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Strategies for Rapid Implementation of Interstellar Missions: Precursors and Beyond (4)

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WORLDSHIPS: TRAVELING SPACE SETTLEMENTS

Abstract

DARPA/NASA had the decision to start the 100 Year Starship Study moving interstellar travel themes from science fiction to actual science, allowing the creation of many dedicated groups as well as several conventions dealing with the subject. In reality, in the early sixties Dandridge Cole, an aerospace engineer, launched the idea to hollow up an asteroid and transform it in a traveling space settlement and since the seventies Gerard O'Neill, a Princeton physics professor, launched the concept of artificial space settlements conceiving colonies in space for thousands of humans and creating the concept of living in space as a technological possibility more desirable than land settlement since only in space we can recreate the three basic requirements for human well being: terrestrial atmosphere composition, climate and 1G gravity. By designing potential starships, basically an evolution of the space settlement concept, several alternatives and possibilities have been considered. A starship is not at all what science fiction culture has proposed, such as spacecrafts as Star Trek or Star Wars stereotype. A starship is a traveling space settlement that must be independent and have the possibility to support thousands of passengers for years, even centuries in case of generation ships. In such conditions it can become a worldship, and that definition will identify a new class of settlements in space. The evolution of the space settlement concept, the starship, the mothership and other terminologies, have given way to the worldship, not only as a different name of the previous concepts. The worldship in fact is a combination of all of them, but basically is a traveling space settlement, both in the solar system or interstellar space, totally independent from its planet of origin and with the possibility to expand and create new settlements and perform several missions. In this paper such concept will be further analyzed and will be established more features of the worldship.