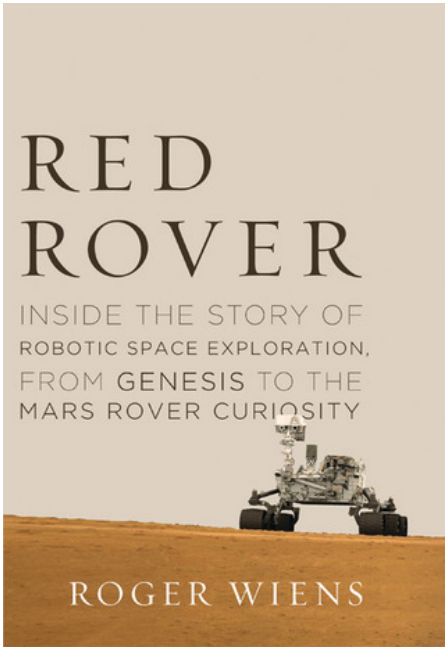

Red Rover: Inside the Story of Robotic Space Exploration, from Genesis to the Mars Rover Curiosity

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In its eerie likeness to Earth, Mars has long captured our imaginations—both as a destination for humankind and as a possible home to extraterrestrial life. It is our twenty-first century New World; its explorers robots, shipped 350 million miles from Earth to uncover the distant planet's secrets.

Its most recent scout is Curiosity—a one-ton, Jeep-sized nuclear-powered space laboratory—which is now roving the Martian surface to determine whether the red planet has ever been physically capable of supporting life. In *Red Rover*, geochemist Roger Wiens, the principal investigator for the ChemCam laser instrument on the rover and veteran of numerous robotic NASA missions, tells the unlikely story of his involvement in sending sophisticated hardware into space, culminating in the Curiosity rover's amazing journey to Mars.

In so doing, Wiens paints the portrait of one of the most exciting scientific stories of our time: the new era of robotic space exploration. Starting with NASA's introduction of the Discovery Program in 1992, scrappier, more nimble missions became the order of the day, as manned missions were confined to Earth orbit, and behemoth projects went extinct. This strategic shift presented huge scientific opportunities, but tight budgets meant that success depended more than ever on creative engineering and human ingenuity. Beginning with the Genesis mission that launched his career, Wiens describes the competitive, DIY spirit of these robotic enterprises, from conception to construction, from launch to heart-stopping crashes and smooth landings.

An inspiring account of the real-life challenges of space exploration, *Red Rover* vividly narrates what goes into answering the question: is there life elsewhere in the universe?

Red Rover: Inside the Story of Robotic Space Exploration, from Genesis to the Mars Rover Curiosity Details

Date	:	Published March 12th 2013 by Basic Books
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From Reader Review Red Rover: Inside the Story of Robotic Space Exploration, from Genesis to the Mars Rover Curiosity for online ebook

Ushan says

This book tells about the career of the space scientist who headed the joint American-French team working on ChemCam, an instrument of the Curiosity Mars rover. ChemCam points a laser at a target rock, vaporizes a minute amount of material, and analyzes its chemical composition by looking at the spectrum of the resulting plasma. The laser can also blast away the dust on a rock before actually analyzing the rock. Mars is a cold planet, but Curiosity is heated by a radioisotope, so the CCDs of the spectrometer actually needed a thermoelectric cooler. The first batch of CCDs had electrical leads made out of tin, which can grow whiskers, causing short circuits; they found a company that would robotically dip them all in hot lead. Also, the first CCDs could not withstand Martian levels of radiation; they found more radiation-resilient CCDs, though they were more expensive and had the wrong shape. The fiber optic cable connecting the telescope to the spectrometer could not be too long, for too much light would be lost. The engineers working on the rover wanted to splice pieces of the cable with optical connectors, so only between a third and a tenth of light would get to the spectrometer; the author had to prove to them that he needed every photon he could get.

In 2012, the rover safely landed on Mars in a crater where there were signs of past water, and has been driving on the planet and analyzing the chemical composition of soils and rocks ever since. The author's career since 1997 has been vindicated.

Jenae says

Wiens has written a very compelling memoir based upon his history with robotic space exploration. Prior to reading this, my main idea of NASA centered around the shuttle program; I remember being very sad when the last shuttle was launched, but, having read this book, my imagination can again run rampant with thoughts of the space exploration that is continuing through different, but vitally important, methods. The trials and tribulations encountered during the several missions he worked on are typical of any design-and-build project. It was both gratifying and humbling to see that things like budgeting, production delays, material sourcing, bureaucracy, public relations, and so on (i.e. things encountered during my engineering program's capstone design course) are things that a group of scientists from Los Alamos National Labs had to deal with, too...albeit on a much grander scale.

(a)lyss(a) says

This book reads more like an autobiography of Roger Wiens than a book about Curiosity, which isn't necessarily a bad thing. Following Wiens narrative through the story and the work that went into building Curiosity presented a new side of the story that we didn't hear a lot about but also presented lots of scientific details in a way that wasn't overwhelming or confusing. There are a lot of things that feel glossed over while other things seem to inhabit lots of pages, but overall I found it a good read. It's a very high level approach to the creation of Curiosity's ChemCam in a way that makes the acronyms and emotion of it all accessible and

enjoyable.

Cj says

The title is a bit misleading. This is almost entirely about Roger Weins experiences as a scientist getting the green light and funding for different programs that he was affiliated with and some that he was in charge of. His stories are, at times, very interesting, but they are also a very one-sided look at the projects he was involved in. This is not a history of robotic space exploration. This is about one man's involvement with these projects. Some of his stories are quite touching, and some of them have more minutiae than seems necessary. I didn't really need to know that his flight was delayed and he missed a connecting flight, or that he and his wife had to postpone their anniversary. That is the sort of thing that happens to everyone.

Perhaps I went into this book expecting it to be something it was not. I thought it would be "the Story of Robotic Space Exploration" which it really isn't. I also felt like he was talking at a party of former colleagues reminiscing about their projects with acronyms sprinkled liberally in the conversation. At times I was frustrated at having to recall what an acronym stood for. For a slim book, it seems that it wouldn't have hurt anything to have added a little bit more about each of the project's history, and to have used the exact name more frequently for clarity. More of a timeline would have been nice too. But for those very, very interested in the current programs going on, and Mars in particular, it should be very enjoyable, and offers a very human side to the effort of getting anything off the ground.

Doug Dams says

The book is about one of the test instruments aboard the Mars Rover Curiosity, and the team that built and developed it. It's an interesting story, as I could relate to the scientists and engineers that built and launched model rockets or used telescopes when they were young. And how that all led to a career in the space science community. The book describes the work, research and pitfalls the team faced through the years it took to bring their test instrument to a device that could be mounted on a robotic rover sent to Mars. You don't need to be a scientist or an engineer to read this, although it does make it more interesting. The book is written in an informal style that makes it seem like it's an old friend telling the story. You get to see how NASA interacts with institutions like CalTech, the Jet Propulsion Lab (JPL), foreign space agencies and a host of manufacturers. It's really fun to see behind the scenes of an engineering triumph like the Curiosity Rover. I'd recommend the book to anyone who thinks about travelling to other planets.

Anton says

"Go, go, go"! Roger Wiens presents a wonderful account of the excitement and challenges involved in the exploration of space. This book is a fantastic insight into the behind-the-scenes moments that eventually made Genesis and Curiosity, as well as other robotic missions. In addition, this account puts into perspective the effort of the individuals dedicated to pushing our notion of what is possible.

Don says

As other reviewers have pointed out, this is not REALLY a book about exploring Mars but about the experience of one scientist in the development of a single scientific instrument that is now aboard the Curiosity rover (MSL). As a well-read "space nut", with no formal scientific background, I found the story to be a very interesting behind the scenes look at the process of developing the hardware for these missions. Sure, the descriptions of the travel related to countless meetings and reviews was a little tiresome but I think it helped shed some light on the level of commitment these scientists have to their work. They go above and beyond to turn their ideas into reality.

Of course, towards the end of the book there is some discussion of the MSL's landing and early findings but this probably isn't news to the informed reader now that the mission is well into its third year now.

I'd recommend this book to anyone interested in scientific space exploration. The author does a great job of explaining the science in layman's terms while keeping things interesting for the more technically versed.

Tyler says

This book shares the perspective of a scientist who participated in two of the most ambitious robotic space missions: the Genesis probe to collect samples of the solar wind (2001-2004) and the Curiosity probe to explore Gale Crater on Mars (2011-present). Over the past year, a rover the size of an SUV has fired laser beams onto Martian rocks. These laser flashes have then produced spectral lines for scientists such as Dr. Wiens to analyze back on Earth, and determine the chemical composition of the rocks in question.

I am simply amazed that in the course of fifteen years, we have gone from a tiny 23-pound rover called Sojourner to a one-ton rover called Curiosity.

Anood AlKatheeri says

When I used to read online about all these spacecrafts and rovers going into space (Spirit, Opportunity, Juno, Curiosity..), I never realized that it took numerous years, enormous hard work, and thousands of committed scientists and engineers to bring their dreams to reality. This book is told from the perspective of one of NASA Mars Rover Curiosity's instrument leaders, Roger Wiens, who beautifully narrated the the behind-the-scenes of being a part of multiple space exploration journeys, from forming the team and writing the proposals to launching the vehicles and landing on the red planet in the case of Curiosity. Through reading this book, you get to see that these journeys were not as smooth as the public might think, they often involved many challenges, failures, delays, miscommunications, risks, and sacrifice. However, despite all the odds, these robots still manage to be successful, proving the lengths that the teams are willing to take to realize their space missions and continue the human exploration.
A highly enjoyable and interesting read, recommended for all science and engineering enthusiasts.

Juliette says

I knew before starting that this book was going to be dry. (Look at the title!) It's about the building of one component of the Mars Rover, from an idea to Mars. I enjoyed reading about having to deal with budget cuts -- performing tests with less than ideal building materials, assembling a state-of-the-art instrument as though they were MacGuyver -- and bureaucracy. The teams that put together Curiosity deserve all their kudos and more.

Laura Perry says

This is a great go to for information on the different Rovers. There is a lot of information to read through. For someone who is interested in more on this topic, this a great resource.

K De says

A well written account of the author's career as a geochemist and his work for NASA. I believe that this book is readable introduction into scientific process, engineering design process that is understandable to teens who have a interest in science and engineering.

What is cool about the book is the candor that the author has on how NASA works and how teams of scientists and engineers work to reach their goal for a particular project.

The reader understands that the launch of a science project is not the end of the work but really just the beginning of the work for scientists. He makes clear that there are associated long term costs to keep the scientific mission alive so that the data incoming can still be analyzed years after the public has forgotten about the launch.

James says

The highs and lows, heartbreaks and joys, of a career in space exploration. Starting as a boy who launched model rockets with his brother on their western Minnesota farm, Mr. Wiens tells a captivating adventure story of space exploration culminating in his leading a team overseeing one of the payload instruments on the ongoing successful Curiosity Rover Mission to Mars.

Daniel says

Very disappointing. I am sure , like many of the readers who had read this book, would have realised it has nothing to do with exploring Mars,
But is all about the Scientist who had worked on this project.

Matt Theis says

Moderately interesting story. Quick read.