

### HEAPS OF SMOKING RUINS

“Little, however, now remained to be done [in Washington by the British troops], because every thing marked out for destruction was already consumed. Of the Senate-house, the President's palace, the barracks, the dock-yard, &c. nothing could be seen, except heaps of smoking ruins; and even the bridge, a noble structure upwards of a mile in length, was almost entirely demolished.”

George R. Gleig (1827, 136)

On 17 August, British Captain Gordon's squadron, including the rocket ship *Erebus*, started off up the Potomac. By 30 August, they reached Alexandria and captured and destroyed Fort Washington on the opposite bank of the river. During the withdrawal, the squadron was attacked by the Americans assembled on the banks of the Potomac. Rockets were flying time and again as the British fought their way through. Captain Gordon reported that “The *Erebus* while [temporarily] aground [on a shoal] fired rockets with the

most decisive effect.” (Fraser and Carr-Laughton 1930, 272)

Baltimore was the next point of the British combined land and sea assault. On the land, the rocketeers under Lieutenant John Lawrence accompanied the troops of General Ross and were praised for “rendered essential service.” On 13 and 14 September 1814, five British bomb vessels and the *Erebus* poured a heavy fire on Fort McHenry guarding access to Baltimore. Lieutenant Beauchant's detachment on the *Erebus* fired Congreves from the extreme range of two miles, which could be done only with the smallest, 8-lb (3.6-kg) warheads. The British warships were out of range of the Fort's guns. A large American flag, 42×30 ft (12.3×9 m), was proudly flown over the Fort.

**Rockets  
on the  
Potomac**

**Fort  
McHenry  
Under  
Rocket Fire**

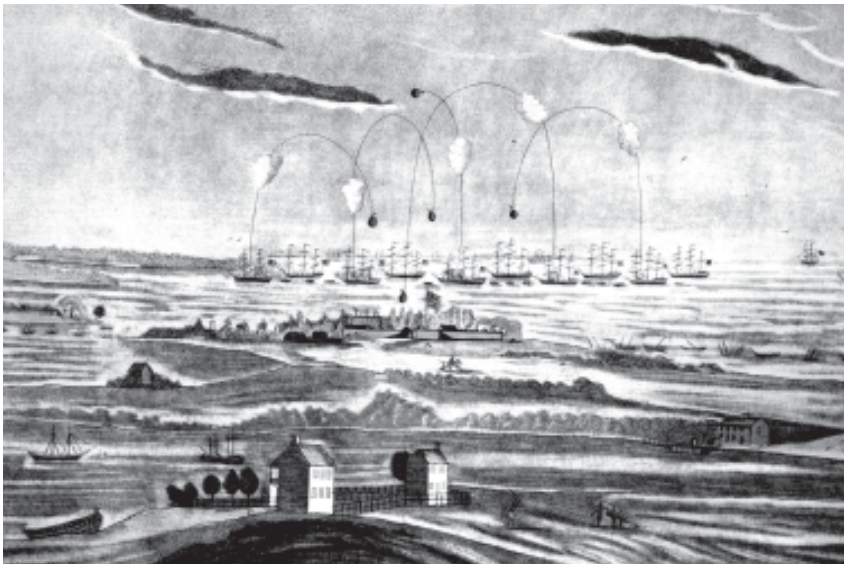


Fig. 5.4. View of the bombardment of Fort McHenry near Baltimore. The lithograph shows only bombs fired by Royal Navy's mortars. A large number of Congreve rockets were also discharged at the fort. Figure courtesy of the Anne S.K. Brown Military Collection, Brown University Library, Providence, Rhode Island.

**M. Gruntman, *Blazing the Trail. The Early History of Spacecraft and Rocketry*, AIAA, Reston, Va., 2004. Page 51**

## 5. Rockets Come to America

---



Fig. 5.5. Francis Scott Key, 1780–1843. Figure from *The National Cyclopædia of American Biography* (1907, Vol. 5, 498).

One bombshell damaged a 24-pounder gun in the southwest bastion, killing an officer and wounding four men. British Vice Admiral Cochrane ordered several of his bombarding ships to come a half a mile nearer Fort McHenry. The delighted Fort Commander Major George Armistead opened fire on the British with all guns. Several British ships were hit, and in half an hour they withdrew to their old anchorage. The rocket ship *Erebus* was injured by the American fire and had to be towed by small boats to safety. The bombardment continued.

With permission of President Madison, a young lawyer, Francis Scott Key, and John S. Skinner, an agent for the exchange of prisoners, went to negotiate with the British the release of a friend of Key's. The American party was detained by the British lest they could disclose the intended attack on Baltimore.

### Rockets' Red Glare

Key and Skinner observed the bombshell and rocket bombardment of Fort McHenry from a cartel-ship *Minden*, under guard of the British marines. The Royal Navy artillery and rockets bombarded the Fort through the entire day of the 13th of September and the early hours of the 14th.

As dawn broke out, anxious Key saw the American flag, tattered but intact, still there flying over the rampart. It was these Congreve rockets that inspired Francis Scott Key's famous lines:

... And the rockets' red glare,  
the bombs bursting in air,  
Gave proof through the night  
that our flag was still there ...

### Battle of New Orleans

Key's lyrics set to the air of a popular drinking song "To Anacreon in Heaven" later became the de facto National Anthem. The Congress officially recognized the Star Spangled Banner in 1931, immortalizing the Congreve rockets in the National Anthem.

The Battle of New Orleans in December 1814 and January 1815 was the last time when rockets were heavily employed by the British in North America. The British forces included a rocket brigade, 98 officers and men and 150 rockets, commanded by Captain H.B. Lane. Rockets again proved its superior mobility under conditions unfavorable for transporting artillery.

Captain Lane's rocketeers provided important fire support during the most critical day of the battle for the troops under Colonel Thornton, which crossed

*The Star-spangled banner.*

O say! can you see by the dawn's early light  
What so proudly we hail'd as the twilight's last gleaming,  
Whose broad stripes and bright stars, through the clouds of the fight,  
O'er the ramparts we watch'd were so gallantly streaming?  
And the rocket's red glare - the bomb bursting in air,  
In vain we struggle through the night that our flag was still there,  
O say, does that star-spangled banner yet wave  
O'er the land of the free & the home of the brave? —

Fig. 5.6. The first stanza of Key's "Star-Spangled Banner." Note the spelling of the original version "the rocket's red glare." Figure from *The Pictorial Field-Book of the War of 1812* (Lossing 1869, 957).

the river and successfully carried the American positions on the right bank of the Mississippi. This was probably the only successful action in the otherwise disastrous, for the British, operation. Colonel Thornton later reported that "Major Michell of the Royal Artillery afforded me much assistance by his able direction of the firing of some rockets, it not having been found practicable in the first instance to bring over the artillery attached to his command" (Duncan 1874, 409).



Fig. 5.7. Andrew Jackson in the Battle of New Orleans, January 1815. Figure from *New History of the United States* (Lossing 1889, 440).

# 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.

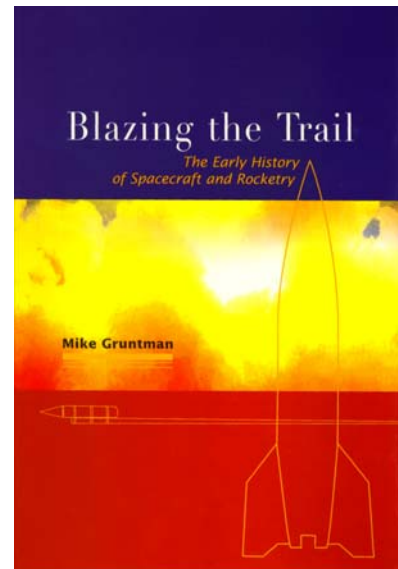
This world-encompassing view of the realization of the space age reflects the author's truly unique personal experience, a life journey from a child growing on the Tyuratam launch base in the 1950s and early 1960s, to an accomplished space physicist and engineer to the founding director of a major U.S.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

### Table of contents

- Preface
- Foreword
- Humble Beginnings
- Rocket Proliferation – The First Wave
- Under Rocket Fire in India
- The Congreve Rocket
- Rockets Come to America
- First American Rockets
- Rocket Proliferation – The Second Wave
- Public Imagination on Fire
- Great Pioneers
- The First Modern Rocket
- JATO and Beyond
- Building the Foundation
- Road to Sputnik
- Gateways to Heaven
- The Breakthrough
- Opening the Skies
- Joining the Club
- The First Thousand Years



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.