

## Introduction

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On the face of it, the story of China and the 1957–58 International Geophysical Year (IGY) exemplified the country's isolation from international science during the early decades of the Cold War. The People's Republic of China (PRC) withdrew from the International Geophysical Year in the summer of 1957, after the Republic of China's (RoC) last-minute entry into the programme. For the American government, this was the desired outcome of US-led efforts to encourage RoC participation. It represented a formidable impediment to PRC participation thanks to the 'One China Policy', which insisted that the international community chose to recognise either the PRC under Mao Zedong and the Chinese Communist Party (CCP), or the RoC under Chiang Kai-shek and the Kuomintang (KMT). For all that the IGY had been envisaged as a collaborative project that was genuinely global in scale that would supersede issues of alignment or non-alignment, the combination of geopolitics and the unresolved nature of the Chinese Civil War left the PRC on the outside of this totemic example of international cooperation bridging Cold War blocs.

This outcome was unquestionably important; nevertheless, earlier events tell a far more complex story. Even following the RoC's eleventh-hour entry into the IGY programme, the meteorologist Zhu Kezhen (Coching Chu), who led the PRC's IGY committee, and members of the International Council of Scientific Unions' Special Committee had sought to find a compromise that might see both of the rival regimes on either side of the Taiwan Strait contribute to the IGY. These efforts may have been ultimately unsuccessful but underscored the extent of domestic and international interest in pursuing scientific exchange and engagement. After all, the PRC's withdrawal only took place after a long period of preparation and planning on the part of PRC foreign policymakers and scientists.<sup>1</sup> Similarly, China's IGY plans provide a

<sup>1</sup> Zhang Jiuchen and Zuoyue Wang, 'Shouci guoji diqiu wuli nian yu yi ge zhongguo de yuanze' [The First International Geophysical Year and the Principle of One



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revealing window onto the multi-layered nature of that engagement and the range of channels through which it was pursued, particularly when taking place in a cross-bloc context. For example, in June 1956, the British National Committee for the IGY received an update providing details about the Chinese National IGY Programme. This included information about China's series of monitoring stations and observatories spread across the country to collect data on everything from cosmic rays to geomagnetism and air flow to solar activity.<sup>2</sup> That information took a circuitous journey before reaching the British National Committee.

The final step in that journey had been via the Royal Society, with its Assistant Secretary, David C. Martin, having transmitted the information after he, in turn, had received it from the British biologist and activist Amicia M. Young. She had received the information while on a visit to China.<sup>3</sup> Young also ensured that those details of China's arrangements were disseminated publicly, including providing them to the British science magazine *Discovery*, which published them as part of its monthly IGY update.<sup>4</sup> In other words, it was Young who ensured that it reached the UK in the first place.

This whole chain of communication came about because of Young's involvement in the World Federation of Scientific Workers (WFSW). She was one of numerous foreign scientists who had visited the PRC during the spring of 1956, when Beijing hosted an event celebrating the WFSW's tenth anniversary and a meeting of its Executive Council. While there, Young met Zhu, who also happened to be one of China's most influential scientific administrators and important figures

China], *Kexue wenhua pinglun* 6:6 (2009), 69–81; Zuoyue Wang and Jiuchen Zhang, 'China and the International Geophysical Year' in Launius et al., eds., *Globalizing Polar Science: Reconsidering the International Polar and Geophysical Years* (Basingstoke: Palgrave Macmillan, 2010), 143–155. On the American origins of RoC participation: Ronald E. Doel, Dieter Hoffmann, and Nikolai Kremontsov, 'National States and International Science: A Comparative History of International Science Congresses in Hitler's Germany, Stalin's Russia, and Cold War United States', *Osiris* 20 (2005), 69.

<sup>2</sup> Cambridge (UK), University of Cambridge, University Library, Department of Manuscripts and University Archives, Papers of Harold Spencer Jones (hereafter 'PHSJ'), RGO 9/565, 'List of Stations and Observatories of China for the International Geophysical Year 1957–1958', 2 June 1956.

<sup>3</sup> PHSJ, RGO 9/565, D.C. Martin to Members of the British National Committee the International Geophysical Year, 4 June 1956. On Dr Amicia More Young: Sophie Roberts, 'British Women Activists and the Campaigns against the Vietnam War, 1965–75' (Doctoral Dissertation, Northumbria University, 2018), especially 117–159.

<sup>4</sup> Angela Croome, 'The International Geophysical Year: Month by Month', *Discovery* 17 (July 1956), 288. On *Discovery*: Peter J. Bowler, *Science for All: The Popularization of Science in Early Twentieth-Century Britain* (Chicago, University of Chicago Press), 164–77.



facilitating Sino-foreign scientific interactions.<sup>5</sup> The WFSW never occupied a place of international prominence that came even close to approaching those of organisations such as the Royal Society or the International Council of Scientific Unions. Yet it was responsible for facilitating the meeting between Young and Zhu that underpinned the transmission of information from the PRC to the UK and then onward to not only reach *Discovery's* readership, but the British National Committee for the International Geophysical Year. Such cross-bloc institutional engagements, personal connections, and flows of information can tell us more about Sino-foreign scientific relations than the bald fact of the PRC's withdrawal from the IGY.

This book examines the strategies and structures that supported China's scientific outreach during the first three decades of the Cold War, showing how eminent Chinese scientists such as meteorologist Zhu Kezhen became crucial international interlocutors for the early PRC through their involvement in an interconnected cluster of organisations, events, and networks. Working with Chinese foreign affairs officials, these scientists created crucial channels for cross-bloc communication and contact such as that which facilitated the British IGY committee receiving detailed information from their Chinese counterparts in 1956. That chain of communication was made possible by Chinese and British scientists' involvement in the WFSW, and by PRC involvement in the organisation being substantial enough to see it host major WFSW events in 1956. For all the WFSW's radical politics – in fact, precisely because of those politics – the WFSW was able to facilitate the transfer of practical information from China through to the Royal Society, itself unquestionably situated in the mainstream of national British scientific life, and onward to the country's organising committee for one of the Cold War's most significant examples of international scientific cooperation. Through examination of these constellations of transnational networks, international organisations, and events this book elucidates the nature of China's scientific outreach during the first three decades of the Cold War.

These connections and circulations were not always obvious or even very visible, often developed in the context of events such as closed-door meetings or informal interactions between scientists, to the extent of being either easily overlooked or their significance underappreciated by contemporary observers and subsequently by historians. Even something as

<sup>5</sup> Zhu Kezhen, 'Riji 1956 nian [1956 Diary]' in Zhu Kezhen quanji, di 14 juan [Complete Works of Zhu Kezhen, Volume 14] (Shanghai: Shanghai keji jiaoyu chubanshe, 2008), 311.



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seemingly simple as retrospectively mapping out the path by which information about the PRC's proposed plans for the IGY made its way to the United Kingdom can require piecing together a mosaic made up of often fragmentary material from a range of sources. Scientists' multiple roles, identities, and networks underpinned these pathways and enabled the PRC's scientific outreach. The scientists involved in these events were political actors in roles ranging from activist to administrator or adviser.<sup>6</sup> Chinese foreign policymakers and scientists of the time well understood the value of cultivating the types of networks of individual and organisational relationships that enabled such chains of communication.

This study focusses on an interlinked cluster of international activities in which Chinese scientists took part with the support of the CCP, starting with involvement in the WFSW from the 1946–49 Civil War period into the early decades of the People's Republic. This, in turn, fed directly into participation in the early Pugwash Conferences on Science and World Affairs (PCSWA) during the latter half of the 1950s. These activities on the part of elite Chinese scientists took place in tandem with encouraging scientists with complementary political views to spend time in the PRC. They did so either on their own, as members of delegations, or by attending large-scale international events such as the Peking Science Symposium conferences. Closely choreographed by party officials and leaders, all these activities interwove elements of propaganda, activism, and exchange into a distinct and at times highly effective form of what has come to be known as 'science diplomacy'. By analysing the nature and trajectory of this CCP-supported scientific outreach from the 1940s through to the early 1970s, this book explores the ways in which this shaped China's scientific relations while demonstrating that the country's global reach and influence during this period were far greater than previously understood.

### China and Science Diplomacy

If deployed critically and contingently, science diplomacy can be a powerful framework through which to analyse the relationship between science and international affairs. In their introduction to a recent

<sup>6</sup> For example, Ronald E. Doel, 'Scientists as Policymakers, Advisors, and Intelligence Agents: Linking Contemporary Diplomatic History with the History of Contemporary Science', in Thomas Söderqvist, ed., *The Historiography of Contemporary Science and Technology* (Amsterdam: Harwood Academic, 1997), 215–44; John Krige, 'Isidor I. Rabi and CERN', *Physics in Perspective* 7:2 (2005), 150–64; Allan A. Needell, *Science, Cold War and the American State: Lloyd V. Berkner and the Balance of Professional Ideas* (Washington: Smithsonian Institution, 2000); S. Waqar H. Zaidi, 'Scientists as Political Experts: Atomic Scientists and Their Claims for Expertise on International Relations, 1945–1947', *Centaurus* 63:1 (2021), 17–31.



globally oriented special issue on the history of science diplomacy, Matthew Adamson and Roberto Lalli have argued that ‘an indestructible, unifying definition of science diplomacy is simply not possible’; instead, they advocate the embrace of a plurality of approaches coalescing around simultaneous engagement with global, transnational, and local dimensions.<sup>7</sup> This book aims to do precisely that. It conceptualises the PRC’s science diplomacy in the Cold War as firmly rooted in the CCP’s ideological outlook and the country’s domestic and international circumstances in that period. It considers the networks and structures that enabled, impeded, and shaped cross-border interactions between scientists. And it follows those interactions across multiple regional and ideological divides. These include the ‘Western’ and socialist worlds at early PCSWA, and explicitly targeting the developing world in hosting the Peking Science Symposium conferences.

Science diplomacy, as a term and explicit conceptual framework, is one only recently adopted by scholars in the social sciences and humanities, having been first defined and deployed by practitioners before finding its way into academic discourse. For example, the molecular biologist Nina V. Fedoroff, who as Science and Technology Adviser to the Secretary of State in the United States, has written of science diplomacy as being an act of ‘global service’ on the part of scientists and engineers.<sup>8</sup> The most oft-cited definition is the tripartite one derived at a joint Royal Society and American Association for the Advancement of Science (AAAS) meeting in 2010 that broke the concept down into ‘science in diplomacy’, ‘diplomacy in science’, and ‘science for diplomacy’.<sup>9</sup>

As science diplomacy has made its way into related academic debates, such practitioner-derived conceptualisations have triggered cross-disciplinary debates on everything from the relationship between three elements in the Royal Society/AAAS’ articulation to the universalist and positivist discourses accompanying them.<sup>10</sup> Much international relations (IR) scholarship on science diplomacy remains focussed on

<sup>7</sup> Matthew Adamson and Roberto Lalli, ‘Global Perspectives on Science Diplomacy: Exploring the Diplomacy-Knowledge Nexus in Contemporary Histories of Science’, *Centaurus* 63:1 (2021), 4.

<sup>8</sup> Nina V. Fedoroff, ‘Science Diplomacy in the 21st Century’, *Cell* 136:1 (2009), 11.

<sup>9</sup> An extended discussion of these three dimensions can be found in *New Frontiers in Science Diplomacy* (London: Royal Society, 2010).

<sup>10</sup> For example, Pierre-Bruno Ruffini, ‘Conceptualizing Science Diplomacy in the Practitioner-Driven Literature: A Critical Review’, *Humanities and Social Sciences Communications* 7, article 124 (2020), 1-9; Simone Turchetti, Matthew Adamson, Giulia Rispoli, Doubravka Olšáková, and Sam Robinson, ‘Introduction: Just Needham to Nixon? On Writing the History of “Science Diplomacy”’, *Historical Studies in the Natural Sciences* 50:4 (2020), 325–28.



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advocating for its theoretical utility and relevance, in contrast with the comparatively well-established literature on epistemic communities.<sup>11</sup> Similarly, historians' interest in the concept has roots in scholarship examining the relationship between science, politics, and ideologies, within which the Cold War has been central to what have become increasingly globally oriented areas of debate.<sup>12</sup>

China's rise in geopolitical terms alongside its emergence as super-power in science, technology, and medicine during recent decades has understandably driven interest in the relationship between these developments. Consequently, when China has been discussed as an actor in IR literature on science diplomacy, it tends to do so only from the 1970s onward. In other words, the narrative invariably starts with the normalisation of relations with a range of prominent states, the United States of America above all others, and international organisations such as the United Nations.<sup>13</sup> The preceding decades are conspicuous in their absence, with the problematic implication that the earlier period was therefore either unimportant or somehow disconnected from these later developments.

In turn, China's current position in these domains has set the tone in discussions of Chinese science diplomacy. For example, both Chinese and English-language IR scholarship on China's increasing influence as an actor in Arctic affairs has focussed on how Chinese scientists' research activities have not only fed into policymaking at home and internationally but also been crucial in improving the state's reputation and influence

<sup>11</sup> For example, Daryl Copeland, 'Science Diplomacy', in Costas M. Constantinou, Pauline Kerr, and Paul Sharp, eds., *SAGE Handbook of Diplomacy* (Los Angeles: SAGE, 2016), 628–41; Pierre-Bruno Ruffini, *Science and Diplomacy: A New Dimension of International Relations* (Cham: Springer, 2017). On epistemic communities see, especially, Peter M. Haas, 'Introduction: Epistemic Communities and International Policy Coordination', *International Organization* 46:1 (1992), 1–35; Mai'a K. Davis Cross, 'Rethinking Epistemic Communities Twenty Years Later', *Review of International Studies* 39:1 (2013), 137–60.

<sup>12</sup> On science and politics see, for example, David Kaldewey and Désirée Schauz, *Basic and Applied Research: The Language of Science Policy in the Twentieth Century* (New York: Berghahn, 2018); Harmke Kamminga and Geert Somsen, eds., *Pursuing the Unity of Science: Ideology and Scientific Practice from the Great War to the Cold War* (London: Routledge, 2016); Mark Walker, ed., *Science and Ideology: A Comparative History* (London: Routledge, 2003). Notable examples of the global turn include the 'Science, Technology and Special Affairs' issue of *Osiris* (2006); Gabrielle Hecht, ed., *Entangled Geographies: Empire and Technopolitics in the Global Cold War* (Cambridge, MA: MIT Press, 2011); Naomi Oreskes and John Krige, eds., *Science and Technology in the Global Cold War* (Cambridge, MA: MIT Press, 2014).

<sup>13</sup> For example: Ruffini, *Science and Diplomacy*, 67–69.



in that region.<sup>14</sup> For all the important insights such works offer, their firm focus on recent developments often do not sufficiently contextualise these in relation to longer-term continuity or change.

At the same time, there is also a danger of overcompensating in the opposite direction, potentially resulting in problematic essentialisation when tracing such trends retrospectively with the present day taken as the starting point. This is especially true when it comes to differentiating approaches to science diplomacy in the PRC. The temptation can be to take a civilisational approach, which can set up a Chinese ‘other’ standing in contrast to the ‘national styles’ of the United States or European states.<sup>15</sup> It should be emphasised that this is by no means an issue isolated to discussions of science diplomacy; rather, it reflects a wider trend in IR scholarship, in particular, of reaching far back into China’s imperial history to explicate the PRC’s present-day discourses and actions.<sup>16</sup> Yet Premier Zhou Enlai or physicist Zhou Peiyuan have had far greater and more tangible influences on the CCP’s approach to science diplomacy than any official or scholar in the late Qing Dynasty – or earlier. As is discussed in the Conclusion, for all that the PRC’s international position has changed profoundly from the Mao era, there remain important resonances and significant points of continuity with that period. This combination of significant change and continuities in the country’s contemporary history have, together, shaped China’s science diplomacy.

While rooted in experiences and ideology associated with the CCP’s rise to power, the party’s science diplomacy has never been static. Far from it. Even across the period discussed here, Chinese science diplomacy evolved and adapted to suit changing circumstances. Those circumstances were tied to the PRC’s international position and Cold War power relations. These could not have been more different from those of the United States. American science diplomacy helped to cement its superpower status, utilising its influence and resources to exert great influence over Cold War international science in not only

<sup>14</sup> Ping Su and Maximilian Mayer, ‘Science Diplomacy and Trust Building: “Science China” in the Arctic’, *Global Policy* 9:S3 (2018), 23–28; Yang Jian, and Yu Hongyuan, ‘The Community of Chinese Scientists and the Agenda Setting of Arctic Governance [Zhongguo kexuejia qunti yu bei ji zhili yicheng de sheding]’, *Journal of International Relations* 6 (2014), 37–49.

<sup>15</sup> Olga Krasnyak, *National Styles in Science, Diplomacy, and Science Diplomacy: A Case Study of the United Nations Security Council P5 Countries* (Leiden: Brill, 2018), 77–82.

<sup>16</sup> For a critical discussion of this trend see William A. Callahan, ‘Sino-Speak: Chinese Exceptionalism and the Politics of History’, *Journal of Asian Studies* 71:1 (2012), 33–55.



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structural but also cultural terms as well.<sup>17</sup> Nevertheless, as Lif Lund Jacobsen and Doubravka Olšáková have emphasised, it is equally important to understand how science diplomacy could also be a powerful tool for less powerful states ‘to advance their own objectives independently of the dominant powers.’<sup>18</sup> This was certainly the case for the PRC in the Cold War.

The role of scientific exchange in thawing the PRC’s relationship with the United States in the 1970s has become a singularly well-known example of science diplomacy involving China, in no small part thanks to American involvement in this episode.<sup>19</sup> But, as this book shows, the scientists were actors in China’s foreign relations long before the onset of Sino–American *rapprochement*. Like the United States, the PRC sought to influence the structures and cultures of Cold War international science. Unlike the United States, it sought to do so as a fledgling state established after more than a decade of domestic disruption and destruction wrought by foreign invasion and civil war. The latter conflict, in particular, was a driver of and impediment to the CCP’s scientific outreach.

The RoC’s continued existence after the Nationalist Party-led government’s retreat to Taiwan added yet a further dimension to the PRC’s science diplomacy. The RoC had a long history of association with international organisations such as the League of Nations prior to the Second World War.<sup>20</sup> Even during the darkest days of that conflict, the Republican government had sought to pragmatically use allies’ offers of technical assistance while resisting the efforts at expanding cultural influence underlying

<sup>17</sup> John Krige, *American Hegemony and the Postwar Reconstruction of Science in Europe* (Cambridge, MA: MIT Press, 2006); Greg Whitesides, *Science and American Foreign Relations since World War II* (Cambridge: Cambridge University Press, 2019); Audra J. Wolfe, *Freedom’s Laboratory: The Cold War Struggle for the Soul of Science* (Baltimore, MD: Johns Hopkins University Press, 2018).

<sup>18</sup> Lif Lund Jacobsen and Doubravka Olšáková, ‘Diplomats in Science Diplomacy: Promoting Scientific and Technological Collaboration in International Relations’, *Berichte zur Wissenschaftsgeschichte* 43:4 (2020), 469.

<sup>19</sup> On scientific exchange in Sino–American *rapprochement* see Pete Millwood, ‘“An Exceedingly Difficult Undertaking”: Sino–American Diplomacy and China’s Reintegration into Globalized Science’, *Journal of Contemporary History* 6:1 (2020), 166–90; Kathlin Smith, ‘The Role of Scientists in Normalizing U.S.–China Relations: 1965–1979’, *Annals of the New York Academy of Sciences* 866:1 (1998), 114–36; and Zuoyue Wang, ‘U.S.–China Scientific Exchange: A Case Study of State-Sponsored Scientific Internationalism During the Cold War and Beyond’, *Historical Studies in the Physical and Biological Sciences* 30 (1999), 249–85; Whitesides, *Science*, 193–97.

<sup>20</sup> On RoC engagement with the League of Nations see, for example, Mary Augusta Brazelton, *Mass Vaccination: Citizens’ Bodies and State Power in Modern China* (Ithaca, NY: Cornell University Press, 2019).



those offers.<sup>21</sup> So, too, had the RoC subsequently successfully used its status as one of the wartime Allied Powers to play an active part in shaping elements of the emerging post-war international order, including through organisations from the United Nations Relief and Rehabilitation Administration to the World Health Organization.<sup>22</sup>

The CCP harboured strikingly similar ambitions to the KMT when it came to extending China's influence and status after the Second World War. It, too, saw post-war internationalism as a means to achieve this. But, whether in pursuing involvement in international organisations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO) or events such as the IGY, the PRC ran up against a rival Chinese state already deeply embedded within an international system with a superpower ally keen to exploit that dynamic.<sup>23</sup> These factors played no small part in steering PRC science diplomacy towards certain channels and corners of Cold War international science.

### United Front Work and International Science

The CCP's political and foreign relations elites worked with members of China's scientific elite to reach out to foreign scientists in part to foster them as transnational activists. Through their international activities, Chinese scientists served as a bridge between the CCP and networks of scientists that extended across Cold War blocs whose interests and activities had direct relevance for Chinese policymakers. The party sought to derive knowledge from these networks as well as to exert its own influence over these communities' outlooks and activities. Put in the CCP's own terms, in undertaking such party-state-supported international outreach activities, Chinese scientists were engaging in 'united front work' (*tongyi zhanxian gongzuo*).

Adaptable and ever-evolving in both conception and practice, united front work has been a long-term part of the CCP's approach to gaining

<sup>21</sup> Li Zhang and Yanmei Zhu, 'Technical Assistance versus Cultural Export: George Cressey and the U.S. Cultural Relations Program in Wartime China, 1942–1946', *Centaurus* 63:1 (2020), 32–50.

<sup>22</sup> Tehyun Ma, "'The Common Aim of the Allied Powers': Social Policy and International Legitimacy in Wartime China, 1940–47', *Journal of Global History* 9:2 (2014), 254–75; and Rana Mitter, 'Imperialism, Transnationalism, and the Reconstruction of Post-War China: UNRRA in China, 1944–7', *Past & Present* 218: supp. 8 (2013), 51–69; Harry Yi-Jui Wu, *Mad by the Millions: Mental Disorders and the Early Years of the World Health Organization* (Cambridge, MA: MIT Press, 2021).

<sup>23</sup> Gordon Barrett, 'Between Sovereignty and Legitimacy: China and UNESCO, 1946–1953', *Modern Asian Studies* 53:5 (2019), 1516–42.



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and subsequently maintaining influence and power.<sup>24</sup> In the Chinese context, the term ‘united front’ has been readily associated with domestic politics and the CCP’s road to power and periods of alliance with the KMT.<sup>25</sup> When it comes to its international dimensions before 1949, focus has been on consideration of Comintern and Soviet influence in those formative periods in the CCP’s history.<sup>26</sup> Such external influence provides a useful reminder that China was far from the only place in which united front activities were taking place.

Its most prominent international manifestation was in the ‘Popular Front’ adopted by the Comintern in 1934 in response to the rise of far-right politics, especially Nazism in Germany. Originating in France, the Popular Front saw Communist parties seek to build bridges with more moderate socialist and centrist groups to oppose fascism, albeit in a wide variety of forms across a range of national and colonial contexts.<sup>27</sup> After 1935, under the influence of radical scientists such as J. D. Bernal and W. A. Wooster, the Association of Scientific Workers rapidly entrenched itself as central to British scientific engagement with the Popular Front.<sup>28</sup> Both Bernal and Wooster would go on to play prominent roles within the WFSW and, as will be seen in later chapters, were highly receptive to Chinese science diplomacy.

For the CCP, united front work in its broadest terms was – and is – about building coalitions of support and increasing its influence through cooperation with groups and individuals beyond the party.

<sup>24</sup> For a synthetic conceptual overview see Laura De Giogi, ‘United Front’, in Christian Sorace, Ivan Franceshini, and Nicholas Loubere, eds., *Afterlives of Chinese Communism: Political Concepts from Mao to Xi* (Acton: ANU Press and Verso Books, 2019), 303–8.

<sup>25</sup> Gerry Groot, *Managing Transitions: The Chinese Communist Party, United Front Work, Corporatism, and Hegemony* (New York: Routledge, 2004); Lyman P. Van Slyke, *Enemies and Friends: The United Front in Chinese Communist History* (Stanford, CA: Stanford University Press, 1967).

<sup>26</sup> See, for example, Zhihua Shen, ‘On the Eight-Eighth Brigade and the Sino-Soviet-Korean Triangular Relationship: A Glimpse at the International Antifascist United Front during the War of Resistance Against Japan’, *Journal of Modern Chinese History* 9:1 (2015), 3–25. For long-standing contours of debates in this area see articles by John W. Garver and Michael M. Sheng in *China Quarterly* 129 (1992). On the Comintern and communism in Japanese-occupied Taiwan: Anna Belogurova, ‘The Civic World of International Communism: Taiwanese Communists and the Comintern (1921–1931)’, *Modern Asian Studies* 46:6 (2012), 1602–32.

<sup>27</sup> Allison Drew, *We Are No Longer in France: Communists in Colonial Algeria* (Manchester: Manchester University Press, 2014), 81–105; Fridrikh I. Firsov, Harvey Klehr, and John Earl Haynes, *Secret Cables of the Comintern, 1933–1943* (New Haven: Yale University Press, 2014), 51–67; Jonathan Haslam, ‘The Comintern and the Origins of the Popular Front 1934–1935’, *Historical Journal* 22:3 (1979), 673–91.

<sup>28</sup> Gary Werskey, *The Visible College: A Collective Biography of British Scientists and Socialists of the 1930s* (London: Free Association Books, 1988), 234–39, 263–64.