

DEPARTMENT OF THE AIR FORCE
WASHINGTON 20330

OFFICE OF THE SECRETARY

26 July 1967

MEMORANDUM FOR RECORD

SUBJECT: Visit by Vice President to NPIC on 25 July

Several weeks ago, Mr. Frank Rand (Staff Member, National Aeronautics and Space Council) suggested that the Vice President -- in view of the latter's expressed desire to personally meet all NASA and MOL astronauts -- be given the opportunity to meet the MOL astronauts who would be attending a two-week orientation course at NPIC beginning July 24. Both I and Mr. Lundahl (Director, NPIC) agreed and arrangements were made for an informal visit of approximately one hour duration to NPIC by the Vice President in the a.m. of July 25.

Mr. Humphrey was accompanied by Dr. Welsh, Mr. Rand, and Colonel Paffel. He was welcomed by Mr. Helms, Mr. Lundahl, and myself, and introduced to the seven MOL astronauts present (Major Macleay, Commander Truly, Major Bobke, Major Hartsfield, Major Oremyer, Captain Fullerton, and Lt Crippen). Mr. Helms apparently had a prior engagement since he left about 10-15 minutes after the Vice President arrived (who was about 45 minutes later in arriving than anticipated).

Approximately 35 minutes of rather informal briefings had been planned as follows:

1. Myself: a brief discussion of the objectives and hardware involved in the MOL Program, the scope of MOL astronaut training, and the task imposed on NPIC as a part of that training (10 minutes).
2. Mr. Lundahl: a few remarks on the role of NPIC, the evolution and significance of high resolution photography from the initial U-2 flights, through past, current, and future satellite programs, and the kind of information being passed on to the MOL astronauts (15 minutes).
3. Major Macleay (MOL astronaut): a summary of the on-orbit functions of the MOL astronauts during a MOL reconnaissance mission.

During my portion of the briefing, Mr. Humphrey, upon learning that the Laboratory/Mission Module combination would be de-orbited after the 30-day mission was completed and the Gemini had returned to earth, expressed some surprise that the program plan did not include the reuse

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of this hardware. He inquired as to the cost of the discarded laboratory and Mission Module, and I estimated their share of the launched cost of a system at \$35-40 million. I pointed out that although the present program of seven launches did not contemplate reuse through rendezvous and resupply, the hardware was adaptable to this technique and studies were underway toward the goals of longer life and/or reuse should there be a follow-on program.

During Mr. Lundahl's briefing, in addition to routine questions aimed at clarifying various points, Mr. Humphrey again raised questions as to the costs of various systems. He prefaced his cost questions by explaining he was in an "economy mood to-day" since the Government was having a difficult time financing all activities (which would undoubtedly be further compounded by the present civil problems), that space was under close scrutiny by an economy-minded Congress and Administration, that harsh reductions were being made, that everyone was being requested to tighten belts, etc.

1. We again discussed the general subject of longer lifetimes and/or reuse of the MOL Laboratory and Mission Module. I pointed out that we had believed -- and still did -- that the initial lifetime goals of 30 days for the manned system and 40 or more for the unmanned system in a seven launch program (2 unmanned booster/structure/GEMINI B qualification flights; 3 manned and 2 unmanned all-up system flights), coupled with the technical tasks associated with better resolution satellite photography, were major steps forward without compounding the problem by adding rendezvous and resupply. I re-emphasized that we recognized the cost-effectiveness of longer lifetimes and/or reuse, were studying such possibilities now, and that these objectives would be carefully considered and probably included in any follow-on program.

2. He inquired as to the costs of a KH-4, KH-7, KH-8, and KH-9 system (I gave him rough approximations as \$8-9 million for the KH-4, \$10-11 million for the KH-7, \$16-17 million for the KH-8, and perhaps \$25 million for the KH-9). I pointed out, in response to questions on lifetimes that a KH-8 block change was planned and work underway which would increase on-orbit lifetime and probably permit a future reduction in the number of annual launches, that the initial lifetime goal for the KH-9 was 30 days, etc. He also noted with interest my comment that the planned 4-5 KH-9 launches per year would cost about the same as the 10-12 KH-4 launches per year in the past and present and, at the same time, produce more and better photography. Mr. Lundahl pointed out that the KH-7 had been retired, and I added that reduced KH-8 launch rates were anticipated in conjunction with successful MOL launches.

3. The Vice President inquired as to the feasibility of resupply and reuse of the KH-4, KH-8, KH-9, etc. I responded in the vein that their designs and hardware were not amenable to on-orbit resupply and

replenishment, that the economics of such an approach now for these systems was suspect, that the main thrust was toward longer lifetimes, etc. The Vice President appeared satisfied with this response.

4. He inquired into the need for higher resolutions than the KH-7 or KH-8 in view of the cost, complexity, etc. In responding, Mr. Lundahl cited ABM's as a specific example, explaining the need to identify and measure in fine detail in order to determine performance characteristics. Mr. Lundahl also pointed out that the USIB was charged with and continually analyzed the need for photography (quantity, frequency, and resolution quality). It was also pointed out quite properly that not all information needs required [] better resolution.

5. In observing some color film, the Vice President inquired as to the desirability of doing all reconnaissance in that mode. Mr. Lundahl pointed out the considerable loss of resolution but also cited the advantages (analyzing stack gases, etc.) of color film and stated that it was a valuable adjunct to black and white film.

Major Macleay, in his briefing, cited the astronaut on-orbit reconnaissance tasks in order of importance as "fine-tuning" the automatic systems, manually backing-up failed or malfunctioning automatic systems, increasing intelligence quantity or value (via alternate targets), and verifying system performance plus suitability for unmanned use. Major Macleay briefly described the "tools" available in the laboratory to do these functions and how the astronauts would operate. Several questions aimed at clarifying various points were asked by the Vice President and apparently answered to his satisfaction.

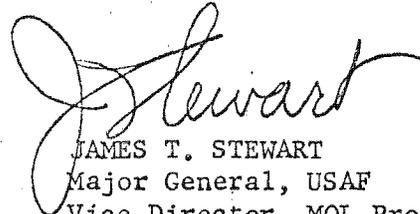
Following the informal briefings/discussions described above, the Vice President accepted Mr. Lundahl's invitation to look at various samples of aircraft, satellite and drone photography:

1. Mr. Lundahl pointed out what could and could not be seen at the various resolutions in numerous examples of current photography. The Vice President was very much interested in the elaborate preparations made to secure very high-resolution (and measurable) [] and the technical analysis possible from this photography. I believe this impressed the Vice President more than anything else of the need for and value of very high resolution satellite photography.

2. In looking at drone photography of North Vietnam, the Vice President expressed obvious disappointment at the little apparent damage to various targets (one example was the main steel mill), particularly, in view of what to him were rather sizable and repeated raids against them.

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The Vice President's visit to NPIC lasted slightly more than 1½ hours and he appeared to be quite interested in all that he saw and heard A brief telephone conversation later in the day with Mr. Rand indicated that the Vice President had been pleased with the visit and felt it was worthwhile.



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Vice Director, MOL Program

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