



Diane Vaughan. *The Challenger Launch Decision: Risky Technology, Culture and Deviance at NASA.* Chicago, Ill.: University of Chicago Press, 1996. xv + 575 pp. \$24.95 (cloth), ISBN 978-0-226-85175-4.



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Critique of the *Challenger* Disaster

The findings of the Presidential Commission, which investigated the January 28, 1986, *Challenger* disaster, only confirmed prevailing wisdom about government organizations: the launch decision was made by NASA bureaucrats, who were driven by financial and political pressures, over the last-minute protests of Morton Thiokol engineers.

In *The Challenger Launch Decision*, Diane Vaughan describes a less dramatic but more accurate scenario: on the basis of a ten-year study of NASA's structures and procedures, she concludes that in approving the launch Thiokol engineers and NASA managers were simply following the "culture of production" long established at NASA, a culture that inevitably normalized deviance.

Vaughan meticulously traces the well-documented history of problems with the O-ring seals, the failure of which caused the *Challenger* explosion. Documents show that during the years prior to the January 1986 launch, every time O-ring irregularities occurred, engineers believed that they could account for such irregularities, so that O-ring damage and soot blow-by became the norm rather than signals of danger. Such normal-

ization of deviance, Vaughan argues, is to be expected in a complex organization—in this case, manufacturer of the solid rocket boosters Morton Thiokol, the Marshall Space Flight Center, and the Kennedy Space Center—dealing with new and unpredictable technology.

Vaughan's book is not an expose of bureaucratic wrong-doing. Rather, it is a detailed analysis of how decision-making occurs in organizations, and how even rigorous internal and external monitoring will not avert disaster; indeed, the chilling conclusion she draws is that wrong decisions will be made not in spite of but because of rules and procedures. In this respect, *The Challenger Launch Decision* is a sobering analysis of the consequences of increasing dependence on complex technologies.

Vaughan approaches this study armed with the theoretical constructs of her discipline, sociology; while her argument is scholarly and detailed, she never loses the lay reader. Despite the necessity of using a fairly technological and specialized vocabulary, Vaughan's writing style is crystalline; moreover, she continually indicates to the reader, usually at the beginning of each chapter, how

the material at hand fits with what preceded it and with what will follow it. However, her most effective orientation strategy occurs in chapters 1 and 8. The first chapter narrates the events of January 27 which resulted in the *Challenger* launch and explosion. Chapter 8 reiterates chapter 1 verbatim; but the material of chapter 1, printed in boldface, is amplified with the information and analysis covered in the intervening chapters. This strategy enables the reader to see most graphically the interaction of the culture of production, the production of culture, and structural secrecy, the triad Vaughan minutely examines in chapters 2 through 7. Occasionally, Vaughan's involvement in detail seems somewhat tedious and repetitive, and the absence of a glossary of the numerous acronyms used in the text slows reading; but these are minor flaws in an intensely thought-provoking study.

Vaughan's book, a stunning yet sobering analysis of the *Challenger* tragedy, has implications far beyond this single disaster. *The Challenger Launch Decision* raises questions concerning the effectiveness of investigative commissions as well as of the media in informing the public; more importantly, however, it illuminates what happens when human decision-making and unpredictable, potentially dangerous technology intersect.

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