Introduction: Machines of Peace

In February 1963, not long after the Cuban Missile Crisis, David Lilienthal gave a series of lectures on nuclear weapons at Princeton University. As a leading US policymaker on atomic matters in the late 1940s (including as the first Chairman of the Atomic Energy Commission), Lilienthal had been instrumental in shaping early policy on the atomic bomb. Now, in the aftermath of the deepest nuclear crisis to envelop the United States, he conceded that his, and society's, earlier thinking on the bomb had turned out to be incorrect. 'We have been following a myth', he exclaimed, 'an illusion about the Atom':

What is the essence of this myth? To my mind, it is this: That because the development of the Atomic Bomb seemed to be the ultimate breakthrough in scientific achievement, in the control of physical matter, we could make a similarly radical departure in dealing with those problems in human affairs which the Bomb so greatly intensified. The Bomb was so colossal, a new force in the world, that we believed a new way must be found to meet its threat, an approach similarly sweeping, similarly radical and world-wide. In short, our obsession with the Atom drove us to seek a Grand Solution. We became committed to the concept of a total final settlement because nothing short of this would answer the tremendous threat. . . . We became obsessed with the idea of a Single Solution for the Atom because we were obsessed with the revolutionary destructive power of the Atom itself.[1]

The 'Grand Solution' Lilienthal referred to was the international control of atomic energy. Taking atomic scientific research and development, as well as associated facilities, raw materials, and end products (such as the atomic bomb) out of the hands of nation-states, and placing them under the direct control of the United Nations would, it had been believed, provide the solution to the problem of atomic energy and bring with it international peace and security. International control had been widely discussed and supported in Britain and the United States in the aftermath of the atomic bombings of Hiroshima and Nagasaki, and

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[1] David E. Lilienthal, *Change, Hope, and the Bomb* (Princeton, NJ: Princeton University Press, 1963), 20, 23.

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was even adopted as official policy in the form of the Baruch Plan placed before the United Nations Atomic Energy Commission in June 1946.

These attempts at international control had failed. In retrospect, Lilienthal acknowledged they had a misguided approach to solving the problem of atomic energy. But Lilienthal had a deeper realization: that atomic energy had not turned out to be what he and other experts thought it would be in the late 1940s. They had proven to be wrong because their understandings of nuclear weapons had been tied to their understandings of social and world affairs at the time, and because they had understood atomic energy as presenting one problem with one solution. 'The Atom', he noted, 'seemed to present a whole new order of problems. It appeared to supersede and take precedence over every aspect of life that it touched, so that the grave problems of military and foreign policy and human relations were essentially transformed into a single monolithic problem: the Atom'. Atomic energy, he now conceded, was not, in fact, such a singular problem and had no single solution.[2]

This book explores such attempts at a technological solution to the problem of international peace and security, particularly through aviation and atomic energy. Both technologies appeared so powerful and destructive, yet so transformative that internationalists like Lilienthal did not try to ban them, but instead attempted to use them to bring about fundamental transformations in international relations. Proposals for the international control of aviation arose in Britain in the 1920s as part of wider attempts at disarmament and collective security, and reached a peak during the Geneva disarmament conference of the early 1930s. Driven largely by internationalists and supporters of the League of Nations, they were widely aired through the press and public gatherings, and within pressure groups, think tanks, international conferences, and state organizations. They re-emerged during the Second World War in Britain and even the United States as a part of conversations on post-war planning. Aviation, it was argued, was transforming international relations through both its integrative effects and as a powerful modern weapon of war. The spread of aviation and its social and political effects could not be halted or reversed, but could, it was thought, be controlled by international organization. Internationally minded bureaucrats, aviators, and other technical experts, working through international organizations, could be trusted to nurture this invention to fulfil its internationalist potential. Proposals centred on far-reaching international regulation or even outright ownership of aeroplanes and aerial facilities by a powerful international organization. Internationalized civil aviation would bind the world together

[2] Ibid., 23.

through trade and communication, and an international air force would enforce collective security.

After August 1945 internationalist interest shifted to atomic energy. It was now international control of atomic bombs and facilities which would prevent catastrophic warfare whilst strengthening the fledgling United Nations. Atomic energy appeared to offer the opportunity for peace, international order, and perhaps even international economic prosperity through cheap energy. Support for the international governance of atomic energy became widespread in both Britain and the United States by mid-1946. An official US proposal was eventually placed before the newly formed United Nations Atomic Energy Commission, though no agreement was reached.

These proposals were in fact not as monolithic as Lilienthal would later assume. They were multifaceted and diverse, reflecting the differing political and personal aims of their proponents. They were also profoundly shaped by the politics of their times, and reflected both the shifting power balances in international relations and, domestically, political rivalries, lobby group pressure, and election-year policies. They were also shaped by contemporary cultural, social, and economic currents; the differing states of British and US aviation and atomic industries had an impact too. The proposals pervaded public discourses on war, peace, and disarmament; and publications, informal networks, and formal gatherings and organizations transmitted these ideas across national boundaries. Although diplomatic attempts at international control ultimately failed, they nevertheless left their mark on popular culture, activism, and intellectual thought into the 1950s and beyond. Hi-tech international police forces, for example, continued as a staple of juvenile science fiction into the Cold War years. A rejuvenated scientists' internationalism in the 1950s and 1960s repeated many of the atomic internationalist refrains from 1946. The techno-globalist rhetoric which emerged so prominently in the 1980s and 1990s made strikingly similar arguments in relation to the newly emergent technologies of the time. Exploring these proposals, consequently, has much to tell us about the techno-politics of international relations and internationalism, and the wider social currents which supported them, of both that period and beyond.

Technological Internationalism

Proposals for international control were not simply about disarmament or security but about the creation of new liberal world orders built on and defended by these technologies. Internationalists argued that these machines necessitated new world organization, and that this organization

4   Machines of Peace

was at last possible with the aid of these technologies themselves and their attendant experts. These proposals were, in that sense, manifestations of liberal internationalisms which swept Britain and the United States in the first half of the twentieth century. The belief that greater international cooperation and organization was required, and was in fact already emerging, dominated intellectual thought on international relations, as well as both popular and elite activism on foreign affairs. It was reflected also in state policy, with its most visible manifestation being the growth in international organizations in the first half of the twentieth century, especially the formation of the League of Nations in 1920 and the United Nations organization, and associated institutions, in 1944 and 1945.[3]

This impulse is central to our understanding of world politics in the middle decades of the twentieth century. Historians now contextualize the international organizations of the period within an arc of liberal internationalist thinking and advocacy dating back to the nineteenth century.[4] It is also now recognized that liberal internationalism's

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[3] There is a large and growing literature on this. For example on US liberal internationalism: Robert A. Divine, *Second Chance: A Triumph of Internationalism in America During World War II* (New York: Atheneum, 1967); Andrew Johnstone, *Dilemmas of Internationalism: The American Association for the United Nations and US Foreign Policy, 1941–1948* (Farnham: Ashgate, 2009). On British liberal internationalism: Michael Pugh, *Liberal Internationalism: The Interwar Movement for Peace in Britain* (Houndmills: Palgrave Macmillan, 2012); Casper Sylvest, *British Liberal Internationalism, 1880–1930: Making Progress?* (Manchester: Manchester University Press, 2009). For overviews see: Mark Mazower, *Governing the World: The History of an Idea* (New York: Penguin, 2012); Daniel Gorman, *The Emergence of International Society in the 1920s* (Cambridge: Cambridge University Press, 2012); Glenda Sluga, *Internationalism in the Age of Nationalism* (Philadelphia: University of Pennsylvania Press, 2013); Jo-Anne Pemberton, *The Story of International Relations, parts one and two, Cold-Blooded Idealists* (Cham, Switzerland: Palgrave Macmillan, 2019, 2020). On the League: Patricia Clavin, *Securing the League of Nations: The Reinvention of the League of nations, 1920–1946* (Oxford: Oxford University Press, 2013); Susan Pedersen, *The Guardians: The League of Nations and the Crisis of Empire* (Oxford: Oxford University Press, 2015). On international organizations more broadly see: David MacKenzie, *A World Beyond Borders: An Introduction to the History of International Organizations* (Toronto: University of Toronto Press, 2010); Guy Fiti Sinclair, *To Reform the World: International Organizations and the Making of Modern States* (Oxford: Oxford University Press, 2017). Other significant case studies: Mark Mazower, *No Enchanted Palace: The End of Empire and the Ideological Origins of the United Nations* (Princeton, NJ: Princeton University Press, 2009); Daniel Laqua, *The Age of Internationalism and Belgium, 1880–1930: Peace, Progress and Prestige* (Oxford: Oxford University Press, 2015); Or Rosenboim, *The Emergence of Globalism: Visions of World Order in Britain and the United States, 1939–1950* (Princeton, NJ: Princeton University Press, 2017); Glenda Sluga and Patricia Clavin, eds., *Internationalisms: A Twentieth Century History* (Cambridge: Cambridge University Press, 2017); Simon Jackson and Alanna O'Malley, eds., *The Institution of International Order: From the League of Nations to the United Nations* (London: Routledge, 2018).

[4] Mazower, *Governing the World*; Sluga, *Internationalism in the Age of Nationalism*.

manifestations and impact spread far beyond the demand for inter-
national organization or cooperation. For Glenda Sluga there was
a widespread 'international turn' at the start of the twentieth century;
for Or Rosenboim a new 'globalism' emerged in the 1940s as a way of
imagining global space, politics, and society.[5] Erez Manela has shown
that there existed a powerful 'Wilsonian moment' in 1919 and 1920 in
which peoples from across the world couched their political visions in
terms of Wilsonian internationalism.[6] Internationalism is now acknow-
ledged to be a significant motive force behind the creation of trans-
European infrastructure from the interwar period onwards.[7]

Liberal internationalism became prominent (and in some ways preva-
lent) in national culture and politics too in the first half of the twentieth
century. That the emergent British and US international relations theor-
izing was largely liberal internationalist in nature has long been
recognized.[8] But liberal internationalism is now also known to be
a distinct sociopolitical movement with its own middle-class and liberal
aristocratic-led policies, programmes, and discourses. It is also recog-
nized as being of some significance to mass mobilization and associational
life in 1930s Britain, and yet also intertwined with wider liberal militaris-
tic culture and the political economy of the militaristic state.[9] Although
the interwar United States was outside the League of Nations, historians
have begun to explore the ways liberal internationalism continued to
flourish there – particularly through philanthropic foundations such as
the Ford Foundation or the Carnegie Endowment.[10] New work suggests
that US and British central bankers may also have operated within
a broadly liberal internationalist intellectual and institutional culture.[11]

[5] Sluga, *Internationalism in the Age of Nationalism*; Rosenboim, *The Emergence of Globalism*.

[6] Erez Manela, *The Wilsonian Moment: Self-Determination and the International Origins of Anticolonial Nationalism* (Oxford: Oxford University Press, 2007).

[7] Alexander Badenoch and Andreas Fickers, eds., *Materializing Europe: Transnational Infrastructures and the Project of Europe* (London: Palgrave Macmillan, 2010).

[8] Peter Wilson, 'Introduction: The Twenty Years Crisis and the Category of "Idealism" in International Relations', in *Thinkers of the Twenty Years' Crisis: Inter-war Idealism Reassessed*, eds. David Long and Peter Wilson (Oxford: Clarendon Press, 1995), 1–24.

[9] Pugh, *Liberal Internationalism*; Helen McCarthy, *The British People and the League of Nations: Democracy, Citizenship and Internationalism, c.1918–45* (Manchester: Manchester University Press, 2012); David Edgerton, *Warfare State: Britain 1920–1970* (Cambridge: Cambridge University Press, 2006); David Edgerton, *England and the Aeroplane: Militarism, Modernity and Machines*, 2nd ed. (London: Penguin, 2013).

[10] Katharina Elisabeth Rietzler, 'American Foundations and the "Scientific Study" of International Relations in Europe, 1910–1940' (PhD diss., University College London, 2009).

[11] Patricia Clavin, 'Men and Markets: Global Capital and the International Economy', in Sluga and Clavin, *Internationalisms*, 85–112.

6   Machines of Peace

We also now recognize liberal internationalism's diversities and multi-plicities: that, for example, internationalists had differing (sometimes clashing) visions, aims, and understandings of the nature and trajectory of international relations, and operated in differing social, cultural, insti-tutional, and political contexts. Liberal internationalism was not only a political ideology or a constellation of ideas and beliefs, but included activism and was embedded within organizations and institutions, and, in a more diffused way, national, international, and transnational societies, cultures, and norms.[12] Scholars recognize that it was not simply utopian or idealistic, and that nationalism, imperialism, and isolationism are not its antithesis. Imperialism and nationalism are indelibly intertwined with internationalism, and isolationism is more a problematic category tied to the internationalist rhetoric of the 1930s and 1940s than an opposing tendency.[13]

Our understanding of internationalism in the 1930s and 1940s remains chronologically restricted however, splintered by the Second World War. This is especially true of post-war atomic internationalism, which is generally seen as dominated by scientists and driven and shaped by the atomic bomb itself.[14] By bringing aviation and atomic energy together into the same historical and analytical frame, this book highlights the

[12] For a sense of diversity see: Long and Wilson, *Thinkers of the Twenty Years' Crisis*; Sluga, *Internationalism in the Age of Nationalism*; Glenda Sluga and Patricia Clavin, 'Rethinking the History of Internationalism', in *Internationalisms*, 3–14.

[13] On idealism and utopianism see: Peter Wilson, 'The Myth of the "First Great Debate"', in *The Eighty Years' Crisis: International Relations 1919–1999*, eds. T. Dunne, M. Cox, and K. Booth (Cambridge: Cambridge University Press, 1998), 1–15; Lucian M. Ashworth, 'Did the Realist-Idealist Great Debate Really Happen? A Revisionist History of International Relations', *International Relations* 16, no. 1 (2002): 33–51. On nationalism, imperialism, and isolationism: Andrew Johnstone, 'Isolationism and Internationalism in American Foreign Relations', *Journal of Transatlantic Studies* 9, no. 1 (March 2011): 7–20; Sluga, *Internationalism in the Age of Nationalism*; Holger Nehring, 'National Internationalists: British and West German Protests against Nuclear Weapons, the Politics of Transnational Communication and the Social History of the Cold War, 1957–1964', *Contemporary European History* 14, no. 4 (2005): 559–582; Brooke L. Blower, 'From Isolationism to Neutrality: A New Framework for Understanding American Political Culture, 1919–1941', *Diplomatic History* 38, no. 2 (2014): 345–376; David Long and Brian C. Schmidt, eds., *Imperialism and Internationalism in the Discipline of International Relations* (Albany: State University of New York Press, 2005); Miguel Bandeira Jerónimo, 'A League of Empires: Imperial Political Imagination and Interwar Internationalisms', in *Internationalism, Imperialism and the Formation of the Contemporary World*, eds. Miguel Bandeira Jerónimo and José Pedro Monteiro (Cham, Switzerland: Palgrave Macmillan, 2018), 87–126; Sluga and Clavin, 'Rethinking the History of Internationalism', 3–14; Stephen Alexander Wertheim, 'Tomorrow, the World: The Birth of U.S. Global Supremacy in World War II' (PhD diss., Columbia University, 2015), 1–26.

[14] For example: Alice Kimball Smith, *A Peril and a Hope: The Scientists' Movement in America: 1945–47* (Chicago: University of Chicago Press, 1965).

importance of pre-Second World War views about science, technology, and international relations to post-war internationalism and arms control. The aeroplane and bombing, I argue, laid the foundation for internationalist responses to the atomic bomb in the late 1940s.

Whilst the prominence of liberal internationalism was clearly a foundation for the emergence and popularity of proposals for the international control of aviation and atomic energy, it does not fully explain two prominent features of these ideas. The first is that their proposed governing organizations were conceived not merely as peace-loving bodies but as military organizations which would put down threats to global peace with force.[15] Technological internationalism incorporated a liberal militarism which put its faith in modern scientific weapons, seeing them as the ultimate arbiters of power and war. The use of these weapons abroad, rather than a reliance on manpower or supposedly traditional ways of warfare would, it was thought, avoid casualties and protect liberal democracy at home from militarism.[16] This liberal militarism unfolded by reproducing and expanding on the demand for collective security which emerged strongly in Britain and France after the First World War.[17] Bombers and atomic bombs, widely recognized and feared as weapons of mass destruction, were welcomed as potential instruments of peace, able to create and sustain peace and security. Their power, it was hoped, could be used to create new forms of collective security, defending liberal states against, in the 1930s, the revisionist powers, and in the late

[15] The militaristic side of liberal internationalism remains underexplored by historians, see for example: Sluga, *Internationalism in the Age of Nationalism* and Sluga and Clavin, *Internationalisms*. The overlap between pacifists and liberal internationalists has been problematic for historians: Martin Ceadel classified the League of Nations Union as part of the British 'peace movement' and identified militarists as the peace movement's 'ideological adversaries': Martin Ceadel, *Semi-detached Idealists: The British Peace Movement and International Relations, 1854–1945* (Oxford: Oxford University Press, 2000), 8–9. Liberal internationalism's militaristic edge has been explored in: Edgerton, *Warfare State*, 5, 54–58; Edgerton, *England and the Aeroplane*, chapter 3; Mazower, *Governing the World*, 166–171, 204–207; Pugh, *Liberal Internationalism*, chapter 5.

[16] Liberal militarism also emphasized civilian control of these weapons, which were to be directed against civilian, in addition to military, targets. David Edgerton, 'Liberal Militarism and the British State', *New Left Review* 185 (January–February 1991): 138–169; Edgerton, *Warfare State*, 7–14, 285; Bryan Mabee, 'From "Liberal War" to "Liberal Militarism": United States Security Policy as the Promotion of Military Modernity', *Critical Military Studies* 2, no. 3 (2016): 242–261; James Wood, 'Anglo-American Liberal Militarism and the Idea of the Citizen Soldier', *International Journal* 62, no. 2 (2007): 403–422.

[17] Peter Jackson, *Beyond the Balance of Power: France and the Politics of National Security in the Era of the First World War* (Cambridge: Cambridge University Press, 2013), 427–522; Thomas Bottelier, 'Associated Powers: Britain, France, the United States and the Defence of World Order, 1931–1943' (PhD diss., King's College London, 2018). More broadly: Sally Marks, *The Illusion of Peace: International Relations in Europe, 1918–1933*, 2nd ed. (Houndmills: Palgrave Macmillan, 2003), chapter 2.

1940s, the Soviet threat. Historians have pointed out that the aeroplane was used to scientifically order and govern peoples in far-flung colonial spaces; *Technological Internationalism and World Order* reveals how internationalists hoped to apply these imperial lessons to their metropolitan centres of civilization.[18] As well as providing military defence and governing outlying territories, international control was also to police these technologies themselves by governing the production, flow, and use of technical and scientific know-how and material between and within states. Prior to August 1945, aviation was to be regulated through an international police or an international air bureau, and after 1945 atomic energy was to be governed by an international atomic commission staffed by atomic experts and technocrats. Illegal national development of these technologies would be curtailed by new international conventions, and, if necessary, devastating force: an international air police, which after 1945 was to be armed with atomic bombs. The contradictions inherent in using fearsome weapons for policing regulatory and security regimes were managed through a recourse to prevailing ideas about the nature of modern technology and the new international liberal legalism of the time, which included domestic analogies, just law, and notions of anarchy, barbarism, and civilization.[19] These allowed internationalists to characterize the use of force not as warfare but as legal policing action sanctioned by international authority and carried out by an international police.

Second, proposals for international control voiced deeper and wider hopes and fears about modern scientific machines and their impact on world affairs. It was not just aviation and atomic energy that was thought to be transforming the world, but modern scientific inventions generally, and the science which was thought to underlie them. Diesel-powered ships, radio, and (earlier) the telegraph were thought to be bringing nations closer together through transport, communication, and trade, and so spreading peaceful relations. At the same time, mighty scientific weapons such as poison gas, tanks, and rockets threatened to not only

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[18] David E. Omissi, *Air Power and Colonial Control: The Royal Air Force, 1919–1939* (Manchester: Manchester University Press, 1990); Priya Satia, *Spies in Arabia: The Great War and the Cultural Foundations of Britain's Covert Empire in the Middle East* (Oxford: Oxford University Press, 2008), chapter 8.

[19] Hidemi Suganami, *The Domestic Analogy and World Order Proposals* (Cambridge: Cambridge University Press, 1989); Martti Koskenniemi, *The Gentle Civilizer of Nations: The Rise and Fall of International Law 1870–1960* (Cambridge: Cambridge University Press, 2001); Hatsue Shinohara, *US International Lawyers in the Interwar Years: A Forgotten Crusade* (Cambridge: Cambridge University Press, 2012); Daniel Joyce, 'Liberal Internationalism', in *The Oxford Handbook of the Theory of International Law*, eds. Anne Orford, Florian Hoffmann, and Martin Clark (Oxford: Oxford University Press, 2016), 471–487.

devastate whole countries but possibly destroy civilization itself. For some this was a new 'Machine Age', and aviation and atomic bombs stood out as its most prominent exemplars and harbingers. Publics were in awe of these machines, transfixed by their spectacle, and certain that they portended epochal transformations, both constructive and destructive, in society and world affairs.[20] There was significant national enthusiasm too for their development: Britain and the United States poured substantial resources into their military and civilian deployment, hoping that their transformative properties could be used for military and geopolitical advantage.[21] These ideas, I argue, constituted a 'technological internationalism' which brought together prominent strands of liberal internationalism and beliefs about the efficacy of modern scientific machines and technical expertise. So ubiquitous and commonsensical (if a little naïve) did some of these ideas seem at the time, and to subsequent historians, that they have eluded study. Nor has their influence on our understanding of international relations or the impact of science and technology been properly grasped. This book is the first history of this remarkable phenomenon.

This technological internationalism was empowered by a growing consensus that the increasingly global and technical problems of international relations required expert technocratic solutions. International governance through technical expertise was demanded by intellectuals (such as H.G. Wells), bureaucrats in international organizations, imperial administrators, and internationalist policymakers. A plethora of international technical organizations, staffed with technical experts and bureaucracies, were created to deal with specific international issues, and even imperial governance took a technocratic turn both in British imperial governance and through the League's Mandates Commission.[22] In Europe plans for transnational rail, road, and electricity networks proliferated alongside

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[20] Joseph J. Corn, *The Winged Gospel: America's Romance with Aviation, 1900–1950* (New York: Oxford University Press, 1983); Robert Wohl, *The Spectacle of Flight: Aviation and the Western Imagination, 1920–1950* (New Haven, CT: Yale University Press, 2005); Jenifer Van Vleck, *Empire of the Air: Aviation and the American Ascendancy* (Cambridge, MA: Harvard University Press, 2013); Paul Boyer, *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* (New York: Pantheon Books, 1985); Allan M. Winkler, *Life Under a Cloud: American Anxiety about the Atom*, 2nd ed. (Urbana: University of Illinois Press, 1999).

[21] On Britain: Edgerton, *England and the Aeroplane*; Edgerton, *Warfare State*; G. C. Peden, *Arms, Economics and British Strategy: From Dreadnoughts to Hydrogen Bombs* (Cambridge: Cambridge University Press, 2007). On the United States: Michael S. Sherry, *The Rise of American Air Power: The Creation of Armageddon* (New Haven, CT: Yale University Press, 1987); Gregg Herken, *The Winning Weapon: The Atomic Bomb in the Cold War 1945–1950*, 2nd ed. (Princeton, NJ: Princeton University Press, 1988).

[22] For the interwar years: Pedersen, *The Guardians*; Clavin, *Securing the League of Nations*; Paul Weindling, ed., *International Health Organisations and Movements, 1918–1939*

schemes for European political union.[23] This impulse continued into the war and into the post-war period, where it found expression in the formation of the United Nations and the multitude of specialist international organizations associated with it.[24]

International control, though radical even for its time (and ultimately unsuccessful), was thus part of a wider scientific, technical, and technocratic intervention in international affairs. Through international control, internationalists (such as international relations experts, political scientists, or atomic scientists) promoted themselves as experts with scientific solutions, and sometimes scientific machines as *the* solution. Aeroplanes and atomic bombs came to symbolize technical and scientific control over world affairs, the ultimate triumph of modern science and expertise over anarchic nationalism and outdated diplomacy. These revolutionary new inventions, internationalists argued in 1925, in 1935, and then again in 1945, required revolutionary new expertise. Just as the International Labour Office of the League or United Nations Relief and Rehabilitation Administration (UNRRA) of the United Nations were solving specific transnational problems of workers and refugees, so, some hoped, would an Aerial Board of Control or an Atomic Development Authority solve the problems of international security. This book adds to the growing literature on the relationships between technocracy and liberal internationalism and shows that the two were closely intertwined, and that this connection could rest on widely-held assumptions about the nature of modern science and technology.[25]

In a broader sense, proposals for international control, and the technological internationalism surrounding them, reflected the wider

(Cambridge: Cambridge University Press, 1995). On the 1940s: Joseph Morgan Hodge, *Triumph of the Expert: Agrarian Doctrines of Development and the Legacies of British Colonialism* (Athens: Ohio University Press, 2007); Sabine Clarke, *Science at the End of Empire: Experts and the Development of the British Caribbean, 1940–62* (Manchester: Manchester University Press, 2018).

23 Badenoch and Fickers, *Materializing Europe*; Jean-Luc Chabot, *Aux Origines Intellectuelles de L'Union Européenne: L'idée d'Europe unie de 1919 à 1939* (Grenoble: Presses Universitaires de Grenoble, 2005); Peter M. R. Stirk, ed., *European Unity in Context: The Interwar Period* (London: Pinter, 1989).

24 Jessica Reinisch, 'Introduction: Relief in the Aftermath of War', *Journal of Contemporary History* 43, no. 3 (2008): 371–404; Frank Trentmann, A. B. Sum, and M. Riviera, eds., *Work in Progress. Economy and Environment in the Hands of Experts* (Munich: Oekom, 2018).

25 See for example: Johan Schot and Vincent Lagendijk, 'Technocratic Internationalism in the Interwar Years: Building Europe on Motorways and Electricity Networks', *Journal of Modern European History* 6, no. 2 (2008): 196–217; Clavin, *Securing the League of Nations*; Jessica Reinisch, 'What Makes an Expert? The View from UNRRA, 1943–47', in Trentmann, Sum, and Riviera, *Work in Progress*, 103–130. Lynn Meskell, *A Future in Ruins: UNESCO, World Heritage, and the Dream of Peace* (New York: Oxford University Press, 2018), chapters 2 and 3.