Putting U.S. space policy back on track

What is needed is not more studies of what to do, but the political will to do what we already know has to be done. Marsha Freeman reports.

The recent Space Shuttle mission, which included John Glenn as a crew member, generated tremendous excitement throughout the world, from children and students, to senior citizens. Even the U.S. media, many against their will, were drawn into the flurry of activity, and in a rare moment, made available to the public a look into the activities of the space program, and the experiments the Shuttle crew would be engaged in during their nine-day flight.

Due to the nature of Senator Glenn's participation—a return to space 36 years after proving that man could withstand the rigors of orbiting the Earth—much of the press coverage of the mission involved a nostalgic look back at what the space program has accomplished. Sorely missing was a vision of what mankind could and should be doing in space exploration in the future.

This omission is not due to a lack of ideas for what should come next. Contrary to a favorite criticism of the space agency that it "doesn't know what to do," ever since the early days of the amateur experiments with rockets in the 1920s, there have been planners and visionaries who laid out the path to follow for the exploration of our Solar System. Since the Solar System is designed in a particular, lawful way, so space exploration would naturally progress from Earth orbit, to the Moon, to Mars, and beyond.

Nor is it the case that the American public has grown "bored" with the space program (to quote ousted House Speaker Newt Gingrich). More than 16,000 people crammed into the National Air and Space Museum in Washington to watch the Shuttle carrying Glenn lift off from the Earth. A quarter of a million came to Cape Canaveral to see that launch.

The necessity of space exploration

The overriding problem in executing a long-range space exploration program has been the lack of understanding on the part of the nation's chief executives, of the fundamentals of economics. Space exploration is seen, generally, as a positive activity that will be funded when there is enough money in the budget to be able to do such "extra," nice things.

But, as Lyndon LaRouche has pointed out numerous times, putting money into the space program *costs nothing*. It is not a line item in the Federal budget that should compete with other spending. Just the opposite. It is an investment, with a return to the future economy and to society. Spending on space exploration has been estimated to return about 10 times the dollars invested in it to the economy. No other program yields such a rate of real economic return. But, the benefit to society, in new scientists and engineers, the boost in cultural optimism within the population, and a next generation determined to make a contribution to the overall good, lays the basis for even greater scientific and technological breakthroughs, and creates the possibility for far greater economic return in the future.

Money for space exploration is spent on advancing the state of man's knowledge of the universe, and developing the tools and technologies to allow him to do this. The requirements to perform even the seemingly simplest tasks in space, such as growing plants, confront scientists and engineers with problems they would otherwise not encounter. The solutions to those problems act as a "science-driver" for the economy as a whole, making available more advanced, efficient techniques for the most common tasks, while creating wholly new approaches to improving the Earth and mankind. Without such advances, in the long run, the economy is doomed.

In a *Feature* article entitled "Space: The Ultimate Money Frontier" (*EIR,* Feb. 23, 1996), LaRouche explains that it is the "Machine-Tool Principle," of applying breakthroughs in science to the agricultural and industrial activity of mankind, that is the foundation of economic progress in any nation. In peacetime, the "crash program" of President John Kennedy's call to land a man on the Moon and return him safely to the Earth was the engine for whatever economic growth this nation has seen in the post-war period.

LaRouche states that the primary objective of his proposed Mars colonization program, which he developed during 1985-86, "was, and still is a broad-based family of fundamental and successive scientific breakthroughs which will revolutionize the practice of science and technology on Earth." He concludes, "Man yearns upward, toward the exploration of space, for one overriding purpose: the fuller development of mankind on Earth." He warns that space policy should not be made by "pragmatic politicians," who see spending on exploration as an extravagant "cost" to the economy.

In this moment of great economic upheaval, we should learn the lesson from having abandoned the policies of the Kennedy era, of investing in our human and physical infrastructure so as to be able to reach for the stars. With funding

During Space Shuttle mission STS-95 in October, Commander Curtis Brown (left), a second-generation astronaut, and Glenn, a first-generation astronaut, spoke to reporters, schoolchildren, and the President. (Insert) John Glenn's orbital mission in 1962 demonstrated than man could withstand the rigors of space flight. Here, Glenn is helped into his Mercury Friendship 7 spacecraft on Feb. 5, 1962, in a dry run, three weeks before the flight.

for the space program diminishing since the mid-1960s, came the stagnation of the rate of introduction of new technology into the economy, and the rot of our cities and our basic industries. Failing to keep the nation, and particularly the youth, invigorated with a vision of the future, opened the door to the drugs, the counterculture, and the pessimism that have taken hold since that time.

Exciting space missions did not end with Glenn's Shuttle flight. On Nov. 20, the Russian Space Agency launched the first element of the International Space Station into Earth orbit. And scheduled for Dec. 3, the first American element will join it, and astronauts will perform a number of space walks to attach the first two pieces. For the next four years, nearly a score of nations will be engaged in assembling the largest and most complex international project in history. And, it will be in space.

If there is a return to policies that commit the nation to technological innovation and economic growth, the International Space Station can be the jumping-off point to farther destinations. One measure of whether the country, and the economy, are headed in the right direction, will be the priority given to science-driver projects, such as space exploration. This point is clear from the history of the last thirty years.

Why there was no sequel to Apollo

When Neil Armstrong and Buzz Aldrin landed on the Moon on July 20, 1969, the American public assumed that the exploration of space would continue indefinitely. In the months preceding the landing, President Richard Nixon assigned Vice President Spiro Agnew to lead a Space Task Group to develop space policy recommendations for the nation in the wake of the lunar landings.

But precious time had already been lost. The fate of the immediate post-Apollo follow-on to the lunar landings had been sealed, when President Lyndon Johnson deployed the first combat forces to Vietnam in March 1965. The accepted dictum that the budget had to be balanced meant that every penny spent on the war in Southeast Asia took funds from domestic programs, including the space program. Pressure was mounted not only to ditch the space program after Apollo, but to abandon the lunar landing altogether. Sen. Barry Goldwater (R-Ariz.) called the Apollo program "a terrible waste of money," during the 1964 Presidential election campaign. President Johnson knew that 70% of the American public supported landing men on the Moon, and he was determined to see that that goal was met, but he could not find the funds for the programs that would follow.

The peak funding year for the National Aeronautics and Space Administration was 1965. When NASA Administrator James Webb was told that year by President Johnson to postpone any post-Apollo plans, the new programs following the lunar landings, such as a space station, or steps toward a manned mission to Mars, lapsed.

But the great accomplishment of the lunar landing spurred

President Nixon to once again consider what should come next. In his presentation to Vice President Agnew's Space Task Group, space pioneer and NASA official Wernher von Braun proposed an integrated space program from 1970 to 1990 which would consist of space stations in Earth orbit, a reusable space shuttle to Earth orbit, a nuclear-propelled shuttle for longer excursions, lunar orbital stations and surface bases, a series of unmanned space missions to all of the planets, and, in 1981, the first manned landing on Mars.

Von Braun had begun his work on rockets in the 1920s, and in 1948 had written *The Mars Project,* outlining how a flotilla of ships could take men to Mars, similar to Columbus's opening up the Americas for exploration and settlement.

The program laid out by von Braun was endorsed by Vice President Agnew and NASA Administrator Tom Paine. But the international financial system was already in trouble. Following the decision in 1967 by the British to take the pound off sterling, it was only a matter of time before the financial crisis hit American shores. In January 1971, President Nixon announced that, because of limited funds, rather than the 20-year integrated space program von Braun had proposed, the United States would only commit itself to building a reusable space shuttle. The manned Mars program was dead.

Eight months later, the President took the dollar off the gold reserve standard, and wage and price controls were instituted to fight inflation. The postwar Bretton Woods system, which had allowed for the recovery of Europe and Japan after the war, economic expansion in the United States, and currency stability for all trading nations, was dismantled.

The hallmark of President Nixon's August 1971 policy was savage wage cuts and concomitant austerity measures which ended the large-scale infrastructure investment that had taken place in a limited fashion during the Eisenhower administration, and from the Kennedy period until that time. Federal and state budget crises led to the official bankruptcy of New York City in 1975, and the institutionalized rot of both the industrial Midwest and other large urban centers.

The Shuttle, leading to the space station

Aside from the spectacular Viking landings on Mars, the mid-1970s to 1981 were years of waiting for new space accomplishments, before long-term space policy would again be considered. Under the Trilateral Commission's Jimmy Carter administration in 1977, it was made absolutely clear that no "large projects" would be started in space.

For the first time, the Carter administration brought the anti-science counterculture into the White House. The administration tried to muscle nations developing nuclear energy to stop their breeder reactor programs, under the guise of stopping nuclear proliferation, and instead attempted to coerce them into substituting energy "conservation" for high-technology R&D programs.

Carter Energy Secretary James Rodney Schlesinger told Japanese Prime Minister Takeo Fukuda that the United States was not interested in a $1 billion Japanese proposal to jointly develop fusion energy, while the State Department established a division for promoting "appropriate technology," such as solar energy. U.S. taxpayers' money was used to push developing nations back into the Stone Age.

When a major breakthrough in magnetic fusion energy research occurred at the Princeton Plasma Physics Laboratory in the summer of 1978—an important step toward taming the energy of the stars that will provide virtually unlimited energy for Earth—Schlesinger's henchmen in the Department of Energy tried to cancel a press conference the scientists had scheduled, in an attempt to squelch their dramatic results. It was not a breakthrough, the DOE said, just "a significant result."

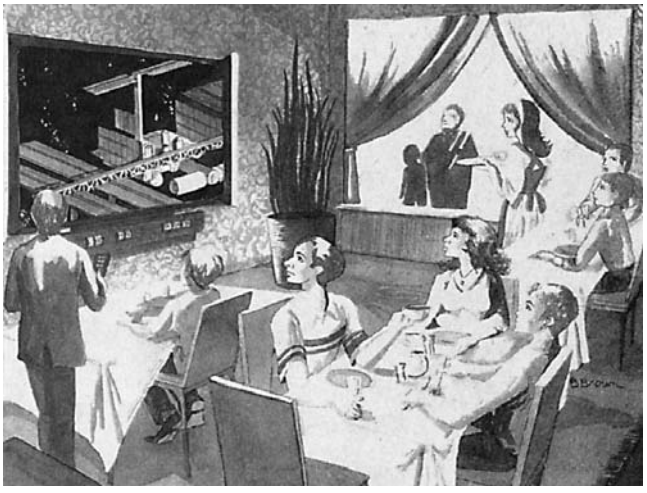
The year before, the Carter Department of Energy and the FBI had harassed prominent experts in nuclear and other advanced technologies who had been scheduled to speak at a conference in Pittsburgh sponsored by the Fusion Energy Foundation, on which Lyndon LaRouche was a member of the board of directors, because the conference was proposing that nuclear energy, fusion power, and plasma coal technologies could provide unlimited energy. The administration was instead promoting a plan to shut down energy-intensive industries in the industrial Midwest, and replace them with "appropriate technology."

During the Carter years, space visionaries knew that it would require a better time, one of optimism, in which to put forward new initiatives. That time came with the first flight of the Space Shuttle in April 1981. This magnificent new, reusable flying machine, which takes off like a rocket and flies back like an airplane, was finally in orbit, and once again, visionaries could look toward the next steps in space exploration.

In January 1984, after intense lobbying by NASA, President Ronald Reagan announced that he was asking NASA to construct a space station within a decade. Finally, the second step toward Mars envisioned in von Braun's program would be implemented. When the U.S. military opted out of participating in the program, the President decided it should be thrown open to participation from other nations.

The year before, President Reagan had adopted LaRouche's Strategic Defense Initiative program, which also promised an array of new technologies, similar in economic effect to the civilian space program. But both the SDI and the space station quickly ran smack up against the budget-balancing policies of Office of Management and Budget director Don Regan and the White House. These foolish policies, which included getting the government out of technology development, would also lose the United States its lead in nuclear power and other advanced energy technologies.

As the space station program was getting started, NASA, the space community, and some in Congress were anxious to begin planning for the steps to follow the Earth orbital station. The Congress asked President Reagan to form a National Commission on Space to make recommendations on long-



All of humanity should participate in the construction of the International Space Station, a stepping stone to the Solar System. Here, the ISS's assembly is depicted on the TV, as restaurant-goers focus their attention on what is taking place 200 miles above the Earth.

range programs, and former NASA Administrator Dr. Tom Paine was appointed chairman. It was clear that with Paine in charge, Mars would once again be on the agenda.

In December 1984, humanity lost one of the handful of visionaries of this century, Krafft Ehricke, who, like von Braun, had been planning missions to the Moon and Mars since his youth. At a memorial conference in his honor, sponsored by the Fusion Energy Foundation and the Schiller Institute in June 1985, LaRouche described the importance of "science-driver crash programs" to create the new technologies for accelerating productivity in the economy generally. These gains in productivity, LaRouche said, mean that "it would not cost the United States a single net penny to construct a colony on the Moon beginning some time during the next decade, nor to work toward building a colony on Mars by approximately thirty years ahead." LaRouche situated the long-lasting importance of President Reagan's SDI program, stating, "The proper mission orientation adopted as the mandate of the program should be the Moon-Mars colonization task."

In its November-December 1985 issue, the LaRouche-affiliated magazine *Fusion* printed a cover story by this author entitled "Bringing Civilization to Mars," which summarized the von Braun approach for a multi-decade science and technology program to colonize Mars, up-dating it with the work of space pioneer Ehricke, and others.

Six months later, in May 1986, the Paine Commission released its report, which restated the same approach, and counseled that the space goals for the 21st century should "lead to the exploration and development of the space frontier, advancing science, technology, enterprise, and building institutions and systems that make accessible vast new resources and support human settlements beyond Earth orbit, from the highlands of the Moon to the plains of Mars."

Unfortunately, when the Paine Commission report was released, Congress and NASA were in the throes of investigating the Challenger Space Shuttle accident, which had occurred the previous January. The report was overshadowed by that set-back in space exploration.

'The Woman on Mars'

As the second Reagan administration became increasingly dominated by the Kissingerian wing of the Republican Party, and the deregulation, free market, budget-balancing ideologues gained an ever-tighter grip on the Presidency, LaRouche escalated his public challenge to the White House to commit the United States to establishing a permanent colony on Mars, within 40 years.

In the November-December 1986 issue of *Fusion,* LaRouche published his detailed 40-year plan, explaining the scientific and technological challenges of such an endeavor, and the necessity to undertake such a long-range program.

During his campaign for the Democratic Party's nomination in 1988, LaRouche became the first Presidential candidate in the nation's history to put forward a vision for space exploration as a central feature of his campaign program. On March 3, the campaign aired a 30-minute broadcast on national television entitled "The Woman on Mars." LaRouche proposed that by the year 2037, there be a permanent colony on Mars; the campaign ad outlined the steps, including the industrial development of the Moon, that would be required. From then on, virtually every newspaper article on LaRouche included in its litany of slanderous characterizations, supposed to be evidence that he had lost his marbles: "and he thinks we should send people to Mars."

By the following year, George Bush was President of the United States, with little prospect for a Kennedy-like commitment to space. So, it was to everyone's surprise that in July 1989, in celebration of the 20th anniversary of the first manned landing on the Moon, President Bush announced from the steps of the Air and Space Museum in Washington, flanked by the Apollo 11 astronauts, that the United States would go "back to the Moon, this time to stay," and then "on to Mars."

NASA was given 90 days to come up with a report on how this could be done, and what the necessary manpower, money, materials, and timetable would be. In November, NASA presented the administration with its study, comprised of a variety of possible strategies. The report stated that "regardless of the implementation approach selected," a variety of new launch and surface vehicles, habitats, and life-support systems will be required; that is, the basic infrastructure required to move space exploration forward.

Like all earlier long-range plans, the study included the construction of the space station, the technology and infrastructure needed to go beyond Earth orbit, the settlement on the Moon, and a base on Mars. It included robotic exploration

missions, new transportation systems, astronomical and other science facilities on the Moon, and then the Mars base. In other words, virtually everything that should be done in the manned space program for the next decades.

The response from the opposition was immediate. This will cost *$400 billion,* was the hue and cry. It was rarely pointed out that it encompassed NASA's entire manned program over thirty years, and at $13 billion per year, this was certainly a bargain, and comparable to what NASA's budget was already projected to be, with slight increases. The Bush administration waffled. Rather than fight for its implementation, it asked for another study, this one led by former Apollo astronaut Gen. Tom Stafford.

Stafford's Synthesis Group released its report, "America at the Threshold," in May 1991. As commentators, including this writer, stated at that time, there was nothing new in the report, simply one more restatement of the exploration plan that has been on the table since the beginning of the space age.

But President Bush had no intention of fighting for the funds to take the first steps to go back to the Moon and on to Mars. NASA's budget continued to stagnate. And, under the Clinton administration, NASA's funding has been reduced steadily each year.

There is absolutely no need to produce any more studies. What to do next in space has been clear for decades. What is necessary is for the President to stand up in Congress, and before the American people, and explain that the key to reverse the quickening economic and moral collapse in the United States and around the world is a "science-driver" program which will direct investment into rebuilding physical infrastructure, present challenges that lead to the creation of entirely new industrial techniques and capabilities, inspire young people, and restore optimism.

When this is done, space policy will be back on track.

A timeline of space policy decisions

1958: In response to the Soviet launch of Sputnik in 1957, President Eisenhower and Senate Majority Leader Lyndon Johnson organize the establishment of a civilian space agency, NASA.

1961: On May 25, President Kennedy presents to a joint session of Congress his challenge that, before the decade is out, the United States would "land a man on the Moon, and return him safely to the Earth."

1965: President Johnson refuses to capitulate to calls to abandon the lunar landing goal, but trades off the Apollo landing and the future of space exploration, with increased spending for the escalating war in Vietnam.

1969: The first lunar landing leads to an ambitious report of President Nixon's Space Task Group, which recommends construction of a space station, a reusable space shuttle, bases on the Moon, and that a Mars landing be carried out within 20 years, as proposed by Wernher von Braun.

1971: President Nixon announces that the 20-year lunar-Mars program has been reduced to only the construction of the Space Shuttle, due to a worsening international financial situation. On Aug. 15, Nixon abandons the Bretton Woods system, pulling the plug on the U.S. economy.

1981: The first successful flight of the Space Shuttle renews lobbying by the space community to move on to the next step in the colonization of space—an Earth-orbital space station.

1984: In his State of the Union address, President Reagan announces that NASA should build a space station within a decade. The year before, Reagan had initiated the Strategic Defense Initiative (SDI).

1985: Lyndon LaRouche, at the Krafft Ehricke Memorial Conference, proposes that a lunar base and Mars colony be the aim of space exploration. Both Reagan's SDI and space station initiatives are dissipated by the President's economic policies.

1986: The Paine Commission report is released, calling for a revival of the von Braun multi-decade lunar-Mars program, and incorporating technology proposals such as nuclear propulsion.

1986: LaRouche publishes his 40-year Mars colonization program in *Fusion* magazine.

1988: Presidential candidate LaRouche airs a 30-minute broadcast on national television entitled "The Woman on Mars," proposing the establishment of a permanent colony on the red planet by the year 2027.

1989: On the 20th anniversary of the first lunar landing, President George Bush states that the United States should "go back to the Moon, this time to stay," and then go on to Mars. NASA is given 90 days to come up with the particulars of such a program.

1991: The long-range program is killed by Congress and the administration, because of budget austerity policies.

1998: President Bill Clinton praises NASA, John Glenn, and the entire Space Shuttle crew at the start of their mission, and indicates his support to continue to assist the Russian space program in the International Space Station. He makes no commitment to the next steps to be undertaken in space exploration.