Paper ID: 9897
oral

15th SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)
Hitchhiking to the Moon (8)

Author: Dr. James Burke
The Planetary Society, United States, jdburke@caltech.edu

TINY TIME TRAVELERS: A DISTRIBUTED MICRO-ARCHIVE ON THE MOON

Abstract

Sending messages into an unknowable future is well-established on Earth in the form of buried time capsules. In space, the concept has been implemented in many ways. Examples are the Pioneer plaques, the Voyager video-audio records, the Apollo lander nameplates and the CD recordings installed on various spacecraft by The Planetary Society. This paper presents a radical extension made possible by the new technology of nanoscale solid-state memory devices. Expecting the arrival of numerous different robotic lunar landers and rovers in coming decades, we could now be preparing a whole new class of lunar hitchhikers – auxiliary payloads so small that an observer would never find them except with prior knowledge and a microscope. What could be the purpose of such microdevices? One obvious goal could be to encourage future visits, either robotic or human, to retired, perhaps long-defunct, spacecraft on the lunar surface with the aim of evaluating information survival in the lunar thermal and radiation environment, a necessary precursor step to the establishment of a lunar archive of our civilization's knowledge, wisdom and culture. This paper will refer to previous works describing such an archive and its purposes. With many microscopic information stores located here and there on the surface, the potential for total information loss due to cosmic and solar radiation should be much reduced, and anyway the recovery visits could become a useful supplement in the exploration of the Moon.