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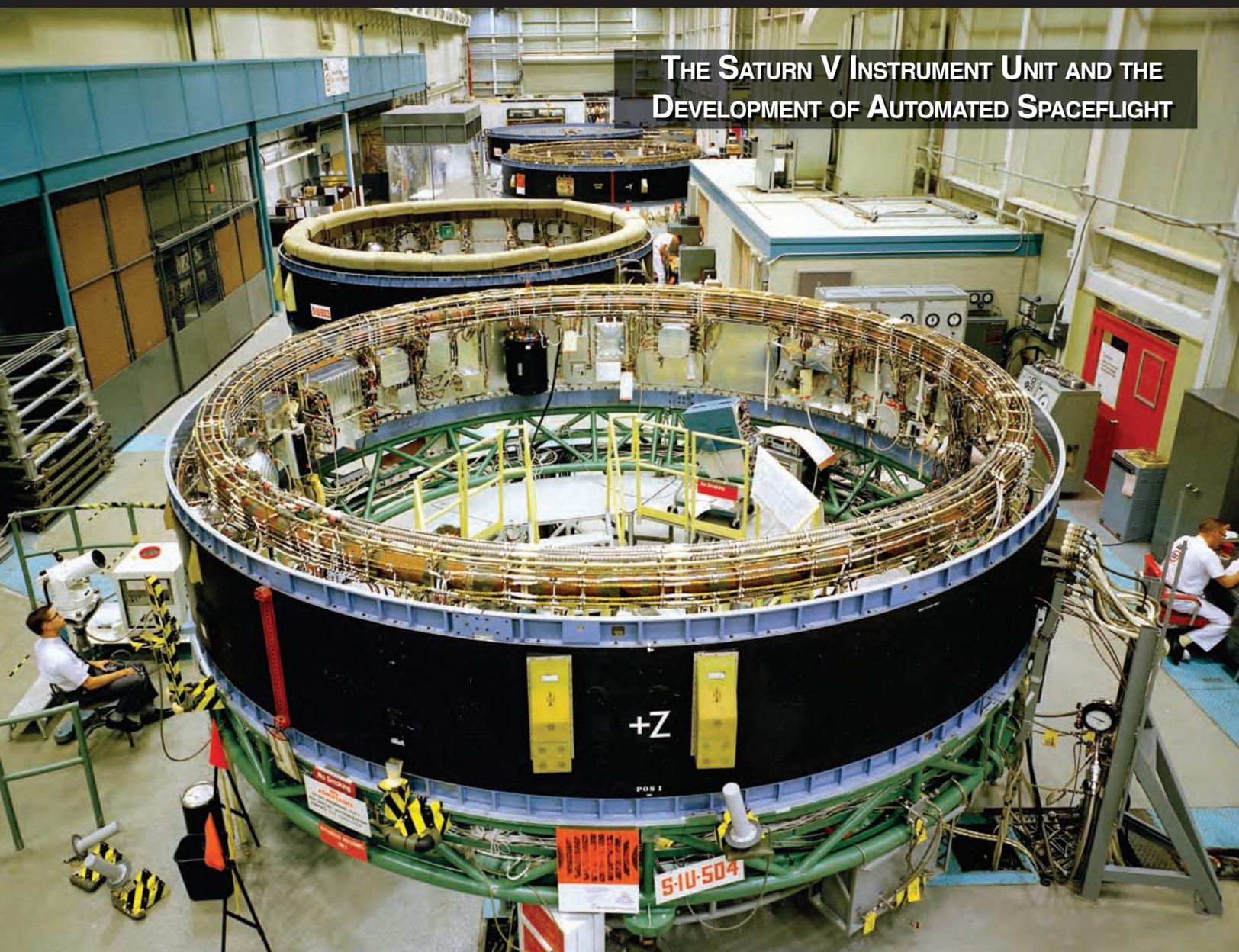


THE HISTORY OF SPACEFLIGHT
Q U A R T E R L Y

**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
SPACE STATION
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

BOOK REVIEWS

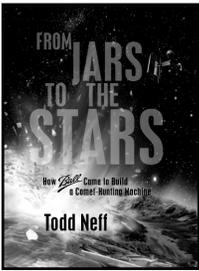
- 56 **Voices of the Soviet Space Program: Cosmonauts, Soldiers, and Engineers Who Took the USSR into Space**
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- 57 **Space Pioneers: In Their Own Words**
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- 58 **Starmus: 50 Years of Man in Space**
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- 59 **Blue Gemini: A Thriller**
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- 60 **Exploration and Engineering: The Jet Propulsion Laboratory and the Quest for Mars**
 Book by Erik M. Conway
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- 61 **Selling War in a Media Age: The Presidency and Public Opinion in the American Century**
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 Review by Roger D. Launius
- 62 **War Stars: The Superweapon and the American Imagination**
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- 64 **Dreams of Other Worlds: The Amazing Story of Unmanned Space Exploration**
 Book by Chris Impey and Holly Henry
 Review by Roger D. Launius

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

FROM JARS TO THE STARS: HOW BALL CAME TO BUILD A COMET-HUNTING MACHINE



By Todd Neff

Earthview Media, 2010
ISBN: 978-098295830-8
Pages: 327
Price: \$24.95, paper

This is a well-written, lively, and generally thoroughly documented account of how members of the Upper Air Laboratory within the University of Colorado physics department eventually reformed as Ball Brothers Research in the early 1950s. Their proven expertise building sounding rocket pointing controls made them an attractive acquisition for the Ball Brothers Corporation of Muncie, Indiana, makers of the ubiquitous Ball Mason jars. What appeals especially is the amount of detail the author provides to show that the acquisition, and what followed in the next four decades, was anything but determinative or pre-ordained.

Ball Aerospace, known now as Ball Aerospace & Technologies Corporation, earlier as Ball Brothers Research Corporation, and at first Ball Brothers Research, has produced some of the most successful vehicles for scientific research in space ranging from stabilized bi-axial control systems to point spectrographs at the Sun during sounding rocket flights in the 1950s, to more sophisticated spin stabilized satellite bus systems for the pioneering *Orbiting Solar Observatory* series in the 1960s and 1970s, to some of the most inspiring vehicles for solar system and deep space studies that NASA has supported. These include most visibly the *Kepler* mission and primary imaging instruments on the *Hubble Space Telescope*. Between then and now, the company also engaged in a wide range of classified projects that advanced the nation's expertise in stabilized platforms for high-altitude reconnaissance observations, and also engaged in one of the most audacious projects in the history of the space sciences: sending a probe into the nucleus of a comet. The bulk of the book deals with the last project, known as *Deep Impact*, the mission to comet Tempel 1, after an historical review of the company's civilian projects in the space sciences. Dubbing the *Deep Impact* mission as “a game of space golf” [279] the author drives the analogy home describing every iterative stage in the complex process of maneuvering a projectile from the Earth's orbit to a rapidly moving but hardly stable comet.

What is remarkable about this work is that it identifies, with brief biographies and personality profiles, literally scores of workers at many levels at both Ball and the Jet Propulsion Laboratory, organized by their function, along with the tools, talents, and techniques they brought to the project. Neff, self-

described on his Twitter page as an “energy, health care, science and environment journalist and author” brings to life the complex story of how a mission is conceptualized, designed, tested, reviewed for cancellation, redesigned, built, tested again, and finally prepared for flight and ultimately flown to completion. “There were many teams busy working on instruments, thermal control, power, telecommunications, spacecraft computers, software, propulsion, attitude control and autonomous navigation,” Neff states in what he admits is an “impressionistic portrait of a spacecraft and the people who built it” [159; 163]. Accordingly, Neff carries the reader on a journey identifying one technical challenge after another, introducing us to the chief players who met the challenge, and then providing their background, talents and the training they brought to the task, with enough personal vignettes to provide, indeed, an appealing and accessible “impressionistic portrait.”

Neff employs colorful rhetoric to create believable characters facing considerable risk: as individuals, organizations and institutions. He contrasts engineering management styles at Ball with JPL, Southwest Research Institute, Hughes Aircraft, and other organizations with which Ball staff needed to cooperate over time. He bases much of this rhetoric on personal testimony, gathering insights from a wide variety of resources. He has conscientiously absorbed, and adequately cites, relevant technical literature, as well as both primary and secondary sources in the history of science and technology that cover space history, especially relations between NASA and industry. He weaves in passages from the many personal interviews with those he writes about, and he has examined and adequately cites earlier oral histories by other historians, including this reviewer.

Gaffs and purple prose exist, but happily are few and far between, though noticeable in the earlier sections which seem farther from Neff's journalistic attention. The Luftwaffe was not responsible for the V-2s Germany “rained upon Allied Europe during World War II” [9]. And in the late 1940s, although the young solar scientist Walter Orr Roberts was certainly promising, he was not yet “famed.” These are but minor issues included to caution but not deter potential readers from enjoying this captivating book. Of greater disappointment, however, is that after a breathless concluding chapter heralding the stunning successes of *Deep Impact*, the story ends with only a short and rather superficial epilogue pointing to the continuing risks a company faces depending upon politically sensitive patrons like NASA. Here, greater attention to the considerable literature on this subject would have strengthened the work noticeably.

David H. DeVorkin
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Washington, DC

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