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Book Review

The Peenemünde Wind Tunnels—A Memoir

Peter P. Wegener, Yale University Press, New Haven, CT, 1996, 187 pp., $30.00

In the 50 or so years since World War II, there have been a large number of books describing the German rocket development center at Peenemünde. The books describe the advances in rocket technology leading to the A-4/V-2 rocket that changed history, as well as the German scientists who subsequently influenced the U.S. and Soviet space programs during the Cold War. Some of the books were written by German scientists who immigrated to the United States, and others are by historical writers working from archives and interviews with the participants. The 1962 book *Peenemünde to Canaveral* by Dieter K. Huzel is a notable example of the former, and the 1979 book *The Rocket Team* by Frederick I. Ordway III and Mitchell R. Sharpe is an excellent example of the latter. An AIAA Award-winning 1995 book, *The Rocket and the Reich—Peenemünde and the Coming of the Ballistic Missile Era* by Michael J. Neufeld, provides a thorough study of technological developments at Peenemünde and describes the role of slave labor in rocket production. *The Peenemünde Wind Tunnels—A Memoir* by Peter P. Wegener is another addition to the literature by a participant at the German research establishment.

Peter Wegener, now Professor Emeritus of Engineering and Applied Science at Yale University, focuses on the wind tunnels of Peenemünde, his personal experiences during the war in Germany, and his immigration to the United States in the immediate years after the war. His reminiscences of these years are supplemented by more recent historical research he conducted in the United States and Germany.

The Introduction and first chapter of the book describe the period from 1936 to 1943, when he served in the army as a second lieutenant in an antiaircraft unit. During leaves from the army he was able to complete his Ph.D. in geophysics. After serving two years on the Russian front, in May 1943 at age 26, he was ordered to Peenemünde. Although he had no experience in fluid mechanics, he was assigned to work at the Aerodynamics Institute directed by Rudolf Hermann. The Institute's research focused on developing the aerodynamic shapes of artillery shells and missiles. There he participated in experimental studies with the wind tunnels, and he began to learn about aerodynamics by reading Prandtl's book *Essentials of Fluid Mechanics*. The Institute was a major test facility with two tunnels and a staff of over 200. The staff included mechanical, optical, and electrical engineers and technicians in supporting disciplines. The tunnels had been designed by Hermann and became operational in 1939. The larger tunnel was a blowdown device with a 40 × 40 cm test section. With different nozzles it was capable of Mach numbers to 4.4.

Chapters Three through Six describe the supersonic wind tunnels and provide some history of rocket research. Considering the title of the book, Wegener's description of the supersonic wind tunnels is rather brief, constituting only 12 pages. His tunnel descriptions are clear but largely nontechnical. A 1981 article, *The Supersonic Wind Tunnel Installations at Peenemünde and Kochel and Their Contributions to the Aerodynamics of Rocket-Powered Vehicles* by Rudolf Hermann, cited in Neufeld's book, presents a more technical and thorough description of the tunnels. Wegener describes his experiences during the British air raid on the night of Aug. 17–18, 1943, and the aftermath of the bombing. A hypersonic Mach 10 tunnel had been planned for construction in the small town of Kochel in the Bavarian Alps, and after the bombing the decision was made to move the large supersonic tunnel there.

Chapters Seven through Nine describe setting up and operating the tunnel in Kochel until the war ended in the spring of 1945. These descriptions are largely personal recollections, with only brief reference to technical accomplishments. Then he describes the events leading to his move to the United States under Operation Paperclip in early 1946. The final chapter of the book is a retrospective account of the war years with analyses of the events at the end of the war and the literature describing these events. There is also an account of his knowledge of the inhuman treatment of slave laborers at the V-2 production facility at Mittelwerk; he discusses the role of Arthur Rudolf, who later rose to prominence at NASA in the development of the Saturn V during the Apollo program. After his NASA retirement, in the 1980s Rudolf was pressured by the U.S. State Department to give up his citizenship and leave the United States because of his involvement with slave labor at Mittlewerk. Wegener also presents some personal remarks about Werner von Braun.

The narrative is supplemented by over 40 pages of figures and photographs. A brief chronology of Peenemünde and the wind tunnels is presented, and endnotes complete the book.

Since Professor Wegener was not a principal in the design of the wind tunnels and management of the research, his book cannot be regarded as a definitive study of the German missile program's aerodynamic research. Because this is a memoir, that was clearly not his goal.

But he does provide highly personal insights into the conditions and tenor of the time. His views of the events make a contribution to the better understanding of this important period of technological history that so significantly influenced the world's space advancements for the balance of the century.

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