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BYE 2825-69  
10 January 1969

Copy No. 4

## MEMORANDUM FOR THE RECORD

SUBJECT: Meeting with Director, NRO

1. Art Lundahl and I met with Dr. Flax, Director, NRO, in Flax's office this afternoon for an hour and a half. We requested the meeting.

2. Art opened by expressing regret that meetings of this kind had not occurred more frequently in the past. As the time came for a change in Administration and the possible departure of Dr. Flax, we had wanted to sit down to discuss past, present, and future matters of mutual interest. He said that we were particularly interested in hearing Dr. Flax's first-hand views as to the outlook for a [ ] satellite reconnaissance system.

3. Flax went over the origin and history of development related to [ ] [ ] The primary pressure for such a system was coming from Din Land and other members of the Land Reconnaissance Panel. Flax characterized the [ ] problem as lacking a certain definition of what it is we are attempting to obtain. We have never successfully described a crisis and it is a bit difficult to gear a collection system to crisis management because of this. Until recently (and even now to some extent) Land and his colleagues have insisted that the solid state array technique offers the greatest prospect and should have great emphasis in funding and development. Flax himself has gone out of his way to emphasize to the Land Panel and to the PFIAB that there are pitfalls and problems of a technical nature and there is no easy prospect involved. For one thing, there has always been a limitation in the yield of certain key components of the solid state array, and unless and until modifications and technical breakthroughs are at hand success is open to some question. Nevertheless, Flax said because of the current interest in this and because it does seem clear that the [ ] system will be required, he has quadrupled his investments in R&D in the solid state array technique beginning in FY 1969. He hopes to have a system of some kind for [ ] to be examined in 1970. He foresees the need for a very close technical interface between NRO and NPIC, and he cited as an example of this interface the very close coordination and liaison carried out between NRO and NSA in the satellite ELINT field.

4. Flax noted that the NRO is also pursuing other [ ] problems including the return beam videcon being developed by [ ] This started out unbeknownst to NRO as an Air Force program at Wright Field. It apparently had a tactical origin. A Screened Thermoplastic Transducer is also being examined. Flax said that also there are some ways to get "near real-time"

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information and that these are being explored also. This would involve systems, for example, that might not necessarily be able to gather up-to-the-minute information, but could hopefully provide it within six hours. They would, I gather, involve a series of satellites in various orbits any one of which is not more than a few hours away from any given point on the globe.

5. In his discussion of the [redacted] possibility, Flax was careful to point out something of major importance, not only to NRO but to NPIC: namely, that the [redacted] system is not at this moment being talked of as a replacement for existing systems. It is a supplement.

6. We told Dr. Flax of our own plans in the Center -- in effect to make do with what we have. We said we are optimistic about being able to carry this off -- [redacted] -- by employing equipment which we have identified as essential and which we intend to have on hand, by continuing to employ the fruits of our R&D efforts, by restructuring our work forces, and by insisting upon some control in requirements. We pointed out that we thought we could handle to the community's satisfaction a first-phase readout effort based upon crisis management requirements. We did see, however, a need to stretch out over time a second phase readout effort, and we pointed out to Dr. Flax that one thing we definitely believe we cannot do is to quickly assess in totality results from one bucket of a KH-9 mission to guide the collection of immediately ensuing buckets. He indicated that he understood this fully.

7. We said our belief that we can make do with roughly current resources would be totally overtaken in the event of any disarmament agreement which would pin on the reconnaissance effort the responsibility to find violations. We pointed out the results of the [redacted] experiment this past summer in the U.K. A concerted effort to use both satellite and aircraft in an experimental mode showed that cloud cover greatly reduced the success of the experiment.

8. This led to a discussion of NPIC's R&D. We talked of our hopes for successful development of cloud-screening devices as a means of eliminating -- before eyeballing -- some 50% of the imagery delivered to us, and we mentioned the fine prospects for application of image restoration techniques. Dr. Flax was rather well informed on both of these matters. He said he watches these "with a gimlet eye" because of the ultimate importance they might have in application of the sensors themselves. In connection with image restoration, for example, there could be occasions when even if angles or other environmental factors were questionable, the picture could be snapped

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from space anyway with the expectation that the resultant imagery would be enhanced when it reached the ground.

9. We inquired about the effects to date of the new Administration on Flax and his office. Flax said he had been able to spend only ten minutes with Representative Laird and, of course, in that limited time had not been able to cover much ground. Flax noted that Laird had been on the House Appropriations Committee but not on the select Subcommittee which deals with intelligence and NRO matters. Flax noted, however, that Representative Lipscomb, a member of that select Subcommittee, is on Laird's team assisting in the transition and Flax expects Lipscomb to be of great help in getting Laird informed on reconnaissance matters.

10. Flax said he thought it would be interesting to see how the new Administration deals with the subject of aircraft reconnaissance over denied territories. Any major changes in what has been policy over the last seven or eight years will, of course, have major impact on NRO and imagery exploitation units.

11. We asked Dr. Flax for his view on the future of Drones. He cited a number of improvements that have been made in Drones since they were first developed specifically in Vietnam and South China. The stand-down remains in South China -- caused by too many losses. Improvements are such, however, that the Drones are probably ready to be considered for renewed operations in China. We noted that they had provided us with excellent imagery in Vietnam. In answer to our questions about TAGBOARD, Dr. Flax said that they were still working away at this. There had been technical difficulties to date.

12. Dr. Flax thanked us for the useful and "burdensome" studies that we had done for each of the SR-71 flights. He said that he may have to ask us for continued studies of this kind from time-to-time in the future. We said that we would be glad to accept them and all of us agreed that the net effect of the SR-71 studies was to improve the quality of the SR-71 take.

13. We asked Dr. Flax what he thought about the future of color imagery. He sees the community and the exploiters as having to determine the value of color. Meanwhile, NRO will do what it can through research and development and stimulation of the industry to improve the resolution of color film. Lundahl noted the obvious utility of color film for "peaceful uses" particularly in studying the state of nature, crops, etc. He pointed out, however, that color was of more dubious value in matters related to strategic intelligence concerns.

14. Lundahl and Flax exchanged views on the growing interest in the peaceful applications of satellite imagery. Particularly noteworthy is the paradox in keeping NASA from employing intelligence-like high resolution

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systems when it is so well known that the state of the art permits such systems to be employed. Flax noted that a great many unresolved issues of a diplomatic or a political nature remain unresolved. For example, suppose gold is found in great quantities on the basis of satellite imagery in South Africa. Who tells the South Africans? Should they be told? Should they not be told?

15. We told Dr. Flax of our appreciation of the very fine relationships between NRO and NPIC on working levels. We commended the personnel on the NRO Staff. Flax explained that the Director, NRO, has top priority in acquiring the services of USAF personnel. He said the other military services are increasingly desirous of joining the NRO and have been willing to extend the same personnel privileges. This permits him to keep the Staff small and highly expert.

16. In discussing the state of budgets in NPIC and NRO Flax was highly sympathetic to our intentions of keeping the lid on in NPIC. He said that his budget was down and that he certainly faces limitations. He can't begin to do all that some would like. He said, however, that he was proud of the fact that NRO does have a follow-on system under study for all existing systems. He thought this was unique in Washington.

17. In emphasizing the need to get to grips with the burgeoning requirements problem, we told Flax that as the resolution improves and as finished intelligence analysts become more familiar with the potential in imagery exploitation, we find them able to ask a growing number of very sophisticated and important questions. For example, some of the questions related to the Soviet ground forces problem have caused exploitation techniques to be developed to answer those questions and they were questions that could only be answered by the KH-8. Flax recognized this and said that in a recent meeting of the NRO Executive Committee he had pointed out that if any member of the EXCOM had, when considering development of KH-8, praised the proposed system as one which could deliver ground forces information, he probably would have been laughed out of the room.

18. Flax asked us for our views on how we might insure the best possible relationships at the top of our organizations. We agreed the working level arrangements were fine. Lundahl proposed that the Deputy Director, NRO, and the Executive Director, NPIC, meet every month or so to trade views and information and perhaps develop a useful agenda for

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future exchanges between NRO and NPIC leadership. For our part, we told Flax that we found conversations like this with him to be most useful in getting first-hand views of time tables, of projects which are getting his personal attention and emphasis, and of his prognosis of the future.



E. H. Knoche  
Executive Director, NPIC

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