Documentation

'The next ten years in space: 1959-1969'

What follows are excerpts from the contributions to the 1958 House Select Committee on Astronautics report.

Krafft A. Ehricke
Assistant to the Chief Engineer, Convair, San Diego, California.

During the year 1958, the government has become increasingly aware of the necessity to actively and consistently sponsor a national space-development program. The prime motivation for authorizing the considerable financial effort involved, derives from the concern for Congress for the economic welfare and military strength of the nation. Leadership in science and technology and in the exploration of our micro and macrocosmic environment is one of the prerequisites for assuring this condition and therewith also for gaining the right and the ability to shape a better world for all mankind. . . .

. . . The plateaus of achievement which can realistically be expected must be consistent with the vehicular capabilities estimated to be available during the next 10 years. These are, briefly: ICBM booster rockets; upper stages with advanced chemical propulsion systems; large boosters with 1.5 to 3 million pounds of thrust; upper stages with nuclear heat exchanger power plants.

On the basis of this vehicular capability, space technology may be expected to reach the following plateaus of achievement during the coming decade. . . .

Lunar space. . . .

(3c) First manned lunar landings.

This may be a marginal goal for the period 1959-69.

Interplanetary and planetary space. . . .

(4b) Planetary probes . . . during the next 10 years there exist only a maximum of five opportunities to launch a Mars probe and seven occasions for a Venus probe. . . .

With the advent of a 1.5 million pound booster vehicle it will become possible to transmit a probe to the planet Jupiter. The opportunity for this arises once almost every year. The transfer time would be in excess of one year. A Jupiter probe would be of considerable scientific interest, but is a difficult project which may not be practical until the end of the sixties. . . .

Advanced astronautic concepts, such as the manned lunar base and manned flights to other planets must await the harnessing of nuclear power for spacecraft propulsion. The two most attractive and realistic concepts using nuclear energy are at present the nuclear heat exchanger rocket and the nuclear energized ion rocket. Of these two, the former is more universally usable, since it is capable of a sufficiently strong acceleration (0.2-0.02 g) to establish fast cislunar transfer and lunar landing as well as takeoff. . . .

Propulsion research and development will concentrate on nuclear drives, ion drive, and other potentially promising methods of propulsion. It appears reasonable to assume that a nuclear heat exchanger drive will have been perfected and flight tested in cislunar space by the end of the next 10 years. Ion-propulsion research can be expected to be in an advanced state.

By the end of the next 10 years we can thus expect the following state of development in astronautics. . . .

1. Communication and television relay satellites at very great altitudes, probably as high as 22,000 miles (24-hour orbit) in equatorial and inclined orbits.

2. Global weather monitoring on a routine basis from optical satellites circling the globe in polar or highly inclined

'A prize beyond price'

In 1986, Lyndon LaRouche was the only presidential candidate to elaborate a program for the next half-century of space exploration, aiming toward a fully manned colony on Mars. We excerpt here a small portion of his program, which appeared in the November-December 1986 issue of Fusion *magazine, entitled, "The Science and Technology Needed to Colonize Mars."*

At present, broadly speaking, Americans lack those psychological potentials for space exploration which existed during the 1960s and earlier. Through the influence of those irrationalists, such as the "ecologists" and the counterculture generally, many of our citizens have lost connection with the principles of moral character and science-like intellectual development traditional to the Augustinian heritage. We, as a nation, are presently in the process of being self-destroyed by the growing influence of the "ecologists" and the radical counterculture. Over the re-

orbits some 4,000 to 8,000 miles high.

3. Radio-navigation satellites some 1,000 miles high, serving the ships on seas in equatorial and inclined orbits.

4. One or more relatively small manned space stations some 300 miles high in the equator plane for orbital flight training, life support systems development and man-conducted research in space.

5. All or many of these satellites and space stations will be equipped with nuclear auxiliary power supply systems.

6. Satellites of the Moon will have been established and landings with instrumented probes on the Moon will have been accomplished. Probably, the first landings by man will have been achieved.

7. Man will have circumnavigated the Moon using vehicles launched directly from the Earth's surface without orbital assembly or fueling.

8. Interplanetary probes will have covered the entire inner solar system from inside the orbit of Mercury to the asteroid belt beyond Mars. Encounter probes will have been sent to Venus and Mars and instrumented satellites of these planets will have been established. Probes may have been sent out as far as to the planet Jupiter.

9. All of these projects will have been carried out essentially on the basis of chemical rockets, such as the ICBM boosters with advanced chemical upper stages and the 1.5 million pound thrust booster with chemical upper stages. However, at the end of this decade nuclear powered upper stages, boosted beyond the atmosphere by chemical first stages, will be available.

10. Research in auxiliary power systems, energy conversion, materials, and electrical propulsion systems will have made great strides.

11. Close international cooperation in the scientific and practical usage of satellites, as well as in monitoring and tracking of space vehicles and in control of transmission frequencies, will have been established. At least one new launching complex for space vehicles will have been built, located in the mid-Pacific on or near the Equator.

12. Man will have sufficient information to decide for or against a permanent lunar base and will begin to look to the planets.

Maj. Gen. J.B. Medaris

Commanding General, U.S. Army Ordnance Missile Command, Redstone Arsenal, Huntsville, Alabama.

The coming decade will undoubtedly be chronicled by history as the birth of the Age of Space, for the decade is certain to be marked by phenomenal technological achievements; however, any attempt to second guess the extent of these achievements must be tempered by the realization that

cent 20 years, we have undergone a "cultural paradigm shift," away from Augustinian tradition, toward a philosophical outlook akin to that of the Russians.

This recent difficulty is not, however, an argument against space exploration. Precisely the opposite; the psychological demands placed upon our society by bold ventures into space, are precisely the stimulant best recommended to bring us back to ourselves, our moral heritage.

There are many practical things which must be done, urgently, to save our nation. These are the indispensable, which we shall lack the resolution to accomplish, unless our desision-making once again embraces the essential.

Space is there. It is a challenge within man's grasp. It is a challenge which bears upon the improvement of life on Earth. We must respond to that challenge with goodness.

What is the desire of the good person? What else but to discover the laws of creation less imperfectly, to the end that our knowledge, as guide to our practice, deviates less from the will of the Creator expressed in the lawful ordering of this universe. Who can be good, who does not yearn for agreement with the Creator, and, on that account, to lessen the imperfection of one's own understanding of the lawful ordering of creation?

What could be a more beautiful event in the existence of mortal mankind than to step up from the mud of our planet, into space, to accept whatever challenge we discover to be awaiting us there? To think of such a task as imminently before us, is to experience an awesome sense of beauty within us.

On this planet, especially during the recent 20 years, increasing portions of the populations of even Western Europe and the Americas are afflicted with cultural dispair.

"There is no future," say the doomsaying "ecologists." Believing the "ecologist" propaganda, the young person seeks momentary escape in the here and now: Drug usage proliferates, destroying growing ratios of our youth, on this account. That same stink of irrationalism and cultural pessimism, which spawned the Nazi upsurge in Weimar Germany, spreads among our nations, spoiling the very will of our nations to survive.

We must turn the mind's eye of the young upward, to the heavens, while we point: "There lies the future of mankind."

In that respect, the conquest of space is a prize beyond price.