



Making Jet Engines in World War II: Britain, Germany, and the United States by Hermione Giffard.

Chicago: Univ. of Chicago Press, 2016. Pp. ix, 349. ISBN 978-0-226-38859-5.

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In *Making Jet Engines in World War II*, historian Hermione Giffard (Univ. of Utrecht) offers a compelling new comparative study of jet engine development between the 1920s and 1950s. Using archival sources in several languages, she rejects the traditional after-the-fact “inventor-hero” narrative constructed, she argues, by the victorious western Allies to advance propaganda and export-oriented trade agendas, while silencing other interpretations. She demonstrates that much of what we think we know about British, American, and German efforts to mass produce jet engines is simply wrong.

Production forms the foundation of this account of the jet engine. By subverting the tendency to view production as the playing out of earlier development decisions, as a measure of success of other processes, the narrative order I adopt aims to provide a more compelling account of the episode, one in which production is shown as integral to the creation of the jet engine. I am not arguing for replacing one hierarchy with another, but rather for the necessity to view production, development, and invention as separate but related activities in which changes in one activity impacted the conception and execution of the others.... In all three countries, hopes of producing jet engines as soon as possible led production plans to be put in place often well before development had been completed. Rather than being an afterthought, planning for engine production fundamentally shaped other creative processes necessary to the creation of the world’s first jet engines. (7)

The author concentrates on the tactics used by industrial firms charged by their states with developing and producing jet engines during the late wartime technological arms race that transformed postwar aviation. In so doing, she brings to bear a formidable array of evidence to thoroughly discredit many familiar tropes in aviation history and the histories of technology and invention more generally.

Giffard recognizes the contributions made by the “heroic inventors” Frank Whittle and Hans von Ohain, but also carefully sets them within their corporate and institutional contexts to reveal the constraints they worked under and the limits of what they could do to speed up jet engine development. In Britain, for example, Whittle was unable to keep control over his own designs in the state-controlled company he headed, Power Jets. And Ohain fell victim to his corporate patron Ernst Heinkel’s mercurial schemes to use jet engines as leverage to gain resources from an increasingly desperate National Socialist Germany.

Giffard shows that jet development in Britain and the United States proceeded in fits and starts. Their governments’ early interest waned when they concluded that mass production could not be achieved during the war. She argues against other scholars that this was not a response to low wartime production numbers, but a pragmatic “production-driven decision to produce a (supposedly) mature British design (as it already had in other cases, like radar and penicillin) in preference to a less developed American engine” (8).

The author also maintains that the Germans’ superior production numbers have been misunderstood, but in different ways. German jet engines were not the futuristic marvels they have been portrayed as, but ersatz replacements for more expensive piston engines that a stretched Nazi economy

could no longer produce or power. Although unreliable, fragile, and dangerous, jet engines ran on diesel fuel and required only a small fraction of the man hours or skills needed to produce piston engines. Further, they could be produced underground by slave laborers, using “merciless National Socialist methods.... Jet engine production in Germany was not, as some authors have portrayed it, the successful climax to a program of advanced technological development, but rather the large-scale manufacture of engines of desperation” (8). Ironically, the German axial turbojet design later won the postwar commercial competition over its safer but more complex Anglo-American centrifugal rival.

Giffard rightly stresses continuities in aircraft engine development; she sees the jet engine not as a revolutionary, disruptive innovation but as part of the larger progression of engines and turbines during the twentieth century. Thus, existing aero engine firms like Rolls Royce and Junkers provided the crucial nexus needed to develop the jet engine in both Britain and Germany. In the United States, turbine producers like General Electric and Westinghouse built viable jet engines based on British precedents. But these often beneficial continuities also impeded many firms’ transitions to the new technology within the confines of existing production methods and traditional corporate cultures.

The book’s focus is “not on individuals but on ‘inventive institutions’ in order to unpack how individual engineers worked as members of larger organizations—institutions on which the fate of their inventive ideas often depended” (11). The work of Whittle and Ohain was shaped and constricted by their larger institutional and political environments. Giffard argues that “taking these companies [Power Jets and Heinkel] seriously as organizations shifts the discussion from treating institutions as a mere background for unconstrained individual inventors to looking at how the goals of institutions have shaped the emergence of technical novelty” (12). This argument can be usefully applied to every major technological advance of the last century.

Giffard concludes by criticizing the standard narrative of jet engine development as combining two mutually reinforcing desires: (a) to bolster the “hero-inventor” myth of nineteenth-century industrial development, and (b) to make the story jibe with the Anglo-American victory narrative of the Second World War. British accounts highlighted Whittle as inventor-hero, while the Americans grudgingly recognized British precedents and

distracted [attention] from the presumed inventive failure of American companies during the war and silenced stories of indigenous American work.... The narrative of British leadership that was circulated in techno-nationalist Britain early on was linked, in the United States and later in Germany, to a narrative of German invention that was (re)constructed decades after the end of the war.... Many German jet engineers were active as engineers in the United States after the war, where they also supported efforts to recreate the history of Germany’s first jet engine. It was in the United States that the story of the dual jet engine inventors (one British and one German) ... emerged and reached a public audience for the first time. (13)

Hermione Giffard has proved it is time to take a more nuanced look at the history of jet engine development. “Far from the products of gifted individuals working alone, the jet engine was created using all the trappings of twentieth-century business: from banking houses to government contracts, from general and managerial staffs to huge production organizations” (239). Students of the histories of aviation, technology, invention, and the formation of public memory should put *Making Jet Engines in World War II* high on their must-read list.