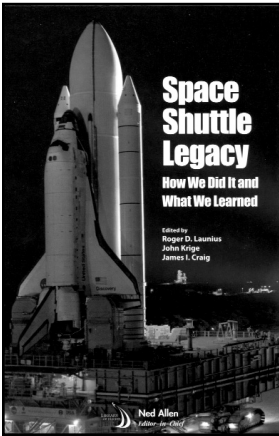


BOOK REVIEW

SPACE SHUTTLE LEGACY: HOW WE DID IT AND WHAT WE LEARNED



Edited by Roger D. Launius,
John Krige, and James I. Craig

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The AIAA published this collection of sixteen essays in its Library of Flight series as an accessible analytical history of the Space Shuttle program. It is intended for a broad audience, to provide useful insights for space professionals, and to stimulate further scholarly attention to the Space Shuttle.

The chapters, in scope and roughly equal numbers, are political, programmatic, technical, and social-cultural narratives written by historians, engineers, and specialists in public administration and policy. Some are long-familiar authors in space history and space policy: Roger D. Launius, W. Henry Lambright, John M. Logsdon, Howard E. McCurdy, and Stephen P. Waring. Others are recognized but relative newcomers to Space Shuttle history: Linda Billings, Amy E. Foster, Matthew H. Hersch, and John Krige. Four authors are technical practitioners: Robert E. Biggs, N. Wayne Hale Jr., Dennis R. Jenkins, and Nancy G. Leveson.

As sometimes happens, not everyone hews strictly to the formula “How We Did It and What We Learned,” but all give a creditable account of “What We Did,” often offering some novel behind-the-scenes perspectives. Who better to explain the sequence of events from launch preparation through flight and landing than long-time flight director Hale or the intricacies of the flight control software challenges than Leveson? The most useful accounts, with the most explicit lessons learned, are the technical chapters by Biggs, Jenkins, and Leveson. These are solid references on the Space Shuttle main engines, the thermal protection systems, and the Shuttle’s computers and software—the three most demanding innovations in the vehicle. Particularly original interpretive chapters are Launius’ explication of the powerful idea of space-

planes and Krige’s digest of the benefits and pitfalls of international participation in the shuttle program.

The other authors take on aspects of NASA’s management of the Shuttle program, the agency’s culture and its susceptibility to political pressures, and the Shuttle as a cultural symbol and catalyst for social change. The volume is indeed a basic history of the Space Shuttle program in the areas addressed, and it includes a variety of thoughtful conclusions about the arc of the Shuttle story. It is less satisfactory as a record of specific “lessons learned” and thus may not prove as practical a guide for future engineers and managers as the AIAA hopes. The authors’ consensus as to the Space Shuttle’s legacy is positive; despite its shortcomings, which were mainly related to frequency and cost of flight, it was a “remarkable,” “magnificent,” “exceptional” accomplishment that served the United States well. No strident critic of the Shuttle appears in this collection. My favorite line in the book ends the essay by Hersch, which might be improved by an alternate last word: “It was simultaneously too flawed to excel and too capable to disappear [fail].”

This volume coincidentally is a scholarly complement to another book of essays that addresses the legacy of the Space Shuttle program, *Wings in Orbit*, NASA/SP-2010-3409, published in 2010. A couple of years before the end of the Shuttle program and diaspora of much of its workforce, senior manager Wayne Hale launched a project to record their most significant accomplishments. Subtitled *Scientific and Engineering Legacies of the Space Shuttle*, this volume is also a readable and well-illustrated account of the same topics addressed in *Space Shuttle Legacy*. It was written by insiders who “lived” the Shuttle program for thirty years and had close hands-on experience with all of its triumphs and troubles. Readers would be wise to keep both volumes among their reference books, for each enhances the other.

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