

Provided for non-commercial research and education use.  
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>



ELSEVIER

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

Space Policy 25 (2009) 269

---



---

**Space Policy**


---



---

[www.elsevier.com/locate/spacepol](http://www.elsevier.com/locate/spacepol)

## Book Review

***Truths, Lies, and O-Rings: Inside the Space Shuttle Challenger Disaster*, Allan J. McDonald, James R. Hansen, University Press of Florida, Gainesville, FL, 2009 (627 pp., \$39.95, ISBN: 978-0-8130-3326-6)**

This very detailed, somewhat tendentious, book is the first to be written about the 28 January 1986 accident that destroyed the Space Shuttle *Challenger* and killed its seven-person crew by an individual directly involved in the fateful decision to launch the Shuttle on an exceptionally cold Florida morning. The accident was caused by the failure of an 'O-ring' seal at a joint between two segments on one of the solid rocket boosters (SRB) used to give the Shuttle most of its initial takeoff thrust. The seal failed to prevent hot gas from the rocket's combustion from impinging on the shuttle's external tank as the vehicle climbed away from the launch pad. That impingement penetrated the external tank's structure and caused the highly combustible liquid hydrogen fuel in the tank to ignite 73 s after lift-off. The resulting conflagration led to the breakup of the Shuttle orbiter and sent its crew capsule plunging into the Atlantic Ocean a few miles away from Kennedy Space Center.

Allan McDonald was an engineer who was Director of the Solid Rocket Motor Project at Morton Thiokol, and was the senior person representing the company at Kennedy Space Center at the time of the *Challenger* launch. The primary goal of his account is to set the record straight about how the decision to launch the Shuttle was made, over McDonald's objections, and then how elements of NASA and the upper management of Morton-Thiokol, the manufacturer of the SRB, colluded to try to escape responsibility for that decision. After realizing that this was the case, McDonald "came to a resolute personal decision": to tell the presidential commission investigating the accident, as NASA had not, that the night before the launch Morton Thiokol, under NASA pressure, had reversed its recommendation from *not* to launch to launch. The decision to call this incident to the commission's attention had a profound impact on McDonald's life. It led to his deep involvement with the accident investigation, an initial job demotion by Morton Thiokol, and then being assigned to lead the post-*Challenger* redesign of the solid rocket booster. In the process, McDonald became widely acclaimed and honored for his courage in "speaking truth to power".

McDonald's book is based on detailed notes he prepared soon after the events he chronicles. It is clear that he is a better engineer than writer. After struggling to find a publisher, he brought his manuscript to noted space historian James Hansen,

who became involved almost as a co-author; Hansen notes that he came to the project "not to change or improve McDonald's voice" but "to make his narrative as cogent, clearly presented, and forceful as possible". Hansen was only partially successful; as he notes, McDonald's account "is detailed to a fault and tremendously meticulous". This makes the book about twice as long as necessary to make the author's points, and frankly a chore to read.

While the general outlines of the story McDonald tells have been covered in other accounts of the *Challenger* accident, there is a great deal of new information in this book. Its primary value is thus to careful students of space history; it is unlikely to be of interest as an initial introduction to the *Challenger* accident and its aftermath. The book also contains a discussion of the debris shedding problem with the shuttle discovered in the shuttle return-to-flight mission on 29 September 1988 and several subsequent missions; this of course was the problem that caused the second shuttle accident on 1 February 2003. McDonald labels the chapter where this problem is discussed 'Premonitions'. There are disturbing parallels between the flawed communications within the NASA and contractor teams managing the *Challenger* and *Columbia* missions; this parallel was noted and criticized by the Columbia Accident Investigation Board, of which I was a member. One wonders whether an earlier publication of McDonald's book might have sensitized *Columbia's* mission managers to the need for open and honest communications.

*Truths, Lies, and O-Rings* also contains two essays by James Hansen. One is a biographical sketch of Allan McDonald. The other is an interesting discussion of the many books and articles related to the *Challenger* accident. Hansen concludes that essay by noting that "with the exception of McDonald's memoir, none of the key people most directly involved in the *Challenger* accident have chosen to write their memoirs". That being the case, Allan McDonald's insider account is likely to stand as the most comprehensive rendering of this tragic episode in the history of the US space program. McDonald argues convincingly that the *Challenger* accident need not have happened, had his warnings been heeded; therein lies the tragedy.

John M. Logsdon  
 Emeritus professor, George Washington University,  
 Washington, DC 20052, USA  
 E-mail address: [logsdon@gwu.edu](mailto:logsdon@gwu.edu)

Available online 23 October 2009