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## Mankind's Next 50 Years Of Space Exploration

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*It is a Renaissance view of man that is required to build the "cathedrals" of the second half-century of the space age. Marsha Freeman reports.*

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The Soviet Union opened the age of space exploration 50 years ago, on Oct. 4, 1957, by successfully launching the world's first Earth-orbiting satellite, Sputnik. This half-century anniversary, being celebrated around the world, provides an opportunity, and an obligation, to review not only the accomplishments of the first 50 years of the Space Age, but the philosophical fight that had to be waged to bring it to fruition. It is a fight that started centuries ago, and continues to this day, over man's role in the universe.

The "space race" between the United States and the Soviet Union, which began with Sputnik, and culminated in the July 20, 1969 landing of the first astronauts on the Moon, saw the greatest peacetime mobilization of scientific and technological resources in world history. That mobilization was the science driver for technology-based economic growth in the United States, for two decades.

It allowed mankind, for the first time, to explore the Earth with an array of new tools, and from a "Solarian" perspective. It opened exploration of Earth's neighbors in the Solar System to *in situ* examination, by the scientific instruments sent there, as extensions of man's Earth-bound senses. The resulting data allowed scientists to carry out the critical experiments, against which to test their theoretical knowledge and hypotheses.

The Apollo lunar landings, for the first time, brought man face-to-face with the magnificent continuing creation of his universe.

While today, when American Space Shuttles and Russian Soyuz spacecraft routinely take people into space, and unmanned craft are either at, or on their way to, more than half the planets in the Solar System, it may seem "natural" that mankind is exploring space. But nothing that has been accomplished over these past 50 years, has come about without an intense fight.

What is available today in space technology, is just a faint

reflection of what had been planned for this second half-century of the Space Age, when it began. Today, we are still in the midst of the political and philosophical fight that was waged to create the advancements of the first five decades of the Space Age.

### 'The Power of Reason'

The Second World War saw the development of two breakthroughs in science and technology that would reshape the post-war world: rockets and nuclear fission. Married, they presented a formidable new weapon, that could threaten entire nations, as far as half-way around the globe. Put to use for the benefit of all mankind, they could open a new age of prosperity, for all of the people on the Earth.

In October 1946, the RAND Corporation, think tank of the Army Air Force, and representing the crazed utopian faction in the military, proposed that "air power" and psychological warfare be the post-war tools of military policy. RAND put forward a program to use the coming technology of rockets as a way to project the "aura of power," against the Soviet Union. "The psychological effect of a satellite will in less dramatic fashion parallel that of the atomic bomb," RAND's analysts wrote, in "Time Factor in the Satellite Program." While Bertrand Russell and his co-thinkers were proposing preemptive nuclear bombing of the Soviet Union, RAND proposed that, "combined with our present monopoly of the A-bomb, such a [satellite] threat . . . will give pause to any nation which contemplates aggressive war against the U.S. . . . [I]t would be well to give the world *the impression* of an ever-widening gap between our technology and any other possible rivals" (emphasis added).

While the role of this new technology of rockets was being debated in policy-making circles in Washington, scientists were planning an International Geophysical Year (IGY), dur-



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*“Thank you, Sputnik!” reads the banner, in English and Russian, hung from a Saturn V rocket, in this photograph taken on Oct. 4, 2007, at the U.S. Space and Rocket Center, in Huntsville, Ala. Standing behind the replica of Sputnik are, left to right, Konrad Dannenberg, Homer Hickam, Dr. William Lucas, Dr. Ernst Stuhlinger, and Dr. Julian Davidson. Dannenberg and Stuhlinger were instrumental in launching the world’s first rocket to reach space, in October 1942, at Peenemünde, Germany. At the Marshall Space Flight Center in Huntsville, they worked on the Saturn V rocket that took American astronauts to the Moon.*

ing 1957-58, as a follow-on to the two highly successful international Polar Years, which had taken place in 1882 and 1932. Scientist Lloyd Berkner, who had accompanied Admiral Byrd on his Antarctic expedition in 1928, and was a key organizer of the IGY, stated his motivation for the global initiative: “Science is creative beauty in the highest sense. It provides a systematic and reliable criterion of universal applicability in Plato’s search for the ‘harmonious, the beautiful, and the desirable. . . .’ Truly, the characteristic of civilized man that distinguishes him from all other creatures is his learning, the ability to utilize knowledge to free himself from the vicissitudes of his environment.”

Berkner also anticipated the argument that would be made later, regarding the “cost-benefit” of space exploration: “Each new technology derived from science has a permanence that continues to benefit society indefinitely in the future. Thus capital represented by discovery outlives all other forms. Consequently, the investment in basic research should be written off over an indefinitely long time against the permanent gains acquired by society.”

At the start of the International Geophysical Year, both the U.S. and Soviet Union announced they would attempt to launch an Earth-orbiting satellite. With the success of Sputnik, the question of what the guiding principles would be for this new arena of man’s activity was squarely on the table.

One month after Sputnik’s Oct. 4, 1957 launch, space visionary Krafft Ehrlicke published an article in *Astronautics* magazine, titled, “The Anthropology of Astronautics,” in which he formulated those guiding principles:

**First Law:** 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.

This optimism, and a grounding in the most profound philosophical concepts that Western civilization has developed since Plato, defined the terms of the fight that was to come. This defining of man as an active instrument of creation in the universe, was not to go unchallenged.

### Inner Versus Outer Space

The gauntlet was thrown down when President Dwight Eisenhower signed the law, on Oct. 1, 1958 creating the National Aeronautics and Space Administration (NASA), a civilian agency, to carry out the nation’s space efforts. The fear on the part of the British oligarchy and others, that Sputnik, the space race, and this new space agency would unleash optimism about the future, was well founded.

A 1959 study by the social-control Institute for Social Research found that four out of five people said the world is better off because of science. Most disturbing to these sociologists was the observation that “the long range possibilities of the space age apparently have much more meaning for those people who are most likely to live to see them,” that is, the

youth. Worse still, after Sputnik, the nation was rallied to substantially improve science and math education for these young people, to meet the challenges ahead.

In 1958, Donald Michael, who, a few years later, would become a member of the U.S. committee of the neo-Malthusian Club of Rome, co-authored a study, titled, "Man in Space: A Tool and Program for the Study of Social Change," with anthropologist, and "cultural relativist," Margaret Mead.

In March 1961, two months before the Apollo program was announced, the "liberal" Brookings Institution, concerned with the "sociological" profiling of society, released a report on "Proposed Studies of the Implications of Peaceful Space Activities for Human Affairs." The principal author was Donald Michael.

The Brookings proposal was that NASA establish a "social sciences research capability," to be "concerned with the consequences of its own activities." This was not a proposal to study how to create the needed scientists and engineers, or how to better educate the population about science, or how to transfer NASA-developed technology to the economy. Initiating the 1960s counter-culture shift to zero growth, and the importance of "inner feelings," as juxtaposed to "outer space," Brookings insisted that NASA study the adverse social impact on society of the space program!

Brookings proposed that NASA study how it would have to compete with other scientific endeavors for "limited resources." Michael proposed that an area of study be "the disillusionment and cynicism" among NASA scientists, who feel they are being used by politicians. Cultural values might change, Michaels foretells, leading society to a "rejection of technological innovation" that NASA would bring about. In the footsteps of H.G. Wells, a cultural paradigm shift was being created as the battering ram against the greatest American achievement since the victory over fascism in World War II.

President John F. Kennedy's announcement, on May 25, 1961, that the United States would, by the end of the decade, "land a man on the Moon and return him safely to the Earth," quickened the pace of the organizing against space exploration.

Leading environmentalist Barry Commoner wrote in *The Nation* on Dec. 16, 1962: "At this moment, in some other city, a group may be meeting to consider how to provide air for the first human inhabitant on 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."

Dr. Philip Abelson, member of the American Association of the Club of Rome, the CFR, and editor of *Science* magazine, opined on April 19, 1963: "NASA has sought examples of technology fallout in its program. To date, those cited have not been impressive. The problems of space are different from the earthly tax-paying economy."

The mother of all social profiling and psychological

warfare shops, the London Tavistock Institute, led the charge against uncontrolled optimism, as Americans, and people all over the world, watched in awe, as man conquered space. In the mid-1960s, the Tavistock Institute's magazine, *Human Relations* reported, with alarm, that the space program was producing an extraordinary number of "redundant" and "supernumerary" scientists and engineers. "There would soon be two scientists for every man, woman, and dog in the society," they warned. The expanding pool of these scientists and engineers would have a profound impact on the values of American society, from skilled workers to office clerks, Tavistock reported, down to grammar school children.

In 1966, a book titled *Social Indicators* was published, written by Bertram Gross. As a member of the President's Council of Economic Advisors, Gross was a leading promoter of the shift to the "post-industrial" society. The aim was to convince then-President Lyndon Johnson that scientifically vectored developments in new technology were not the basis for the attainment of civil rights and economic advancement, but rather, the "Great Society" would ameliorate poverty through "social programs."

The purpose of the Great Society program, Gross wrote, is that it "looks beyond the prospects of abundance to the problems of abundance.... 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 later became editor of the Tavistock Institute's periodical *Human Relations*.

The space program, because of its very reach beyond any limits, was the target of a concerted campaign to replace scientific and industrial development with a "return to nature," environmental paranoia, disdain for science, and the 18th-Century British economic and social policy of "war of each against all."

## The Apollo Dead End?

One of the greatest myths perpetrated by space historians, has been that there was no visionary follow-on to Kennedy's Apollo program, because the lunar goal was a "dead end." In fact, in the view of the men who managed NASA, the scientists and engineers who carried out the Apollo program, and the American public, missions to the Moon were not the end of the space program; they were only the beginning.

Krafft Ehrlicke was well known for his adage: "It has been said, 'If God wanted man to fly, He would have given man wings.' Today we can say, 'If God wanted man to become a spacefaring species, He would have given man a moon.'" Since the time of the ancients, the brightest orb in the night sky was seen as the stepping-stone to the rest of the universe.

The idea that President Kennedy's Apollo program was a "dead end" stems from the proposition that it was only a geopolitical strategy to beat the Russians to the Moon, and once that goal were achieved, the space program floundered.





NASA

*The immediate reason for the counter-attack to President Kennedy's announcement that the United States would land a man on the Moon, was the optimism that would be generated from such an accomplishment. Here, Apollo 11 astronauts Neil Armstrong, Buzz Aldrin, and Mike Collins greet thousands of well-wishers in Mexico City in September 1969, during their post-Apollo 45-day international tour.*

ture to allow mankind to go anywhere.

President Kennedy's NASA Administrator, and Franklin Roosevelt-partisan, James Webb, made this explicit in his defense of NASA's budget for 1965: "The policy on which this budget is based is the mastery of space, and its utilization for the benefit of mankind. This mastery and the relation of our position to those of other nations, will not be determined by any single achievement. Superiority in the space environment will be won by that nation which first fashions into a usable system all of the scientific knowledge, all of the technology, all of the experience, all of the space launches and terminal facilities, and all of the aid to space navigation required for safe and regular operations.... We have avoided a narrow program, one limited, for example, to developing only the technology needed to reach the moon with state-of-the-art hardware. To do so, we might well find, some years hence, that we had won

But landing a man on the Moon was not the only program outlined in President Kennedy's "Special Message to the Congress on Urgent National Needs," on May 25, 1961, although it was certainly the most dramatic. The President also proposed 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."

Everyone knew that a nuclear rocket was not needed to go to the Moon. As the President 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."

President Kennedy saw the space program not only as the pathway to attain preeminence for the U.S. in science and technology, but as part of his domestic economic thrust, which included new programs in health care and education, and as a war-avoidance policy that provided an arena in which to develop positive relations with the Soviet leadership.

To the men who had been planning for the Space Age over decades, including those who were now entrusted with the task of its realization, Apollo would create the infrastruc-

ture to allow mankind to go anywhere. . . . We have avoided a narrow program, one limited, for example, to developing only the technology needed to reach the moon with state-of-the-art hardware. To do so, we might well find, some years hence, that we had won the battle and lost the war as far as ultimate and enduring superiority in space is concerned."

It was not only scientists and engineers, and children who, by the thousands joined rocket clubs, spending weekends launching amateur rockets, who were infected with the optimism of the Apollo program. In 1962, the editors of *Fortune* magazine, reflecting the view of American industry, published a book, *The Space Industry: America's Newest Giant*, which included a chapter titled, "Hitching the Economy to the Infinite."

"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. . . . Man has hitched his wagon to the infinite, and he is unlikely ever to unhitch it again. . . . The space venture, in short, is likely to be more durably stupendous than even its most passionate advocates think it will be." Overall, the authors state, "nothing is more fecund, industrially and socially, than large mobilizations of scientific knowledge and effort; and this is the greatest mobilization of them all." The dedication to the book reads: "To our grandchildren, who, no doubt, will think nothing at all of going to the Moon."

If there were such optimism created by the burgeoning space program, from every segment of society, why were there no bold goals, no cities on the Moon, no manned mis-



NASA

*One tragedy of Lyndon Johnson's Presidency is that the future of the space program, which he had been instrumental in creating, was destroyed on his watch, through the financial ruin of the Vietnam War, and the Great Society. Here, in September 1964, President Johnson listens to a briefing at Cape Canaveral on the Saturn rocket program.*

sions to Mars, following the completion of the Apollo program in 1972?

As the lunar programs were gearing up to meet his goal, President Kennedy was felled by an assassin's bullet.

## **The Wars Against the President**

When Lyndon Johnson assumed the Presidency, he was fully committed to completing the Apollo program his predecessor had begun. The plan for what would follow, however, became a trade-off with the escalation in Federal spending for the Vietnam War.

Assured by Defense Secretary Robert McNamara that the war would be over by June 30, 1967, Johnson approved sending the first U.S. combat troops to Vietnam in 1965. As the expenditures for the military action escalated, pressure mounted on the President to reduce NASA's budget. The peak spending year for the Apollo program was not after the lunar landing of Neil Armstrong and Buzz Aldrin in 1969, but 1965. Although Johnson would neither sacrifice, nor delay, the mar-

tyred President's Apollo goal, spending to prepare for post-Apollo programs was put on hold.

With most of the hardware for the lunar landing already in hand, and undergoing testing, Administrator Webb had no choice but to order the first round of layoffs in the space agency. While Marshall Space Flight Center head Wernher von Braun watched the first Saturn V rocket test in Florida, he learned that a reduction-in-force would eliminate 700 people from his workforce, which had designed the rockets to take men to the Moon.

The spending for the Vietnam War, which had caused a hemorrhaging of the Federal budget, into tens of billions of dollars of deficits, had all but eliminated the post-Apollo space program. And politically, the protests against the war led to Lyndon Johnson's 1968 decision not to run for reelection.

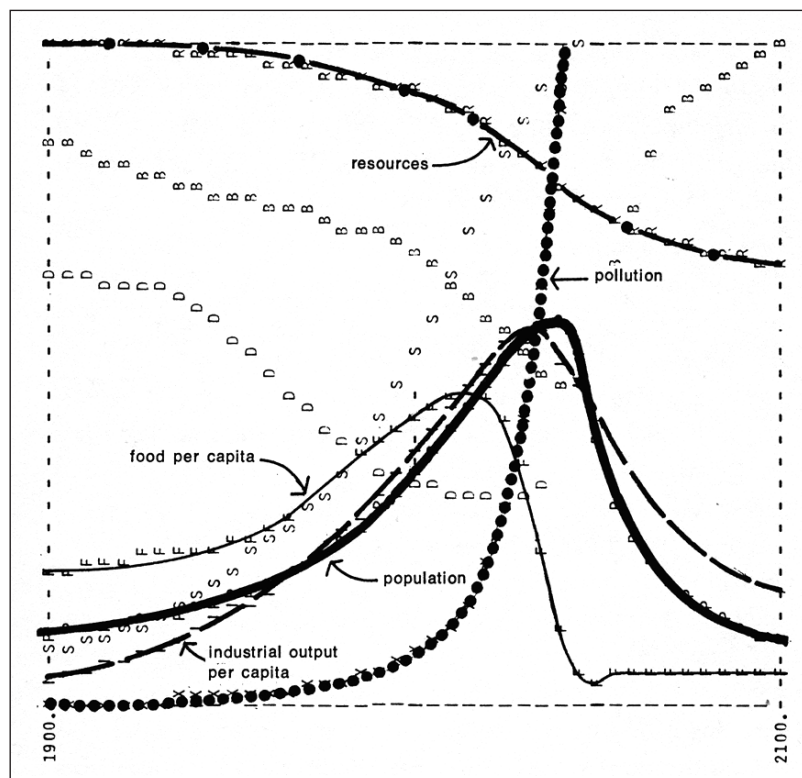
In order to rally traditionally "liberal" Roosevelt Democrats, to oppose the space program, when they would not be inclined to do so in order to finance the military, a second front in the war against the President was opened. Johnson saw his domestic programs as a continuation of Kennedy's unfinished agenda, including aid to education, Medicare health protection, civil rights legislation, and other Federal social programs that had been stalled in the Congress. In his State of the Union address in 1964, Johnson gave special attention to the War on Poverty, and the Great Society projects that would help win that war. But rather than the traditional Democratic approach, to provide job training, better education, and job opportunities through great infrastructure projects for those whom FDR had described as the "forgotten men," the new Office of Economic Opportunity promoted the idea of "income transfer," or handouts to the poor, managed primarily through the welfare and food stamp programs.

The reins of public social and economic policy were taken out of the hands of the traditional Democratic Party, and given to the sociologists. At last, Tavistock was to have its day. Through the promotion of "local control," one version of "power to the people," neighborhoods would fight each other for small pieces of the Federal anti-poverty funding pie. The flow of Federal dollars fed corruption, and pitted especially minority communities against the traditional Democratic Party machines, upon which people had depended for decades.

Through the profiling of populations by race, gender, nationality, religion, age, or any other "special interest," policies promoting each group's interest against the others, developed by Tavistock and kindred organizations, tore apart the social fabric of the United States. President Johnson looked on in demoralized disbelief, as the programs he hoped would lift the poor into the mainstream of economic life choked in the flames of the urban riots, that were wreaking havoc on the stunning accomplishments of the Civil Rights movement.

For many youth, the 1960s became the decade of illicit drugs, mind-deadening rock music, demoralization, and drop-

FIGURE 1  
All Models Lead to 'Zero Growth'



Universe Books, 1972

The Club of Rome's book *The Limits to Growth*, used incomprehensible graphs such as this one, to try to make a "scientific" argument that there is no alternative to limits on economic and population growth, as a salvo in the fight against the limitless potential of space exploration.

ping out. Others joined the "post-industrial society," becoming not scientists, engineers, farmers, or skilled workers, but sociologists, lawyers, and today, perhaps, hedge fund managers. What helped feed the hopelessness of the 68ers were the two Kennedy assassinations, and that of Dr. Martin Luther King. Then, added to this, was the proposition that there was no future, because mankind had reached its "limits to growth."

### There Are No Limits to Growth

In the 1960s, the historical existence of the United States itself had long discredited the Malthusian doomsday prediction that population growth would cause the extinction of the human race. Waves of technological advancement had created the highest standard of living, for the largest percentage of the population, of any nation in the world. Therefore, selling the idea of such "limits to growth," would have to acquire some kind of "scientific" veneer, to convince an otherwise skeptical electorate. Computers to the rescue!

The Club of Rome, established at a meeting of 30 individuals from ten countries, in April 1968, took on the task. In 1972, a report for the Club's Project on the Predicament of Mankind was published under the title, *The Limits to Growth*. The researchers concluded 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." In order to make this argument "scientific," graphs such as the one shown here were concocted (Figure 1). The end point is the collapse of the world economy, even with their version of "unlimited" resources, which includes no breakthrough in science, or development of revolutionary new technologies.

Donella and Dennis Meadows, et al., argued for drastic population control measures, needed to curb the growth of the teeming masses, particularly in the Third World. The world will reach a limit in its ability to feed itself, they asserted, 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 would choke mankind's ability to breathe, access potable water, etc. Diminishing supplies of non-renewable resources, such as raw materials, set another limit, and nuclear power is bad because, they asserted, while renewable through breeder reactors, it will only fuel industrial expansion and population growth!

This warmed-over Malthusian hocus pocus, was not an easy sell to an American public that had defeated fascism in the Second World War, and which had seen planes conquer the air, and now, rockets opening up space. This problem was well recognized by the Club of Rome. Optimism itself was enemy number one. "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 most dangerous reaction to our findings from the world model. . . . Technology can relieve the symptoms . . . without affecting the underlying cause . . . [which is] the problem of growth in a finite system." But if there were any one thing that was not finite, it was space exploration.

Visionaries of the space age counterattacked, recognizing that this attempted brainwashing of the population by the zero-growth ideologues posed an existential threat, not only to the space program, but to the future of this nation.



In a December 1982 article in *Fusion* magazine, Krafft Ehricke wrote that the authors of *The 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...”

Ehricke, who had joined Helga Zepp-LaRouche as a member of the Schiller Institute, counterposed to this depravity, the cultural outlook that had created all of the great ages of mankind: “For me the development of the idea of space travel was always the most logical and most noble consequence of the Renaissance idea, 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 ideals.... 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.”

To Ehricke, space exploration was not a line-item in the Federal budget, but the transformation of the Earth from a closed to an open system, where mankind’s creativity allows no limits.

By the late 1960s, however, the fight had been virtually lost. NASA would carry out the exploration of the Moon through seven Apollo missions, but the final three would be cancelled. The detailed plans, to build cities on the Moon, and embark on the first manned mission to Mars by 1980, would not be realized.

But that should not imply that the Apollo program had no

lasting legacy. The space program of the 1960s inspired two generations of scientists and engineers, who chose their careers motivated by the optimism and excitement of participating in this new ocean of space. These scientists and engineers went on to create not only the Space Age, but the myriad of new technologies in agriculture, energy, medicine, communications, and industry which now provide the tools to start to build up an underdeveloped world.

Every year, millions of Americans visit the National Air & Space Museum in Washington. When asked why they come there, they reply that it is because these accomplishments “make them feel proud.” It is not the case that Americans “lost interest” in the space program after Apollo; there was just not the cultural optimism, the commitment of resources, or the leadership on the highest level, to keep it going.

What is required to ensure that the second half-century of the Space Age pushes forward on the frontiers, is a return to first principles.

### The Real Reasons for Space Exploration

In describing his plans for the creation of a city on the Moon, where mankind would take up the task of moving human civilization into the cosmos, Krafft Ehricke stated: “Like the giant cathedrals of the Middle Ages, Selenopolis will be the work of many generations.” In a speech in Texas, on Jan. 19, 2007, NASA Administrator Mike Griffin expressed a similar view, in his explanation of the “Acceptable” versus the “Real” reasons for space exploration.

Griffin began by saying that he is “convinced that if NASA

## Who’s Behind Opposition To the Space Program?

In its cultural warfare against the United States, the British gamemasters have put a major emphasis on attempting to sabotage the U.S. space program. Not in their own name, of course. What you find instead is an insidious ideological attack on mankind’s ability to exercise his creativity in mastering the universe, oozing out of academic and other institutions, and attempting to smother the natural excitement which Americans have characteristically shown for scientific achievement.

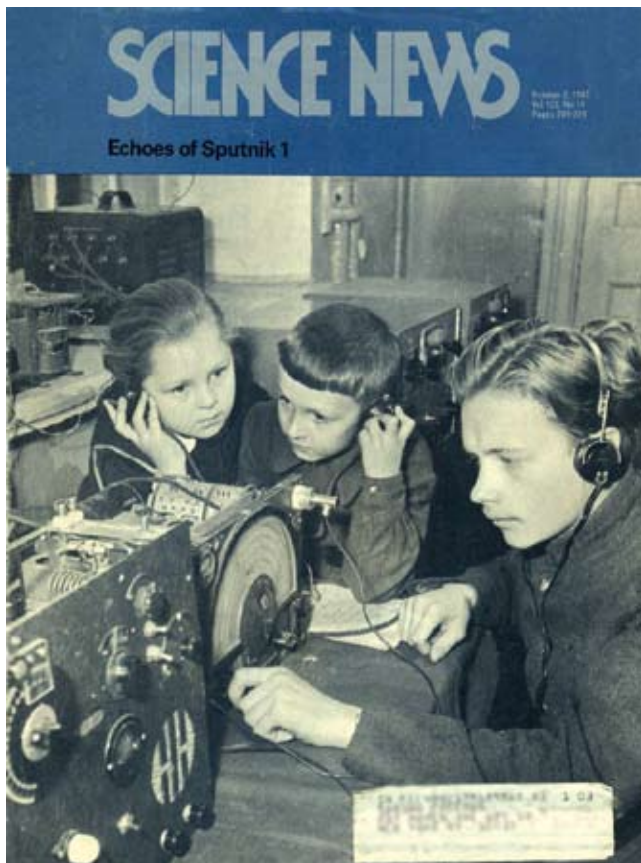
Two elements of this attack are mentioned by Marsha Freeman in this article. First, the mobilization of Bertrand Russell (a British Lord, after all, with a lengthy pedigree) to turn the idea of a space program into a *weapons* program, in Britain’s geopolitical plan for the post-FDR era. Second, the role of the London Tavistock Institute, which specifically targetted the cultural optimism which blossomed under President Kennedy’s bold leadership for sending a man

to the Moon. These corrosive ideas have then been taken up by so-called American institutions, and used to destroy even the idea of space exploration, which idea flows lawfully from man’s nature as a creative human being with responsibility for the universe.

A case in point is former Speaker of the House Newt Gingrich, who avowed in a speech on Feb. 4, 1995 that NASA should have been disbanded after the Apollo program. “I think they’d have been better off,” he said. *EIR* exposed the British networks behind Gingrich and Company in a Jan. 12, 1996 feature, “Newt Gingrich Looks Into the Future,” which included an exposé of “‘Anticipatory Democracy’: Britain’s Tavistock Institute Brainwashed Newt.”

But such instances are only indicative of the larger assault. In fact, it is British Liberal poison—in economics, science, epistemology, and politics—which has been *deliberately* deployed to demoralize and render impotent the United States, and to turn our country against its own proud tradition. That is the enemy to identify, and defeat.

—Nancy Spannaus



One of the “Real Reasons” for space exploration, Mike Griffin explained, is to inspire the next generation. Here, reprinted on the 25th anniversary of Sputnik, is a photograph of Russian children as they listen to the “beep, beep” of the world’s first artificial satellite, as it circled the Earth.

were to disappear tomorrow, if the American space program were to disappear tomorrow, if we never put up another Hubble [Space Telescope], never put another human being in space, people would be profoundly distraught. Americans would feel less than themselves. They would feel that our best days were behind us. They would feel that we have lost something, something that matters. . . .”

If you ask, he said, “why we’re going back to the Moon, and later, beyond, you can get a variety of answers: . . . for the purpose of scientific discovery, economic benefit, national security, . . . to bring the Solar System within mankind’s sphere of economic influence.” These are the “Acceptable Reasons,” he asserted, reasons that can be “discussed within circles of public policy making,” such as Congressional hearings.

But if you ask an explorer his reasons for exploring, you will not hear such “Acceptable Reasons.” The “Real Reasons,” Griffin stated, are “intuitive and compelling to all of us, but not immediately logical. . . .”

“We like to do what I’ll call monument building. We want

to leave something behind for the next generation, or the generation after that, to show them that we were here, to show them what we did with our time here. This is the impulse behind cathedrals and pyramids, and many, many other things. . . . It is my observation that when we do things for Real Reasons, as opposed to Acceptable Reasons, we produce our highest achievements.”

“The cultural ethos in America today,” Griffin continued, “requires us to have Acceptable Reasons for what we do . . . that offer a favorable cost-benefit ratio that can be logically defended. We tend to dismiss out of hand reasons that are emotional, or are value-driven in ways that we can’t capture on a spreadsheet.”

But the Real Reason is captured in what Griffin describes as his favorite quote, from President John Kennedy’s speech at Rice University in September 1962: “We choose to go to the Moon, and do the other things, not because they are easy, but because they are hard.”

Griffin continued: “The cathedral builders knew that reason. They were doing something that required a far greater percentage of their gross domestic product than we ever put into the space business. . . . We look back across 600 or 800 years of time, and we are still awed by what they did. . . .” In fact, Griffin pointed out, in carrying out their projects, motivated by Real Reasons, they had to meet physical challenges, and so developed civil engineering, and many of the technologies that fundamentally built Western civilization—a “spin-off,” or “Acceptable Reason.”

“It is my contention that the products of our space program are today’s cathedrals. The space program addresses the Real Reasons why humans do things. . . . [W]hat is the scientific value of discovering the origins of our universe?” Consider national security: “What is the value to the United States of being involved in enterprises which lift up human hearts everywhere when we do them? I would submit that the highest possible form of national security, well above having better guns and bombs than everyone else . . . is the kind of security that comes from being a nation which does the kinds of things that make others want to work with us to do them. . . .”

What does it require to build the modern cathedrals of the space program? “You have to value hard work. You have to be willing to defer gratification, and to spend years doing what we do, and then stand back and see if it works. We learn how to leave a legacy, because we work on things that all of us will not live to see—and we know it. And we learn about accepting the challenges of the unknown, where we might fail, and to do so not without fear or apprehension, but to master it and to control it, and to go anyway.”

The cathedrals of the second 50 years of the Space Age are waiting to be built. This will require nothing less than the philosophical view of mankind which created the cathedrals of centuries past, and of the first half-century of space exploration.