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'A Completely Open Race'

Anglo-Soviet Competition over German Military Science and Technology, 1944-1949

ABSTRACT

In the period immediately following the Second World War, during which Germany was occupied by the four victorious Allies, fierce competition erupted between them over the spoils of German military science and technology. Among this four-power squabbling, the British and Soviet authorities engaged in a particularly desperate struggle, especially over recruitment of expert German personnel, which they felt might give them the edge in any future conflict. This article explores the policies which arose from this struggle and shows that the first act of the Cold War arms race played out most vividly amongst the ruins of the Third Reich.

'This officer feels that we may just as well acknowledge the situation for what it is between Russia and the Western powers: A completely open race for the best talent and skill Germany has to offer'.¹

This statement, made by an unnamed British intelligence officer in August 1946, proved remarkably perceptive and prescient, as all four of the victorious Allies pursued increasingly vigorous programmes of post-war scientific and technological exploitation in Germany which often brought them into direct competition with one another. This article will focus on one particular element of this international rivalry, specifically that which arose between Britain and the Soviet Union, over the recruitment of German scientific experts. The two countries had fought alongside one another in the campaign against Nazi Germany since 1941, but to many in both nations, this had been nothing more than a marriage of convenience, united by a

¹ 'Periodic Intelligence Report No.2', 6 Aug. 1946, FO 1039/51, The National Archives, London (TNA).

common enemy and little else. After VE-Day, Anglo-Soviet relations deteriorated sharply and, as Julian Lewis has argued, Britain responded to this breakdown with foresight, prudence and exceptional rapidity.² Indeed, many senior British policy-makers and military strategists saw the four years of wartime co-operation as merely an aberration in a relationship more commonly characterised by hostility and mutual suspicion, and fully anticipated that the Soviet Union would be Britain's enemy in any future conflict.³

As such, British military planners and intelligence officers began to consider what form a war against the Soviet Union would take, and how Britain could win it. In fact, just days after the war in Europe ended, Winston Churchill asked his advisors to develop just such a strategy, which was tellingly codenamed Operation Unthinkable, and remarkably recommended the involvement of 10,000 rearmed German soldiers fighting alongside British and American troops.⁴ The main assumption which underpinned all these considerations, however, was that the numerical superiority of Soviet forces was essentially cancelled out by their scientific and technological inferiority.⁵ However, the ability to exploit German science and technology in their capacity as an occupying power offered the Soviet Union an opportunity to close this gap and achieve scientific parity with the Western Allies. Indeed, the British Joint Intelligence Sub-Committee (JIC) worried that 'the alliance of German brainpower and Russian resources may well prove to be the most important outcome of the occupation of Germany'.⁶ These anxieties were partly rooted in memories of the 1922 Treaty of Rapallo, signed between Russia and Germany, the two pariah states of the post-First World War era, which allowed

² Julian Lewis, *Changing Direction: British Military Planning for Post-War Strategic Defence, 1942-1947* (London: Sherwood, 1988), p. xcvi.

³ Richard Aldrich, *The Hidden Hand: Britain, America and Cold War Secret Intelligence* (London: John Murray, 2001), pp. 21ff.; Tony Judt, *Postwar: A History of Europe since 1945* (London: Pimlico, 2007), pp. 110-122, pp. 117-120; Anne Deighton, *The Impossible Peace: Britain, the Division of Germany, and the Origins of the Cold War* (Oxford: Oxford University Press, 1990), pp. 5-7; Stefan-Ludwig Hoffmann, 'Germany is No More: Defeat, Occupation and the Postwar Order' in Helmut Walser Smith (ed.), *The Oxford Handbook to Modern German History* (Oxford: Oxford University Press, 2011), pp. 593-4; D. Cameron Watt, 'British Military Perceptions of the Soviet Union as a Strategic Threat, 1945-50', in Josef Becker and Franz Knipping (eds.), *Power in Europe* (Berlin: de Gruyter, 1986), pp. 325-339.

⁴ Aldrich, *Hidden Hand*, p. 58.

⁵ Richard Aldrich, 'British intelligence and the Anglo-American 'Special Relationship' during the Cold War', *Review of International Studies*, 24 (1998), pp. 332-3.

⁶ 'JIC(46)51(0)', 24 May 1946, CAB 81/33, TNA.

Germany to circumvent the restrictions imposed by the Treaty of Versailles and begin covert remilitarisation on Russian soil.⁷ Therefore, while Britain (alongside the USA and France) were also conducting exploitation in Germany, in part to secure reparations in kind and in part to prevent resurgent German militarism, it was the need to stay one step ahead of the Soviet Union that quickly became the dominant motive. In this way, East-West competition over German military science and technology became the first, ferocious chapter of the Cold War arms race.

Indeed, in his wide-ranging study of the Soviet occupation of Germany, Norman Naimark has asserted that the British and American exploitation schemes can only be understood in terms of their relationship with the Soviet Union.⁸ Drawing on a range of British archival sources, this article will explore how this mind-set affected British exploitation, which has thus far been neglected in the scholarly literature, especially when compared with its American, Soviet and French counterparts.⁹ Following a chronological approach, the narrative here will chart the growing competition between Britain and the USSR for Germany's scientific spoils, through the crises prompted by Soviet mass deportations of German scientific workers, and into full-scale 'scientific containment' which became the dominant

⁷ Gordon H. Mueller, 'Rapallo Reexamined: A New Look at Germany's Secret Military Collaboration with Russia in 1922', *Military Affairs*, 40 (1976), pp. 109-117; Spencer Mawby, 'Revisiting Rapallo: Britain, Germany and the Cold War, 1945-1955', in Michael F. Hopkins, Michael Kandiah, and Gillian Staerck (eds.), *Cold War Britain, 1945-1964: New Perspectives* (Basingstoke: Palgrave Macmillan, 2003), pp. 81-94.

⁸ Norman Naimark, *The Russians in Germany: A History of the Soviet Zone of Occupation, 1945-1949* (Cambridge, MA: Harvard University Press, 1995), p. 206.

⁹ Michael J. Neufeld, 'The Nazi Aerospace Exodus: Towards a Global, Transnational History', *History and Technology*, 28 (2012). On Britain, see: Charlie Hall, *British Exploitation of German Science and Technology, 1943-1949* (Abingdon: Routledge, 2019); John Farquharson, 'Governed or Exploited? The British Acquisition of German Technology, 1945-48', *Journal of Contemporary History*, 32 (1997), pp. 23-42; Carl Glatt, 'Reparations and the Transfer of Scientific and Industrial Technology from Germany: A Case Study of the Roots of British Industrial Policy and of Aspects of British Occupation Policy in Germany between Post-World War II Reconstruction and the Korean War' (Ph.D. dissertation, European University Institute, Florence, 1994). On the USA, see: John Gimbel, *Science, Technology, and Reparations: Exploitation and Plunder in Postwar Germany* (Stanford: Stanford University Press, 1990); Matthias Judt and Burghard Ciesla (eds.), *Technology Transfer out of Germany after 1945* (Amsterdam: Harwood, 1996). On France, see: Douglas O'Reagan, 'French Scientific Exploitation and Technology Transfer from Germany in the Diplomatic Context of the Early Cold War', *International History Review*, 37 (2014), pp. 366-385. On the Soviet Union, see: Naimark, *Russians in Germany*, pp. 205-250; Asif Siddiqi, 'Germans in Russia: Cold War, Technology Transfer, and National Identity', *Osiris*, 24 (2009), pp. 120-143.

British policy in the latter part of the occupation period, and beyond.¹⁰ As with other forms of this strategy, scientific containment was an attempt to limit the power of the Soviet Union, by hampering its development of the advanced weapons and military technologies with which it was assumed any future war would be fought.

The central argument therefore is that fear and suspicion of the Soviet Union became the overriding factor in British policy-making on exploitation. This is important for two reasons. Firstly, while the existing literature on the diplomacy and geopolitics of the occupation and the early Cold War often highlights the breakdown in Anglo-Soviet relations as a crucial element, the story of exploitation – which both contributed to this breakdown and reflected it – is distinctly absent.¹¹ In addition, existing literature on British exploitation has tended to assert motives other than the perceived Soviet threat as more critical to the development of policy – for instance, John Farquharson’s 1997 article ‘Governed or Exploited?’ focuses on the push for reparations and its gradual eclipse in favour of reconstruction, while Carl Glatt’s largely obscure 1994 doctoral dissertation offers a remarkably detailed statistical accounting of the scheme and assigns the greatest importance to economic motivations among British decision-makers.¹² In updating the scholarship on this topic (particularly through the use of more recently released archival material), this article bridges a gap between broader histories of the occupation period and early Cold War, which understate exploitation as a factor, and histories of exploitation, which understate the Soviet threat as a motive.

Secondly, a substantial majority of the writing on exploitation, and on the Western strategy against the Soviets at the start of the Cold War, places the United

¹⁰ Paul Maddrell, ‘Operation Matchbox and the Scientific Containment of the USSR’, in Peter Jackson and Jennifer Siegel (eds.), *Intelligence and Statecraft: The Use and Limits of Intelligence in International Society* (Westport: Greenwood, 2005), pp. 173-206.

¹¹ Deighton, *Impossible Peace*; Hoffmann, ‘Germany is No More’; Christopher Knowles, *Winning the Peace: The British in Occupied Germany, 1945-1948* (London: Bloomsbury, 2017); Camilo Erlichman and Christopher Knowles (eds.), *Transforming Occupation in the Western Zones of Germany: Politics, Everyday Life and Social Interactions, 1945-55* (London: Bloomsbury, 2018); Hans-Peter Schwarz, ‘The Division of Germany, 1945–1949’, in Mervyn P. Leffler and Odd Arne Westad (eds.), *The Cambridge History of the Cold War*, vol. I (Cambridge: Cambridge University Press, 2012), pp. 133-153; Marc Trachtenberg, *A Constructed Peace: The Making of the European Settlement, 1945-63* (Princeton, NJ: Princeton University Press, 1999).

¹² Farquharson, ‘Governed or Exploited?’; Glatt, ‘Reparations and the Transfer of Scientific and Industrial Technology from Germany’.

States front and centre.¹³ While this is understandable as the US emerged as one of the two opposing post-war superpowers, it does not tell the whole story, and to leave Britain out is to make a significant omission. The US may have had a larger and more high-profile exploitation programme, securing the services of such prominent German experts as Wernher von Braun, but the British were not distant runners-up. Their recruitment process was equally proactive if slightly less well-resourced, and they brought in an impressive crop of specialists in rocketry, aeronautics and submarine technology (among many other fields), including Hellmuth Walter, Johannes Schmidt, Hans Multhopp, Dietrich Küchemann, and Johanna Weber. The impact that these individuals, and the more than 800 other German scientists, technicians and engineers recruited by the British, had on military and industrial research and development in Britain after the war is notoriously difficult to measure, but there is no doubt that it was hugely significant.¹⁴ Equally it was often the British who were more wary of the Soviet Union, and their perception of this new enemy was generally more prescient, and more influential on policies such as exploitation, than that of their American counterparts. Ultimately, therefore, this article will show that British exploitation of German science and technology was a substantial part of post-war policy-making, that it was driven, above all else, by the growing Soviet menace, and that it has much to add to our understanding of the early Cold War period.

Deterioration

The British intention to exploit German science and technology was fostered during the war itself and, on 29 March 1944, Deputy Chief of the Imperial General Staff, Lieutenant-General Sir Ronald Weeks announced to the Enemy Research and Development Sub-Committee that ‘the obtaining of German research records and as

¹³ Gimbel, *Science, Technology, and Reparations*; Linda Hunt, *Project Paperclip: The United States Government, Nazi Scientists and Project Paperclip, 1945–1990* (New York: St Martin’s Press, 1991); Brian E. Crim, *Our Germans: Project Paperclip and the National Security State* (Baltimore, MD: Johns Hopkins University Press, 2017); Eric Lichtblau, *The Nazis Next Door: How America Became a Safe Haven for Hitler’s Men* (Charlottesville, VA: Mariner, 2014).

¹⁴ Hall, *British Exploitation*, pp. 229–33.

much information as possible of design and development projects in hand, is one of the most vitally important of our immediate post-war aims'. He went on to argue that this may be 'the only form of reparation which it will be possible to exact from Germany'.¹⁵ This was predicated on the widely-held (and largely accurate) notion that Germany had developed technologies which outstripped those within the Allied arsenals – such as guided missiles and nerve agents – even if they had made no effective difference to the course of the war.¹⁶ Accordingly, Britain launched a major exploitation programme which saw a blend of military and civilian investigators travel across Europe in the wake of the advancing Allied armies to visit laboratories and factories, confiscate machinery and prototypes, and interrogate scientists and technicians to learn as much as possible about wartime German research and development.¹⁷

Once the European war ended, and all of Germany lay at the mercy of its occupiers, the programme expanded even further – the ostensible reasoning behind this was to try and obtain an advantage in the Pacific theatre, as well as to aid in the future 'policing of Europe', a euphemistic term which referred to the need to resist both a possible German resurgence and any Soviet attempts to establish hegemony over the continent.¹⁸ All of the occupying powers were involved in this process and, as the spoils of war were ultimately finite, instances of competition between them were unsurprisingly frequent.¹⁹ While Britain and America enjoyed a generally collaborative relationship (and had indeed begun exploitation on a combined basis), there were times when the increasingly powerful United States rode roughshod over its transatlantic ally.²⁰ For example, in the summer of 1945 two trucks full of German aeronautical equipment destined for Britain were confiscated, at gunpoint, from

¹⁵ 'Post-Hostilities Equipment Policy', 29 March 1944, FO 942/27, TNA.

¹⁶ Neufeld, 'Nazi Aerospace Exodus', p. 49; Hermione Giffard, 'Engines of Desperation: Jet Engines, Production and New Weapons in the Third Reich', *Journal of Contemporary History*, 48 (2013), pp. 821–844; Hermione Giffard, *Making Jet Engines in World War II: Britain, Germany, and the United States* (Chicago: University of Chicago Press, 2016).

¹⁷ Hall, *British Exploitation*.

¹⁸ 'Post-Hostilities Equipment Policy', 29 March 1944, FO 942/27, TNA.

¹⁹ Douglas O'Reagan, *Taking Nazi Technology: Allied Exploitation of German Science after the Second World War* (Baltimore, MD: Johns Hopkins University Press, forthcoming 2019).

²⁰ Kori Schake, *Safe Passage: The Transition from British to American Hegemony* (Cambridge, MA: Harvard University Press, 2017).

British agents by US soldiers; similarly, in October, the United States refused to loan a number of relevant German experts to the British for a two-week period to take part in test-firings of V-2 rockets.²¹ Small conflicts such as these aside, Anglo-American exploitation was generally conducted on co-operative terms, especially as their shared suspicion of the Soviets pushed them closer together. The French, meanwhile, very much went their own way.

Desperate to advance their national science sector following the hard years of war and German occupation, the French approach to exploitation was often aggressively acquisitive and reliant on unconventional tactics.²² In one instance, they seized the IG Farben chemical warfare expert Otto Ambros while he was being transported through the French zone of Germany on his way to a detention centre in Luxembourg, in advance of being tried for war crimes, and temporarily put him to work for them at Ludwigshafen.²³ Even ignoring incidents such as this, the British and Americans were reluctant to trust the French on account of 'the general anxiety felt as to French lack of security' but more importantly, 'the possibility of French co-operation with the Russians'.²⁴ Even in relations between the western Allies, the Soviet threat cast a long shadow. Nonetheless, in the collaborative spirit of inter-Allied responsibility for Germany, some early tentative attempts were even made towards Anglo-Soviet co-operation on exploitation, but these nearly always came to nothing. While Soviet observers did attend the British-led test-firing of German V-2 rockets in October 1945, reciprocal visits by British officials to target sites in the Soviet zone rarely materialised, a failure which was blamed on the Soviet tendency to 'take everything and give nothing'.²⁵ Even when British investigators needed to traverse the Soviet zone to reach Berlin, they were not permitted to stop anywhere

²¹ Andrew Nahum, "'I believe the Americans have not yet taken them all!': The Exploitation of German Aeronautical Science in Post-War Britain', in Helmuth Trischler and Stefan Zeilinger (eds.), *Tackling Transport* (London: Science Museum, 2003), p. 109; USFET to Third and Seventh Armies, 8 August 1945, FO 1031/85, TNA.

²² O'Reagan, 'French Scientific Exploitation'; Doris T. Zallen, 'Louis Rapkine and the Restoration of French Science after the Second World War', *French Historical Studies*, 17 (1991), pp. 6-37.

²³ Bower, *Paperclip Conspiracy*, p. 268.

²⁴ 'JIC(46)51(0)', 24 May 1946, CAB 81/133, TNA.

²⁵ Admiral H. Burrough to Brig. R.J. Maunsell, 11 Aug. 1945, FO 1031/5, TNA.

en route, nor were they allowed to travel after dark, and roadside Red Army sentries ensured these rules were adhered to throughout.²⁶

However, the Soviets were not the only ones who contributed to the breakdown in the relationship with Britain. The British were also responsible for several actions which bred mistrust and hostility between the two powers, much of which took place in areas of Germany (primarily Saxony and Thuringia) which were temporarily held by British and American troops at the end of the war but were due to be handed over to the Soviet occupation authorities in summer 1945. For instance, in April, before the war had even ended, an Anglo-American team removed 1,200 tons of uranium ore (the bulk of the German stock) from a salt mine near Staßfurt, which was due to fall within the Soviet zone.²⁷ This is an interesting example of early nuclear non-proliferation, enacted through the confiscation of fissile material.²⁸ Similarly, a plan to destroy the Nordhausen subterranean missile factory before it was handed over was only abandoned because it might have had ‘unfortunate repercussions’ at a diplomatic level, but the facility was still stripped of all its valuable equipment and expert technicians living locally were relocated to Cuxhaven, deep in the British zone.²⁹

This latter tactic reflected a wider trend in exploitation strategy – moving away from the seizure of equipment and documents, and towards the detention, interrogation and recruitment of expert personnel – and it was replicated across all the temporarily British-held regions of Germany. In total, the British extracted 250 expert scientists, and their families, during this short period of interim control – an outcome which British authorities ‘regarded with favour’.³⁰ Stalin, meanwhile, was incensed and protested bitterly against these underhand tactics at the Potsdam

²⁶ Private Papers of Monica Maurice, 22 May 1947, 99/76/1, Imperial War Museum, London (IWM); Private Papers of Gilbert A. Hunter, Jan. 1946, 09/21/1, IWM.

²⁷ David Holloway, *Stalin and the Bomb: The Soviet Union and Atomic Energy, 1939-1956* (New Haven, CT: Yale University Press, 1994), p. 111.

²⁸ Harold A. Feiveson et al., *Unmaking the Bomb: A Fissile Material Approach to Nuclear Disarmament and Non-Proliferation* (Cambridge, MA: MIT Press, 2014), p. 174.

²⁹ ‘Allocation Policy on Samples of Secret Weapons’, 26 May 1945, CAB 122/363, TNA.

³⁰ ‘Evacuation of German Scientists and Technicians from Russian zone’, 14 Aug. 1946, FO 1031/67, TNA.

Conference in July 1945.³¹ What these protests conceal, however, is that the Soviets had conducted a very similar policy in Berlin, before they handed the western sectors over to the British, Americans and French. In the district of Dahlem, for instance, the Soviets lured away the bulk of the scientific workforce at the Kaiser Wilhelm Institutes for Biology, Biochemistry, Chemistry, and Anthropology, using offers of lard to prove that they were serious about looking after these men and their families.³² Even the experts already in British hands were considered at risk, and extensive measures were employed to keep them safe from Soviet poaching – when a group of German atomic scientists returned to Germany after a period of interrogation in Britain, they were placed under almost ‘prohibitively expensive’ round-the-clock surveillance to minimise the risk of their murder or kidnapping.³³

Beyond these more elaborate intelligence operations, the British began to consider the Soviet recruitment of German scientists more generally. Thinking on this topic diverged into two opposing perspectives. On the one hand, there was a complacent belief that the German people generally hated and despised the Soviets, and would therefore be loath to work for them – a long history of antagonism between the two peoples had been solidified in the treachery of Operation Barbarossa and the subsequent brutal fighting on the Eastern Front. This continued into the occupation period, leading one British occupation official to suggest that, among German experts, ‘the popularity of [the] Russian zone is inversely proportionate to its proximity’.³⁴ There was some truth to this appraisal – one German rocket scientist reacted to a Soviet job offer with hesitation; while he ‘would have immediately acquiesced for the Americans, the matter requires some real deliberation when it concerns the Russians’.³⁵ It is no wonder then that one British assessment confidently concluded that, in terms of the majority of targeted German experts, ‘most of them are ours for the asking – if we ask’.³⁶

³¹ John Gimbel, ‘US Policy and German Scientists: The Early Cold War’, *Political Science Quarterly*, 101 (1986), pp. 433-4.

³² Naimark, *Russians in Germany*, p. 209.

³³ Aldrich, *Hidden Hand*, pp. 222-3.

³⁴ Brig. C.F.C. Spedding to M.W. Perrin, 17 Jan. 1946, PREM 8/373, TNA.

³⁵ ‘Civil Censorship Submission: H. Reichstein to K. Hoertnagel’, 31 Aug. 1946, FO 1031/65, TNA.

³⁶ ‘Periodic Intelligence Report No. 2’, 6 Aug. 1946, FO 1031/59, TNA.

On the other hand, there were some British analysts who acknowledged that not all German specialists might be so resistant to Soviet recruitment efforts. Indeed, the Soviet offers were generally far more attractive than anything the British could muster – for example, Soviet salaries ranged from RM 800 to RM 8,000 a month, utterly dwarfing the paltry British equivalents, which averaged out at RM 400 a month.³⁷ The Soviets augmented these generous pay-packets with double rations and sweetened the deal with *payoks* (small parcels of desirable items such as chocolate or cigarettes).³⁸ Another boon to Soviet recruitment was their reconstructive attitude towards domestic German science, which was in line with their broader occupation strategy to create a peaceful, self-sufficient and, crucially, pro-Soviet, German state, which would minimise the risk of another German attack on Soviet soil and act as a buffer against the potentially hostile West.³⁹ In practical terms, one manifestation of this reconstructive approach was Soviet sponsorship of German research organisations, especially in Berlin, which were in turn used as channels to facilitate more effective recruitment and exploitation.⁴⁰ In addition, German scientists in particular fields felt they could contribute more to the relatively backward Soviet scientific establishments, than they could to the more advanced British and American equivalents. This was particularly true of atomic physicists, who were dismayed that the Anglo-American bomb project had been so far ahead of their own, and believed that working for Britain or the USA would essentially amount to relying on charity – by contrast, the Soviet Union seemed desperately in need of their help.⁴¹

All the attractions of Soviet employment were thrown into an even rosier light when compared to parallel British initiatives. For example, in the British zone, it was a long time before the reconstruction of German science began. Instead, science was widely restricted, especially in any fields which had a potential military application, which left many German scientists with no avenue for their intellectual

³⁷ 'Matchbox: general report', 15 April 1948, FO 1032/1231B, TNA.

³⁸ Naimark, *Russians in Germany*, pp. 218-9.

³⁹ Naimark, *Russians in Germany*, p. 10; Judt, *Postwar*, pp. 118-122.

⁴⁰ 'Soviet Sponsored Research Organisations Currently Active in Berlin', 1 March 1946, FO 1031/65, TNA.

⁴¹ Holloway, *Stalin and the Bomb*, pp. 109-10.

endeavours during this period.⁴² The British authorities thought this might be even more damaging to their recruitment prospects than their low salary and ration offers – they wondered ‘whether the prospects of physical starvation weigh as heavily with these men as the virtual certainty of mental starvation if they remain in western Germany’.⁴³ This was exacerbated by the widespread British policy of short-term exploitation, in which German experts were interrogated and instructed to write up all the research they had conducted during the war, in return for minimal financial recompense and practically no long-term employment offers. A German naval technician cut to the heart of the issue when he reflected that ‘one can often think that an agreement exists between the British and Americans on the one hand, the Russians on the other, to drive all valuable technicians out of the western zones into the Russian’.⁴⁴

Another hindrance which the British exploitation agencies faced was denazification. This policy, pursued to some degree by all four occupying powers, was designed to purge every trace of Nazi influence from all spheres of German life, primarily through the dismissal and punishment of any personnel deemed to be tainted with a Nazi past, as well as a country-wide programme of re-education and ‘democratisation’.⁴⁵ This ambitious and controversial scheme was notoriously difficult to implement, especially for the poorly-resourced British, and they soon developed a reputation for leniency, at least compared to the Americans.⁴⁶ However, many British exploitation officials feared that their denazification measures were still so thorough as to be damaging to recruitment efforts – Herbert Cremer, a chemical engineer and member of Britain’s Scientific Committee for Germany, considered it

⁴² Charlie Hall, ‘Pushed into Pragmatism: British Approaches to Science in Post-War Occupied Germany’, *The International History Review* (2018); John Krige, *American Hegemony and the Postwar Reconstruction of Science in Europe* (Cambridge, MA: MIT Press, 2008), pp. 46-7; Matthias Judt, ‘Exploitation by Integration? The Re-Orienting of the Two German Economies after 1945. The Impact of Scientific and Production Controls.’ in Ciesla and Judt (eds.), *Technology Transfer*, p. 32.

⁴³ ‘Employment of German Scientists by Russians’, 7 April 1946, CAB 81/133, TNA.

⁴⁴ ‘Report by Heinrich Waas’, 26 March 1946, CAB 81/133, TNA.

⁴⁵ Perry Biddiscombe, *The Denazification of Germany: A History, 1945-1950* (Stroud: Tempus, 2007); Jill Jones, ‘Eradicating Nazism from the British Zone of Germany: Early Policy and Practice’, *German History*, 8 (1990), pp. 145-162; Ian Turner, ‘Denazification in the British Zone’ in Ian Turner (ed.), *Reconstruction in Post-War Germany: British Occupation Policy and the Western Zones, 1945-55* (Oxford: Berg, 1989), pp. 239-267; Richard Bessel, *Germany 1945: From War to Peace* (London: Pocket Books, 2010), pp. 293-9.

⁴⁶ Lothar Kettenacker, *Germany since 1945* (Oxford: OUP, 1997), p. 21.

the 'height of folly' that by Britain's 'literal adherence to the [inter-Allied] denazification agreement, we should be helping to drive German scientists into the hands of the Russians, who themselves treated the same agreement with complete cynicism'.⁴⁷ Cremer's sentiments were echoed in a remark made by the Lord Chancellor, William Jowitt, in the House of Lords in March 1946 – when challenged on British recruitment of German experts with potentially dubious political pasts, Jowitt responded: 'I am willing to risk their being Nazis – and I think they probably are – so long as they are highly skilled technicians who will teach our people something which they did not previously know.'⁴⁸ In this case, the moral crusade of denazification was considered detrimental to the pragmatic demands of exploitation.

The British recruitment agencies also had to contend with wider problems, over which they had little or no control. For instance, the more generous Soviet salaries and ration packages were set against the backdrop of the post-war German food crisis, which hit the British zone especially hard, due to its higher population and shortage of viable agricultural land.⁴⁹ Over the winter of 1945-6, the average German daily ration fell to 1,631 calories, two thirds of what it had been in 1939 and 1940, so it is really no wonder that many German scientists thought with their stomachs and looked to the East for a more comfortable future.⁵⁰ Moreover, British intelligence reports suggested that a large proportion of the German population viewed Britain and the British Empire as a thing of the past – almost as much of a loser in the war as Germany – and expected that their future would be dictated by either the United States or the Soviet Union.⁵¹

In the face of this multitude of obstacles, and in competition with far more attractive Soviet offers, the British slowly began to formulate a more comprehensive scheme to facilitate their recruitment of German scientists and technicians. Towards the end of 1946, a Reception Centre was opened in London, where around 25-30

⁴⁷ 'Minutes of 1st SCG Meeting', 7 Jan. 1947, CAB 124/1928, TNA.

⁴⁸ Hansard, HL Deb, 12 March 1946, vol. 140, c. 62.

⁴⁹ Bessel, *Germany 1945*, p. 348.

⁵⁰ John Farquharson, *The Western Allies and the Politics of Food: Agrarian Management in Post-War Germany* (Oxford: Berg, 1985), p. 254.

⁵¹ Barbara Marshall, 'German Attitudes to British Military Government, 1945-1947', *Journal of Contemporary History*, 15 (1980), pp. 655-6.

German specialists could be accommodated for up to six weeks at a time. During their stay, the experts were expected to participate in interrogations, both in situ and at research establishments and private firms across the country, and it was hoped that this exposure would increase the likelihood of the specialists securing longer-term employment down the line.⁵² In order to repair the reputation of the British among the German scientific community, it was stressed that there were no armed guards or barbed wire at the Reception Centre, and in fact life there was fairly comfortable. The men received a small weekly allowance of cash and commodities, such as chocolate and cigarettes, they could send and receive an unlimited amount of mail, and they had access to a swimming pool, regular film shows, lectures on British culture, and occasional tickets for concerts.⁵³ In addition, their families received numerous amenities, including an ample financial allowance, as well as increased rations and fuel allocations, and their homes were kept safe from requisitioning.⁵⁴ This was certainly a step in the right direction for the British recruitment of German scientists and technicians, but it was still considered insufficient to counter the ongoing Soviet recruitment endeavour.

Deportations

In reality, it was a Soviet policy shift which did the most to hinder their own recruitment efforts and provide welcome succour to the parallel British endeavour, rather than any countermeasures employed by the Western powers. In the latter half of 1946, Soviet exploitation agencies began a secretive and wide-ranging programme of forced deportations of German scientific workers from the Soviet occupation zone to the Soviet Union proper. This change in tactics suggests that the Soviets did not believe that their generous inducements were sufficient to secure Germany's best scientists, and that more drastic action was required. It is also reflective of the deterioration in the international situation which was most clearly

⁵² 'Minutes of 18th Darwin Panel Meeting', 30 May 1947, FO 1032/164, TNA.

⁵³ 'Short Visits to the UK by German and Austrian Scientists and Technicians', 24 April 1947, FO 1031/9, TNA.

⁵⁴ 'Minutes of 6th BIOS Reception Centre Panel Meeting', 22 Aug. 1947, FO 1031/9, TNA.

visible in Germany during this period, as relations between occupiers and occupied, and among the wartime Allies, continued to sour. Under these strained circumstances, proactive, unilateral, even hostile, behaviour became increasingly common, often at the expense of more diplomatic alternatives. As such, the programme of Soviet scientific deportations, the motives which drove it and the reaction it inspired among British exploitation officials all reveal much about this early stage of the Cold War and therefore warrant closer examination here.

Throughout the autumn and winter of 1946, the press in the British and American zones was filled with stories of Soviet exploitation teams conducting small-scale deportations of German scientists and technicians from localised areas or specific factories and laboratories within their occupation zone. While many of these were embellished or fabricated in order to deter German scientists from accepting attractive Soviet employment offers, they were based on a rough foundation of truth.⁵⁵ For example, in November it was reported that German scientific staff at the Junkers works near Magdeburg and Dessau had been deported, with the excessive number of German police and Soviet troops on the streets explained away as 'a drive ... being made against Black Market racketeers'.⁵⁶ However, the most striking example of Soviet scientific deportations was far too large and noticeable to be disguised as anything else – it is estimated that Operation Osoaviakhim, which took place on 22 October 1946, accounted for 84 per cent of the German scientific workers deported to the Soviet Union in the years after the war.⁵⁷

The immediate goal of Osoaviakhim was to move huge aviation, rocketry, and other weapons research and production facilities from Saxony and Thuringia to the Soviet Union. These Nazi-era facilities had been rebuilt and the staff was primarily German, working under the supervision of the Soviets, who were well aware of the perils of conducting military research in Germany, given the relatively porous frontiers between the various zones of occupation and the supposed four-power

⁵⁵ Naimark, *Russians in Germany*, p. 219.

⁵⁶ 'Reports from Scientific and Technical Intelligence Branch', 25 Nov. 1946, FO 1039/672, TNA.

⁵⁷ Paul Maddrell, *Spying on Science: Western Intelligence in Divided Germany, 1945-61* (Oxford: OUP, 2006), p. 30.

prohibition of such research.⁵⁸ The aim therefore was to relocate these men from Germany, where, despite already being in Soviet employ, they were at risk of poaching by another occupying nation, to the USSR where they were almost completely safe. Among those forcibly relocated were a group of German rocketeers who had been working for the Soviets near the Nazi underground missile factory at Nordhausen – on 22 October, they were entertained at a banquet by the Soviet officer in charge, while their families and personal possessions were gathered up and put on trains by Red Army soldiers. By the time they were informed that they were being taken to the Soviet Union, it was too late, and they were too inebriated, to effectively protest.⁵⁹ Others who were taken were experts in aviation, nuclear physics, electronics, optical science, radio, and chemical engineering, and included former employees of BMW, AEG and Junkers, among many more.⁶⁰

The process for each individual who was included in Osoaviakhim was much the same across the board:

The man concerned was awakened by Russian soldiers in the early hours of the morning and informed that he would be leaving for Russia immediately. In many cases the man was permitted to take with him his family and as much of his furniture as could be loaded into one third of a railway freight wagon.⁶¹

The men were told that they would receive a contract for five years employment on arrival in the Soviet Union, and that their salary would match that of equivalent Soviet experts.⁶² These men and their families were then moved by lorry and private car to the eastern outskirts of Berlin, where they were loaded onto 92 trains, totalling some 700 coaches, at the stations of Friedrichshagen and Köpenick. The destinations of these trains were major cities and industrial centres in the USSR, including Moscow and Odessa, and the Germans aboard were vaguely told that their journeys would last from three to seven days.⁶³ The deportations continued

⁵⁸ Dolores L. Augustine, *Red Prometheus: Engineering and Dictatorship in East Germany, 1945-1990* (Cambridge, MA: MIT Press, 2007), p. 8.

⁵⁹ McGovern, *Crossbow and Overcast*, p. 216ff.

⁶⁰ Siddiqi, 'Germans in Russia', pp. 127-8.

⁶¹ 'Special Intelligence Report No. 2', 6 Nov. 1946, FO 1031/59, TNA.

⁶² Siddiqi, 'Germans in Russia', p. 127.

⁶³ 'Special Intelligence Report No. 2', 6 Nov. 1946, FO 1031/59, TNA.

throughout 22 October and were still ongoing at 5pm that evening, with trucks loaded with scientists, their families and their household possessions arriving at the railway stations every three to four minutes. The scale of the operation was unprecedented, involving 2,552 German specialists – a number which rises to 6,560 once family members are factored in. Within two weeks, these German deportees were spread among 31 different industrial institutions across the Soviet Union.⁶⁴

As the true extent of Osoaviakhim reached the British, they reacted with shock and condemnation. More horror stories appeared in newspapers in the Western zones, and though these were far more easily substantiated, the Soviets continued to dismiss them as ‘calumnious attacks’. In addition, Soviet officials argued that their operation was no worse than the removals made by the British and Americas from areas due to be handed over to the Soviets in the summer of 1945. One story from the time runs that Marshal Vasiliy Sokolovsky, the head of the Soviet Military Administration in Germany, snidely told Colonel Frank Howley, the American commandant of Berlin, ‘I am not asking the Americans and British at what hour of the day or night they took their technicians – why are you so concerned about the hour at which I took mine?’⁶⁵

Despite their widespread criticism of Osoaviakhim, the operation probably benefited the British as much, if not more so, than the Soviets. The first indication of this was in the handful of German experts, dubbed ‘rugged individualists’ by British intelligence, who did not succumb to Soviet coercion and hid or fled to avoid deportation – for instance, Dr Ulrich Capeller, a physicist from Jena in Thuringia, who was loaded onto a train by the Soviets, but managed to jump off while it was moving during the night and make his way back to Berlin, where he immediately made himself known to the British authorities.⁶⁶ In the days and weeks immediately following Osoaviakhim, the British scientific recruitment office in Berlin was swamped with ‘a flood of callers, correspondents and other enquirers, all with the same aim in view – to escape the possibility of deportation and remove themselves

⁶⁴ Siddiqi, ‘Germans in Russia’, pp. 127-8.

⁶⁵ Naimark, *Russians in Germany*, p. 226.

⁶⁶ ‘Special Intelligence Report No. 2’, 6 Nov. 1946, FO 1031/59, TNA.

as quickly as possible to the Western Zones, the United Kingdom or the USA. One man went so far as to ask to be arrested for his own safety'.⁶⁷ In short, Osoaviakhim had greatly diminished the appeal of the Soviet Union as a future employer, and significantly boosted that of Britain and the United States.

Taking into account this anti-Soviet backlash, and the fact that Osoaviakhim was only really designed to secure German specialists who were already working for the Soviet Union (albeit in Germany, not in the USSR), it does beg the question of Soviet motivations – why did they jeopardise their public image in Germany and their largely successful non-coercive recruitment efforts by embarking on this highly risky, and potentially ruinous, deportation scheme? There are several possible factors, a combination of which provides the most likely explanation. Firstly, it is clear that their generous employment offers weren't receiving quite the uptake among German scientists that the Soviet authorities expected; probably because the notion of collaborating with the Soviets still remained deeply unattractive to many Germans, particularly on political grounds. This was also reflected in the results of the Berlin city council elections of 20 October 1946 (two days before Osoaviakhim), wherein the Soviet-backed Communist Party came a distant third behind both the Social Democrats and Christian Democrats.⁶⁸ This evidently had some bearing on the conduct of the operation as German scientists based in Berlin who protested against the Soviet actions were told 'all Berliners are fascists, otherwise they would have voted differently', but the election results cannot have been the driving force, as Osoaviakhim had been planned months in advance. Nonetheless, this rejection of core Soviet political values by a part of the occupied German population did prompt the Soviets to shun democratic tactics in favour of more direct action, though they remained mindful of their public image in Germany, which they saw as part of a wider 'propaganda war' against Britain and the USA.⁶⁹

Secondly, the deportation programme was a product of the broader diplomatic context in this period, which was characterised by a sharp deterioration in

⁶⁷ 'Operation Ostaktion', 6 Nov. 1946, FO 1031/59, TNA.

⁶⁸ Judt, *Postwar*, p. 123.

⁶⁹ Naimark, *Russians in Germany*, pp. 224-5.

the relationship between East and West, especially in Germany. During this period, the British and Americans were working towards fusing their two areas of occupation into the so-called 'Bizonie', which went against Soviet expectations that Germany was to become a single economic and political unit (within the Soviet sphere of influence), and was a central cause of the serious breakdown in relations at the Council of Foreign Ministers in spring 1947.⁷⁰ Growing British and American strength in Germany not only made those two countries more attractive destinations for German scientists, but it also forced the Soviet occupation authorities to consider proposing four-power withdrawal from Germany – if this became necessary, the Soviets wanted to make sure the most valuable German experts had already been removed to the USSR. A third possible motive is that the Soviets wanted to remove any trace of warlike research being conducted in their zone of occupation (as this had been banned by the four-power Allied Control Council), by relocating it to the Soviet Union proper, so that they could reinstate a system of mutual site visits and thus get chance to investigate what was happening in the Western zones.⁷¹ If this was the Soviets' primary intention, it was in vain, as the deportations served primarily to minimise the chances of future co-operation, and to fortify the divisions between East and West.

Denial

As well as increasing Britain's relative popularity as a destination for German scientists and technicians, the Soviet programme of deportations also allowed British exploitation officials to push through a policy of denial, which comprised concerted efforts to prevent any German specialist of note from entering into Soviet employment. The first thinking along these lines dated back to December 1945, when intelligence officers attached to the British Control Commission for Germany (CCG) filed a report with the Joint Intelligence Sub-Committee (JIC) in London, which threw a 'somewhat sinister light on Russian activities *vis-à-vis* German scientists'.

⁷⁰ Deighton, *Impossible Peace*, p. 107ff; Judt, *Postwar*, pp. 124-6.

⁷¹ Naimark, *Russians in Germany*, pp. 225-6.

These officials also called for 'policy guidance at a high level ... as to whether [the Government] would wish strenuous efforts to be made to deny scientists and technicians to the Russians'.⁷² It took until May 1946 for the JIC to consider this report but what they read clearly alarmed them, as they concluded that 'by the end of 1946 a large proportion of German brainpower will have gone to the Russians and there will be no looking back'.⁷³ These fears were only exacerbated by the Soviet deportations and, less than two months after Osoaviakhim, the Defence Committee of the Cabinet, chaired by Prime Minister Clement Attlee, 'agreed in principle that it was necessary to deny to the Russians those German scientists and technicians, within our influence, who could contribute substantially to the building up of Russian war potential'.⁷⁴

This approach to the recruitment of German scientific experts reflected a broader policy shift taking place at this time – moving forward, the vast majority of British and American action, especially in Germany, was geared towards resisting the power of the Soviet Union and limiting the spread of communism wherever possible. At the highest level of international relations, it tied in with British considerations over whether to support a unified, federalised Germany, under the threat of Soviet control, or to forge a separate West German state, which would be more amenable to British influence, even if this meant that the Soviet zone, Berlin, and eastern Europe at large would be 'irretrievably' lost to the Soviet Union.⁷⁵ Erring on the side of the latter, British containment policy began to take shape in mid-1946, but developments in the USA in 1947, such as the publication of 'Article X' and the espousal of the Truman Doctrine, consolidated this into an official western strategy. 'Article X', which appeared in the magazine *Foreign Affairs* in July, penned under a pseudonym by Deputy Chief of the US Mission to the Soviet Union, George F. Kennan (based on his earlier, infamous 'Long Telegram'), advocated 'patient but firm and vigilant containment of Russian expansive tendencies'.⁷⁶ The views in this article were also publicly voiced by President Harry Truman, with the so-called Truman

⁷² 'JIC/1907/45', 15 Dec. 1945, CAB 176/8, TNA.

⁷³ 'JIC(46)51(0)', 24 May 1946, CAB 81/133, TNA.

⁷⁴ 'Minutes of 24th Meeting of Defence Committee', 11 Dec. 1946, CAB 131/1, TNA.

⁷⁵ Deighton, *Impossible Peace*, p. 74.

⁷⁶ X., 'The Sources of Soviet Conduct', *Foreign Affairs*, 25 (1947), p. 575.

Doctrine therefore coming to represent the centrality of containment to US foreign policy in this period.⁷⁷ Nonetheless, many in Britain, including the foreign secretary, Ernest Bevin, felt that the declaration of the Truman Doctrine was long overdue in pledging US support for the resistance of Soviet communism to which Britain was already committed.⁷⁸

The practical implementation of British denial policy was initially very basic and a little crude. It centred on the establishment of so-called 'transit hotels' in the British zone, where German scientists and their families could be accommodated, safe from Soviet enticement or deportation, while awaiting some offer of longer-term employment, though, as we have seen, these were not always forthcoming. This scheme was codenamed Matchbox, a designation shared with the first and largest of the 'transit hotels', opened in the spa resort of Bad Hermansborn, which had room for around 200 people. Very soon it exceeded capacity and another hotel was opened at nearby Bad Driburg; other smaller facilities followed, dotted throughout the British zone.⁷⁹ While this was, for the most part, a fairly straightforward precautionary operation, it did become infused with some of the spirit of espionage, subterfuge and even danger which lurked beneath the surface in the early Cold War, especially where the targeted specialists were living in the Soviet zone of occupation. For instance, one suggested tactic for British exploitation agents to use when trying to recruit an individual residing in the Soviet zone was to write letters on German stationery, 'under a false German name such as Muller', and have it passed to the desired expert by a network of German collaborators living in the

⁷⁷ Ruud van Dijk, 'Winning the Peace: The United States, Western Germany, and the Ambiguities of "Dual Containment", 1945-1950', in Detlef Junker (ed.), *The United States and Germany in the Era of the Cold War, 1945-1990*, vol.1 (Cambridge: CUP, 2004), pp. 78-84; James G. Hershberg, 'Where the Buck Stopped: Harry S. Truman and the Cold War', *Diplomatic History*, 27 (2003), pp. 753-757; Arnold Offner, *Another Such Victory: President Truman and the Cold War, 1945-1953* (Stanford, CA: Stanford University Press, 2002), p. 185ff; Melvyn P. Leffler, *A Preponderance of Power: National Security, the Truman Administration, and the Cold War* (Stanford, CA: Stanford University Press, 1992), pp. 495-518; John Lewis Gaddis, *We Now Know: Rethinking Cold War History* (Oxford: OUP, 1996), p. 292.

⁷⁸ Martin Folly, "'The impression is growing ... that the United States is hard when dealing with us": Ernest Bevin and Anglo-American relations at the dawn of the cold war', *Journal of Transatlantic Studies*, 10 (2012), p. 154.

⁷⁹ Maddrell, 'Operation Matchbox', p. 189.

British sector of Berlin, with the return address being an empty house, utilised by the British authorities as a 'dead drop'.⁸⁰

In some cases, the competition over German scientists had a genuine element of danger to it. Henry Mecklenburg, a German hotelier who ran a Matchbox transit hotel in the British Sector of Berlin, had several close encounters with the Soviet security services. His night-porter was detained by the police, questioned by a Soviet agent and told to report back on the British officers who visited the hotel, with the threat of 'Red Army disciplinary action' if he did not comply. Mecklenburg himself felt he was about to be attacked by two uniformed Russian men on one occasion when walking home late at night with his wife but the timely arrival of a British military government Volkswagen scared them off.⁸¹ On one occasion, the competition threatened to boil over into a major diplomatic crisis – on the night of 18 October 1946, the British Military Train from Berlin to Hannover was halted by a large complement of Red Army soldiers while passing through the Soviet zone and, despite the armed guard, a number of German passengers were forcibly removed from a sealed coach, often used to transport scientists recruited by the British. Heavily outnumbered, the train guard commander's 'anxiety to avoid an international incident coupled with his uncertainty as to how to act in these extraordinary circumstances' meant the Soviet troops got their way, but on this occasion there were no scientists or technicians aboard the train, and the potential crisis was averted.⁸² Incidents such as this only confirmed British thinking that a firmly-enforced denial policy was an essential precaution against future Soviet aggression, and it quickly became a dominant tenet of British policy, which took precedence over other parallel concerns, such as denazification and demilitarisation.⁸³

Moreover, the blind pursuit of denial meant that almost any German scientist, no matter how dubious his credentials, could be offered lodgings at

⁸⁰ Col. P.M. Wilson to Maj. E.C. Malet-Warden, 31 May 1946, FO 1031/59, TNA.

⁸¹ 'Special Intelligence Report No. 7', 31 May 1947, FO 1031/25, TNA.

⁸² 'Incidents on the British Military Train', 6 Nov. 1946, FO 1031/59, TNA.

⁸³ Douglas I. Bell, 'STEG and the occupation of Germany: Demilitarization as reconstruction, 1945–1953', *War in History*, 25 (2018), pp. 103-125.

Matchbox, lest he otherwise end up in Soviet hands. This is highlighted in the case of Ernst von Schnubel, an eccentric opportunist who claimed to have invented a 'Death Ray Transmission Apparatus' (which could be used against, among other things, atom bombs, gangsters, demonstrationists, terrorists, and garden pests!), and who petitioned the British for protection and even employment under the Matchbox scheme.⁸⁴ While Schnubel's claims were too far-fetched for him to ever be taken seriously, others did slip through the net. In 1948, Bertie Blount, a British occupation official and perennial critic of exploitation policy, complained that the 'transit hotels' had tended to become 'place[s] of permanent residence for quite a number of Germans who should be elsewhere employed'.⁸⁵ Blount also highlighted the broader, financial ramifications of this unselective approach to recruitment – he described it as 'quite a big and expensive show which directly or indirectly must fall on the British taxpayer', foreseeing that 'sooner or later the cost ... will be queried and there may be a gigantic row'.⁸⁶ The fact that no such row occurred, and that the British continued to pursue a proactive and wide-ranging denial policy in the face of frequent criticism, proves that fears of the combination of German brainpower with Soviet resources retained paramount importance in the minds of the relevant British policymakers.

Indeed, beyond the basic framework of the Matchbox 'transit hotels', British exploitation officials began devising other methods to deny German scientists and technicians to the Soviets. The main thrust of this was to try and find additional viable employment options for the German experts, so they would be less susceptible to Soviet job offers. This began with the 'exclusive exploitation' scheme, which meant German specialists could be employed directly by private firms in Britain, such as Fairey Aviation and Vickers-Armstrongs, rather than only by national research associations or organised trade bodies, as had been the original arrangement. The government facilitated this by relaxing immigration restrictions and by actively promoting the scheme to private companies.⁸⁷ The British authorities

⁸⁴ 'EPES Special Intelligence Report No. 5', 31 March 1947, FO 1031/25, TNA.

⁸⁵ 'German Section, FO, to Berlin', 2 Dec. 1948, AVIA 54/1403, TNA.

⁸⁶ B.K. Blount to I. Worsfold, 5 March 1948, FO 371/71038, TNA.

⁸⁷ 'Russian Enticement of German Scientists', 18 April 1947, AVIA 54/1403, TNA.

also looked abroad for potential solutions, and the Dominions (especially Canada, Australia and India) were encouraged to find employment for German scientists.⁸⁸ For example, the Australian ‘Employment of Scientific and Technical Enemy Aliens’ (ESTEAs) scheme saw the recruitment of 150 German experts.⁸⁹ Elsewhere, approval was sought for eminent aircraft designer Willy Messerschmitt to go to India to help establish an aircraft industry there, as he was considered too politically and ethically toxic to be employed in Britain itself (in the end, Messerschmitt and his team went first to Franco’s Spain and then later to Nasser’s Egypt).⁹⁰ Similarly, attempts were made to relocate the aeronautical engineer Kurt Tank, who had been head of design at Focke-Wulf between 1931 and 1945, to Sweden but concerns about his research there ending up in Soviet hands prevented this – instead, Tank and his team went first to Argentina and then later to India.⁹¹ This global, transnational movement of German expertise was driven primarily by a desire in the recruiting countries to modernise quickly, without having to start costly research and development programmes from scratch, but it had huge benefits to the British (as long as the final destinations were not nations subject to Soviet influence).

The final strategy which British officials pursued to counteract Soviet recruitment was to find work for the German experts in Germany itself. This happened in two ways – firstly, through schemes such as Operation Bottleneck, which outsourced some of the work of British firms to the surplus labour force in Germany, with the hope that, ‘by providing employment for Germans, [it would] help to arrest their drift to employment with the Russians’.⁹² Secondly, moves were made to reconstruct German civilian science and industry, though this was primarily

⁸⁸ Neufeld, ‘Nazi Aerospace Exodus’, pp. 49-67; Evan Jones, ‘The Employment of German Scientists in Australia after World War II’, *Prometheus: Critical Studies in Innovation*, 20 (2002), pp. 305-321; Steven T. Koerner, ‘Technology Transfer from Germany to Canada after 1945: A Study in Failure?’, *Comparative Technology Transfer and Society*, 2 (2004), pp. 99-124; Howard Margolian, *Unauthorized Entry: The Truth about Nazi War Criminals in Canada, 1946–1956* (Toronto: University of Toronto Press, 2000).

⁸⁹ Jones, ‘Employment of German Scientists in Australia after World War II’; Uta v. Homeyer, ‘The Employment of Scientific and Technical Enemy Aliens (ESTEAs) Scheme in Australia: A Reparation for World War II?’, *Prometheus*, 12 (1994), pp. 77–93.

⁹⁰ BJSM to Ministry of Defence, 23 Sept. 1949, AVIA 54/1403, TNA; Neufeld, ‘Nazi Aerospace Exodus’, p. 55.

⁹¹ ‘Employment of German Scientists in Countries other than the UK, Dominions or USA’, 8 May 1947, AVIA 54/1403, TNA; Neufeld, ‘Nazi Aerospace Exodus’, p. 54.

⁹² ‘Operation Bottleneck: policy and arrangements’, Nov. 1947, BT 211/62, TNA.

motivated by the need to offset some of the costs of the British occupation and ultimately make Germany self-sufficient.⁹³ Nonetheless, it had major advantages for denial policy, advocates of which had long worried that tight restrictions on German science would leave many German specialists out of work but who would 'find a ready market for their services with the Russians'.⁹⁴ Furthermore, a prosperous and rehabilitated Germany would be generally more resistant to communism which, in the view of most British officials, thrived on chaos, hunger and poverty.⁹⁵ Ultimately, all the tactics which the British adopted as part of 'denial policy', from the blunt instrument of 'transit hotels' to the more comprehensive reconstruction of western German science, are symptomatic of the East-West polarisation of the Cold War and the culture of suspicion and hostility which this fostered.

Denial policy was gradually wound down at the end of the 1940s, and its impact throughout its lifespan is hard to judge. In terms of numbers, by April 1948, 321 German specialists had passed through the Matchbox machinery, of whom 286 had been taken on as consultants, paid by the British government. Within this number were numerous guided missile experts, colour film specialists from the Agfa corporation, and the entire 15-member Technical Directorate of the Brückner-Kanis company, which developed high-speed underwater-propulsion turbines.⁹⁶ Also in April, the Intelligence Division of the British Control Commission in Germany produced a report which suggested that the work of the design and development departments of a number of important aircraft firms, including Junkers, Heinkel and BMW, reconstituted under Soviet administration, had been 'retarded by the evacuation of some good specialists from each Establishment'.⁹⁷ British agents on the ground, meanwhile, felt that about the best that could be said of denial policy was that, while it 'may have delayed Russian developments, it has hardly prevented

⁹³ Farquharson, 'Governed or Exploited?', p. 42.

⁹⁴ 'STRB policy report', July 1946, FO 1062/149, TNA.

⁹⁵ Deighton, 'Cold War Diplomacy: British Policy towards Germany's Role in Europe, 1945-9', in Turner (ed.), *Reconstruction in Post-War Germany*, p. 21.

⁹⁶ Maddrell, 'Operation Matchbox', pp. 191-3.

⁹⁷ 'Matchbox: general report', 15 April 1948, FO 1032/1231B, TNA.

them’, and that ‘the main value of [securing] a first rate man, at the moment anyhow, consists in saving time.’⁹⁸

Nonetheless, Matchbox lived on. In fact, in March 1950 it acted to prevent Paul Schröder, who was described by British scientists as ‘the greatest mathematical authority on rockets alive’, but who had fallen on hard times after an initial period of employment with the British, from drifting into Soviet employment by offering him a two-year contract as a Matchbox ‘consultant’.⁹⁹ Matchbox was finally terminated in 1951, by which time Germany had become two sovereign states – the Federal Republic of Germany (FRG) in the West and the German Democratic Republic (GDR) in the East – and the former occupying powers now had far less influence over German affairs.¹⁰⁰ For the vast majority of scientists, and indeed citizens, in the FRG, the Soviet Union was now seen as a dangerous enemy not a desirable alternative, so the need to actively prevent Soviet recruitment had significantly diminished.¹⁰¹ Nonetheless, the principles of scientific containment, of which denial policy was an early example, continued alongside the political containment of the Truman Doctrine and the economic containment of the Marshall Plan.¹⁰²

Ultimately, however, the enormous scientific resources of the Soviet Union doomed the Western Allies’ non-proliferation measures to failure, and the best they could hope for was to slow the pace of certain development projects.¹⁰³ Even with the demise of exploitation and denial policy, Germany still remained a hotbed of Cold War scientific intelligence activity. Valuable German scientists living in the FRG were closely monitored so that they could be evacuated to Britain or the USA in the event of a Soviet invasion of West Germany.¹⁰⁴ In addition, under Operation Dragon Return, German scientists who had gone to work in the Soviet Union (whether willingly or under coercion), were picked up by British and American intelligence agencies when they were repatriated, so that they could be questioned on domestic

⁹⁸ ‘Periodic Intelligence Report No. 2’, 6 Aug. 1946, FO 1031/59, TNA.

⁹⁹ Maddrell, ‘Operation Matchbox’, p. 191.

¹⁰⁰ Maddrell, *Spying on Science*, p. 34.

¹⁰¹ Krige, *American Hegemony*, pp. 53-4.

¹⁰² Maddrell, ‘Operation Matchbox’, pp. 192-3.

¹⁰³ Maddrell, ‘Operation Matchbox’, p. 174.

¹⁰⁴ E.E. Haddon to DRP, 4 March 1949, AVIA 54/1295, TNA.

Soviet research and development. As Paul Maddrell has written, 'the first post-war penetration of Soviet military capability by British intelligence was a by-product of its effort to complete the victory over Germany'.¹⁰⁵

Overall, the competition between Britain and the Soviet Union for Germany's scientific experts had a long and deeply influential legacy on the ensuing Cold War. In 1957, amidst the shock in the West surrounding the Soviet launch of Sputnik, the first artificial satellite to enter Earth's orbit, a joke did the rounds that when President Eisenhower asked his aides how the USSR was ahead in the space race, he received the response that 'their Germans are better than our Germans'. While this is no doubt an apocryphal tale, it is true that Eisenhower openly credited German experts in Soviet employ with the success of their space programme, including at a press conference held a week after Sputnik's launch.¹⁰⁶ As this suggests, there was a widely-held belief that effective utilisation of German expertise was crucial to subsequent scientific and technological development across the world, even more than ten years after the end of the Second World War. It is widely regarded that Britain 'lost out' in the competition for these experts, unable to match the scale and resources of the United States or Soviet Union, but as this article has shown, this was not the case. The British exploitation authorities pursued a very active and enthusiastic recruitment policy, bringing a large number of both high-level specialists and general technical manpower to Britain after the war. This approach was driven overwhelmingly by suspicion of the Soviet Union and a commitment to scientific containment, to the point where it often overrode other parallel concerns, such as the threat of resurgent German militarism. No doubt the British exploitation programme, and the motives behind it, warrant further study. In addition, it would be fascinating to see whether Russian archives tell a parallel story of Soviet exploitation being driven by fear and suspicion of the West.

¹⁰⁵ Maddrell, *Spying on Science*, p. 17.

¹⁰⁶ 'Transcript of the President's News Conference on Foreign and Domestic Matters', *New York Times*, 10 Oct. 1957, p. 14.

Moreover, while the Cold War is usually framed as a struggle between the two great superpowers of the USA and USSR, in these early years, it was often Britain which took the firmer line with the Soviets, and then urged their American allies to follow suit. This interpretation certainly prompts us to re-examine both the conventional dichotomous understanding of the conflict, and the predominance of the United States within the Western camp. The struggle for Germany's scientific spoils was not only a symptom of this new divided post-war world but also a factor in its creation. As we have seen, British and American removals of German personnel from areas of Germany due to fall under Soviet occupation was such a sore point for Stalin that it threatened to sour the Potsdam negotiations, while later Soviet deportations, especially Osoaviakhim, only reinforced the growing sense in the West that the Soviets could not be trusted and thus deepened the chasm between the two sides. In any case, examining Anglo-Soviet competition over German science and technology not only offers a remarkably clear window into the mind-set of British policymakers at the start of the Cold War, it also helps us to understand subsequent arms races, scientific espionage and containment policies by seeing where they began, and the reasons for their original emergence.