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FOREWORD

While not the brightest planet in the night sky, the red planet may be the most fascinating to the observer. Its redness draws one's attention. It says, 'I am different from the rest'. Indeed it is very different from the other bodies we see in the night sky and in many ways it is Earth-like. Moreover, since the discovery of the putative 'canals' on Mars, speculation has been rife (off and on) that Mars had once harbored life. Mariner 4 initially crushed those expectations by revealing an apparent Moon-like landscape. While 'first impressions' are supposedly lasting impressions, the higher resolution data from the later Mariner Mars missions, the Viking orbiters and landers, Mars Pathfinder, Mars Global Surveyor, and now the 2001 Mars Odyssey mission have completely changed that view. Once again speculation about life on Mars is on the increase.

The 2001 Mars Odyssey mission contributes greatly to the debate though its measurements of the neutron flux from near surface water, the detection of carbonates and its measurements of the radiation environment of the planet. This volume describes the Mars Odyssey and its payload. The introductory paper by R. S. Saunders and colleagues describes the mission, the spacecraft, and the early operations. The second paper by W. V. Boynton and colleagues describes the instrument that observes the neutrons and gamma rays coming from the surface giving us estimates of the amount of near-surface water and the elemental composition of the surface respectively. The next article by P. R. Christensen describes the thermal imager whose objective is to determine the mineralogy of the Martian surface. The following article by G. D. Badhwar describes the Mars Radiation Environment Experiment. While this article was in review, Gautam Badhwar passed away and F. A. Cucinotta graciously stepped in and took the article through the revision process. The next article by P. B. Saganti et al. discusses risks to future astronauts at Mars. The volume closes with an obituary for Gautam Badhwar.

The completion of this volume is due to the efforts of many individuals especially the referees and authors who worked together to produce what we believe is a most readable and complete description of the mission. We also wish to thank Anne McGlynn who assisted me during the initial assembling of the volume and Marjorie Sowmendran who took over after Anne retired.

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