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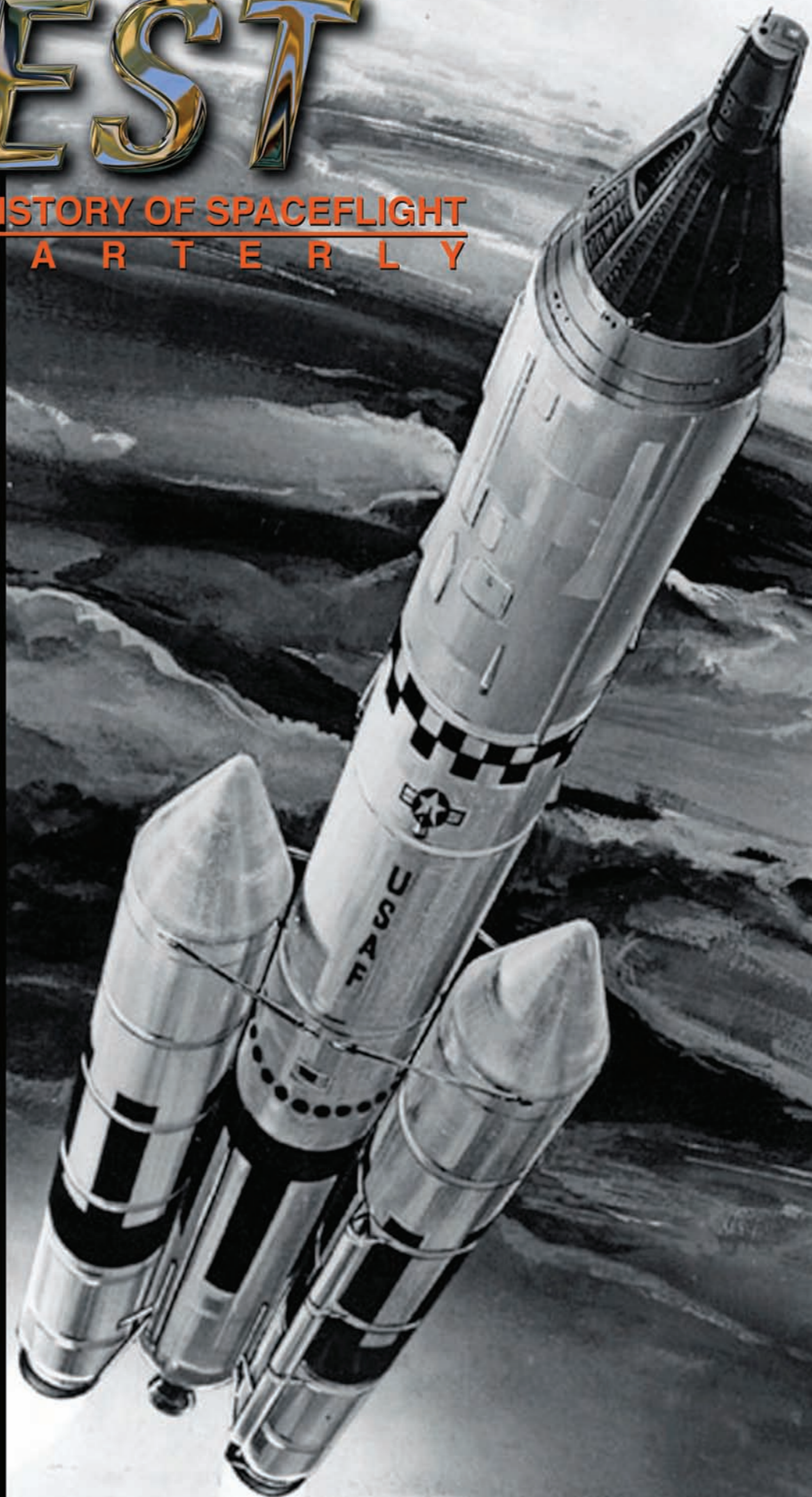
THE HISTORY OF SPACEFLIGHT
QUARTERLY

**THIRTY DAYS IN A MOL:
BIOMEDICALLY-RELEVANT
ASPECTS OF A
RECONNAISSANCE MISSION
INFERRED FROM
ORBITAL PARAMETERS**

**UNEQUAL PARTNERS:
CANADIAN, JAPANESE, AND
AMERICAN SPACE PROGRAMS**

**THE EARLY BIRD DECISION:
50 YEARS LATER**

**AN INTERVIEW WITH
DONALD H. PETERSON:
MOL AND STS-6 ASTRONAUT**



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MOL and STS-6 Astronaut**

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FRONT COVER CAPTION

Artist concept of a launch of the Manned Orbiting Laboratory (MOL) using a Titan rocket.

Credit: U.S. Air Force

MOL Artist Concept.

Credit: U.S. Air Force, Courtesy of Dwayne Day

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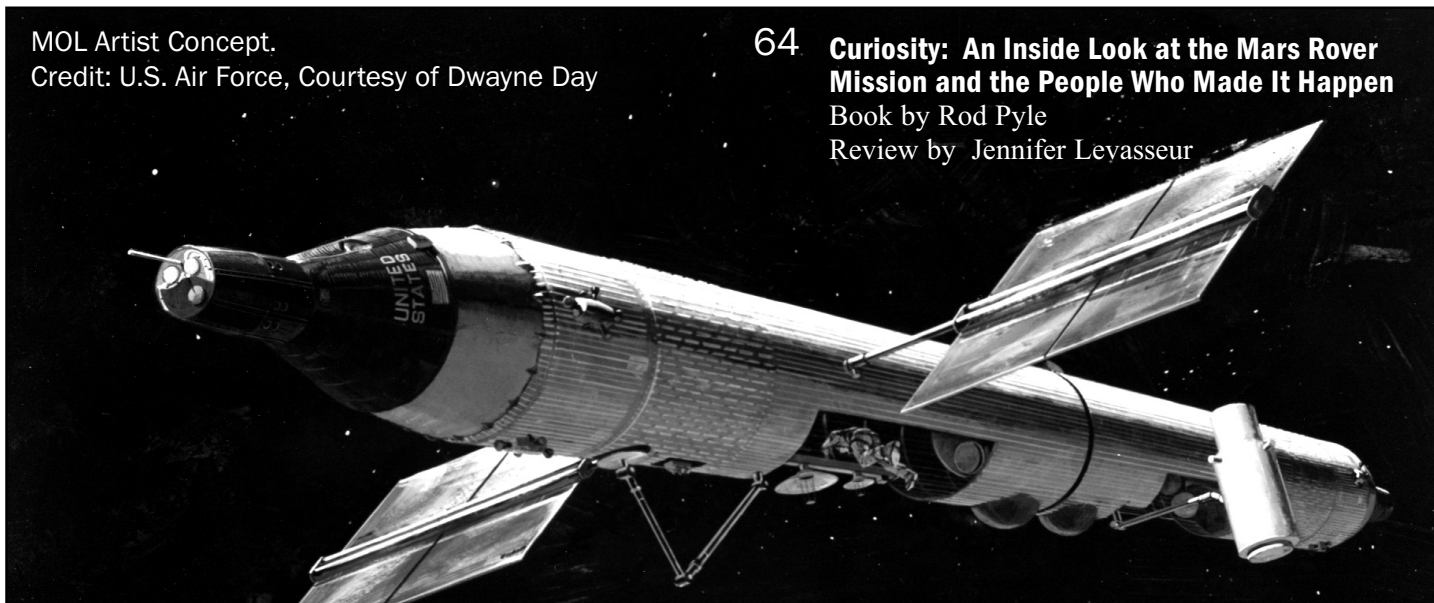
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were conceived for SDI is not only feasible but imperative” [214].

His final chapter “The Survival Imperative” goes beyond defense of the Earth, taking as a cue a passage from Buzz Aldrin and John Barnes’ *Encounter with Tiber* (1996) to “spread out, or wait around and die” [218]. Indeed, invoking testimony from other astronauts, like John Young, and the physicist Gerard K. O’Neill, Burrows strongly advises that we must populate the universe if we are to ensure survival. Yet, at the very end of this somewhat rambling but passionate essay, Burrows oddly states that “spreading out should not be undertaken as an alternative to extinction...but as a supremely rewarding adventure in its own right, spiritually, aesthetically,

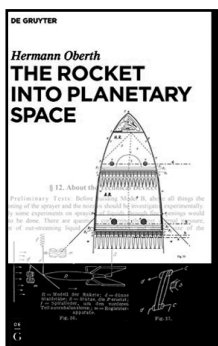
and physically” [239]. This, from a writer who had just claimed that planetary exploration for its own right was “marginal,” “irrelevant” and “wasteful.”

When I received a review copy, I assumed it was pre-publication. Cheap pulp paper, numerous editorial oddities, few illustrations, virtually no evidence of attention to design. Burrows and his readers deserved better.

David DeVorkin
National Air and Space Museum
Smithsonian Institution
Washington, DC

BOOK REVIEW

THE ROCKET INTO PLANETARY SPACE



By Hermann Oberth
Translated by Trevor C. Sorensen,
Joachim Kehr, Michael L. Ciancone,
Peter A. Englert, Lars Oliefka, Rick W.
Sturdevant and Joni Wilson

De Gruyter, 2014
ISBN: 978-3-48675463-6
Pages: 98
Price: €128.95, \$181.00.

According to the preface, this translation of Hermann Oberth’s historic 1923 work, *Die Rakete zu den Planetenräumen*, is the first complete and accurate version in English. NASA produced one in the 1960s as part of its scientific translation program, but it was incomplete, not very accurately translated, and very restricted in circulation. We owe the current version (which uses the 1925 second edition, with an appendix of responses to critics) to the History Committee of the American Astronautical Society, headed by Michael Ciancone.

The translators take a fairly literal approach, which sometimes leads to slightly awkward constructions and to terminology that is unfamiliar. For example, Oberth employed the word “oven” (*Ofen*) for what we now call a combustion chamber, so that is what the translators decided to use. That literalness is certainly defensible as preserving the sense of the original, as opposed to making it more familiar to contemporary readers of rocket engineering literature. The translation of the book’s title is not the one I would have used either, but they decided to follow the one employed by Wernher von Braun and Frederick I. Ordway III in their *History of Rocketry & Space Travel* (1967).

The book is definitely a technical one. After a audacious

statement of purpose, Oberth quickly turns to rocket theory, resulting in many pages of mathematical equations. But non-engineers and non-scientists can get value from parts of the book. He describes a sounding rocket that uses alcohol and liquid oxygen in the first stage, and liquid hydrogen and oxygen in the second. He goes on to discuss scaling up to launching humans. One of the truly original dimensions of this seminal book is a chapter that is probably the world’s first treatise on space medicine. Oberth was a physician’s son, a medical student and a medic in the Austro-Hungarian Army in World War I, before pursuing his spaceflight obsession. He writes at length about the human body’s ability to withstand high-G forces during launch, based on empirical studies of everyday effects, and even proposes a training centrifuge.

Even more breathtaking are his last few pages, where he talks about space astronomy, space stations, and the creation of giant mirrors in orbit to modify the climate or attack an enemy. After that comes his “Addendum” about Robert Goddard’s more cautious *A Method of Reaching Extreme Altitudes*, added in press in 1922 after Oberth finally heard about the Smithsonian pamphlet published in January 1920. He praises and summarizes Goddard’s work, but ends with an attempt to establish his priorities. That argument and the book launched Goddard’s obsession with the idea that Oberth and the other early theorists had stolen it all from him.

The only flaw in this excellent translation is the price tag. No one but a small number of research libraries and wealthy collectors can afford it, limiting its usefulness. Moreover, the e-book carries the same absurd price.

Michael J. Neufeld
National Air and Space Museum
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Washington, DC

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www.spacehistory101.com

ISSN: 1065-7738

Publisher: Scott Sacknoff
Editor: Dr. David Arnold

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