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Audra J. Wolfe, *Freedom's Laboratory: The Cold War Struggle for the Soul of Science* Baltimore: Johns Hopkins University Press, 2019. ISBN 978-1-4214-2673-0 £22.

Robert Poole

In the middle of *Freedom's Laboratory*, Audra Wolfe describes a moment of archival revelation. Presented with the catalogue of the immense archive of the CIA-supported Asia Foundation, she found herself scrolling through a list of 'every conceivable category of nonprofit organization, from the Brookings Institution to the Girl Scouts . . . wondering whether every single US voluntary group doing work abroad was not, in fact, doing the CIA's bidding.' Covert operations on this scale, she observes, 'fertilized the already rich soil from which a thousand conspiracy theories bloomed.' (162).

This readable and thought-provoking work arises from Wolfe's earlier study, *Competing with the Soviets* (2013). This provided an expert overview of the role of American 'big science' in the cold war – and not only big science but also but also the anti-Marxist 'big economics' of global industrial 'take-off', the 'big society' programmes of the 1960s, and the 'big space' of the Apollo project, America's largest peacetime domestic public works programme. That book ended with the radical-led backlash of the late 1960s against Eisenhower's 'military-industrial complex'.

Freedom's Laboratory digs more deeply into the role of the US in using science simultaneously to advance both state power and anti-communist values under the banner of scientific freedom. This was an operation so pervasive that most of those involved it barely even acknowledged what was going on. At the core of the book is Wolfe's recognition that 'support for scientific freedom was not oppositional at all'. By failing to recognise the indivisible hand of the state here, 'historians of science have greatly misread the uses of apolitical science in the cold war' (13).

The abuses of Lysenkoism and 'Soviet science' under Stalin made the initial identification of scientific freedom and American values easy. By the same token, the ideological need to avoid Soviet-style state-promoted science programmes required an arm's-length approach – hence the creation in 1950 of the National Science

Foundation when it was finally created in 1950 as the biggest civil funder of science. When the NSC68 directive identified the global battle for hearts and minds as 'a real war', the State Department came up with a scheme of 'science attachés'. Scientists were posted in US embassies to foster friendly relations with their overseas counterparts, were unaware of their intelligence role until (or even after) they were gently pumped for information on their return home. Ironically the science attaché scheme had to be abandoned when it was denounced by McCarthyite republicans for bringing communist-affiliated scientists into the US.

As scientific diplomacy became too hot a potato for the State Department it became the province of the CIA, whose covert operations specialists worked not so much at arm's length as at tentacle's length. An early success was the highly public operation to discredit the Soviet-sponsored 1949 'Peace Conference' in New York. The Congress for Cultural Freedom was inaugurated the next year with a huge conference in post-airlift Berlin, with the whole-hearted support of such independent-minded figures as Alfred Ayre, Arthur Koestler, Vladimir Nabokov, and Eugene Rabinowicz, a leading figure in the atomic scientists' movement. In a revelatory chapter on the Pugwash conferences, Wolfe shows how Rabinowicz, often taken to be a dissident figure, was in fact wholly behind the government's use of these events for back-channel diplomacy. His ideologically committed, anticommunist brand of scientific internationalism led him to oppose moves by the more politically aware members led by Linus Pauling to take up Soviet proposals for test bans and nuclear disarmament, causing a split in the atomic scientists movement between diplomats and activists who otherwise appeared to share the same values. 'Scientific neutrality', concludes Wolfe, 'remained a key value of US cultural diplomacy through most of the cold war' (134), but ideologically neutral it was not.

This is one of several chapters which are also valuable as essays and student readings. Chapter 5 deals with Eisenhower's embarrassingly successful 'Atoms for Peace' campaign in the mid 1950s (which was unable to deliver on its basic swords-into-plowshares promise) and the more militarily-focused International Geophysical Year of 1957-8, marred for the US by the success of Sputnik which the Soviets offered as their contribution. Chapter 7 looks at the Asia Foundation, an exercise in international science education pitched as 'Asian programming for asiatics', while chapter 8 looks at the exposure of covert CIA cultural funding in 1967, symbolised by

the row over support for the influential magazine *Encounter*. Liberal beneficiaries such as Michael Polanyi and Eugene Rabinowicz were in denial, insisting on their own independence, but the cultural critic Chrisopher Lasch wrote cuttingly that 'the freedom of the American intellectuals as a professional class blinds them to their own unfreedom' (172).

A final chapter, 'Scientists' Rights are Human Rights', deals with the decade or so after the Helsinki Accords of 1975 when the USSR ostensibly accepted western principles of human rights. The challenge to the Soviet refusal to apply these principles to its own citizens was led by scientists such as Sakharov, Bonner, Kovalev, and Scharansky. The limitations of supposedly apolitical science diplomacy emerged as the dissidents denounced excessively tactful foreign delegations which connived with the Soviet smokescreen. A decade later, these same dissident scientists were significant players in the endgame of the cold war. 'In this small but important way,' writes Wolfe, 'cultural diplomacy involving science contributed to the eventual downfall of the Soviet Union' (195).

In a sharp and combative epilogue (another useful reading in science studies) Wolfe makes clear her own stance. The critical disciplines of 'science studies' and 'science policy studies' emerged as a necessary response to the use of an ideologically-loaded rhetoric of scientific freedom as cover for the power politics of the cold war. She admits that the mockery of woolly-minded postmodernist naivety by the Sokal hoax, and the ruinous assault on science by the climate change denialism of Bush and Trump, have damaged the cultural critique of science. Nonetheless, she insists, scientists cannot and should not evade making hard political choices; they should avoid 'advancing systems of state power' and instead encompass 'freedom and justice for all'.

Freedom's Laboratory is an important work which powerfully combines international relations and science and technology studies to demonstrate the importance of scientific diplomacy in the cold war. Its archival revelations are complemented by interviews with surviving figures from the period; indeed, Steven Rose contributed his own memoir-laced review in the London Review of Books (18 July 2019). In its interdisciplinary fluency it sits alongside other studies of scientific culture of the cold war, such as McNeill and Unger's Environmental Histories of the Cold War (2010), Launius et. al.'s Globalizing Polar Science (2010), Hamblin's Arming

Mother Nature (2013), and Mandler's Return from the Natives: how Margaret Mead Won the War and Lost the Cold War (2013). As the climate continues to heat up, the history of diplomacy and the history of science become ever more inseparable.

Robert Poole

University of Central Lancashire.