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Cyber Mercenaries: The State, Hackers, and Power

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construction of Japanese cruisers throughout the 1930s (p. 107), when in fact cruiser construction stopped after the completion of the *Takao* class in 1932 and did not resume until 1937. The "decks filled with aircraft" at Midway (p. 156) is an assertion Parshall proved false long ago, while the idea of the "F6F and TBF being near twins" (p. 163) makes no sense, given their completely different roles and specifications. The exaggerations—such as that Somerville's fleet would "not [have been] out of place at Tsushima" (p. 16), and the reference to "octogenarian" aircraft (p. 47), when aviation itself was barely thirty-five years old—are just unnecessary.

To summarize, this book probably will disappoint serious historians and researchers, but nevertheless it does gather together a host of useful thoughts about the problems of block obsolescence and the integration of new capabilities within a fleet in peacetime. Given that these points may stimulate future work or serve to educate the amateur enthusiast, all is not lost. But the book could have been so much more.

ANGUS ROSS

Cyber Mercenaries: The State, Hackers, and Power, by Tim Maurer. Cambridge, U.K.: Cambridge Univ. Press, 2018. 266 pages. $29.99 (paperback).

The use of proxies as a part of the competition and conflict between states is an ancient and time-tested method. Yet from the mercenaries of the pharaoh's army in ancient Egypt to private military and security companies accompanying militaries in modern conflict, each relationship between a state and its proxies is unique and is driven by a multitude of factors. In this timely and well-researched book, Tim Maurer examines how modern states use cyber proxies to pursue their geopolitical aims.

The introduction of Maurer's book is a deep dive into the evolution of the use of cyber proxies by states. Unlike many authors of popular books examining the use of cyber operations, Maurer feels no need to sensationalize the cyber realm. Instead, we get a realistic and accurate assessment of the capabilities of cyber proxies. If there is a weakness to his introduction, it is that he focuses on traditional "hacking," or denial-of-service cyber operations. Although this approach is quite understandable and is representative of most scholarly work on cyber, recent trends suggest a greater use of algorithmic exploitation to conduct information-operation campaigns. These campaigns are unique in that they do not appear to break any laws, domestic or international.

Following the introduction, Maurer proceeds to provide a logical, analytical framework for categorizing cyber proxies and how states use them. This is no small task, given the variety of roles and relationships these groups have vis-à-vis their respective state organizations. Maurer organizes the various modes of proxy use into three main categories: *delegation, orchestration,* and *sanctioning. Delegation* is the proxy relationship in which the state exerts the greatest degree of control over its proxy. An example is the relationship between the U.S. Defense Department and a contractor providing a cyber capability. In *orchestration,* the state may provide limited logistical support or general guidance to the proxy, but stops short of issuing specific instructions. This relationship

often exists when there is a common ideology between state and proxy. *Sanctioning* is a relationship whereby the proxy is permitted to engage in malicious activities, so long as the ends align with the goals of the state. An example is Russian criminal organizations that are permitted to operate as long as they target only non-Russians with their criminal activities and occasionally turn their skills to patriotic purposes.

The next two sections are the strength of Maurer's book. He closely examines all three proxy relationships, identifying the strengths and weaknesses of each type and using historical examples to illustrate his conclusions. Maurer clearly establishes historically the benefit of proxies to states and explains why states are likely to use cyber proxies as a tool for the foreseeable future. Maurer also does identify the standards for international legal responsibility that states bear for their proxies; however, after initially identifying these standards, he discusses them only minimally throughout his later case studies.

National security practitioners likely will gain the most insight from these case studies, in which Maurer applies his analytical framework to the use of proxies by the United States, Iran, Russia, and China. Drawing on the most recent events to highlight the use of cyber proxies by these states, he weaves together the economic, social, and political realities of each state and analyzes how these factors affect its use of proxies. Although it is tempting to view proxy relationships as being determined solely by the governmental actors, Maurer reveals how proxies often are a natural outgrowth of their societies. For example, he discusses how a combination of excellent technical training and poor job prospects has led to the increased use of sanctioning as a proxy relationship in countries of the former Soviet Union.

In conclusion, *Cyber Mercenaries* is both enjoyable to read and an important contribution to scholarship on the study of cyber conflicts. It dispels many of the myths and misunderstandings surrounding the use of proxies and provides an analytical framework that can be applied easily when following news reporting on international conflicts in cyberspace. It should be on the bookshelf of every scholar and practitioner in this vital field of national security studies.

JEFFREY BILLER

Shadow over the Atlantic: The Luftwaffe and the U-boats, 1943–45, by Robert Forsyth. Oxford, U.K.: Osprey, 2017. 312 pages. $30.

As the Second World War recedes ever further into the past, more and more works emerge that focus on historical back pastures or operations either overlooked or examined only lightly until now. *Shadow over the Atlantic* is an example of such works, but it is also a welcome contribution to understanding the vital Axis anticonvoy campaign and the role of the Luftwaffe in waging war at sea. Robert Forsyth is an experienced author, with a specialty in World War II German aircraft. He tells the story of the attempts by the German navy and air force to coordinate operations so as to maneuver Admiral Karl Dönitz's U-boats into position to savage Allied convoys. In doing so, Forsyth focuses nearly exclusively on the operations of Long-Range Reconnaissance Group 5, Atlantic (designated FAGr-5).