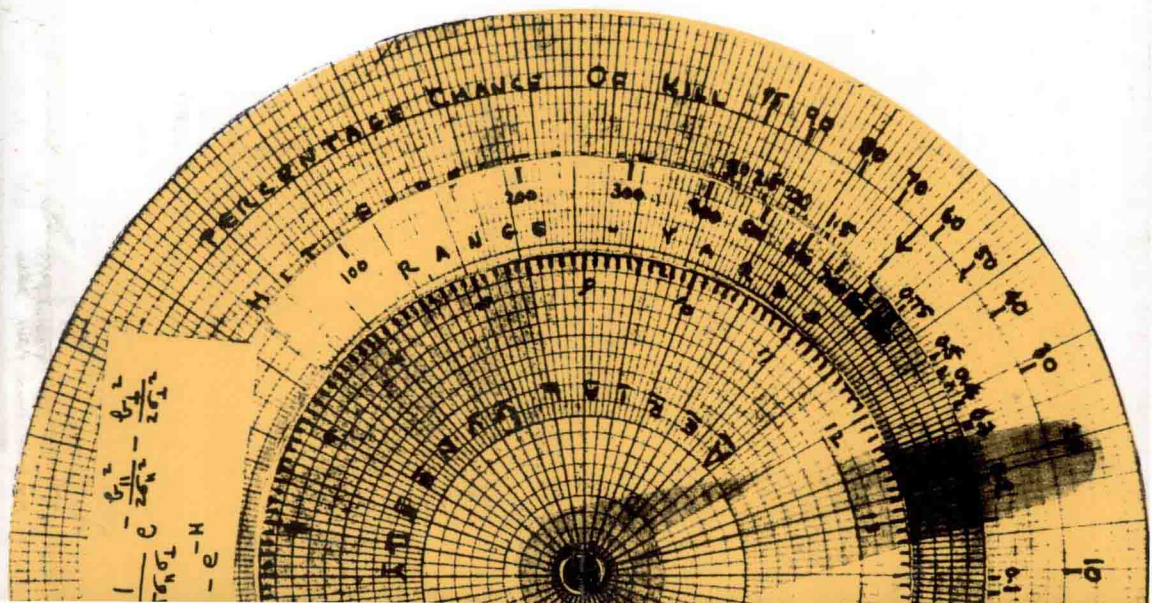




RATIONAL ACTION

The Sciences of Policy in Britain and America, 1940–1960

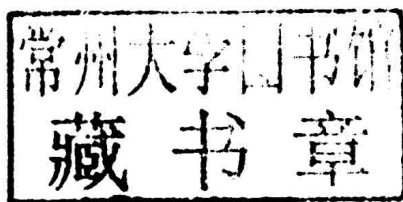
WILLIAM THOMAS



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William Thomas



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Introduction

At the end of World War II, there was a widespread interest in what the future of science, technology, and governance would hold. To many commentators the war served as clear evidence that humanity's capacity for invention was paired with a deep irrationality that turned the products of genius inexorably to destruction. They urged that, if the human race were to survive, the world's nations would have to learn to conduct their affairs with a newfound wisdom. At the same time, such wariness was often tempered by a belief that if the work of scientists and engineers were harnessed by more enlightened policies, civilization could enter an era of unprecedented peace and prosperity.

In this same period, practical developments in the conduct of the war demonstrated to those who were privy to them that immediate and concrete benefits could be realized by improving the orchestration of research, engineering, management, and policymaking. Technologies and the methods of using them could be made more effective by designing them in tandem. A wider variety of experts could contribute to the formulation of new plans and policies, and different expert perspectives could be better harmonized. The rationales underlying practical decisions could be placed on firmer empirical foundations, and, in some cases, their logic could be fruitfully subjected to formal mathematical analysis.

Naturally, the exact implications of all these developments were a matter of dispute. J. D. Bernal, a British crystallographer and a well-known Marxist intellectual, thought that their consequences would be epoch-making. In a November 1945 lecture entitled "Lessons of the War for Science," he explained to a London audience that the wartime successes of scientists engaged in an activity called "operational research" showed that henceforth it would be possible to rationally coordinate scientific research with the needs of industry and society. To him, this prospect signaled nothing less than the dawn of a new phase of human history, in

which “scientific, conscious social organization” would replace the “unplanned interaction of human wills” as a driver of progress. The moment was as important as when the advent of civilization had supplanted biological evolution. Bernal mocked anyone who might “shrink from this opportunity and the immense responsibility which it places on man for the conscious direction of his own future.” Such people were, he reckoned, “in the position of the wild men in the woods of the previous transformation, who preferred to fend for themselves as had their animal forebears rather than mix in the dangerous and disturbing affairs of human society.”¹

The scale of Bernal’s vision was almost singular, but his interest in planning scientific work to address social needs was widely shared. Others, however, regarded this sort of planning as a threat to the independence of academic inquiry. Warren Weaver, for one, was deeply opposed to the idea. In September 1945 the American mathematician and influential Rockefeller Foundation administrator wrote a long letter to the *New York Times* explaining that to suppose the war’s technological successes validated the intelligent direction of science was to draw the wrong lessons. In November he republished his letter as a pamphlet for the Society for Freedom in Science, an organization founded in Britain in 1941 to oppose Bernal and likeminded others.² Yet, Weaver, in his own way, was also deeply impressed by wartime developments. In December he circulated to colleagues a draft of his chapter of the final report on the activities of the Applied Mathematics Panel, a wartime U.S. government body he had led. In it he described a “Tactical-Strategic Computer,” into which could be input equations and variables describing every possible condition bearing upon the various interrelated choices that senior military officers might have to make. Within the limits of available information, the computer would work through all possible combinations of choices. When it was finished, it would select the most rational combination and a dial would light up displaying the quantitative value of that combination’s “Military Worth.” Weaver did not suppose the computer to be a realistic prospect. Rather, he viewed it as an idealized illustration of the analytical rigor that should henceforth inform military decision making.³

The Sciences of Policy

The extravagances of Bernal’s and Weaver’s very distinct visions drew heavily on the sense of momentousness that pervaded their moment in history. Yet neither vision was a sheer fantasy. During the war both men

had been deeply involved in work that helped to improve the designs of weapons and equipment, and the planning of combat operations. Their postwar ideas were essentially extrapolations from what they felt were the principles responsible for wartime successes. Needless to say, their grandest aspirations did not come to pass. But, in the following decades, the ideas underlying those aspirations would in fact have far-reaching consequences. These included the proliferation of organizations for policy analysis, the foundation of major new professions dedicated to studying industrial and managerial problems, and the development of new kinds of mathematical models that would permeate work in fields ranging from engineering to academic social science. For convenience's sake, we can refer to this complex of developments as comprising a set of new postwar sciences of policy. Readers interested solely in the history of these sciences may turn past the next section of this introduction.⁴ However, all readers should be aware that there is also an important larger story at work in this book.

In the postwar period, the sciences of policy served as a locus that interlinked a startlingly complex array of ideas about science, mathematics, philosophy, engineering, computation, expert advice, and executive decision making. By tracing the roots of these sciences in World War II, and the ways that they succeeded, failed, and evolved alongside each other in the postwar period, this book will establish much more clearly than ever before what the ideas driving their rise were. It will analyze why some of these ideas were ineffectual, while others proved powerful and enduring. Most importantly, this book will explain what people at that time actually meant when they asserted it would henceforth be possible to act more rationally. In doing so, it will show how many of their ideas we, in fact, share with them, however foreign their more outlandish expressions may seem.

Powerful Nations, Ideology, and the Concept of "Science"

Traditionally, our understanding of mid-twentieth-century ideas about science, technology, rationality, and governance has been restricted by influential conventions governing how we talk about these subjects. These conventions are inherited in large part from the postwar period, and, ironically, from many of the same historical actors whose more intricate ideas are most obscured by them.⁵ The conventions are most clearly characterized by the distinction they draw between "scientific" and nonscientific ways of thinking, and by their development of a history of the evolution of the relations between those ways of thinking. While the specific subject

and contents of this history can vary substantially from case to case, it always follows one of two basic narratives.

The first narrative is about the halting, eternally incomplete progress of “science” as a force of economic and political enrichment. In this narrative, science is associated closely with technology, but also with rationality, which, in turn, is implicitly defined as the virtue underlying any sound policy. The story is, of course, about science’s ongoing effort to make itself more useful to society. But it is also about scientists’ struggle to overcome others’ neglect of, and resistance to, their work. Postwar proponents of the new sciences of policy unsurprisingly favored a version of this story. By characterizing their advocacy as a continuation of the general contribution of “science” to the war effort, they could portray their particular postwar ambitions—whatever they happened to be—as natural, clearly beneficial steps in the progress of science, both intellectually and as a social and political force.⁶

As the historian David Edgerton has argued, this story also had a major influence on the political and intellectual discourse of twentieth-century Britain, and on the subsequent historiography of that nation. Throughout the century, intellectuals, political leaders, and historians often argued that Britain was in a decline, which better-informed governance, combined with a proper investment in science and technology, might yet reverse.⁷ The sciences of policy fit easily into this overarching political narrative. In fact, as in the case of J. D. Bernal, specific wartime successes such as operational research (OR) were initially taken as harbingers not of new sciences of policy, but of a much larger sea change in science–state relations. Later, when this anticipated change failed to materialize, these same wartime experiences were reduced to episodes in a longer, less optimistic history of British science. This history was replete with missed opportunities for a better government and society, which, according to the moral of the story, would require ongoing work to bring about.⁸ For example, this narrative patterned a 1965 lecture given by Solly Zuckerman, the British government’s chief scientific adviser, who had worked with Bernal during the war. In it Zuckerman was able to trace the history of an “uneasy alliance” between “science” and “the state” all the way from ancient Archimedes through wartime operational research to the creation of his top-level office the previous year.⁹

The second narrative is similar to the first in that it relates the concept of “science” both to technology and rationality. However, it differs crucially in that, first, it is about the rising dominance, rather than the