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Flying Blind: The Politics of the U. S. Strategic Bomber Program

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Brown, Michael E. *Flying Blind: The Politics of the U.S. Strategic Bomber Program.* Ithaca, N.Y.: Cornell Univ. Press, 1992. 398pp. (No price given)

This is an important book. It should be read by both civilian and military decision makers involved in the acquisition of high-technology weaponry. Brown received his doctorate from Cornell University and is currently a senior research fellow at the International Institute for Strategic Studies in London. To illustrate his thesis, he has traced the procurement of U.S. strategic bombers from the Army Air Corps days of the 1930s to the latest U.S. Air Force bomber, the B-2. Rejecting the notion that the profit motive has been the primary impetus for successive bomber designs, Brown argues that the principal factors behind the search for ever greater bomber performance have been strategic (i.e., perceived threats) and bureaucratic (i.e., the desire of Air Force officers to achieve autonomy and ample appropriations to secure a war-winning strategic bombardment capability).

Two different strategies can be followed in developing advanced designs: sequential and concurrent. In the former, decisions on procurement are delayed until one or more experimental models are flight-tested and modifications are introduced to rectify shortfalls. The time required for sequential development depends on how ambitious the established performance criteria are. Obviously, the further one pushes beyond the state of the art, the more unknowns and uncertainties there are. This strategy is sometimes described as "fly before buy."

Those responsible for national security are under great pressure to obtain weapons of superior performance to replace the existing force structure as it becomes obsolete due to perceived increases of an enemy threat. To hasten the pace at which advanced weaponry can begin production and then deployment to the operational units, decision makers have frequently resorted to a concurrent procurement strategy, which involves compressing the whole acquisition process. The selection of a design (among those of rival firms in competition) is made on the basis of computer simulations and wind tunnel tests. At the same time, work begins on the experimental model for initial flight tests and expenditures are made for production tooling, jigs and fixtures, etc..

With the B-1B, for example, more than 16,000 production drawings and 54,000 tool orders had been released for fabrication *before* the initial flight test model had been completed. The assumption here is that the design will remain fairly stable from paper project to flight test model—which, in reality, has almost never been the case. Necessary modification arising in flight tests has frequently led to massive reworking of production tooling, causing large cost overruns and painful delays in deployment. The principal thesis of this study is that it is possible to build technologically advanced

weapons while minimizing acquisition risks, but only if a sequential policy is followed: delaying production decisions until actual flight tests have been conducted and required modifications worked out. The time compression claimed for concurrency has seldom been achieved in practice.

Why, then, have Air Force and civilian decision makers shown such a strong bias in favor of concurrency? Brown points out that once heavy expenditures are made for production as well as for development, a program gains a momentum that is difficult to stop. Because bomber projects can sometimes run seven or eight years or longer, they can extend beyond the term of an administration or a Congress friendly to defense into an era of lean budgets and reluctant leaders. In such periods, the sunk costs make it extremely difficult politically to cancel a program outright. On the other hand, where programs are only modestly beyond the state of the art, concurrency can hasten the day of deployment in quantity, with no more than minimal risk.

The author urges a greater use of prototyping and a sharply limited resort to concurrency, but he concludes on a doleful note. Keeping in mind the fate of Deputy Secretary of Defense David Packard's attempt to reintroduce "fly before buy" in the early 1970s, Brown suggests that we should not be sanguine about the prospect for significant reforms in the weapons acquisition process, inasmuch as the "institutional forces at work in the Pentagon are both powerful and durable."

In a brief note on sources, the author asserts that he has consulted some three thousand pages of documents in Air Force and industry archives. However, scrutiny of his footnotes suggests that much, if not most, of his source material (other than those documents reproduced by air-arm and industry historians in their own studies) was not the actual working papers of the decision makers but was obtained from monographs and histories. Given the excellence of this monograph, one must conclude that the official historians on whom Brown has relied have turned out many fine studies.

This book is marred by a number of annoying flaws. For example, the B-17 never mounted *five* turrets. More seriously, the author ignores the addition of an electronic warfare crewmember to the B-52, giving the bomber an additional offensive weapon in its electronic countermeasure capability. Also, the inadequate index has no entry whatever for electronics or avionics. Fortunately, neither these nor other nits undermine the central thesis.

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Fozard, John W. *Sydney Camm and the Hurricane: Perspectives on the Master Fighter Designer and His Finest Achievement.* Washington, D.C.: