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A SUMMARY OF THE NATIONAL RECONNAISSANCE PROBLEM

(1) Introduction:

Intelligence vital to the national security of the United States now depends to a very large extent on photography acquired by overhead reconnaissance. This important intelligence source has been developed quite dramatically over the past ten years. All of our present photography has been collected by three reconnaissance systems.

The U-2 overflight program begun in 1956 by CIA provided our first real access to the Soviet Union and continued until 1960. Since that time, the U-2 has been operated over China and other parts of a

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troubled world where it provides a prompt and almost unique access.

The Air Force ballistic missile program begun in 1954 provided the basis for serious efforts to acquire photography with earth orbiting satellites. The SAMOS program was a broadly based, technically sophisticated Air Force program aimed at developing a space reconnaissance capability. The SAMOS program failed to produce a single photograph and was cancelled as the costs increased toward a billion dollars.

When the difficulties of the SAMOS effort became evident in 1958, CIA was directed to develop a relatively simple satellite reconnaissance system based on physical recovery of the film from orbit. This program became CORONA (also DISCOVERER) and produced the first satellite photography in October, 1960. Since that time, there have been 47 successful flights which have produced almost four hundred million square miles of photography of the Sino-Soviet Bloc with a resolution of 10 to 20 feet.

The third operating reconnaissance system--GAMBIT--was begun in 1960 by the Air Force to obtain high resolution

orbital photography of high priority targets. GAMBIT was first flown in July, 1963, and has had 12 successful flights, producing almost one and a half million square miles of photography with a resolution of 3 to 5 feet.

(2) Organizational Evolution:

The evolution of a national organization to conduct reconnaissance activities came well after the development and operation of the U-2 and CORONA--and the SAMOS program. These programs began as individual assignments to CIA or the Air Force.

The U-2 was assigned to CIA in 1954 for several reasons. Obvious was the need for unusual security in its development and operation, both of which were accelerated by the unique ability of the DCI to expend funds on a special basis. It was also based on previous CIA experience in covert overflights for other purposes and the ability of CIA to establish confidential agreements with foreign governments for overseas basing of the U-2. There was also the major appeal of a civilian espionage operation which, in case of a shootdown, could not be

identified with or misconstrued as part of strategic military operations. However, it should be noted that the U-2 program from the beginning has been a collaboration between CIA and the U. S. Air Force, a collaboration which has been successful, guided to this day by the CIA/AF U-2 Agreement of 4 August 1955. When the decision was made in 1959 to proceed with the development of the Mach Three reconnaissance successor to the U-2--OXCART, a similar CIA/AF bilateral agreement was struck.

The SAMOS program was established solely within the Air Force Systems Command without CIA participation. It gradually changed its management form until it ultimately reported directly to the Under Secretary of the Air Force. This is the same streamlined way in which GAMBIT now operates.

The CORONA program was really a joint venture between CIA and the Air Force. CIA developed and procured the camera, recovery vehicles and spacecraft, and the Air Force Systems Command supplied the boosters, tracking and recovery forces.

As these major programs evolved, some felt it important to find a common basis for developing and operating all strategic overhead reconnaissance systems, the cost of which had risen by 1961 to almost 300 million dollars per year exclusive of SAMOS. This provided the need for attempts to find an acceptable basis for a National Reconnaissance Program, which would combine the capabilities of both CIA and DOD.

The first NRO Agreement was struck in September of 1961 and was little more than a description of the effective partnership which then existed between CIA and the Air Force. The second NRO Agreement was signed in May of 1962 and clearly gave the lead to the Air Force, while preserving to CIA all "covert" aspects. The third and final NRO Agreement was advanced and signed in March of 1963. This gave the Air Force virtual control over all CIA programs and established NRO as an operating organization with implied line authority over those elements of CIA involved in reconnaissance. An NRO funding

agreement signed one month later eliminated direct appropriations from Congress to CIA for its programs and thereby passed budgetary control of the total effort to DOD. This third agreement is the basis under which the program has operated to this date, with a steady shift from full partnership toward a single agency control.

The present arrangement has been neither a happy nor productive one. The problem of operating a line organization across departmental boundaries has caused serious, continuing problems. External program control has frustrated many CIA initiatives or forced their development outside the terms of the agreement. Everyone who is aware of the NRO situation is properly concerned about it, and many believe that the present arrangement is basically unworkable. Thoughtful people in DOD and CIA have given active consideration in the past six months to trying to establish an improved basis for operation of the NRO. A variety of concepts have been proposed, ranging from complete elimination of CIA to re-establishment of the former partnership. It does not seem that there is a neat solution. However,

there is an urgent need to find a satisfactory solution, urgent because of the enormous strains of the present arrangement and because of the critical importance of the intelligence product to our national security.

(3) The Case for Single Agency Control:

The present situation would be clarified if a single agency or department were given the exclusive responsibility for overhead reconnaissance. This would eliminate the present coordination between departments and agencies--and the friction generated thereby. It would ensure tight command channels to all elements of the activity and provide a single point of responsibility. It would ensure an integrated budget and provide a single point for tasking by the intelligence community. In short, it would provide all the organizational advantages of a monopoly.

Because these advantages are considerable, we must look seriously at the several agencies to see if any of them can properly fulfill such a franchise. The potential candidates are: Air Force, CIA, Navy,

Army, NASA, and DIA. We can eliminate several of these almost immediately. DIA has no research and development capability and no operational experience and cannot be considered seriously. Although NASA has many of the technical capabilities required, it is not well organized to carry on a covert activity like this. The Army has little experience in developing and operating high performance reconnaissance aircraft and has played no significant role in space for some time. The Army did collaborate with CIA in establishing the ARGON geodetic and mapping satellite program as an adjunct to CORONA. Nevertheless, the Army is probably not a serious contender for this role.

The U. S. Navy has developed and operated advanced tactical reconnaissance aircraft over hostile territory (Cuba, Laos, North Vietnam). The Navy pioneered the ELINT satellite field with the first reliable electronic intercept system--POPPY-- which is still contributing useful intelligence. They have supported CIA in carrier operations of the U-2 and could undoubtedly carry these out themselves in a secure way. However, they have played no role in the OXCART program thus far. The Navy

has proposed other space surveillance systems, some based on their mobile Polaris launching capability, but we gather have been frustrated in pursuing them by the NRO. The U. S. Navy is a respectable but not unique candidate for a single agency steward of the National Reconnaissance Program.

The Air Force is a strong contender for this role and an active candidate. It has the resources for operating advanced aircraft and launching satellites, and has provided this support to the U-2 and CORONA program. However, the central question is whether the Air Force should perform the entire mission, from conception through development to operation. Unfortunately the record speaks strongly against such an assignment.

The Air Force in 1954 refused, at the highest levels, to develop the U-2 because it did not meet their multiple requirements; and it was left to CIA to pursue its realization and exploitation. SAC did procure thirty additional U-2's for its own needs in case of hostilities, but has declined to upgrade and improve this capability (see below). Rather, they have

line Air Force. A parallel program (LANYARD) run by the same group was cancelled in fall of 1963 after the successful demonstration of GAMBIT. This group is now developing an improved GAMBIT with higher resolution (one foot) and smaller frames, which will be important if OXCART is not used operationally. The Air Force has also evolved a system of electronic intercept satellites (698BK and PUNDIT) from the SAMOS program technology, and these have been helpful in establishing the Soviet radar-order-of-battle for SIOP planning. In the satellite field, the Air Force has had nearly unlimited resources and has produced some significant successes. Their disappointments have been significant too and are traceable in large part to a responsiveness to enlarged, departmental requirements rather than the single problem of acquiring national intelligence. It is this preoccupation and lack of focused effort which makes thoughtful men reluctant to grant them the national franchise.

CIA itself is the last candidate. It has a good record of performance--U-2, CORONA and OXCART--with no

backed the modified Canberra (RB-57F) as a U-2 competitor which has come along quite slowly. The OXCART has followed somewhat the same pattern, with SAC procurement of the SR-71 as a follow-up to the CIA initiative. However, in the low-level tactical reconnaissance arena (non-NRO), the Air Force has developed a very fine capability.

In the satellite field, the Air Force began with a clear monopoly in SAMOS and ended in disappointment with no photography. Some of this may be due to the fact that it was a large, unwieldy program with no strong project control. It is also undoubtedly true that successive versions of SAMOS attempted too much--technically--in response to unrealistic, multiple Air Force requirements. For instance, one version of SAMOS (E-5) was warped around to provide a space vehicle capable of supporting a military man into space in competition with NASA's MERCURY program. The successful GAMBIT spotting system (see above) grew out of this hard lesson, and is managed directly by the Under Secretary of the Air Force in a small organization external to the

failures thus far. All of its ventures have been focused on the single objective of acquiring photographic intelligence. CIA has not had the resources to carry out such programs unaided, and its success is due in no small part to the Air Force support provided. However, there is an important element in the CIA programs of "working on the right problem."

Recognition of the U-2 potential and its prompt, economical, secure implementation was its first contribution. Since the basic U-2A was produced, CIA has gone on to develop a refueling version and a carrier takeoff/landing capability. The original J-57 jet engine was replaced by the J-75 in 1959 with an important altitude increase. (b)(1) (b)(3) 50 USC ⊥ 3024(i)

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It should be noted that none of the above improvements are incorporated in the SAC U-2 fleet, and when such an aircraft is provided to CIA to replace an operational loss, it requires four months of modification to bring it up to CIA specification. The important thing about the U-2 was that its only job was to acquire intelligence.

The OXCART program was started in 1959 by CIA with White House concurrence as the logical successor to the U-2, which was then nearing the end of its Soviet capability. The OXCART presented a challenge on the technical frontier but has proceeded more rapidly than either the B-70 or B-58. It is now nearing operational readiness with CIA civilian pilots and has already demonstrated its capability to produce high resolution (one foot photography at penetration altitude and speed. OXCART was the first large scale development

undertaking of CIA and it has cost considerably more than originally estimated. However, this cost is substantially lower than the B-70 development program. Based on this experience, CIA has developed a proposal for a third generation reconnaissance system--ISINGLASS. This is an air launched, reusable rocket boosted glider which could probably operate successfully over the Soviet Union even if their growing defensive systems had eliminated satellite reconnaissance. Such a system could be ready in four years and its cost would be comparable to that of OXCART. However, its development is a national level policy decision which has not yet been sought or obtained.

The CORONA program has been adequately described elsewhere in this paper. It is only important to add that it began in a modest way--partly as a backup to SAMOS--with the simple objective of returning photographs from orbit. The first photography was not of very high quality but the system has been steadily improved over the past five years. A double camera version was introduced in 1962 to provide stereoscopic

coverage and a second recovery vehicle added in mid-1963 to double the amount of film (coverage) obtained. The CORONA has produced the great majority of available photography of the Sino-Soviet Bloc and is today the work-horse of the NRO program. At the urging of the DCI, CIA began exploratory work in early 1964 to develop a satellite system with CORONA coverage (ten million square miles) but with U-2/GAMBIT resolution (2 to 4 feet). This effort produced the FULCRUM system which is now being considered against other proposed solutions for full-scale development as a successor to CORONA.

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and highly desirable. A decision to pursue active development of this system will be needed in September, 1965.

In retrospect, only CIA and the Air Force are serious contenders for a single Agency franchise on national reconnaissance. The demonstrated performance of CIA is clearly superior to that of the Air Force. We believe that this is attributable to three basic factors. The most important is that the collection and analysis of intelligence is the only business CIA has. The second asset is the continuity of its professional staff. The last is its unique legislative authority to pursue programs promptly with confidential funds and to manage them in a streamlined way. However advantageous these may be, they are not enough to allow CIA to carry the entire reconnaissance burden alone. Air Force support has been an essential element in the success of CIA, and we cannot forecast a continuation of its success without such support. By elimination then, we seem compelled to give up the concept of a single agency control.

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(4) The Case for Resurrected Partnership

If one concedes that the substance of the National reconnaissance program is more important than its organizational form, one must look for an effective way to continue the CIA/DOD partnership in this field with a new NRO arrangement. We have made a proposal to the DOD which attempts this revision. It eliminates the concept of line authority running between agencies, and recognizes the following situations in each of the major areas of the National Reconnaissance Program.

The U-2 and OXCART programs continue to operate satisfactorily under the bilateral agreements between CIA and the AF, and the present NRO arrangement has had little impact on these activities, except for establishing funding levels. Both programs are good working examples of effective collaboration between CIA and the Air Force. However, it would be helpful to make an explicit policy decision on what operational role CIA and SAC overflight assets should play under various circumstances. SAC U-2's with military pilots now fly missions over Cuba and Vietnam on the basis that these are tactical operations in areas of

potential conflict. CIA continues to operate U-2's over China with Chinese Nationalist pilots and covertly in other areas of the world with American civilian pilots as required and approved. An orderly division of overflight responsibilities between overt military and covert civilian coverage of denied territory is contained in the CIA proposal for a new NRO arrangement. A second need is to ensure that adequate resources are provided to CIA and the Air Force to continue to improve both the U-2 and OXCART capabilities, and if appropriate to begin the development of the third generation reconnaissance aircraft--ISINGLASS.

Reconnaissance using drone aircraft is another arena. The current photographic drones operated in Asia by the Air Force are similar to the U-2, but with somewhat less capability--and considerably less survivability. The drone version of OXCART (TAGBOARD) developed by CIA was transferred to the Air Force by the NRO, and should probably be reintegrated into the covert OXCART operational units operated by CIA. However, it is our view that drone development and operation can follow the pattern established for manned aircraft operations, and we feel that this is not a major problem area for NRO resolution.

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The present difficulties in NRO focus largely on the development and operation of satellite reconnaissance systems. The common elements of all satellite operations are the large rocket vehicles used to place them in earth orbit. These boosters have been developed by both the Air Force and NASA The Air Force launching capability at Vandenburg is more secure that NASA's activity and does not involve the question of NASA participation in SECRET programs. On the other hand, there are important bosster vehicles in the NASA program which should be available for support to the NRP if appropriate. However, boosters are not the real problem.

The essential elements of a satellite reconnaissance program are three in number. The first is the reconnaissance payload itself--either photographic or electronic--which is carried into orbit by the booster. The second element is the targeting, orbit choice for such missions and on-orbit payload control to meet national intelligence requirements. The third is the orbital operation of reconnaissance vehicles, their tracking, communication, command and recovery. There is no argument that this third function belongs to DOD, CIA?

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and because of its own internal decisions, to the Air Force. Such an assignment is explicitly recommended in the CIA proposal. Furthermore, there is now agreement at the highest level in DOD that the targeting and orbit choice function is an intelligence function which properly belongs in CIA.

(5) The Residual Question

What remains to settle is who shall conceive, develop and procure the satellite payloads that are the heart of these reconnaissance systems? The present situation has the Air Force, CIA, Navy and (to a minor extent) the Army, engaged in this activity. The question is how should this be accomplished in the future. One proposal is that CIA should develop all reconnaissance payloads, since it must be done secretly AND because the design should be responsive primarily to national intelligence needs. This would imply a continuation and extension of the CIA/AF partnership developed in the CORONA program with the Air Force supplying the booster and on-orbit support.

The converse proposal is to have the Air Force develop all satellite payloads; and has been actively supported in some quarters. The basic problem is that it would give the

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Air Force complete control over all satellite reconnaissance. Its success would depend on continuing, faithful Air Force responsiveness to truly national intelligence needs in this crucial arena. It also presupposes a better record of successful R&D than has been demonstrated thus far.

A third possibility is to make an orderly assignment of satellite payload development to the various agencies. For instance, the Navy might do all electronic payloads, the Army all geodetic and mapping satellites, and let CIA and the Air Force divide the more numerous photographic payloads along the present lines--search systems to CIA and spotting systems to the Air Force. This is the course suggested in the current CIA proposal, with the task assignment to be made jointly by the DCI and Deputy Secretary of Defense.

Another possibility is to assign a conception and basic research role in satellite systems to CIA, leaving actual development and continuing procurement to the Air Force. Its weakness is the traditional responsiveness of the aerospace and technical industrial base primarily to large dollar volume procurement agencies. It is

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unrealistic to expect such organizations to give their best efforts to a group whose total resources would be several million dollars, when the other agencies' desires could be supported with a budget of a half billion dollars. It is also unreasonable to expect the development and procurement agency to have deep, continuing enthusiasm for another's concepts and become "a loving foster parent."

Another viewpoint is to fund allout competition in this field between CIA and the Air Force on the premise that such an important field deserves no less than intense competitive developments. However, it is difficult to keep such a competition orderly, especially with a limited technical and industrial base in which to establish such a competition.

All things considered, it is the issue of satellite reconnaissance that has been central to the NRO problem thus far. Only a small portion of this activity--the payload--is at stake, although it is a large stake because it represents the total intelligence consideration. Several solutions are possible. It is hoped that the CIA proposal of orderly development and procurement assignment provides the most flexible solution for a rapidly changing

field. If this is not practical, the assignment of all reconnaissance payloads to CIA is the only way to preserve a balance in this situation and ensure a continuing dedication of these satellite collection systems to national intelligence needs.