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Author: Dr. James Burke  
The Planetary Society, United States, jdburke@caltech.edu

THE RANGER PROJECT'S LEGACY FOR EMERGING SPACE PROGRAMS

**Abstract**

Ranger was the first American project to send science data from the surface of the Moon. Today, with a revival of lunar activity worldwide, the technical and management lessons of Ranger give a relevant historical background. Planning for Ranger began at JPL in 1958 while JPL and the Von Braun group in Alabama were US Army institutions. The transition to NASA occasioned management chaos. Every known precept of orderly project governance was violated, not only amid the NASA and science-community participants but also among NASA, the US Air Force and its contractors. Despite these early troubles the project was able to launch nine spacecraft on Atlas-Agena B vehicles between 1961 and 1965, with six failures followed by three complete successes returning thousands of high-resolution lunar images. Ranger's ultimate success is due to the perseverance of people who put devotion and skill ahead of interagency rivalry and scientific disputes. Beginning in an atmosphere of challenge from the USSR and ending during preparations for Apollo, Ranger pioneered technical and managerial methods that can be applied worldwide to enable lunar and planetary achievements today.