Naval War College Review

Volume 41
Number 2 *Spring*

Article 24

1988

Space: The Next Twenty-Five Years

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Thomas R. McDonough

McDonough, Thomas R. *Space: The Next Twenty-Five Years*. New York: Wiley and Sons, 1987. 237pp. $17.95

Thomas McDonough's book is a comprehensive and fascinating composite of space events spanning: Konstantin Tsiolkovsky's founding of the modern science of astronautics in the 19th century; futuristic concepts of large-scale human emigrations to the Moon and to Mars; and communication with extraterrestrial intelligence that may be able to tell us how other societies solved their survival problems and give us sound advice on solutions for our major problems of war, disease, overpopulation, pollution, and dwindling resources. Reading this book should inspire our country's leaders to convince their constituents of the value to all humanity of the space programs now on the drawing board. Possibly the entire world could agree to cut back spending on weapons and increase spending on space research.

McDonough sets forth the many decisions affecting near-time future space projects that need to be made. The most urgent is developing a cheap and reliable way to put satellites in space. Is the answer more shuttles, expendable rockets, or the new National Aerospace Plane—a transatmospheric vehicle capable of runway takeoff into space? What should be the ratio of pilots to robots for interplanetary space ventures? For what primary missions do we want to design our space station—for use by industry, for scientific research, as a preparation station for a lunar outpost, or a base for manned missions to Mars? Also, should we involve the Japanese and Western Europeans on a cost-sharing basis? Do we want to cooperate with the Soviets on a joint manned mission to Mars or to an asteroid?

McDonough points out that support is building for a joint U.S.—Soviet manned expedition to Mars, with the major benefit being a reduction of tensions between our two countries and relief from the threat of world war.

This book contains fascinating sections on each of the planets and their moons, black holes, quasars, pulsars, comets, asteroids; on the Moon as a huge stockpile of natural resources and as a promising place for large settlements; on developing large cities on Mars, initially under canopies; on the 94-inch Hubble space telescope waiting to be launched that will enable us to see farther back in time than ever before, maybe nearly to the time when the universe began; on a galactic probe named "TAU" (Thousand Astronomical Units, with an astronomical unit equivalent to the distance between the Earth and the Sun), powered by a nuclear generator for an ion-driven engine which would accelerate it to a speed of 200,000 mph; on *Starwisp*—a miniature spacecraft which could reach the stars—presager of manned spaceships for interstellar flight; and on the search for extraterrestrial intelligence.

In closing this fascinating book, McDonough strongly advocates

vigorous U.S. participation in the many space programs now under consideration, including settlements on the Moon and Mars and ultimately to bridging the gulf between the stars. I can only hope that our country's leaders can be persuaded that this is the way to go.

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Hayes, Peter et al. *American Lake: Nuclear Peril in the Pacific.* New York: Viking Penguin, 1987. 529pp. $6.95

Unlike the late Herman Kahn, who maintained that the growth of nuclear stockpiles made all forms of war less likely, the authors of *American Lake* argue persuasively that it is the multiplication of weapons systems and the fatal asymmetry between American and Soviet nuclear arsenals and strategic policies that make war ever more likely, particularly in the volatile Asia-Pacific region.

Central to their thought-provoking account are considerations of weakness. American interventionary ends exceed their means and thus the United States is obliged to rely more and more heavily on regional allies and is increasingly likely to rely on nuclear weapons—with all the risks they entail—to project power. At the same time the Russians have sought to compensate for their weaknesses and lack of power projection capability in the Pacific by developing a huge, primarily home-based, nuclear inventory.

Students of naval affairs should be particularly interested in this analysis because of the crucial role played by the U.S. Navy in American containment policies. At the end of the Second World War the U.S. Navy, undermined by bitter interservice rivalry and doubts about the nature of naval warfare in the atomic age, was in search of a reason for being. The Korean war and the Indochina conflict came to its rescue. The former elevated containment from a strategy of selective response to a militaristic ideology which placed a premium on mobile, flexible carrier striking forces. The latter generated an almost obsessive concern about involvement in an Asian land war that renewed America's faith in big carriers.

That faith was further reinforced in the 1980s when maritime supremacists gained control of U.S. foreign policy. The Lehman Doctrines of fleet expansion, targeting the Soviets, and forward deployment coupled with the concept of horizontal escalation have, in the authors' estimation, dramatically increased the likelihood of an outbreak of nuclear war in the Pacific.

They dismiss out-of-hand arguments that there are controllable nuclear wars. American conventional and nuclear forces are so technologically inseparable, the distinctions between nuclear and conventional war planning so blurred, the problems of command, communications, and control (which they call the Soviet and American "glass jaw") so grave, the strategy of attacking Soviet SSBN