NASA's new ambitions, will falter.

Although Air Force officials say they are cooperating in NASA's efforts to turn satellite "swords into plowshares," some NASA officials and aerospace industry sources disagree.

Some claim the Air Force is blocking NASA's entry into the field because of selfish motives, claiming space observation is "Air Force jurisdiction." These opponents argue the Pentagon has "killed" specific NASA projects for selfish reasons under the guise of national security and refused to "de-classify" information and equipment six and seven years old which is obsolete compared with present high-magnification surveillance gear, yet which could be used by the NASA projects.

Pentagon arguments go like this: (1) America shouldn't tell the rest of the world how good its sky-spies are. (2) If we publicly admit we are taking pictures from space in resource surveys, other nations may react to oppose all surveillance and perhaps make illegal today's valuable military reconnaissance from space.

One possible compromise in the argument is to limit the "resolution"—the size of features on the ground which cameras can see — to no less than 100 feet for resource satellites. Technically, objects smaller than three feet can be seen, and Air Force satellites are believed to have such fine resolution.

Some experts in remote sensing claim, however, a resource satellite with 100-foot resolution would have only limited use. Because of the national security restrictions and the tense political in-fighting, few persons are willing to be quoted about the dispute. One who will, however, is University of California professor Robert Colwell, an expert in satellite remote sensing, who commented last week.

"It's common knowledge among people who work in the field that this (debate) is going on. I don't think there is anything vicious in the Air Force's position. I think it's accepted by most people that there is some point beyond which earth observation should not be taken. The Air Force feels it is not appropriate to go beyond 100 feet," Colwell said, "I would think you could get some very valuable information with 100-foot resolution."

"And I think the attitude may even change over time as it becomes known that the Russians, with their satellites, can get 50 or 20-foot resolution, and then the Air Force might end its reluctance to discuss anything below 100 feet."

AEROSPACE DAILY

AND EXECUTIVE REPORT

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William D. Hall, Editor
Richard Tuttle, Managing Editor

Wayne W. Parrish, President
William V. Healey, Editorial Director

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Page 55

NASA, DOD LOCKED IN HEATED DEBATE ON EARTH SURVEILLANCE

An important high level debate is raging in Washington over the level of advanced earth-pointing-sensor technology NASA will be allowed to use in its emerging earth resource satellite systems, according to industry sources.

Some sources interpret Pentagon resistance to allowing NASA use of high resolution surveillance systems as a step to monopolize jurisdiction of photographic-infrared earth observation systems and at least one source said outcome of the debate will be a key facet in determining the nature of the Apollo Applications Program.

The Air Force has reportedly offered to fly some remote sensing experiments aboard the Manned Orbiting Laboratory (MOL) which would perform the same job as those planned for the earth resources segment of the AAP. The industry sources told AEROSPACE DAILY the Air Force has quietly killed several NASA projects to develop earth-pointing sensors and has refused to de-classify technology which is now some six years old and has been made obsolete by advanced systems employed in military reconnaissance, yet which could be used in an earth resources satellite system.

Vice President Hubert Humphrey, as chairman of the National Aeronautics and Space Council, is the key figure in arbitrating the issue. The debate has not been made public yet, essentially because of secrecy shrouding the Air Force's reconnaissance satellite programs. According to the industry sources, the Air Force is persistently blocking use in ER satellites of certain cameras, infra-red sensors, satellite stabilization and other sub-systems developed for military surveillance spacecraft.

Motives of Pentagon Questioned

An unanswered question in the power struggle is motives for the Pentagon resistance. One Air Force officer assigned to the satellite reconnaissance Special Projects Office of Secretary Harold Brown, said: "It's pretty obvious. Number one, we don't want to let the other side know how good our technology is, and number two, if we start publicizing that we are sending up earth resources satellites with a resolution, say of 25 feet, who knows what various countries around the world are going to say?" Now, he said, in effect, DOD can fly the surveillance systems, which have produced valuable intelligence data, without general public knowledge. When ER satellites are flying, some countries may awaken and decide they don't want any satellites flying above them.

On the other hand, opponents of this philosophy in industry claim much of the resistance amounts to empire building and efforts to keep another agency out of an Air Force province, and they also claim much of the older Air Force technology could be used in ER systems now.

One NASA source told AEROSPACE DAILY "I personally know of at least four programs which DOD has killed in the past two years. Congress has told us they want more done in the earth resources satellite area, but DOD, or least some members of DOD, have kept their thumbs on us."

(Continued on Following Page)

SURVEILLANCE (Cont.)

One example cited by this NASA official was the "multispectral tracking telescope." A project of Dr. Philip Slater of the University of Arizona at Tucson, the telescope was to have ground resolution of less than one foot. The project went through a design competition and procurement proceedings were begun. Suddenly, DOD, apparently in a joint DOD-NASA committee assigned to handle the sensitive earth surveillance issue, launched heavy opposition, and the program was killed last May.

A source at one contractor which has contributed to Air Force photographic surveillance satellites, and had hoped to get in on the ER market, said, "NASA in a way is to blame. They stick by a policy of not using any data that is 'secret,' and use only 'confidential' material. They could get more on their own."

A key issue in the dispute is how much resolution should be allowed in civilian surveillance satellites, and this matter is one which occupies Humphrey and the NASC. The most commonly heard "safe" number is 100 feet, although even this figure is opposed by some elements in the Air Force and the U.S. State Department, according to the industry sources.

How much can a satellite see with a resolution of 100 feet? One remote-sensing specialist in industry said most studies in this field indicate it can contribute to gross surveys in certain kinds of agricultural problems, coastal and ice-pack studies, but a lot of the potential value of an ER satellite is lost.

For the most part, principals in the current high-level dispute won't talk for attribution. One who would, however, Dr. Robert Cowell of the University of California, a pioneer specialist in remote sensing for agricultural surveys, told AEROSPACE DAILY: "It's common knowledge among the people who work in this area that the (debate) is going on. I don't think there's anything vicious in the Air Force's attitude. If we get extremely sharp photographs, it is obvious they are useful not only for gross inventory of resources, but can be used to spy on foreign countries."

Most scientific personnel in the ER satellite sensing field, he said, accept the fact there is "a point where you should not go beyond to provide detail. The exact resolution that would be permissible is in the process of being defined. The Air Force feels it is not appropriate to use satellites with very high resolution."

For many purposes in agricultural surveys, Cowell said, "I think there is very valuable information you could get with 100-foot resolution in broad reconnaissance surveys. For vegetation surveys, that actually may be the optimum. If you have more detail, it may be harder to use. All of the Gemini photographs had a resolution no better than 100 feet, and you could see a lot in them."

Related to the current debate is an even more basic question--how cost effective is remote sensing from satellites, compared with conventional aerial photography? Many specialists in aerial reconnaissance and photo interpretation privately scoff at the economics of satellite ER surveillance.

A hard-hitting document is currently circulating among the remote-sensing community which rips into the question and could undermine the whole concept which NASA and other agencies are working on. Written by Amron Katz of the RAND Corp., widely regarded as one of the nation's leading authorities on earth observation satellites, the paper systematically tears apart the ER satellite concept and says it will always be cheaper to perform the same missions with aircraft.

* * *

DOT TO CONTRACT FOR 300-MPH AIR CUSHION VEHICLE DESIGN STUDY

The Department of Transportation is beginning a study of a 300-mph tracked air cushion vehicle, through the Federal Railroad Administration's Office of High Speed Ground Transportation. DOT is asking for bids on a six-month preliminary design study of the research vehicle, which would operate on a guideway.

The department plans to contract later for engineering, design and construction of the vehicle and the guideway, with testing expected to start in 1970. Officials are now studying a number of sites around the country for installation of the guideway, which will run for several miles initially and