

## OUTER SPACE - NEW DIMENSION OF FOREIGN AFFAIRS

by

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Outer space has added to the familiar configuration of international relations a new dimension -- one full of portentous meaning for the political affairs of nations. From the standpoint of statesmen and planners, particularly in the United States, nothing could have been less timely than the appearance of this new dimension, for it was not at all evident that we had mastered the traditional ones. With a few notable exceptions, a surprisingly modest amount of thought and energy has been devoted to inquiring into the wider meaning of the space age in terms of future international political, military, and human relationships.

When statesmen do look at space, they sense that it might have a profound meaning for world affairs. They know empirically that it has already affected international discourse, particularly between the United States and the Soviet Union. They can draw up balance sheets, hoping that space has opened a new realm of international cooperation but fearing that it may well usher in a new era of international conflict. There is no dearth of clichés about challenge and response. But few serious students of world affairs and strategy have tackled this set of issues, and their precise meanings tend to remain unformulated.

The routine and even casual way in which technological plans are made

and announced to the public indicates that, as always, the gap continues to widen between technology and political awareness. There has recently been discussion of plans for space vehicles as large as the Washington Monument which would transport eight men in a 150-ton vault to Mars by the mid-1970's. But there has been nothing even remotely spectacular to announce in the political management of the space problem. In fact, the relation between technology and politics is depressingly reminiscent of the "analogous" tendency for military hardware to be developed autonomously, as it were, governed by considerations of technical feasibility and cost effectiveness, but only very recently influenced by such longer-range "political" considerations as alliance problems, likely communist strategy, or arms control.

We tend still to take the onrushing of modern science as revealed truth, so to speak, that by definition must dominate its political meaning. We are coming to see that the process of politics must be invoked to clean up after science. But such is the mystique of the scientific age that it is still unthinkable for politics to determine the goals of science or to inhibit its untrammelled development, just as not very long ago politics was regarded as an impermissible impurity in the fighting of American wars.

The time factor alone places political planning, with its typically short-run perspectives, at a major disadvantage. At one time we could be consoled by the old lady once quoted by Dean Acheson who said, "Always remember that the future comes one day at a time." But this is not wholly accurate since the future we are talking about tends to come in quanta, as it were. We are told that the average lead-time for production of a

complete weapons or space system now runs in the neighborhood of eight years. The practical effect is that any one year's purposeful political decisions about technology, based as they should be on larger strategic, political, and social considerations, will tend to be overridden by the politically mindless choices made about technology eight years back. We can now see awareness of this fact reflected in the design of some weapons programs, and for this we should be grateful. But when it comes to space, the common stance is fatalistic agreement that technology will change everything and social values will have to take a back seat.

The interplay of technological thrust and social values increasingly enters the national dialogue as people begin to take measurements of the moon shot, for example, along a yardstick marked by their own priorities. The moon shot could become an important partisan issue in the next U.S. election campaign. But like the other subject that may animate the campaign -- Cuba -- it is not at all certain that the argument will be over the real issues. It is not always easy to know what the real issues are. Popular images about the space program take their cues from the superficial, whether in terms of new folk heroes, or of drastic and misleading revisions in popular estimates about the relative prospects of the United States and the Soviet Union, based on marginal differences in demonstrated capabilities.

This is not to minimize either the spiritual values which space has for man or the high degree of relevance space propaganda has in the East-West competition. For the first, the moon shot may be "wasteful" but it clearly fulfills a potent imperative in the spirit of man. For the second, the USIA reports of attitudes in Western Europe and Asia were legitimate

factors in influencing American decision-making about the extent of our commitment to a space program (as well as being an unnecessarily titillating campaign issue in 1960 because foolishly suppressed). But the international politics of space have implications that go beyond the superficial sensations, and if our approach is to be purposeful and intelligent it is important to try to make the international meaning of space manageable and to assimilate it into more familiar categories of foreign affairs. For space has even now a variety of meaningful implications for strategy, for alliances, for international institutions, for the health of bitterly competing societies, and indeed for the prospects of war and peace.

## II.

Of all the non-technical aspects of space, that on which perhaps the greatest amount has been written and said is the question of international law in space. International law, as the victim both of a world struggle for power and of the utopian expectations of some of its enthusiastic votaries, has only modest gains to boast of in outer space. Indeed, if we measure it against the aspirations suggested by some, such law as applies there is minimal, shows little sign of growing in the near future, and addresses itself to matters that are trivial by contrast with the life and death issues. But at the same time it is of great potential saliency. Because manned exploration of space is still in its infancy and few truly damaging and prejudicial precedents have been set or claims based on squatters' rights asserted to date, outer space is believed by many to be

one place where law might be fruitfully developed.\*

But an issue that until recently intrigued juridical minds in regard to space is, curiously, almost a dead letter today -- the question of the "boundary" between air space and outer space. The view taken by the United States Air Force is symbolized by the label "Aerospace", with which much that once may have fallen on one side or another of that boundary is now embraced. Technically there is of course no boundary: the concentration of molecules of air attenuates towards infinity, with some existing in lonely isolation many thousands of miles out. Recent demonstrations of manned aircraft in powered flight in virtually the same region as the low point of an earth satellite's unpowered orbit (the X-15 attained an altitude of 67 miles in July, 1963) make nonsense of such distinctions. In June of 1963 the Air Force announced the award of contracts to study a piloted plane that would take off from any ground base, go into orbit, maneuver in space, and return to earth for a conventional landing. It is little wonder that neither the lawyers nor the statesmen have been able to agree upon a durable legal definition of a precise boundary. But a "boundary" does exist in the sense of general acceptance of the non-sovereign character of the realm in which satellites have orbited.

Indeed, in this and a number of other respects, there is some law in space. The resolution unanimously passed by the UN General Assembly in 1961 laid down certain principles which reflected the common law, such as it was. International law including the UN Charter, it stated, applies to outer space and the celestial bodies. Second, outer space and the celestial bodies are

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\*See Philip W. Quigg, "Open Skies and Open Space," Foreign Affairs, Oct., 1958.

free for exploration and use by all states in conformity with international law. Third, they are not subject to national appropriation. These principles are admittedly general in nature, and if the Soviets had acquired the power to preempt space they would presumably have done so. It was possible to register this agreement on principles when it became obvious that space, like the high seas, was not controllable by any single nation. With uncommon common sense no nation protested on legal grounds either the passage of Sputnik over what some nations then construed as their sovereign airspace, or the route of any orbital objects since then. The Soviet Union's complaints about the U.S. observation and reconnaissance satellite (and even at times the weather satellites) as "aggressive" have never been accompanied by charges that sovereignty has been infringed.

The Legal Subcommittee of the UN Space Committee which met during 1962 and 1963 was able to go only a little distance beyond these principles. There appears to be an emerging consensus with respect to the rescue and return of astronauts and space vehicles which may have to make emergency landings, and also on liability for damages one nation's satellite or space object may inflict on the territory of another. This, too, is all to the good, as is the somewhat more inchoate possibility of agreement on preventing pollution and contamination of space by means of adequate sterilizing procedures -- a not insignificant value if at some stage it keeps the so-called advanced societies from committing on space objects or beings the medical indignities earlier perpetrated on Eskimos, Polynesians, American Indians, and doubtless others.

The polemics which characterized the meetings of the Legal Subcommittee were revealing about the nature of the underlying strategic encounter. On the

Soviet side they took the form of insisting that only governments can be actors in the space field -- a crude barb aimed at the semi-private (or semi-public, depending upon one's angle of vision) corporation now administering the American communication satellite program. The Soviets also argued for the prohibition of war propaganda in space, whatever that may mean, and -- more substantively -- against permitting the use of artificial satellites for collection of intelligence -- a proposal that was challenged by many others who contend that observation from outside national territory is not prohibited by customary international law.

On the United States side, our representatives have been ingenious in seeking to justify the reconnaissance satellites-- to us a vital element in our strategic posture but to the Soviets their nightmare come true of the "pig's snout in the bedroom" (if one may be permitted to combine several relevant Russian proverbs). The United States has accurately -- but incongruously -- defended them as potentially valuable for the early spotting of forest fires, and one hopes that the Soviets privately saw the humor of this. But beneath the rhetoric and the shadow-boxing, beneath the modest -- albeit useful -- areas of possible agreement, lay the persisting reality of the Cold War, the Soviet struggle for strategic supremacy (or, more realistically, parity in the arms race), and the American commitment both to the prestige goals of its own space program and to the avoidance of agreement that would jeopardize the Samos program by indiscriminately banning all "military uses." The United States and the Soviet Union were in agreement with each other -- but with few others -- that real controls in space must await disarmament.

There have been other minimal steps toward some kind of international regime for space. One was the establishment of the U.N. Registry of space objects, a part of the 1961 American program adopted by the Assembly. Under the agreed procedure all objects placed in orbit or sent into deep space are notified by code name and other minimal and non-revelatory information to the Registry, which is available to all UN members. The United States recently accused the Soviet Union of not reporting six space shots, apparently deep space probes which failed. Our own virtue on this score is only slightly diminished by the fact that it took considerable infighting within Washington before the United States itself finally agreed to report all space shots in accordance with rules we ourselves had initiated.

### III.

Away from the spotlight of the UN forum some modest understandings have been reached between the two principal antagonists in space as they go through their historic minuet of negotiation, stalemate, and occasional agreement. An exchange of letters between President Kennedy and Premier Khrushchev in 1961 spelled out a fairly rich menu of potential collaboration in space. But as a practical result, apart from the UN negotiations described above, only three bilateral acts of cooperation have been agreed to so far. Out of the Dryden-Blagronravov conversations extending over the past couple of years agreement has been reported on coordinating the launching of weather satellites and exchanging information therefrom when the Soviets are technically in a position to do so; certain limited cooperative experiments involving passive communication satellites, with the Soviets planning to bounce radio signals off Echo II when it is orbited; and, most recently, reported agreement on coordinated

launchings of satellites designed to measure the earth's magnetic field as part of the forthcoming International Year of the Quiet Sun.

The area of scientific collaboration is undoubtedly the most fruitful realm of cooperation in space today. NASA's program of bilateral agreements with other countries now includes over sixty countries. NASA has a sounding rocket program in which it has cooperated with eleven foreign countries. The weather satellite program centering around Tiros satellites has involved thirty-five nations. Six countries -- England, France, Germany, Brazil, Japan and Italy, with others to come, have built large ground terminals for cooperative operation of the communications satellites Relay and Telstar. There are overseas tracking and communication facilities in two dozen different political areas, over half of them operated with the assistance of foreign technicians and scientists, and in some cases entirely supported by the host country. And NASA has a personnel exchange program under which visitors have come to American laboratories and universities from forty-five countries.

These praiseworthy ventures in cooperation could become outshadowed by the outcome of one foreign program. The European personality is asserting itself in space quite as much as in economic or strategic matters. The European Launcher Development Organization and the European Space Research Organization are well underway, the former aimed at freeing western Europe entirely of further dependence on the United States for boosting European payloads into space. Private enterprise in Europe is highly dynamic on this subject. Eurospace, which consists of 110 member corporations in nine countries, is what can only be described as a business lobby with stars in its eyes.

It was recently reported as having called for doubling European spending for space, with a four-year budget of over one billion dollars as a "matter of survival" -- survival for whom not being specified. In space communications Eurospace proposes two equatorial satellite systems which clearly could have incalculable economic and other consequences for the American system discussed below. In the same circles there is discussion of nuclear powered systems for space vehicles, manned space shots, Mars landings in the 1970s -- in short, all the paraphernalia for a tremendously costly duplication of the American effort.

We are learning to be sympathetic to the notion that the self-respect of our increasingly muscular European partners involves values that transcend purely rational considerations of comparative advantage. It is becoming increasingly clear that western Europe has no intention of being permanently boosted into space by American rockets any more than General DeGaulle intends it to be permanently boosted into the world arena by American military and diplomatic power -- whatever the economic or strategic realities may appear on this side of the water. Perhaps the greatest need of the Western Alliance today, whether strategic or political, is to find an alternative mode of relationship that falls somewhere between American monopoly and complete scatteration of effort. True partnership lies somewhere between the two extremes and is obviously uncommonly difficult to achieve.

In regard to space in the Western world, the American monopoly is transient, but independent and competing efforts could be nothing short of senseless. It does seem reasonable to ask whether the mounting European

diversion of resources and the possibly wasteful competition it augurs could have been headed off by more enlightened policies of the United States. Such policies would have involved extensive exchanges of information and talent aimed at encouraging genuine partnership rather than a dependence marked by exclusion from the central role.

In the generally harmonious area of bilateral space collaboration other occasional sour notes are sounded, disharmonies that reverberate even in the non-governmental COSPAR (the Committee on Space Research of the International Council of Scientific Unions) as well as in the UN Space Committee's Technical Subcommittee. Project Westford, for one instance, raised the hackles of some otherwise staunch scientific friends of the American space program -- as well as ill-wishers -- not so much because the belt of copper filaments will necessarily obscure Sir Bernard Lovell's clear radio view of distant galaxies -- it apparently will not -- but because it was done unilaterally. More serious was the lack of consultation prior to the recent high altitude nuclear blasts, which affected people as well as signals.

The imperative need to experiment with a possibly completely secure military communication system may of course outweigh the need for advance collaboration, which after all is required only on psychological grounds of prestige, mutuality of relationship, and self-respect. But psychology has become a prime factor in a world in which the tangibles such as military hardware exist primarily to affect the attitudes and calculations of others. The burden of proof should rest on those who claim that a net gain for American security results from unilateral actions whether or not they irritate. As matters stand, cooperation may lead to uncontrolled competition in space

within the Western world. This outcome may not be at all in the American interest and it is not too late to re-examine the bases for cooperation.

#### IV.

The proposed international communication satellite system based on American technology raises questions that differ in one major respect from the ones I have already posed: they are going to have to be resolved in the near future, whatever the proclivity of government planners to postpone decisions. The United States Communication Satellite Corporation can be owned up to 20 per cent by foreign interests. It has on its agenda right now a list of unresolved questions concerning foreign participation in the maintenance, operation, and ownership of the satellites, ground stations, and tracking network; sharing of revenues; attitudes toward un-economic but politically desirable operations; and the regulation and control of the system itself.

It is argued by some that this is a purely business operation, in which primarily commercial considerations ought to predominate. The same argument asserts that, since satellite communications are "point-to-point" today, those who persist in warning of profound political and psychological implications in the technology are silly visionaries. It holds that the U.S. approach to the range of issues raised by the ability to transmit international communications by satellite should be essentially conservative, above all governed by the technology, and fundamentally consistent with practices followed in the past with respect to communications by cable. It is popular in this argument to cite the good relations over the years between technical representatives of the American Telephone companies and the British Post Office.

Admittedly, in 1963 the state of the art requires that messages, television programs, and news, even though bounced off orbiting satellites, be handled by national centers for distribution at their discretion. There is nothing revolutionary about that, in the sense of new pathways to people's minds, unprecedented opportunities for propaganda, or massive assaults on illiteracy and cultural isolation. But planning that does not go beyond this year is unworthy of its true purpose. We have been taken by surprise often enough by technology to give at least some credence to those who look beyond today's capabilities to those of tomorrow and the day after, when telephone calls to anywhere in the world may cost pennies, when three synchronous hovering equatorial satellites will beam TV programs not to government-controlled centers but directly into virtually all the homes in the civilized world, complete with multiple-selector language channels; in short, when the extrapolations of today's technology alter -- as they surely will -- traditional patterns of communication in ways not now foreseeable. Some breakthroughs may come the year after next; some will take over a decade. But because of them the world as we know it will no longer be the same, and the charge on planning today to anticipate the new world is an exigent one.

No one pretends the policy answers are easy to come by. We are obviously athwart the horns of a dilemma: if we act precipitately now to fix basic patterns of international regulation, of control, of ownership, they may be outmoded in a few short years. The conservatives are right when they point out the extent of our ignorance, and no one would argue that we know enough now to act with finality; already the

satellite technology is feeding back, so to speak, to stimulate breakthroughs in transisterized trans-oceanic cables, a development that could drastically alter the comparative cost estimates which were one of the chief stimuli to communication satellites in the first place.

But on the other hand if we wait until all the changes have taken place, we shall obviously never be ready to impose constructive statesmanship on a vital social development. One can go further and argue, no doubt heretically, that it might not be wholly irrational to fix the political and social objectives we wish to serve with communication satellite technology, and design and produce the hardware accordingly. Such a point of view is, it is clear, quite out of keeping with the worship of autonomously-developing science and technology for its own sake—a philosophy that could end in annihilating its masters.

Short of a reversal in the conventional science-politics equation, surely we can improve our procedures for cranking into the process a greater degree of political purposefulness and direction. The conclusive argument for drastically broadening the processes of national planning and decision-making about the future contours of space communication is that the relevant factors by their very nature go beyond the technical and bureaucratic, beyond the combination of changing technology and narrow agency partisanship that tend to stymie and frustrate attempts to impose imaginative political approaches on the development of an international satellite system. The relevant factors obviously include ideological and even aesthetic considerations that it is neither wise nor fair to leave either to NASA or to the US Air Force, the Federal

Communications Commission or, one might argue, to the Board of Directors of a basically profit-seeking Corporation. The State Department, because of its particular mandate, comes closest among government agencies to having a sense of the larger national interest in the international scheme of things. But the State Department has not been playing the dominant role in this matter, whether by choice, necessity, or default.

The feeling is inescapable that on this range of pressing and complex issues the United States government stands in need of some fresh, broad-gauged advice from both Congress and from leaders outside of government. The advice is needed both to help sort out the primary values that are at stake, and also to help supply the necessary political courage for moving ahead with an international political and administrative design appropriate to even a changing technology. Such a high-level and widely-based reappraisal would consider such specific matters as whether the United States should favor the creation of a truly international communication satellite system involving genuine partnership with other governments and nations, whether it should press for a new international organization for the purpose or rely on the slightly -- but only slightly -- renascent International Telecommunications Union; whether the legislation establishing the Corporation, and passed over such passionate opposition in the Senate in August of 1962, should be looked at afresh with a view to making the Corporation more of an instrument of overall national policy; the U.S. program as a whole should be broadened toward real partnership with our allies and more imaginative institution-building in the U.N.; whether the distribution of American cultural fare should be better geared with

the attendant danger of producing a misplaced and even trivial emphasis for the whole enterprise, featuring the worst we have to offer rather than the best.

These questions and many more have of course been raised, and some of them are going to be decided by those who are assigned responsibility within U.S. government agencies and within the Satellite Corporation. Others will not be raised at all; still others will be put on the shelf. Perhaps the only way to serve the broader national interest is neither to place impossible burdens of policy-makers at subordinate levels nor to expect detailed attention to non-vital questions from topside, but rather to find some new means of assisting the process with powerful and impartial help and advice on the matter from the Congress and leaders among the national public. The Presidential study commission has too often been used as an escape from decision making; but in this case it could be the needful handmaiden of responsibility.

#### V.

Inescapably the question about outer space of the greatest portent for foreign affairs is the possible military use of that realm. The possibility of weapons of great destructiveness being placed in space is among the most alarming prospects currently anticipated and the one which arouses the most legitimate concern among military planners. But it is an argument full of ambiguity. At this writing responsible strategists seem to agree that there is no present mission for space-based weapons that cannot be better handled on earth. This is to say that an orbiting bombardment satellite, for all its psychological "scare" value and even

its potential military value, is a less protected, less invulnerable, more provocative and therefore generally less efficient weapon than one buried underground in a silo or capable of firing from unknown locations at sea. But it is the future that most concerns the aerospace planners, for these arguments could be reversed by technology.

The technical arguments for developing space weapons should concern us less here than the political reasoning. But civilian planners, even when they have heard the arguments about the relative merits of the orbiting bombardment satellite, cannot afford not to know that scientists can foresee the development of even more advanced space weapons systems such as the neutron-flux weapon, or laser-directed nuclear energy force reducing present warning times to approximately one second, plasma jets heated to millions of degrees into a real fourth state of matter, ionized gases directed by radio at great velocity, and others even more exotic and alarming. Some of these are in the distance. But decisions taken now to develop -- or not to develop -- a weapons system to a degree constrain the political environment eight years hence.

It is no simple matter to draw lines between military and non-military uses of space. Civilian and military uses of space spring from common scientific roots; the applied technology itself can take dual forms. It is not particularly clear what is even meant today by "military uses" of space. To the United States the notion of a Soviet bombardment satellite in orbit overhead, possibly fitted out with a dramatically winking light accompanied by earthly messages drawing appropriate parallels to the Sword of Damocles, could create psychological -- and therefore

political -- havoc. While its military value might be less than that of a fleet of Polaris-firing submarines at sea, the greatest danger of Soviet weaponry in space could be the stimulation of a new spiral of weapons development, which could in turn lead to truly efficient uses of space for warfare.

In part doubtless to influence Soviet decision-making, authoritative statements by the President and responsible officials of the Defense Department have in recent months announced time and again that no useful military mission is foreseen in space by the United States at this time, and that, while investing prudentially in research, there is no present intention of placing weapons in space. **In fact it might be less alarming** to our opponent if we did just that rather than what in fact we have done. The U.S. observation and reconnaissance satellite is, according to public accounts, photographing the Soviet Union from orbital heights. The political effect was predictable and may in some ways have been as profound as effects we might anticipate for a "Red Bomb" over Washington. If the greatest military asset the Soviet Union has today is secrecy, the Samos satellite is a threat of the highest order, and by that token a great U.S. strategic asset.

These varying approaches taken to space as an international problem, each approach based on estimates of the vulnerabilities of the other side, whether military or political, have given a rough symmetry to the debate. One curious and paradoxical consequence is that the United States and the Soviet Union have been driven by the logic of their own strategic concepts to the position of standing together in the United Nations Space Committee,

in opposition to virtually all other states who favor limiting space now to "peaceful uses only." The United States of course sincerely deems Samos to be a peaceful use of space since it is not a weapon and, in any event, helps to preserve the peace by offsetting the lack of parity in targeting information available to both sides. According to good arms control doctrine it should even be reassuring to the Soviet Union to know that we are reassured (although bargaining theory does not always have the desired policy effect). The Soviets, for their part, consider that any "socialist weapons" are weapons of peace. The semantic struggle between the two vocabularies faithfully reflects the profound lack of understanding at the political level.

One immediate policy consequence of the ambiguities and uncertainties about militarizing space is the increasing agitation, both inside and outside the armed services, for a greater military voice in the American space program. The mounting campaign for a larger Air Force role in the space program represents at least in part the professional's fear of obsolescence -- even, at its worst, the vested interests against which General Eisenhower warned in his Presidential valedictory. But behind it is an intuition no responsible person can ignore -- that whatever the present equation of cost effectiveness, it is likely that the Soviet Union, given the highly secret nature of its space program harnessed to its drive for strategic supremacy, is developing space weapons. There is some recent evidence for this.

To some who hold an extreme position on this matter it follows that NASA -- the National Aeronautics and Space Administration -- should be turned over to the Pentagon. Others reflect understandable unease that

someshow we might be caught short in dividing our attentions so scrupulously between civilian and military purposes in a race with a power whose space program is very likely military in organization, operation, and, at least arguably, motivation. President Kennedy has resisted the extremist pressure, as did President Eisenhower. Unfortunately, however, lesser statesmen may view it as a valuable partisan issue, far more than criticism of the moon shot, as I suggested earlier. This could be highly tendentious, possibly misleading, even dangerous.

The central point is that two complementary assets for the United States are involved, one strategic and the other political; it would be senseless to sacrifice either one without extraordinarily good reasons for doing so. The strategic asset rests on the axiom that one's own weapons can meaningfully affect the other side's mischievous calculations. Concretely it lies in the continued provision of both resources and encouragement for research and development on military missions which cannot now be foreseen in any detail but which nevertheless must be provided for unless and until a reliable arms control agreement in outer space can be worked out. Responsible government officials have given constant assurance that adequate resources are being devoted to this purpose. Indeed, it is not difficult to make appropriate connections: the astronauts are Air Force pilots; the joint NASA-Air Force programs for manned space flight, including techniques for rendezvousing and docking in space and for landing on the moon, all have potential military value, whether for capacity to intercept and destroy hostile objects in space or for the possible capacity for a disarmament organization to undertake inspection

and search -- and, if necessary, destruction -- of hostile objects.

The political asset is the primarily civilian cast of the American space program. Such evidence as testimony by organs of public opinion throughout the world when the United States launches manned space vehicles suggests that this asset has continued high value. The legislative history of NASA, like that of the U.S. Atomic Energy Commission, reflects a basic American preference for a predominantly civilian lead in the space program while paying the necessary attention to military requirements. There seems no sensible reason deliberately to distort the image thus created and to destroy a valuable political asset by capitulating to the extremist position of out-and-out militarism in space.

As for arms control, there are few signs that disarmament in space, in the sense of inspecting launching pads and payloads, or even agreeing on what is an unacceptable use, is likely completely apart from other forms of disarmament on earth. But at the same time the space arms race could come to look increasingly expensive and perhaps not very profitable strategically. Premier Khrushchev said in late June 1963 that the extension of the arms race into space would endanger the world. Westerners believe this too, but there has been no concrete proposal that seems to avoid the pitfalls that beset over-all arms control negotiations. Khrushchevian rhetoric urging the transformation of space into a "zone of peace and a zone of international cooperation," and American Presidential appeals along the same line, need a special kind of push to give them, as it were, escape velocity sufficient to break out of their still solid place in the web of conflict. Perhaps matters

have to get considerably worse, in the sense of less theoretical and more concretely menacing, -- or considerably better, in the sense of other modest agreements following the test ban -- to supply that liberating thrust.

None of this relieves us from acting on the premise that, if arms control in space is desirable, some may be possible. I am aware of arguments, some highly respectable, to the effect that space weapons might be stabilizing and even conducive to arms control,\* and others suggesting that human conflict might be transferred to space, as a kind of William Jamesian moral equivalent to war on earth, a surrogate for the obviously worse kind of combat involving people. But given the universal and all-pervasive nature of the issue between East and West, whose battles may be moderating but whose end we cannot safely predict, too many earth values are at stake to safely plan for a limited war fought between gladiatorial machines at a comfortable remove from hearth and home. Thus in my view we are not excused from trying to prevent a hot war in outer space any more than we are in inner space.

## VI.

One emerges from this brief tour of the horizon in the international space field with several propositions. First, and most platitudinously, technology continues to race way ahead of political knowledge and judgment. Better ways need to be found to enlarge the base of American planning and decision-making, to involve national leadership in the great issues only now

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\*See T.C. Schelling, "The Military Use of Outer Space; Bombardment Satellites," in Outer Space in World Politics, ed. J.M. Goldsen, Praeger, 1963.

shaping up, and to illuminate the public debate with the right questions.

Second, if the United States does not take greater risks in formulating its own preferred long-range design for the international space program, with real detail and strategic precision and not only in broad platitudes and vague hopes for peace and cooperation, we can be certain that others will fix the design for us, faithful to Edmund Burke's warning that "all that is required for the forces of evil to win is for good men to do nothing."

Third, it is unlikely that we can evolve final solutions for the problems of space control independently of the problems here on the earth's surface. More precisely, the Cold War in outer space will undoubtedly last as long as it does in inner space.

But, fourth, arms control in space is a relevant problem. This argues for the desirability of pressing towards limited arms control agreements regarding outer space. These may not be out of the question despite the axiom that links both realms to a unified political-strategic struggle. It also argues for avoiding in every way possible an accelerated "qualitative" arms race in which new technologies produce a spiral that students of arms races in history assure us is far more dangerous than the purely numerical kind of arms competition.

Fifth, the danger of the self-fulfilling prophecy exists no less in space than anywhere else. For the United States overtly and explicitly to militarize its over-all space effort, as a number of self-styled "hardliners" would have us do, could bring about the very outcome which American policy has worked so hard to prevent.

Sixth and finally, the space age is going to alter traditional patterns of international relations and old ways of thinking about the world outside our national boundaries just as surely as the creation of a universal religion, combined with the building of roads, destroyed the parochial medieval patterns of town and fief. One boggles at exact prediction, and it is not yet certain even what the correct political and philosophical questions are to ask. The logic of increasingly blurred national boundaries in the light of expanding space frontiers leads one man to call for world government now, another to plead for a return to homely local values we can cling to in the face of change, and a third to bury his head in the sand and ignore the whole frustrating, unsettling, even frightening enterprise.

Perhaps Friedrich Nietzsche, for all his wrong-headedness, had a pre-vision of our world, posing the question of questions that we may ultimately have to answer about our forms of political organization and our sense of human brotherhood when, almost a century ago, he wrote: "Inescapable, hesitatingly, terrible like fate, the great task and question approaches: how should the earth as a whole be administered? To what end should man as a whole -- no longer a people or a race -- be raised and bred?"

Things happen in their own good time, and when human penetration of the cosmos has transformed and broadened human attitudes to the point of such acute self-awareness, doubtless we will know it. But while the forces making for change are at work, the tasks of the scholar and the statesman alike are to anticipate, to plan, and so to reconcile the fruits of science and political institutions as to preserve and enhance the values that matter to man himself.