

# QUEST

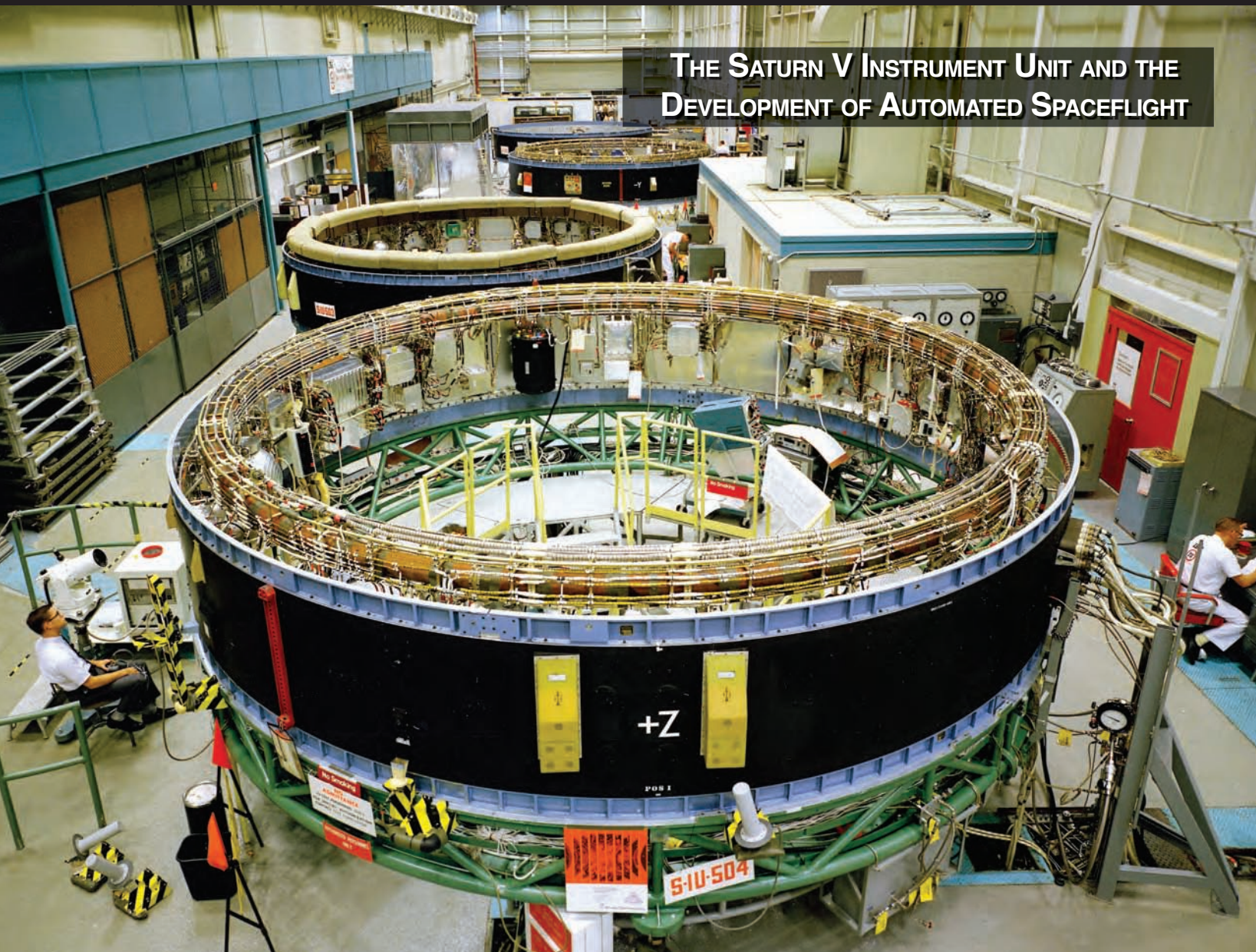


**THE HISTORY OF SPACEFLIGHT**  
**QUARTERLY**

**GEOSTAR:  
THE RISE AND FALL OF A  
SATELLITE COMMUNICATIONS  
PIONEER**

**AN INTERVIEW WITH  
ROGER-MAURICE BONNET:  
HALF A CENTURY OF  
EUROPEAN SPACE SCIENCE**

**NATIONAL  
MULTIPURPOSE  
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PROGRAM**



**THE SATURN V INSTRUMENT UNIT AND THE  
DEVELOPMENT OF AUTOMATED SPACEFLIGHT**

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### NOMINATIONS

are being accepted for the  
**ORDWAY AWARD**  
 for Sustained Excellence  
 in Spaceflight History

This award is named in memory of Frederick I. Ordway III (1927-2014), human spaceflight advocate and chronicler of the history of rocketry and space travel. The award is presented on an *occasional basis* by the American Astronautical Society and recognizes *exceptional, sustained efforts to inform and educate* on astronautical history through one or more media, such as (1) writing, editing, or publication of a *book series* (as opposed to a single title); (2) preparation and distribution of *exhibits*; or (3) production for distribution through *film, television, art, or other non-print media*. The award process is managed by the AAS History Committee.

Nomination forms are available at  
[www.astronautical.org/awards/ordway](http://www.astronautical.org/awards/ordway)

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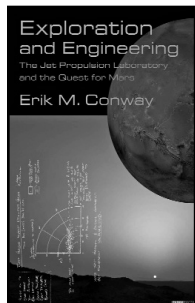
## FRONT COVER CAPTION

Four Saturn V Instrument Units in the IBM plant at Huntsville. IU-504 is closest, IU-503 behind that. The third one back has a Y+ marking, indicating that it is IU-205 or IU-502 or a subsequent model.  
 Credit: NASA



## BOOK REVIEW

# EXPLORATION AND ENGINEERING: THE JET PROPULSION LABORATORY AND THE QUEST FOR MARS



By Erik M. Conway

Johns Hopkins University Press, 2015

ISBN: 978-142141604-5

Pages: 416

Price: \$34.95, hardcover

NASA has had two Mars exploration periods. The first, from the mid-sixties to the late-seventies, featured Mariner flyby and orbiter missions leading up to the two very ambitious Viking orbiter/lander missions that reached Mars in 1976. The success of Viking was also its undoing, as it had focused on finding life, and when none was found (at least in the opinion of the great majority of scientists), the public and the politicians lost interest. The late seventies were also difficult years for NASA, with the shrunken post-Apollo budget and crises in the Shuttle program. In 1981 the incoming Reagan administration tried to kill robotic planetary programs altogether, along with the lead center, the Caltech-operated Jet Propulsion Laboratory (JPL). While Congress fended that off, no new project got on the agency's agenda until Mars Observer in 1984, an attempt to produce a low-cost orbiter. However, it was technically troubled, delayed, ran much over budget, and disappeared in August 1993, almost a year after launch, likely due to an explosion in a propulsion-system test just before orbital insertion.

The second period of U.S. Mars exploration thus began with the Mars Pathfinder landing in summer 1997, followed by the Mars Global Surveyor reaching orbit in September. The former in particular was a "faster, better, cheaper" mission carried out under Administrator Daniel Goldin's technology agenda. But the next two missions, which were to be done for even less cost, Mars Climate Orbiter and Mars Polar Lander, were ignominious failures in 1999, forcing NASA and Goldin to retreat from risk and formulate a new program. That led to the spectacularly successful, science-driven missions from 2001 to 2012 (and beyond, as almost all are still working): Mars Odyssey, Mars Exploration Rovers (MER) *Spirit* and *Opportunity*, Mars Reconnaissance Orbiter (MRO), Mars Phoenix, and Mars Science Laboratory (MSL) *Curiosity*.

Erik Conway's excellent book covers the period from origins of Mars Observer to the landing of Mars Phoenix in 2007 (he discusses the origins of MSL and mentions *Curiosity's* landing in an "Epilogue," but much of that program is too recent to make it into the book). *Exploration and Engineering* is essentially the modern version of an old NASA

History genre, the program history. Conway is the historian of JPL and that insider status is critical. Access to documents has become more difficult for outside researchers in the ITAR (International Traffic in Arms Regulations) era, as I have experienced personally at JPL. Easy access to JPL people and funding for a large oral history program is also crucial, because the switch to electronic communications and documentation has resulted in the disappearance of documents that used to be created, or survive, in the paper era.

As program history, it essentially is a sequel to Edward and Linda Ezell's *On Mars*, the history of Mariner Mars and Viking,<sup>1</sup> and it shares the dry and detailed character of that genre. But *Exploration and Engineering* is a masterpiece of research and writing. Conway knows the intricate details of the engineering and science considerations and events in each program, and carefully pulls apart the reasons for failures and successes. The details are often complex and jargon-laden, but he explains them clearly. It is a book for historians of science and technology and space program insiders, not general readers, which is perfectly appropriate for what it is.

Unlike the old program histories, however, Conway does make clear interpretative statements and is willing to venture opinions that may bother some readers. He notes the multiple causes of the embarrassing failures of 1993 and 1999 and asserts that NASA has become too risk-averse in the wake of the latter. He discusses how JPL tends to stick with the same, expensive contractors and subcontractors because it lowers risk when the political system does not seem to tolerate it. While the "better, faster, cheaper" agenda has partly survived at NASA, notably in the Discovery Program (which spawned Mars Pathfinder and the upcoming small InSight lander to be launched in 2016), the Mars program went towards large, scientifically ambitious "flagship" missions like MRO and MSL. We are now facing a slowdown in U.S. Mars exploration because that could not be sustained due to economic and political events inside and outside NASA.<sup>2</sup> And he ends by noting that humans are not needed to explore Mars; indeed, humans will inevitably contaminate Mars with their microbes, making the scientific investigation of a pristine Red Planet impossible. But he sees not much prospect of that happening anytime soon. I agree. Every current human Mars program is rhetorically overinflated and greatly underfunded. There is little prospect of humans setting foot there any time soon, and I no longer think that is a bad thing.

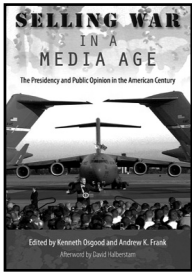
1. Edward Clinton Ezell and Linda Neumann Ezell, *On Mars: Exploration of the Red Planet, 1958-1978*, NASA SP-4212 (Washington, DC: NASA Scientific and Technical Information Branch, 1984).

2. Conway's book can be usefully read in conjunction with W. Henry Lambright's Washington-DC-policy-centered *Why Mars: NASA and the Politics of Space Exploration*, (Johns Hopkins University, 2014).

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National Air and Space Museum  
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## BOOK REVIEW

# SELLING WAR IN A MEDIA AGE: THE PRESIDENCY AND PUBLIC OPINION IN THE AMERICAN CENTURY



Edited by Kenneth Osgood and Andrew K. Frank

University Press of Florida, 2011  
ISBN: 978-081303-800-1  
Pages: 296  
Price: \$26.99, paper

Collected works are always problematic. There is always the challenge of ensuring high quality of all of the essays, and often there are issues concerning a sustained and broadly overarching question to connect all the book's contributions. These issues are present in this volume as well, but overall this is a strong collection of essays that moves through the 20th century to explore how presidents have tried to manage their public relations. Essentially a chronological collection, the essayists include discussions of William McKinley and the 1898 war and its aftermath, World War I and World War II propaganda, five chapters on the various aspects of the Cold War including one on Vietnam and another on the Strategic Defense Initiative (SDI). A chapter on selling the Gulf Wars precedes a conclusion that seeks to wrap up the volume.

The most interesting essays, from my perspective and probably from the perspective of the readers of *Quest*, relate to the Cold War, especially Paul S. Boyer's chapter on "Selling Star Wars: Ronald Reagan's Strategic Defense Initiative." Boyer extends his ideas from his superb book, *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* (1994) into the 1980s and explores the Reagan administration's efforts to renew the Cold War after a decade of détente. SDI rejected the concept of nuclear deterrence and its application in "Mutually Assured Destruction" in favor of a belief that nuclear confrontation was something that the United States could win. This clearly upset the strategic relationship and sparked another arms race and set the stage for scrambling thereafter to walk back from a possible confrontation.

Unintentionally, the renewed arms race that Reagan

started helped to bankrupt the Soviet Union; but the USSR also collapsed from imperial overstretch as well as the incursion of knowledge that a better future might be achieved by pursuing a different political agenda more in synch with rather than in tension with the West. When it collapsed at the end of the 1980s it was far from a magical event. At the same time, Reagan was astute enough to allow the internal situation in the Soviet Union to play out, helping in the process by working with Mikhail Gorbachev on arms control and the reduction of nuclear weapons.

I also very much appreciated co-editor Kenneth Osgood's essay on Eisenhower and Cold War rhetoric. Again, this extended some of his earlier work, especially his book, *Total Cold War: Eisenhower's Secret Propaganda Battle at Home and Abroad* (2006), and focused on how he sought to strike a balance between permanent rivalry and military preparedness versus demobilization and peace in relation to the Soviet Union. Sputnik and the space race were no small part of this effort and Osgood's essay lays out relations worthy of serious study.

There are, of course, several important areas not discussed in this book, and perhaps others will take up the mantle of presidential rhetoric and the management of public opinion in these arenas. For example, there is very little concerning the Kennedy administration and its confrontations with the Soviet Union, as well its attempts to walk back from the brink of nuclear war relative to the Cuban Missile Crisis and the Nuclear Test Ban Treaty. There is essentially nothing on the place of the United States on the wars of liberation and the demise of colonial empires—even though there were instances in which the United States intervened—suggesting that anticolonialism may be a ripe area for future exploration. Anticolonialism, and its place in the context of the space race also deserves thoughtful investigation.

Overall this is very fine collection. It has its weaknesses, of course, but also a great many strengths.

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# QUEST

THE HISTORY OF SPACEFLIGHT  
QUARTERLY

www.spacehistory101.com



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