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January 15, 1964

MEMORANDUM TO THE DEPUTY CHIEF OF STAFF, R&D

SUBJECT: Requirements and Objectives for the MOL Program

Reference: Memo to SAFRD fr DR&E dated 11 Dec 63, subj:
Manned Orbital Program

The MOL Program as defined by the referenced correspondence has as its basic objective to establish an orbital laboratory and to conduct valid tests on man's capabilities to perform, or to assist significantly in the performance of, military missions in space. I am concerned that the preliminary program plan, as briefed to the DSMG on January 6, 1964, puts altogether too little emphasis on the laboratory and test aspects of the program. Rather, it seems to center on the development of a spacecraft suitable for trials of an operational manned reconnaissance system, without reference to any set of experiments which might, and I believe will, control the design.

It is absolutely crucial to the survival of this program that it be directed at the start to specified and fully approved objectives, and that it be held to these objectives until they are accomplished or changed. Development of a manned reconnaissance system is not an approved objective.

Before even a program definition phase for an MOL can be undertaken with contractors, it will be necessary for the Air Force to establish a specific set of objectives and requirements to be met by the program, and to define some of the criteria to be used in evaluating trade-offs among objectives as the program definition phase progresses. These objectives, requirements, and criteria must have the approval of the Secretary of the Air Force. There is no doubt that approval by the DDR&E will also be necessary before a program is authorized.

The responsibility to establish a controlling statement of objectives for a program having the potential importance of the MOL properly rests with the Air Staff. As I understand it, because of the experimental nature of the program, this responsibility would fall within the purview of your Directorate of Development Planning. Technical assistance, I am sure, will be required from, among others, the Systems Command and the Aerospace Corporation. It may be appropriate to issue the statement as an ADO. However, as already noted, the ADO will not become binding upon the program until approved by the Secretary of the Air Force.

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To my mind, a statement of objectives adequate for entering upon a definition phase for the MOL program must go beyond the general objectives set forth in the referenced document, and set up a fairly specific list of candidate experiments or experimental areas, for examination and further definition during the program definition phase. It must be understood and clearly set forth that the general objectives of the program definition phase are to establish (1) a refined and detailed list of candidate experiments, (2) a preliminary experimental plan which includes those experiments to be conducted on the ground as well as those to be conducted in space, (3) an understanding of the major requirements set upon the spacecraft by this plan, and (4) a development plan in the usual sense for the MOL and the experimental program.

I believe that a good way to approach what has been outlined is to list in detail potential military missions, and other potential activities involving man, to break each into its component functions, and to identify those functions (e. g., "select target," "adjust instrument," "summarize data," etc., but typically in more detail) for which a test of man's performance or contribution appears necessary or appropriate. Similar functions will appear, of course, common to many missions, but need not be candidates for testing in all contexts. Priorities and other criteria must be set up for resolving competitions between candidate experiments as they may set incompatible requirements on the laboratory or on the program.

The attached sheet lists in gross terms examples of missions or other activities that merit examination in the manner suggested. Most of the items as listed define mission areas or categories, rather than unique items; each would typically require breaking down into more specific elements before analysis. Some of these mission areas, e. g., [REDACTED] are not mentioned in the referenced correspondence as falling within the scope of the MOL program. I believe that it is desirable, however, to carry the analysis of these items to the point that their possible impact on the experimental program, and the MOL design, can be well enough understood that their explicit approval, or not, as parts of the program can rationally be determined.

In addition to potential experiments derived from an analysis of missions and functions, there are many important ones which relate

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directly to man's reactions to the space environment, and to means for controlling that reaction. These experiments also must be considered. Here also there are experimental areas not covered in the referenced correspondence that should be examined with a view to reaching a technical determination as to their inclusion or not in the program. An example is a test of artificial gravity.

I have asked Dr. Flax to work with you in the preparation of such a statement of objectives. I will be glad to discuss matters with you at any time.

(Signed)

BROCKWAY McMILLAN
Under Secretary of the Air Force

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ATTACHMENT

Reconnaissance, visual, photographic, and radar

Surveillance of earth



Detection of nuclear events

Detection of launchings

Radiation measurements, solar or galactic



Communication relay

Rendezvous

Extra vehicular activity

Scientific experiments