

# 'Pioneering the space frontier': in memory of Tom Paine

by Marsha Freeman

Dr. Tom Paine, who died on May 4, was one of only a handful of visionaries in the space program in this century. He came into the space program at the most dramatic time in its history, joining the National Aeronautics and Space Administration (NASA) in 1968 as the crew of Apollo 8 was preparing to become the first human beings to leave Earth orbit and circle the Moon.

With the resignation of then-NASA Administrator James Webb, who, sadly, also passed away recently, Paine assumed the top position at the space agency in March 1969. Webb, whose vision and integrity were much like Paine's, had left NASA just four months before mankind set foot on the Moon, because he strongly objected to the cutbacks in the budget, which canceled the last three planned Apollo missions and would make it impossible to develop the Moon.

Paine described in a 1989 article in *Omni* magazine his experience when the crew of Apollo 11 landed on the Moon: "As the lunar module Eagle dove toward the Moon, I gripped my tabletop in Mission Control, applying body English to the plunging spaceship. . . . Moments later [astronaut Neil] Armstrong transmitted the long-awaited message: 'Houston, Tranquility Base here; the Eagle has landed!' Tumultuous applause broke out in Mission Control—and around the world.

"Sitting beside me on that July 20, 1969," Paine continued, "Wernher von Braun . . . predicted that the next century would become known as the extraterrestrial century. . . . Apollo had launched a limitless age of discovery, and humanity was destined to evolve from an earthbound to a spacefaring, multi-planet species." That impression made by von Braun, another among the handful of space visionaries, stayed with Paine for years.

Looking back on the Apollo 11 lunar landing on its 20th anniversary, Paine wrote in the May-June 1989 issue of *21st Century Science & Technology* magazine that Apollo was the "liberation of mankind's spirit to soar to the stars." Indeed, following the return to Earth of the Moon-walkers, a task force with a mandate to outline the future of the civilian space program, headed by Vice President Spiro Agnew, was constituted. As NASA administrator, Paine represented the agency.

Optimism was the order of the day. In September 1969, the task force recommended proceeding with a space station, a reusable transportation system, developing the Moon, and a Mars landing as early as 1980.

But that far-reaching outlook could not survive the severe financial and economic problems during the Nixon administration, and the task force plan was scrapped. Deciding the nation could not afford more than one new project, only the Space Shuttle was scheduled for development. The vision gone from the program, Paine resigned from NASA in 1970 and returned to industry. But he never "left" the space program.

## Shuttle reopens age of man in space

In 1972, with the last Apollo flight to the Moon, the "dog days" of the U.S. space program began, which continued until the first flight of Space Shuttle Columbia on April 12, 1981. In July 1979, Paine, then president of Northrop Corp., spoke at the Town Hall of California, in Los Angeles. He said, "Last week, President Carter said that we are in a crisis of confidence. In a very real sense that is true. We are in a time of reduced expectations, where growth and a belief in technology which once were our goals are now transformed to skepticism and a goal of conserving and preserving and trying to maintain rather than improving.

"Nevertheless," he continued, "I remain hopeful, because I look at today as a change of direction rather than end to our culture. We are at the threshold of new opportunities and a new frontier. . . . I see the great spirit of our country reemerging from this period of despondency."

Indeed, two years later, the first flights of the Shuttle lifted men's spirits once again, and it was possible to start to plan for the future. NASA Administrator James Beggs and the leadership of the space agency lobbied President Reagan after that first Shuttle flight to commit the nation to building a space station, the next step in the infrastructure needed for man to return to the Moon and go on to Mars.

The Congress, too, was impatient with a space program that did not look beyond the Shuttle, and convened a series of hearings to question the nation's experts and visionaries, including Paine, on what the long-range goals in space should be. In his State of the Union address in 1984, President Reagan announced that the nation would build a permanent, manned space station within a decade. That same year, Congress authorized the establishment of the National Commission on Space, which was to report its recommendations for what the United States should be doing in space 20 years

hence. Paine was chosen to head the commission.

The commission report, entitled "Pioneering the Space Frontier," was released in spring 1986, and was written primarily by Paine. It was not a "consensus" document, but took a strong stand on many controversial issues at a time when few had the guts to take a position without trying to please every possible scientific, industrial, and popular space constituency.

Unfortunately, the commission report was released as the American public, the space agency, and the Congress were in the throes of grieving over and investigating the Challenger explosion. Paine felt that the recommendations of the report were overshadowed by the Shuttle tragedy, and spent the last five years of his life educating people about the commission's recommendations. He often began by stating, "The exploration, settlement, and economic development of the inner solar system will open an endless frontier that frees human aspirations from malthusian limitations."

### Colonizing the inner solar system

The report projected a manned return to the Moon in 2004, after the supplies needed by the space travelers had been already delivered there by unmanned cargo ships, and as a series of orbital stations, or Spaceports, around the Earth, the Moon, and Mars were becoming operational. While the new lunar settlement grew—establishing scientific laboratories, astronomical observatories, and closed-cycle life support systems, including the growing of food and the processing of lunar oxygen—a whole new generation of transportation systems would be under development.

One of the most interesting technologies, in addition to more efficient Earth-to-orbit spaceplanes and nuclear-powered unmanned cargo ships, is what the report called "orbital cycling ships." These would be in permanent orbits between the Earth and Mars. They would carry modular space transfer vehicles, which the crew would board when nearing either Mars or Earth orbit, which would take them to the orbiting space station. From the station, the explorers would descend to the surface. This system would allow the long-distance Earth to Mars ships to keep a constant speed, without having to slow down to make deliveries to the space stations.

By 2015, the commission envisioned a Moon entirely accessible to man based on local transportation systems, multi-disciplinary international laboratories, and base designs and robotic construction techniques proven in lunar prototypes that will operate on Mars. The first manned landing on Mars was set for 2015. The ultimate goal, according to Paine, is that in "the next 40 years we will see people working and living on three worlds, as the expansion of life beyond Earth's biosphere becomes technically feasible, affordable, and a universally advocated human drive."

The use of nuclear energy for propulsion systems, as well as electric power plants on new worlds, was not the only controversial recommendations in "Pioneering the Space Frontier." Many experts, including former Apollo astro-



Former NASA administrator Tom Paine: "The Moon is the right place to check out our prototypes and transport system ideas for Mars."

nauts, were advocating manned missions to Mars without first going back to the already-explored Moon, in order to "save" time and money. Two years ago, defending the commission's first goal of setting up a permanent human presence on the Moon, Paine stated, "I think that if we do a lunar program right, it can speed up and make more certain and give greater depth to our Martian program. . . . I believe the Moon is the right place to check out our prototypes and transportation system ideas for Mars."

### Manned and unmanned programs

A fervent advocate of man in space, Paine also had a broad overview of the necessity for developing all space technology, and therefore, understood that the constant debate about "men or machines" was misguided. During a 1981 interview with *Mainliner* magazine, Paine was asked to comment on the statement that the Japanese have a considerable lead in robotics. Paine stated that he wouldn't agree with that statement. "Just look at those magnificent observations our Voyager robot spacecraft transmitted to Earth. . . . We have the technology to launch robot spacecraft and control them across billions of miles of space," he said. "Robots will relieve human beings from tedious and unhealthy activities, and, at the same time, turn out lower-cost, higher-quality products." The commission report stressed both the robotic missions *and* manned flights to open the space frontier.

Paine also had a great appreciation of history and knew that he, along with everyone else in the space program, stood on the shoulders of giants. The opening picture in the Nation-

al Commission on Space report is the 1950s painting which illustrates a concept of a space station developed by von Braun. Von Braun, Krafft Ehrlicke, and other members of the German rocket team made possible the 1961 decision by President John Kennedy to "land a man on the Moon and return him safely to Earth."

As the 20th anniversary of the first lunar landing in July 1989 was approaching, Paine was again raising the question of long-range goals for the space program. Three months before, he testified before the House Subcommittee on Space

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Science and Applications of the Committee on Science and Technology. "NASA is a mission-oriented agency in desperate need of a challenging mission. In pursuit of exciting goals NASA has flourished; without long-range objectives, it has languished," he began.

"The settlement of Mars will double the land area available to humanity," Paine pointed out. He told the congressmen that the "arid areas of Earth, like the American Southwest, the Middle East, and central Australia, are potential beneficiaries of space biosphere research," repeating his plan to overturn the doctrine of Parson Thomas Malthus. Three months later, President George Bush pronounced from the steps of the National Air and Space Museum that the nation would implement, in outline, the program that Paine and others had worked two years to produce.

Paine parried for years with this writer about the state of the economy. It could not be as bad as presented in *EIR*, he argued. A Kennedy Democrat committed to both developing the frontiers of science and technology and raising the standard of living for the U.S. and world population, Paine was always optimistic that the economy was not in a depression, and that rationality would prevail. Yet, it is the current spiraling economic collapse more than anything else which has stymied the long-range program President Bush announced nearly three years ago.

If this nation starts down a different economic path, one similar in concept to that taken by President Kennedy, humanity will have a chance to "pioneer the space frontier." If that path is taken, a large share of the credit should be given to the visionaries who preceded him, and to Tom Paine.

# Minnesota 'Health means corporatist

by Steve Parsons

Politicians and medical reformers toasted each other in April for enacting the Minnesota HealthRight bill into law. HealthRight has received rave reviews from the media and the so-called biomedical ethicists. Endorsed by a large bipartisan legislative majority, insurance companies, physicians, and consumer groups—albeit with various caveats—it is indeed the most sweeping health reform legislation ever enacted, going far beyond the widely trumpeted Oregon Plan.

The law purports to provide the basis for expanding health care services in the state, particularly in rural areas, while providing low-cost basic health insurance for the uninsured. Its "glories," as ethicist Arthur Caplan calls them, are "that it mandates data collection on outcomes and practices, and the prices incurred for those outcomes; that the health commissioner will be able to take steps on regulating reimbursement to providers; that it has conflict-of-interest prohibitions; that it limits malpractice actions by setting practice parameters that, if adhered to, are absolute defenses; and that it moves insurance companies to community rating."

These "glories" actually augur the fascist regimentation of health care. Far from enhancing health care, the law is designed to police the administration and dispensation of health care, leading to enforced rationing of medical treatment, and ultimately to euthanasia, for those deemed either too unfit or too "cost-inefficient" to live. As such, it is an integral feature of an economy no longer able to sustain its population in the deepening depression.

## Down the primrose path

Larded with 182 pages of small-print legalese, the legislation was crafted by a select group of seven politicians, led by ultra-liberals Rep. Paul Ogren and Sen. Linda Berlin. The real architects, however, were two expert "facilitators," the aforementioned Caplan of the Center for Biomedical Ethics at the University of Minnesota, and Dr. Steven Miles, a geriatric specialist and steering committee member of the Minnesota Network for Institutional Ethics Committees. The legislators cloistered themselves for weeks working out the details, guided at crucial points by Caplan and Miles. The self-described "Gang of Seven" paraded it as a series of