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Going Commercial

ESCAPING GRAVITY: *My Quest to Transform NASA and Launch a New Space Age*

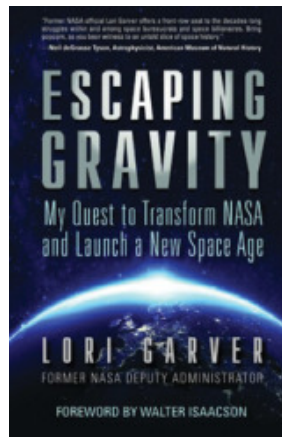
Lori Garver
 Diversion Books, 2022
 304 pages, ISBN 978-1635767704
 US\$28.99, hardcover

FOR THE U.S. SPACE PROGRAM during the past decade, crisis and opportunity have gone hand in hand. We've seen the end of the Space Shuttle era, which had its last flight in 2011, and the rise of companies such as SpaceX taking astronauts to the International Space Station (ISS). These evolutionary changes have occurred alongside the promise (and controversy) surrounding the Space Launch System (SLS) rocket and the Artemis initiative to return to the Moon.

Lori Garver's book grew out of this uncertain yet propitious period. Deputy administrator at NASA from 2009 to 2013, Garver chronicles her unrelenting push during this time to convince agency bureaucrats to begin working with commercial rockets. Her fierce advocacy often put her at odds with the space agency's male-dominated, corporate culture. She found herself fighting

that virtually eliminated the one method that has long proven itself effective in driving innovation, efficiency, and cost-cutting: competition. She also details the indecisive path through several presidential administrations to settle on an objective for SLS and Artemis — from going to the Moon, to an asteroid, to Mars, then back to the Moon again. Garver was also on hand for the James Webb Space Telescope's rocky path through Congress (it was almost canceled in 2011), which ultimately led to its successful launch on Christmas Day, 2021.

But Garver's greatest achievement as NASA's second-in-command was undoubtedly her success — with the support of what she calls “space pirates” seeking to transform modern spaceflight — to get NASA to tap the private sector to deliver cargo and eventually crew to the ISS. This took place after the end of the Shuttle era, when NASA



the ISS (along with Tesla roadsters delivering them to the launch pad).

“The space pirates saw early that the biggest obstacle to space development was the lack of affordable, reliable access to space,” Garver writes in *Escaping Gravity*. “They believed the Space Shuttle was impeding progress and to some this made the space pirates heroes and to others villains.”

In the end, the savings to taxpayers has been huge. Today, as Walter Isaacson notes in the book's Foreword, SpaceX transports astronauts to the ISS “at a cost an order of magnitude lower than all previous human spaceflight missions.”

While Garver's indictments of NASA culture during her time as the agency's deputy administrator can be scathing, she also optimistically chronicles the push to get NASA out of the role of taxi service to low-Earth orbit and back to deep-space exploration with robots. Such missions have blossomed over the past decade — we've seen two rovers land on Mars, New Horizons fly past Pluto, and Juno arrive at Jupiter.

Read *Escaping Gravity* for a unique, brutally honest perspective on NASA in a time of transition, and for a glimpse of the decade of space exploration to come. One thing is certain: We're in for a fascinating stretch, with the recent successful Artemis I mission heralding the return of humans to the Moon sometime in the coming years.

■ DAVE DICKINSON posts biweekly on skyandtelescope.org, focusing on spaceflight with an astronomy angle.

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against entrenched political interests and the agency's old-school status quo. It was a tough row to hoe, but Garver and her like-minded colleagues persevered, ultimately transforming the way NASA does business.

The book offers a ruthlessly honest insider's view of the discussions and debates that raged behind the scenes. Garver describes the cycle of government contracts and cost overruns as a giant “self-licking ice cream cone,” one

found itself paying for seats on the Russian Soyuz spacecraft, a situation that became more precarious after Russia's annexation of Crimea in 2014.

Garver recounts how NASA finally brought startup SpaceX into the fold, albeit with caution. Originally, she notes, the agency didn't want its iconic logo on SpaceX's Falcon 9 rocket. Fast-forward to today, and a new version of NASA's familiar worm logo adorns SpaceX rockets carrying astronauts to