

Early History of Spacecraft and Rocketry

reliable third stage made possible deployment of a spacecraft with mass 5000 kg (11,000 lb) in low-Earth orbit, which thus enabled launching man in space. The improved rocket launcher and the spaceship to carry a cosmonaut were both named *Vostok* (*east* in Russian). Actually, a Soviet government decree of 22 May 1959 directed Korolev to develop an experimental spaceship (Vostok-1) to provide the foundation for further advancement toward a reconnaissance satellite Vostok-2 for image and signal intelligence and a spaceship Vostok-3 for manned spaceflight.

The space race between the United States and the Soviet Union to launch the first man to space had been on by that time. Korolev methodically pressed forward with testing the launcher and the spaceship for the Vostok program. The simplified spacecraft Vostok (Vostok-1KP) without life support systems was successfully launched on 15 May 1960. The next success came when a spacecraft with two dogs, Belka and Strelka, successfully reached orbit on 19 August 1960 and reentered the atmosphere the next day and safely landed. The Vostok-2 part of the program would eventually lead to the Soviet photoreconnaissance satellite Zenit-2.

The rush to orbit man culminated on 12 April 1961, when the space launcher *Vostok* (8K72) put into orbit the spaceship *Vostok* (Vostok-3KA) with the first cosmonaut, an Air Force pilot Yuri A. Gagarin. The spaceship weighed 4725 kg (10,400 lb) that constituted 1.65% of the 287,000-kg (633,000-lb) rocket weight

**Manned
Spaceflight
Enabled**

Vostok

**First Man
in Space**

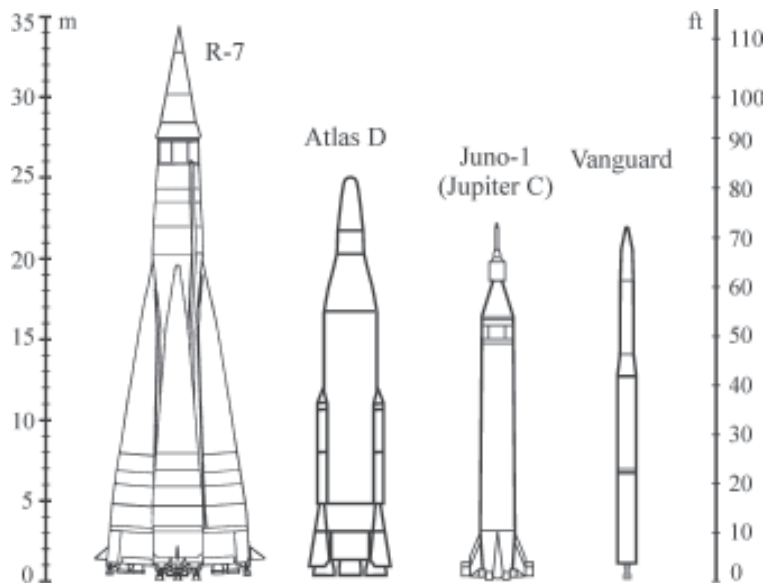


Fig.15.9. The first Soviet ICBM R-7 was significantly larger and heavier than the first American ICBM Atlas. The modified R-7 deployed the first artificial Earth satellite Sputnik and later launched the first cosmonaut Yuri Gagarin. The first American satellite Explorer I was put into orbit by the Juno-1, a variant of the Jupiter C modified for satellite launch. By the end of 1958, all three shown American rockets, Juno-1, Vanguard, and modified Atlas, launched satellites into Earth orbit. Figure courtesy of Mike Gruntman.

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Blazing the Trail

The Early History of Spacecraft and Rocketry

Mike Gruntman

AIAA, Reston, Va., 2004

ISBN 156347705X; 978-1563477058

505 pages with 340 figures

Index: 2750+ entries, including 650 individuals

This book presents the fascinating story of the events that paved the way to space. It introduces the reader to the history of early rocketry and the subsequent developments which led into the space age. People of various nations and from various lands contributed to the breakthrough to space, and the book takes the reader to far away places on five continents.

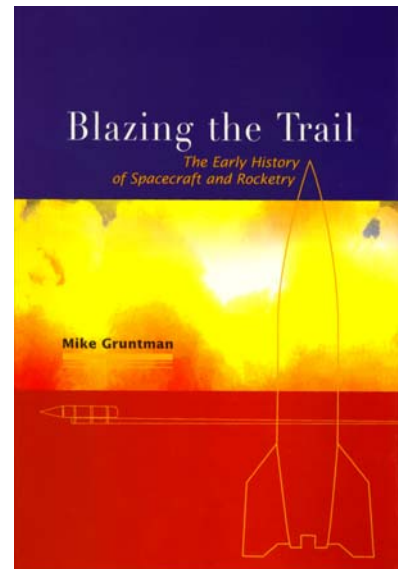
This world-encompassing view of the realization of the space age reflects the author's truly unique personal experience, a life journey from a child growing on the Tyuratam launch base in the 1950s and early 1960s, to an accomplished space physicist and engineer to the founding director of a major U.S. nationally recognized program in space engineering in the heart of the American space industry.

Most publications on the topic either target narrow aspects of rocket and spacecraft history or are popular books that scratch the surface, with minimal and sometimes inaccurate technical details.

This book bridges the gap. It is a one-stop source of numerous technical details usually unavailable in popular publications. The details are not overbearing and anyone interested in rocketry and space exploration will navigate through the book without difficulty. The book also includes many quotes to give readers a flavor of how the participants viewed the developments. There are 340 figures and photographs, many appearing for the first time.

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Book details (including **index** and **reviews**) at: <http://astronauticsnow.com/blazingthetrail/>

About the author. Dr. Mike Gruntman is professor of astronautics at the University of Southern California. Accomplished physicist, Mike is actively involved in research and development programs in space science and space technology. He has authored and co-authored nearly 300 publications, including 4 books.