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A Naval Manned Space Program

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USNAVY/CGO

In the past to protect existing trade developed nations have turned to colonization when faced with diminishing natural resources and markets and soaring costs. Today the world is on the verge of a new, yet strikingly familiar era. To survive economically, nations will soon aggressively compete in the exploitation and colonization of interplanetary space.

The Rationale for a Naval Manned Space Program: The exploitation of space will demand an unprecedented capital investment, which in turn will require comparable degrees of protection. As nations compete to establish spheres of influence, demands for military protection of launch and landing corridors, space-based transit stations, interplanetary corridors, and colonization sites will be great.

Historically, navies have been linked to the preservation of peacetime national trade interests. Naval presence has been and is presently being used by many nations to project and defend national interests and such presence is usually not regarded as a technical act of war. Unmanned terrestrial or space-based weaponry, as well as the presence of tactically oriented armed forces such as air

forces or armies, are traditionally viewed as more aggressive and warlike. Intervention by such forces is commonly seen as intolerable threats to national security and, in some cases, as overt acts of war. Because of such perceptions, the U. S. Navy has played the principal and often pivotal role of preserving and protecting U. S. investments, markets, resources, and the interconnecting sea lines of communication during peacetime.

To respond appropriately to the anticipated demand for space protection, a naval manned space program will be required with Navy (manned) space vessels roughly analogous to present surface ships and submarines.

Present Status of the Program: The U. S. joint military space program is currently acquiring the tools and expertise necessary to determine future strategic and tactical activities in space, as well as implementing space-related aspects of the strategic defense initiative. These efforts rely heavily on Air Force direction and leadership, and emphasize development, acquisition, and support of enabling rocketry. Since the ill-fated Naval Vanguard program of the 1950s, the Navy has been unable to participate equally in

this arena, effectively keeping sailors from manning future space ships. Although a naval manned space program, per se, does not currently exist, the need for such a program remains hotly debated. Naval unmanned space communication, navigation, remote sensing, and surveillance interests are thriving, but the Navy is clearly unprepared to respond to a call to protect U. S. economic interests with manpower in space.

Some elements of a naval manned space program, however, already do exist. Active and reserve line, specialty, and postgraduate space-oriented programs are now available. Space command experience is being acquired by active duty and Naval Reserve personnel participating in the civilian astronaut program. Indeed, the Navy has a "proud tradition" of manned space participation: In 1969, Navy captains A. Bean, C. Conrad, and R. Gordon flew the first naval "interplanetary" cruise on board the *Apollo 12*; and in 1973 Navy captains C. Conrad, J. Kerwin and P. Weitz held the first naval space base duty station assignments on board the *Skylab*.

The Program's Future: Given current political and interservice exigencies, a

naval manned space program seems unlikely in the near future. Nonetheless, economic pressures and historical precedence indicate an urgent, though as yet obfuscated, need. Situations of this nature are frequently resolved only by a crisis. However, there are a number of things that can be done in preparation for an anticipated turn toward a Navy manned space program.

► *Encourage Open Discussions:* An information and discussion vacuum exists regarding the need for a naval manned space program. Motivating young naval officers and enlisted personnel to start thinking about space will undoubtedly help establish a framework for legitimizing the program, and will facilitate a progression to the form and function such a program will require.

► *Increase Naval Presence Within the Space Community:* An Air Force presence is clearly visible at almost every NASA center. Naval presence, on the other hand, when existent, is virtually invisible. In most issues, whether civilian or military, presence determines precedence. Developing a highly visible, continuous, uniformed naval presence within the civilian space community at every NASA center is a very important step toward realizing a naval manned space program. But first, naval expertise must be developed in the following areas:

Space Operations and Command— Naval operations and command structures closely resemble those necessary for successful space station and future long-duration missions. This concept—firmly entrenched in the popular "Star Trek" television series—is much more widely acknowledged than many think. Naval interest in and commitment to acquiring space command expertise is evident by the presence of a Naval Space Command, a "space track" at the U. S. Naval Academy, a Naval Postgraduate School space curriculum, and, as mentioned, by the selection of naval astronauts. Terrestrial

naval operations and command expertise and experience could prove highly valuable to civilian space efforts now in the planning stages. Moreover, naval presence within this area could also generate unparalleled opportunities for naval line officers to acquire space operations and command expertise and experience.

Habitat and Life Support Systems— Rocket technology has been, traditionally, the primary limiting factor in space exploration. Life-support capabilities, however, are the principal limiting factors in manned space exploration: U. S. and Soviet space programs are working on spacecraft habitability, but since space shuttles clearly resemble airplanes, habitability models have been and remain aircraft-type designs. In the United States, much of the habitat development under way has been conducted in association with the Air Force.

Naval ships and submarines are closer terrestrial analogs for space stations and longer-duration, larger-crewed spacecraft. But habitat development for these efforts continues within NASA largely without uniformed naval presence. Attempts to acquaint NASA scientists with submarine technology, and naval submarine research personnel with spacecraft, have been sporadic, cursory, and limited because of security concerns. Naval specialty corps and technicians could be of invaluable service, provided a uniformed naval research presence within the NASA habitation program was encouraged.

A similar situation exists with regard to manned life-support research and development. Naval interest in closed environmental life-support systems (for example, the development of effective "citadel" type nuclear, biological, and chemical life-support systems for ships) may have immediate terrestrial applications. If the key to manned space programs is indeed life support, then perhaps the greatest task required of the naval manned space program is supporting a strong and im-

mediate uniformed naval presence within the NASA life-support development program.

*Logistics—*Future spacecraft will likely resemble naval ships and submarines more than aircraft. But these platforms will be similar in more than structure, command, operations, habitat, and life-support systems. A long-duration manned space exploration effort requires an immense logistic support apparatus, covering everything from supply to family services. Naval logistics are uniquely suited to support both civilian and military manned space efforts. Again, a naval presence within NASA logistic operations is largely invisible today, and will require a sustained, long-term effort to cultivate.

Pursuing an expertise in space command, operations, and logistics would be an important factor in responding to the expected call for naval protection of civilian space exploration and exploitation. Only then, after increasing its participation in the civilian space effort, can the Navy secure a higher level of participation in the joint military space effort.

Editor's Note: For information on unmanned Navy participation in space, see F. J. Glasser, "Space: A New Dimension in Naval Warfare," U. S. Naval Institute Proceedings, May 1987.

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