Recapturing The Promise Of Apollo

The visionary focus and strong national commitment of the space program were destroyed by the zero-growth establishment, which put in its place the New Age counterculture.

by Marsha Freeman

Since the first manned landing on the Moon 25 years ago, news commentators, political analysts, and sociologists have tried to convince the American people that there has been no long-term, visionary mission for space exploration since the Apollo program because no one wanted one. The American people "lost interest" in space, they state, while other, more earthly problems replaced exploration as a major national concern.

In order to make this argument convincing, a number of myths have been concocted for popular and congressional consumption. We are told that excitement about space exploration would necessarily diminish because the Apollo program announced by President Kennedy in 1961 was a "dead end"; that the Great Society goals announced by President Johnson in 1965 could be accomplished only by taking money away from the space program, or vice versa; that Americans lost interest in space because the leadership of NASA had no vision for the post-Apollo era; and that the optimistic view of the early 1960s that no frontier was out of reach had to be replaced by more "realistic," down-to-earth fears of overpopulation, slow environmental death, and limits to growth, in direct and conscious juxtaposition to the limitlessness of space exploration.

Not one of these statements is true, yet together they have helped shape American economic, social, and foreign policies for the past quarter century. Arguments by the scientists, administrators, and public supporters of the space program in the 1960s were overpowered by a growing demoralization in America, fueled by political assassinations, urban riots, and the Vietnam war, which flourished thanks to the loss of a commitment to a positive program for the future.

There has been alarm over this state of affairs, but little understanding within the community of space scientists, engineers, planners, managers, and in industry of how to return to the spirit of Apollo, when most *assumed* that we and our progeny would explore space. What must be understood is that recapturing the promise of Apollo requires overturning the entire set of axioms and postulates of the past 25 years. Once again we must mobilize the national will to accomplish great projects, such as the exploration and colonization of space.

On this 25th anniversary of the first lunar landing, President Clinton could announce far-reaching goals in space as an appropriate commemoration. To succeed, however, such an initiative must also overturn the premise that there are limits—to growth, to economic development, to the "carrying capacity" of the Earth, to mankind's understanding of the wonders of the universe, to his ability to marshal breakthroughs in science to create new worlds that serve his needs. There will be no shortcuts in this effort.

By the time the first manned flight of the Saturn V rocket took off on the Apollo 8 mission in 1968, budget cutbacks had already taken a toll at the Marshall Space Flight Center where the Saturn was developed. Here, the astronauts begin their journey to circumnavigate the Moon.

NASA

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The man entrusted with carrying out President Kennedy's Apollo mandate was James E. Webb. By 1965, Webb was warning that the lack of follow-on plans to the lunar landing would squander the capabilities the nation had invested in the space program. Here, Webb is testifying before Congress in 1967.

The Promise of Apollo

When President John F. Kennedy announced on May 25, 1961, that this nation should "land a man on the Moon and return him safely to the Earth" within the decade of the 1960s, the leisurely pace of the manned space program ended and the Apollo program began in earnest. His announcement was certainly motivated by the need to match and then surpass the Soviet Union's capabilities in space for national security and national prestige and to recover from his recent political fiasco with the Bay of Pigs invasion.

But there was more to the Kennedy initiative than a single goal with a deadline. The next sentence of the speech read, "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." Kennedy had the benefit of knowledgeable space advisers such as Vice President Lyndon Johnson and NASA Administrator James Webb, who recommended a major effort on a broad front, to include unmanned planetary exploration and applications of space technology. Through their efforts, this broad-based program was pursued.

That landing a man on the Moon was not Kennedy's idea of the end of the space effort is evidenced by the other three programs for which he requested increased funding in his "Special Message to the Congress on Urgent National Needs," which highlighted the lunar program. These included funding for a "satellite system for worldwide weather observation . . . accelerating the use of space satellites for worldwide communications," and, most important, "an additional $23 million, together with $7 million already available, to accelerate development of the Rover nuclear rocket." As Kennedy stated, "This gives promise of someday 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." There would be no need to fund a nuclear rocket project if landing a man on the Moon were to be the "end" of the manned space program. Only trips to Mars would require nuclear propulsion technology.

For Kennedy, the goal was U.S. leadership in space, which would be a continuing mission. It was not his intention that after (hopefully) beating the Soviets to the Moon, the United States would fold up its tent and end the manned space program. The lunar landing program became a "dead end" with no equally challenging long-range mission to follow it only because the political forces that had opposed and attacked the program from its inception were becoming hegemonic by 1965 and Kennedy was no longer there to put the full force of the presidency behind the space program.

'Mr. Space'

Today Lyndon Johnson is most often identified with the Great Society program and the Vietnam War, but the fact that there has been a civilian space program in the United States since 1958 is in large part the result of his efforts. When Sputnik made its debut on Oct. 4, 1957, Johnson was the majority leader of the Senate and chairman of the Senate Armed Services Subcommittee on Preparedness Investigating. In conference with the leadership of the Senate, Johnson took the lead in investigating this "satellite gap" after the Eisenhower administration's disappointing response to the Soviet challenge. Johnson's subcommittee began hearings on the Soviet threat and the U.S. military's plans for space in November. No less than 2,376 pages of testimony were recorded, including statements by Drs. Edward Teller and Wernher von Braun. Teller advocated a trip to the Moon as a response to the Soviet lead in space, and von Braun expressed his support for developing the large rockets to take the spacecraft there.

The subcommittee, which Johnson insisted take a nonpartisan approach on issues of national security, agreed without dissent that higher priority should be given to satellites, that they served both military and scientific purposes, and that there had to be greater emphasis on scientific and technological education. Johnson introduced Senate Resolution 256, creating the Special Committee on Space and Astronautics, which passed without opposition on Feb. 6, 1958. Two weeks later, he was elected chairman of the committee and he continued to be the major congressional spokesman on space policy issues.

Johnson and Eisenhower agreed that the exploration of space should reside in a separate civilian agency, and on April 2, 1958, President Eisenhower made this proposal to the Congress. On April 14, Johnson and House majority leader John W. McCormack introduced the legislation that would create the National Aeronautics and Space Administration (NASA).

Opening the hearings before the Special Committee on the NASA bill on May 6, 1958, chairman Johnson stated:

> Space affects all of us and all that we do, in our private lives, in our business, in our education, and in our Government. . . . We shall succeed or fail [depending on] our . . . success at incorporating the exploration and utilization of space into all aspects of our society and the enrich-

ment of all phases of our life on this Earth.

Senator Johnson promoted an aggressive civilian space program to beat the Russians and improve U.S. national security, but he also appealed directly to young people and the nation as a whole for a grand project. As he told the Junior Chamber of Commerce in Wichita Falls, Texas, on Nov. 29, 1957:

> When I was a small boy, the idea of space ships and rockets to the Moon represented an evening's entertainment by the fireplace. It was a dream—an escape from the ordinary affairs of an ordinary world.
>
> Now these dreams are becoming realities—something that is right in front of us and that most of us will see. Flights to the Moon are just over the threshold, flights to Mars and the planets are but a hop, skip, and a jump away.

The next month in a speech in Dallas, Johnson outlined a mobilization that would require the participation of "workers, farmers, professors, technicians, and businessmen. . . . There is only one type of person we can do without," he concluded, "And that is the man or woman who says: 'It cannot be done.' "

The Decision to Go to the Moon

From the beginning of his administration, President Kennedy depended upon Vice President Lyndon Johnson for guidance on space policy. The newly enacted NASA law was changed upon Kennedy's request to allow the Vice President, instead of the President, to be head of the National Aeronautics and Space Council. Johnson was key in bringing experienced government manager James E. Webb to the NASA administrator's post and encouraging Webb to lobby for significant increases in the NASA budget.

While the President was deciding how quickly to accelerate space programs, Soviet astronaut Yuri Gagarin made man's first venture into Earth orbit on April 12. A week later, the failed Bay of Pigs invasion added new urgency for a positive initiative from the administration. President Kennedy asked Johnson to assess America's chances of beating the Soviets in space. In an April 20 memorandum requesting a survey of "where we stand in space," Kennedy asked: "Do we have a chance of beating the Soviets by putting a laboratory in space, or by a trip around the Moon, or by a rocket to land on the Moon, or by a rocket to go to the Moon and back with a man?"

Johnson consulted space experts, including NASA managers and visionaries Dr. Hugh Dryden and Wernher von Braun. Both opted for a manned lunar mission. In his response to the Vice President, von Braun stated:

> We have a sporting chance of sending a three-man crew *around the Moon ahead of the Soviets (1965/66)*. . . . We have an excellent chance of beating the Soviets to the *first landing of a crew on the Moon* (including return capability, of course). With an all-out crash program I think we could accomplish this objective in 1967/68. . . .

Johnson also consulted business, military, and civic leaders in an attempt to build a broad consensus for a lunar program.

NASA

President Kennedy visits Project Rover, the nuclear rocket propulsion program, in Nevada in 1962. With him at left is Harold B. Finger, the manager of the Space Nuclear Propulsion Office, and (between Finger and Kennedy) Dr. Glenn T. Seaborg, chairman of the Atomic Energy Commission.

The business community was behind the space mobilization. As Donald Cook of American Electric Power Service, a large utility, told Johnson, the United States must attain leadership in space, or face being a second-class power.

Even before the ramp-up in government spending and contracts, however, the optimism generated by the presidential commitment led to a flurry of industrial expansion, in expectation of the economic growth such a great project would create. In a remarkable book published in 1962, the editors of *Fortune* magazine describe the then-emerging aerospace industry as "Hitching the Economy to the Infinite." The *Fortune* editors state:

> There is no end to space, and so far as the U.S. economy is concerned, there will probably be no end to the space program. . . . The space venture . . . is likely to be more durably stupendous than even its most passionate advocates think it will be. It is bound to affect the nation's economy powerfully and in many ways.

Kennedy's speech May 25, 1961, made the mission to land a man on the Moon a crash program with a specific goal and a deadline. The United States would take up the challenge to become the world leader in space. To accomplish this, the President requested—and Congress appropriated—a NASA budget that increased from $964 million in fiscal year 1961 to more than $5 billion in fiscal year 1964 in order to make the promise of Apollo a reality.

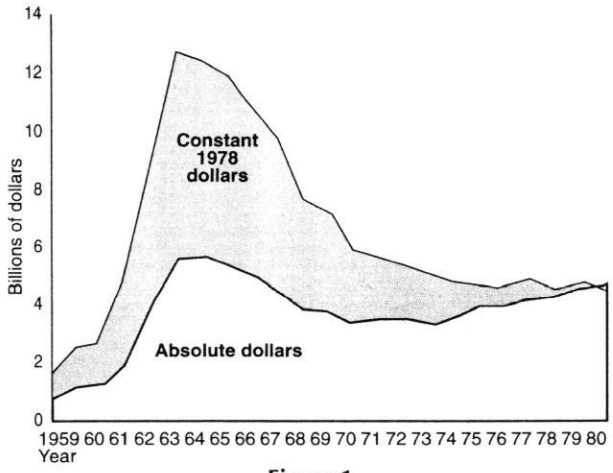


Figure 1
NASA BUDGET 1965-1980: THE DOLLARS TELL THE STORY

The increase in spending for the Vietnam War in 1965 made it impossible to continue the growth in the space budget that President Kennedy had initiated to accomplish the Apollo program. That the take-down of NASA capabilities began the same year that Vietnam expenditures escalated was a clear sign there would be no far-reaching post-Apollo program.

Source: NASA

The assassination of President John F. Kennedy in November 1963 and the subsequent coverup of responsibility for the assassination were a turning point for the nation. The coverup, based on the idea that "lone assassin" Lee Harvey Oswald shot the President, protected those who had strong policy differences with Kennedy, over which, undoubtedly, he was killed. The policies for economic growth and aggressive acceleration of the space effort that Kennedy initiated were left to be carried forward by a weaker president, who himself was now under the threat of physical elimination.

In an interview conducted shortly before his death in 1973, Johnson told *Atlantic Monthly* magazine about Kennedy's assassination, "I never believed that Oswald acted alone, although I can accept that he pulled the trigger." When he took office, he said, he found that, "we had been operating a damned Murder Inc. in the Carribbean." Living under the threat that the same Murder Inc. that hit Kennedy could also be turned against him if he stepped out of line, Johnson found himself going along with the escalation of the Vietnam War. He was also unable to buck the pressure to throw the United States into the "postindustrial" society, which was antithetical to his Roosevelt-era belief that one must "build" one's way to economic prosperity.

Vietnam versus Space Exploration

After Kennedy's assassination, Lyndon Johnson was determined to fulfill the martyred president's goal of landing a man on the Moon. At the same time, however, the escalation of the war in Vietnam would preclude the level of expenditure on space exploration necessary to prevent Apollo from becoming a dead end. A distorted version of Johnson's War on Poverty would provide the ammunition for the antigrowth ideologues who would destroy the promise of Apollo before President Johnson was out of office.

The take-down of the most impressive peacetime mobilization of the nation's scientific talent, manpower, and industrial might started as early as 1965, as the Vietnam War escalated and the elimination of poverty was counterposed to the space program. President Johnson, however, *never* saw the elimination of poverty and the space programs as competing; for him they were complementary goals.

In early 1964, Johnson signed into law a tax cut that had been an important part of Kennedy's economic stimulus program, which had also included an investment tax credit for industrial expansion. One year later, when Johnson went before the Congress to ask for a supplemental Defense appropriation for the Vietnam buildup, his economic advisers suggested that an unpopular tax increase would be needed to keep up with the expenditures. Johnson rejected this idea, perhaps believing Secretary of Defense Robert "body count" McNamara's assurances that the war would be over by June 30, 1967. Without the tax increase, however, the federal deficit began to spiral upward because of the inherently nonproductive defense expenditures.

In March 1965, the first U.S. combat forces were sent to Vietnam. By the end of that year there were 184,000 troops there. President Johnson requested and got from Congress a supplemental budget increase of $13.8 billion in addition to the $6 billion that had been appropriated for fiscal year 1966 for Vietnam. The next year, the White House requested $20.6 billion and again came to Congress for supplemental funds in order to support a war that now involved 385,000 troops. These expenditures threw the plans for a $100 billion federal budget into turmoil; the total defense spending of $58 billion surpassed that of 1943.

To try to deal with the fiscal chaos developing as a result of the Vietnam expenditures, Johnson suspended President Kennedy's 7 percent investment tax credit on Sept. 8, 1966, and announced cutbacks in spending to pay for the war. But these measures had the opposite of the intended effect, slowing the economic growth that had resulted from Kennedy's tax cut, investment tax credit, and a space program that was now providing more than 400,000 highly skilled industrial jobs.

The money spent for the Vietnam War was more than four times that of the space program in fiscal year 1966. Although these funds accounted for more than half of the budget deficit of $8 billion projected by Johnson's economic advisers, the war funds were not going to be cut. The NASA budget was the second-largest area of proposed increase in the federal budget and, therefore, a very visible target for cutbacks by the fiscal conservatives.

The pressure on Lyndon Johnson to cut NASA spending, and even to delay the lunar landing, began within weeks of his becoming President. For those who make the claim that the Apollo program had a "blank check," it is important to note that an agreement had been made between President Johnson and Senate fiscal conservatives that the space budget would be held to a $5 billion ceiling to control the deficit. While at times jeopardizing the Apollo program itself, and certainly delaying any advanced planning, this compromise was necessary to enable the President to garner support for other important legislation.

In December 1963, there was pressure from budget director Kermit Gordon to reduce the planned $583 million increase in NASA's fiscal year 1965 budget. Johnson held firm, telling NASA Administrator Webb that although this would exceed the agreed-upon NASA budget ceiling, it would "give NASA a 'fighting chance' to accomplish the lunar landing within this decade." The Congress did reduce the White House request from $5.4 billion to $5.25 billion.

During the 1964 presidential campaign, Senator Barry Goldwater called the Apollo program "a terrible waste of money" and the House Republican study group urged that the 1970 deadline for Apollo be dropped to lower the annual cost. Although neither candidate made the space program an issue in the campaign, Johnson knew that polls were showing a nearly 70 percent approval rating from the American public for the 1970 lunar landing.

After winning the 1964 election, Lyndon Johnson asked NASA Administrator Webb to review the country's plans for future space exploration. While his planners and managers in NASA were trying to develop a plan for the future, a proud President Johnson sent the leaders of 110 nations a set of photographs of the Moon taken by the Ranger VII spacecraft on July 31. According to Webb's biographer, Harry Lambright, science adviser Donald Hornig recommended that space programs be evaluated for upcoming budget decisions. It was clear, for example, that the NERVA nuclear rocket project, which was not needed for Apollo, depended upon long-range plans.

The Apollo Dead End

Advanced planning was an activity of the space agency from its very beginning. The Congress clearly supported this effort, appropriating $70 million for future studies between 1962 and 1965. Before 1965, no policy maker even considered that there might not be long-range goals in space after the accomplishment of the lunar landing.

Lambright reports, however, that Administrator Webb was determined to have post-Apollo programs formulated when the space agency was ready, not just for reasons of political expediency, and he did not want to propose post-Apollo programs in 1964 when the completion of the lunar landing was still half a decade away. Therefore, Webb's final report in 1965, issued after many delays, was a cautious and conservative program for the future. It stressed the unmanned exploration of Mars and "Apollo Applications," described as a "systematic program" of manned flights around the Moon and Earth, using Saturn V rockets developed for Apollo.

There was a high level of future planning activity going on at the various NASA field centers, particularly the Manned Space Center in Houston and the Marshall Space Flight Center in Huntsville. Webb attached to his document the report by the Future Programs Task Force headed by the director of the Langley Research Center, which discussed projects such as space stations and manned missions to Mars, but Webb did not recommend these projects. Webb stated that his recommended programs could be done without new hardware and "at acceptable cost," apparently with an acute political sense that that is what the President wanted to hear by 1965.

From January 1964, when President Johnson requested the review, until 1965, when Webb was ready to make recommendations, the situation had dramatically changed. Increasingly concerned about expenditures for the escalating Vietnam War, the President was no longer interested in future programs that entailed increasing costs. Webb, on the other hand, was now facing the serious situation of layoffs at NASA centers as key Apollo tasks were completed. Johnson asked Webb to postpone any post-Apollo program plans.

Webb had never thought of the lunar landing as the only goal of the space program. At a briefing in 1965, Webb "dismissed the idea that the lunar landing was any kind of end in itself," according to historian Arnold Levine. What NASA had developed, he stressed, was the "capability to fire, to launch, to get into orbit." Planners at NASA, such as Wernher von Braun and George Mueller, were looking toward a manned landing on Mars. Webb, however, perceived that the President was determined to carry through on Apollo but was not ready to make any further commitments. Webb thought that NASA could not plan "unilaterally" and that post-Apollo programs were political decisions that had to be made by the White House and the Congress.

The first effects of the Vietnam War spending increases hit NASA in fall 1965. The Congress had started to trim the NASA budget increases proposed by the White House as early as 1963. But by any measure, the rate of increase in spending on space had been breathtaking during the initial gear-up, and neither Kennedy's deadline for the Apollo program nor the more advanced projects were in any serious danger in 1963.

For the fiscal year 1966 budget, under consideration in 1965, the administration initially proposed a NASA budget of $5.26 billion, which was $10 million more than the Congress had appropriated the previous year. Budget Director Charles Schultz reported in November that projected fiscal year 1966 expenditures were running about $8 billion above the $99.7 billion that had been budgeted in October at the start of fiscal year 1966, largely as a result of Vietnam. Schultz recommended a cut of $300 million from NASA, and for the first time, Johnson backed a space program cut. Administrator Webb warned that these cuts, which were made in the post-Apollo applications program, would have serious consequences in the aerospace industry and meet opposition among Congressional supporters of the space program.

In the next fiscal year, the White House budget request of just slightly over $5 billion brought NASA spending down to less than what it had been in 1964. Within the administration, Webb fought to keep the space science and planetary missions, as well as Apollo, but he had to go along with cuts in the unmanned Mars mission. He knew that the curtailment of this program would be hard to sell to the Congress. Space supporters were rightfully concerned that cutbacks would hurt the economic growth in their districts and diminish the effect of the entire space effort. By mid-1966, as reported by historian Robert Divine, Webb warned that the reduced budgetary level would lead to letting go "some 200,000 people . . . from NASA operations, plus 60,000 from research and development and an additional 5,000 to 10,000 from construction by July 1, 1967."

These were not idle threats designed for dramatic effect. In Huntsville, the take-down had already started. By 1965, the design and engineering work on the Saturn V rocket were complete. That year, 200 people from the Marshall Space Flight Center were transferred to the Manned Space Center in

Houston, where work was continuing on the Apollo spacecraft. On the same day that the first Saturn V rocket lifted off the launch pad in Florida carrying the Apollo 4 mission into space—Nov. 9, 1967—Wernher von Braun learned that a reduction-in-force would cut 700 people from Marshall. Civil service employment peaked at Marshall in 1965 at about 7,500 people. Annual reductions in force reduced that number to 5,377 by 1972, and 3,760 by 1978. Members of the German rocket team and their colleagues, who had built the rockets that took men to the Moon, resigned in disappointment and frustration as the infrastructure for engineering great space projects was dismantled.

During deliberations for the Johnson administration's fiscal year 1968 budget, Webb tried to regain the momentum that had been lost the year before. Requesting a $6 billion NASA budget that he knew was unrealistic from the standpoint of the fiscal pressures on the White House, nonetheless, Webb warned that another NASA budget in the $5 billion range would leave him "no choice but to accelerate the rate at which we are carrying on the liquidation of some of the capabilities which we have built up." According to Robert Divine, Webb told the President that while the Apollo program could be kept on course at that level of funding, "there has not been a single important new space project since you became President."

On the line was the future of the American space program. Budget Director Schultz's response to Webb is instructive: It was not necessary, he said, to do in space everything that was technically feasible (which Webb had never proposed) and it was not necessary to maintain the level of skilled industrial manpower that NASA had created. "The space program," Schultz said, "is not a WPA," referring to the Works Projects Administration, Roosevelt's depression-era program for public works. That one could so cavalierly throw on to the garbage heap the greatest scientific and technical talent ever assembled was a frightening sign of the times.

As opposition to the space program mounted through the manipulation of incommensurable comparisons, Schultz compared the $5 billion space budget to the $2 billion being spent on public education and the $1.7 billion on the war on poverty, as if these expenditures all produced commensurable results. Despite Webb's appeals and his personal good working relationship with the President, Johnson sided with Schultz, and the NASA request for fiscal year 1968 was set at just slightly over $5 billion.

By summer 1967, when the NASA appropriations bill was still under consideration on Capitol Hill, the full force of Vietnam expenditures hit. The budget deficit loomed at $29 billion, and deep cuts would have to be made to pay for the war. Schultz said it was necessary to cut the space program appropriation for fiscal year 1968 to $4.5 billion. Schultz also recommended that the 1970 Kennedy deadline for Apollo be abandoned so as not to sacrifice future programs, but Johnson refused to renege on that commitment. The result was the emasculation of any post-Apollo effort. Apollo was quickly becoming a dead end.

The 1969 NASA budget for the next fiscal year only continued the downward trend, with a final appropriation of $3.9 billion. The Apollo Applications program, which would have continued Saturn V launches to the Moon and built space infrastructure in orbit around the Earth, was eventually pared down to consist mainly of a small and very temporary space station called Skylab.

Unable to see any course that would stem the tide, a disappointed James Webb announced his resignation as NASA administrator in September 1968, just two months before the first human beings circled the Moon on the Apollo 8 mission. Lambright reports that by resigning before the new president was elected (Johnson had announced he would not run for reelection) Webb would be able to choose his successor at NASA. His choice of Tom Paine, who fought for long-range goals for the space program even after his time as NASA administrator, proved the wisdom of Webb's strategy.

The spending for the Vietnam War had dictated the near-elimination of the post-Apollo space program. It also led to mass protests and the decision of Lyndon Johnson not to run for reelection. But with the public, it was the Great Society, and specifically the War on Poverty, that was used as the *political* club against the space program and the civil rights movement.

The Other War

Once elected President, Lyndon Johnson decided that he would set his own agenda for the country, not only in the space arena but also in other domestic programs. During President Kennedy's brief time in office, he had initiated legislation for federal aid to education, Medicare, a civil rights bill, and other federal social programs, much of which had been stalled in the Congress. Eradicating poverty, which Kennedy had seen firsthand while campaigning in 1960, particularly in rural America, was a goal already on the agenda when Johnson became president in November 1963.

Using his political skill in the legislative process, Lyndon Johnson was able to have Kennedy's Civil Rights Act finally passed into law during the 1964 presidential campaign. The Congress also passed Johnson's Economic Opportunity Act. In his eyes, these important domestic programs would fight the Great Society's unconditional "war on poverty" to win it. In his State of the Union address in 1964, Johnson gave special attention to the War on Poverty, announcing that $500 million would be allotted for it in the next budget. A month later, he announced the appointment of R. Sargent Shriver, President Kennedy's brother-in-law, to head the Office of Economic Opportunity (OEO).

There were two major approaches to eliminating poverty in the nation. One, represented by more traditional liberal Democratic Party elements, was to provide job training, enhanced education, and job opportunities for those who had been left out of the mainstream of American economic activity. This approach led to programs such as Head Start, the Job Corps, and Upward Bound. This philosophy was expressed by the Council of Economic Advisers in its 1964 report:

> Conquest of poverty is well within our power. The majority of the nation could simply tax themselves enough to provide the necessary income supplements to their less fortunate citizens. . . . But this "solution" would leave untouched most of the roots of poverty. Americans want to *earn* the American standard by their own efforts and contributions.

UPI/The Library of Congress

In 1965, President Lyndon Johnson signed the Voting Rights Act into law. Here, he presents Rev. Martin Luther King, Jr. with one of the pens used in the signing of that landmark legislation.

The second approach was for "income transfer"—basically a handout to the poor—managed primarily through the welfare and food stamp programs. Although this approach was promoted through the new OEO, it was not President Johnson's concept of the War on Poverty.

Even those whose intention was the economic uplifting of the nation's poor through the War on Poverty, including the President, did not understand that economic opportunity for the poor could be achieved only with overall growth in the economy. Like President Clinton's best intentions today to provide job training to reduce welfare dependence, this goal is a chimera if there are no new productive jobs and a growing economy for newly trained entrants into the workforce.

There was no understanding among the President's economic advisers that the most dramatic impact on poverty in the 1960s in the rural South was from the gear-up of the space program. The establishment of science and engineering centers by NASA in Houston, Huntsville, and Bay St. Louis, Mississippi, transformed these rural communities into magnets for high-technology industry. People who had picked cotton in Alabama could fill openings in semiskilled positions at the Marshall Space Flight Center. Their children could attend upgraded public schools and brand new colleges to become the scientists and engineers of tomorrow.

The great project that some analysts have compared to the economic impact of the space program was the Tennessee Valley Authority. Established in the throes of the Depression, the TVA transformed a seven-state region where people had standards of living comparable to Third World nations. The introduction of electricity, health care, libraries, transportation infrastructure, and large-scale dam-building projects brought this part of the rural south into the 20th century. The roots of poverty were eradicated by providing the infrastructure that enabled the transformation of a region into an engine of economic growth. Lyndon Johnson himself had been a great proponent of rural electrification as a young politician in Texas.

By the mid-1960s, as the Vietnam War consumed more and more of the federal budget and squeezed out the funding for post-Apollo programs in NASA, cutbacks in manpower in the space agency began, and the opportunities for minority applications in the space agency disappeared. Increasingly, the best "job opportunity" the federal government could offer young, unemployed black men in the ghettos was in an army that would send them off to Vietnam.

It has been said that a major failing of the War on Poverty was that neither the President nor the Congress was willing to

put the money into it that eliminating poverty would have required. Funding averaged about $1.7 billion per year between 1965 and 1970, which was hardly significant in terms of the overall federal budget or the magnitude of the problem.

The more important and long-lasting reason for the failure of the effort and the disillusionment of the President was that a new breed of social planners and manipulators was taking the reins of economic and social policy. Readily available illicit drugs, mind-deadening rock music, the disillusionment spread by the Kennedy assassination and the War in Vietnam, and the realization that as the space program wound down the economy had no place for new scientists and engineers, created a dramatic shift in cultural values.

The War Against the President

The Office of Economic Opportunity and the poverty programs of the 1960s did more than simply divert attention and resources away from the only viable, high-technology solutions to the problem. They started a war against the traditional urban Democratic Party machines upon which people had depended for the delivery for social services for decades; they undermined the federal direction of economic programs; and they fed the urban riots that wrought havoc upon the stunning accomplishments of the civil rights movement.

This war was carried out from the top down by a group of postwar institutions directed by sociologists, economists, social planners, and academics whose goal was the manipulation of sections of society. One of the premier institutions that developed such social control policies was the Tavistock Institute for Human Relations in London. The British empire had a long history of subjugating nations, not primarily through the deployment of troops but through the manipulation of populations.

The basic idea was that societies were controllable by division into subgroups by income, race, profession, nationality, tribe, sex, religion, or age, each with separate "interests." Each group was concentrating on fighting the others for a limited or shrinking pie of economic resources, convinced that the key was to *control its turf*. The British, therefore, were able to ensure that there was no organized political resistance to their colonial rule.

The underlying philosophy of the sociologists of Tavistock and other social control institutions is that humanity is made up primarily of semihuman beings who cannot think but have to be cared for, like sheep or cows. For these New Age policy makers, "economic growth" is the extraction of the maximum amount of wealth in raw materials and using cheap labor for the benefit of the financial institutions and family interests that control world finance. It was against this degraded concept that the American Revolution was fought.

In the early 1960s, these social control theories were combined with the resurrection of the Malthusian perspective that mankind had reached its "limits to growth," and that next on the agenda was the "postindustrial society." Since the historical existence of the United States had discredited the Malthusian doomsday prediction that population growth would cause the extinction of the human race, selling the "limits to growth" idea to the American public, especially at a time when the burgeoning space program was resulting in unbridled optimism, required that this quackery somehow be made to appear "scientific."

The widespread availability of the computer and computational methods—developed largely through the space program for the analysis of huge amounts of data—was now applied not to rocket engines and lunar trajectory calculations but to human beings. Complicated and scientific-looking computer printouts would *prove* to a skeptical American public—these social control institutions hoped—that humanity was in danger of running out of resources, polluting itself to death, destroying its limited agricultural land, and of packing itself in like sardines.

To ensure that this social control program would succeed in destroying the optimism and the raised expectations that had come to all Americans—and especially minorities—through the space program and civil rights movement, President Johnson's War on Poverty was turned into a war of each against all.

The Community Action Program under the Office of Economic Opportunity in the Johnson administration was an effort to supposedly "empower" poor people. This "maximum feasible participation" of the poor would be established through community control. Such social experiments in mobilizing the poor were started in the 1950s under the auspices of the Ford Foundation.

The idea of using community control to more effectively manage subjugated populations had already been successfully applied in the Warsaw Ghetto into which the Nazis forced 400,000 Polish Jews during World War II. The Nazis put Jewish leaders in charge of keeping order, preventing organized opposition, and making decisions about which Jews would be put on the trains to the concentration camps. In the U.S. ghettos of the 1960s, local community action boards were organized around the idea that the most important goal was the control of the community, not how they would eradicate poverty. The fight for the needed investment in urban infrastructure and housing, and in the industries that would provide the jobs of the future, was subverted.

Local control pitted black communities in New York City against the primarily white teachers union, where the issue was *not* how to improve the quality of the children's education, but who would exercise political control. The fights were over who would chose the teachers, not whether or not they were qualified; who would pick the textbooks, not what the content should be; and so on. The issue of quality education was not even in the picture.

Community control diverted momentum from the 1950s civil rights movement, substituting for integration of minorities into the mainstream of American economic life, a black nationalist ideology based on "empowering" black people to control their own poverty. And it waged a war against the Democratic President and the urban political machines that represented minorities and the poor in government.

Less than a year after the Office of Economic Opportunity was established, according to historian Mark Gelfand, "a former Roosevelt aide and Johnson friend was warning the President that the local community action agency was staging protests against Democratic leaders in the District of Columbia." Budget Director Schultz warned that the dictum of "maximum feasible participation" was receiving "the wrong kind of emphasis. Instead of giving the poor jobs, getting them to volunteer, and keeping them informed about the progress of pro-

grams, CAP [the Community Action Program] was focusing on putting the poor onto local poverty boards, holding elections, and organizing the poor." Johnson decided OEO should get the Community Action Program out of the business of setting up "competing political groups."

With the outbreak of the riots in U.S. ghettos, Johnson was distraught. Hadn't he tried to improve the conditions of black citizens through his civil rights legislation, education programs, and War on Poverty? His 1965 Voting Rights Act was landmark legislation to bring black people into the political deliberations of the nation. Why would people turn to violence, which could only defeat the gains they had made? Aside from the paid provocateurs who most likely had the guns and started the riots, the distortion of the War on Poverty into a war on society fueled the propaganda that would politically kill the promise of Apollo.

The Fight for the Human Mind

"Massive spending on space and armaments may be sending modern civilization down the road taken by imperial Rome and ancient Egypt. This has now become a massive, involuted excrescence on society that is consuming an enormous part of our wealth and energy," opined University of Pennsylvania anthropologist Loren Eisley in the *Washington Star* on Dec. 30, 1962. The same month, environmentalist Barry Commoner wrote in *The Nation:*

> At this moment, in some other city, a group may be meeting to consider how to provide air for the first human inhabitant of the Moon. Yet we are meeting here because we have not yet learned how to manage our lives without fouling the air man must continue to breathe on Mother Earth. . . .

In an interview with *U.S. News and World Report* on August 20, 1962, Senator William Proxmire worried that one particular area of "waste" in the expanding space program was the

> allocation of a very scarce and enormously valuable resource we have—scientific manpower. NASA last year took over 2,000 scientists and engineers. Estimates are that, in the next three or four years, they'll take something like 13,000. . . .

And in October 1962, writing in *Business Tides,* commentator Henry Hazlitt proposed that there were more "useful and urgent projects than the Moon landing" such as to increase food production, develop new and cheaper sources of power, cure human disease, prolong human life, decontaminate the air, desalinate water, and control the weather.

Where did these attacks on the infant space program come from? In early 1961, before President Kennedy had even announced the acceleration of the space program to achieve the lunar landing, social planners at Washington's Brookings Institution proposed that the space agency focus attention on the "implications of peaceful space activities for human affairs."

The promulgator of this report to NASA was sociologist Donald Michael, whose ideas on the subject made him a natural for membership in the Malthusian Club of Rome, which he joined later in the decade. Michael states that NASA should have a "social sciences research capability" and proposes specific areas of research for NASA on the "consequences of its own activities." NASA should study "specific publics," he said, such as scientists, the general public, farmers in developing countries, astronauts, and so on, since it is obvious that space activity will not affect all of society equally. Studies should examine, for example, the "disillusionment and cynicism" of the scientists and engineers in the programs, who feel that they are being "used by politicians." Students should be warned about these problems that scientists in the space program have before they choose a career, Michael warns. Finally, he says, studies should fill the "pressing need" to discover and assess "the reasons for the expressed indifference and hostility" to the program (!) in the non-space community, he states. "Public optimism is assumed to be desirable in that it should generate support for the space program in general. However, should promotion efforts lead to *overoptimism,* support activities might easily not be lasting . . . [emphasis added]."

Never mind the overwhelming excitement of the nation, its children, businessmen, and engineers; the sociological view, as expressed by Michael, emphasized that

> acceptance or rejection of technological innovation by a society is seldom exclusively a matter of rational assessment. A mélange of personal and culturally defined values . . . plays a large and often dominating role in generating the attitudes that in part determine innovation's fate. . . .

As an example of how space activities could change institutional and social structure, Michael considers energy:

> The development of a compact thermonuclear fusion power source for spacecraft would undoubtedly open up space for many kinds of large-scale activities—but it would very likely also change the political, social, and economical features of the Earth radically, since unlimited power for all uses would soon be available.

It is apparent that societies had been able to make advances in the past because there were *not* sociologists around to "assess" the cultural value of technological change.

Under pressure, NASA provided grants for studies on the impact of space on society. One such grant, made in 1962 and managed through the American Academy of Arts and Sciences, resulted in a series of two books and accompanying reports involving researchers affiliated with the London Tavistock Institute. *Social Indicators* was published in 1966. The author, Bertram Gross, was then associated with Lyndon Johnson's Council of Economic Advisers and a promoter of the Great Society. He later went on to edit Tavistock's journal, *Human Relations.*

In the foreword to *Social Indicators,* Earl Stevenson of the Academy states:

> Such measures of social performance are all the more important in a "postindustrial" society, one in which the satisfaction of human interests and values has at least as high a priority as the pursuit of economic goals. The development of a system of social indicators and accounting is a

subject of real interest to the Johnson administration. . . .

To *some* in the Johnson administration, he should have said.

In the preface, Gross writes that the book is a

> symptom of a widespread rebellion against what has been called the "economic philistinism" of the U.S. government's present statistical establishment. . . . It may be regarded as a humanist effort to develop more open spaces (not merely on the Moon or beyond) in the minds of people on this planet.

Referencing his view of the Johnson initiatives, Gross cites one statement of purpose:

> The Great Society looks beyond the prospects of abundance to the problems of abundance . . . where is the place for man? . . . The Great Society is concerned not with how much, but how good—not with the quantity of our goods but the quality of our lives.

Gross complains that Johnson and his administration are still relying on "concepts and data that have decreasing relevance to the new national goals," still basing what they do on cost-benefit analysis, and not on human values.

The editor of *Social Indicators,* Raymond Bauer, writes that in the conduct of human affairs, "our actions inevitably have second-order consequences. These consequences are, in many instances, more important than our original action." He uses as examples the supposed second-order effect of pesticides killing birds, detergents clogging plumbing, and automation causing unemployment. Of the great ideas that have shaped the progress of human society since the Renaissance, Gross writes: "For centuries the 'grand abstractions' have been the ideas that stirred men's souls." But they have either become "empty shells, devoid of meaning and content," or a "shoddy facade to disguise tyranny, slavery, prejudice, exploitation, stagnation, or intellectual and moral bankruptcy."

In the early phase of the space program the fear was expressed that NASA would swallow up the nation's limited supply of scientists and engineers. When NASA started programs in 1962 to help educate and train the next generation of natural scientists and engineers, researchers at the Tavistock Institute warned that the space program was producing "redundant" and "supernumerary" scientists and engineers! "There would soon be two scientists for every man, woman, and dog in the society," one report complained.

To the average American, to the Johnson administration, and even to many intellectuals, all of this "social theory" and search for the "inner self" in the postindustrial society was touchy-feely New Age nihilist hogwash. Most people were more interested in taking part in the adventure of the nation in getting to the Moon, in the upward mobility and economic opportunity the new aerospace and related industries made possible, and in preparing their children for a future in which it would be commonplace to explore space. For Tavistock to convince the skeptical majority it would be necessary to put the aura of "scientific authority" behind the zero-growth, man-is-a-beast ideology that in reality had been discredited time and again through each period of advance of human society.

Malthus Revisited

The Club of Rome, established at a meeting of 30 individuals from 10 countries in April 1968, was the vehicle through which the depraved economic and social theories lobbed against the space program and all technological advance would be made "popular."

In 1972, a report for the Club of Rome's project on the Predicament of Mankind was published under the title *The Limits to Growth.* Crammed with charts, graphs, and hard-to-understand graphics, the point of this book was to convince the uninitiated that the use of *computers* to project the fate of mankind made "scientific" the otherwise intuitively discordant idea of limits to growth. The Club of Rome "researchers" reached the conclusion that was determined from their premise that there are "five basic factors that determine, and therefore, ultimately limit, growth on this planet—population, agricultural production, natural resources, industrial production, and pollution."

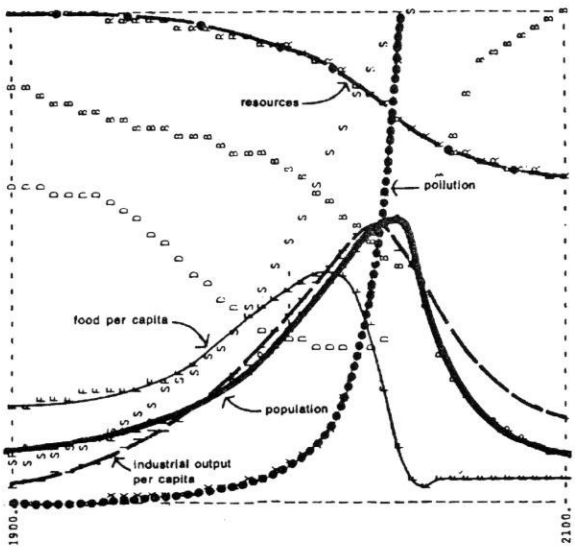
To try to scare the living daylights out of the average citizen, the report projects the exponential growth of population by comparing the reproduction of humankind to the growth of a colony of yeast cells or the growth of water lilies that quickly fill up their pond. The rest of the book argues for drastic population control measures by trying to explain why it will be impossible to provide a decent standard of living for these teeming masses (especially in the Third World).

The ability of the world to feed itself will reach its limit quickly, according to *Limits to Growth,* because "opening more land to cultivation is not economically feasible," requiring too many capital inputs from industry. Even if industry could keep up with the demand, the pollution produced from this increased production would choke mankind's ability to breathe, drink water, and so on, say these prophets of doom. (It is interesting to note that recently the German association of agrochemical companies estimated that world agriculture could feed 50 billion people, by opening 45 percent of the currently unused arable land to high-technology cultivation.)

Limits to Growth asserts that there is a diminishing supply of nonrenewable resources, such as raw materials. Never mind that the history of the human race has been to supersede the inevitable exhaustion of raw material using the tools of scientific inquiry and technological applications. One can imagine the Club of Rome's warnings in the 17th century about the pending shortage of trees, the limits to the use of coal in the 18th century, or the limited stocks of petroleum in the first half of this century. The *Limits to Growth* authors dismiss advanced technology out of hand.

What about nuclear energy to extend the base of natural resources? "The technology of controlled nuclear fission," the report admits, "has already lifted the impending limit of fossil fuel resources. It is even possible that the advent of fast breeder reactors and perhaps even fusion nuclear reactors will considerably extend the lifetime of fissionable fuels, such as uranium." But, be warned, say the *Limits to Growth* authors, that this availability of energy will serve only to fuel industrial expansion and population growth, which in turn, will bury the world in pollution. For these Malthusians, cheaper energy would delay, but not avoid, the "natural" population control that would come with mass starvation and economic collapse.

Figure 37 WORLD MODEL WITH "UNLIMITED" RESOURCES



The problem of resource depletion in the world model system is eliminated by two assumptions: first, that "unlimited" nuclear power will double the resource reserves that can be exploited and, second, that nuclear energy will make extensive programs of recycling and substitution possible. If these changes are the only ones introduced in the system, growth is stopped by rising pollution, as it was in figure 36.

Figure 2
THE 'LIMITS TO GROWTH' COMPUTER SCAM

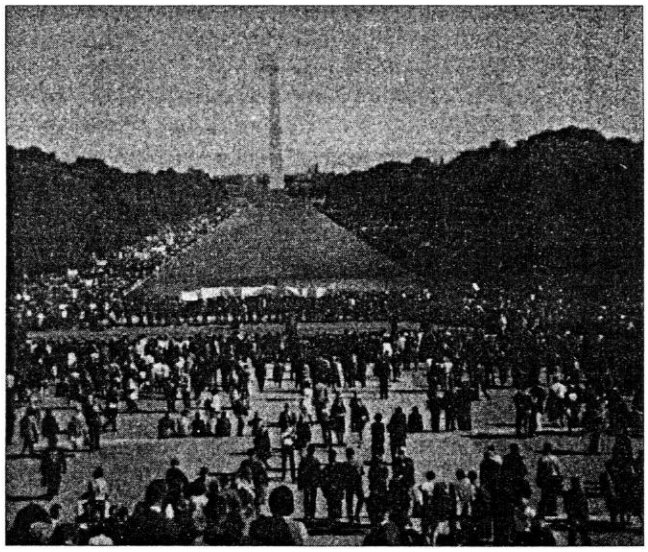
This is one of dozens of graphs in the Club of Rome's book Limits to Growth *designed to convince the reader that no matter how one manipulates resources, agricultural production, and industrial output, everything inevitably moves toward zero at some point in the future. The* Limits to Growth *researchers did not include scientific breakthroughs and revolutions in technology in their computer program.*

Source: *The Limits to Growth*, p. 132

What about controlling pollution? "Strict pollution control does not necessarily mean *total* pollution control. It is impossible to eliminate all pollution because of both technological and economic constraints," they write. Again, these controls would delay but not circumvent the eventual apocalypse.

The Club of Rome report concludes:

> Applying technology to the natural pressures that the environment exerts against any growth process has been so successful in the past that a whole culture has evolved around the principle of fighting against the limits rather than learning to live with them. . . . We have found that technological optimism is the common and the most dangerous reaction to our findings from the world model.
>
> Technology can relieve the symptoms of a problem without affecting the underlying causes. Faith in technology as the ultimate solution to all problems can thus divert our attention from the most fundamental problem—the problem of growth in a finite system—and prevent us from taking effective action to solve it.



Marsha Freeman

The protests against the War in Vietnam, like the riots in the ghettos, were a phenomenon Lyndon Johnson did not understand. The demoralization of young people over the war against the population in Southeast Asia fed the antisocial, antiscience cultural shift under way. Here, a 1968 antiwar march on Washington.

But is the system "finite"? What is "the system?" The Space Age demonstrated that the dramatic increase in the global potential population density from the Renaissance to Sputnik was based on successive revolutions in scientific discovery and technological applications in the economy, which, in turn, were based on the truth that the mind is not finite. The actual physical realm of man and his access to new resources are only as finite as the reach of the spaceships that would carry him throughout the Solar System.

There Are No Limits to Growth!

Early in the Space Age, the most thoughtful participants in this new age of man realized that the attacks on space exploration represented a diametrically opposing philosophical view, not simply a criticism of particular programs. Two such participants—Wernher von Braun and Krafft A. Ehricke—took on the New Age opponents on their own terms.

First, both visionaries explained, the space program itself would make possible the solution to many of the economic and social ills in society that social planners were so concerned would be sacrificed by spending on space exploration. The use of remote sensing satellites would provide a scientific evaluation of, and increase in, world agricultural productivity, by the early identification of disease, the quantification of water resources, and data on the optimal timing of planting and harvesting. Such satellite systems could locate new reserves of raw materials and inventory the natural resources of the planet. Worldwide communication systems, enabled by the deployment of Earth-orbiting satellites, made it possible to place a "teacher in the sky" for the population of India, where each town and village could be integrated into the economic and cultural life of the country through televised classes.

The techniques developed to explore space, such as new

energy sources, medical technology, materials, and industrial processes had the potential to revolutionize world standards of living, they explained. There was no money from the federal budget being "spent in space." It was all spent right here on Earth.

Von Braun and Ehricke realized that the constant drumbeat against progress in general, and the space program in particular, was intersecting the growing disillusionment of young people with the population war in Vietnam, providing fertile ground for the irrational "back-to-nature" ecology movement. Here there was no concern for *solving* any of the problems of the environment but only a withdrawal from reality.

Von Braun opened a speech before the Aviation and Space Writers Association on May 27, 1971, by discussing

> a problem that disturbs me. . . . I speak of the climate of irrational hostility that seems to be growing in this country—especially among our college and university students—regarding science and technology. . . . But it isn't the young people, the students, who are really to blame for this attitude of hostility to science and technology. . . . They are simply misguided by certain social philosophers, cultural historians, and the like, whose teachings and published works provide only a very lopsided view of science and technology pictured as causing the downfall of man.

Von Braun named "historian and philosopher" Lewis Mumford who, he reports,

> inveighs angrily and brilliantly against the "megamachine" of science and technology. . . . When Arnold Toynbee, equally famous as historian and philosopher, asks whether "spacemanship folly" isn't also a crime because it wastes that "slender surplus product that man has succeeded in wringing out of nature within the past 5,000 years," he adds a moralistic fervor to the revolutionary spirit of the young. . . . The point Toynbee wants to make is that spacemanship not only is a folly, it is also a crime against mankind.

Struggling against the rising tide of cultural pessimism and the destruction of the magnificent space capabilities he had helped to create over the course of 40 years, von Braun in 1969 presented a 20-year plan for the post-Apollo period for NASA. As the goal for the decades after Apollo, he proposed a manned mission to Mars, a plan he first penned in 1948.

Krafft Ehricke had a similarly optimistic view. In 1957, anticipating the challenge to mankind's concept of his material and spiritual existence, Ehricke laid out his three laws of astronautics, as follows:

> Nobody and nothing under the natural laws of this universe impose any limitations on man except man himself. Second law. Not only the Earth, but the entire Solar System, and as much of the universe as he can reach under the laws of nature, are man's rightful field of activity. Third law. By expanding through the universe, man fulfills his destiny as an element of life, endowed with the power of reason and the wisdom of the moral law within himself.

In a December 1982 article in *Fusion* magazine, Ehricke wrote:

> Meadows and Forrester . . . in their book *Limits to Growth,* compare the growth of mankind to the mindless and senseless multiplication of lilies in a pond. I never considered mankind a lily in a pond, senseless and mindless. . . . The *Global 2000 Report,* a warmed-over version of the original limits to growth nonsense, contains outright

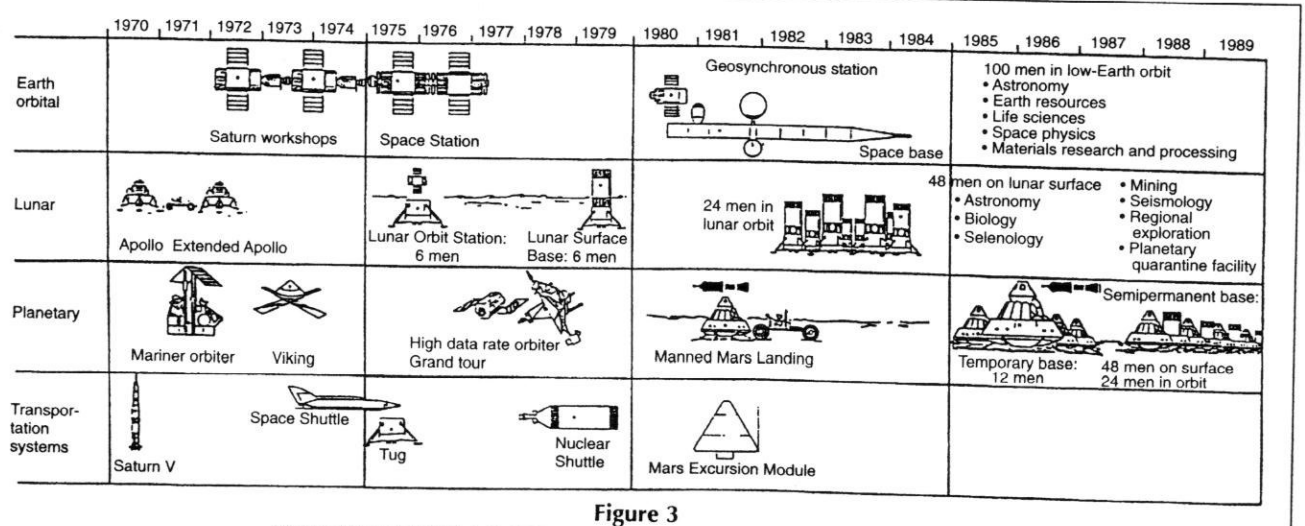


Figure 3
VON BRAUN'S PLAN FOR A POST-APOLLO PROGRAM, 1970-1990

Wernher von Braun and many in the space program with vision put forward plans for the post-Apollo period starting in the early 1960s. This integrated space program, which included Earth-orbital, lunar, and Mars missions, was presented by von Braun on behalf of NASA after the first manned landing on the Moon. To date only the Space Shuttle has been built.

misinformation and, like its infamous predecessor, totally ignores the human capacity for limitless growth. Growth, in contrast to multiplication, is the increase in knowledge, in wisdom, in the capacity to grow in new ways.

Ehricke spent the last decade of his life preparing an extremely detailed blueprint for the industrial development of the Moon—his "post-Apollo" program. Human civilization would move into the Solar System, building cities with tens of thousands of people who would be driven by the "extraterrestrial imperative" to create new worlds. They would develop new resources and technologies. The Earth would never again be a "closed system."

What kind of cultural outlook is required for the exploration and development of space? To what do we have to return? Writing in 1971, Ehricke found its roots in the European Renaissance:

NASA

A fitting end to Lyndon Johnson's presidential career was the December 1968 flight of the Apollo 8 mission that circled the Moon. Here, the President presents Lunar Module Pilot William Anders with the NASA Distinguished Service Medal.

> For me the development of the idea of space travel was always the most logical and most noble consequence of the Renaissance ideal, which again placed man in an organic and active relationship with his surrounding universe and which perceived in the synthesis of knowledge and capabilities its highest ideas. . . . The concepts of "limit" and "impossibility" were each relegated to two clearly distinct regions, namely the "limit" of our present state of knowledge and the "impossibility" of a process running counter to the well-understood laws of nature.

For Ehricke, constantly stretching the limits is the purpose of mankind.

The inability of the Johnson administration to plan for the decades after Apollo and the refusal of the succeeding Nixon administration to put America on the pathway outlined by visionaries like Ehricke and von Braun, created the situation we have today.

The fight continues. In September the United Nations will sponsor a global population conference in Cairo, to try to enforce on the world community policies that attempt to reduce the world's population to a level acceptable to the New Age Malthusians. Since the rate of population growth in nearly all industrial nations is now either zero or negative because of the rate of real economic collapse, the main target of the population planners is the Third World.

Is it too late to reverse this 25-year-long descent into pessimism and moral depravity? One hopeful sign is that the American people have never really lost interest in the space program. Every year about 10 million people, mostly Americans, visit the National Air and Space Museum in Washington, D.C. When asked why they visit that particular museum, the most frequent answer is, "Because it makes me proud."

The promise of Apollo, after a hiatus of many years, still awaits realization.

Marsha Freeman is an associate editor of 21st Century *and author of* How We Got to the Moon: The Story of the German Space Pioneers.

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