

Operational Research in War and Peace: The British Experience from the 1930s to 1970. By *Maurice W. Kirby*. London: Imperial College Press, 2003. 444 pp. Illustrations, figures, tables, bibliography, notes, index. Cloth, \$97.25; paper, \$35. ISBN: cloth 1-860-94297-0; paper 1-860-94366-7.

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Operational research (OR), the “application of the methods of science to complex problems arising in the direction and management of large systems of men, machines, materials, and money in industry, business, and defence” (p. 3), originated in prewar British air-defense planning against the Luftwaffe. In the first part of a two-volume history of British operational research, Maurice Kirby examines its wartime development and employment in antisubmarine operations and in the Bomber Command’s campaign against Germany. After 1945 operations research became “well-established at the industry-specific level” (p. 1) within the nationalized coal industry and the major iron and steel companies. As “corporate forms of enterprise” (p. 1) migrated into the British manufacturing sector during the 1960s, OR became an important component of management structures in diverse industries, ranging from petroleum to publishing. At the same time, OR was influential in British civil aviation, British Railways, and London Transport, and also within public utilities, including atomic energy. Graduate studies in OR were common in British universities during the 1960s and were followed by undergraduate degree programs during the 1970s. From the mid-1960s on, OR increasingly permeated central and local government administrations within the United Kingdom.

In the first five chapters, comprising half the book, Kirby presents the genesis of OR and its relation to British military efforts through 1945. He begins with the pre-1937 antecedents of OR, followed by a useful chapter on interwar British air strategy, and the role of OR within it, through the Battle of Britain in 1940. I found Kirby’s chapter on the employment of OR in the campaign against German U-boats particularly instructive. The Royal Air Force Coastal Command’s Operational Research Section (ORS) included two Nobel laureates and five fellows of the Royal Society. Its brief was to improve the search

capability of individual aircraft, enhance the accuracy of aircraft bombing and the precision of depth charges employed against U-boats, and improve aircraft operations by streamlining maintenance and overhaul cycles. Thanks to the work of ORS, by 1943 aircraft from Coastal Command surpassed British warships in sinking U-boats, destroying eighty-four to the navy's sixty-four. Kirby's chapter on the employment of OR in Bomber Command's nighttime campaign against Germany is an informative contribution to the postwar debate over its morality, offering an interesting glimpse into its intricacies and errors. OR increased the accuracy of British bombing, which was 3.7 times more precise in 1944–45 than in 1943. Accuracy is a relative term. The fact that Bomber Command was measuring its successes by 1945 in terms of bombs hitting within one mile of the target, instead of the five-mile radius that was the goal in late 1941, was certainly a marked improvement but of little comfort to German civilians.

The election of the Labour Government in 1945 provided a supportive framework for the migration of OR out of military operations and into the government's efforts to establish some type of "fair" or "scientific" method of continuing wartime controls. However, the beginning of the cold war after 1947 dampened OR expansion, since many of its advocates, rooted in the political left, were "progressively marginalized in British science politics" (p. 202). The postwar entrée for OR came under the aegis of the British steel industry. British Iron and Steel Research Association's Operational Research Department conducted two long-term projects during the early 1950s: optimizing the seaborne importation of iron ore and conducting a statistical analysis of industrial accidents. While U.K. steel production ended up lagging behind the rest of the world, Kirby argues that, without OR, "the lag would have been greater" and that OR did "offset some of the long-standing institutional rigidities" within British industry (p. 248).

OR became an important element in the Labour Government's use of the public corporation as a means of industrial nationalization. Initial emphasis during the 1950s was on production. The contraction of the coal industry during the 1960s and 1970s led the operational researchers of the National Coal Board (NCB) to shift their efforts to planning, marketing, and manpower analysis. Kirby considers NCB's Field Investigation Group highly successful, claiming that it represents an "outstanding example of the relevance" of OR practices in the postwar period (p. 288).

In his chapter on the diffusion of OR into the U.K. corporate sector after 1960, Kirby compares the U.K. and U.S. experiences in management within the existing historiographic framework. Kirby argues against arriving at a “facile conclusion” that OR had proved of “limited use,” given the “competitive failings of British industry in the 1970s.” Most British corporate employment of OR had been on the “tactical level” by small OR groups (less than five people) and fell “far short of the wartime model . . . whereby operational researchers had a roving brief to range across tactical and strategic issues in a mutually reinforcing way” (p. 328).

Operations research became increasingly attractive to civil government during the 1960s. However, its origins were not in Whitehall, but in the Royal Institute of Public Administration’s study of the application of OR to housing maintenance. By the end of the decade, the new Civil Service Department embraced OR, and successes there led to its further diffusion within the national government, including Ministry of Defence studies of various U.K. military scenarios within the cold war.

Kirby concludes his study with the history of the professionalization of operations research in Britain, including OR degree programs, the role of the Operational Research Society, and the debate on the future of OR in an increasingly complex world.

Maurice Kirby has written a clear, comprehensive, thoroughly researched, and definitive history of the first four decades of British operational research. His study is useful to military (and naval) historians, historians of the “soft” sciences, and also business historians with an interest in the evolution of modern management and corporate structures.

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