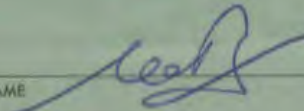


ROUTING SLIP

MAIL CODE	NAME	ACTION
		APPROVAL
	Dr. Whitehead	CALL ME
		CONCURRENCE
		FILE
		INFORMATION
		INVESTIGATE AND ADVISE
		NOTE AND FORWARD
		NOTE AND RETURN
		PER REQUEST
		PER TELEPHONE CONVERSATION
		RECOMMENDATION
		SEE ME
		SIGNATURE

With reference to my recent telephone conversation, enclosed are copies of the letters sent to the organizations that have expressed interest in the possibility of experimenting with NASA's Applications Technology Satellites as well as to the directly interested carriers.

MAIL CODE NASA Hq Code W	NAME  Dr. Walter A. Radius	TEL. NO. 13- 24583	DATE 5/8/69
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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON, D.C. 20546

NASA

OFFICE OF THE ADMINISTRATOR

MAY 8 1969

Mr. Everett H. Erlick
Group Vice President and
General Counsel
American Broadcasting Companies, Inc.
1330 Avenue of the Americas
New York, New York 10019

Dear Mr. Erlick:

In response to your recent expression of interest in the experimental use of NASA satellites, I would like to invite you and your associates to attend a presentation and discussion of the capabilities and availability of the Applications Technology Satellites (ATS) and the opportunities they might offer. Representatives of other organizations which have expressed a similar interest are also being invited. Enclosed is a statement setting forth NASA policy covering experimentation with ATS satellites.

The meeting will be held at 1:30 p.m. on June 13, 1969 in the Program Review Center, Room 7002, NASA Headquarters, 400 Maryland Avenue, S. W., Washington, D. C. In addition to a presentation by NASA, there will be an opportunity to discuss the types of experiments you might propose. Please let us know as soon as possible who from your organization will be planning to attend.

Sincerely,

Signed

John E. Naugle
Associate Administrator for
Space Science and Applications

Enclosure

(This letter was sent to all addressees as shown on the attached.)

Invitees to NASA Presentation Covering
Applications Technology Satellites

Mr. Everett H. Erlick
Group Vice President and
General Counsel
American Broadcasting Companies, Inc.
1330 Avenue of the Americas
New York, New York 10019

Mr. John F. White
President
National Educational Television
10 Columbus Circle
New York, New York 10019

Mr. Donald Kivell
Manager, Communications
National Broadcasting Company, Inc.
Thirty Rockefeller Plaza
New York, New York 10020

cc: Mr. Allen R. Cooper
Vice President, Planning
National Broadcasting Company, Inc.
Thirty Rockefeller Plaza
New York, New York 10020

Mr. Edward E. Fitzgerald
Publisher
The McCall Publishing Company
230 Park Avenue
New York, New York 10017

cc: Mr. Robert Stein
Executive Vice President
The McCall Publishing Company
230 Park Avenue
New York, New York 10017

Mr. Spencer Moore
International Liaison Officer
Canadian Broadcasting Corporation
Societe Radio-Canada
1500 Bronson Avenue
Ottawa, Ontario Canada

Mr. William G. Harley
President
National Association of
Educational Broadcasters
1346 Connecticut Avenue
Washington, D. C. 20036

Mr. R. A. Passman
Manager, Mission Requirements &
Advanced Programs
General Electric Company
Valley Forge Space Center
P. O. Box 8555
Philadelphia, Pennsylvania 19101

Invitees - (Continued)

Mr. Fred W. Friendly
The Ford Foundation
320 East 43rd Street
New York, New York 10017

cc: Mr. David Ginsburg
Ginsburg & Feldman
1700 Pennsylvania Ave., N.W.
Washington, D. C. 20006

Mr. William B. Lodge
Vice President, Affiliate
Relations and Networking
CBS Television Network
51 West 52 Street
New York, New York 10019

Mr. John W. Macy, Jr.
President
Corporation for Public Broadcasting
1250 Connecticut Ave., N.W.
Washington, D. C. 20036

AVAILABILITY OF ATS SATELLITES
FOR EXPERIMENTAL PURPOSES

It is NASA's continuing practice to make Applications Technology Satellites (ATS) available for worthwhile experimentation. NASA is interested in including in experimental programs potential users of future operational systems, such as other government agencies, educational institutions or private companies which would be willing to invest in the necessary ground facilities, provide the message content, and cover other associated costs.

Under the ATS program, NASA has now in orbit ATS-I and III, launched December 1966 and November 1967, respectively. ATS-E is scheduled for launch in September 1969, and ATS-F and G beginning in 1972. Attached is a technical summary of the communication capabilities of these satellites.

ATS-I and III have largely fulfilled their initial technical experimentation period, and although they are continually being used by the Weather Bureau and others there are periods when they could be available for additional experimentation. This use could include experiments by those desiring to investigate how satellites might be employed to serve communication requirements or applications they feel are unique. Experimental use of ATS-E, F and G can be proposed for the periods when these satellites will be in orbit.

The organizations desiring to conduct experiments would be responsible for developing and submitting to NASA proposals which would explain in detail the objectives, methodology, expected results of the experiments, and the procedures by which the results of the experiments would be disseminated. NASA would review the technical and other aspects of these plans and determine whether the proposed use of the satellite time would be consistent with NASA's mission and the existing commitments and priorities for the use of the satellites. These opportunities for satellite experimentation are dependent upon the continued availability of the capacity of the ATS satellites developed and launched by NASA for research and development purposes.

The NASA transmitting terminals at Rosman, North Carolina, and Mojave, California are normally used for transmitting information to the ATS satellites. However, proposals for experiments could include the use of receiving terminals at other locations.

COMMUNICATIONS CAPABILITY OF ATS SATELLITES

	<u>ATS</u>			
	<u>I</u>	<u>III</u>	<u>E</u>	<u>F&G</u>
Launch Date	Dec. 1966	Nov. 1967	Sept. 1969	Beginning 1972
Position	151°W	47°W	110°W	F probably 15°E
Coverage	Earth	Earth	Earth	1,000K sq. mi.
EIRP (db)	19.5	22.5	21.5	40-50
Bandwidth (mc)	25	25	25	40
Frequency up (Ghz)	6	6	6	not yet
Frequency down (Ghz)	4	4	4	assigned



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

IN REPLY REFER TO:

MAY 8 1969

Dr. Joseph V. Charyk
President
Communication Satellite Corporation
950 L'Enfant Plaza South, S.W.
Washington, D. C. 20036

Dear Dr. Charyk:

In response to recent expressions of interest in the experimental use of NASA satellites on the part of a number of commercial and educational broadcast organizations, we have invited them to a presentation of the capabilities and availability of the Applications Technology Satellites (ATS) and the experimental opportunities they might offer. Enclosed is a statement setting forth NASA policy covering the availability of ATS satellites for experimental purposes which has been transmitted to the interested parties.

Although your organization is already fully familiar with NASA's ATS experimental program, we would welcome your attendance at this meeting. It will be held at 1:30 p.m. on June 13, 1969 in the Program Review Center, Room 7002, NASA Headquarters, 400 Maryland Avenue, S.W., Washington, D. C.

Please let us know as soon as possible if you or anyone from your organization wishes to attend.

Sincerely,

Signed

John E. Naugle
Associate Administrator for
Space Science and Applications

Enclosure

(This letter was sent to all addressees as shown on the attached.)

Dr. Joseph V. Charyk
President
Communication Satellite Corporation
950 L'Enfant Plaza South, S.W.
Washington, D. C. 20036

Mr. W. R. Jarmon
Vice President
Revenue Requirements
730 3rd Avenue
New York, New York 10013

Mr. Dan Emerson
AT&T
Vice President of Regulatory Matters
2000 L Street, N.W.
Washington, D. C. 20036

Mr. Russell W. McFall
President
Western Union
60 Hudson Street
New York, New York 10013

AVAILABILITY OF ATS SATELLITES
FOR EXPERIMENTAL PURPOSES

It is NASA's continuing practice to make Applications Technology Satellites (ATS) available for worthwhile experimentation. NASA is interested in including in experimental programs potential users of future operational systems, such as other government agencies, educational institutions or private companies which would be willing to invest in the necessary ground facilities, provide the message content, and cover other associated costs.

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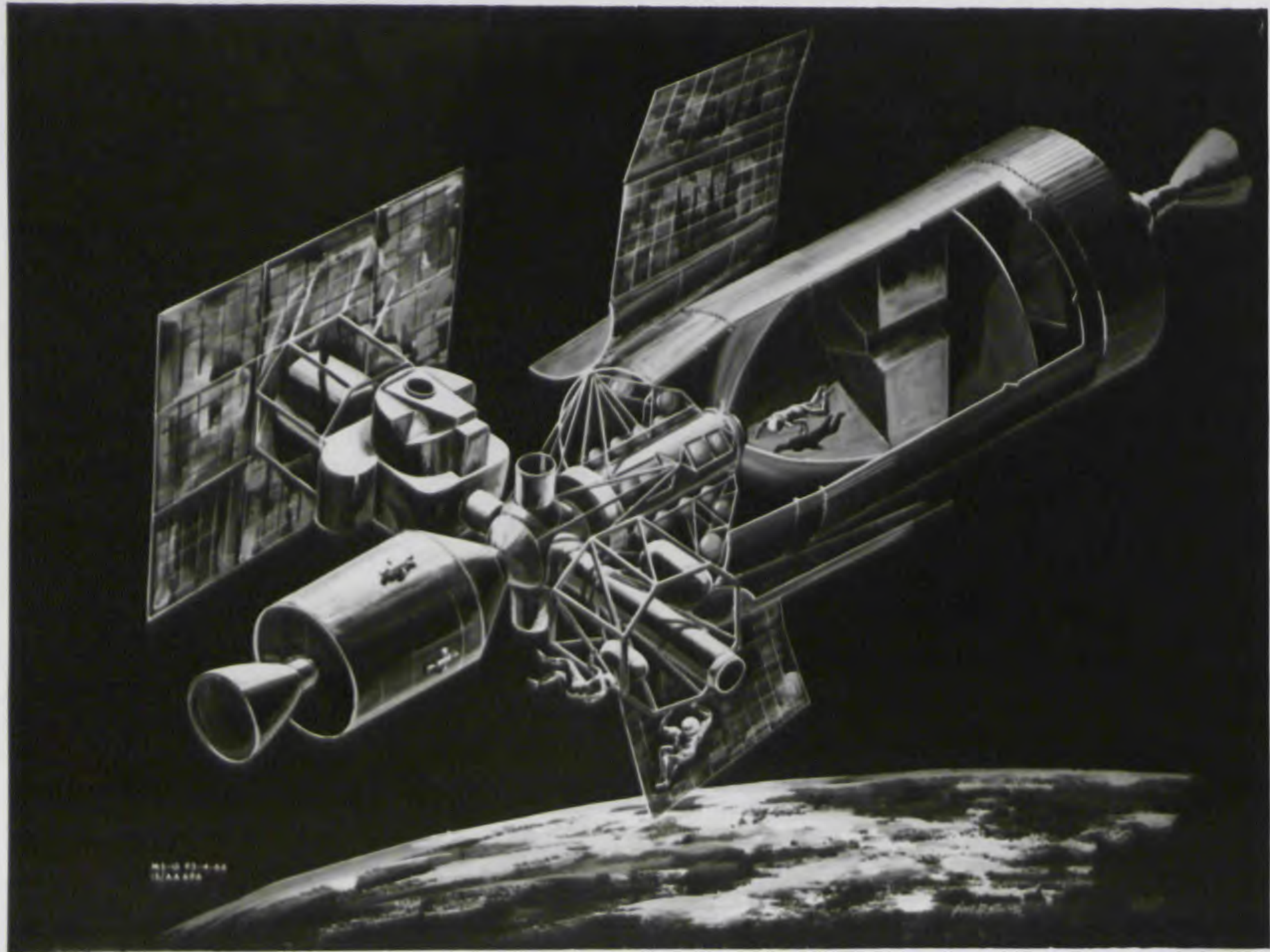
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Frequency up (Ghz)	6	6	6	not yet assigned
Frequency down (Ghz)	4	4	4	



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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D. C. 20546

FOR RELEASE: April 20, 1969
PHOTO NO. 67-25-176

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Under study at the National Aeronautics and Space Administration's Marshall Space Flight Center, Huntsville, Ala., is an astronaut aid for NASA's orbital workshop (right is photo, with floating astronaut). NASA hopes to fit the workshop with a zero-gravity workbench--and electrostatic work area where an astronaut may place tools and not have them float away in the weightlessness of space. The force-field experiment is expected to be completed within the next few months.



The NASA logo, featuring the word "NASA" in a bold, sans-serif font, is positioned inside a circular emblem. The emblem has a stylized, multi-colored background that resembles a globe or a celestial body. The logo is located in the upper left corner of the document.

NASA

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D. C. 20546

FOR RELEASE: April 27, 1964
PHOTO NO. 64-213-9

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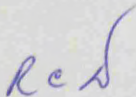
Headed for the Smithsonian Institution in Washington, D.C., is the N-15 research aircraft, a joint United States Air Force-National Aeronautics and Space Administration project conceived 15 years ago for hypersonic flight research. The craft, in 199 flights, was launched from the wing of a B-52 bomber and exceeded both its design goals of 4,000 miles-per-hour and 50-mile altitude. The craft shown here is fitted with internal fuel tanks.

OFFICE OF SCIENCE AND TECHNOLOGY
WASHINGTON, D.C.

April 7, 1969

Mr. Whitehead:

For your information.

A handwritten signature in blue ink, appearing to read 'RCD', is positioned above the printed name.

Russell C. Drew

From the Desk of Dr. Russell C. Drew

March 14, 1969

NASA

REPORT OF SPACE TASK GROUP STAFF DIRECTOR'S
COMMITTEE ON NASA'S REQUEST FOR AMENDMENTS
TO THE NASA FY 1970 BUDGET

In accordance with the STG decision on March 7, the Staff Director's Committee has reviewed NASA's request for amendments to the NASA FY 70 budget pertaining to immediate problems and opportunities in the area of manned space flight, and the suggestion that a Presidential statement be made announcing action on these items. The documents relating to this subject are:

- (1) Letter from the Acting Administrator of NASA, dated February 24, 1969, to the Director, Bureau of the Budget setting forth NASA's request.
- (2) Letter from the Acting Administrator of NASA to the President, dated February 26, 1969, giving the basis for his recommendations to the Director, Bureau of the Budget in the area of manned space flight.
- (3) Supplementary material supplied by NASA to the Staff Director's Committee in meetings of March 11 and 12, 1969.

NASA's request can be considered in five parts:

- (1) Augmented Lunar Exploration Capability. For scientific and improved operational equipment for lunar exploration following the first few lunar landings -- \$79 million. (Note: Launch vehicles and spacecraft may be available for nine manned lunar missions following the first landing attempt, but scientific exploration equipment is available for only three of these.)
- (2) Space Station Technology. For detailed planning, design studies and development of critical long-lead-time sub-systems that would be required in a future manned space station -- \$34 million.
- (3) Space Shuttle. For advanced systems development and systems definition of an economical transportation system from earth to orbit and return -- \$32.8 million.
- (4) Saturn V Production. For procurement of long-lead-time components for production of Saturn V vehicles beyond those presently authorized -- \$52.2 million. (Note: These funds would be applied to reversing the phase-out of Saturn V suppliers that is currently under way.)

(5) Presidential Statement. NASA has suggested that the President make a statement announcing affirmative action on the NASA budget request. Such a statement could be delivered at the time he honors the Apollo 9 Astronauts.

The rationale set forth by NASA in support of the four principal elements of their budget request is given in attachments to this report. In addition, the recommended Presidential statement presented by NASA is also attached.

It is important to understand the context in which the Staff Director's Committee has conducted its deliberations and, more importantly, the areas which in view of the limited time available have not been treated fully in reaching committee positions:

- A national commitment to continued lunar exploration beyond the first few basic Apollo lunar landings has been assumed by the Committee. Although such a program has been under discussion for several years, no approved and funded plan for follow-on lunar exploration has existed. It should be recognized that a budget amendment to support development of enhanced lunar exploration capability implies a new commitment by this Administration to a follow-on lunar exploration program.
- Whether the Nation should continue with a manned flight program after the existing Apollo hardware is expended or discontinue manned flight was not explicitly addressed. The assumption apparent in the Committee's conclusions is that there would be a manned flight program of unspecified character and pace throughout the next decade.
- Program balance was not considered. In addressing the urgent issues raised by NASA, it was not practical to set these manned flight items into the broader context of the whole space program. No judgments were made of relative priority of the manned space flight items compared with unmanned science, applications, research and aeronautics programs.
- Although the Committee had the benefit of participation by a representative of the Bureau of the Budget and discussed many aspects of the funding to support the NASA request, a detailed budget analysis was not performed. In general, sufficient

funding detail was explored to illuminate the issues. The Committee agrees that recommendations on specific dollar amounts specified by NASA should be left to the normal budget review process.

Committee Views. The following positions were developed:

(1) Augmented Lunar Exploration Capability.

There was broad general agreement that manned lunar exploration should continue beyond the first four basic Apollo landing missions and that some funding support be provided for science payloads for these follow-on missions.

It is of great importance that the program be organized in such a way that the probability of scientific return is increased. In this context, considerable doubt was expressed by a majority of the members about the organization and definition of the newly proposed program for lunar exploration and about the need for a continuing launch rate of three Saturn V's per year, since the options available are so strongly tied to the rate at which Saturn V launch vehicles are expended.

For example, at the launch rate projected by NASA, the first mission for which there is presently no science payload (Vehicle 510) could occur as early as the 4th quarter of CY 70. Urgent funding support is required if a science payload is to be available for this launch. At a lower continuing launch rate, however, this mission could be flown almost one year later, lessening the urgency for immediate funding. If Saturn V launches are gapped during the period when the Apollo Applications Program flights are being conducted, additional time would be available for definition and procurement of significant new experiments and equipment, including the possibility of a Lunar Flying Unit.

The Committee supports the NASA contention that reduced launch rates for the Saturn V (below 3 per year) or a gap in Saturn V launches would cause management difficulties and would increase the cost per launch. Several members supported the view that these costs would be acceptable if

the opportunity to perform a truly significant lunar exploration program, including the provision of increased mobility, is enhanced thereby.

It was the concensus of the Committee that high priority be accorded a review of the NASA plan for the follow-on scientific exploration of the moon.

The majority of the Committee believes it is possible to develop a limited extension of capability for early follow-on missions for less than the requested funding, but that specific dollar amounts should be determined as part of the normal budgetary process.

(2) Space Station Technology.

The majority of the Committee members, with the full understanding that the NASA request does not necessarily involve a commitment at this time to develop a space station, nevertheless, did not support the request for additional FY 70 funding to enable more rapid progress toward the launch of a space station in the mid 1970's. This view does not represent an unfavorable judgment on the question of adopting the space station as a major new goal of our space program, but rather results from a desire not to imply prejudgment of the eventual result of the STG review. The case for urgency was unconvincing, and it appears that no important options would be foreclosed by deferring action until the FY '71 budget.

The State Department representative offered the following additional views: that the space station would have higher value for foreign policy objectives than lunar exploration; that given the present state of world opinion our decisions should not be unduly influenced by our appraisal of the Soviet program or Soviet competition; and that commitment to a major new manned program should not be decided before the STG has had an opportunity to complete its review of the entire space program.

(3) Space Shuttle.

Although the concept of an economical transportation system to orbit was of great interest, the majority of the Committee concluded that further study (now underway) would be desirable to clarify both DoD and NASA needs for such a system, including the possibility of a common system for use by both agencies. The on-going programs of technology and study now included in both agencies' FY 70 budgets may require limited redirection or augmentation to establish an adequate level of concept, technology, and management capability to permit FY 71 initiation of a system development capable of meeting both DoD and NASA needs.

The case for urgency was unconvincing, and it appears that no important options would be foreclosed by deferring action until the FY '71 budget.

(4) Saturn V. Production.

Without having the time to examine in detail the additional costs and time involved in phasing out and restarting manufacture of SV vehicles, general agreement was reached that action should be taken to preserve a continuing production base for this vehicle. (The State Department representative pointed out that from a foreign policy standpoint there was little advantage in an SV production capability per se, and that the specific programs requiring this capability had yet to be defined.)

It was understood that future decisions on the scope and pace of space activity would affect the rate at which these launch vehicles would be produced. The recommendation of the Committee therefore is that decisions on the production rate be reserved until the STG has had an opportunity to develop a program and can assess vehicle requirements on a long range basis.

(5) Presidential Statement.

The majority of the Committee agreed that a separate Presidential statement (beyond that which may accompany a general budget revision) announcing decisions on the NASA request was not desirable. There were several reasons cited for this position:

- (a) The President has publicly announced his charge to the Space Task Group to formulate goals and programs for the next decade in space. A special announcement of priority investments in programs of very major run-out cost prior to completion of STG activity could pre-empt the impact of the study.
- (b) It is not clear that the USSR will establish a permanent space station in the near future; recent manned orbital flights are consistent with either a manned lunar program using earth-orbit rendezvous, or a space station. Should the USSR establish a space station, not matched by parallel US effort, it will not necessarily constitute a threat to US security. Well publicized plans for AAP and MOL may provide additional public reassurance on this score.
- (c) Program commitment to both manned lunar exploration and to a space station, even with the engineering details and time scales undefined, imply an unknown magnitude of total annual budget level (estimated by NASA to lie in the \$4.5 - \$5.5 billion range) to which the President may not wish to be committed in advance of receipt of the Task Group study and exploration of the attitude of Congress. If the commitment is made and these budget increases are not forthcoming, other space options -- such as strengthening unmanned space applications research -- may become foreclosed.

NEED FOR MAINTAINING PRODUCTION OF SATURN V

The Saturn V is by far the largest launch vehicle ever developed and brought to operational status. It is key to the nation's future in space, for no other U.S. booster of equal or greater performance is contemplated for use within the next decade. No funding has been provided for production beyond the fifteen vehicles for Apollo, the last of which will be delivered in 1970. At present, the production base is rapidly dissipating.

The Saturn V is the only vehicle capable of placing over 120 tons into earth orbit, 50 tons to lunar distances, and 20 tons on the lunar surface. With this performance this launch vehicle has the ability to fulfill the requirements for lunar exploration, for space station launches, and for future planetary missions. Thus, a need exists through the 1970's for a substantially larger number of Saturn V's than will be available after the initial Apollo landing. Discontinuing production would relinquish to the Soviets the only capability for orbiting large payloads since they appear to be approaching the demonstration of a launch vehicle in the same class.

Effective utilization of the Saturn V can be maintained only by preserving the industrial capability brought into being at great expense (\$8 billion) over the last nine years. Continuing the present trend will result in expensive shutdown and startup costs. Skills will be lost and have to be retrained, tooling refurbished, and parts requalified. In fact, the restart would take on many aspects of our R&D program. The projected unit cost reductions associated with learning and with streamlining the existing production base would therefore be impossible of achievement under stop-startup conditions. Certainly the longer the gap the more difficult and costly are the startup conditions, and after too long a period (several years), restart is impractical.

Another important factor associated with loss in production capability is the technical support required to complete the flight program associated with the present buy of fifteen vehicles. A substantial cadre of skilled personnel is required at the factory to handle unforeseen technical problems encountered in the flight program. With no future production, this support will undergo steady degradation, but will continue to cost \$165 million annually. This cost is in addition to the \$400 million annually required to keep the Kennedy Space Center

and the Manned Spacecraft Center at the level of flight readiness required for launch and flight control support of the flights of the remaining Saturn V vehicles.

The deleterious effects just discussed can be minimized if immediate action is taken in augmenting the FY 1970 budget request. It is important that the President take such action prior to the flight of the new USSR booster to avoid the appearance of a reaction to their initiative.

Of the supplemental funds requested in FY 1970, \$52.2 million is associated with reinstating Saturn V production. In the main, these funds will be applied to the procurement of long lead time items and the reactivation of critical suppliers. This activity involves the SIC, the SII, and the SIVB launch stages, as well as the F-1 and J-2 engines, and a portion of the requested funds therefore will also be applied in support of the major stage and engine contractors.

NEED FOR AUGMENTATION OF SPACE STATION EFFORT

The nation requires the technical and political power resident in a flexible and extensive capability in earth orbital manned space flight. From earth orbit the world can be readily assessed and accessed. Earth orbit also affords effective outward viewing from the scientific standpoint and otherwise takes advantage of the unique characters of the space environment, such as weightlessness and unlimited hard vacuum.

The next logical and necessary step in the progress of earth orbital space flight is the establishment of a space station or a centralized and sustained base of operations. Such a station will do more for the general advance of our capability as a space-faring nation than can be achieved in the early phases of lunar exploration. In fact, the capabilities for sustained operations that can be developed in a more economical and safe way through establishment of a space station in earth orbit is directly applicable to the establishment of lunar bases or to manned exploration of the planets in the future.

Under present funding, there exists only a very limited, civilian manned program in earth orbit (Apollo Applications) whose flights take place over a brief eight month period in the early seventies. No support to a flight program beyond 1972 currently exists and, even if aggressive definition of a space station is initiated immediately, the initial flight could not take place until 1975 at the earliest.

We feel that the potential of manned flights in earth orbit is great, and although a complete delineation of the ultimate potential is not possible at the present time, a national risk of yielding initiative for rapid progress in this area to the USSR cannot be warranted.

The utilization of a space station concept opens many arenas for more rapid progress in scientific knowledge, technology advance, and applications of space flight. Typical of these are the possibilities for more extensive international cooperation. The space station will be the first program where non-astronauts can participate directly in space flights. Thus, foreign nationals will not only find it easier to participate as investigators, but can have the opportunity to involve themselves in the actual conduct of their experiments in space. These statements are just as applicable to user elements within our own national structure.

As a result of the studies underway, we are likely to find that the development of a space station is the most attractive option for space progress and benefits in the immediate future and that we should move out as rapidly as possible. Therefore, funding must be made available to hold this option open, but even more important, to establish sound definition and assure a solid base of technology. Without additional funding now in FY 1970, an entire budget year will be lost. To try to make up that lost time would involve undesirable risks and is likely to reflect future cost escalations associated with crash programs.

In the light of these considerations, an additional \$34 million should be added to the FY 1970 budget. These funds would be used to augment the \$6 million presently included to provide for a more solid definition and preliminary design effort; to define experiments and experiment modules in many disciplinary areas, and most importantly, to support advanced systems development in major areas such as life support, electrical power and information management.

NEED FOR CONTINUING LUNAR EXPLORATION

Lunar exploration is of great national importance--in furthering our scientific knowledge, in determining the potential for exploitation of the moon, and in demonstrating our international leadership in exploration of space. Fortunately, we have the basic capability to accomplish this end for our nation at great effort has developed the Apollo system for manned lunar missions.

The moon has particular scientific interest and potential direct benefits because of its close association to the earth. A number of landings are necessary to establish a reasonable base of data for understanding the origin, history, processes, and present state of the moon and its relation to the earth and the solar system. There are numerous distinct provinces and processes on the moon. Based on our present knowledge, ten landings or more are needed for gathering data critical for the major decisions on future uses of the moon.

The flight hardware for accomplishing these missions is completing manufacture, trained operational teams are assembled, and with the success of the Apollo flights to date, the initial landing is expected in the very near future. Following the first flight our plan is to visit at least three additional lunar provinces and then with the remaining six flights to make precision landings at points where significant unique features exist and where important processes are expected. The emphasis in this period will be on scientific return through observation, sample return, and hopefully emplacement of instrumentation on the surface, and hopefully photography and more sophisticated sensing from lunar orbit.

At the same time we must carry out our operations in a way that maximizes safety and effectiveness in an operational sense. A steady, reasonably spaced launch rate is the most economic and efficient use of facilities, hardware, and personnel. Undue spreading or gaps in the sequence will result in major programmatic problems in safety, reliability, costs, and maintaining of trained teams. The above factors lead to the judgment that about three missions per year is a good choice for launch interval.

We have a good understanding now of the basic methods and measurements to obtain the needed data. Candidate landing sites have already been selected. Sufficient lead time exists to provide scientific instrumentation, means to significantly improve mobility, and extensions of surface staytime for the last six flights which will significantly improve the quality of the data return. To achieve this improvement, funds that are not presently available must be made available now in FY 1970. We believe that the President should be in a position to announce a worthy continuing program of lunar exploration following the initial Apollo landing. Modest augmentation of funds will enable this condition to exist.

At the present time, scientific equipment exists for just four lunar landings. Studies and developments indicate that necessary and substantial increases in exploration capabilities of the remaining missions can be attained at relatively modest cost. These funds, which require a \$79 million supplement to the FY 1970 budget, are needed for: (a) additional surface science packages, (b) science experiments to be used in lunar orbit, (c) extending the surface staytime, and (d) increasing astronaut mobility.

NEED FOR AUGMENTING EFFORT ON LOW COST
SPACE TRANSPORTATION

Past and current manned spacecraft and launch vehicle systems are characterized by high cost of flight hardware and support operations. This condition was not unexpected, for the emphasis in both of these space transportation elements for pioneering flight missions has been on performance and reliability.

To support future space flight operations, there is a strong need to greatly reduce the annual costs of space transportation operations, while sustaining the necessary number of space flights. During this first decade of space operations, our technology base has steadily advanced to the point that new systems can be defined now, which can satisfy the (1) basic need of major reductions in the cost of placing satellites, men, equipment and supplies, into orbit, and (2) major advances in space system versatility. To use space as we use other parts of our environment, it must be accessible, readily and economically. The most significant feature of the new concept is maximum reusability from flight to flight.

This new class of space vehicles, the space shuttle, is a key to national space flight operations in the last half of the 1970's and beyond. As presently conceived, the space shuttle will have the inherent capability for multi-applications. Space operations by other agencies, such as the Department of Defense, could use the shuttle and its support equipment with little modification. To maintain a space station or base for sustained operations in earth orbit, extensive logistic support operations are required. Present systems or modifications thereto will be costly and limited in performance for the task of logistic support of a space station. In addition to low operational costs and large and flexible payload delivery and return capability, the ability to carry non-astronaut personnel to and from orbit under low acceleration loads in a shirtsleeve environment is of fundamental importance to effective use of space for exploration and operations. Internationally, the United States can use the development of a space shuttle to establish world leadership in the field of space transportation. The use of a space shuttle will provide a broad range of experience in space operations--experience that would be directly applicable to almost anything the United States would want to do in space.

Definition studies have been constrained by a limited budget. In order to assure proper consideration of the alternative concepts exploiting major technology advances, it is necessary to expand our current study effort. Similarly, to assure the availability and delivered performance of advanced subsystems, exploratory development efforts are required now. Delay will result in further loss of skilled personnel from the program, thereby leading to a more expensive program sometime in the future. The application of this rapidly maturing technology to a fundamental need of the national space program will be delayed with a concomitant loss in momentum and personnel.

For these reasons, additional funding is required in FY 1970 in the amount of \$32.8 million. These funds will be utilized to provide a more solid definition and preliminary design effort which will in turn provide a greatly improved basis for selection of the technical approach. The heaviest application of these funds, however, will be for advanced systems development emphasizing long life reusable systems, onboard checkout and other approaches aimed at major reductions in operating costs.

Recommended Presidential Action

The following illustrates the type of action that we have in mind for the President to take if the Task Group approves the proposed FY 1970 Budget Amendment later this month, and shows the relation of this action to the Task Group assignment.

The Presidential statement, perhaps at the time he is honoring the Apollo 9 astronauts, would make these points:

1. The successes of Apollo 8 and 9 mean that the Administration must now put its planning and preparations for post-Apollo manned space flight into high gear.

2. His Task Group on space policy has given first consideration to the immediate steps necessary to assure America's long-term future in manned space flight.

3. Based on the first recommendations received from the Task Group and on their review of the NASA Budget for FY 1970 left by the previous Administration, he has determined that the following actions are necessary:

- a. He is requesting that the Congress add to the FY 1970 Budget provision for resuming production of the Saturn V, the free world's largest launch vehicle. The United States means to continue manned space flights beyond the Apollo program and must therefore take steps in FY 1970 to assure continuity of Saturn V production so that we can have additional large launch vehicles when we need them without the excessive costs of stopping and then restarting production.

b. We must provide the additional scientific and operational equipment required for continuing manned exploration of the moon after the first few Apollo landings. He is therefore recommending the additional FY 1970 funds required for procurement of equipment needed for an economical program of lunar exploration. The extent and nature of our future manned operations on the moon will be studied further by the Task Group and he will incorporate his final decisions in his FY 1971 Budget recommendations.

c. We must also now take the first steps to assure that the United States can move on a sound basis into a strong position in earth orbital manned flight in the next decade. He has therefore directed the Administrator of NASA, working with the other members of the Task Group, to develop plans for the establishment by the United States during the middle 1970's of a large semi-permanent space station and a space shuttle logistics support system to convey passengers and supplies to and from the space station at low cost. In the view of the Task Group this is an important future goal in space and the logical next major step in manned space flight. He will submit his recommendations on a specific space station and space shuttle program after receiving further recommendations from the Task Group in September on the detailed characteristics and projected cost of such a project. To permit design work and preliminary development of essential subsystems to proceed in FY 1970, he is recommending to the Congress a FY 1970 Budget Amendment of \$ _____. The importance of proper planning for this project is great. The

Administrator of NASA informs me that he is establishing within NASA a special project to conduct this work under the direction of

_____, with _____ as Deputy Director.

4. The actions he is taking today will preserve the full range of options for our space program in the next decade. As the Task Group has pointed out, the items covered by the Budget amendments he is submitting to Congress in the field of manned space flight will be necessary for a future balanced program regardless of the specific goals and detailed programs that emerge from their comprehensive recommendations on the future directions and goals of our nation's space program about September 1.

MAR 6 1963

3/27/69

Checked with NASA re getting copies of pictures of the Apollo Moon Shot.

Suggested we call:

John Tugman
Still Photo Productions

~~737-0305~~

526-5000

The picture is designated 68-HC-870 - color print.
Mention that Sandy Smith, NASA's audio visual guy, referred us.

<u>Prices:</u>	<u>Each</u>	<u>Second & Succeeding</u>
8 x 10	\$3.50	\$3.40
11 x 14	8.00	40 black & white
16 x 20	15.00	
20 x 24	20.00	

They would like 10-day lab time but could speed them up, if necessary.

James R Dunlop
2321 of the St. N. E.
Washington, DC



NASA
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

MAR 28 1969

OFFICE OF THE ADMINISTRATOR

MEMORANDUM FOR: Dr. Clay T. Whitehead
The White House

SUBJECT : Your telephone call of March 25, 1969

The NASA people who met with you in my office on March 18, 1969, in addition to myself were:

Mr. Arnold W. Frutkin, Assistant Administrator for
International Affairs, Tel. Code 13 - 21187

Dr. Walter A. Radius, Special Assistant to the Assistant
Administrator for DOD and Interagency Affairs (specializing
in communications matters), Code 13 - 24583

Mr. John J. Kelleher, Operational Systems Support Program
Manager, Space Applications Programs, Office of Space
Science and Applications, Code 13 - 22388

Feel free to call any of them directly for further information on international activities, communications policy matters, and technical aspects of communications, respectively.

A handwritten signature in blue ink, which appears to read "Willis H. Shapley", is written over the typed name.

Willis H. Shapley
Associate Deputy Administrator

NASA

4/3/69

(dictated
by Dick
Spencer)

FISCAL '71 SAVINGS FROM A DECISION TO
REDUCE THE NUMBER OF MANNED LUNAR
FLIGHTS TO ONE PER YEAR

(Millions of dollars)

Saturn V - ongoing (14 and 15)	About 400 (out of 448.3)
Spacecraft - ongoing	About 400 (out of 424.7)
Saturn V - new (16, 17?)	100-200
Spacecraft - new	0-50
Launch costs	About 50
Centers	0-150
Mission and Payload Design	<u>50-100</u>
Total	1,000 - 1,350

If terminate Saturn V (14 and 15 production), can defer for 4-5 years
decision to reopen production lines.

FRIDAY MORNING, MARCH 14, 1969

Time for Space Decision

ISSUE: *The manned space establishment constitutes an invaluable national resource. Can we now allow it to disintegrate?*

The success of Apollo 9 marks another giant step toward the goal of landing Americans on the moon as early as next July. It also serves as a useful reminder that President Nixon must soon make some fundamental decisions about the future of the space program.

Apollo 9's most important accomplishment, of course, was the successful test in earth orbit of the spidery-looking lunar excursion module (or LEM) which will make the actual descent to the surface of the moon later.

The LEM is expected to be tested again—under highly realistic conditions near the moon itself—as part of the Apollo 10 mission which is set for mid-May.

On that occasion, the "spider" will detach itself from the spacecraft, descend with two astronauts into an orbit only 10 miles above the moon's surface—then ascend to rejoin the mother ship for the return flight to earth.

If all goes well, Apollo 11 will carry the first men to the moon in early summer.

Assuming the first attempt at a moon landing is successful, the space agency will have a handful of Apollo spaceships left over for additional moon missions and orbital flights around the earth.

The question which Mr. Nixon must decide—and quickly—is whether to allow the manned space flight program to die at that point, or to approve some ambitious new project.

The space program has been an inevitable victim of the budget squeeze brought on by the Vietnam war. On-going programs have been trimmed or held under

tight rein, and commitments to new projects have been put off.

As a result, space industry employment has already fallen from 400,000 in the mid-1960s to 200,000 now. At the rate things are going, it will be down to 50,000 by 1972.

In short, the pool of scientific and technical expertise which has been brought together in the manned space program is disintegrating. If the President wants to save what is really an invaluable national resource, he and Congress cannot wait much longer to assign new projects to the space agency.

Mr. Nixon really faces two decisions:

- What priority should the space program as a whole enjoy relative to spending for other areas of scientific research, and for such purposes as defense and urban re-birth?

- Within the space program itself, how should available funds be divided between manned and unmanned space exploration?

The Administration, in making its decisions, should keep in mind that the fight against poverty and blight will be long and expensive. Continued scientific progress is essential if the American economy is to keep growing and producing the necessary wherewithal for these social programs.

A sound space program deserves a high place on the scale of priorities. And, both economic and military considerations dictate that the emphasis should be heavily on activities in the space near earth rather than on esoteric exploration of such deep-space planets as Mars and Venus.

The proposal for construction in earth orbit of a large, permanent scientific laboratory—housing up to 100 men—seems to deserve serious consideration as the major space project of the 1970s.



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

MAR 10 1969

MAR 12 1969

MEMORANDUM to Honorable Robert Ellsworth
Assistant to the President

In response to your request of February 19, 1969 concerning press releases from this Agency, you and Dr. DuBridge have been added to the distribution list.

Additionally, Julian Scheer, Assistant Administrator for Public Affairs, prepares a weekly report of significant upcoming events and releases and a copy of this report will be forwarded to your office each Thursday.

A handwritten signature in blue ink, appearing to read "T. O. Paine".

T. O. Paine
Acting Administrator

cc: Dr. Lee DuBridge
Mr. Herbert Klein

~~Tom W.~~

F Y 1 and

files.

Dan

THE WHITE HOUSE
WASHINGTON

MAR 8 1969

TO: Holgren —
FROM: KEN COLE

FYI _____

COMMENT _____

President has
signed - Am
returning back-up

THE WHITE HOUSE

WASHINGTON

March 7, 1969



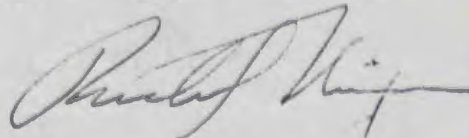
MEMORANDUM FOR

The Acting Administrator
National Aeronautics and Space Administration

Thank you for your thoughtful memorandum of February 26 on problems and opportunities in manned space flight. I recognize the significance of the issues you raise, and agree that they merit serious and careful consideration.

In accordance with my instructions, the Budget Director is engaged in a Government-wide effort to determine where near-term budget reductions can be made in order to provide for future programs within the limits of our overall fiscal policies. He will review your 1970 budget request in that context.

On February 13, I established a task group, of which you are a member, to consider future plans for the space program. I hope that the task group will devote its primary attention to a thorough examination of the major alternatives for the next decade in space, their expected accomplishments, and their costs. The need for early decision on some matters will, of course, be considered by the group in the context of that review.



EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET

WASHINGTON, D.C. 20503

MAR 3 1969

MEMORANDUM FOR THE PRESIDENT

Subject: Proposed budget amendment for the space program

I have received from Dr. Paine a request for a fiscal year 1970 budget increase of \$200 million as the first increment in augmenting manned space flight activities in 1973 and beyond. These additional 1970 funds would be used for:

- additional Saturn V production;
- augmenting the manned lunar exploration program;
- beginning design and development of a manned space station.

No reductions in other space program areas have been offered as offsets against these increases.

Dr. Paine has also written you directly urging you to approve the 1970 budget amendments and to endorse the establishment of a manned space station as a general objective of our future space program. Such an objective will require firm commitment to annual funding over an 8-10 year period well in excess of current space budget levels.

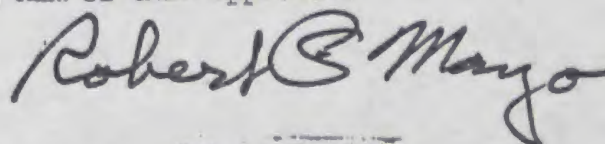
On February 13, you established an interagency task group to review future space program plans and report to you by September 1, 1969. In his letter to you, Dr. Paine suggests that the time table for policy recommendations on manned space flight be advanced to March 31 with recommendations on the remainder of the program due on September 1. The task group is moving ahead with its review.

Our first look at the agency recommendations that we have received in response to our request for review of the Johnson budget shows many more increases than decreases. In total these requests, if granted, would make precarious if not impossible the attainment of the surplus forecast by the previous Administration, which already depends on the extension of the surtax and the enactment of controversial legislation which may not be attained. And I know that your conviction is that our fiscal policy must be addressed to the attainment of a budget surplus as an essential response to today's inflationary environment and the uncertainties surrounding our commitment in Vietnam.

In this combination of circumstances, I recommend:

- that you make no statements endorsing future space objectives until your interagency task group has made its recommendations and I have had an opportunity to review them and advise you within the total budget context;
- that I postpone my recommendation on the proposed NASA 1970 budget amendment pending consultation with the task group on space, a detailed budget review of the NASA proposal, and completion of my Government-wide budget review to identify program and funding alternatives for your consideration.

If you agree with these recommendations, a memorandum to Dr. Paine is attached for your signature, informing him of this approach.



Robert P. Mayo
Director

Attachment

cc:

The Vice President
The Science Adviser

NOV 12 1969

THE WHITE HOUSE
RECEIVED

THE WHITE HOUSE
WASHINGTON

MEMORANDUM FOR

The Acting Administrator, National Aeronautics and
Space Administration

Thank you for your thoughtful memorandum of February 26 on problems and opportunities in manned space flight.

I recognize the significance of the issues you raise, and agree that they merit serious and careful consideration.

I established a task group on February 13, of which you are a member, to consider future plans for the space program. I understand that the task group will meet this week to begin deliberating the proposals contained in your memorandum.

In accordance with my instructions, the Budget Director is engaged in a Government-wide effort to determine where near-term budget reductions can be made in order to provide for future programs within the limits of our overall fiscal policies. He must review your 1970 budget request and the task group recommendations in that Government-wide context.

I am asking the task group and the Budget Director to define program and budget alternatives for my consideration along with their recommendations, and will consider the manned space flight issues further when their reports are available to me.

cc: The Vice President
The Secretary of Defense
The Science Adviser
Director of the Budget



145 27 1969

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

February 26, 1969

OFFICE OF THE ADMINISTRATOR

MEMORANDUM FOR THE PRESIDENT

Subject: Problems and Opportunities in Manned Space Flight

This memorandum is the first of several that I am preparing in response to your request of February 17, 1969, that I give you my views on the principal policy problems in space and aeronautics which now face your Administration, point out some of the opportunities for leadership initiatives now open to you, and give you my recommendations on the new directions which your Administration should set for the nation in space and aeronautics. These memoranda will also serve to indicate the alternative approaches NASA is examining in developing plans and proposals for the post-Apollo period as requested in your memorandum of February 13, 1969, and the basis for my recent recommendations to the Director of the Budget on amendments to the NASA FY 1970 Budget. Copies are being sent to the Vice President, the Secretary of Defense, and your Science Adviser as you requested, with additional copies to the Director of the Budget and Mr. Robert Ellsworth.

This memorandum outlines the problems, opportunities, and principal factors to be considered in Manned Space Flight, the area in our space program where NASA and your Administration are faced with the most urgent need for high-level decisions.

1. Introduction -- NASA now has no approved plans or programs for manned space flight programs beyond the first Apollo manned lunar landings and the limited Apollo Applications earth orbital program now approved and underway. Sharply reduced space budgets over the past three years and the failure of the previous Administration to make the required decisions and provide the necessary resources for future programs have built in a period of low accomplishment which will become apparent during your Administration, and have left the program without a clear sense of future direction for the post-Apollo period. Positive and timely action must be taken by your Administration now to prevent the nation's programs in manned space flight from slowing to a halt in 1972.

The Apollo program served the nation well in providing a clear focus for the initial development and demonstration of manned space flight capabilities and technology. What is needed now, however, is a more balanced program for the next decade which will focus not on a single event but on sustained development and use of manned space

flight over a period of years. As discussed below, there are two principal program opportunities: one is a long-term carefully-planned program of manned exploration of the moon, the other is a wide range of activities involved in the progressive development and operation of a permanent manned station in earth orbit. I believe that (a) manned lunar exploration should be continued at an economical rate to the point where a sound decision on the future course the nation should follow with respect to the moon can be made on the basis of knowledge and experience gained from a series of manned missions, and (b) the nation should, in any case, focus our manned space flight program for the next decade on the development and operation of a permanent space station--a National Research Center in earth orbit--accessible at reasonable cost to experts in many disciplines who can conduct investigations and operations in space which cannot be effectively carried out on earth.

2. Status of U.S. Programs and Plans -- If our Apollo flights continue to be successful we will achieve the first manned lunar landing later this year, possibly as early as this summer. We will then carry out three additional landings at different locations on the moon, but the improved equipment required for moving beyond this with a scientifically significant lunar exploration plan is restricted to the study stage. We will have a number of Saturn V boosters and Apollo spacecraft for future lunar missions left over from the Apollo program.

In earth orbit, the next major U.S. milestone in manned space flight is the Saturn I Workshop, which is now scheduled for launch in late 1971. This first step toward a space station will use existing Saturn IB rockets left over from the Apollo Program. Flight operations, including revisit and experimental Apollo telescope operations, will be completed in 1972. The military missions of the Air Force's smaller and more specialized Manned Orbiting Laboratory (MOL) are expected to take place about the same time.

There are no approved plans and no provision in the FY 1970 Budget for continued U.S. development or utilization of manned space flight beyond the Apollo moon flights, the single set of Saturn I Workshop and Apollo telescope missions, and the Air Force MOL program as currently planned. For the future of manned space flight beyond 1972 the present FY 1970 NASA Budget provides only small sums limited to studies of advanced manned lunar exploration and earth orbital space stations.

3. USSR Prospects -- Recent USSR manned space flight activities substantiate previous indications that they are continuing strong programs pointed both at manned operations to the moon and at space

station operations in earth orbit. Beyond this, they talk openly of future manned trips to the planets. While we now expect to land American astronauts on the moon before the Russians get there, the prospects are that during the period of our lunar flights in 1969-1970 the Soviets will, in addition to their manned lunar program, follow up their Soyuz 4-5 success by pushing toward a dominant position in large-scale long-duration space station operations in earth orbit. They will have the required heavy-lift launch capability. A multi-man, multi-purpose USSR space station operating in orbit before the U.S. could match it would give the USSR a strong advantage in space research and operations. Their moving clearly ahead of the U.S. in this field would have a continuing impact on the rest of the world, particularly if the U.S. program did not include a strong program in the earth orbital space station area.

4. Opportunity for Leadership -- The fact that the previous Administration deferred to you the setting of the nation's goals in manned space flight creates a problem, but it also gives you a unique opportunity for leadership that will clearly identify your Administration with the establishment of the nation's major goals in manned space flight for the next decade. The impact and positive image of your leadership would be seriously downgraded in the eyes of the nation, the Congress, and the public, in my view, if the U.S. were once again placed in the position of reacting to Soviet initiatives in space. For this reason, I believe that you should consider the advisability of initiating a general directive to define the future goals of manned space flight in the next few months, prior to your final decisions on the plans that will be recommended to you on September 1 by the members of the Task Group you have established. For example, a major thrust this summer by the USSR in the earth orbital space station field is a distinct possibility that would take the edge off your announcement of a similar U.S. objective in the fall. For the reasons given below, I believe that the case that a space station should be a major future U.S. goal is now strong enough to justify at least a general statement on your part that this will be one of our goals, with the understanding (which could be reaffirmed in your statement) that the scope, pace, specific uses, and detailed plans of the space station will be determined on the basis of the planning studies you have requested.

5. Basic National Policy -- There is, I believe, almost unanimous agreement on the part of responsible leaders in your Administration, the Congress, industry, the scientific community, and the general public that the U.S. must continue manned space flight activities. The concerns and criticisms that have been expressed do not question the continuation of a manned space flight program but relate principally to

(a) the cost of the program, (b) the value of specific goals, and (c) questions of priorities, within the space program or between the space program and other scientific fields or other national needs. However, virtually no responsible and thoughtful person, to my knowledge, advocates or is prepared to accept the prospect of the United States abandoning manned space flight to the Soviets to develop and exploit as they see fit.

It is very important that all concerned with planning the future of our space program recognize this basic question of national policy. Acceptance of the fact that as a matter of policy the nation must and will continue in manned space flight leads to the following four points which should be considered in our planning:

- a. Studies of our alternatives in future space programs should focus on the pace, objectives, and content of the manned space flight program, not on whether the U.S. should have a manned program. Alternatives which have the effect of not supporting a continuing effective U.S. manned flight program are not acceptable. A balanced total space program must include a significant continuing manned space flight program as one of its key elements.
 - b. The U.S. must be prepared to pay the annual cost of an advancing, effective manned space flight program, high though it may seem. An important early objective, however, must be to reduce the cost of manned space flight, without sacrificing safety, reliability, or accomplishment.
 - c. An advancing, effective manned space flight program cannot at this stage be limited to repetitive flights of missions already flown but must provide for the continuous evolutionary development of new capabilities, new missions, new experiments, and new applications.
 - d. Decisions and selections of future programs must be made on a continuing timely basis several years before current objectives are achieved; otherwise the long lead-times inherent in the space program will force dangerous and expensive breaks in continuity that will undermine the success of the program.
5. Effects of Decisions in the Previous Administration -- The failure, during the past three years, to make timely decisions and to take necessary future-oriented actions has placed our manned space flight program in a serious and difficult position for the early 1970's. The

production of both Saturn IB and Saturn V launch vehicles has been terminated. The Saturn V vehicles now on order must either be launched on schedules stretched out to clearly uneconomical rates, rates which may be below the minimum acceptable for reliability and safety, or flown with experimental payloads that repeat previous missions without significant advances. The failure to develop and approve future goals and objectives has forced the program into expensive and unproductive "holding" operations in some areas and made it more difficult to focus sharply on the planning and preliminary development efforts which must precede future programs. The watchwords of budgetary actions for the past several years have been "delay," "stretch-out," "defer," and "hold the options open." The results are that for the next several years the nation will be getting a smaller return on its great investment in manned space flight capability, and that the long-deferred decisions on future goals must be taken now at an earlier time than your Administration would otherwise prefer.

6. Recommended Approach -- I believe that your Administration should now speak out boldly about the nation's future in space. Instead of continuing to stretch out and minimize the manned space flight program at the risk of reducing it beyond the point where it can be effective, your Administration should (a) point out the fact that the nation must continue to move forward in manned space flight, (b) while seeking every economy, accept the costs that this entails, and (c) plan, announce, and support a new ten-year space program--including a strong program of manned space flight--of which this nation and the world will be proud. Your Administration's decisions in the next few months will determine the nation's direction and progress in space for many years.

7. Study of Future Directions -- The process established in your memorandum of February 13, 1969, provides a useful framework for the development of specific goals and plans for the future of our space program. It will, among other things, enable NASA to communicate to the other agencies involved the thinking and planning that we have had underway for some time, and help assure NASA that its planning is properly coordinated with future aerospace planning in DOD, DOT, and other departments.

However, unless adequate provision is made in the FY 1970 Budget in time for Congressional action in the FY 1970 authorization and appropriation cycle, the implementation of plans decided upon next fall as a result of the Task Group recommendations will have to await the FY 1971 cycle. This would mean the loss of an entire year and the foreclosure of your option to move ahead promptly with a strong manned space flight program if that should be your decision.

For this reason, I believe that it is essential that the FY 1970 Budget be amended now to include the manned space flight funds--specifically deleted by the previous Administration--required to support moving ahead in lunar exploration and space station development. I can appreciate that you may be reluctant to decide now to amend the FY 1970 Budget, thus appearing to prejudge the recommendations to be made in September, but postponement will foreclose what may well be your most attractive option and will perpetuate and aggravate an already unsatisfactory situation.

8. Future Directions and Goals -- As stated above, two major directions have been identified for the manned space flight program in the next decade. One is the further exploration of the moon, with possibly the eventual goal of establishing a U.S. lunar base; the other is the further development of manned flight in earth orbit, with the goal of establishing a permanent manned space station in earth orbit that will be accessible and useful for a wide range of scientific, engineering, and application purposes. An important part of the space station goal is the development of a low cost logistics system for shuttling people and equipment to and from the space station.

These goals have in common the fact that they are not focused on a single dramatic achievement to be accomplished by a certain date, as was the case in the Apollo program. However, they can provide in the second decade of space, as Apollo did in the first, the focus for continuing advances in U.S. space capabilities and technology which will be available to support future defense and civilian requirements and to sustain our long-term national technical and economic vitality.

9. Lunar Exploration -- In lunar exploration, our immediate problem is to assure that we have adequate scientific and operational equipment to allow us to follow up the first few lunar landings with an effective initial program of exploration that will permit sound judgments on the potential value of more advanced future missions and the eventual establishment of a lunar base. If, as we now expect, we have early success in achieving the first manned landing on the moon, we will have Apollo hardware--launch vehicles and spacecraft--for as many as nine additional lunar missions, but we lack scientific and improved operational equipment for more than three of these. In order to proceed with these missions at an economical rate, we are preparing a budget amendment that will permit prompt initiation of procurement of additional scientific and operational equipment early in FY 1970. Your approval of this budget amendment now will not constitute a commitment to lunar exploration beyond that possible with the Saturn-Apollo hardware procured for the Apollo program. Decisions on an advanced program of lunar exploration requiring major redesign of the Apollo Lunar Module, the development of shelters and vehicles for use

on the lunar surface, and the question of the ultimate goal of establishing a lunar base can and should be made in your review of the plans and proposals to be submitted next September.

10. Space Station -- With respect to future manned earth orbital flight, the immediate problem is to assure that sufficient funds are available in FY 1970 to permit detailed planning and design studies to proceed, and to develop critical long lead-time subsystems that will be required in any future manned space flight program. Funds for these purposes were specifically excluded from the present FY 1970 Budget, except for a small amount for studies, and we are therefore preparing an appropriate amendment to the FY 1970 Budget. This budget amendment can be approved now without a commitment on your part to a permanent space station as a major national goal. However, as stated in paragraph 4 above, we believe that it is in the national interest for you to endorse this as a general U.S. objective at this time. One possibility would be for you to give NASA and the Task Group a specific instruction at the time you approve the budget amendment that their recommendations to you in September should include proposals on the optimum program for establishing and utilizing a permanent U.S. space station.

11. Space Station Concept -- The space station discussed here should become a central point for many activities in space, and would be designed to carry on these activities in an effective and economic manner. It would be located in the most advantageous position to conduct investigations and operations in the space environment, many important aspects of which cannot be duplicated in an earth-based environment. The best place to study space is in space. We have in mind a system consisting of general and special-purpose modules with a low-cost logistic support system that will permit ready access and return by many users and their equipment and supplies. The space station would not be launched as a single unit, but would evolve over a period of years by adding to a core new modules as they are required and developed. One of the key objectives is to develop the system in cooperation with the Department of Defense so that it can be adaptable for future military research as well as for a variety of non-military scientific, engineering, and other applications purposes.

There are many potential valuable uses of such a space station, and new ones will be found as experts in many fields become familiar with the possibilities and are able to visit and actually use it. However, we believe strongly that the justification for proceeding now with this major project as a national goal does not, and should not be made to depend on the specific contributions that can be foreseen today in particular scientific fields like astronomy or high energy physics, in particular economic applications, such as earth resources

surveys, or in specific defense needs. Rather, the justification for the space station is that it is clearly the next major evolutionary step in man's experimentation, conquest, and use of space. The development of man's capability to live and work economically and effectively in space for long periods of time is an essential prerequisite not only for operations in earth orbit, but for long stay times on the moon and, in the distant future, manned travel to the planets. It is for these reasons that I believe that space station development should become one of your Administration's principal working goals for the nation over the next decade.

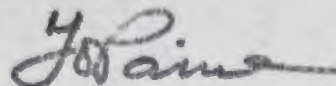
12. Saturn V Production -- Under NASA's reduced 1969 operating plan and its present FY 1970 Budget, the production of Saturn V, the nation's largest launch vehicle, has been discontinued. The long-term future of the manned space flight program, as outlined above, will clearly require additional Saturn V launch vehicles, and we are therefore proposing a FY 1970 Budget amendment which will permit production to be resumed, at a very low rate, before "start up" costs become excessive. This amendment will not preclude other future decisions on large launch vehicles that might be made next fall, but it will assure that funds are available to provide the launch vehicles that will be needed. It will also get the U.S. out of what I believe to be a current untenable position of having discontinued production of our largest space booster at a time when the Soviets are expected to unveil a booster of this class or larger. For the reasons stated in paragraph 4 above, I recommend that you now take the initiative and announce this decision before the Russians launch their first booster in this class, so that your announcement will not be viewed as a reaction to the Soviet development.

13. Cost -- In planning the space program careful consideration must, of course, be given each year, and especially at the time new major programs are undertaken, to the future budget levels required. Our national budget system wisely and necessarily provides for a review at least annually of both on-going and new programs, but long-term enterprises like major space programs require a policy commitment to follow through with the resources required over a period of many years. For these reasons, it is important that your Administration be prepared to accept the total budget levels required by the programs you determine to be in the national interest. NASA on its part has the obligation continually to search out the least costly ways of carrying out the approved programs and to make every effort to use the possibilities of new technology to reduce future costs. But most important of all, neither NASA nor the Administration should, in the name of economy, underestimate the resources that can realistically be expected to be required. We must meet our commitments.

Our present projections indicate that a balanced total NASA program that includes the recommended strong manned space flight program can be carried out with annual budgets over the next five years which will not rise above the \$4.5 to \$5.5 billion range. More precise projections will depend on the nature of the future lunar exploration and space station programs decided upon and on future decisions in areas other than manned space flight. By the time we submit the planning proposals to you in September we will be able to state with considerable confidence the projected future estimated costs of alternative total programs.

A total annual program level of \$4.5 - \$5.5 billion compares to program and expenditure levels in the \$5.0 - \$6.0 billion range reached in the 1964-1967 period, which in the past two years has been reduced to \$3.9 billion in our FY 1969 operating plan and the present FY 1970 Budget. As we have informed the Director of the Budget, the FY 1970 NASA Budget amendments we are proposing in manned space flight amount to about \$200 million and would bring our total 1970 Budget (including authority carried forward from FY 1969) to slightly under \$4.1 billion. Even with this proposed amendment, however, NASA's outlays (expenditures) in FY 1970 will still decline \$200 million from the \$4.25 estimated for FY 1969.

This memorandum has given you my recommendation on the position your Administration should take with respect to the critical and urgent situation in manned space flight; other NASA problems and opportunities can be treated appropriately in the Task Group framework for your consideration in September. For the reasons stated above, and with the possibility of an initial lunar landing in July, I believe you should not defer initial consideration of the manned space flight problem. I therefore specifically recommend that you ask the members of the Task Group established in your memorandum of February 13, 1969, to meet within the next month and to consider as their first order of business the matters identified in this memorandum as requiring your early decision. They should then present their recommendations to you by the end of March. In anticipation of such a meeting, NASA will prepare and make available to the other members of the Task Group (a) detailed materials on the alternatives available, and (b) suggestions on how the recommended early decisions can be related to an effective process for developing overall space plans and alternatives for your consideration in September. I hope that this proposal will meet with your approval, and would, of course, be happy to discuss this matter further with you at your convenience.



T. O. Paine
Acting Administrator

cc: The Vice President
The Secretary of Defense
The Science Adviser
The Director of the Budget
Mr. Robert Ellsworth

THE WHITE HOUSE

WASHINGTON

March 6, 1969

MEMORANDUM FOR

THE PRESIDENT

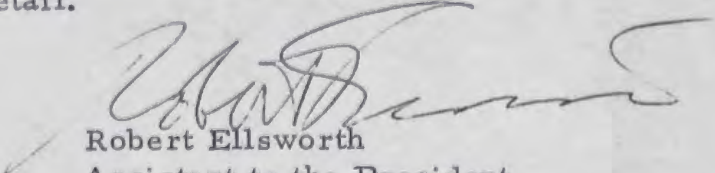
The Budget Director has received from NASA a request for an FY 1970 budget increase of \$200 million as the first increment for augmented manned space flight activities in 1973 and beyond. No reductions in other space program areas have been offered as offsets against these increases.

Dr. Paine has also written you directly (memorandum attached) urging an early Presidential statement making the development of a manned space station one objective of our future space program.

On February 13, you established an interagency task group to report to you by September 1, 1969, on future space program plans.

The attached memorandum to Dr. Paine for your signature reflects the views of my office, the Vice President, the Bureau of the Budget, the Office of Science and Technology, and the National Security Council that the immediate issues raised by the new budget request should be separated from the task group review and handled as a part of the budget process. The task group will consider the need for early decisions as a part of its broader deliberations.

The attached memorandum from the Budget Director discusses the budget aspects in more detail.



Robert Ellsworth
Assistant to the President

Attachments

MAR 8 1969

HOLD FOR RELEASE UNTIL
PRESENTED BY WITNESS

Statement of

Dr. Thomas O. Paine
Acting Administrator

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

before the

Committee on Science and Astronautics
House of Representatives

MAR 15 1969

Mr. Chairman and Members of the Committee:

We appreciate the opportunity to participate in the start of your hearings on the NASA authorization for FY 1970, and to testify in support of H.R. 4046 which embodies the recommendations in the FY 1970 Budget.

While this is my first appearance before your Full Committee, I am well aware and very appreciative of the importance and value of your reviews of the NASA program each year. The need is especially great this year for thoughtful discussion and clear debate to establish the direction and pace of the nation's space programs. At a time when the United States faces many problems in many fields, it is important that the national priority issues involved in moving steadily ahead in space -- and equally important, in failing to move ahead -- be clearly understood. In my view, the Congress shares with the

new Administration a great responsibility for national leadership in aerospace at this time. The U. S. space and aeronautics programs, and NASA as the agency with primary responsibility for them, particularly need your counsel and support in the second decade of the Space Age just as they did in the first. We hope that after your review of our accomplishments and plans, you will conclude that NASA's programs continue to deserve the confidence and support of the nation.

As in previous years, the Associate Administrators in charge of each of our major offices will testify on the details of our accomplishments during the past year, the current status of our programs, the problems we have encountered, and the program plans and resource requirements recommended in the FY 1970 Budget. Dr. Mueller, Mr. Lundin, Mr. Finger, Dr. Naugle, and Mr. Truszynski will present summary statements today and tomorrow to the full Committee and, together with their associates, give detailed statements and supporting testimony by others before each of your subcommittees. These gentlemen are well known to the Committee except perhaps for Mr. Bruce Lundin, the Deputy Associate Administrator for Advanced Research and Technology. He is appearing in place of Mr. James Beggs who we are proud to say has been appointed by President Nixon to

be Under Secretary of Transportation. I may add that all of us in NASA are also proud that Dr. Robert C. Seamans, Jr., who served NASA so long and so well as Associate and Deputy Administrator has become Secretary of the Air Force.

My statement will be confined to an overview of our current situation and plans, and the resources requested in the FY 1970 Budget. First let me highlight some of our accomplishments during the past year:

--In manned space flight we have demonstrated the flight worthiness of the Saturn-Apollo system. The problems revealed in the unmanned flight test of Apollo 6 last spring - the "POGO" vibration and J-2 engine restart failure - were successfully analysed and corrected. Apollo 7 demonstrated with a perfect mission the capabilities and performance of the Block II Apollo spacecraft, incorporating the safety features determined to be necessary after the Apollo 204 fire.

Apollo 8, I hardly need to say, demonstrated in spectacular fashion that the entire Saturn V-Apollo system - minus the lunar module - and our ground tracking, communication, and control systems, can indeed do what they were designed to do: take men out to the moon and back, safely and in a precisely

controlled trajectory, landing less than 2,000 yards from the target point. Apollo 8 also served to remind the entire world of what many had forgotten and some had come to doubt: that manned exploration of space is a profoundly moving experience which people everywhere can share, through the miracles of space communications, and feel a sense of participation and triumph in a major achievement of the human race.

--In space science, two of the most significant accomplishments, among many, have been the successful launching and operation of satellites equipped to observe the far reaches of the universe in ways that are impossible on earth. One was the Radio Astronomy Explorer - RAE-A or Explorer 38 - a small satellite equipped to observe radio astronomy sources in wavelengths that cannot get through to the earth. The other was OAO-II, the largest and most complex unmanned satellite we have yet launched, which is observing stars and galaxies in ultraviolet light which likewise is not visible from the earth. Dr. Naugle will be saying more about the significance of these satellites; let me say only that they represent major milestones in our efforts to explore space from space, and to use technology in support of the advancement of knowledge and understanding.

-- In the planetary area, the development of the Mariner spacecraft was successfully completed on the tight schedule required to meet the 1969 Mars launch window. Mariner F, renamed Mariner VI, is now a week and a day on its long voyage to Mars; Mariner G is being readied for launch later this month.

-- In space applications we have used our Applications Technology Satellites effectively in the monitoring and study of tornados and hurricanes. Earth resources work from aircraft has paved the way for experiments from space.

-- In space technology, steady progress has continued. Tests of the nuclear rocket engine system have continued to go extremely well. The SNAP-8 nuclear power generating system has accumulated several thousand hours of bread-board operation. In our research on lifting reentry bodies for future space shuttle type operations, the HL-10 manned test vehicle moved into the powered flight test phase.

-- In aeronautics our noise reduction program has moved ahead with experimental demonstrations of the noise reduction possible through the use of sound absorbing devices in the inlets of jet engines.

In basic aeronautics design, an extremely promising breakthrough has been the supercritical wing, which we expect can increase the speed and maneuverability of subsonic aircraft in much the same way as in the famous "coke bottle" fuselage design of several years ago for supersonic aircraft design.

-- The tracking and communications network - ground stations, ships, aircraft, satellites, and switching centers - required for the Apollo program is now in place and was successfully demonstrated in the Apollo 8 flight. The television you all saw from 240,000 miles in space was one of the network's outstanding accomplishments.

In the past year we have also, of course, encountered problems. I have mentioned the POGO and J-2 engine problem with the Saturn V. As the Committee knows, we had launch vehicle failures - now something of a rarity in the space program - with the Thor Agena, the Delta booster, and Centaur stage during the year. Other examples were the two accidents with lunar landing training vehicles, also reported to the Committee. I mention these as a reminder that we in NASA are in a highly experimental area and that the possibility of failure always exists.

We must not let text-book successes like Apollo 7 and Apollo 8 lull us into overconfidence. It is important that the Congress and the public do not forget that failures are bound to occur, and that they are a necessary part of the price of progress.

We have had another kind of problem during the past year - one that is still with us. I refer to the problem of ensuring that a high level of accomplishments is continued in our flight programs and that the high quality of our scientific and technical work is maintained during a period of retrenchment and declining resources.

NASA's FY 1969 Operating Budget is \$762 million below FY 1968 and over one billion dollars below FY 1967. During this same period total nationwide employment on NASA work decreased from an earlier peak of approximately 420,000 to 270,000 at the end of FY 1968, to about 215,000 at the end of FY 1969, and, under the FY 1970 Budget to about 190,000. The reduction of our NASA civil service during the same period has placed a difficult burden on our program management, coming as it has during the period of our most intense preparations to support the heavy schedule for manned space flight.

It has not been and is not easy to maintain a strong forward-thrusting program under these conditions. The problem has been compounded by the uncertainties on the funding level and future goals of the program. Our Headquarters Managers and Center Directors deserve great credit for the effective leadership they are providing in these difficult circumstances.

Until last October when the final decisions were made by the President on the distribution of the Government-wide reduction in FY 1969 expenditures required of him by the Revenue and Expenditure Control Act, we could not be sure at what level we would be permitted to operate in FY 1969. We were able to mitigate somewhat the impact of the reduction that was ultimately made by taking early action to establish in August, as we reported to the Committee at the time, an interim FY 1969 operating plan under a self-imposed limitation which, as things turned out, corresponded to the reduction imposed by the President in October. By this timely action we avoided the much more serious consequences of being forced to absorb the entire reduction in the last two-thirds of the fiscal year.

In recent years, the Budgets submitted by the President and the funding levels finally approved have required deferral wherever possible of programs pointed at major new objectives. In order to maintain some momentum and preserve important options, we have to take uneconomical actions to defer programs, curtail scope and value of projects, stretch-out schedules, and reduce planning and preliminary design and development work on future programs.

The combination of reduced and uncertain budget levels with the inability to make firm plans for the future have, in my opinion, served to limit the effectiveness of the NASA organization to a level below what they can and should be.

Let me now turn to the FY 1970 Budget.

As the Committee knows, the FY 1970 Budget we are presenting today is the Budget submitted by President Johnson, as required by law, prior to leaving office. President Nixon has requested the head of each agency and the Bureau of the Budget to review the Budget of the previous Administration in the light of the policies of the new Administration. The reviews are now underway, but until such time as this process is completed and the President has made his decisions, we cannot say what revisions, if any, may be made.

The NASA FY 1970 Budget before you arrests the steady downward trend of NASA budgets in the past several years and is designed to provide NASA with the same total program level in FY 1970 as we were allowed in our reduced FY 1969 operating plans, even though the authorization request before you shows an apparent decrease. Let me explain:

-- For FY 1969 - The total appropriated by Congress in Public Law 90-550 was \$3,995 million. Under the requirements of the Revenue and Expenditure Control Act, the President withheld \$117 million, leaving us with a FY 1969 operating plan of \$3,878 billion, including provision for the civil service pay increases becoming effective during the year.

-- For FY 1970 - President Johnson's decision was to provide NASA the same program level as in the final FY 1969 operating plan, \$3,878 million. The \$117 million withheld in FY 1969 is "no-year funds" which can be applied to our FY 1970 requirements without further Congressional action. Thus, the FY 1970 authorization and appropriation requests now before Congress total only \$3,761 million, \$117 million less than the \$3,878 million program level the Budget recommends.

I have characterized NASA's FY 1970 Budget "as a 'holding' budget that provides for progress, but defers critical and

program funding decisions to the new Administration." Virtually all of the \$3,878 million requested for FY 1970 is required for the necessary costs of continuing in FY 1970 projects and programs approved and begun in previous years. These include the Apollo program, the limited Apollo Applications program which we were finally able to undertake within our reduced FY 1969 operating plan, the Titan-Mars 1973 program - now called "Viking" - which was also approved last year, and other programs with which the Committee is familiar.

To carry forward previously approved programs in FY 1970 will require about \$3.8 billion. The remainder of our request, about \$70 million, is for previously anticipated extensions of some of our continuing space science and applications programs, such as a Mariner-Mercury 1973 mission and the synchronous meteorological satellite, and for starting three principal new programs or major developments:

1. The Earth Resources Technology Satellite Program - We have secured approval in this Budget to move ahead with the actual development of experimental Earth Resources Technology Satellites now designated ERTS A and B. If this Budget recommendation is approved by the Congress, we will be able to begin satellite testing of multi-spectral television systems

which will enable experimenters in the several government agencies and universities cooperating in our program to assess experimentally the value of space-collected data in the study and understanding of a variety of earth resources. For many years NASA and the Departments of Interior, Agriculture, Commerce and other agencies have been enthusiastic about the great potential value of data that can be collected from space. Hitherto, we have been limited by budgetary constraints to experimentation on the ground and from aircraft, sensor development, and studies of satellite systems. This work has progressed to the point where we are now ready, if this Budget recommendation is approved, to carry out work from space which will enable us and the cooperating "user" agencies to assess with hard experimental evidence the utility of earth resource data collected by satellites and begin to develop plans and systems for utilizing such data in their operations. I foresee earth resource satellite developments in the second decade of space that will parallel and ultimately go beyond the great values that have been realized through the development and utilization of meteorological satellites in the first decade. ERTS A and B correspond to the first experimental meteorological

satellites and should have the same revolutionary impact on the many disciplines in the earth resource field as the original TIROS experiments had in the field of meteorology and weather forecasting.

2. NERVA Flight Weight Engine Development - Under the reduced budget level for FY 1969 imposed on NASA under the Revenue and Expenditure Control Act, we were not able to begin in FY 1969 development of the NERVA flight weight nuclear engine as approved by the Congress. Initiation of this development has now been approved in the FY 1970 Budget. By the end of FY 1969 we will have reached the point beyond which it would be impractical, from a technical or program standpoint, to proceed with further preliminary development and test work on the NERVA engine without a clear decision to proceed with actual development of the flight weight engine. This is perhaps our longest-term future major technological development effort, and I hope that the total NASA budget level that emerges from the authorization and appropriation cycles in FY 1970 and future years will be such that we are able to sustain the continuation of this very promising development to completion.

3. Planetary Explorers - The third new program in the FY 1970 Budget calls for the start of a series of small but significant "planetary explorers." On flights to Venus starting in 1972 and later to Mars, they will supplement in more important respects, the more detailed and comprehensive data gathered by our larger and more costly Mariner-class missions. I believe that we will find that in the field of planetary exploration, as in the scientific exploration of space around the earth, the greatest progress can be made at the least cost through a balance of small relatively unsophisticated satellites and larger more expensive spacecraft with sensors and instruments embodying the most advanced technology available. Dr. Naugle will have more to say about this program.

In all other respects, the FY 1970 Budget must be regarded as a "holding" budget which does not set and support new goals for the nation's space program to replace those we have achieved or are now close to achieving in the first decade of space.

This is especially true in the area of manned space flight. As the Committee knows, NASA has felt and expressed the need for several years now for clear decisions and support for future manned space flight objectives. We believe that it is clear

that the future goals in a balanced manned space flight program lie in two directions. One is continued exploration of the moon, the other is the development and utilization of a permanent manned space station in earth orbit. In his decisions on the NASA FY 1970 Budget, President Johnson specifically deferred to President Nixon's Administration decisions on both of these goals and on the initiation of new programs to work toward them. Under the FY 1970 Budget before you, it will be NASA's task to proceed with studies of possible future programs and to do everything we can to preserve until FY 1971 effective options to proceed in either or both of these directions.

As Dr. Mueller will discuss in more detail, in manned space flight the FY 1970 Budget provides for continuing the Apollo program at a decreasing level and for continuing work toward the single set of flights of the Saturn I Workshop and Apollo telescope mount now scheduled for 1971 and 1972. Beyond that, it provides only funds for study - \$11 million for studies of equipment required for future exploration of the moon and \$9 million for studies and related preliminary work in the earth-orbital space station field.

Turning for a moment to the USSR program, I think it is now abundantly clear that the Soviets are proceeding in manned space flight programs directed both at sending men to the moon and at substantially enlarged and extended manned operations in earth orbit. They have specifically stated that their Zond 5 and 6 unmanned circumlunar flights last fall, in which the spacecraft were returned to earth, are part of their preparations for manned lunar flight. We have no reason to doubt them. Their automatic rendezvous and docking flights with Cosmos 186 - 188 and 212 - 213 and the manned Soyuz 4 - 5 mission in January, with manned docking and crew transfer, demonstrated their capability for increasing earth orbital operations and point to future potential for assembly in earth orbit of both space stations and manned spacecraft to send to the moon or beyond. In their planetary program, the Soviets have launched two spacecraft to Venus which they say are intended to soft-land instruments on Venus much improved over those they landed with Venera 4 last year. In other categories of space and aeronautics, their program continues to be active and their entire effort is clearly receiving a continuing high level of support.

As indications of future Soviet direction and pace become clearer and as this nation approaches the first manned Apollo

lunar landing, it is clearly appropriate for the new Administration and the Congress to take a fresh look at long-term U.S. goals in space. President Nixon has asked me as Acting Administrator of NASA, the Secretary of Defense, and the President's Science Adviser, each to develop proposed plans on the direction the U.S. space program should take in the post-Apollo period and to meet together as a Task Group under the Chairmanship of the Vice President, to prepare for the President a coordinated program proposal. The Task Group is meeting this week to begin to consider the problems and opportunities the nation has in space now and in the next decade. In this planning process, the President has asked that the members of the Task Group consult, as appropriate, with the State Department, AEC, and other Executive Agencies concerned, and with the Congress. I have great expectations that through this process will come firm decisions for a program in space and aeronautics of which the nation can be proud.

Let me conclude by outlining my views on the goals in space and aeronautics toward which the nation should move in the next decade. I believe that NASA's major program goals for the next ten years should include:

First - We should do all we can to understand and put to early use the promise of space for people here on earth. We should increase our scientific knowledge of the vital earth-sun relationship and study the earth itself from space. We should develop and experiment with new and improved practical applications of satellites, particularly in earth resources. We should continue to foster prompt introduction into the economy of space applications and technology.

Second - We should follow up the first Apollo landing with a sound program of manned lunar exploration.

Third - We should proceed with the development and experimental operation of a permanent U.S. space station in earth orbit.

Fourth - We should move out steadily in the exploration of deeper space, exploring the planets with unmanned probes and the sun, stars, and galaxies from orbital observatories outside the atmosphere.

Fifth - We should provide the technology for developing the full potential of U.S. civil and military aeronautics.

Sixth - We should maintain a strong momentum of broad technological advance in all aerospace disciplines.

I hope that this year and in the years to come, the Committee and the Congress will support the programs and budget requests required to meet these goals.

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PRESENTED BY WITNESS

MAR 6 1969

Statement of

BRUCE T. LUNDIN

Deputy Associate Administrator for Advanced Research and Technology
National Aeronautics and Space Administration

before the
Subcommittee on Advanced Research and Technology
Committee on Science and Astronautics
House of Representatives

Mr. Chairman and Members of the Subcommittee:

I greatly appreciate this opportunity to appear before you regarding the NASA FY70 budget that supports the program of the OART. This is also an unexpected personal privilege because, until a few days ago, our office was to have been represented by Mr. James M. Beggs, who has been nominated Under Secretary of the Department of Transportation.

Upon my transfer to NASA Headquarters from the Lewis Research Center this past summer, I found, in the Office of Advanced Research and Technology, a smoothly running organization staffed by experienced and dedicated people who were engaged in a broad, complex and, we believe, a very important program. This program is divided into the two broad categories of aeronautics technology and space technology and our testimony to you in the days ahead will identify those portions of each of our eight discipline areas that are pertinent to either

aircraft or space technology. I request permission to submit for the record the detailed statement on the entire OART program prepared for the Committee. Before getting into the details of each of our eight R&D discipline items, however, I thought it would be helpful to you to have an overview of the aeronautics technology program and, similarly, an overview of the space technology program. Mr. Harper, Deputy Associate Administrator for Aeronautics, OART, has prepared the aeronautics overview for you today and I will be prepared to do the same for space at the appropriate time.

Before starting with aeronautics, however, a few remarks concerning the total effort of the OART is in order. The budget request for R&D in FY70 totals some 290.4 million dollars, an increase of about \$5 million over that for FY69. This is shown by the dollar chart we have handed out. Appreciating the urgent and growing importance of developing and maintaining a strong research base for our nation's many problems and opportunities in aeronautics, we have devoted this increase to the aircraft technology program. Total R&D funding for aircraft technology thus stands at 100.7 million in this budget. Space technology R&D is funded at 189.7 million, approximately the level of this current fiscal year.

Decisions on distribution of funds among many competing program elements and, of equal importance, the utilization of available talent in appropriate technical areas, are among the most difficult that I

face. Fortunately, many inputs and much valuable advice is available to us in this important planning process. We are assisted by a Research and Technology Advisory Council which, supported by a number of advisory committees in various technical areas, brings us the views of the leaders of industry, universities and other Government agencies on our program. I also join at regular and frequent meetings with my counterparts in the other Program Offices of NASA in the formulation of working papers pertinent to NASA's future plans -- thus relating future missions to ongoing technology and identifying needed technology for possible future missions. Our many contacts, both formal and informal, with other agencies of the Government is also a most important input into our plans. Our final program plan for OART, and the budget request before you, represents a careful weighing and evaluation of all of these, and many other, considerations. I feel that this budget, while a tight one to carry out the work before us, does represent a sound and balanced basis on which to go forward on the essential tasks ahead.

As we consider the resources required to carry out this program, we think, of course, in terms of budgets and dollars. But in a very real sense, our most important resource is people -- the skilled and dedicated people of our Centers and in the universities and industries with whom they work. For this reason, special import is attached to the Research and Program Management item of our budget. These are the funds that pay the salaries of the men and women of our Centers, that pay the power bills of their wind tunnels and other facilities and provides them with

the services that their work requires. The high level of experience and competence of our Centers stands today as a distinct national resource of large value. As I noted to the Committee on March 4, one important element in the success we have achieved, whether it be the launching of an Apollo spacecraft or the development of a nuclear power technology, is the ability for competence in Government to join with competence in industry for a cooperative attack on our problems. For this reason, I would appreciate an opportunity to present a fuller discussion of this R&PM item at a subsequent date. By way of summary, however, I may note that the total of this item for FY70 is 195.6 million dollars, about 80 percent of which supports the 11,533 people of the five Research Centers for which I am institutionally responsible.

In addition to these funds for R&D and R&PM, our budget request includes some 12.8 million dollars for the construction of two new research facilities, one at our Electronics Research Center in Cambridge, Massachusetts, and one at our Langley Research Center in Hampton, Virginia. Both of these facilities will be described in the context of the research programs they support during subsequent testimony. Suffice to note now that both of these facilities are directed at new fields of work, one in the field of instrumentation and computing and one in the field of noise research.

Taken altogether, this broad and complex program of research and technology, the people who carry it out, and the facilities they use

represents a total endeavor that we believe to be of fundamental importance to our future. Second to none in importance is, of course, our nation's strength in aeronautics and an overview of NASA's contributions to our research base in aeronautics which Mr. Harper will discuss in greater detail.

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EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY
WASHINGTON, D.C. 20506

March 6, 1969

MEMORANDUM FOR

Dr. DuBridge

Subject: Background for Space Task Group Meeting with the Vice President

Attached for your consideration is a paper which outlines essential elements of the staffing and organization of the Space Task Group effort. A suggested agenda for the first meeting of the Space Task Group follows:

Item 1. Paine Memorandum on Problems and Opportunities for Manned Space Flight, February 26, 1969

The agenda for the first meeting should include discussion of the memorandum to the President from Dr. Paine. Specifically, Dr. Paine has suggested that the STG make recommendations to the President by the end of March on the three key issues which he has raised: Funding for follow-on Lunar exploration, for maintaining Saturn V production, and for space station definition. Dr. Paine has formally submitted a request for a FY 1970 budget amendment to the Director of the BoB for these items. The Budget Director in his response to Dr. Paine asked for detailed information supporting this budget request and has deferred action pending receipt of this information and pending an opportunity to consult with the STG on planning for the future space program.

It appears that there are two basic questions which the STG should consider with regard to Dr. Paine's request. First is the need for urgency, i. e., the need for an STG recommendation by the end of March. Second is the substantive question of whether or not the specific actions requested are separable from the development of the long-range space plan. Regarding the question of urgency, we have been told by Mr. Crabill of BoB that unless Congress acts much more rapidly than has been its past practice, a budget amendment could be submitted as late as June or July and still be acted upon in this Session.

From a programmatic standpoint, the arguments in favor of early action appear very weak (see attached memorandum from Dr. Branscomb which discusses the reaction of your Space Panel to Dr. Paine's request).

It is suggested that you discuss the following strategy with the Vice President:

First, that Dr. Paine be asked to discuss his memorandum at the STG meeting and the issues which he would like resolved; that Mr. Mayo comment on the budgetary urgency.

Second, that the STG as a group accept the request that these issues be considered, but agree (a) that the issues cannot be resolved without coming to grips with broader policy questions on the scope and content of the future space program, and (b) the Task Group will give priority attention to these issues and will attempt an early resolution of them but will require additional studies and information before a recommendation to the President can be made.

Item 2. Space Issues

One of the important aspects of the first meeting would be agreement to the preparation of a set of key issues and questions which can provide the basis for staff studies and subsequent STG discussions. We have attached a sample set of such issues. DoD and NASA should be asked to identify those key issues which in their view will determine the objectives, program alternatives, funding levels, and time-phasing of the long-range space program. It is proposed that the STG at its second meeting seek agreement on a set of issues that should be developed in greater depth by NASA and DoD working with STG staff.

Item 3. Special National Intelligence Estimate

It seems essential to the consideration of alternative objectives and their timing to have a Special National Intelligence Estimate (SNIE) on the Soviet space program. The STG could initiate an immediate request to this end supplemented, if necessary, by attention to particular matters raised in the issues papers.

Item 4. Future Meetings

Activity will be structured around/STG meetings. The staff directors will attend these meetings, as well as other invited participants.

It is suggested that the next meeting of the STG be held about March 17 to achieve agreement on a set of basic issues and on the approach to developing positions on these issues, the relative priority in which they should be addressed, and the need for special studies and working groups to support the STG.

At the third meeting (around April 1), it should be possible to table an outline of the final report along with further discussion of issues and review of supporting studies.

The initial draft of the report to the President (including the identification of matters requiring Presidential decision) should be available to the principals by June 15.

In addition to the above items, you may wish to raise with the Vice President the question of State Department membership and participation in the work of the STG. It will be necessary to give special consideration to the development of the international aspects of the study which, of course, are intimately related to the program options. This would seem to require a special task force study in this area with a staff director from State participating as a member of the staff director's committee. The State Department's response to the request for its comments on the Townes' Task Force report would appear to be a good issue paper for early discussion at a follow-on meeting of the STG.

David Beckler

Russell Drew

Donald Steininger

SPACE TASK GROUP (STG)

Purpose:

To provide the President, by September 1, 1969, a coordinated program and budget proposal for the scope and direction of the space program during the Post-Apollo period.

Membership:

The Space Task Group consists of the following:

Vice President, Chairman

Secretary of Defense

Administrator, National Aeronautics and Space Administration

Science Adviser to the President

As appropriate, participation will be invited from the Secretary of State, the Director, BoB, the Director, CIA, and other interested parties.

Staff Support:

Appropriate staff support will be provided by member agencies. No single unified staff is anticipated. A staff director's committee, chaired by OST, will meet on a regular basis to consult, to coordinate staff studies, and to monitor progress toward Task Group objectives. NASA and DoD would each appoint a senior staff director who will serve as a point of contact and represent NASA and DoD on the staff director's committee. The staff directors should be informed of all STG related efforts within their organizations, and have direct access to his principal on STG matters.

Special Studies:

To provide the basis for selection of alternative programs by the STG, studies will be conducted by the member agencies in those areas determined by the STG to be important to an informed judgment. In those areas which are program oriented, the study objectives will be to define hardware characteristics,

estimated development schedule, estimated development and operational costs, the character of the operations or experiments to be conducted and all other information relevant to determining the technological, scientific, economic, or political value of the program and its requirements for funds, facilities, manpower and other resources for the next ten years. The studies will be conducted by the responsible agencies or, where deemed appropriate by the STG, by an interagency working group.

Outside Support:

The President has suggested that the STG "seek advice from scientific, engineering and industrial communities, from the Congress and the public." There are several mechanisms by which this may be accomplished. The STG may consider one or more of the following:

President's Science Advisory Committee -- The President's Science Advisory Committee, particularly the members of its Panel on Space Science and Technology, will be available to comment on the special studies and issues papers developed in the course of the study and to conduct such special inquiries as may be necessary and appropriate.

Other Advisory Committees -- The National Academy of Science through its Space Science Board may be asked to perform specific studies; within the principal agencies individual advisory groups may be utilized, such as the Defense Science Board, STAC, the Lunar and Planetary Missions Board, Astronomy Missions Board and the Research Advisory Committee for NASA.

Individual Associations -- The Aerospace Industries Association can be encouraged to address specific topics which would be of value to the Task Force.

Public Participation -- Professional societies, such as the AIAA and the AAS, could be requested to organize and convene special symposia in which the broad topic of the space program for the next decade or specific areas within this topic could be discussed with broad public participation.

The Congress -- The STG principals could arrange a series of luncheon meetings with key Congressional leaders in which the subject of the STG efforts would be discussed and views exchanged on the principal issues. It may also be desirable to arrange staff contact between the STG staff director's committee and appropriate members of the Congressional committee staffs.

THE WHITE HOUSE
WASHINGTON

MEMORANDUM FOR

The Acting Administrator
National Aeronautics and Space Administration

Thank you for your thoughtful memorandum of February 26 on problems and opportunities in manned space flight. I recognize the significance of the issues you raise, and agree that they merit serious and careful consideration.

In accordance with my instructions, the Budget Director is engaged in a Government-wide effort to determine where near-term budget reductions can be made in order to provide for future programs within the limits of our overall fiscal policies. He will review your 1970 budget request in that context.

On February 13, I established a task group, of which you are a member, to consider future plans for the space program. I hope that the task group will devote its primary attention to a thorough examination of the major alternatives for the next decade in space, their expected accomplishments, and their costs. The need for early decision on some matters will, of course, be considered by the group in the context of that review.

THE WHITE HOUSE

WASHINGTON

March 6, 1969

MEMORANDUM FOR

THE PRESIDENT

The Budget Director has received from NASA a request for an FY 1970 budget increase of \$200 million as the first increment for augmented manned space flight activities in 1973 and beyond. No reductions in other space program areas have been offered as offsets against these increases.

Dr. Paine has also written you directly (memorandum attached) urging an early Presidential statement making the development of a manned space station one objective of our future space program.

On February 13, you established an interagency task group to report to you by September 1, 1969, on future space program plans.

The attached memorandum to Dr. Paine for your signature reflects the views of my office, the Vice President, the Bureau of the Budget, the Office of Science and Technology, and the National Security Council that the immediate issues raised by the new budget request should be separated from the task group review and handled as a part of the budget process. The task group will consider the need for early decisions as a part of its broader deliberations.

The attached memorandum from the Budget Director discusses the budget aspects in more detail.

Signed

Robert Ellsworth
Assistant to the President

Attachments

cc: Vice President
Dr. DuBridge
Dr. Kissinger
Mr. Mayo

CT Whitehead:ed

MEMORANDUM

THE WHITE HOUSE
WASHINGTON

March 5, 1969

MAR 7 1969

MEMORANDUM FOR MR. ELLSWORTH

FROM: Henry A. Kissinger *K*

SUBJECT: Proposed Budget Amendment for the Space Program

I have no comments on the specific FY 1970 budget increases requested by NASA as reported in Bob Mayo's memorandum to the President dated March 3, 1969.

I agree that a decision on these requests should be made in the light of a review of the objectives of our space program and the over-all priorities of the budget.

Attachments

THE WHITE HOUSE

WASHINGTON

FOR ACTION:

R. Ellsworth ✓

cc (for information): Vice President
L. DuBridge
H. Kissinger

FROM THE STAFF SECRETARY

SUBJECT (see attached): Proposed Budget Amendment for the Space Program.

ACTION AND REMARKS:

☐ For Necessary Action☐ Draft Reply☐ Prepare Agenda and Brief☐ Draft Remarks☐ For Your Comments☐ For Your Information☒ For Your RecommendationsOther:


Mr. Ellsworth: Please discuss this matter with the Vice President, Dr. DuBridge and Dr. Kissinger and prepare a memorandum for the President that reflects the recommendations of all of you. Their opinions should be appended to your memorandum.

DUE: Date: March 6, 1969

Time: 2:00 P.M.

Please attach this copy to material submitted.

If you have any questions or if you anticipate a delay in submitting the required material, please telephone the Staff Secretary immediately.


K. R. COLE, JR.
For the President

EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET

WASHINGTON, D.C. 20503

MAR 3 1969

MEMORANDUM FOR THE PRESIDENT

Subject: Proposed budget amendment for the space program

I have received from Dr. Paine a request for a fiscal year 1970 budget increase of \$200 million as the first increment in augmenting manned space flight activities in 1973 and beyond. These additional 1970 funds would be used for:

- additional Saturn V production;
- augmenting the manned lunar exploration program;
- beginning design and development of a manned space station.

No reductions in other space program areas have been offered as offsets against these increases.

Dr. Paine has also written you directly urging you to approve the 1970 budget amendments and to endorse the establishment of a manned space station as a general objective of our future space program. Such an objective will require firm commitment to annual funding over an 8-10 year period well in excess of current space budget levels.

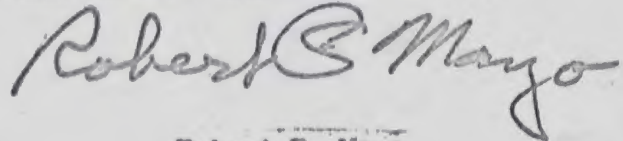
On February 13, you established an interagency task group to review future space program plans and report to you by September 1, 1969. In his letter to you, Dr. Paine suggests that the time table for policy recommendations on manned space flight be advanced to March 31 with recommendations on the remainder of the program due on September 1. The task group is moving ahead with its review.

Our first look at the agency recommendations that we have received in response to our request for review of the Johnson budget shows many more increases than decreases. In total these requests, if granted, would make precarious if not impossible the attainment of the surplus forecast by the previous Administration, which already depends on the extension of the surtax and the enactment of controversial legislation which may not be attained. And I know that your conviction is that our fiscal policy must be addressed to the attainment of a budget surplus as an essential response to today's inflationary environment and the uncertainties surrounding our commitment in Vietnam.

In this combination of circumstances, I recommend:

- that you make no statements endorsing future space objectives until your interagency task group has made its recommendations and I have had an opportunity to review them and advise you within the total budget context;
- that I postpone my recommendation on the proposed NASA 1970 budget amendment pending consultation with the task group on space, a detailed budget review of the NASA proposal, and completion of my Government-wide budget review to identify program and funding alternatives for your consideration.

If you agree with these recommendations, a memorandum to Dr. Paine is attached for your signature, informing him of this approach.



Robert P. Mayo
Director

Attachment

cc:

The Vice President
The Science Adviser

63 MAR 2 11 4 23

THE WHITE HOUSE
RECEIVED

THE WHITE HOUSE
WASHINGTON

MEMORANDUM FOR

The Acting Administrator, National Aeronautics and
Space Administration

Thank you for your thoughtful memorandum of February 26 on problems and opportunities in manned space flight.

I recognize the significance of the issues you raise, and agree that they merit serious and careful consideration.

I established a task group on February 13, of which you are a member, to consider future plans for the space program. I understand that the task group will meet this week to begin deliberating the proposals contained in your memorandum.

In accordance with my instructions, the Budget Director is engaged in a Government-wide effort to determine where near-term budget reductions can be made in order to provide for future programs within the limits of our overall fiscal policies. He must review your 1970 budget request and the task group recommendations in that Government-wide context.

I am asking the task group and the Budget Director to define program and budget alternatives for my consideration along with their recommendations, and will consider the manned space flight issues further when their reports are available to me.

cc: The Vice President
The Secretary of Defense
The Science Adviser
Director of the Budget

MARCH 5, 1969

Office of the White House Press Secretary

THE WHITE HOUSEBIOGRAPHICAL DATA ON THOMAS O.
PAINE, ADMINISTRATOR OF THE
NATIONAL AERONAUTICS AND SPACE
ADMINISTRATION

Dr. Thomas O. Paine was born in Berkeley, California November 9, 1921, son of Commodore and Mrs. George T. Paine, USN (Ret). He attended public schools in various cities and was graduated from Brown University in 1942 with an A.B. degree in Engineering.

In World War II he served as a submarine officer in the Pacific, and in the Japanese occupation. He qualified in submarines and as a Navy deep-sea diver, and was awarded the commendation medal and submarine combat insignia with stars.

In 1946-29 Dr. Paine attended Stanford University, receiving an M.S. degree in 1947 and Ph.D. in 1949 in Physical Metallurgy. In 1946 he married Barbara Helen Taunton Pearse of Perth, Western Australia. They have four children: Marguerite Ada, George Thomas, Judith Janet, and Frank Taunton.

Dr. Paine worked as a research associate at Stanford University from 1947-49. He joined the General Electric Research Laboratory in Schenectady, New York, in 1949 as research associate. In 1951 he transferred to the Meter and Instrument Department, Lynn, Massachusetts, as manager of materials development, and later as laboratory manager. Major projects ranged from development of photocells and non-arc-tracking organic insulation to solid-state nuclear reactor control systems and aircraft instrumentation. For the successful fine-particle magnet development program Dr. Paine's laboratory received the 1956 Award for Outstanding Contribution to Industrial Science from the American Association for the Advancement of Science.

From 1958 to 1962 Dr. Paine was research associate and manager of Engineering Applications at GE's Research and Development Center in Schenectady.

In 1963-68 he was manager of TEMPO, GE's Center for Advanced Studies in Santa Barbara, California. This 400-man long-range planning and interdisciplinary study group conducted interdisciplinary research for federal, state, and local governments, foreign nations, banks, and industry. These programs ranged from criteria for selection of model cities to the logistics support system for Polaris submarines, and from computerized management information systems to economic development in Africa. About 15 per cent of these studies were for top management of the parent company.

On January 31, 1968, Dr. Paine was appointed Deputy Administrator of NASA. Upon the retirement of Mr. James E. Webb on October 8, 1968, Paine was named Acting Administrator of NASA.

#

MEMORANDUM

Date: March 4, 1969
Time: 5:00 P.M.

THE WHITE HOUSE

WASHINGTON

FOR ACTION: R. Ellsworth cc (for information): Vice President
L. DuBridge
H. Kissinger

FROM THE STAFF SECRETARY

SUBJECT (see attached): Proposed Budget Amendment for the Space Program.

ACTION AND REMARKS:

<input type="checkbox"/> For Necessary Action	<input type="checkbox"/> Draft Reply
<input type="checkbox"/> Prepare Agenda and Brief	<input type="checkbox"/> Draft Remarks
<input type="checkbox"/> For Your Comments	<input type="checkbox"/> For Your Information
<input checked="" type="checkbox"/> For Your Recommendations	

Other:


Mr. Ellsworth: Please discuss this matter with the Vice President, Dr. DuBridge and Dr. Kissinger and prepare a memorandum for the President that reflects the recommendations of all of you. Their opinions should be appended to your memorandum.

DUE: Date: March 6, 1969

Time: 2:00 P.M.

Please attach this copy to material submitted.

If you have any questions or if you anticipate a delay in submitting the required material, please telephone the Staff Secretary immediately.


K. R. COLE, JR.
For the President

EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET

WASHINGTON, D.C. 20503

MAR 3 1969

MEMORANDUM FOR THE PRESIDENT

Subject: Proposed budget amendment for the space program

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- additional Saturn V production;
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No reductions in other space program areas have been offered as offsets against these increases.

Dr. Paine has also written you directly urging you to approve the 1970 budget amendments and to endorse the establishment of a manned space station as a general objective of our future space program. Such an objective will require firm commitment to annual funding over an 8-10 year period well in excess of current space budget levels.

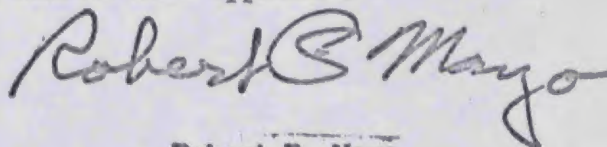
On February 13, you established an interagency task group to review future space program plans and report to you by September 1, 1969. In his letter to you, Dr. Paine suggests that the time table for policy recommendations on manned space flight be advanced to March 31 with recommendations on the remainder of the program due on September 1. The task group is moving ahead with its review.

Our first look at the agency recommendations that we have received in response to our request for review of the Johnson budget shows many more increases than decreases. In total these requests, if granted, would make precarious if not impossible the attainment of the surplus forecast by the previous Administration, which already depends on the extension of the surtax and the enactment of controversial legislation which may not be attained. And I know that your conviction is that our fiscal policy must be addressed to the attainment of a budget surplus as an essential response to today's inflationary environment and the uncertainties surrounding our commitment in Vietnam.

In this combination of circumstances, I recommend:

- that you make no statements endorsing future space objectives until your interagency task group has made its recommendations and I have had an opportunity to review them and advise you within the total budget context;
- that I postpone my recommendation on the proposed NASA 1970 budget amendment pending consultation with the task group on space, a detailed budget review of the NASA proposal, and completion of my Government-wide budget review to identify program and funding alternatives for your consideration.

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Robert P. Mayo
Director

Attachment

cc:
The Vice President
The Science Adviser

NOV 2 11 4 23

THE WHITE HOUSE
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WASHINGTON

MEMORANDUM FOR

The Acting Administrator, National Aeronautics and
Space Administration

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I recognize the significance of the issues you raise, and agree that they merit serious and careful consideration.

I established a task group on February 13, of which you are a member, to consider future plans for the space program. I understand that the task group will meet this week to begin deliberating the proposals contained in your memorandum.

In accordance with my instructions, the Budget Director is engaged in a Government-wide effort to determine where near-term budget reductions can be made in order to provide for future programs within the limits of our overall fiscal policies. He must review your 1970 budget request and the task group recommendations in that Government-wide context.

I am asking the task group and the Budget Director to define program and budget alternatives for my consideration along with their recommendations, and will consider the manned space flight issues further when their reports are available to me.

cc: The Vice President
The Secretary of Defense
The Science Adviser
Director of the Budget



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

February 26, 1969

OFFICE OF THE ADMINISTRATOR

MEMORANDUM FOR THE PRESIDENT

Subject: Problems and Opportunities in Manned Space Flight

This memorandum is the first of several that I am preparing in response to your request of February 17, 1969, that I give you my views on the principal policy problems in space and aeronautics which now face your Administration, point out some of the opportunities for leadership initiatives now open to you, and give you my recommendations on the new directions which your Administration should set for the nation in space and aeronautics. These memoranda will also serve to indicate the alternative approaches NASA is examining in developing plans and proposals for the post-Apollo period as requested in your memorandum of February 13, 1969, and the basis for my recent recommendations to the Director of the Budget on amendments to the NASA FY 1970 Budget. Copies are being sent to the Vice President, the Secretary of Defense, and your Science Adviser as you requested, with additional copies to the Director of the Budget and Mr. Robert Ellsworth.

This memorandum outlines the problems, opportunities, and principal factors to be considered in Manned Space Flight, the area in our space program where NASA and your Administration are faced with the most urgent need for high-level decisions.

1. Introduction -- NASA now has no approved plans or programs for manned space flight programs beyond the first Apollo manned lunar landings and the limited Apollo Applications earth orbital program now approved and underway. Sharply reduced space budgets over the past three years and the failure of the previous Administration to make the required decisions and provide the necessary resources for future programs have built in a period of low accomplishment which will become apparent during your Administration, and have left the program without a clear sense of future direction for the post-Apollo period. Positive and timely action must be taken by your Administration now to prevent the nation's programs in manned space flight from slowing to a halt in 1972.

The Apollo program served the nation well in providing a clear focus for the initial development and demonstration of manned space flight capabilities and technology. What is needed now, however, is a more balanced program for the next decade which will focus not on a single event but on sustained development and use of manned space

flight over a period of years. As discussed below, there are two principal program opportunities: one is a long-term carefully-planned program of manned exploration of the moon, the other is a wide range of activities involved in the progressive development and operation of a permanent manned station in earth orbit. I believe that (a) manned lunar exploration should be continued at an economical rate to the point where a sound decision on the future course the nation should follow with respect to the moon can be made on the basis of knowledge and experience gained from a series of manned missions, and (b) the nation should, in any case, focus our manned space flight program for the next decade on the development and operation of a permanent space station--a National Research Center in earth orbit--accessible at reasonable cost to experts in many disciplines who can conduct investigations and operations in space which cannot be effectively carried out on earth.

2. Status of U.S. Programs and Plans -- If our Apollo flights continue to be successful we will achieve the first manned lunar landing later this year, possibly as early as this summer. We will then carry out three additional landings at different locations on the moon, but the improved equipment required for moving beyond this with a scientifically significant lunar exploration plan is restricted to the study stage. We will have a number of Saturn V boosters and Apollo spacecraft for future lunar missions left over from the Apollo program.

In earth orbit, the next major U.S. milestone in manned space flight is the Saturn I Workshop, which is now scheduled for launch in late 1971. This first step toward a space station will use existing Saturn IB rockets left over from the Apollo Program. Flight operations, including revisit and experimental Apollo telescope operations, will be completed in 1972. The military missions of the Air Force's smaller and more specialized Manned Orbiting Laboratory (MOL) are expected to take place about the same time.

There are no approved plans and no provision in the FY 1970 Budget for continued U.S. development or utilization of manned space flight beyond the Apollo moon flights, the single set of Saturn I Workshop and Apollo telescope missions, and the Air Force MOL program as currently planned. For the future of manned space flight beyond 1972 the present FY 1970 NASA Budget provides only small sums limited to studies of advanced manned lunar exploration and earth orbital space stations.

3. USSR Prospects -- Recent USSR manned space flight activities substantiate previous indications that they are continuing strong programs pointed both at manned operations to the moon and at space

station operations in earth orbit. Beyond this, they talk openly of future manned trips to the planets. While we now expect to land American astronauts on the moon before the Russians get there, the prospects are that during the period of our lunar flights in 1969-1970 the Soviets will, in addition to their manned lunar program, follow up their Soyuz 4-5 success by pushing toward a dominant position in large-scale long-duration space station operations in earth orbit. They will have the required heavy-lift launch capability. A multi-man, multi-purpose USSR space station operating in orbit before the U.S. could match it would give the USSR a strong advantage in space research and operations. Their moving clearly ahead of the U.S. in this field would have a continuing impact on the rest of the world, particularly if the U.S. program did not include a strong program in the earth orbital space station area.

4. Opportunity for Leadership -- The fact that the previous Administration deferred to you the setting of the nation's goals in manned space flight creates a problem, but it also gives you a unique opportunity for leadership that will clearly identify your Administration with the establishment of the nation's major goals in manned space flight for the next decade. The impact and positive image of your leadership would be seriously downgraded in the eyes of the nation, the Congress, and the public, in my view, if the U.S. were once again placed in the position of reacting to Soviet initiatives in space. For this reason, I believe that you should consider the advisability of initiating a general directive to define the future goals of manned space flight in the next few months, prior to your final decisions on the plans that will be recommended to you on September 1 by the members of the Task Group you have established. For example, a major thrust this summer by the USSR in the earth orbital space station field is a distinct possibility that would take the edge off your announcement of a similar U.S. objective in the fall. For the reasons given below, I believe that the case that a space station should be a major future U.S. goal is now strong enough to justify at least a general statement on your part that this will be one of our goals, with the understanding (which could be reaffirmed in your statement) that the scope, pace, specific uses, and detailed plans of the space station will be determined on the basis of the planning studies you have requested.

5. Basic National Policy -- There is, I believe, almost unanimous agreement on the part of responsible leaders in your Administration, the Congress, industry, the scientific community, and the general public that the U.S. must continue manned space flight activities. The concerns and criticisms that have been expressed do not question the continuation of a manned space flight program but relate principally to

(a) the cost of the program, (b) the value of specific goals, and (c) questions of priorities, within the space program or between the space program and other scientific fields or other national needs. However, virtually no responsible and thoughtful person, to my knowledge, advocates or is prepared to accept the prospect of the United States abandoning manned space flight to the Soviets to develop and exploit as they see fit.

It is very important that all concerned with planning the future of our space program recognize this basic question of national policy. Acceptance of the fact that as a matter of policy the nation must and will continue in manned space flight leads to the following four points which should be considered in our planning:

- a. Studies of our alternatives in future space programs should focus on the pace, objectives, and content of the manned space flight program, not on whether the U.S. should have a manned program. Alternatives which have the effect of not supporting a continuing effective U.S. manned flight program are not acceptable. A balanced total space program must include a significant continuing manned space flight program as one of its key elements.
 - b. The U.S. must be prepared to pay the annual cost of an advancing, effective manned space flight program, high though it may seem. An important early objective, however, must be to reduce the cost of manned space flight, without sacrificing safety, reliability, or accomplishment.
 - c. An advancing, effective manned space flight program cannot at this stage be limited to repetitive flights of missions already flown but must provide for the continuous evolutionary development of new capabilities, new missions, new experiments, and new applications.
 - d. Decisions and selections of future programs must be made on a continuing timely basis several years before current objectives are achieved; otherwise the long lead-times inherent in the space program will force dangerous and expensive breaks in continuity that will undermine the success of the program.
5. Effects of Decisions in the Previous Administration -- The failure, during the past three years, to make timely decisions and to take necessary future-oriented actions has placed our manned space flight program in a serious and difficult position for the early 1970's. The

production of both Saturn IB and Saturn V launch vehicles has been terminated. The Saturn V vehicles now on order must either be launched on schedules stretched out to clearly uneconomical rates, rates which may be below the minimum acceptable for reliability and safety, or flown with experimental payloads that repeat previous missions without significant advances. The failure to develop and approve future goals and objectives has forced the program into expensive and unproductive "holding" operations in some areas and made it more difficult to focus sharply on the planning and preliminary development efforts which must precede future programs. The watchwords of budgetary actions for the past several years have been "delay," "stretch-out," "defer," and "hold the options open." The results are that for the next several years the nation will be getting a smaller return on its great investment in manned space flight capability, and that the long-deferred decisions on future goals must be taken now at an earlier time than your Administration would otherwise prefer.

6. Recommended Approach -- I believe that your Administration should now speak out boldly about the nation's future in space. Instead of continuing to stretch out and minimize the manned space flight program at the risk of reducing it beyond the point where it can be effective, your Administration should (a) point out the fact that the nation must continue to move forward in manned space flight, (b) while seeking every economy, accept the costs that this entails, and (c) plan, announce, and support a new ten-year space program--including a strong program of manned space flight--of which this nation and the world will be proud. Your Administration's decisions in the next few months will determine the nation's direction and progress in space for many years.

7. Study of Future Directions -- The process established in your memorandum of February 13, 1969, provides a useful framework for the development of specific goals and plans for the future of our space program. It will, among other things, enable NASA to communicate to the other agencies involved the thinking and planning that we have had underway for some time, and help assure NASA that its planning is properly coordinated with future aerospace planning in DOD, DOT, and other departments.

However, unless adequate provision is made in the FY 1970 Budget in time for Congressional action in the FY 1970 authorization and appropriation cycle, the implementation of plans decided upon next fall as a result of the Task Group recommendations will have to await the FY 1971 cycle. This would mean the loss of an entire year and the foreclosure of your option to move ahead promptly with a strong manned space flight program if that should be your decision.

For this reason, I believe that it is essential that the FY 1970 Budget be amended now to include the manned space flight funds--specifically deleted by the previous Administration--required to support moving ahead in lunar exploration and space station development. I can appreciate that you may be reluctant to decide now to amend the FY 1970 Budget, thus appearing to prejudge the recommendations to be made in September, but postponement will foreclose what may well be your most attractive option and will perpetuate and aggravate an already unsatisfactory situation.

8. Future Directions and Goals -- As stated above, two major directions have been identified for the manned space flight program in the next decade. One is the further exploration of the moon, with possibly the eventual goal of establishing a U.S. lunar base; the other is the further development of manned flight in earth orbit, with the goal of establishing a permanent manned space station in earth orbit that will be accessible and useful for a wide range of scientific, engineering, and application purposes. An important part of the space station goal is the development of a low cost logistics system for shuttling people and equipment to and from the space station.

These goals have in common the fact that they are not focused on a single dramatic achievement to be accomplished by a certain date, as was the case in the Apollo program. However, they can provide in the second decade of space, as Apollo did in the first, the focus for continuing advances in U.S. space capabilities and technology which will be available to support future defense and civilian requirements and to sustain our long-term national technical and economic vitality.

9. Lunar Exploration -- In lunar exploration, our immediate problem is to assure that we have adequate scientific and operational equipment to allow us to follow up the first few lunar landings with an effective initial program of exploration that will permit sound judgments on the potential value of more advanced future missions and the eventual establishment of a lunar base. If, as we now expect, we have early success in achieving the first manned landing on the moon, we will have Apollo hardware--launch vehicles and spacecraft--for as many as nine additional lunar missions, but we lack scientific and improved operational equipment for more than three of these. In order to proceed with these missions at an economical rate, we are preparing a budget amendment that will permit prompt initiation of procurement of additional scientific and operational equipment early in FY 1970. Your approval of this budget amendment now will not constitute a commitment to lunar exploration beyond that possible with the Saturn-Apollo hardware procured for the Apollo program. Decisions on an advanced program of lunar exploration requiring major redesign of the Apollo Lunar Module, the development of shelters and vehicles for use

on the lunar surface, and the question of the ultimate goal of establishing a lunar base can and should be made in your review of the plans and proposals to be submitted next September.

10. Space Station -- With respect to future manned earth orbital flight, the immediate problem is to assure that sufficient funds are available in FY 1970 to permit detailed planning and design studies to proceed, and to develop critical long lead-time subsystems that will be required in any future manned space flight program. Funds for these purposes were specifically excluded from the present FY 1970 Budget, except for a small amount for studies, and we are therefore preparing an appropriate amendment to the FY 1970 Budget. This budget amendment can be approved now without a commitment on your part to a permanent space station as a major national goal. However, as stated in paragraph 4 above, we believe that it is in the national interest for you to endorse this as a general U.S. objective at this time. One possibility would be for you to give NASA and the Task Group a specific instruction at the time you approve the budget amendment that their recommendations to you in September should include proposals on the optimum program for establishing and utilizing a permanent U.S. space station.

11. Space Station Concept -- The space station discussed here should become a central point for many activities in space, and would be designed to carry on these activities in an effective and economic manner. It would be located in the most advantageous position to conduct investigations and operations in the space environment, many important aspects of which cannot be duplicated in an earth-based environment. The best place to study space is in space. We have in mind a system consisting of general and special-purpose modules with a low-cost logistic support system that will permit ready access and return by many users and their equipment and supplies. The space station would not be launched as a single unit, but would evolve over a period of years by adding to a core new modules as they are required and developed. One of the key objectives is to develop the system in cooperation with the Department of Defense so that it can be adaptable for future military research as well as for a variety of non-military scientific, engineering, and other applications purposes.

There are many potential valuable uses of such a space station, and new ones will be found as experts in many fields become familiar with the possibilities and are able to visit and actually use it. However, we believe strongly that the justification for proceeding now with this major project as a national goal does not, and should not be made to depend on the specific contributions that can be foreseen today in particular scientific fields like astronomy or high energy physics, in particular economic applications, such as earth resources

surveys, or in specific defense needs. Rather, the justification for the space station is that it is clearly the next major evolutionary step in man's experimentation, conquest, and use of space. The development of man's capability to live and work economically and effectively in space for long periods of time is an essential prerequisite not only for operations in earth orbit, but for long stay times on the moon and, in the distant future, manned travel to the planets. It is for these reasons that I believe that space station development should become one of your Administration's principal working goals for the nation over the next decade.

12. Saturn V Production -- Under NASA's reduced 1969 operating plan and its present FY 1970 Budget, the production of Saturn V, the nation's largest launch vehicle, has been discontinued. The long-term future of the manned space flight program, as outlined above, will clearly require additional Saturn V launch vehicles, and we are therefore proposing a FY 1970 Budget amendment which will permit production to be resumed, at a very low rate, before "start up" costs become excessive. This amendment will not preclude other future decisions on large launch vehicles that might be made next fall, but it will assure that funds are available to provide the launch vehicles that will be needed. It will also get the U.S. out of what I believe to be a current untenable position of having discontinued production of our largest space booster at a time when the Soviets are expected to unveil a booster of this class or larger. For the reasons stated in paragraph 4 above, I recommend that you now take the initiative and announce this decision before the Russians launch their first booster in this class, so that your announcement will not be viewed as a reaction to the Soviet development.

13. Cost -- In planning the space program careful consideration must, of course, be given each year, and especially at the time new major programs are undertaken, to the future budget levels required. Our national budget system wisely and necessarily provides for a review at least annually of both on-going and new programs, but long-term enterprises like major space programs require a policy commitment to follow through with the resources required over a period of many years. For these reasons, it is important that your Administration be prepared to accept the total budget levels required by the programs you determine to be in the national interest. NASA on its part has the obligation continually to search out the least costly ways of carrying out the approved programs and to make every effort to use the possibilities of new technology to reduce future costs. But most important of all, neither NASA nor the Administration should, in the name of economy, underestimate the resources that can realistically be expected to be required. We must meet our commitments.

Our present projections indicate that a balanced total NASA program that includes the recommended strong manned space flight program can be carried out with annual budgets over the next five years which will not rise above the \$4.5 to \$5.5 billion range. More precise projections will depend on the nature of the future lunar exploration and space station programs decided upon and on future decisions in areas other than manned space flight. By the time we submit the planning proposals to you in September we will be able to state with considerable confidence the projected future estimated costs of alternative total programs.

A total annual program level of \$4.5 - \$5.5 billion compares to program and expenditure levels in the \$5.0 - \$6.0 billion range reached in the 1964-1967 period, which in the past two years has been reduced to \$3.9 billion in our FY 1969 operating plan and the present FY 1970 Budget. As we have informed the Director of the Budget, the FY 1970 NASA Budget amendments we are proposing in manned space flight amount to about \$200 million and would bring our total 1970 Budget (including authority carried forward from FY 1969) to slightly under \$4.1 billion. Even with this proposed amendment, however, NASA's outlays (expenditures) in FY 1970 will still decline \$200 million from the \$4.25 estimated for FY 1969.

This memorandum has given you my recommendation on the position your Administration should take with respect to the critical and urgent situation in manned space flight; other NASA problems and opportunities can be treated appropriately in the Task Group framework for your consideration in September. For the reasons stated above, and with the possibility of an initial lunar landing in July, I believe you should not defer initial consideration of the manned space flight problem. I therefore specifically recommend that you ask the members of the Task Group established in your memorandum of February 13, 1969, to meet within the next month and to consider as their first order of business the matters identified in this memorandum as requiring your early decision. They should then present their recommendations to you by the end of March. In anticipation of such a meeting, NASA will prepare and make available to the other members of the Task Group (a) detailed materials on the alternatives available, and (b) suggestions on how the recommended early decisions can be related to an effective process for developing overall space plans and alternatives for your consideration in September. I hope that this proposal will meet with your approval, and would, of course, be happy to discuss this matter further with you at your convenience.



T. O. Paine
Acting Administrator

cc: The Vice President
The Secretary of Defense
The Science Adviser
The Director of the Budget
Mr. Robert Ellsworth

NASA
FEB 17 1969

TW

February 12, 1969

MEMORANDUM FOR

THE PRESIDENT

SUBJECT: NASA Activities

I have prepared and attached a memorandum for your signature to the Acting Administrator of the National Aeronautics and Space Administration, Dr. Thomas O. Paine, in response to his memorandum to you of February 4, 1969. (Tab A)

I have coordinated this response with Mr. Ellsworth's Office.

Lee A. DuBridge

Lee A. DuBridge
Science Adviser

cc: Mr. Robert Ellsworth ✓

THE WHITE HOUSE
WASHINGTON

Feb. 15, 1969

MEMORANDUM FOR

Honorable Thomas O. Paine
Acting Administrator
National Aeronautics and Space Administration

SUBJECT: NASA Activities

I appreciate your views on the importance of defining at the earliest opportunity the future direction and pace of the nation's space program, as stated in your memorandum of February 4, 1969. I look to the recently convened Task Group, of which you are a member, to advise me on this question. In your memorandum, you also offered to prepare a concise statement of the current status of our space program relative to that of the Soviet Union as well as a summary of your views on major problems and opportunities in space which lie ahead. I would like to have you prepare these statements for me and also make them available to the Task Group principals.

I have asked Dr. DuBridge and Mr. Robert Ellsworth to coordinate contacts and relationships with the National Aeronautics and Space Administration and I understand that they will be discussing matters of mutual interest including the submission of bi-weekly NASA activities reports with you in the near future.

/s/ R. N.

DRAFT
Dr. Drew
February 12, 1969

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THE PRESIDENT

SUBJECT: NASA Activities

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Lee A. DuBridge
Science Adviser

*Appd. 2/12/69
by T. T. Whitehead*

DRAFT
Dr. Drew
12 Feb 69

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Acting Administrator
National Aeronautics and Space Administration

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FILED 1 3 1969

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

February 4, 1969

MEMORANDUM FOR THE PRESIDENT

Subject: NASA Activities

Attached is the first Bi-weekly NASA Activities Report to your Administration. We propose to continue this report until you express your wishes on the nature and frequency of NASA reports to the White House.

The items reported are for your information only, and require no immediate action on your part. I recommend, however, that you give early personal attention to the question of the future direction and pace of the nation's space program in your Administration. Continuing Soviet progress, world interest in the Apollo 8 lunar flight and the Soyuz 4-5 docking flights, and forthcoming Congressional hearings, emphasize the importance of developing a sound position by your Administration as soon as possible. The future position in space of the United States relative to the USSR is at stake. Furthermore, significant opportunities exist now for new leadership and initiatives. NASA is in a position to provide you, at your convenience, with a concise statement of the current status of our space program relative to that of the Soviet Union (developed with the CIA), and a summary of the major problems and opportunities in space which lie ahead in your Administration.

A handwritten signature in cursive script, appearing to read "T. O. Paine", is written over the typed name.

T. O. Paine
Acting Administrator

Enclosure a/s

SW
2/15

NASA

THE WHITE HOUSE
WASHINGTON

FEB 14 1969

C.T.W.

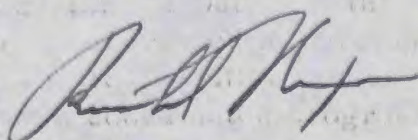
February 13, 1969

MEMORANDUM FOR

The Vice President
The Secretary of Defense
The Acting Administrator, National Aeronautics and
Space Administration
The Science Adviser

It is necessary for me to have in the near future definitive recommendation on the direction which the U. S. space program should take in the post-Apollo period. I, therefore, ask the Secretary of Defense, the Acting Administrator of NASA, and the Science Adviser each to develop proposed plans and to meet together as a task group, with the Vice President in the chair, to prepare for me a coordinated program and budget proposal. In developing your proposed plans, you may wish to seek advice from the scientific, engineering, and industrial communities, from The Congress and the public. You will wish also to consult the Department of State (on international implications and cooperation) and other interested agencies, as appropriate, such as the Departments of Interior, Commerce, and Agriculture; the Atomic Energy Commission, and the National Science Foundation. I am asking the Science Adviser also to serve as staff officer for this task group and as coordinator of the staff studies.

I would like to receive the coordinated proposal by September 1, 1969.



bcc: Mr. Robert Mayo, Director, BOB
Dr. Arthur Burns
Mr. Robert Ellsworth



MEMORANDUM

THE WHITE HOUSE

WASHINGTON

February 10, 1969

MEMORANDUM FOR

THE PRESIDENT

You have asked me to propose a mechanism for developing plans for the U. S. space program for the next decade.

Two operating agencies, NASA and DOD, are responsible for this program, and two advisory bodies, the National Aeronautics and Space Council (NASC) and the Office of Science and Technology (OST), report directly to you.

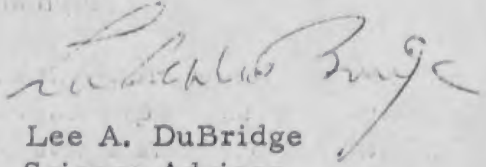
The heads of the two operating agencies would normally each submit their program plans to you after study by their staffs and after consultation with other interested agencies: State, Interior, Agriculture, Commerce, National Science Foundation, etc. I would, of course, normally provide an independent assessment of the space program in my capacity as Science Adviser.

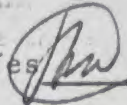
The problem is: a) to coordinate the staff studies; and b) to seek high-level agreement on the final proposed program and budget.

I suggest you send the attached memorandum to the four principals, asking them to serve on a Task Group under the Chairmanship of the Vice President to evolve recommendations to you on the future scope and direction of the post-Apollo space program. As Science Adviser, I propose to serve as staff officer and will coordinate the staff studies.

There is some urgency in proceeding with this review because of the very long lead time for space projects. Planning for missions in the 1972 to 1975 time period must be done soon, and the FY 1971 budget proposals to support these plans must be submitted to the Executive Branch in the fall of this year.

The submission of recommendations to the President, therefore, is suggested for September 1, 1969. Progress reports will be submitted to you periodically, and we hope you will meet with this group as often as possible.


Lee A. DuBridge
Science Adviser

Approve Memorandum: Yes  No _____

cc: Dr. Arthur Burns

Notes: Burns concurs with recommendations

THE WHITE HOUSE
WASHINGTON

MEMORANDUM FOR

The Vice President
The Secretary of Defense
The Acting Administrator, National Aeronautics and
Space Administration
The Science Adviser

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Lee A. DuBridge
Science Adviser

Approve Memorandum: Yes _____ No _____

cc: Dr. Arthur Burns

NASA

February 7, 1962

MEMORANDUM FOR THE PRESIDENT

Subject: NASA Activities

The attached memorandum on NASA activities is forwarded to you for your information.

Robert Ellsworth
Assistant to the President

Attachment

CTWhitehead:ed

FEB 11 1969



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

February 4, 1969

MEMORANDUM FOR THE PRESIDENT

Subject: NASA Activities

Attached is the first Bi-weekly NASA Activities Report to your Administration. We propose to continue this report until you express your wishes on the nature and frequency of NASA reports to the White House.

The items reported are for your information only, and require no immediate action on your part. I recommend, however, that you give early personal attention to the question of the future direction and pace of the nation's space program in your Administration. Continuing Soviet progress, world interest in the Apollo 8 lunar flight and the Soyuz 4-5 docking flights, and forthcoming Congressional hearings, emphasize the importance of developing a sound position by your Administration as soon as possible. The future position in space of the United States relative to the USSR is at stake. Furthermore, significant opportunities exist now for new leadership and initiatives. NASA is in a position to provide you, at your convenience, with a concise statement of the current status of our space program relative to that of the Soviet Union (developed with the CIA), and a summary of the major problems and opportunities in space which lie ahead in your Administration.

A handwritten signature in dark ink, appearing to read "T. O. Paine", is written over the typed name.

T. O. Paine
Acting Administrator

Enclosure a/s



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

MEMORANDUM FOR THE PRESIDENT

SUBJECT: Bi-weekly Report of Activities

Bormans' European Visit. Astronaut Borman and his family left on schedule on the Presidential goodwill mission you announced last week. The response to their visit has been very positive in all countries contacted; a particularly enthusiastic greeting welcomed the party to London Sunday.

Apollo 9. Preparations are on schedule for the first manned flight test of the Lunar Landing Module to be launched aboard Apollo 9 on February 28. Astronauts McDivitt, Scott, and Schweikart will simulate in earth orbit the moon-landing operations that will take place in later missions, including manned rendezvous and docking between the Command Module and Lunar Landing Module, crew transfer, and extravehicular "space walk" operations similar to those just performed by the Russian cosmonauts. These activities will be televised live from the spacecraft. Once the astronauts leave the Command Module in the Lunar Module test, they have no way to return to earth except by returning to the Command Module, since the Lunar Module has no reentry capability. Apollo 9 is a difficult and demanding mission which will once again focus international attention on the relative positions of the U.S. and USSR space programs.

Depending on the results of Apollo 9, the Apollo 10 mission scheduled for April/May will be either a repetition of Apollo 9 in earth orbit, or a full rehearsal of the lunar landing mission in lunar orbit, stopping just short of an actual landing. If all goes well, the Apollo 11 mission in July would be the first manned lunar landing attempt. The operational phase of the Apollo program is now at its peak with preparations simultaneously underway for Apollo 9, 10, and 11. The demands on our technical and managerial teams therefore will be extremely heavy in the next six months.

Planetary Exploration. Mariners F and G are on schedule for launch in late February and March, respectively, on a mission to send back television pictures and scientific data as they fly by Mars. This mission is similar to the 1964 Mariner IV mission, except that much higher resolution pictures are expected through an improvement in NASA communications capability of 2,000 times since 1964. The Soviets are also expected to launch to Mars at this biennial opportunity, and may attempt to soft land instruments on the planet's surface, something we will not attempt until 1973. In January the Soviets launched two spacecraft to Venus, apparently with soft landing probes. We have no program to take advantage of this Venus flight opportunity.

U.S. - USSR Cooperation. We received on January 17 a brief cable from Academician A. A. Blagonravov of the Soviet Academy of Sciences and Chairman of the Soviet Commission on Exploration and Use of Outer Space indicating that he would send comments "in the nearest future" on the joint U.S. - USSR review of Space Biology and Medicine projected by a U.S. - USSR bilateral agreement signed in 1965. This wire responded to my letter of December 6 pointing to the Soviet failure to respond to our correspondence on this subject for a year and a half, and informing him that in the absence of word that the Soviets intend the joint project to proceed, we felt obligated to the U.S. experts involved to publish our work independently. Whether the present cable means that the USSR has a serious new intention in this project remains to be seen.

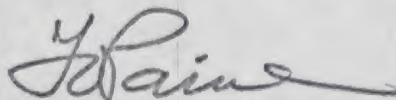
The NASA - USSR Academy of Sciences channel has been the principal avenue through which the U.S. has explored the possibilities of U.S. - USSR cooperation in space. These technical discussions, cleared in advance with the State Department, have led to agreements for projects in satellite meteorology, magnetic field mapping, and telecommunications as well as the review of space biology and medicine. Data exchange is the essential feature of these projects although they imply significant supporting activities to permit the data exchanges. In general, the Soviets have not met their responsibilities fully or promptly, but we continue to maintain this contact.

Orbiting Astronomical Observatory. OAO-II, the largest and most complex unmanned scientific satellite ever launched, has now completed eight weeks in orbit and is returning excellent information. Through its ability to observe ultraviolet wave-lengths of light not visible on earth, it is opening up whole new aspects of the universe for study by man.

Orbiting Solar Observatory. OSO-V, a small satellite to observe and monitor sun spots and radiation-producing solar flare activity, was successfully launched from Cape Kennedy on January 22. In addition to its scientific functions, OSO-V will support the manned space program radiation warning network for the protection of astronauts on deep space missions.

International Satellite for Ionospheric Studies. ISIS-I was successfully launched on January 30 from the Western Test Range to study the physics of the ionosphere. This is the third launch in a very rewarding cooperative scientific project with Canada in which the spacecraft and experiments are provided by the Canadians and the launch vehicle and launch provided by the United States.

Aeronautical Research. Plans are currently being formulated for a joint NASA/USAF aeronautics research program utilizing two YF-12 aircraft. The YF-12 aircraft operates in the same Mach 2.5 supersonic flight regime as the XB-70, used in NASA aeronautics research until termination of the program last December. It is simpler and cheaper to operate and maintain than the XB-70, and will enable NASA to continue to supplement wind tunnel work with flight research on large supersonic aircraft in support of FAA and DOD.



T. O. Paine
Acting Administrator

not sent

January 24, 1969

DRAFT MEMO FOR THE PRESIDENT

Subject: Supplementing information on AEC, NASA, NSF issues

I. A. E. C.

AEC reports that the only real opposition to closing the two Hanford reactors is from Senators Jackson and Magnuson and Congresswoman Catherine May whose district includes Hanford. AEC can meet DOD plutonium requirements with the remaining Hanford reactors and the newer Savannah River plant reactors in South Carolina; these three in Congress are the chief proponents that we need more plutonium.

II. Natl. Aeronautics and Space Administration

There is some lobbying within the aerospace industry to keep Thomas Paine as Administrator. One argument is that credit for the manned lunar landing later this year will accrue to the Democrats in any event, so that NASA would be a good spot to place a Democrat. If there are major failures in the upcoming Apollo shots, so the argument goes, we may as well have a Democrat to take the blame.

There is a counter-argument that I believe carries more weight: The space program is relatively technocratic, and operational failures would not reflect adversely on the Administration or a new NASA Administrator. On the other hand, development of new initiatives in space and major program decisions that must be decided soon are fundamentally political

issues that will shape the Nixon influence on space policy. The operational management problems of coordinating all the complex interactions required to achieve the lunar landing are largely behind NASA. The policy management problems of developing space objectives and choices among possible space capabilities should now receive primary attention at the Administrator level.

III. National Science Foundation

Both OST and NSF are dominated by university scientists. These scientists are naturally advocates of larger research and education expenditures. There should be such advocacy, although it more properly belongs in NSF than in OST.

An important consequence is that the President does not have a source of objective advice about science policy. (He does, of course, get expert advice on substance of science.) A further consequence is that OST and NSF fail to develop options that would be significant for the White House and to search out and shed light on criteria relevant to the broader national interest.

Although we believe the Federal Government (and NSF in particular) does have a role in support of research and science education, we badly lack criteria for deciding what is needed. As a result, the university science community that we have strengthened and accustomed

to rapid expansion over the last ten years is very near to becoming another subsidized special interest group, with reference to the national interest only as a lobbying tactic.

NSF has the responsibility within the Executive Branch for assuring the proper balance of federally supported research. Making clear your interest in a well-thought-out rationale for NSF programs would provide an important stimulus to the development of a more vital and realistic science policy. The upcoming NSB goals report provides a good opportunity for such an expression of interest.

The need to fill all six top positions at NSF in June is a further reason for expression of White House interest at this time. The position of Director has been elevated to Level II, on par with the Director of OST. We should have a careful review of the kind of leadership we want in NSF and what their role will be relative to OST. It is unlikely that major budget increases or legislation will be desired. We will want much better management of current programs; a sorting out of NSF objectives and programs; and good, but not too chummy, relations with the academic science community.

January 7, 1969

MEMORANDUM

TO: Ellsworth
FROM: Hofgren
RE: NASA input

J. Webb while well liked was not considered a good administrator. In fact, he had Jet Propulsion Laboratory and Cal Tech (du Bridge) not talking with one another.

Payne was universally recognized as a good administrator at G.E., both at Santa Barbara and Schenectady. He was able to harness the energy of JPL and Cal Tech.

One must remember that the team that put Apollo 8 to the moon is the present one. There are 7 more to go, and should there be trouble and this team wasn't there, we would catch the flak.

Also, the industry looks with interest on Seaman's appointment at Air Force. After all he was from NASA and it is presumed that if the future action is there, he would have been named or would have asked to be named Director.

TRANSPORTATION
Proposal for Interagency Study on Space ~~Launch~~ Services

Page

NASA, and to a lesser extent the AEC and the Air Force, are now preparing for full scale development of a "space transportation system." The system, which could be ready as early as the late 1970's, would consist of a "space shuttle" to transport payloads to and from earth orbit, a nuclear rocket to transport payloads between earth orbit and lunar ~~orbit~~ or planetary orbits, and a "space tug" largely to transport payloads between lunar or planetary orbits ^{AND SURFACES} in the ~~services~~ of those bodies. The R&D cost of this system, as estimated by analysts at RAND and adjusted for inflation, would be on the order of \$20 billion. These costs are conservative; technological difficulties or overruns from any other cause could push the cost considerably higher. Consequently, this project could become the largest R&D effort in history.

The agencies will push for a full scale commitment to the "space transportation system" in the FY 72 budget. The decision will clearly be one of major national priorities. The strongest case that the agencies are likely to make for this system will be that it will lower the cost of space transportation so dramatically that it will "open up space"

to scientific, industrial, and ultimately tourists uses.

We are skeptical both of the economics of this project and, more basically, of the entire philosophy of direct Federal ~~control~~ ^{OPERATION} of any emerging space industry. The limited analyses that have been performed to date cast doubt on whether the economic benefits of

"opening up space" will justify even a \$10 billion R&D investment at this time. ~~Even~~ With optimistic assumptions the rate of return on this investment appears to be below 5 percent. However, further analysis should improve our understanding of this matter.

The more basic question is whether the Federal Government should set about developing a "space industry" ^{IN} the way that ~~THE~~ Atomic Energy Commission has developed a nuclear industry. Should the Government pay for all of the R&D itself? Should it continue to own and operate all of the launch facilities? Should it directly finance all of the technologically risky activities, plagued as they are by DOD-type overruns? We believe there is a major alternative to this "business as usual" approach. The Federal Government could leave it up to private industry to provide all space transportation services: R&D, procurement of rockets, launch services, and tracking. The Government would pay industry for services ^{INTO ORBIT OR OTHERWISE} performed, but only after payloads had been delivered to their

3 COULD BE \$1-2 BILLION PER YEAR BY THE END OF
THIS DECADE. SO PRIVATE INDUSTRY HAS THE INCENTIVE
TO MAKE MAJOR INVESTMENTS. FURTHERMORE,

destinations. If need be, the Government would contract
years in advance for the transportation of payloads. In
other words, the Government would pay for space transportation
in the same way that one pays for freight transportation
now.

This approach would, of course, be revolutionary. However,
there is reason to believe that the Aerospace Industry is
reaching the point where, in combination with the financial
~~THE FEDERAL MARKET ALONE FOR SPACE TRANSPORTATION SERVICES~~
community, ~~they~~ ^{IT} can handle this task. [^] This approach to
of
the financing/space transportation would have a number of

advantages. It would avoid \$20 billion of Federal budget
expenditures in the near term. It would probably result

in private industries developing ^A lower costs and economically ^{MORE}
(ATTRACTIVE ALTERNATIVES WOULD COST [^] \$500 MILLION TO \$5 BILLION FOR R&D.)
sensible systems. [^] It would set an example for high technology

R&D and procurement that might later be applied to other

Government activities, especially in the defense sector. It

would insure that future decisions to launch space payloads

^{TAKE} ~~took~~ account of ~~the~~ full costs and ^{DO} ~~did~~ not depend on half

hidden subsidies for R&D, procurement, and launch and tracking

services as they do under present procedures.

THE PHILOSOPHY

If we accept ^A that this is the way that a "space industry" ULTIMATELY

ought to operate, we should address the question of whether such A

CHANGE IS BEST MADE NOW OR LATER,

~~is in fact possible at this time.~~ It would be more difficult

to reduce Federal involvement later, after a new and major Federal project is underway. The alternative ^{TO A} change in policy ~~now~~ is likely to be an indefinite and growing Federal involvement in what will become an increasingly ~~an~~ industrial matter.

Recommendations

We suggest that an interagency study be convened to examine how the Federal Government might procure its future space transportation services. Terms of reference for the study ~~are attached.~~ <sup>—TO WHICH TREASURY, NSC, CEA, AND BOB WOULD GIVE A SYM-
PATHETIC HEARING—</sup> An attractive outcome ~~of a study~~ might be decisions of the following sort:

1. The Federal Government would immediately shift to a policy of contracting with the lowest bidder for the transportation of small, unmanned payloads. The Government would not make "progress payments" to industry but would pay only upon successful delivery ^{INTO ORBIT.} As appropriate, Federal launch and tracking facilities would be sold or leased to private industry.

2. Federal spending on the space transportation system would be held at or below the present level until experience was gained with direct payment for the transportation of small, unmanned payloads. This ^{WOULD} probably mean that a decision

TO FEDERAL FUNDING OF A

could be made on whether to commit ~~to the~~ space transportation system ^{OR TO RELY ON PRIVATELY-DEVELOPED TECHNOLOGIES} in about 1973.

3. There would be no commitment to new manned space projects until after the scientific results of the first Saturn V workshop are analyzed. This will occur in 1973 to 1974. All of the proposed new manned space projects require long duration stays in space, and the Saturn V workshop will answer the wide-open scientific questions about what it takes for man to survive in such an environment for lengthy times.

4. The launch schedule for the remaining Saturn V's ^{WOULD} ~~will~~ be stretched to prolong United States manned space activities into the late 1970's. This will allow relatively uninterrupted manned space activity if a decision is made in 1973-4 on whether the Federal Government or private industry is to develop the follow-on means of manned space transportation.

To: Secretary of the Treasury,
Director of NASA
Secretary of Defense
President's Science Advisor
President's National Security Advisor
Chairman of the Council of Economic Advisors
Director of the Bureau of the Budget

[AEC?]

subject: INTERAGENCY STUDY ON SPACE TRANSPORTATION SERVICES

As a result of more than a decade of major Federal spending for space activity, we now have a large, viable aerospace industry. Decisions are ~~now~~ approaching on the future of manned space flight and on the development of major new technologies for low-cost space transportation. These decisions give us an opportunity to make full use of the great industry that now exists. I wish to have a ~~REPORT~~ REPORT by September 1, 1970, on how we may take maximum advantage of the capabilities of our Aerospace Industry. THE STUDY SHOULD BE CHAIRED BY THE SECRETARY OF THE TREASURY [CEA?].

The study should examine various alternatives in the light of two objectives:

1. To ~~minimize~~ ^{REDUCE} the cost of ^{TRANSPORTING} future space payloads, such costs to include ~~a~~ research, development, and tracking as well as normal launch services and to take full account of the time value of money.

~~REDUCE~~
2. To ~~control~~ the risk of ~~future~~ cost overruns
~~SHORTFALLS~~
or performance ~~underachievements~~ in future space
activity.

In terms of these objectives, I would like you to evaluate
of
three alternatives for Government procurement /space
transportation services and any other alternatives that
may commend themselves:

1. Direct Federal payment for the successful
orbiting or delivery to their destinations of space payloads
with the ~~cost of~~ ^{INVESTMENT IN} all prior research, development, procurement,
and operations to be ~~borne~~ ^{PROVIDED} by the aerospace industry and
the financial community. Federal launch and tracking
facilities would be sold or leased to private industry as
appropriate, and contracts for ~~launch~~ ^{TRANSPORTATION} services--with options
and penalty clauses--would be made in advance as appropriate.

2. Application of the above policy to all launches
of small, unmanned payloads with ^{DECISIONS ON} expansion of the policy to
larger, ~~unmanned~~ payloads and manned payloads ~~on the basis~~
~~DEPENDENT~~ of previous successful experience.

3. Continuation of the present practice of direct
Federal funding and operation of space activities.

The study should widen the range of viable Presidential choice to the greatest possible extent. It should not reject options on the basis of "political constraints," although any political complexities should be described in the report. The study should investigate any legislative or financial complexities such as the authority required for long-term contracts, the ability of the private financial markets to handle major risks and investments and to still function competitively, and the arrangements under which international cost-sharing on the large space ventures might be carried out under ~~the~~ alternative policies.

Although the study should not recommend a single alternative or a single budgetary program, it should spell out the sequencing of decisions under each alternative and the general budgetary implications. Classified material should be restricted to separable sections so that the study as a whole can be released at the President's discretion.

Willis Shopley
Bill Lilly

1/15/69

SA flight awareness & Pres announcement
immediate

new procedures.

^{now}
no US comment except congrats
CIA to tell WH

Major program issues (long-run)

1. US space objectives vs SA program expectations

Johnson FY70 budget continues existing programs
leaves open new options

e.g. lunar exploration (manned)

(S-D payload)

Earth-orbit space station

AAP (SIB 71/12 line-in 56 days)

(MOL)

2. Unmanned Planetary exploration

Deferral by # decisions

reluctance to go out of business

Min manned flight rate

Mueller 3/year min for assured reliability & safety.

Damage of power projected to world.

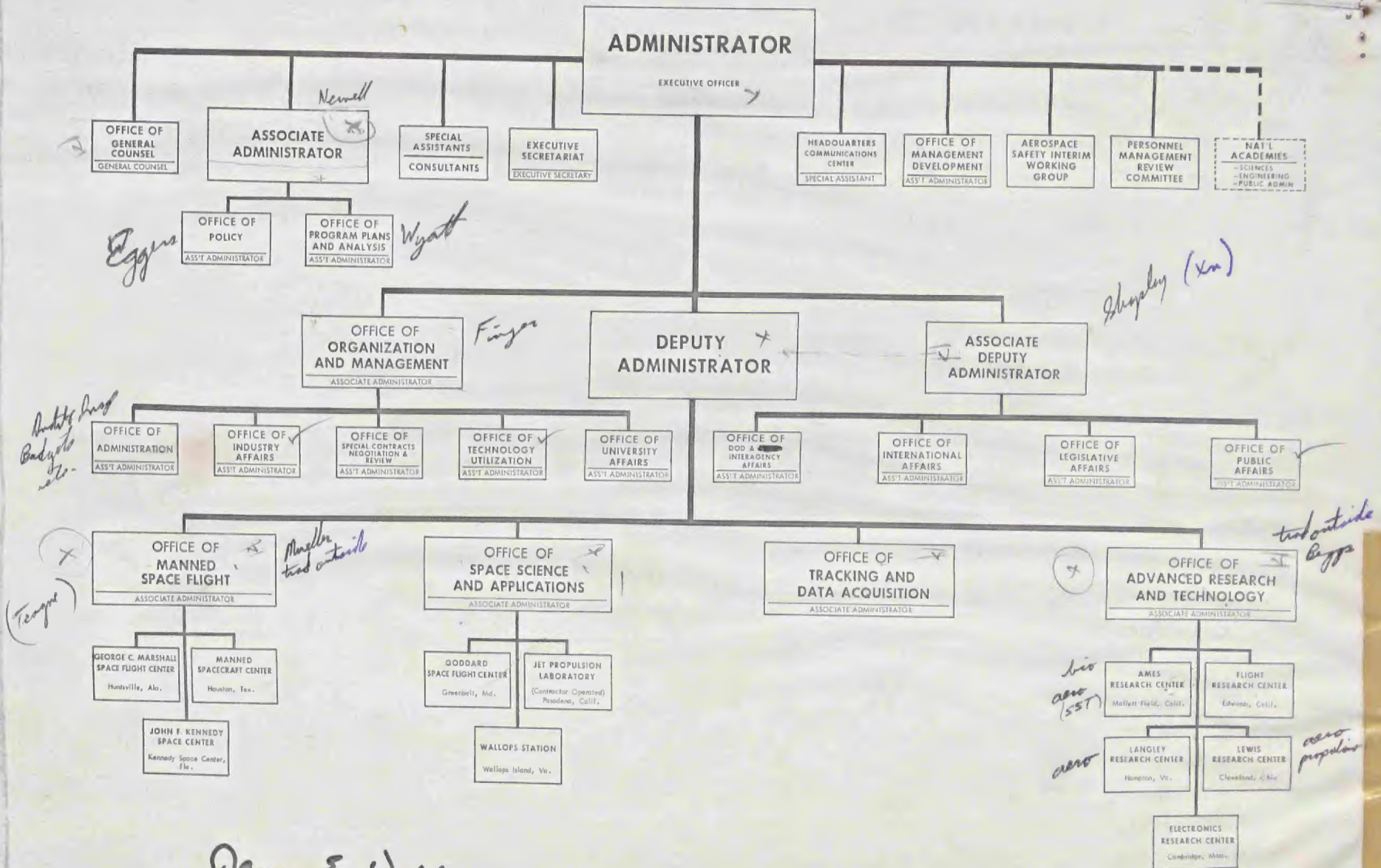
Prestige of US on line each shot

Role of Pres respect to shot approval.

* notify, not involve in decision loop.

New approach SA with ~~cooper~~ - lunar exploration proposal
share samples

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



APPROVED: *James E. Webb*
ADMINISTRATOR
EFFECTIVE: *December 18, 1967*
(Supersedes chart dated June 19, 1967)

II { Eng.
III { Scientist
Adm.

{ See Fried
then Mayo
{ Plan G - TFS rel
indig agencies

Anthorjin committee have power
have - manned & planetary
Sen - Clinton Anderson

① Apollo Feb
May
506 July
MLL tentative
MLL option
Will be asked posn, by NASA
option to commit for Pres
want to be involved
What do we want to do.

② precedent for direct astronaut access to W/H

③ Space Council

sign EO
relin VP, space team

Hatch Det. questions for civil Service while
working for Chm. (VP)

Duties flunking; keeps VP busy, exposed, etc.

Contact Congress & ^{space} industry in EO

Think out before appnts

④ Manned policy.

lead times war 76 - major down in a year
after MLL what? - early down.

7-12 in storage
end FY 70 #15.

(7 paid for) "4 years" (?)

Assoc. Dep.

Willis H. S. Hapley

trans man.

Newell

Paine.

NB: Big international political game.

1. Continuity
2. Administrator Vacancy
3. Trainee Task Force
4. Reaction to Russian flight.
5. Apollo Program

not crew's
handwritten

Launch and Feb

Thereafter every 2 mos.

6. In-depth discussion of policy of U.S. space program for the future long term.

(a) aim of U.S. space program vis-a-vis USSR program

Is approx? or independent?

NB: LBJ budget has provided support for things that are underway.

Big options remain open:

- (1) exploring the moon (beyond landing).
i.e., 2 week stay, etc.

NB: \$2 billion launch vehicles

probably
get the
use for
that

240,000 lbs to earth
orbit or 50,000 lbs to
moon.

9 altogether -- are now
on hand and will be
waited unless used for
moon exploration (or
used for something else).

2. Such as earth orbital
space station.

3. (Russian aiming at this) Planned
orbital space station.

Habitable space
station in orbit. (See
Apollo Application Program)

Earth orbit sta in-orbit MOL. Confusion
 stem from security ~~from~~ ^{from} certain around MOL.
 7. Avoid ^a default ^{decision} ~~decision~~ to "go out of business".

E.g., unmanned planetary program. Generally,
 decision on Q of what to do post lunar
 landings to be wound up by mid-October 1970.

What is the minimum safe flight rate? In other words,
 can the whole manned space flight apparatus
 be put on a standby basis w/o losing \$'s, time,
 morale, skill, etc. Minimum safe rate
 get below 3 per year.

safety,
 integrity,
 reliability

Basically, a political decision re usage of
 power, U.S. toward rest of world.

Ex. Reagan the Pres. for reaction to
 a failure. Also - should White
 House be involved in decision to go or
 not go? Wiener/Weber fight on first
 Mercury. NASA makes decision whether
 to launch and when to defer?

Has kept Pres. judgment and prestige
 clear of the problem. E.g., the
 fire in Jan. 1967.

9. OPPORTUNITY: How approach to Russian on
 cooperation in space. So far, Russian ~~has~~
 have not picked up idea of NASA to
 co-operate.

Proposal: Co-operate in exploration of Taurus.



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
ELECTRONICS RESEARCH CENTER
CAMBRIDGE, MA 02139

Pending.

PLEASE REPLY TO CODE RT

January 6, 1968

Mr. Robert Ellsworth
Office of the President-Elect
Richard M. Nixon
Washington, D.C. 20006

Dear Mr. Ellsworth:

Thank you very much for your letter of December 17th and for sending my resume to Mr. Harry Flemming. I am sure it will be given every consideration and while it is evident from my past experience that my interests are in the areas of public affairs, transportation and administration, I felt that not being too specific might provide more interesting possibilities.

At present I am working on a particularly interesting program, here at NASA's Office of Control Theory and Application. This Office was established about a year ago with the philosophy of stimulating basic research in control theory with a heavy emphasis on the application of this theory to broad problem areas. We believe that this theory successfully utilized in one area, can be rewarding in other areas.

To find out what control people thought these new fields of control application were likely to be, we completed a national survey of control experts, and found the fields of transportation, economics, social systems, bio-medical, production and communications mentioned. Following the survey, we had the idea of calling a symposium to bring together control experts with policy makers who we felt would accelerate the application of control theory in these areas.

I would hope that either you or another of Mr. Nixon's staff might attend our symposium to be held on February 10 and 11 at which time new approaches to these national problems might be identified.

Dubridge?
J.L. -
Schedule me, on our own calendar.
No reply to this letter.

2.

I am enclosing a pre-publication draft of our survey and information on the speakers who will attend and participate.

Sincerely yours,

Charles E. Jones

Enclosures

SPEAKERS NOTE: Please feel free to contact the OCTA Senior Scientist for any assistance you may require.

SPEAKER STATUS SHEET

<u>SPEAKER</u>	<u>SUBJECT</u>	<u>ORGANIZATION</u>	<u>OCTA CONTACT/ TELEPHONE NUMBER</u>	<u>ORGANIZATION CONTACT/ TELEPHONE NUMBER</u>
Dr. Emerson Day	Bio-Medicine	Director, Strang Clinic, New York	Drs. Wonham & Zames AC617-494-2013 or 494-2265	Dr. Day AC212-683-1000
Dr. Douglas Jones	Regional Planning	Special Assistant to the Secretary of Commerce - Dept. of Commerce	Dr. Kovatch AC617-494-2271	Dr. Jones AC202-967-3620
Dr. Gifford Ewing	Earth Resources	Woods Hole	Mr. Schuck AC617-494-2354	Dr. Ewing AC617-548-1400 X237
Dr. Irving Freidman	International Banking	Economic Advisor to the President World Bank	Dr. Kovatch AC617-494-2271	Mr. Fowler AC202-393-6360
Dr. Robert Duncan	Luncheon Remarks	Chairman of the Management Com- mittee for Science & Technology - The Polaroid Corp.	Mr. Schuck AC617-494-2354	Polaroid AC617-864-6000 X2751
*Mr. Marion Sadler	Transportation	Former President, American Airlines	Drs. Wonham & Zames AC617-494-2013 or 494-2265	Mr. King AC212-867-1234
*Mr. Dean McGee	Production	Chairman of the Board, Kerr-McGee	Dr. Falb & Mr. Jones AC617-494-2266 or 494-2242	Mr. Bennett AC202-737-2823
*Mr. Arthur Keylor	Communications	Vice-President - TIME Inc.	Drs. Wonham & Zames AC617-494-2013 or 494-2265	TIME Inc. AC212-586-1212

*Awaiting confirmation.

December 16, 1968

Mr. Craig Peper
515 Seward Square, S.E.
Washington, D. C. 20003

Dear Mr. Peper:

Bob Ellsworth suggested I meet with you in regard to your interest in budgeting and organizational improvement and also your liaison between the two NASA offices.

I will be in Washington through Friday, December 20th. Give me a call at 395-6980 and we can try to get together.

Sincerely,

Clay T. Whitehead

Craig Peper
515 Seward Square S.E.
Washington, D.C. 20003

10 December 1968

*Tom Whitelaw:
talk to their
man.
R*

Dear Bob,

Last spring when someone said to me "Nixon is going to clean house with the bureaucracy" I did not pay any particular attention. However, as it does appear that the incoming administration is concerned with change and organizational improvements, I have been mulling over whether anyone is interested in the observations and conjectures of a not-disinterested observer/participant?

The administrative history of an agency like NASA offers a fertile field for reform, or so I would suggest. The views of an "insider", regardless of level, are different from those of an outsider, as anyone involved in politics knows. So I thought that perhaps you would know whether anyone would be interested in what I may have learned in almost three years of liaison between two major program offices: Space Science and Applications and Manned Space Flight? Probably almost everyone in government thinks he knows what is going on and what needs to be done about it. But, also, sometimes it is difficult to find out just what is going on. Regardless of Wildavsky's book, the budgetary process is still unrevealed.

This is one of the questions that interests me: the different levels of perception and understanding people have of what is going on about them. As I hope I have indicated, if there is anyone interested in talking-over my views of the situation--fine. If there is not--fine. Incidentally, I am still struggling with the doctorate and am moving more in the direction of the possible determinants of political behavior.

Both my last letters have been of congratulations, and it is a pleasure to extend them again. I won't repeat Valenti's fulsomeness, but I am glad you are on the staff. Best wishes and much pleasure.

With best regards,

Sincerely yours,

Craig Peper
Craig Peper

Hon. Robert F. Ellsworth
P.O. Box 19255
Washington, D.C. 20036

January 10, 1969

Mr. Craig Peper
515 Seward Square, S. E.
Washington, D. C. 20003

Dear Mr. Peper:

Thank you very much for your letter and the paper you prepared on NASA. I enjoyed it and our conversation very much.

Unfortunately Mr. Ellsworth and I don't see any opportunity in the near future to get into these issues in any comprehensive way. Perhaps we can talk at sometime about your liaison experience however.

I will be in touch.

Sincerely,

Clay T. Whitehead
Deputy Assistant to the President-Elect

Craig Peper
515 Seward Square S.E.
Washington, D.C. 20003

2 January 1969

Dr. Clay Whitehead
Office of the President-Elect
Richard M. Nixon
Washington, D.C.

Dear Clay:

Here is one suggestion in answer to the question: How would I go about getting control of NASA. I discarded the attempt to incorporate the experiences and observations that have caused me to view the need for changes as I do. I hope that it is interesting and I have enjoyed doing it. If didactic and somewhat polemic notes have intruded, work suffers from self-criticism only.

With best regards,

Sincerely yours,


Craig Peper

NASA

Has the success of Apollo changed the problems of NASA or has it merely intensified those already existing? As with any complex and emotionally charged issue, the answer depends on the analyst's subjective viewpoint. To some, the round trip to the Moon was a quantum jump as man for the first time escaped the Earth's magnetic field. To others, including myself, it proved nothing more than the efficacy of Newtonian mechanics.

The major problems of NASA may be divided between those concerning the "mission" of NASA and those inherent in any public, bureaucratic institution. The problems are, then, essentially, problems of goals and of means. The confusion over goals, however, contributes immensely to the problems of structure and function--the means.

The charter of NASA is quite specific. As set forth in the National Aeronautics and Space Act of 1958, as Amended, "... it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind." A later restriction concerning provision for defense delegates to the President any determination of jurisdiction. This restriction is significant for two reasons: it causes competition for resources, and can hamper or eliminate NASA's use of equipments essential to carrying out scientific and applications experiments. The verboden is largely judgmental, and it is to be expected that the pressures for civilian access will increase and ultimately will be resolved favorably for peaceful uses.

The fundamental problem in establishing NASA's goals concerns the role of man. The job of putting a man on the Moon has completely distorted a logical, scientific, and systematic development of space. The basic question remains unanswered: Is man essential for the scientific exploration of space? The evidence, to me, is persuasive that he is a liability and that his contributions to uncovering the secrets of space can best be performed on Earth.

First of all, the prerequisites have not been performed for testing man in space over long periods. The attempts to put man on the Moon or in a space station violate every canon of the scientific, experimental approach. To use man as a white mouse makes him an experimental subject that he is not qualified to be. The lack of scientific medical data on man, after years of flight, indicates the lack of preparation for the role in which he is cast as an explorer in space for months and years.

If man cannot perform this role, then, years of effort will have been wasted. The Russians appear to be concerned about the physical effects of a space environment on man, and to have revised their efforts accordingly.

The environment required for man is producing technological problems that appear to be beyond present knowledge and imaginations to resolve. The solutions require quantum jumps not even envisioned. Planning, accordingly, proceeds on a basis that excludes the reality of "how is it to be done?" The development of foolproof vehicles, spacecraft, and experimental equipments has not been pursued. Consequently, a trivial error can ruin years of effort and waste billions of dollars of resources. It is problematic whether the successes of Apollo 7 and 8 represent repetitive technical achievements or are, probablistically, exceptions. The Apollo fire revealed fundamental difficulties in concept and implementation that may not have been eliminated. As in politics, in space exploration there is no substitute for success.

Equally important with the technological problems posed by man is the uncertainty that he can perform scientific experiments in space. The record so far would indicate that he cannot, and each future projection reduces the role of science. Qualifying man for space is demanding the exclusion of science to provide the resources for manned flight.

It may not be feasible politically to reduce the role of man until events dictate it. A major failure, and the odds favor this, will provide the opportunity. Consequently, plans need to be formulated on two bases: (1) the continued attempts to qualify man for space flight, and (2) the abandonment of such attempts except as a potential long-range, decades away goal. One, then, becomes a short-range, expedient plan, and two is the long-range, basic goals endeavor. The first provides time to reorganize the agency to meet the second's requirements.

As is to be expected, NASA is split organizationally over manned versus unmanned flight. Manned has had the whip-hand and the control of resource allocations. To expect protagonists to shift viewpoints is to ignore the self-involvement of leaders and troops alike. The pleas of the Administrator to "look at it from a NASA point of view" have fallen on unreceptive ears. From an historical viewpoint, it does not appear to be possible for an institution to cleanse and to reform itself. This can only be accomplished from the outside. The reasons are primarily psychological and are outside the bounds of this effort. It is an organizational axiom, however, that if you want to change policies you have to change the people.

A more important problem arises from the nature of a public bureaucracy. When a new institution is created it is staffed through laterals--professionals who transfer to the new organization to gain promotions, or to get out of dead-end jobs, or to exchange frustrations. The result is a hodge-podge of conflicting aims and experiences. Without strong, imaginative, and innovative leadership at the top, it is probably not possible to form a unified, coherent, creative administration that will

fulfill the purposes of the institution. Instead, everyone tries to perpetuate pieces of his old life that are familiar to him, regardless of how unsuitable and irrelevant they may be to the new life. What develops is not a team but a recreation of feudal life--independent baronies and duchies paying only nominal allegiance to a suzerain.

Without a clear-cut and firm understanding of what he wants to do and how he intends to do it, the administrator is little more than a front man, not knowing what is going on, or if he does suspect, helpless to do anything about it. Such is the history of NASA.

What might be termed the "inside" problems of NASA have been discussed briefly--the ambiguity of policy and the paucity of qualified personnel. The external environment of NASA is the other half of the equation: What does government expect of NASA. This is part of a larger question: How effective do Congress and the Executive want NASA to be. Is the agency to be the master, co-equal, or subject of outside interests? This cannot be glossed over because it is at the heart of the Executive calculus.

There are two major aspects of this problem: (1) the division between in-house and out-of-house work, and (2) supervision of contractors. The argument is always advanced that work performed in-house (hardware development) is cheaper. There are no cost figures available to prove or to disprove this since NASA refuses to distribute administrative, facility, and supporting research costs to projects. The complaint is always heard that proper control cannot be exercised over a contractor because if you try he will complain to Congress or the Executive. The experiences of NASA and DOD would seem to indicate that it is difficult to find a middle path; either there is rigid control exercised over a contractor's costs and methods, or there can be no control at all and he is, in effect, autonomous.

The use of personal service contractors requires congressional and Executive resolution. As the process of personnel attrition proceeds, an expanded role will be required for "flesh-peddling" contractors or the role of the agency will have to be curtailed. The present practice of attrition results in disequilibrium as no balance of forces can be maintained. Everywhere you hear "We're losing the people we need and keeping the ones we don't want." The need for an optimum, balanced organization at all times is self-evident.

Given the problems of NASA as I see them, and political reality as it appears--What is to be done? The new administration has both the opportunity and the responsibility to "take stock" of what has been accomplished, what has been found-out, what is of value, what is waste, and, most important of all--what needs to be done that is worth doing? Both the establishment of goals and the creation of structure/functions can proceed separately while a close relationship between them is maintained.

The first thing I would do would be to require each office to write-out its functions and operations in detail so that as the new organization is developed no essential requirements will be omitted. This should always be continued so that analysis of performance is constant. The format should be provided so that all references will be uniform. Also included in the analysis should be an exhaustive listing of what each office needs to perform its functions, what information/data are not available that are needed, and what are available that are unnecessary. No attempt should be made to initiate changes while this is being done.

A suggested Table of Organization on which the remainder of these comments is premised is attached. Also included is the present table.

While this organizational analysis is going on, the administrator should be assembling his personal staff. This is a staff that is independent of the organization and that has no operating responsibilities. This staff is necessary to keep the administrator aware of what is going on and out of trouble, if possible. It is to provide independent bases for the evaluation of reports and performances. It is to prevent him from becoming a prisoner of his subordinates. The staff is to provide independent checks on accomplishments and the realization of goals. Finally, it is to provide representative viewpoints through a wide range of competences and interests.

The administrator must be prepared for the loud objections that everyone is too busy to take time to find out what he is doing, or should be doing and is not. There is a paralyzing amount of wasted effort because people do not know what they should be doing, nor do they have what they need to do it with, if they did know. The waste of talent or manpower at all levels through the performance of unnecessary work is interesting.

Task forces, both internal and external, are needed to define major problem areas, e.g., data management, the role of NASA vis-a-vis other agencies, what should be done versus what can be done, or what is being done. These task forces would be designed to offer solutions to the problems after having defined them. For example, in setting goals the problem should be divided between international and national efforts. There is no reason for NASA to invent the wheel daily. Efforts should be made to work out reciprocal areas of responsibility with other nations so that the total scientific effort can be expanded.

Within the U.S. research should be separated into three categories: pure, experimental, and applied. The anarchic system presently in vogue whereby scientists work only on what interests them is wasteful, redundant, and not necessarily additive. The time is ripe to introduce system into science--to tax science with using the scientific method. No longer are there unlimited funds with which to do unlimited research.

Parenthetically, it may be pertinent to recall Clemenceau's dictum: Everything is too important to leave to the military, including war. Science remains what scientists say it is. It is up to the Executive to determine what can be done. Therefore, what is proposed is that the scientists be required to decide three things: (1) what is known, (2) what needs to be known, (3) in what sequence is (2) to be attempted?

Inflation is a concern of all parts of the economy. The science community has not controlled itself--probably it cannot. None-the-less order needs to be introduced. The hue and cry for more funds for basic research is not warranted by the results to date. It would appear that too much money has been spent on buildings and equipments and the scientists have done too little thinking as a result. The great discoveries in physics are European and past. In the U.S. insufficient effort has been expended in seeking to solve such conflicts as quantum mechanics and classical mechanics. Quantum jumps are needed and the substitution of equipments for thought appears to be unsatisfactory. Consequently, it is suggested that the level of research should be dropped as a means of introducing discipline and increasing results.

There is, perhaps, little reason for the scientific community to demand that the military/industrial complex be controlled if they are unable to discipline themselves.

What is contemplated here is an independent national group that will evaluate all on-going research efforts wherever they are taking place and recommend future levels of support. Then, the necessary amounts of resources would be determined and each sector assessed its share based on the work to be performed. NASA would be responsible only for that portion relating to its specific goals. NASA would, in effect, do only goal applications (experimental and applied) research. Basic research or pure research, and experiemntal research where space flight is not a condition for testing would be a function of the national group and would be pursued in industry or schools.

The totality of scientific resources--private, industrial, government--needs to be considered in determining who is qualified to do what. The purpose of the scientific task force is to provide an agenda for NASA: What peaceful needs are there and in what priority sequence shall we seek to fulfill them? The next step is to have the task force decide who is to do the work? It should be interesting to observe scientists who are critical of legislative logrolling recommend the parceling out of responsibilities and resources. In all these task force suggestions it is not intended to by-pass decision-making responsibilities in the Executive, but only to provide as authoritative assistance as is available.

The Data Management task force has three major responsibilities: historical, present, and future, each divided into two categories--costs and information. What information has NASA

found out in its years of operations and what has each bit of information cost, so that reasonable estimates can be made of future requirements and costs. While computers have made information access possible, they have not been utilized to create accessibility. Today, the question is not what data can we get, which is almost limitless, but what data do we need to realize our responsibilities.

Analyzing costs and information is a means of providing management with the tools it needs to do its job. And, management must first ask itself what it needs. The analysis of management needs will be time-consuming, but it is necessary to overcome ten years of neglect. Why NASA chose not to develop costs/data is outside the scope of this effort, but whatever the reasons, the historical analysis needs to be made unless present methods of operation are to be continued.

There needs to be a government/industry task force to establish standard accounting methods so that costs/data are interchangeable without time-consuming and expensive conversions. Standardization of accounting records within government is an essential for budget control. This would permit the association of end with means and the cross-comparisons of ends and means.

As an outcome of the science task force goal areas would be established. These would be in lieu of the present programs and is done to unify explorations and to eliminate redundancies and repetitions. The emphasis on goals rather than programs, e.g., astronomy, is to overcome discipline barriers and to recognize the interdisciplinary relationships in the analysis of scientific phenomena. It is necessary to establish priority areas of investigation and mine would be in two parts: (1) lunar influences on earth and earth organisms, and (2) solar influences on earth and earth organisms. The goal area would be oriented toward these two major goals, one area might be solar flares. Provision would have to be made to take advantage of scientific phenomena that occur only at stated intervals, providing they are deemed important enough to warrant the expenditures required to investigate them.

A major problem in NASA is the use of scientists to perform administrative tasks for which, if they are qualified, they represent a waste of expertise. What is contemplated to avoid this is a science oversight committee to follow the progress of efforts in government, industry, and the schools. They would concern themselves solely with methodologies and results, recommending changes as progress is perceived. A further concern would be to determine data accessibility, that is that the data that is necessary is available for use. Since it is difficult to decide if scientists do not lose their expertise when they cease to be practicing scientists or teachers, it is recommended that they be nominated by the national task group for periods not to exceed three years. This also permits a shifting of emphasis as needs change.

A similar objection should be registered against the practice of assigning engineers to administrative positions. Their biases and conditioned experiences appear to prevent them from grasping organizational problems or understanding the need for novel solutions that are outside their experiences. Such a problem exists with regard to Werner von Braun. As one Manned Space Flight employee asked: Who is big enough to tell him that we no longer need him? Certainly not George (Miller). This is one of the most serious problems the new administrator will face, and how he solves it will determine his efficacy as an administrator.

The problem of autonomous centers and programs would be resolved through a complete shift in structures and functions. A Goal Applications group would be set-up to translate requests for experiment data into results. The primary concern of this group would be "How" to do the experiments and to establish the means necessary. As sub-groups under it there would be Airplanes, Rockets, Balloons, Automated Spacecraft, and Manned Spacecraft. These groups would not be competitive in the sense of competing for business, but only in the sense of increasing competences. These groups would be charged with overseeing production in government, or industrial, or school facilities. All aeronautics research would be channeled through the Airplane group.

Supporting the goal applications group would be two independent groups, Technology Requirements, and Flight Methods Review-Science. The first would analyze deficiencies in existing methodologies to meet goal requirements and recommend the necessary research to overcome the deficiencies or to suggest alternate methods. The second would bring scientific points of view to bear on proposed engineering solutions.

The Data Management group would have no operating responsibilities. Its functions would be to determine the data necessary to accomplish flights/experiments, and the reduction, retention, and access to experiment and flight data. The magnitude of data management problems does not appear to be recognized. It is not a problem that can be left to researchers as it requires independent judgment.

The Administration group is divided into eight sub-groups. The chief of this group would be, in effect, the controller of NASA. This is probably the single most important position other than that of Administrator or his Assistant. He should have experience in a large multi-faceted industry to understand and to control the varied groups and their responsibilities.

The Facilities group would supervise and operate all NASA facilities. It would be responsible for determining the government-owned facilities that would be required to fulfill the functions of the Goal and Goal Applications groups.

The Budget group would prepare, submit, and defend the individual budgets for every group and sub-group. It would also follow-up on expenditures versus budget. All resources forecasting would be done by the Budget group.

The Accounting group would have two major functions: determining what costs are necessary to know, and estimating costs for proposed applications. It also would evaluate the use of competing development and flight sources and recommend priority choices.

The Purchasing group would be organized in conjunction with the Legal Counsel's office and would handle all procurements. The conflict between grants and contracts would be stopped and the Office of University Affairs would be eliminated due to the changes in NASA's science objectives.

The Systems and Procedures group would function to advise what policies are needed, develop the implementation of approved policies, and assure that they are carried-out or revised if necessary. This group should function to simplify and to streamline operations, always asking the question: Is this necessary? The first assignment for the group would be to develop and install, with the assistance of the Accounting and Auditing groups, a complete cost accounting and reporting system.

The Internal Audit group would look into everybody's operations. It would not, however, audit external contractors. The auditing of contractors should be a separate function with no ties to the organization doing the contracting. This should be a uniform government-wide operation. The most important function of Internal Audit would be to recommend changes in operations for efficiency, increased usefulness, and to eliminate jurisdictional overlaps. Although under the Administrative group for organizational purposes, the Chief Auditor would report direct to the Administrator, with copies of his reports going to the Chief of Administration.

Data Processing would constitute a departure from present practices. The custom of "contracting-out" is unsatisfactory from many standpoints, particularly as NASA becomes a captive of its contractors. The custom prevents ready access, understanding of NASA's problems, and continuity. NASA should have complete in-house competence for all of its computer requirements. The relationships among the groups are too complex for NASA not to control its life-blood--communications. In this instance it is urged that support contractors be eliminated.

The Executive Committee would be a coordinating committee composed of the chiefs of Science Oversight, Goal Applications, Data Management, and Administration. While the attempt has been made through structure to eliminate jurisdictional disputes, any that do occur should be resolved in the committee. The

committee would also serve to present individual and collective viewpoints to the Administrator. Since they are operating heads with operating responsibilities, their ability to interchange ideas and to reach solutions to problems quickly is important.

The Deputy Administrator should have the same qualifications as the Administrator. He would sit on the Executive Committee and be prepared to replace the Administrator if necessary. He would not have operating responsibilities unless specifically assigned them.

The Administrator should have entrepreneurial ability in order to manage the bureaucracy. The reason for requiring entrepreneurial ability is because it is required to make decisions. An entrepreneur tends to have faith in his judgment because he has experienced the realization of aims and need not rely on mechanical means to make his decisions for him. He is able to realize ends because he is accustomed to fabricating the means to realize them. To a bureaucrat "how" is more important than "what." To an entrepreneur, the reverse is true. A professional politician is a prime example of an entrepreneur.

Throughout this exercise the effort has been to curtail NASA's efforts to what is necessary to accomplish its mission--peaceful purposes for the benefit of all mankind. In its meteoric rise NASA has become layered with personnel. It is topheavy with executive personnel yet unable to act or to reach decisions except as time and circumstances make them. The process of demobbing cannot be accomplished through attrition. It is this reason that makes reorganization paramount. The new people who design and flesh-out the new structure should owe their allegiance to the Executive--he ultimately is responsible for success or failure.

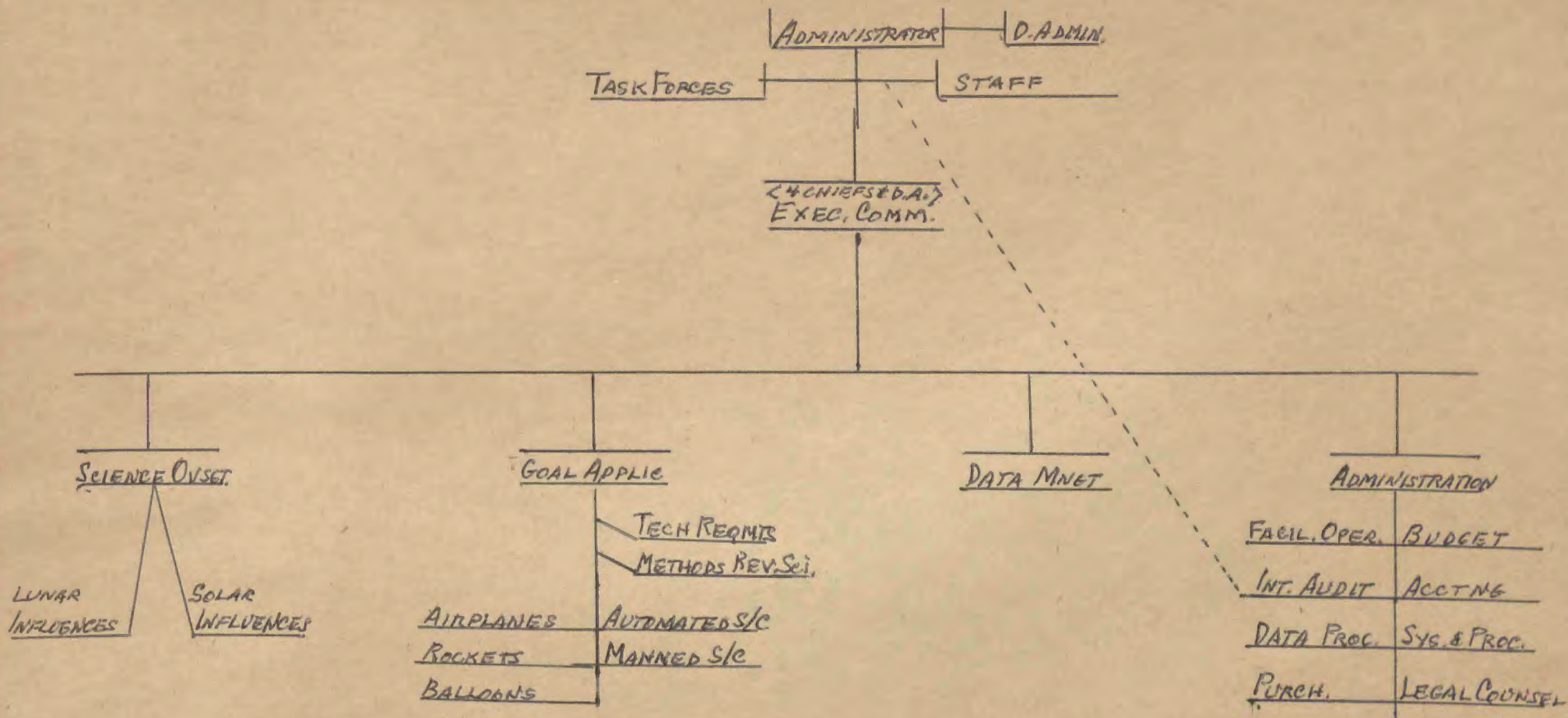
The reduction in excess super-grade personnel should be based on an evaluation of each man's capabilities when viewed in the light of the needs of NASA as determined by Executive review. The adaptability of an individual to change and the capacity to recognize the ideas of employees as sources for change are important qualifications to use in determining the retention of employees.

The Administration, Data Management, and Goal Applications personnel would need to come from the big accounting firms and large industrial accounting and budget departments. It would be desirable to have an interchangeability between industry and government to broaden the horizons of both. Care should be taken to avoid the Public Administration schools as their people tend to lack the experiential factor that is an essential component of critical analysis.

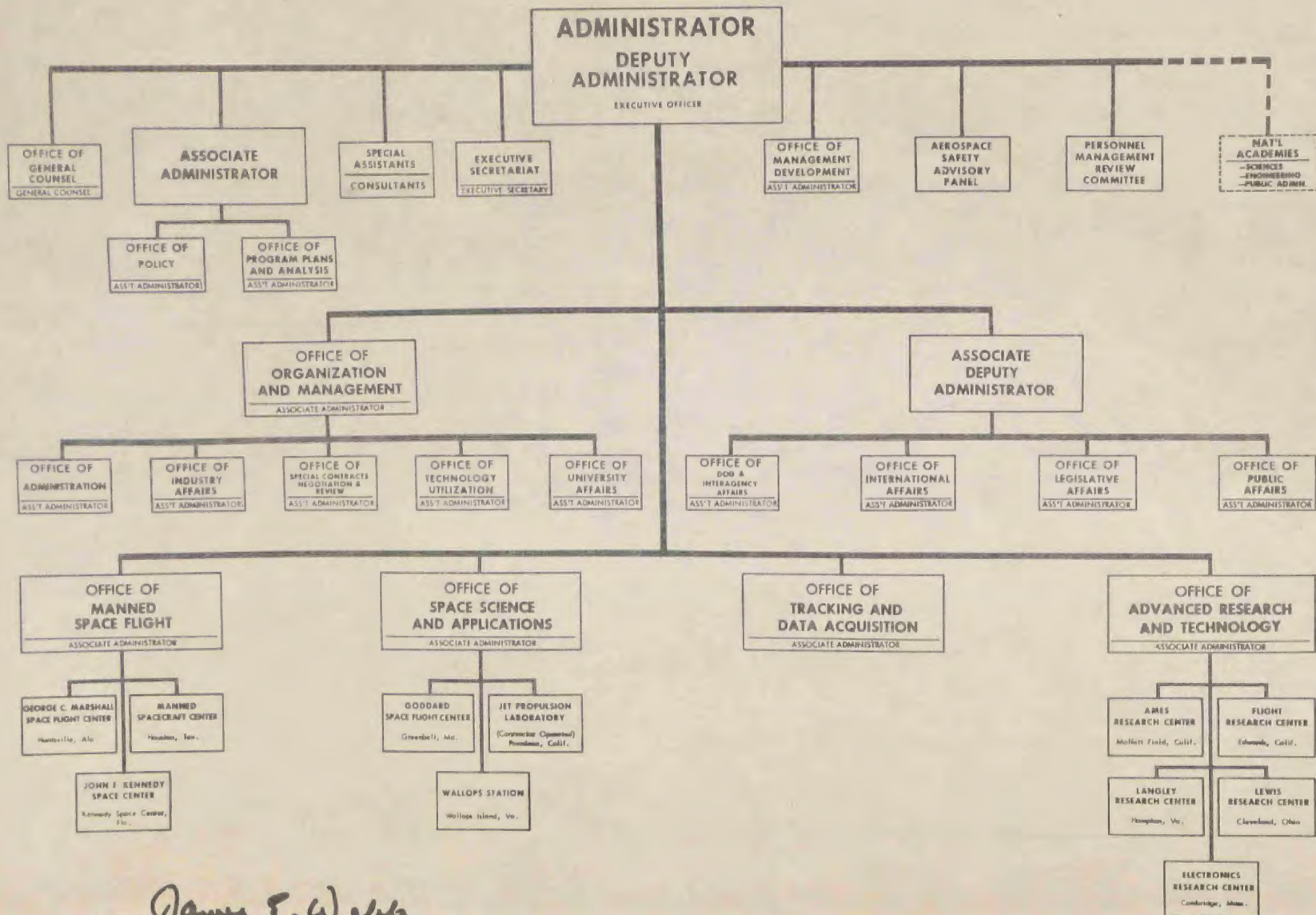
As has been said previously, the installation of a compre-

hensive cost system is a first priority. Without it management has no effective tools. In separating the budgeting and cost accounting functions from Goals and Goal operations, one reason is to obtain valid projections of estimated resource requirements "without prejudice." The "nose-under-the-tent" method of budget forecasting may be tolerated in an incremental budgeting cycle, but it can be disastrous in a decremental period.

The obvious attempt has been to provide more of an oversight function for NASA and to reduce its operating responsibilities. In narrowing the scope it would be hoped that performances would improve. No organization chart can convey how an institution really operates. That will be determined by its leaders who set the tone for the whole organization. It is with this in mind that emphasis has been placed on the responsibilities and personalities of the proposed executive personnel.



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



APPROVED: *James F. Webb*
ADMINISTRATOR
EFFECTIVE: *May 1, 1968*
(amended chart dated December 10, 1967)

WRITTEN
7/16/64

The principal part of this Document is a listing (of a rather heterogeneous nature) of some spectacular achievements that could be accomplished in space, some of them at quite moderate cost. My purpose in putting it out at this time is to call attention to the fact that space, over the past few years, has somehow lost some of its "glamour" as far as the public is concerned. Feats that "capture the imagination" or revive the public interest in space may have a real value to the United States and the Free World, to the U.S. Air Force, or to NASA. Although some advisers, critics, and planners of space programs have warned that we should avoid creating the impression that we are merely carrying out "circus stunts" or spending the taxpayers' money in a frivolous manner, there is also the danger, on the other hand, of being too prosaic, too pedestrian, too scientifically sophisticated in a new field that should be intrinsically exciting and stimulating to the man in the street. After all, people like circuses and love to be entertained; they don't object to spending money for a good show. Perhaps a few spectaculars would make them feel they're "getting their money's worth."

Let's list first some of the outstanding achievements, already accomplished in the Space Age, with special publicity or news value.

1. First artificial Earth satellite, Sputnik I, 1957 USSR
2. First living thing in Earth orbit USSR
3. First "tonnage" payload in Earth orbit USSR
4. First man to orbit the Earth, Yuri Gagarin USSR
5. Longest stay by man in space (nine days) USSR
6. First published photographs of back side of moon USSR
7. Discovery of Van Allen belts USA
8. First successful unmanned Venus fly-by, Mariner II USA
9. First unmanned object hard-landed on the moon USSR
10. First woman in space USSR
11. First published photographs of Earth taken from near-Earth orbit USA?
12. First simultaneous orbiting of two manned satellites USSR
13. Most readily visible Earth satellites, brightest artificial objects in Space, Echo I and Echo II, 1960, 1964 USA
14. First TV relay satellite, Telstar 1, 1963 USA
15. First TV cloud pictures from space, Tiros 1, 1960 USA
16. First satellite in 24-hour orbit (inclined), Syncom 2, 1963 USA

It is obvious from the above list that the USSR has had the best of it in "firsts" so far, and has apparently decided that such stunts have a positive value to them, politically, prestigewise, imagewise or whatever. If the United States decides to do a little more in the spectacular area, here are some of the remaining plums:

1. First photographs of the Earth as a whole planet, taken in full color, at a distance of at least ten Earth radii (40,000 mi) various phases.
2. First high-resolution photographs of the Moon's surface, taken from lunar orbit, front side, back side, etc. from various distances, in color.
3. First lunar unmanned soft lander.
4. First permanent lunar orbiter, visible to naked eye, or at least with the aid of ordinary binoculars, from Earth.
5. First manned rendezvous in Earth orbit.
6. First really good photographs of the planets, Venus, Mars, Mercury, Jupiter, Saturn taken from above the Earth's atmosphere. Also good spectra of Mars, particularly, from above the atmosphere.
7. First really good photographs and complete spectra of the Sun, taken from above the Earth's atmosphere, showing sunspots, granulation, faculae, the corona, zodiacal light, etc.
8. First TV pictures of lunar surface.
9. First close-up photographs of lunar surface.
10. First artificial meteor showers visible to people over a large area of the USA and elsewhere.
11. First self-luminous Earth satellite, visible even when in Earth's shadow.
12. First Earth satellite visible in daytime (very large balloon, 600 ft in radius).
13. First direct indication of structure of lunar surface.
14. First direct measurement of temperatures at various distances below lunar surface.
15. Stunt: Toss out from an escape rocket a package composed of millions of brightly polished sequins (visible when in the right orientation) to observe optically from Earth and measure dispersion rate.
16. Stunt: Eject from an escape rocket and detonate a series of small magnesium flares, readily visible to Earth observers, to mark rocket's position and check on accuracy of guidance equipment.
17. First photographs of an eclipse of the sun by the Earth, taken from at least 40,000 or 50,000 mi out, in color.
18. First photographs of moon's shadow on Earth, taken from space during eclipse of the sun by the moon.
19. First man to spend one month, two months, a year, in Earth orbiter.
20. First two-man space vehicle (also first 3-man, 4-man, n-man).

21. First mammals (mouse litter) conceived and born in weightlessness.
22. First establishment of water (of hydration) in lunar surface rocks.
23. First "rescue" of astronaut in distress.
24. First (successful) appendicitis operation performed in orbit.
25. Discovery of some unusual materials on moon or in space: diamonds, organic materials, uranium, platinum, some new crystalline types or compounds not naturally occurring on Earth.
26. First description of lunar surface by astronaut, Broadcast from lunar surface.
27. First man to reach north, or south pole of moon on the surface.
28. First heliograph visible from Earth set up on lunar surface.
29. First "permanent" moon base.
30. First hydroponic garden (growing vegetables) on the moon.
31. First woman on the moon.
32. First dog on the moon--or cat.
33. First mammal born on the moon.
34. First reliable measurements of magnetic fields of moon, Mars, Venus, Mercury, made from space.
35. First motion picture made on location on the moon.
36. Announcement of discovery that the longevity of mammals is greatly increased when they live in the one-sixth gravity of the moon.
37. First astronomical observatory on moon.
38. First close-in photographs of Venus, Mars and Mercury.
39. First sample of lunar surface returned to Earth.
40. First direct and accurate measurements of composition of atmospheres of Venus and Mars at known altitudes and at surface.
41. First establishment of presence of life on Mars (if there is any) and determination of its nature.
42. First direct reading of surface temperatures on Mars and Venus.
43. First direct analyses of atmospheres of Jupiter and Saturn.
44. First determination of composition of rings of Saturn.
45. First manned landings on Mars, Phobos, Deimos, and on the satellites of Jupiter.
46. First manned landing on a large asteroid, like Ceres, Vesta, Eros, etc.
47. First motion pictures made on location on Mars.
48. First nuclear rocket to be used in space.
49. First unmanned soft landing on Mercury.
50. First manned landing on Mercury.
51. First object sent into sun.
52. First object sent out of the solar system.
53. First close-up photographs of a comet. (Halley's comet, 1986 perihelion).

54. First close-in photographs of Uranus, Neptune, their moons, and Pluto.
55. First emplacement of an orbiter around Venus and Mercury to measure planetary masses accurately.

On the other hand, let's leave a few more plums for the Russians to pick; for example:

1. First man to die in orbit.
2. First man to be killed on moon's surface.
3. First man to go crazy in orbit.
4. First nuclear mishap on moon's surface.
5. First defection by a cosmonaut.

MAY 25, 1961

NOTICE: There should be no premature release of this message to Congress, nor should its contents be paraphrased, alluded to or hinted at in earlier stories. There is a total embargo on this speech until 12:30 p.m., May 25, 1961, which includes any and all references to any material in this message.

Pierre Salinger
Press Secretary to the President

THE WHITE HOUSE

SPECIAL MESSAGE BY THE PRESIDENT ON URGENT NATIONAL
NEEDS

TO A JOINT SESSION OF THE CONGRESS -- (As Actually Delivered)

Mr. Speaker, Mr. Vice President, my co-partners in government, Gentlemen -- and Ladies: The Constitution imposes upon me the obligation to "from time to time give to the Congress information of the State on the Union". While this has traditionally been interpreted as an annual affair, this tradition has been broken in extraordinary times.

These are extraordinary times. And we face an extraordinary challenge. Our strength as well as our convictions have imposed upon this nation the role of leader in freedom's cause.

No role in history could be more difficult or more important. We stand for freedom. That is our conviction for ourselves -- that is our only commitment to others. No friend, no neutral and no adversary should think otherwise. We are not against any man -- or any nation -- or any system -- except as it is hostile to freedom. Nor am I here to present a new military doctrine, bearing any one name or aimed at any one area. I am here to promote the freedom doctrine.

I.

The great battleground for the defense and expansion of freedom today is the whole southern half of the globe -- Asia, Latin America, Africa and the Middle East -- the lands of the rising peoples. Their revolution is the greatest in human history. They seek an end to injustice, tyranny, and exploitation. More than an end, they seek a beginning.

And theirs is a revolution which we would support regardless of the Cold War, and regardless of which political or economic route they should choose to freedom.

For the adversaries of freedom did not create the revolution; nor did they create the conditions which compel it. But they are seeking to ride the crest of its wave -- to capture it for themselves.

Yet their aggression is more often concealed than open. They have fired no missiles; and their troops are seldom seen. They send arms, agitators, aid, technicians and propaganda to every troubled area. But where fighting is required, it is usually done by others -- by guerrillas striking at night, by assassins striking alone -- assassins who have taken the lives of four thousand civil officers in the last twelve months in Vietnam alone -- by subversives and saboteurs and insurrectionists, who in some cases control whole areas inside of independent nations.

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(OVER)

With these formidable weapons, the adversaries of freedom plan to consolidate their territory -- to exploit, to control, and finally to destroy the hopes of the world's newest nations; and they have ambitions to do it before the end of this decade. It is a contest of will and purpose as well as force and violence -- a battle for minds and souls as well as lives and territory. And in that contest, we cannot stand aside.

We stand, as we have always stood from our earliest beginnings, for the independence and equality of nations. This nation was born of revolution and raised in freedom. And we do not intend to leave an open road for despotism.

There is no single simple policy which meets this challenge. Experience has taught us that no one nation has the power or the wisdom to solve all the problems of the world or manage its revolutionary tides -- that extending our commitments does not always increase our security -- that any initiative carries with it the risk of a temporary defeat -- that nuclear weapons cannot prevent subversion -- that no free peoples can be kept free without will and energy of their own -- and that no two nations or situations are exactly alike.

Yet there is much we can do -- and must do. The proposals I bring before you are numerous and varied. They arise from the host of special opportunities and dangers which have become increasingly clear in recent months. Taken together, I believe that they can mark another step forward in our efforts as a people. I am here to ask the help of this Congress and the nation in approving these necessary measures.

II. Economic and Social Progress at Home

The first and basic task confronting this nation this year was to turn recession into recovery. An affirmative anti-recession program, initiated with your cooperation, supported the natural forces in the private sector; and our economy is now enjoying renewed confidence and energy. The recession has been halted. Recovery is under way.

But the task of abating unemployment and achieving a full use of our resources does remain a serious challenge for us all. Large-scale unemployment during a recession is bad enough -- large-scale unemployment during a period of prosperity would be intolerable.

I am therefore transmitting to the Congress a new Manpower Development and Training program, to train or retrain several hundred thousand workers particularly in those areas where we have seen chronic unemployment as a result of technological factors and new occupational skills over a four-year period, in order to replace those skills made obsolete by automation and industrial change with the new skills which the new processes demand.

It should be a satisfaction to us all that we have made great strides in restoring world confidence in the dollar, halting the outflow of gold and improving our balance of payments. During the last two months, our gold stocks actually increased by seventeen million dollars, compared to a loss of 635 million dollars during the last two months of 1960. We must maintain this progress -- and this will require the cooperation and restraint of everyone. As recovery progresses, there will be temptations to seek unjustified price and wage increases. These we cannot afford. They will only handicap our efforts to compete abroad and to achieve full recovery here at home. Labor and management must -- and I am confident that they will -- pursue responsible wage and price policies in these critical times. I look to the President's Advisory Committee on Labor-Management Policy to give a strong lead in this direction.

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Moreover, if the budget deficit now increased by the needs of our security is to be held within manageable proportions, it will be necessary to hold tightly to prudent fiscal standards; and I request the cooperation of the Congress in this regard -- to refrain from adding funds or programs, desirable as they may be, to the Budget -- to end the postal deficit, as my predecessor also recommended, through increased rates -- a deficit incidentally, this year, which exceeds the fiscal year 1962 cost of all the space and defense measures that I am submitting today -- to provide full pay-as-you-go highway financing -- and to close those tax loopholes earlier specified. Our security and progress cannot be cheaply purchased; and their price must be found in what we all forego as well as what we all must pay.

III. Economic and Social Progress Abroad

I stress the strength of our economy because it is essential to the strength of our nation. And what is true in our case is true in the case of other countries. Their strength in the struggle for freedom depends on the strength of their economic and their social progress.

We would be badly mistaken to consider their problems in military terms alone. For no amount of arms and armies can help stabilize those governments which are unable or unwilling to achieve social and economic reform and development. Military pacts cannot help nations whose social injustice and economic chaos invite insurgency and penetration and subversion. The most skillful counter-guerrilla efforts cannot succeed where the local population is too caught up in its own misery to be concerned about the advance of communism.

But for those who share this view, we stand ready now, as we have in the past, to provide generously of our skills, and our capital, and our food to assist the peoples of the less-developed nations to reach their goals in freedom -- to help them before they are engulfed in crisis.

This is also our great opportunity in 1961. If we grasp it, then subversion to prevent its success is exposed as an unjustifiable attempt to keep these nations from either being free or equal. But if we do not pursue it, and if they do not pursue it, the bankruptcy of unstable governments, one by one, and of unfulfilled hopes will surely lead to a series of totalitarian receiverships.

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Earlier in the year, I outlined to the Congress a new program for aiding emerging nations; and it is my intention to transmit shortly draft legislation to implement this program, to establish a new Act for International Development, and to add to the figures previously requested, in view of the swift pace of critical events, an additional 250 million dollars for a Presidential Contingency Fund, to be used only upon a Presidential determination in each case, with regular and complete reports to the Congress in each case, when there is a sudden and extraordinary drain upon our regular funds which we cannot foresee -- as illustrated by recent events in Southeast Asia -- and it makes necessary the use of this emergency reserve. The total amount requested -- now raised to 2.65 billion dollars -- is both minimal and crucial. I do not see how anyone who is concerned -- as we all are -- about the growing threats to freedom around the globe -- and is asking what more we can do as a people -- can weaken or oppose the single most important program available for building the frontiers of freedom.

IV.

All that I have said makes it clear that we are engaged in a world-wide struggle in which we bear a heavy burden to preserve and promote the ideals that we share with all mankind, or have alien ideals forced upon them. That struggle has highlighted the role of our Information Agency. It is essential that the funds previously requested for this effort be not only approved in full, but increased by 2 million, 400 thousand, to a total just 121 million dollars.

This new request is for additional radio and television to Latin America and Southeast Asia. These tools are particularly effective and essential in the cities and villages of those great continents as a means of reaching millions of uncertain peoples to tell them of our interest in their fight for freedom. In Latin America, we are proposing to increase our Spanish and Portuguese broadcasts to a total of 154 hours a week, compared to 42 hours, today none of which is in Portuguese, the language of about one-third of the people of South America. The Soviets, Red Chinese and satellites already broadcast into Latin America more than 134 hours a week in Spanish and Portuguese. Communist China alone does more public information broadcasting in our own hemisphere than we do. Moreover, powerful propaganda broadcasts from Havana, now are heard throughout Latin America, encouraging new revolutions in several countries.

Similarly, in Laos, Vietnam, Cambodia, and Thailand, we must communicate our determination and support to those upon whom our hopes for resisting the communist tide in that continent ultimately depend. Our interest is in the truth.

V. Our Partnership for Self-defense

But while we talk of sharing and building and the competition of ideas, others talk of arms and threaten war. So we have learned to keep our defenses strong -- and to cooperate with others in a partnership of self-defense. The events of recent weeks have caused us to look anew at these efforts.

The center of freedom's defense is our network of world alliances, extending from NATO, recommended by a Democratic President and approved by a Republican Congress, to SEATO, recommended by a Republican President and approved by a Democratic Congress. These alliances were constructed in the 1940's and 1950's -- it is our task and responsibility in the 60's to strengthen them.

To meet the changing conditions of power, and power relationships have changed, we have endorsed an increased emphasis on NATO conventional strength. At the same time we are affirming our conviction that the NATO nuclear deterrent must also be kept strong. I have made clear our intention to commit to the NATO command, for this purpose, the 5 POLARIS submarines originally suggested by President Eisenhower, with the possibility, if needed, of more to come.

Third, I am directing the Secretary of Defense to expand rapidly and substantially, in cooperation with our Allies, the orientation of existing forces for the conduct of non-nuclear war, para-military operations and sub-limited or unconventional wars.

In addition, our special forces and unconventional warfare units will be increased and reoriented. Throughout the services new emphasis must be placed on the special skills and languages which are required to work with local populations.

Fourth, The Army is developing plans to make possible a much more rapid deployment of a major portion of its highly trained reserve forces. When these plans are completed and the reserve is strengthened, two combat-equipped divisions, plus their supporting forces, a total of 89,000 men, could be ready in an emergency for operations with but 3 weeks notice -- 2 more divisions with but 5 weeks notice -- and six additional division and their supporting forces, making a total of 10 divisions, could be deployable with less than 8 weeks notice. In short, these new plans will allow us to almost double the combat power of the Army in less than two months, compared to the nearly nine months heretofore required.

Fifth, to enhance the already formidable ability of the Marine Corps to respond to limited war emergencies, I am asking the Congress for 60 million dollars to increase Marine Corps strength to 190,000 men. This will increase the initial impact and staying power of our three Marine divisions and three air wings, and provide a trained nucleus for further expansion, if necessary for self-defense.

Finally, to cite one other area of activities that are both legitimate and necessary as a means of self-defense in an age of hidden perils, our whole intelligence effort must be reviewed, and its coordination with other elements of policy assured. The Congress and the American people are entitled to know that we will institute whatever new organization, policies, and control are necessary.

VII. Civil Defense

One major element of the national security program which this nation has never squarely faced up to is civil defense. This problem arises not from present trends but from national inaction in which most of us have participated. In the past decade we have intermittently considered a variety of programs, but we have never adopted a consistent policy. Public consideration have been largely characterized by apathy, indifference and skepticism; while, at the same time, many of the civil defense plans have been so far-reaching and unrealistic that they have not gained essential support.

This Administration has been looking hard at exactly what civil defense can and cannot do. It cannot be obtained cheaply. It cannot give an assurance of blast protection that will be proof against surprise attack or guaranteed against obsolescence or destruction. And it cannot deter a nuclear attack.

We will deter an enemy from making a nuclear attack only if our retaliatory power is so strong and so invulnerable that he knows he would be destroyed by our response. If we have that strength, civil defense is not needed to deter an attack. If we should ever lack it, civil defense would not be an adequate substitute.

But this deterrent concept assumes rational calculations by rational men. And the history of this planet, and particularly the history of the 20th century, is sufficient to remind us of the possibilities of an irrational attack, a

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Second, a major part of our partnership for self-defense is the Military Assistance Program. The main burden of local defense against local attack, subversion, insurrection or guerrilla warfare must of necessity rest with local forces. Where these forces have the necessary will and capacity to cope with such threats, our intervention is rarely necessary or helpful. Where the will is present and only capacity is lacking, our Military Assistance Program can be of help.

But this program, like economic assistance, needs a new emphasis. It cannot be extended without regard to the social, political and military reforms essential to internal respect and stability. The equipment and training provided must be tailored to legitimate local needs and to our own foreign and military policies, not to our supply of military stocks or a local leader's desire for military display. And military assistance can, in addition to its military purposes, make a contribution to economic progress, as do our own Army Engineers.

In an earlier message, I requested 1.6 billion dollars for Military Assistance, stating that this would maintain existing force levels, but that I could not foresee how much more might be required. It is now clear that this is not enough. The present crisis in Southeast Asia, on which the Vice President has made a valuable report -- the rising threat of Communism in Latin America -- the increasing arms traffic in Africa -- and all the new pressures on every nation found on the map by tracing your finger along the borders of the Communist bloc in Asia and the Middle East -- all make clear the dimension of our needs.

I therefore request the Congress to provide a total of 1.885 billion dollars for Military Assistance in the coming fiscal year -- an amount less than that requested a year ago -- but a minimum which must be assured if we are to help those nations make secure their independence. This must be prudently and wisely spent -- and that will be our common endeavor. Military and economic assistance has been a heavy burden on our citizens for a long time, and I recognize the strong pressures against it; but this battle is far from over, it is reaching a crucial stage, and I believe we should participate in it. We cannot merely state our opposition to totalitarian advance without paying the price of helping those now under the greatest pressures.

VI. Our Own Military and Intelligence Shield

In line with these developments, I have directed a further reinforcement of our own capacity to deter or resist non-nuclear aggression. In the conventional field, with one exception, I find no present need for large new levies of men. What is needed is rather a change of position to give us still further increases in flexibility.

Therefore, I am directing the Secretary of Defense to undertake a reorganization and modernization of the Army's divisional structure, to increase its non-nuclear firepower, to improve its tactical mobility in any environment, to insure its flexibility to meet any direct or indirect threat, to facilitate its coordination with our major allies, and to provide more modern mechanized divisions in Europe and bring our equipment up to date, and new airborne brigades in both the Pacific and Europe.

And secondly, I am asking the Congress for an additional 100 million dollars to begin the procurement task necessary to re-equip this new Army structure with the most modern material. New helicopters, new armored personnel carriers, and new howitzers, for example, must be obtained now.

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miscalculation, an accidental war, or a war of escalation in which the stakes by each side gradually increase to the point of maximum danger which cannot be either foreseen or deterred. It is on this basis that civil defense can be readily justifiable -- as insurance for the civilian population in case of an enemy miscalculation. It is insurance we trust will never be needed -- but insurance which we could never forgive ourselves for foregoing in the event of catastrophe.

Once the validity of this concept is recognized, there is no point in delaying the initiation of a nation-wide long-range program of identifying present fallout shelter capacity and providing shelter in new and existing structures. Such a program would protect millions of people against the hazards of radioactive fallout in the event of a large-scale nuclear attack. Effective performance of the entire program not only requires new legislative authority and more funds, but also sound organizational arrangements.

Therefore, under the authority vested in me by Reorganization Plan No. 1 of 1958, I am assigning responsibility for this program to the top

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civilian authority already responsible for continental defense, the Secretary of Defense. It is important that this function remain civilian, in nature and leadership; and this feature will not be changed.

The Office of Civil and Defense Mobilization will be reconstituted as a small staff agency to assist in the coordination of these functions. To more accurately describe its role, its title should be changed to the Office of Emergency Planning.

As soon as those newly charged with these responsibilities have prepared new authorization and appropriation requests, such requests will be transmitted to the Congress for a much strengthened Federal-State civil defense program. Such a program will provide Federal funds for identifying fallout shelter capacity in existing structures, and it will include, where appropriate, incorporation of shelter in Federal buildings, new requirements for shelter in buildings constructed with Federal assistance, and matching grants and other incentives for constructing shelter in State and local and private buildings.

Federal appropriations for civil defense in fiscal 1962 under this program will in all likelihood be more than triple the pending budget requests; and they will increase sharply in subsequent years. Financial participation will also be required from State and local governments and from private citizens. But no insurance is cost-free; and every American citizen and his community must decide for themselves whether this form of survival insurance justifies the expenditure of effort, time and money. For myself, I am convinced that it does.

VIII. Disarmament

I cannot end this discussion of defense and armaments without emphasizing our strongest hope: the creation of an orderly world where disarmament will be possible. Our arms do not prepare for war -- they are efforts to discourage and resist the adventures of others that could end in war.

That is why it is consistent with these efforts that we continue to press for properly safeguarded disarmament measures. At Geneva, in cooperation with the United Kingdom, we have put forward concrete proposals to make clear our wish to meet the Soviets half way in an effective nuclear test ban treaty -- the first significant but essential step on the road towards disarmament. Up to now, their response has not been what we hoped, but Mr. Dean returned last night to Geneva, and we intend to go the last mile in patience to secure this gain if we can.

Meanwhile, we are determined to keep disarmament high on our agenda -- to make an intensified effort to develop acceptable political and technical alternatives to the present arms race. To this end I shall send to the Congress a measure to establish a strengthened and enlarged Disarmament Agency.

IX. Space

Finally, if we are to win the battle that is now going on around the world between freedom and tyranny, the dramatic achievements in space which occurred in recent weeks should have made clear to us all, as did the Sputnik in 1957, the impact of this adventure on the minds of men everywhere, who are attempting to make a determination of which road they should take. Since early in my term, our efforts in space have been under review. With the advice of the Vice President, who is Chairman of the National Space Council, we have examined where we are strong and where we are not, where we may succeed and where we may not. Now it is time to take longer strides -- time for a great new American enterprise -- time for this nation to take a clearly leading role in space achievement, which in many ways may hold the key to our future on earth.

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I believe we possess all the resources and talents necessary. But the facts of the matter are that we have never made the national decisions or marshalled the national resources required for such leadership. We have never specified long-range goals on an urgent time schedule, or managed our resources and our time so as to insure their fulfillment.

Recognizing the head start obtained by the Soviets with their large rocket engines, which gives them many months of lead-time, and recognizing the likelihood that they will exploit this lead for some time to come in still more impressive successes, we nevertheless are required to make new efforts on our own. For while we cannot guarantee that we shall one day be first, we can guarantee that any failure to make this effort will make us last. We take an additional risk by making it in full view of the world -- but as shown by the feat of astronaut Shepard, this very risk enhances our stature when we are successful. But this is not merely a race. Space is open to us now; and our eagerness to share its meaning is not governed by the efforts of others. We go into space because whatever mankind must undertake, free men must fully share.

I therefore ask the Congress, above and beyond the increases I have earlier requested for space activities, to provide the funds which are needed to meet the following national goals:

First, I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the earth. No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space; and none will be so difficult or expensive to accomplish. We propose to accelerate development of the appropriate lunar space craft. We propose to develop alternate liquid and solid fuel boosters, much larger than any now being developed, until certain which is superior. We propose additional funds for other engine development and for unmanned explorations -- explorations which are particularly important for one purpose which this nation will never overlook: the survival of the man who first makes this daring flight. But in a very real sense, it will not be one man going to the moon -- if we make this judgment affirmatively, it will be an entire nation. For all of us must work to put him there.

Secondly, an additional 23 million dollars, together with 7 million dollars already available, to accelerate development of the ROVER nuclear rocket. This gives promise of some day providing a means for even more exciting and ambitious exploration of space, perhaps beyond the moon, perhaps to the very end of the solar system itself.

Third, an additional 50 million dollars will make the most of our present leadership, by accelerating the use of space satellites for world-wide communications.

Fourth, an additional 75 million dollars -- of which 53 million dollars is for the Weather Bureau -- will help give us at the earliest possible time a satellite system for world-wide weather observation.

Let it be clear -- and this is a judgment which the Members of Congress must finally make -- let it be clear that I am asking the Congress and the country to accept a firm commitment to a new course of action -- a course which will last for many years and carry very heavy costs of 531 million dollars in fiscal 1962 -- an estimated seven to nine billion dollars additional over the next five years. If we are to go only half way, or reduce our sights in the face of difficulty, in my judgment it would be better not to go at all.

Now this is a choice which this country must make, and I am confident that under the leadership of the Space Committees of the Congress, and the Appropriating Committees, that you will consider the matter carefully.

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It is a most important decision that we make as a nation. But all of you have lived through the last four years and have seen the significance of space and the adventures in space, and no one can predict with certainty what the ultimate meaning will be of mastery of space.

I believe we should go to the moon. But I think every citizen of this country as well as the Members of the Congress should consider the matter carefully in making their judgment, to which we have given attention over many weeks and months, because it is a heavy burden, and there is no sense in agreeing or desiring that the United States take an affirmative position in outer space, unless we are prepared to do the work and bear the burdens to make it successful. If we are not, we should decide today and this year.

This decision demands a major national commitment of scientific and technical manpower, material and facilities, and the possibility of their diversion from other important activities where they are already thinly spread. It means a degree of dedication, organization and discipline which have not always characterized our research and development efforts. It means we cannot afford undue work stoppages, inflated costs of material or talent, wasteful inter-agency rivalries, or a high turnover of key personnel.

New objectives and new money cannot solve these problems. They could in fact, aggravate them further -- unless every scientist, every engineer, every serviceman, every technician, contractor, and civil servant gives his personal pledge that this nation will move forward, with the full speed of freedom, in the exciting adventure of space.

X. Conclusion

In conclusion, let me emphasize one point: It is not a pleasure for any President of the United States, as I am sure it was not a pleasure for my predecessor, to come before the Congress and ask for new appropriations which place burdens on our people. I came to this conclusion with some reluctance. But in my judgment, this is a most serious time in the life of our country and in the life of freedom around the globe, and it is the obligation, I believe, of the President of the United States to at least make his recommendations to the Members of the Congress, so that they can reach their own conclusions with that judgment before them. You must decide yourselves, as I have decided, and I am confident that whether you finally decide in the way that I have decided or not, your judgment -- as my judgment -- is reached on what is in the best interests of our country.

In conclusion, let me emphasize one point: that we are determined, as a nation in 1961 that freedom shall survive and succeed -- and whatever the peril and set-backs, we have some very large advantages.

The first is the simple fact that we are on the side of liberty -- and since the beginning of history, and particularly since the end of the Second World War, liberty has been winning out all over the globe.

A second great asset is that we are not alone. We have friends and allies all over the world who share our devotion to freedom. May I cite as a symbol of traditional and effective friendship the great ally I am about to visit -- France. I look forward to my visit to France, and to my discussion with a great Captain of the Western World, President de Gaulle, as a meeting of particular significance, permitting the kind of close and ranging consultation that will strengthen both our countries and serve the common purposes of world-wide peace and liberty. Such serious conversations do not require a pale unanimity -- they are rather the instruments of trust and understanding over a long road.

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A third asset is our desire for peace. It is sincere, and I believe the world knows it. We are proving it in our patience at the test-ban table, and we are proving it in the UN where our efforts have been directed to maintaining that organization's usefulness as a protector of the independence of small nations. In these and other instances, the response of our opponents has not been encouraging.

Yet it is important that they should know that our patience at the bargaining table is nearly inexhaustible, though our credulity is limited -- that our hopes for peace are unfailing, while our determination to protect our security is resolute. For these reasons I have long thought it wise to meet with the Soviet Premier for a personal exchange of views. A meeting in Vienna turned out to be convenient for us both; and the Austrian government has kindly made us welcome. No formal agenda is planned and no negotiation will be undertaken; but we will make clear America's enduring concern is for both peace and freedom that we are anxious to live in harmony with the Russian people -- that we seek no conquests, no satellites, no riches -- that we seek only the day when "nation shall not lift up sword against nation, neither shall they learn war any more."

Finally, our greatest asset in this struggle is the American people -- their willingness to pay the price for these programs -- to understand and accept a long struggle -- to share their resources with other less fortunate peoples -- to meet the tax levels and close the tax loopholes I have requested -- to exercise self-restraint instead of pushing up wages or prices, or over-producing certain crops, or spreading military secrets, or urging unessential expenditures or improper monopolies or harmful work stoppages -- to serve in the Peace Corps or the Armed Services or the Federal Civil Service or the Congress -- to strive for excellence in their schools, in their cities and in their physical fitness and that of their children -- to take part in Civil Defense -- to pay higher postal rates, and higher payroll taxes and higher teachers salaries, in order to strengthen our society -- to show friendship to students and visitors from other lands who visit us and go back in many cases to be the future leaders, with an image of America -- and I want that image, and I know you do, to be affirmative and positive -- and, finally, to practice democracy at home, in all States, with all races, to respect each other and to protect the Constitutional rights of all citizens.

I have not asked for a single program which did not cause one or all Americans some inconvenience, or some hardship, or some sacrifice. But they have responded -- and you in the Congress have responded to your duty -- and I feel confident in asking today for a similar response to these new and larger demands. It is heartening to know, as I journey abroad, that our country is united in its commitment to freedom -- and is ready to do its duty.

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