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SPACE GOALS AFTER THE LUNAR LANDING

October, 1966

NOTE: The Secretary of State believes the attached paper may be of interest to Members of the Space Council. The Secretary, however, reserves his own position pending discussion in the Council.

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SPACE GOALS  
AFTER THE LUNAR LANDING

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SPACE GOALS  
AFTER THE LUNAR LANDING

SUMMARY

Even before the outcome of the moon race has been decided, we face the question of whether to commit ourselves to still more ambitious programs -- proceeding with manned exploration of the moon after the initial landing; mounting large-scale scientific investigations with unmanned planetary and solar probes; projecting man through space to the planets.

These are challenging goals.; There are probably good reasons for pursuing them in due course, and achieving them might enhance our international position. For example, efforts directed toward manned lunar exploration and toward conducting scientific observations from the moon's surface would be useful for advancing scientific knowledge and could demonstrate that the moon race was not an end in itself.

However, from the standpoint of our foreign policy interests, we see no compelling reasons for early, major commitments to such goals, or for pursuing them at the forced pace that has characterized the race to the moon. Moreover, if we can de-emphasize or stretch out additional costly programs aimed at the moon and beyond, resources may to some extent be released for other objectives -- foreign aid, domestic needs, scientific efforts in other areas -- which might serve more immediate, higher priority U.S. interests.

A Twofold International Objective

Instead of indefinitely extending the space race, it would be preferable to work toward a twofold objective:

-- "De-fusing" the space race between the U.S. and Soviets. This would mean working toward arrangements for conducting major future ventures jointly,

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-- Advancing our defense/arms control/peace-keeping interests. On the one hand, we will need to continue using capabilities in support of our defense programs, and to avoid future technological and psychological surprises affecting our security. On the other hand, we should be ready to use space technology for arms control and peacekeeping if and as political conditions permit.

-- Utilizing space as a resource for man. This would involve placing added emphasis on practical applications (for example, communications, meteorology, earth resources survey satellites) which serve to "bring space down to earth" and make space useful and meaningful to "haves" and "have nots" alike.

-- Extending options for cooperation. While the preceding programs offer a number of opportunities for cooperating, it may also be desirable to open new doors. For example, a Manned Orbital Research Laboratory could serve scientific purposes and provide a vehicle for cooperation in manned spaceflight.

-- Extending technical options. On a selective basis, we should move ahead with capabilities necessary for advanced manned and unmanned spaceflight. This should enhance our flexibility and help keep our knowledge and skills at the "cutting edge of technology."

This kind of program emphasis would not be cheap, but it would be less costly than an indefinite expansion of the scope and pace of the space race. If we pursue this kind of program vigorously and imaginatively, we will have a firm footing for our foreign policy interests as they are affected by space.

The decisions now confronting us will, of course, be influenced by a broader range of considerations, and foreign policy needs must be properly related to other national interests. For present purposes, the main question is whether the thrust of the approach outlined above is in the right direction.

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SPACE GOALS

AFTER THE LUNAR LANDING

A. The Problem

The advanced stage of APOLLO development and the leadtime requirements of possible follow-on programs make it necessary to consider future space goals at this time. The decisions involved are significant from the standpoint of foreign policy as well as other national interests.

During the first ten years of the space age, we have frequently found ourselves in the real or apparent position of following the Soviet lead. Taking into account the fact that preeminence in space has been widely viewed as meaning broader preeminence in science and technology, we cannot afford to fall into an inferior position in the future. At the same time, extending the space race beyond the moon is not in itself a desirable foreign policy objective.

These circumstances raise two inter-related questions:

-- First, what kind of space effort will be needed in the future to support our international objectives? Is it necessary or desirable to  
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contemplate an indefinite extension of the present scope and pace of the space program, or should we work toward a more deliberate and selective space effort?

-- Second, what framework would provide the best basis internationally for our future space programs? Should we seek ways of "defusing" the space race? Do we need new approaches for bridging the gap between the space powers and others in order to ensure that the international adjustment to changes resulting from space programs will be responsive to our interests?

B. Basic Considerations

1. Changing International Attitudes

After the U.S. and Soviets have achieved manned lunar landings, it is likely that international interest in the space race as such will subside. Excitement concerning specific space spectacles may also diminish.

A few additional countries will be engaged in activities in space. While their own interest will thus be heightened, their

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their presence in space will tend to make the situation more diffuse and somewhat less focussed on U.S. and Soviet efforts (except in the field of manned space-flight, which others will probably not try on their own).

For most countries -- including the industrialized "haves" which have not mounted space efforts, as well as less developed "have nots" -- the main question will be: "What's in it for us?" Attention may focus increasingly on practical applications of space programs.

#### 2. Continuity of Soviet Objectives

On the other hand, we have to anticipate that the Soviets will not only place additional emphasis on competing in practical applications, but will also continue to view space spectacles as a useful psychological tool. They probably do not plan to stop at the moon.

Especially if we wish to limit the scope or pace of future competition and encourage greater cooperation, we shall need to maintain a space effort of sufficient imaginativeness and vigor to convince the Soviets that

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space is not an area from which they can derive unique political advantage, or in which they can long operate to our disadvantage.

### 3. Security and Uncertainty

Underlying the foregoing considerations is the question of what political/security conditions will prevail in the 1970's. Against the background of increasingly complex strategic offensive and defensive weaponry (inavitable unless progress can be made in arms control), it is conceivable that a psychological premium may be placed on the capability of operating in space even if cost/effective weapons applications do not materialize.

At the same time, non-weapons applications of spacecraft (for example, observation from space) can contribute importantly to arms control and peacekeeping if the political climate permits advances in these directions.

Our future space effort must, therefore, be adequate to anticipate and avoid possible surprises affecting defense, and to exploit possible opportunities to contribute to a more viable international system through arms control and peacekeeping.

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#### 4. Factors Bearing on Decisions

The choices before us at this time are broad. Their implications go beyond these foreign policy/security aspects considered here. Other factors -- for example, economic, technical, scientific -- may argue for or against a more extensive level of space effort than may be required for foreign policy purposes. However, there is also a level below which our effort should not fall if what we are seeking to accomplish vis-a-vis other countries on the earth is to receive adequate support from what we are doing in space.

#### C. Programmatic Goals

##### 1. Priority Programs

The considerations outlined above suggest that, from the foreign policy standpoint, programs in the following categories might be accorded highest priority:

-- Advancing our defense/ arms control/ peacekeeping interests. We should continue to employ non-weapons applications of spacecraft in support of our defense programs, and to explore the military potential of space. In addition

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addition, we might usefully place increased emphasis on capabilities applicable to arms control and peacekeeping. In important respects, the problems of applying space capabilities to arms control and peacekeeping are more political than technical, but we will need to sort out the various technical options and ensure our readiness to move if and when political conditions permit.

-- Utilizing space as a resource for mankind.

Programs in this area can help "bring space down to earth." We have already done a great deal in applying space technology to communications, meteorology, geodesy, and navigation. We are only beginning to open up the usefulness of satellites for earth resources surveys -- of potential significance from the standpoint of resources management, development planning, and urban planning. In the near future, the capability will be at hand to use direct broadcast  
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via satellite for educational as well as commercial purposes. Applications such as these will require increased emphasis. In addition, scientific space programs will continue to be desirable in themselves and are required in order to provide a sound underpinning for other efforts. By extending our knowledge of the earth and its environment in space, they may open the way to additional direct benefits.

-- Extending options for cooperation.

While a number of the foregoing programs offer opportunities for international cooperation, it may be politically useful to create additional options. For example, a Manned Orbital Research Laboratory might serve scientific purposes and also open the way for some degree of international cooperation in manned spaceflight, a field at present reserved for the U.S. and Soviets.

-- Extending technical options. We should continue a strong technical effort to extend our capabilities

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capabilities for advanced manned and unmanned spaceflight. We should have learned from past experience the value of technical flexibility to move in new directions toward new goals as they become attractive. We can't attempt here to translate "flexibility" into technical terms. It may mean nuclear power to help boost heavy payloads, or to sustain flight deep into space. It may also mean working toward more economical and operationally practical spacecraft capable, in effect, of taking off from the earth's surface and returning with the flexibility of aircraft. There is undoubtedly need for selectivity in this as in other aspects of our space effort, but potentially significant technical doors should be opened.

## 2. "Bonus" Programs

Apart from the foregoing, still other programs might enhance our general international position -- and increase our leverage vis-a-vis the Soviets. After we have achieved a manned landing, efforts directed toward manned lunar exploration

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exploration and toward, for example, conducting scientific observations from the moon's surface would be useful for scientific advancement and could also demonstrate that the moon race was not an end in itself. Large unmanned planetary and solar probes and manned interplanetary travel may pose significant long-range challenges. On the whole, however, neither early major commitments to these several programs nor prosecuting them at a forced pace seem essential from the standpoint of foreign policy considerations.

D. International Framework

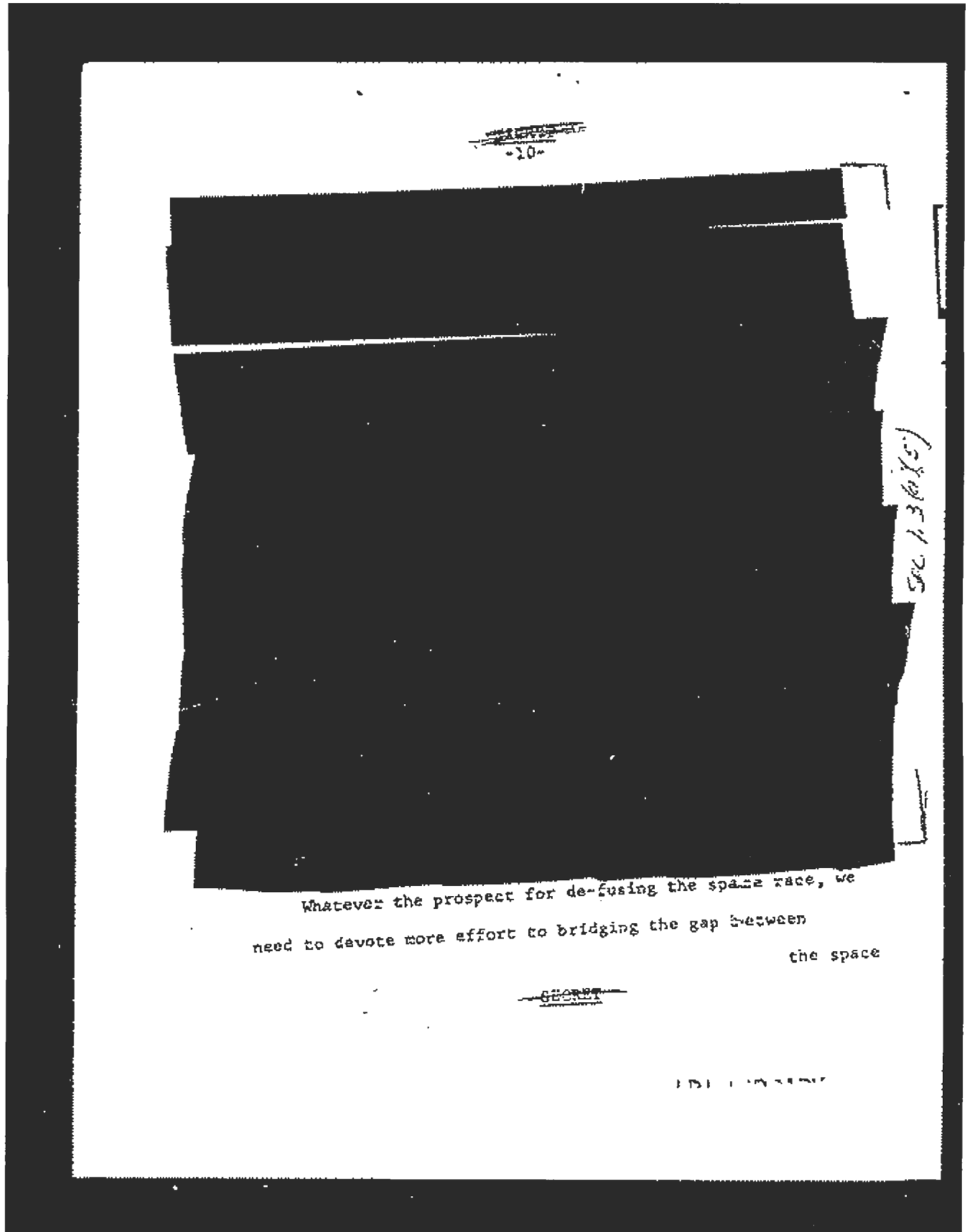
1. A Twofold International Objective

Whether the relative emphasis among various space programs suggested above will prove politically valid, and whether our over-all space effort can prudently be conducted at a more deliberate pace in the future may depend in part on defusing the space race between the U.S. and Soviets. We should consider the desirability and feasibility of this objective.

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Whatever the prospect for de-fusing the space race, we  
need to devote more effort to bridging the gap between  
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the space powers and others. The first step is to recognize that more than one kind of gap is being generated by our space effort.

First, and most obvious, is the increasing gap in technology. This is of special concern to other industrialized countries because of its economic effects. We are already addressing this problem through such approaches as encouraging the European Launcher Development Organization (ELDO), and through programs of advanced cooperation with the European Space Research Organization (ESRO), with individual Western European countries, and with the Japanese. The less developed countries are also sensitive to this gap. For them it is another illustration of the fact that the rich are getting richer while the poor are getting poorer. In the case of these countries, little can be done to remedy technological imbalance as such. However, they can and should share in benefits resulting from space technology --

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thereby reducing the political impact of the technological gap.

-- Second, and as yet not fully appreciated, there is the gap in awareness and understanding of new opportunities and responsibilities evolving in the space age. This second gap is of special interest here. We ourselves can only begin to assess the potentialities of, say, the new tools of communication; the deepening knowledge of weather and climate; the inevitably greater openness of activities on earth to the view from space. It is even more difficult for technically unsophisticated countries to grasp the meaning of the changes now in train. Yet their reactions will be important if the international adjustment to these changes is to be responsive to our own interests. Accordingly, we will need to use our programs still more effectively to broaden the base of cooperation. Although there is little scope for the participation of less developed countries in space itself,

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space itself, there is a good prospect of increasing their participation in, for example, activities related to practical applications of space technology such as communications, meteorology, and earth resources surveys. Encouraging this kind of involvement can be useful not only as a demonstration that our own approach to the changing world is responsive to the interests of others as well as our own. It can also be useful because for technically unsophisticated as well as industrially advanced countries, the role of active participant offers a better route to awareness and understanding -- and to responsible conduct -- than the role of passive beneficiary.

De-fusing the space race between the U.S. and Soviet Union and bridging the gap between the space powers and others can reinforce each other. This suggests parallel

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lines of action: one directed toward the Soviets; the other primarily but not wholly toward third countries.

2. De-fusing the Space Race

In seeking to de-fuse the space race, several types of arrangements with the Soviets might be considered:

-- Joint U.S.-Soviet conduct of major space exploration programs looking toward eventually placing such efforts on an international basis.

This approach might include lunar exploration after the initial manned landings, or it might be limited to trans-lunar exploration. Either way, it is difficult to see the Soviets agreeing to any such arrangements now. Moreover, the practical difficulties would be large -- although not necessarily insurmountable in the future. The indicated starting point is a detailed study of technical and political feasibility.

-- Coordination of major U.S. and Soviet programs of space exploration. Less ambitious than the preceding approach but more practical, coordination might

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might remove much of the pressure to race for new and distant goals. This would involve agreeing on related aspects of separate national projects -- designing them to supplement each other, and scheduling them on a mutually advantageous basis. The effect, although not the explicit purpose, might be a tacitly agreed pacing or slowdown of some of the more costly ventures on or beyond the moon. Technically easier to achieve than the joint conduct of space projects, this approach would also encounter political difficulties at present. However, for our own part, we could begin by identifying specific opportunities for coordination that would make economic, scientific, and technical sense.

-- Expanded US-Soviet cooperation in near-earth programs. Before either of the foregoing approaches can be expected to materialize, it may be possible to move ahead with additional cooperative efforts related both to scientific and applied earth

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earth orbital programs. Further cooperation in such efforts would not necessarily limit competition in other areas. However, competition in near space -- especially in practical applications -- may yet prove intense unless mutually advantageous ways of cooperating can be developed.

3. Bridging the Gap Between the Space Powers and Others

Approaches to bridging the gap between the space powers and others might include the following courses of action which can also support the objective of de-fusing the space race:

-- Emphasizing additional facets of our own space effort. Although we have placed a great deal of emphasis on some specific practical applications (especially communications and meteorology), we could do more to establish the theme of using space as a resource for mankind. Earth resources surveying satellites, which we are now developing, should be of special help in this regard and open new routes to cooperation.

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to cooperation. By emphasizing such activities, we can not only help bridge the "have" versus "have not" gap but also begin the transition away from a race deeper and deeper into space toward a more (but not exclusively) earth-oriented program.

-- Increased cooperation with third countries or organizations. Broader cooperative efforts can serve two purposes: that of engaging the interests of others, and that of exerting pressure on the Soviets to be more cooperative. However, competing programs of cooperation -- one sponsored by the Soviets and one by ourselves -- could be one result. To minimize this hazard, we should continue to broaden our own efforts while leaving the door open to the Soviets on reasonable terms.

-- Considering whether or under what circumstances some of our own military space programs might be conducted more openly. As long as we need to use space for military purposes, there will be a requirement

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a requirement for some degree of secrecy. However, secrecy can be unnecessarily obstructive of the goals we are seeking through our space effort, and the kind and degree of secrecy we maintain need to be examined periodically to determine whether a net favorable balance is accruing in terms of our overall interests. This question is as old as the space effort itself. It is raised again here because of its direct bearing on cooperation and de-fusing the space race. Further, separate study is needed.

-- International agreements defining rules for space. While largely atmospheric in their effects, the UN "no bombs in orbit" resolution and the proposed celestial bodies/outer space treaty are pointed in this direction. We need to seek out potential problem areas and develop practical ways of resolving them. For example, we have by no means resolved the current problems of commercial point-to-point communication to say nothing of the future problems of direct

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broadcast via satellite. Weather modification (although not strictly speaking a "space" program) may be another example. We should begin now a systematic study of those areas in which international agreement and regulation might usefully and effectively be sought. This study should include consideration of whether some international mechanism beyond that which exists now within the United Nations should be developed as a focal point for such arrangements. It is far better for us to take the lead in these matters than to leave it to others; our chances of success will depend to some extent on the other courses of action outlined above.

E. Pro's and Con's

The basic issues posed here are whether, from the standpoint of our foreign policy interests, we should seek to move away from an extension of the space race and toward more orderly and internationally responsible ways of doing business in space -- meanwhile, constructing our own space effort for the post-lunar landing period with those objectives in view.

The following considerations argue in favor of such an approach:

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-- A more deliberately paced space effort in the future would be sounder and more acceptable internationally than a new "crash" program aimed at or beyond the moon.

-- Increasing emphasis on programs of direct benefit to man would be more responsive to international needs than, say, committing ourselves to a race to Mars. Such emphasis would help bridge the "have" versus "have not" gap.

-- If achievable on a reliable and mutually advantageous basis, increased cooperation with the Soviets would be preferable to further wasteful competition.

-- By reducing future costs (or spreading them out over a longer period), resources might to some extent be freed for other desirable purposes -- international, domestic, scientific. On the other hand, a number of questions can be raised about the desirability and feasibility of this approach.

-- Is there any chance (before the moon race is decided) of interesting the Soviets seriously in the

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in the possibility of curtailing the race in the future? The answer to this question is probably "no", but we can ourselves begin to do the planning needed to support that objective. Moreover, we can begin to adjust our own programmatic goals accordingly, provided the remaining questions below can also be answered in the negative.

-- Would failure to commit ourselves to major new lunar or planetary goals now defuse our own effort without affecting Soviet programs -- thus placing us in a technologically disadvantageous position and causing us to appear unimaginative to others? This could happen but need not. The programmatic goals suggested above would themselves represent a major and broad-gauged effort. These goals include coppering our technical bets and improving our technical flexibility.

-- Would de-emphasizing or stretching out programs directed toward major new goals deprive us of a forward position at the "cutting edge" of technology?

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technology? Again, the answer is that this could, but need not, happen. The approach suggested here does not contemplate the technological "dead-end" that would confront us if we over-concentrated on getting the most out of our present hardware.

-- Would the broad intellectual and educational stimulus provided domestically by our space effort be diminished? Granted that the opening up of outer space has provided an initial stimulus of important effect, we should be reaching the stage where artificial respiration is no longer necessary. The broad range of scientific and technical challenges confronting us in many fields -- not space alone -- should evoke a vigorous response. A better balanced and no less stimulating over-all scientific and technical effort should result from the approach suggested here.

The substance and tactics of the goals and approaches briefly examined here would have to be the subject of further study. Objectives which seem valid from the international standpoint would have to be properly related to the

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to the other national interests involved. For present purposes, the main question is whether the thrust of this approach is in the right direction.

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