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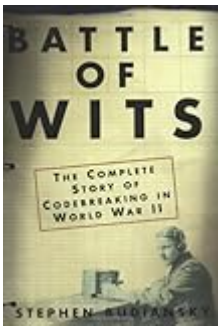

Stephen Budiansky. *Battle of Wits: The Complete Story of Codebreaking in World War II.* New York: The Free Press, 2000. 436 pp. $27.50 (cloth), ISBN 978-0-684-85932-3.

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When F. W. Winterbotham published his *The Ultra Secret* in 1974, it opened the floodgates to a whole new genre of literature on World War II. There is now a massive bibliography of books and journal articles on Allied breaking of German and Japanese codes, and a growing number on what the other side was doing, as well as on Allied codebreaking directed at lesser foes, neutrals and allies. Do we need, then, *Battle of Wits*, Stephen Budiansky's new history of Ultra, Magic and the rest?

The answer is yes, for several reasons. First of all, because there is a constant stream of new information on these subjects. The U.S. National Archives has added millions of pages of Army, Navy and intelligence agency documents to its holdings in recent years, and the UK's Public Record Office has done much the same with British declassified material. These documents range from internal histories and analyses to postwar interrogation of German and Japanese officers, to the "real thing": actual decoded signals. In addition to the documents, there are the books. A large share of the codebreaking literature is in the form of memoirs, and they cry out for careful reading and comparison with official histories. Several scholarly journals–this reviewer is most familiar with *Intelligence & National Security* and *Cryptologia*–add their articles analyzing such arcane subjects as the Vatican's codes and codebreaking under Vichy.

Battle of Wits is an interesting compromise. Budiansky, a correspondent for *The Atlantic*, has chosen to write an accessible narrative, full of colorful anecdotes, that covers the high points of the code wars. He tells how the U.S. Army and Navy cracked Purple, the Japanese diplomatic code, then dropped the ball at Pearl Harbor, only to break JN-25 and help win at Midway. And he does the most even-handed job this reviewer has read of recounting the breaking of the Nazi's Enigma machine ciphers: how first the Poles, then the French, and finally the British–with American human and computer help–defeated a system which the Germans believed, to the end, was secure. With so much ground to cover, he does not attempt a continuous narrative of any campaign, but does provide good summaries of how codebreaking affected the Battle of the Atlantic, the fighting in the Mediterranean and North Africa, and the American defeat of the Japanese in the Pacific.

Since Budiansky also has a background in applied mathematics, he inserts several long passages (plus two appendices) that explain (or attempt to explain, depending upon the reader) the math and logic the codebreakers used to crack machine cipher systems thought to be virtually foolproof. These are well illustrated with clever typography and elegant diagrams. Finally, he has worked

with classified and newly declassified material for years, and seems familiar with the newest old material, at least in English, available for research.

As well as retelling the familiar tales of codebreaking and its impact on the war, Budiansky has gone beyond any previous study of this type in several respects. For one, he tackles the unpleasant issue of Ultra and the Holocaust. He shows how Bletchley Park–and by extension, Churchill–were aware of what the Germans were doing in Russia from the opening weeks of Barbarossa onwards. The British quickly piled up so many messages dealing with the Einsatzgruppen's activities that a memo was circulated stating that "The execution of 'Jews' is so recurrent a feature of these reports that the figures have been omitted from the situation reports and brought under one heading...." In fact, the British did do something. Churchill spoke out, even though his going public probably did result in the Germans tightening their communications procedures. And they kept voluminous records of these atrocities for future war crimes trials–only to realize in 1945 that far better, and ghastlier, evidence made decoded concentration camp rosters superfluous.

A short section near the end of *Battle of Wits* deals with "the Russian problem," something that, even by the standards of secrecy surrounding Ultra, was kept very secret. There have been several recent books on the Venona decrypts and the evidence they provide about Alger Hiss, the Rosenbergs, and others. Budiansky summarizes this evidence, describes how what ought to have been unbreakable "one-time pads" were forced to give up some of their secrets, and names the communist insiders, such as Kim Philby, who betrayed this success to the Soviet Union.

Budiansky has also added the machines to the people. Most earlier memoir literature and other accounts have emphasized the contributions of such heroes as Alan Turing and Joe Rochefort, but without IBM tabulators and British and American Bombes, these men could never have done nearly as much. The card readers and the Bombes–some of the first "computers"–have been mentioned in previous books, but Budiansky provides descriptions and photographs of the optical comparators and other devices the codebreakers employed. The story of these machines–attempts to harness 1940s technology to do what digital electronics would master a decade later–has never been told in a book aimed at the general reader.

Still, Budiansky has plenty of room for people. The memoirs from Bletchley Park and the American codebreaking factories in Virginia and the District of Columbia include some women's stories. Budiansky points out that thousands of British and American women worked at these locations, and he discusses the trials and pleasures of wartime life for these mostly civilian workers. He also provides some excellent anecdotes illustrating the vast gap in class, education and worldliness that separated British and American codebreakers.

For all its strengths, however, *Battle of Wits* does not live up to its subtitle: it is not "the complete story of codebreaking in World War II." Budiansky chooses to concentrate on British and American efforts against German and Japanese top-grade cipher systems. He includes some discussion of their similar successes with Italian codes, but there is almost nothing on what the Axis powers did, other than a useful description of the German breaking of the Atlantic convoy codes and their refusal to believe that Enigma could be broken. Budiansky does not read either German or Japanese, so neither original documents nor memoir literature in those languages was accessible to him. This must be one reason why there is not a word in *Battle of Wits* about the codebreaking and intelligence war between Nazi Germany and the USSR, and it must explain the absence of Ito Risaburo from this book. Ito, we know from Edwin T. Layton's superb *"And I Was There"*, was the designer of both the Red and Purple machines, and a codebreaker, too. *Battle of Wits* tells us why Joe Rochefort ended up commanding a drydock, and why Alan Turing ate an apple laced with cyanide. Perhaps a future work will tell us what became of Captain Ito, and what the B-Dienst's top cryptanalysts told their British, American or Russian captors.