Introduction

This book gives an alternative account of the development of one of the greatest states of the twentieth century. In the first decades of the century this state created and commanded a military-industrial-scientific complex which was, in the phrase of the time, 'second to none'. For some decades after the Second World War it held a sharply differentiated third place in a bipolar world. It was the pioneer of modern, technologically focused warfare; its naval and air forces long led the world. It was for a very long time the leading exporter of arms. It had a state machine operated not just by bureaucrats but also by technicians. It had intimate links with business, and indeed it successfully intervened in the economy, transforming its industrial structure. It saw itself as a global, liberal power, as a world political-economic policeman, an arbiter of the fate of nations. Those familiar with histories of international relations, twentieth-century warfare and twentieth-century states will, or should, find it hard to believe that that state was the British state. For the standard histories of the great powers and the relations between them associate modern military power first with Germany and then with the United States. Britain is the 'weary titan', an effete declining power, which disarmed in the interwar years and then appeased a resurgent Germany. This supposed failure to be warlike enough in the past still has enormous ideological resonance. In Britain the claim is made, to this day, as the last argument in favour of high armaments expenditure and interventions abroad; this warning from history has been deployed before every post-war conflict from the invasion of Suez in 1956 to that of Iraq in 2003. This image of Britain was also important in post-war United States politics, and indeed in US academic writing on the history of relations between nations.[1] It is not surprising then that in accounts of the twentieth-century state the British state appears, if at all, as one which became a Keynesian-welfare state which was singularly unsuccessful in

[1] Kevin Narizny, 'The political economy of alignment: Great Britain's commitments to Europe, 1905–1939', *International Security* 27 (2003), 184–219.

transforming the economy. In this alternative account there is a British warfare state of some importance to both world history and British history.

For those familiar with the historiography of twentieth-century Britain, and the British state, as it stood even a decade ago, the arguments presented here will seem particularly odd. Indeed their very oddity is a measure of the significance of putting the warfare state into the history of twentieth-century Britain. Most histories saw Britain as a 'welfare state', an assumption to be found in nearly all economic histories, social histories, labour histories and even the most recent cultural histories. Most histories of British armed force relied on the idea that as a liberal nation Britain was anti-militaristic. Accounts of science, technology and industry associated with its armed forces were saturated with the powerful declinist assumptions of so much Anglo-American writing on the history of the British elite, and of the British economy, industry, science and technology. Those assumptions have been challenged for some time, by many historians, but do retain a good deal of influence.

This book builds on and expands the scope and depth of the arguments presented in my *England and the aeroplane* and associated papers on Britain's 'liberal militarism' and the technocratic and militaristic critiques of twentieth-century Britain.[2] I have taken the argument in new and more radical directions than I could put forward a decade ago, partly in response to reactions to the earlier work.[3] The empirical and conceptual bases of the argument are also much wider and deeper. The book covers the period 1920 to 1970, and discusses three main areas. First, it deals with the arms industry and state policies and practices in relation to this industry, and the economy more generally. Chapter 1 provides a new account of defence expenditure and of the arms industry in the interwar years, particularly naval armaments. It also reflects on the relations

[2] *England and the aeroplane: an essay on a militant and technological nation* (London: Macmillan, 1991); 'Liberal militarism and the British state', *New Left Review*, 185 (1991), 138–69; 'The prophet militant and industrial: the peculiarities of Correlli Barnett', *Twentieth Century British History* 2 (1991), 360–79; *Science, technology and the British industrial 'decline', 1870–1970* (Cambridge: Cambridge University Press, 1996).

[3] For example, George Peden, in *Business History* 34 (1992), 104; John Ferris in *International History Review* 15 (1993), 580–3; Maurice Kirby, 'British culture and the development of high technology sectors' in Andrew Godley and Oliver Westfall (eds.), *Business history and business culture* (Manchester University Press, 1996), pp. 190–221; David Coates, *The question of UK decline: the economy, state and society* (London: Harvester Wheatsheaf, 1994), esp. pp. 181, 195–201; Kevin Theakston, *The Civil Service since 1945* (Oxford: Blackwell, 1995), pp. 191–2; Andrew Cox, Simon Lee and Joe Sanderson, *The political economy of modern Britain* (Cheltenham: Edward Elgar, 1997) and Andrew Gamble, *Britain in decline*, 4th edn (London: Macmillan, 1994).

between political economy and appeasement.[4] Chapter 2 looks at the development of the warfare state between 1939 and 1955, relating this to a more general nationalisation and scientisation of Britain in the middle of the century.[5] It gives a new account of the control of the war economy, of the wartime arms industry and of public ownership and industrial policy, defence production and the search for national technological security. Chapter 6 looks at the declining warfare state of the late 1950s and 1960s, and in particular its relationship to the 'white heat' of the 1960s, and to the Ministry of Technology in particular.[6]

Secondly, the book is concerned with the nature of the British state elite and in particular the higher reaches of the civil service. In chs. 3 and 4 a new account is provided of the civil service and of science–state relations in both peace and war. The administrators and scientific officers are compared, and the supposed conflict between them is re-examined; the first reasonably complete picture of the controllers of armament production is given, showing the continued importance in war of technical civil servants, businessmen (particularly from the arms industry) and servicemen. Chapter 4 also links the history of the expansion of the largely military scientific civil service to the history of the technical middle class and the masculinisation and scientisation of the university in mid-century.

The third element of the book is a study of interpretations and conceptualisations of the British state, and of British militarism and technocracy. Chapter 5 looks at the emergence in the late 1950s and 1960s of new technocratic ideologies which were and are central to 'declinism'. Taking C. P. Snow and the physicist P. M. S. Blackett as exemplary and influential figures, it shows how they wrote expertise out of their accounts of the British state and British warfare; how they created an influential anti-history of British technocracy, especially in relation to war. The chapter also sheds new light on the seminal 1960s' debate between Perry

[4] The account differs significantly from some of the most recent highly specialised work on these topics. See Elizabeth Kier, *Imagining war: French and British military doctrines between the wars* (Princeton: Princeton University Press, 1997); Cecelia Lynch, *Beyond appeasement: interpreting interwar peace movements in world politics* (Ithaca, NY: Cornell University Press, 1999); Martin Ceadel, *Semi-detached idealists: the British peace movement and international relations* (Oxford: Oxford University Press, 2000).

[5] Chapter 2 has some material from 'Whatever happened to the British warfare state? The Ministry of Supply, 1945–1951' in Helen Mercer, Neil Rollings and Jim Tomlinson (eds.), *Labour governments and private industry: the experience of 1945–1951* (Edinburgh: Edinburgh University Press, 1992), pp. 91–116 and my 'Public ownership and the British arms industry, 1920–1950' in Robert Millward and John Singleton (eds.), *The political economy of nationalisation, 1920–1950* (Cambridge: Cambridge University Press, 1995), pp. 164–88.

[6] This chapter is an expanded and revised version of 'The "white heat" revisited: British government and technology in the 1960s', *Twentieth Century British History* 7 (1996), 53–82.

Anderson and E. P. Thompson, showing how Anderson reproduced standard technocratic declinist analyses while Thompson already showed an anti-declinist streak, and was expressing a concern that the British military-industrial complex was ignored by declinist analysts such as Anderson.

Chapter 7 looks at how intellectuals (including particularly political economists and historians) dealt with the key issue of the relationship of Britain to militarism, and how the welfare state, rather than the welfare *and* warfare states, became central to the historiography of modern Britain. It does so by examining how a standard image of Germany shifted from being a means to celebrate Britishness to a critique of Britishness, and how a militaristic critique of Britain became central to understanding Britain's relationship to the armed services. It also looks at how social democratic historians linked war to the rise of the welfare state and made this the central theme of the historiography of twentieth-century Britain. It also examines the return, from the late 1970s, of the techno-declinism that had been so important a part of British culture in the late 1950s and early 1960s. Chapter 8 examines how the existing literature on industry, technology and science in modern war (including the important literature focused on the USA) systematically takes out the military and/or treats it in very specific ways. It proposes a new framework for thinking about the relations between science, technology, industry and war in the twentieth century.[7] It explores what is called historiography from below as, among other things, a means of understanding the crucial hidden assumptions made in the existing academic and non-academic literatures on these topics.

Putting the British warfare state into the twentieth-century history of Britain is to rewrite some of the most important passages of its political, military, economic and cultural history. The revisions to standard accounts are at least as great as those brought about by highlighting the 'fiscal-military state' of the eighteenth century.[8] Many of the most

[7] This chapter has some material which first appeared in David Edgerton, 'British scientific intellectuals and the relations of science, technology and war' in Paul Forman and J. M. Sánchez Ron (eds.), *National military establishments and the advancement of science: studies in twentieth century history* (Dordrecht: Kluwer, 1996), pp. 1–35.

[8] See John Brewer, *The sinews of power: war, money and the English state 1688–1783* (London: Unwin Hyman, 1989). Of course, Edwardian militarism has long been the subject of revisionist thinking. See Anne Summers, 'Militarism in Britain before the Great War', *History Workshop Journal* 2 (1976), 104–23; David French, *British economic and strategic planning, 1905–1915* (London: Allen & Unwin, 1982); Bernard Semmel, *Liberalism and naval strategy: ideology, interest and seapower during the Pax Britannica* (London: Allen & Unwin, 1986); J. T. Sumida, *In defence of naval supremacy* (London: Unwin Hyman, 1989); Avner Offer, *The First World War: an agrarian interpretation* (Oxford: Clarendon Press, 1989); J. M. Hobson, 'The military-extraction gap and the weary titan: the

common images in the historiography of twentieth-century Britain will now need explaining instead of being parts of explanations. For example, rather than 'disarming' in the interwar years Britain kept arms spending high and focused on the most modern military technologies. Rather than leading to 'appeasement', liberal internationalism, which had a strong political-economic core, was not only anti-Nazi but militantly so. The development of the welfare state around the Second World War changed the structure of the central state much less than the quickly expanding warfare state. The already strong warfare state had expanded its scope and power, militarising and nationalising Britain. From the mid-1930s to the late 1940s warlike spending went up much more than welfare spending, and the 'welfareness' of British state spending did not return to early 1930s levels until 1970. The pre-war state was expert and the post-war state was even more expert, despite the image of dominance by non-expert administrators. C. P. Snow's notion of the 'two cultures', so influential in understanding the British elite, including the state elite, was garbled and wrong-headed, but for all that typical, technocratic, declinist, anti-history of Britain. The 1964–70 Labour government, far from trying, and failing, to inject technocracy into the British *ancien régime*, instead cut back on techno-nationalist projects and ceased to believe that Britain suffered from a lack of innovation. A great modernisation project brought into being alongside the creation of declinism provided the context in which key theses of declinism were refuted.

The last decade and a half has seen the beginnings of a transformation in the study of twentieth-century Britain. Breaking away from 'inverted Whiggism' and 'declinist' accounts, and the 'decline debate' more generally, has been of central importance in rethinking the broad contours of twentieth-century British history.[9] For declinism was never confined to economic history, nor was it just an interpretative framework: it painted very particular pictures of Britain, its elite, its businesses, its armed forces, its culture, which have proved very influential.[10] Not surprisingly, anti-declinism has gone along with a powerful sense of the historical stories

fiscal-sociology of British defence policy 1870–1913', *Journal of European Economic History* 22 (1993), 461–506; Niall Ferguson, 'Public finance and national security: the domestic origins of the First World War revisited', *Past and Present* no. 142 (1994), 141–68 and *The pity of war* (London: Allen Lane, 1998); Nicolas Lambert, *Sir John Fisher's naval revolution* (Columbia, SC: South Carolina University Press, 1999).

[9] See my 'Science and technology in British business history', *Business History* 29 (1987), 84, 'Barnett's audit of war: an audit', *Contemporary Record* 4 (1990), 37–9 and *England and the aeroplane*.

[10] See for examples of broad analyses of the issue and its general ideological significance: D. N. McCloskey, 'The politics of stories in historical economics' in *If you're so smart* (Chicago: Chicago University Press, 1990), pp. 40–55; Edgerton 'The prophet militant and industrial'; W. D. Rubinstein, *Capitalism, culture and economic decline in Britain,*

about twentieth-century Britain being seriously inadequate. One historian observes that there is a sort of history of Britain which 'explains an outcome which never happened ... by a cause that is equally imagined'.[11] He only half-jokingly suggested that in reading comparative business histories

> a helpful rule of thumb is to assume that (at least after World War I) what they say about Germany applies to the United Kingdom, that what they say about the United Kingdom applies to Italy; and that neither can be assumed to have anything whatsoever to do with competitive advantage or economic performance.[12]

Another historian notes in a review of literature on the Royal Air Force (RAF) that some recent works 'begin by invoking causes which do not exist, continue with arguments based on imagination instead of evidence, and end by describing events which did not happen'.[13] Another asked whether the opposite to what is stated in much literature on British science and technology might be closer to an adequate historical picture than that put forward.[14] It is little wonder then that a recent textbook on British economic history is animated by a 'mood of growing disenchantment with the level of debate'.[15]

Welfarism has been at least as important as declinism, probably more so, in shaping the historiography of twentieth-century Britain. It remains central to the understanding of the British state, at least after 1914. Yet here too great changes are under way in understanding the place of the military in the state, and in society more generally. A key indicator is that the term 'militarism' is now being used by British historians in studies of twentieth-century Britain. For example a military historian writes that if militarism is 'interpreted as a veneration of military values and

1750–1990 (London: Routledge, 1993); Barry Supple, 'Fear of failing: economic history and the decline of Britain', *Economic History Review* 47 (1994), 441–58; Jim Tomlinson, 'Inventing "decline": the falling behind of the British economy in the post-war years', *Economic History Review* 49 (1996), 731–57, and *The politics of decline* (London: Arnold, 2000); P. Mandler, 'Against "Englishness": English culture and the limits to rural nostalgia, 1850–1940', *Transactions of the Royal Historical Society*, 6th series, 7 (1997), 155–75; Peter Mandler, *The fall and rise of the stately home* (London: Yale University Press, 1997); David Matless, *Landscape and Englishness* (London: Reaktion Books, 1998); P. Mandler, 'The consciousness of modernity? Liberalism and the English national character, 1870–1940' in M. Daunton and B. Rieger (eds.), *Meanings of modernity: Britain from the late-Victorian era to World War II* (Oxford: Berg, 2001), pp. 119–44.

[11] Leslie Hannah, 'Afterthoughts', *Business and Economic History* 24 (1995), 248.

[12] Leslie Hannah, 'The American miracle, 1875–1950, and after: a view in the European mirror', *Business and Economic History* 24 (1995), 204–5.

[13] John R. Ferris, 'The Air Force brats' view of history: recent writing and the Royal Air Force, 1918–1960', *International History Review* 20 (1998), 120.

[14] Edgerton, *Science, technology and the British industrial 'decline'*, p. 69.

[15] Alan Booth, *The British economy in the twentieth century* (London: Palgrave, 2001), p. ix.

appearances in excess of what is strictly necessary for effective defence, then it is not as inapplicable to Britain as the orthodoxy allows'.[16]

This book challenges the welfarist interpretation of the history of the twentieth-century British state. It also seeks to understand it, and indeed its close relationship with declinism. The book looks at the history of the warfare/welfare and the decline/growth dichotomies and other binary oppositions which have been central in understanding the British state. Among them are the opposition between the military and the civilian, which turns out to be hugely important to our understanding of industry, science, technology and war in the twentieth century; that between liberalism and militarism, which is central to the understanding of British militarism; that between 'specialists' and 'generalists' or 'amateurs' and 'professionals' in the civil service, the core issue in its historiography; and the overarching 'two cultures' opposition between science and arts, a dichotomy central to the study of the intellectual elite and much else besides. This book shows how these particular oppositions emerged from particular understandings of Britain and the British state and were forged in particular contests about reforming the state. More generally this is an invitation to see how important particular critiques of the state have been in its formation and understanding. British intellectuals, and politicians, have thought of the state in very distinctive ways, using distinctive language – that of political economy, welfare and technocratic and militaristic critiques among others. Particular social-scientific understandings were also, I show, crucial to forming the contemporary understanding of the state, and historians' understandings too, in ways which we need to appreciate more. We need to recognise the structures of analysis embodied in concepts like the welfare state, Keynesianism and nationalisation, all standard terms in analyses of the development of the twentieth-century state.

The history of the state, the book argues, has been understood in very particular ways, focusing on one side of each of the dichotomies. In many accounts the British state is all welfare, administrators, civilians, arts graduates, Keynesianism and nationalisation. The overall argument of this book is not that the state should be seen as all warfare, specialists, military men, scientists and engineers and technocratic intervention, that it was a warfare state *rather* than a welfare state or a nation becoming more powerful rather than declining. The book does not invert the usual dichotomies, it subverts them. It tells a different story about the state and about the conceptualisation of the state than those that can be told from within the standard conceptualisations. The post-declinist and

[16] Hew Strachan, *The politics of the British army* (Oxford: Clarendon Press, 1997), pp. 264–5.

post-welfarist historiography it calls for will not come from ignoring declinism or welfarism, or writing histories that merely challenge such accounts, which we might call anti-welfarist and anti-declinist histories. On the contrary, it must understand the significance of welfarism and declinism to the history and the historiography of twentieth-century Britain. In arguing for a new history of the British state the book will have fully succeeded only if it succeeds in this second task as well. Indeed, I hope the book will help open up the history of welfare and of *relative* economic decline to new questions, as much as the history of the warfare state and of British economic development.

My argument thus does not rest on existing historiography or on a critique of existing historiography but rather on a series of crucially important re-understandings of our accounts of the British state, and the histories of twentieth-century science, technology, industry and war. For this reason it cannot deal with existing literature in the conventional way. Academic historians usually fill lacunae in the literature; we revisit (empirically and/or theoretically) well-established debates, challenge well-developed authoritative original positions, claiming original contributions, and/or synthesise specialist literatures. We also contextualise particular cases within wider existing historiographies. None of these strategies has been usable in this case. The problem is not a lack of writing on the themes covered here but the particular ways in which we know what we know.[17] What this book is arguing against and across, what it stands instead of, is by the very nature of the project not easily – or profitably – discussible in terms of existing accounts. For example, declinism and welfarism interacted in very particular and complex ways with seemingly neutral specialised accounts of, say, the civil service or the armed forces or the universities. These specialised histories are already contextualised within particular histories of Britain. It is difficult to untangle one from another, and thus the crucially important reconfigurations of arguments at many levels which putting the warfare state in involves are not easily described. I deliberately do not set out to attack a

[17] The usual academic response to a situation in which there was no great academic tradition would be that we should start from scratch – it is not beyond the capacity of academics to convince ourselves, and others, that we know less than we really do, thereby increasing the stock of collective ignorance. It would be going too far to engage only with the private knowledge of the informed, though the public can be more challenging to argue with than the academy. This was brought home to me by discovering that things I have written against particular academic positions caused no surprise to lay people; for those working in the aircraft industry it was too obvious for comment that the industry was essentially military; for those like me who read about it, this was a surprise. It would be amusing to tally the claims to ignorance now exaggeratedly made in the academic literature of the 'surprisingly little is known about' kind.

particular historical literature. Instead I write about a wide range of historical and non-historical literatures, from many different periods, as part of a wider story about the state and how it was understood. One aim is to demonstrate the pervasiveness of (and changes in) the understandings I am criticising as partial accounts. I want to avoid any suggestion that I am attacking straw men, or outdated conceptions, or particular recent ones, or that I am engaged in a debate on decline. I also want to avoid the danger that in convincing readers of the significance of the warfare state, I undermine the idea that the welfare state was indeed central to the conceptualisation of the British state. The aim is to understand how and why welfarism and declinism became so significant, and how and why the warfare state has not registered in the elite British imagination. Part of the way this is done is by exploring the intellectual traffic between practitioners and specialist historians, by studying the assumptions of specialist historians, by examining, historically, the thinking of practitioners.

The British warfare state has been surrounded by near impregnable thickets of historical accounts and other accounts which camouflage it. A title/keyword search on militarism in any large library catalogue will show that there is a substantial literature on German, Japanese, Soviet and many 'third world' species of militarism, but virtually none associating the concept with Britain. Furthermore, in all the vast commentary on the British state, there is hardly even an allusion to the 'military-industrial complex' or the 'military-scientific complex', ideas which are central to the discussion of militarism in the United States. In post-war Britain both the left and right, for different reasons, were to complain of the weakness of the state. In Britain, it seems, there was apparently no close engagement with industry and the state, or interpenetration of state and science.

Admitting the existence of a modern and modernising warfare state, in peace or war, would have entailed profound changes in the analysis of the state, and of the place of expertise, science and technology in the life of the state and the nation. It would have discomfited the post-war right, which complained of a lack of militarism, particularly but not only in the interwar years, to keep arms spending up. But it would also upset the arguments of the left which asserted that the state was incapable of modernising intervention and that it was hostile to expertise. Indeed a catalogue search would suggest not only that Britain has had no militarism but no technocrats either. A large literature supports the idea that this has been a central problem for British economic and military performance.[18] British

[18] Andrew Massey, *Technocrats and nuclear policy: the influence of professional experts in policy-making* (Aldershot: Avesbury, 1988), is the only book on Britain I know which uses the term in a title.

technocrats, of left and right, consistently complained of the supposed anti-scientific and anti-technological character of the British state and industry and sought to advance their positions through such critiques. Particularly long-standing and influential has been the technocratic critique of the higher civil service, which is seen as being made up of men trained in the classics and at best, history, rather than the scientists and engineers that a modern society was felt to need as state administrators.

The militaristic and technocratic critiques of twentieth-century Britain have proved very influential, particularly but not only in declinist writing.[19] They were often themselves historical in the sense of drawing on past cases, but they were often anti-histories in that, paradoxically, they removed the military or technocratic from British history. Instead, they often provided elaborate historical explanations for what they took to be a weak commitment to the armed forces and to science and technology. I turn these critiques around in a very particular way. I take the very ubiquity in the post-war years of the claim that Britain was an anti-militarist and anti-technological society (which I demonstrate) as evidence not of the theory put forward, but of the success (and power of) the militaristic and technocratic strands in British culture.

Such a move implies a very different account of British cultural and intellectual history, for this too is dominated by assumptions linked to declinism and welfarism. Much discussion of 'Englishness' or the 'English ideology' has long been a site for the reproduction of declinist theses, rather than a re-examination of 'Englishness' and how it has changed.[20] Furthermore, it is focused on humanistic/literary intellectuals, just like the technocratic critique.[21] It is thus hardly surprising

[19] Edgerton, 'The prophet militant and industrial'.

[20] For examples see Patrick Wright, *On living in an old country: the national past in contemporary Britain* (London: Verso, 1985); Tom Nairn, *The enchanted glass* (London: Radius, 1988); Angus Calder, *The myth of the Blitz* (London: Cape, 1991); David Morgan and Mary Evans, *The battle for Britain: citizenship and ideology in the Second World War* (London: Routledge, 1993); Meredith Veldman, *Fantasy, the bomb, and the greening of Britain: romantic protest, 1945–1980* (Cambridge: Cambridge University Press, 1994); and many chapters in A. K. Mayer and C. J. Lawrence (eds.), *Regenerating England: science, medicine and culture in interwar Britain* (Amsterdam: Rodopi, 2000). For an argument making explicit the connection between declinism and the question of national identity see R. English and Michael Kenny, 'British decline or the politics of declinism?', *British Journal of Politics and International Relations* 1 (1999), 252–66, and 'Public intellectuals and the question of British decline', *British Journal of Politics and International Relations* 3 (2001), 259–83.

[21] Studies of scientific and technical intellectuals are rare. Among the exceptions are Bill Luckin, *Questions of power* (Manchester: Manchester University Press, 1990), my own *England and the aeroplane*; Patrick Wright, *The village that died for England: the strange case of Tyneham* (London: Cape, 1995) and his *Tank: the progress of a monstrous war machine* (London: Faber, 2000) and Mayer and Lawrence, *Regenerating England*.