Science magazine

LETTERS

Making a Case for Humans in Space

Donald Kennedy and Brooks Hanson ("A time of opportunity," Editorial, 30 Jan., p. 589) clearly are aware of the extraordinary foundation of scientific knowledge about the origin and history of the Moon, Earth, planets, and solar system that came as a consequence of U.S. explorations of the moon. I was surprised, however, by their implication that the time of human exploration of space has passed because it has become too costly. I would submit that the rising costs of human exploration are a consequence of a government monopoly and not an inherent fact of space operations. An investor-driven space effort rather than a policy- and politics-driven space effort would force costs down instead of up.

Be that as it may, leaving humans out of planetary exploration would fly in the face of the scientific legacy of over 150,000 years of human exploration of our planet. Humans bring unique capabilities to exploration. The human brain consists of a semiquantitative supercomputer that is both programmable and reprogrammable by training, experience, and preceding observations. Human eyes form a high-resolution, stereo-optical system of immense dynamic range, and their integration with the brain provides capabilities for synergistic discovery and interpretation. Human hands constitute a still underutilized, highly dexterous, sensitive bio-mechanical system that, when integrated with the brain and eyes, is unmatched in future potential.

Most importantly, humans react spontaneously to the exploration environment, bringing instant creativity to bear on any new circumstance, opportunity, or problem. There also is the natural urge, common to all species, to expand accessible habitats and thus enhance a species' prospects for long-term survival through "settlement." Settlement of the Moon may also offer specific benefits to those left behind on Earth: the Moon's helium-3 resources. This lunar fuel for fusion power generation, not available in commercially viable amounts on Earth, could potentially support an environmentally benign and economically competitive alternative to the long-term use of fossil and nuclear fission fuels.

Harrison H. Schmitt*
Department of Engineering Physics,
University of Wisconsin-Madison,
Engineering Research Building,
1500 Engineering Drive,
Madison, WI 53706, USA

Volume 304, Number 5672, Issue of 7 May 2004, p. 822.

*The author was an Apollo 17 astronaut and a U.S. Senator for New Mexico, and is currently an aerospace consultant and chairman of Interlune-Intermars Initiative, Inc.