

## 15. The Breakthrough

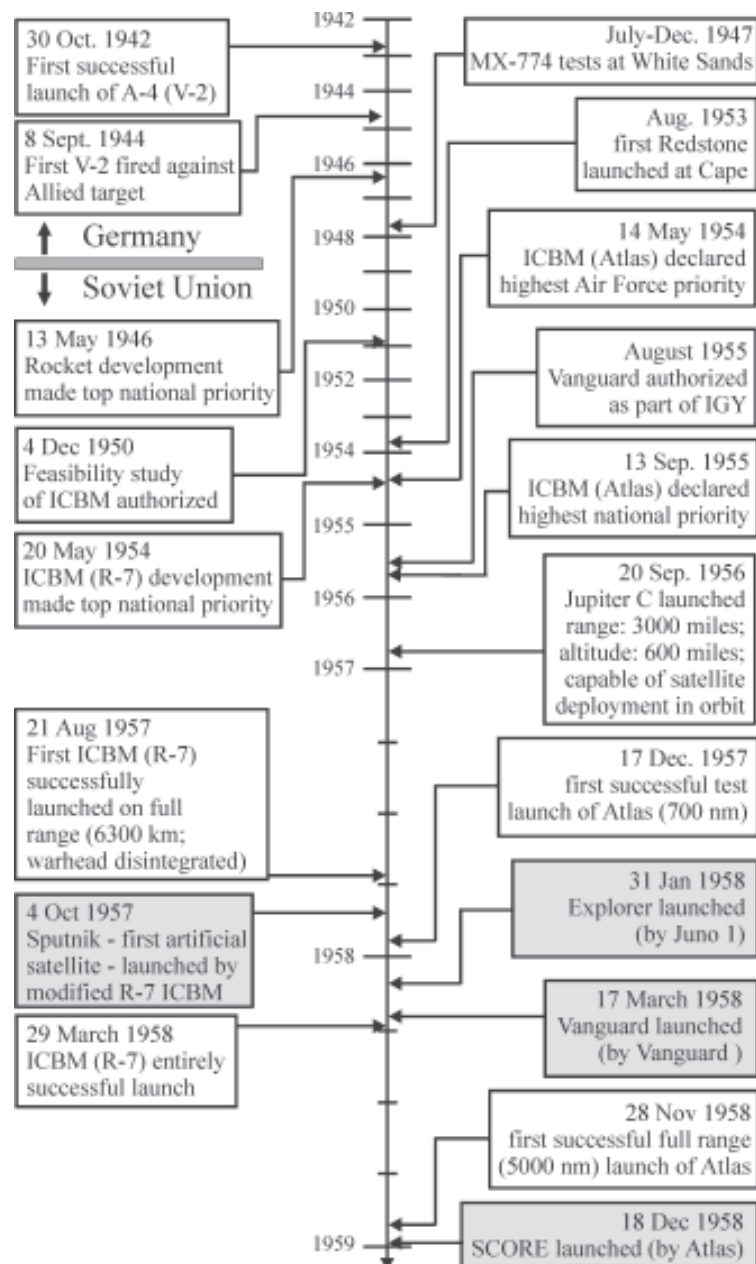


Fig. 15.31. Timeline of major developments on the road to the ICBM and first satellites (shaded boxes): left — Germany and the Soviet Union; right — the United States. The USSR (Korolev's design bureau) was the first to achieve the ICBM and to launch a satellite. By the end of 1958, the United States had placed spacecraft into orbit by three entirely different launchers. It would take more than three years for the USSR to launch a satellite by a rocket designed by an other-than-Korolev's establishment. Figure courtesy of Mike Gruntman.

# 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.

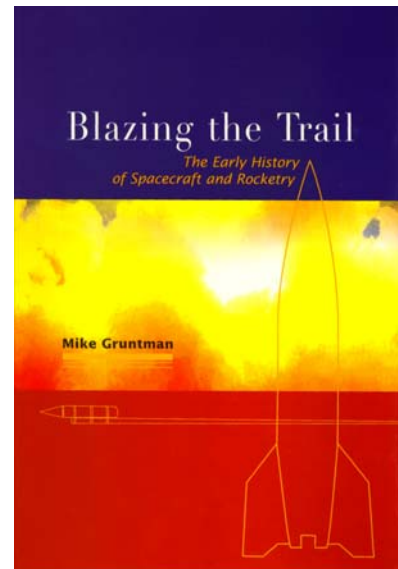
This world-encompassing view of the realization of the space age reflects the author's truly unique personal experience, a life journey from a child growing on the Tyuratam launch base in the 1950s and early 1960s, to an accomplished space physicist and engineer to the founding director of a major U.S.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