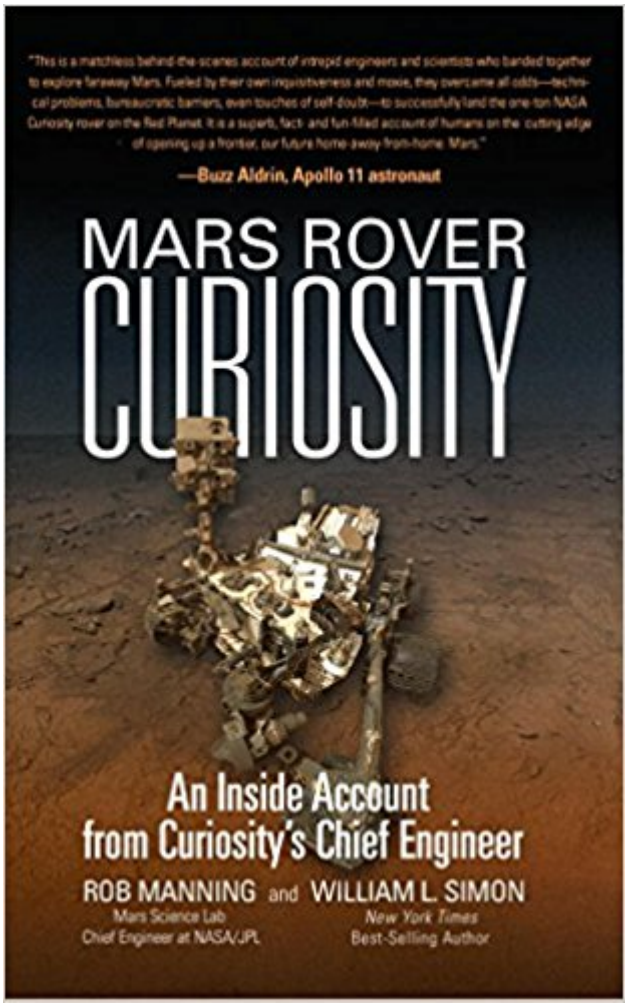
Mars Rover Curiosity: An Inside Account From Curiosity's Chief Engineer



Synopsis

The firsthand account of the trials and tribulations of engineering one of the most complex pieces of space technology, the Mars Rover Curiosity, by its chief engineer Rob ManningIn the course of our enduring quest for knowledge about ourselves and our universe, we haven't found answers to one of our most fundamental questions: Does life exist anywhere else in the universe? Ten years and billions of dollars in the making, the Mars Rover Curiosity is poised to answer this all-important question.In Mars Rover Curiosity: An Inside Account from Curiosity's Chief Engineer, Rob Manning, the project's chief engineer, tells of bringing the groundbreaking spacecraft to life. Manning and his team at NASA's Jet Propulsion Laboratory, tasked with designing a lander many times larger and more complex than any before, faced technical setbacks, fights over inadequate resources, and the challenges of leading an army of brilliant, passionate, and often frustrated experts.Manning's fascinating personal account--which includes information from his exclusive interviews with leading Curiosity scientists--is packed with tales of revolutionary feats of science, technology, and engineering. Readers experience firsthand the disappointment at encountering persistent technical problems, the agony of near defeat, the sense of victory at finding innovative solutions to these problems, the sheer terror of staking careers and reputations on a lander that couldn't be tested on Earth, and the rush of triumph at its successful touchdown on Mars on August 5, 2012. This is the story of persistence, dedication, and unrelenting curiosity.

Book Information

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Customer Reviews

This is a matchless behind-the-scenes account of intrepid engineers and scientists that banded together to explore far-away Mars. Fueled by their own inquisitiveness and moxie they overcame all odds â “ technical problems, bureaucratic barriers, even touches of self-doubt â “ to successfully land the NASA one-ton Curiosity rover on the Red Planet. It is a superb, fact and fun-filled account of humans on the cutting-edge of opening up a frontier â “ one that is our future home-away-from-home, Mars.Buzz Aldrin, Apollo 11 astronautThis is a captivating story of hurling machines of exploration to Mars told by a top flight engineer thatâ ™s leading the charge in planting the first human footprints on the Red Planet.Leonard David, Space.comâ ™s Space Insider ColumnistRob Manning has produced a personal history of â œMars Rover Curiosityâ • that records for all time the complex personnal and engineering interactions required to successfully navigate the design, management and flight complexities of a mission at the frontiers of planetary exploration. We now have an outstanding record of the this process and the lessons learned along the way. This work, ably assisted by William Simon, joins the library of the best of personal stories, progressively documenting humankindâ ™s migration away from Earth.Senator Harrison â œJackâ • SchmittThere’s nothing harder in planetary exploration than landing on the surface of a planet, and Rob Manning has given us a revealing and insightful behind-the-scenes story of the world’s most famous rover, Curiosity. Reading this account feels as if you are standing beside this engineer’s engineer as he and the rest of the Curiosity teamÂ found solutions to one nail biting technical challenge after another.Â This is an insightful testament about extraordinary dedication, passion, creativity and perseverance â “ all required to dare such a mighty thing.Charles Elachi, PhD, Director, Jet Propulsion LaboratoryKIRKUS REVIEWSAlthough lacking the glamour of manned space flight, unmanned probes have accomplished great things, and this book delivers a thoroughly satisfying description of one of the greatest. Aided by journalist Simon (co-author, with Kevin Mitnick: Ghost in the Wires: My Adventures as the World’s Most Wanted Hacker, 2011, etc.), Manning, NASA’s chief of engineering for the Mars P rogram Office, recounts Curiosity’s tortuous development, from the rover’s 2004 proposal to the Aug. 5, 2012, landing and subsequent triumph that "revolutionized the art of planetary exploration." No one took success for granted, aware that more than half of the probes sent to Mars have failed. The eight-month voyage presented few problems; not so the critical EDL, or entry-descent-landing, process, which required a Rube Goldberg-esque series of parachutes, rockets and thrusters that carefully deposited the rover and then flew away. Compared to previous rovers (the tiny 1997 Sojourner, modest 2003 Spirit and Opportunity), Curiosity is massive: five times heavier and 10 times more complex than its predecessor. Comparable to the Manhattan project, the development took longer and faced

problems unknown to those who built the atom bomb. Many features couldn’t be tested, and budgetary limitations meant that defects were often left in place if they were unlikely to affect the miss ion. Most readers know how it turned out. The engineers were not so lucky, and the authors deliver a nail-biting, nuts-and-bolts chronicle of seemingly endless technical and political problems overcome by brilliant, obsessive engineers who worked day and night and continue to do so. Readers yearning for stories of human space travel must follow developments in China, the only nation with an active manned space program. Those who appreciate the purely scientific results of planetary exploration will love this lively, intelligent account of a dazzling achievement. THE WASHINGTON POST"In Mars Rover Curiosity: An Inside Account From Curiosity’s Chief Engineer, he (Rob Manning)Â and science writer William L. Simon describe a committed, collegial bunch of guys doing some pretty amazing science."SCIENCE NEWS"In Mars Rover Curiosity, Manning and coauthor Simon offer a firsthand account of designing the most complex piece of machinery ever to land on another planet. Starting with a harebrained scheme and ending with a drive across the red dust of Gale Crater, the book deftly guides readers through the many setbacks, victories and difficult decisions that came with planning an interplanetary mission."THE SPACE REVIEW"...the book offers a detailed, compelling tale of the roverâ ™s development from someone who was at the center of the effort. For those who want to know how the spacecraft sausage is made, this is the book for you."FORBES.COM"Manningâ ™s just published account of years at NASAâ ™s venerable Jet Propulsion Laboratory (JPL), co-written with best-selling non-fiction author William L. Simon, will resonate most with those who want an excellent inside take on the rigorous and often arduous task of designing interplanetary landers and the eureka moments that affords. Manning deserves credit for bringing his own sense of candor and humility to the prose."

ROB MANNING has worked at NASA and Caltechâ ™s Jet Propulsion Laboratory for more than 30 years. He now leads the engineering for the Mars Program Office and is chief engineer on a project to develop technologies for landing even larger robotic vehicles on Mars with hopes of eventually landing future astronauts and scientists there. WILLIAM L. SIMON is the author of 30 books including iCon: Steve Jobs and Ghost in the Wires, both New York Times and international bestsellers.

I read Adam Steltzner’s book on the MSL program, but it was mostly about his career and NASA. I was hoping to get some good tech about the MSL program with this book. But this book too is mainly people and politics. There is some tech buried in it, but I got tired of hearing about the NASA

bureaucracy and the never-ending scramble for funding. Some pics, but they are small low-res grayscale on cheap paper. I'd gladly pay more for a comprehensive explanation of the technology with lots of color pics, graphs, charts, etc.

As an enthusiastic practicing engineer I found this account fascinating. When first I learned about the sky crane I was alarmed at the complexity of the whole arrangement in a mission where every gram was precious and there was no chance of a second try. The book, written from an engineering perspective gave me the train of logic that generated the outcome. I became convinced!It's not much appreciated how much effort goes into a project like the Mars Lander. This book provides a clear insight into the sheer amount of hard work, hard thinking and hard discussion.The book outlined a number of other interesting engineering solutions and, most importantly, the logic and constraints that lead to them. An aside chapter on some of the aspects of a manned Mars landing showed clearly the vast magnitude of such an undertaking.

I've been waiting for a book to come along that I just couldn't put down. it's finally arrived! Not only do the authors give you a lot of interesting information about the rover itself, they spend a reasonable amount of time talking about the culture and bureaucracy wrapped around the whole process.I looked forward to every chance I found time to read some more and the book actually prompted a lot of questions of my own. I'm attempting to contact Rob Manning so he can perhaps hand me off to someone with the time to answer them.All in all ,a great read, I enjoyed every word of it.

"Mars Rover Curiosity" is the real deal. Author Rob Manning was JPL's Chief Engineer on the program, and he tells it like it was and is.With excellent readability and page-turning immediacy, Dr. Manning recounts the trials and tribulations, successes and failures, joys and sorrows of NASA's effort to land a planetary rover on Mars using a seemingly crazy technique dubbed "sky crane." Curiosity was bigger, heavier, more complicated, more capable and more power-hungry than any other rover ever flown. Designing, building, testing, launching and operating it on a very tight schedule and within stringent funding constraints presented daunting challenges that sometimes brought the project to a virtual standstill. The stunning success of Curiosity's flawless touchdown on Mars on August 5, 2012, is a testament to the skill, dedication, ingenuity and hard work of the scientists, engineers and technicians who worked on it. This book is their story.It's all in here: planning and budgetary meetings; design reviews; trade studies; hardware and software

development, testing and integration; launch and interplanetary cruise flight; the landing’s "seven minutes of terror;" Martian surface operations, and even some of the science results. Dr. Manning does not concentrate on any one topic to the exclusion of the others. As an unrepentant techno-geek, I tend to most enjoy spaceflight books that are filled to bursting with arcane technical minutia, and I usually pay less attention to the budgetary, programmatic and managerial material. Not so in "Mars Rover Curiosity." I found it fascinating from cover to cover. Its level of detail satisfied my geekiness, but should not be daunting to those readers not too familiar with the subject.For an exciting tale of planetary exploration as new as tomorrow’s headlines, pick up a copy of "Mars Rover Curiosity." As I said, it’s the real deal.

What a cool book. I loved it! Well written, it does an excellent job of telling its story, which is a lot more interesting that I had first believed. What a lot of garbage these guys had to endure to get this machine built! BRAVO to them and to the author who brought us this tale. Recommended if you like science, tech, NASA, tales of government stupidity or just want to know how we got that little guy up there on Mars.

if you like aerospace engineering, mars, descriptions of big projects from the inside, testing (even software testing), nasa, test results from a parachute in a high speed wind tunnel, learning about how to get a rover from space to the surface, and reading about how you can tell what is in rocks without touching them, then...you’ll probably like this.

Great insider information of issues and faults encountered and overcome to make the incredible landing possible. The author is quite knowledgeable. This book also discusses hardware faults on the MER rovers that could have prevented a successful landing for them. These were identified just prior to landing an a work-around routine sent to the spacecraft at nearly the last minute. Great stories!

Interesting reading from a different perspective. Would love to read something more in-depth, for example how the cruise navigation is achieved using star sightings and position gathering from earth and more on the technologies involved throughout the project from the launch vehicle to the arrival at Mars prior to EDL.

Mars Rover Curiosity: An Inside Account from Curiosity’s Chief Engineer The MARS Series, Books

1-5 [Unabridged CD] by Edgar Rice Burroughs (A PRINCESS OF MARS, THE GODS OF MARS, THE WARLORD OF MARS, THUVIA, MAID OF MARS, THE CHESSMEN OF MARS) Red Rover: Inside the Story of Robotic Space Exploration, from Genesis to the Mars Rover Curiosity The Warlord of Mars by Edgar Rice Burroughs, (Mars Series, Book 3) from Books In Motion.com (John Carter of Mars) Mars Up Close: Inside the Curiosity Mission Corvette from the Inside: The Development History as told by Dave McLellan, Corvette's Chief Engineer 1975-1992 Wild Rover No More: Being the Last Recorded Account of the Life and Times of Jacky Faber (Bloody Jack Adventures) Wild Rover No More: Being the Last Recorded Account of the Life & Times of Jacky Faber Wild Rover No More: Being the Last Recorded Account of the Life & Times of Jacky Faber (Bloody Jack Adventures Book 12) Curiosity's Mission on Mars: Exploring the Red Planet (Nonfiction - Young Adult) Chief Engineer: Washington Roebling, The Man Who Built the Brooklyn Bridge The Warlord of Mars (John Carter of Mars) The Chessmen of Mars by Edgar Rice Burroughs(Mars Series, Book 5) from Books In Motion.com Thuvia, Maid of Mars by Edgar Rice Burroughs (Mars Series, Book 4) from Books In Motion.com A Princess of Mars (John Carter of Mars) The Gods Of Mars by Edgar Rice Burroughs (Mars Series, Book 2) from Books In Motion.com Mars: Our New Home? - National Plan to Conquer the Red Planet (Official Strategies of NASA & U.S. Congress): Journey to Mars â " Information, Strategy and ... Act to Authorize the NASA Program Rover V8 - the story of the engine Make a Raspberry Pi-Controlled Robot: Building a Rover with Python, Linux, Motors, and Sensors Holy Rover: Journeys in Search of Mystery, Miracles, and God