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Chenxi Xiong has written an excellent article that offers important insights into one of the most consequential moments in modern Chinese history: the decision made by Chinese leaders, in the wake of Chairman Mao Zedong's 1976 death, to begin deep and intense scientific interactions with the outside world — in particular, with the most technologically advanced country in the world, the United States. That decision paved the way for what Chinese leaders described as the 'modernization' of their country and provided both the hardware and software for the rapid economic growth and development of the Reform and Opening period beginning in 1979.

Xiong's article approaches this topic through an in-depth examination of how Chinese leader Deng Xiaoping viewed science and technology, in particular the role of cooperation with Western countries in the science policy of the People's Republic of China (PRC).¹ Xiong focuses on the critical period of 1977 through 1979, in which China's post-Mao policies towards science and economic development were set, and when Deng simultaneously rose to become China's paramount leader. Deng's views on science were an important influence on these policies and Xiong traces "how Deng Xiaoping's views became the general consensus of the leadership of the Chinese Communist Party" (CCP) (161). As Xiong shows, Deng's plans for modernizing Chinese science and technology included redirecting more of China's human and other resources into the country's science and technology sector. But even more important, she argues, was the country's absorption of knowledge from the outside, whether through embodied knowledge in the form of technology imports or the transmission of human expertise, within and beyond China (166).

Xiong is closely familiar with the latest English- and Chinese-language historiography on this topic and this allows her to offer a multifaceted analysis not only of what shaped Deng's views on science and technology but also how his proposed agenda was implemented between 1977 and 1979.² Critical to this was China's relationship with the United States, and

¹ Xiong focuses on the United States; as the article shows, Deng and his colleagues paid particular attention also to Western Europe and Japan.

² Among the key works cited and discussed by Xiong are Ezra Vogel, *Deng Xiaoping and the Transformation of China* (Cambridge: Harvard University Press, 2011); 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* 30:1 (January 1999): 249-277; Richard Suttmeier, "Scientific Cooperation and Conflict Management in U.S.-China Relations from 1978 to the Present," *Annals of the New York Academy of Sciences* 866:1 (1998): 137-164; Richard Suttmeier and Denis Simon, "Conflict and Cooperation in the Development of U.S.-China Relations in Science and Technology: Empirical Observations and Theoretical Implications," in *The Global Politics of Science and Technology*, ed. Maxmillan Mayer, Mariana Carpes, and Ruth Knoblich, vol. 2 (Berlin: Springer, 2014), 143-159; Chen Donglin, "Kaifang de qianzou: 'Sisan fang'an' jiqi dui Gaige Kaifang de yingxiang [A Prelude to

Xiong's article combines Chinese-language primary and secondary sources with a close reading of recently declassified documents from the Jimmy Carter administration that reveal US enthusiasm for encouraging China's reorientation towards openness to scientific interactions with the outside. In analysing these US documents, Xiong offers further sophisticated analysis: eschewing any single explanation for the US embrace of Deng's agenda — profits from sales of technology, or strengthening the diplomatic relationship, for example — Xiong instead argues that the Carter White House saw a combination of near- and long-term benefits from deepening Sino-American science and technology cooperation. Doing so was a "way to encourage full normalization of relations and the establishment of S&T cooperation between the PRC and the United States ... [to] maintain the long-term relationship between the two countries, permit the United States to strengthen its silent transformational influence on the PRC, and boost the process of China's modernization" (182).

Xiong's focus on Deng does not prevent the article from contributing to a growing historiography that reveals that the period between Mao's September 1976 death and the Third Plenum of the Eleventh Congress of the CCP of December 1978 was not simply a prelude to Deng's enthronement at that plenum, either in terms of personnel or policy.³ Xiong offers a nuanced assessment of how Deng had to work within a collective post-Mao leadership both to further his own position and to convince fellow Chinese leaders of the wisdom of his policies. Indeed, the article provides a useful and detailed account of the precise process by which Chinese leaders — primarily Deng, but also Hua Guofeng and Li Xiannian, among others — negotiated the precise approach that post-Mao China should take in science and technology policy, especially regarding imports of technology and knowledge from the outside. These policies are often discussed in the same breath and, indeed, there was a synergy between, say, academic exchanges and importing turnkey technology from the same country. But Xiong's careful analysis also disaggregates the overall package of policies to show how Chinese leaders debated and then set the exact approach they would take to renovating China's scientific sector (170–71). Xiong argues, as others recently have, that Deng and Hua agreed on the broad goal of realizing the Four Modernisations by the end of the twentieth century and that both leaders advocated technology imports to help achieve this. But Xiong also draws a contrast between Hua's continued emphasis on some aspects of Maoist industrial policy, in particular "self-reliance," and Deng's almost myopic emphasis on the need to bring in foreign technology and knowledge (167).⁴

The similar but distinct policy proposals of Deng and Hua were part of the power struggle between the two men that played out until December 1978. Xiong argues that already in 1977 Deng "wielded considerable authority within the CCP," but also recognizes that Deng "was not yet completely superior to rival leaders such as Hua. There was no doubt that his ideas had an important impact on people within the top echelons of authority, but that did not mean Deng's views on science and technology, once developed, were able to dictate the opinions of other PRC leaders" (182). Indeed, Xiong documents how the influence of other top Chinese leaders lasted deep into 1978: as late as July of that year, for example, it was still Hua, not Deng, who took the initiative of calling for a State Council meeting following Gu Mu's tour of five European countries. Gu's report emphasised the need for China to undertake holistic learning from other societies, and the State Council meeting was an important moment in the Chinese leadership's commitment to importing more than just technology from Western countries. Hua, Xiong's analysis shows, helped spur this commitment: at the meeting he boldly argued, "we need to free our minds a little bit more and take a bigger step" (172–3).⁵ While Hua was still helping to set the agenda of Chinese reform in July, by December Deng had emerged as China's leading reformer. Following the Third Plenum of that month,

Opening-up: The Four-Three Program and its Influence on Reform and Opening],” *Journal of National Museum of China* 1 (2019): 10–19.

³ One strongly argued example of this literature in Chinese is Fang Mao, "Hua Guofeng yu duiwai kaifang [Hua Guofeng and Opening to the Outside World],” *Yanhuang chunqiu* 5 (2016): 9–15. One example in English is Frederick Teiwes and Warren Sun, "China's New Economic Policy under Hua Guofeng: Party Consensus and Party Myths,” *The China Journal* 66 (July 2011): 1–23.

⁴ For another recent careful analysis of the differences between Hua and Deng's policy platforms see Julian Gewirtz, *Unlikely Partners: Chinese Reformers, Western Economists, and the Making of Global China* (Cambridge: Harvard University Press, 2017), 23–43.

⁵ For more on Gu Mu's Europe visit, see Gu Mu, *Huiyilu* [Memoirs] (Beijing: Zhongyang wenxian chubanshe, 2009), 276–290.

Deng would quickly consolidate his leading position in guiding Chinese reform, with Hua gradually being stripped of even his nominal titles in the period 1980–82. Nonetheless, this outcome should not lead us to ignore the contingencies of the 1977–78 period; Xiong’s article further deepens our understanding of that moment of transition in post-Mao China.

There are a few minor points of interpretation on which it is possible for specialists on Sino-American relations in this period to come to somewhat different conclusions to those presented in the article. One of those is Xiong’s argument that, in the second half of 1978, Deng and the PRC government maintained their position that diplomatic normalization had to come before deeper science and technology cooperation, particularly cooperation on a government-to-government basis (160, 178). Xiong does recognize that “prior to the establishment of full diplomatic relations, the PRC government did not reject completely further contacts and consultations with the U.S. government on S&T exchanges and cooperation” (179). I would go further, however, and suggest that, in fact, the second half of 1978 suggested that Chinese leaders were prepared to prioritize scientific cooperation ahead of normalization, even as they worked to quickly achieve an upgrading of the diplomatic relationship. It is impossible to know for sure: in the event, after normalization exchanges accelerated in September 1978, a final deal was achieved in December; thus, the rapid deepening of Sino-American governmental cooperation in the sciences of that period occurred more-or-less in tandem with the establishment of official diplomatic relations.

Nonetheless, the intensification of the scientific relationship came first: in July 1978, Deng received the highest-ranking US official scientific delegation ever previously sent to another country, led by President Jimmy Carter’s cabinet-level top science advisor Frank Press, and, in October, a comparably high-ranking Chinese delegation travelled to the United States, led by China’s senior scientist-diplomat Zhou Peiyuan. Milestone moments such as these suggest to me that, in spite of Beijing’s stated policy that governmental scientific cooperation had to wait for normalization, Chinese leaders — above all Deng himself — were prepared to deepen governmental scientific cooperation before they knew that a deal for upgrading diplomatic relations was in hand. After all, a final normalization deal required Deng’s personal compromise on allowing continued US arms sales to Taiwan after 1979, something that was not offered until mid-December (and then only grudgingly), months after the Press and Zhou visits, and subsequent to further China trips by US Secretaries of Energy and Agriculture to negotiate further forms of scientific cooperation (180).⁶ Moreover, as Xiong herself states, the “informal and verbal” agreements negotiated during these important 1978 visits were simply added to the formal agreement on government-to-government scientific cooperation that was formally negotiated in January 1979 (181); that is to say, much of the framework for upgrading scientific cooperation was negotiated before normalization was secured. This point is not wholly trivial or simply a matter of chronology. Instead, it offers evidence for the hierarchy of priorities of Deng and the Chinese government: Deng was prepared to proceed with deepening scientific cooperation before normalization was agreed, and his urgency for obtaining technology and scientific knowledge from the United States led him to surrender some of the leverage that Beijing had previously wielded in normalization negotiations through the 1970s, when Chinese leaders had held out deeper scientific cooperation as a carrot for progress in political negotiations.

If this interpretation is correct, it only strengthens the overall significance of Xiong’s article by offering further evidence of just how important science and technology cooperation was to Deng and to China’s relations with the outside world, including the United States. Since the article elucidates the subject in clear prose and is based on deep, multilingual research in an array of sources, it is appropriate for both scholars and students. Xiong’s analysis and arguments are persuasive and carefully judged, and her article offers an effective reappraisal of a formative moment in the emergence of post-Mao China that has done so much to define the past half-century.

⁶ Enrico Fardella, “The Sino-American Normalization: A Reassessment,” *Diplomatic History* 33:4 (September 2009): 545–578; Pete Millwood, “An ‘Exceedingly Delicate Undertaking’: Sino-American Science Diplomacy, 1966–78,” *Journal of Contemporary History* 56:1 (2021): 166–190.

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