

Synopsis

Although the Jet Propulsion Laboratory in Pasadena, California, has become synonymous with the United States' planetary exploration during the past half century, its most recent focus has been on Mars. Beginning in the 1990s and continuing through the Mars Phoenix mission of 2007, JPL led the way in engineering an impressive, rapidly evolving succession of Mars orbiters and landers, including roving robotic vehicles whose successful deployment onto the Martian surface posed some of the most complicated technical problems in space flight history. In *Exploration and Engineering*, Erik M. Conway reveals how JPL engineers' creative technological feats led to major Mars exploration breakthroughs. He takes readers into the heart of the lab's problem-solving approach and management structure, where talented scientists grappled with technical challenges while also coping, not always successfully, with funding shortfalls, unrealistic schedules, and managerial turmoil. Conway, JPL's historian, offers an insider's perspective into the changing goals of Mars exploration, the ways in which sophisticated computer simulations drove the design process, and the remarkable evolution of landing technologies over a thirty-year period.

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Customer Reviews

Full disclosure: I am a JPLer, but not technical, and Erik and I are in the same directorate. The NASA History Office has frequently identified topic areas where historical treatment is necessary and appropriate and, as a consequence, their list of publications and those that they have commissioned (like this one) are all but priceless. Exploration and Engineering is one such book and covers a unique span of time where the desire to explore Mars was realized through a string of missions leading through to today. But most people won't recall the failures and very few understand how dramatically the whole enterprise swung back and forth as far as mission complexity, technical approach, management philosophy, and response to science questions and discovery. If you've heard and wondered about "faster, better, cheaper" then this is a must-read; FBC played out in the Mars program. This book probably isn't quite right for someone who wants a soaring tale of adventure and discovery in the Apollo tradition. But it is not a dry academic book either. It fits very well for anyone really interested in the missions themselves and the thought processes involved in engineering decisions, testing and operations. I found it to be very readable and to flow very well. The book is pretty chronological but makes ample references forwards and back and explains the consequences of decisions in subsequent missions. For me it was a bit of a stroll down Memory Lane having been associated with almost all of the missions. But there was a lot that I learned or that now makes more sense. Dr.

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