

THE SCIENTIFIC CASE FOR HUMAN SPACEFLIGHT

Proceedings of a Symposium held in Cambridge on Thursday 5 April, 2001, as part of the UK National Astronomy Meeting, to Commemorate the 40th Anniversary of Human Spaceflight

Forty years ago, on 12 April 1961, Yuri Gagarin initiated the era of human spaceflight with his single, 108 minute, orbit of the Earth on *Vostok 1*. Coincidentally, 12 April 2001 was also the twentieth anniversary of the launch of the first US Space Shuttle, *Columbia*. In order to mark these key anniversaries in the history of human space exploration, and to explore the scientific issues surrounding human spaceflight, a one day meeting was held on 5 April 2001, as part of the UK National Astronomy Meeting in Cambridge. This special issue of *Earth, Moon and Planets* contains the papers presented at that meeting, and also records the discussion following each.

This subject is controversial in the scientific community at the moment, for while the fundamental scientific contributions of robotic space probes are generally recognized, the high costs of putting people into space have led many to conclude that the resources would be better invested in additional robotic missions. On the other hand, it can be argued that human beings are uniquely qualified to undertake several key scientific investigations in the space environment (ranging from life and physical sciences research in microgravity, to geological and biological fieldwork on planetary surfaces). Thus, there are grounds for believing that, without a human presence in space, our knowledge of the Universe will be more impoverished than it would be otherwise. As gathering such knowledge constitutes the primary aim of science, this argument, once accepted, becomes a powerful *scientific* motive for investing resources in human spaceflight.

If there was a broad consensus at the conclusion to the meeting, it was that it is time to move away from the increasingly stagnant debate over people *versus* robots in space, and to realise that a well-balanced space programme, aimed at maximising our knowledge of the Universe around us, will require both elements. Clearly, robots can do some things that are difficult or impossible for people, but people can do some things that are difficult or impossible for robots. What we need is a symbiosis of the two.

I.A. CRAWFORD

*Department of Physics and Astronomy
University College London
Gower Street
London, WC1E 6BT
UK
(E-mail: iac@star.ucl.ac.uk)*

S.K. DUNKIN

*Department of Geological Sciences
University College London
Gower Street
London, WC1E 6BT
UK
(E-mail: s.k.dunkin@rl.ac.uk)*



Earth, Moon and Planets **87**: 119, 2001.

