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Hybrid Identities[1]

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Abstract: This paper analyzes the permanent exhibition on the life of Qian Xuesen on the campus of Jiao Tong University in Shanghai. It highlights the emphasis placed in the exhibition on the transnational movement of Qian Xuesen, who spent about fifteen years in the United States, first as a student, then as a brilliant scientist and engineer. The exhibit also presents Qian Xuesen as a national hero, as a man for whom the sojourn abroad was merely a detour in a long journey of a devoted and patriotic Chinese citizen who loved his country, and who was inspired by Marxism-Leninism and by the Party. This national emphasis is only to be expected in an exhibit that is directed to the general public. But it excludes aspects of Qian Xuesen that do not fit into a purely nationalist narrative (e.g. his application for American citizenship, the technical help he got from the Soviet Union in the late 1950s). The paper stresses that Qian Xuesen had a hybrid identity that enabled him to draw on resources from different countries, including his own. It argues that such hybridity contributed to his brilliant career, and is a quality to be valued for the role it played in "bringing newness into the world."
Keywords: Jiao Tong University, nationalism, newness, science exhibition, Soviet Union, transnational history, United States

In 1955, a brilliant young engineer who had left China in the 1930s returned home to put his knowledge at the service of Mao's new revolutionary regime. Qian Xuesen (or Hsue-shen Tsien) graduated from Jiao Tong University in Shanghai in 1934, and went on, via the Massachusetts Institute of Technology (MIT), to complete his PhD at Caltech (the California Institute of Technology) in Pasadena in 1939. He stayed in the United States during WWII, contributing to the development of the Jet Propulsion Laboratory in Pasadena. He also accompanied his mentor, Theodore von Kármán, the world-renowned aerospace engineer, to Europe in 1945 to assess rocket and missile development in Britain, France, and Germany. In 1950, Qian Xuesen's application to

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return to China was refused by the American authorities and he was placed under constant surveillance. He and his family were eventually allowed to set sail for China in 1955 in exchange for US prisoners of war captured during the Korean conflict. He dedicated the rest of his life to building the country's missile and space programs, dying at the age of ninety-seven.

Today Qian Xuesen is celebrated as a national hero in China. Hundreds of people flock every month to the library and museum dedicated to his life and works on the campus of Jiao Tong University in Shanghai. It opened in 2011 on the one hundredth anniversary of his birth. A comprehensive collection of documents is complemented by a number of impressive artifacts. These include the D2A 1500-km medium range missile, developed by Qian Xuesen and his team for the People's Republic of China (PRC) in November 1965, which is the centerpiece of the exhibition. It is accompanied by scale models of subsequent generations of missiles, all of which were fitted with nuclear warheads, and a life-size model of China's first satellite, which Qian Xuesen was involved with in the 1970s. The accompanying panels written in Chinese and English celebrate the engineer's personal and intellectual qualities. They describe his love of art and music, and they emphasize his dedication to the nation, to Marxism, and to the Party who provided him with the resources he needed.

The Qian Xuesen exhibition at Jiao Tong University. The photo was provided by Jiang Yuping 姜玉平, and was taken on November 9, 2018, by Chen Xiaojun 陈晓俊.

Last summer I spent three weeks teaching at Jiao Tong University. While there I spent many hours studying this wonderful exhibit. In this short paper, I first want to analyze the exhibition as an exercise in transnational history. Then I shall explore the underlying logic shaping the presentation of Qian Xuesen at Jiao Tong, highlighting the

importance of nationalist sentiments in its construction. In conclusion, I want to argue that understanding Qian Xuesen as a transnational actor with a hybrid identity is a more fruitful way to celebrate his achievements and to draw lessons from his outstanding life than concentrating on him as a patriotic Chinese citizen.[3]

Transnational history is a "way of seeing" rather than a definitive method. It is a reaction against a widespread tendency to write histories that are circumscribed by the boundaries of the nation-state. It speaks in terms of movement, flow, and circulation across borders; it studies networks and connections that criss-cross different regions of the globe; and it is sensitive to the fragility of national identity and to the hybridity of its actors. In a book to be published early in 2019, I have suggested that historians of science and technology can make a unique contribution to transnational history by focusing on the movement of *knowledge* across borders (Krige 2019). In fact, the transnational circulation of knowledge was a central theme of the exhibit on Qian Xuesen. It not only highlighted the flows of different forms of knowledge, be they embedded in people, like Qian Xuesen himself, or in a multitude of other platforms, from the books to blueprints that traveled with him. The curators also explicitly foregrounded his movement from one country to the next in a series of panels dedicated to his voyage back to China. Indeed, they made a distinct effort to distinguish what Qian Xuesen learned while he was in America from the knowledge he deployed in his subsequent career. They also contrasted the way he and his family lived in the West with his humble lifestyle once back in China. Their emphasis on his transition between different worlds, separated geographically, politically, and ideologically, provides us with useful raw material for thinking through the challenges posed by transnational history.

The scope and depth of Qian Xuesen's knowledge were immense and much of it moved with him across the Pacific. We are shown a library that was well-stocked with books and periodicals, many of them in Chinese, of course, but including publications like *Scientific American* and *Science*. We are told that his network included people in many walks of life: his archive contains 10,000 of his letters. His Caltech PhD certificate recognized his "advanced studies in aeronautics and mathematics" and "investigations on the theory of fluids." Qian Xuesen's erudition went far beyond that. He drew on Norbert Wiener's cybernetics to generalize the control theory of engineering. He implanted operational research and scientific management in China. He developed techniques for strategic planning using a system called PERT (Program Evaluation and Review Technique), originally designed for America's submarine-based Polaris missile

3 This paper uses much of the material in my article "Representing the Life of an Outstanding Chinese Aeronautical Engineer: A Transnational Perspective," *Technology's Stories*, March 2018, website of the Society for the History of Technology, http://www.technologystories.org/2018/03/. See also Wang 2010.

system. Qian Xuesen used these different theoretical and applied engineering insights, as well as his management and planning skills to develop land- and sea-based missiles, atomic weapons, nuclear-powered submarines, and satellites. In short, a great deal of what Qian Xuesen learnt in the United States was "transferred" with him when he went home.

The family's passage back to China was not smooth. As mentioned earlier, in 1950 Qian Xuesen and his family were forced to stay in the United States for five years against their wills on suspicion of his being a member of the American communist party, a charge that he vehemently denied. The exhibition at Jiao Tong has a picture of eight cases of luggage being impounded by US customs officers in Los Angeles in 1950 along with the official court order restraining their shipment. Qian Xuesen could not understand why he was being penalized when, in his view, none of the data was classified. The intervention by the US government, driven by anti-communist hysteria, anti-Chinese prejudice, and new tighter restrictions on knowledge circulation, profoundly humiliated and offended Qian Xuesen. When he eventually left the United States in exchange for Korean prisoners of war held by the PRC, it was with a deep resolve to contribute his talents to the country of his birth.

Transnational movement can blur national identity by stimulating an actor's ongoing interaction with ways of life different to his own. The concept of hybridity provides a way of thinking about the social construction of a self by transnational actors that move between quite diverse cultures, and can feel more or less at home in several. How does the exhibit reconcile the contradiction between Qian Xuesen's internationalism and his debt to knowledge acquired in the United States, while also celebrating him as a *national* hero? How is the potential Americanization of his lifestyle rendered compatible with constructing an image of him as a Scientist of the People?

The short answer is: By a narrative that traces his identification with China back to his earliest childhood, and that treats his time abroad as a detour on a long road that began and continued in his homeland. His youth is presented as a time in which the foundations of a solid Chinese identity were laid. He learnt the poetry of the Tang and Song dynasties at an early age. His primary school teacher's lectures on patriotism are said to have impressed him. His identity thus formed, his time in America did little to dissolve it. In fact, he always intended to come back home: when he went to the United States in 1935, one panel tells us, it was "with the hope to save the nation and invigorate China by applying modern science and technology." Come 1950, he is quoted as saying, "when I knew that New China had been founded, I thought the time had come for me to return to my homeland." "All I did in the U.S.," he said, "was to make preparations for doing something useful for my countrymen after my return to China." Yes, he learnt and practiced his science and engineering abroad. However, after the founding of the PRC, this "loyal devotee of the Communist Party of China," whose

faith in Marxism only grew stronger as he grew older, "dedicated his talents to his motherland and countrymen." He put his "prosperous" life in California behind him and returned to "his homeland, a poor nation that was underdeveloped in virtually all sections of economic life." Qian Xuesen's national identity is presented as a guiding thread defined by his personal and political commitment to the ideals of Communist China, the one that gave purpose to his transnational movement.

This accumulation of images and statements, many of them attributed to Qian Xuesen himself, is an implicit attempt to counter the subversive logic of a transnational approach that de-emphasizes the national in favor of the hybrid, and that blurs allegiances and boundaries. These national allegiances have to be reinforced to construct Qian Xuesen as a patriotic citizen and role model for future generations of Chinese scientists and engineers.

The curators of the exhibition at Jiao Tong are rightly proud of Qian Xuesen's achievements, and rightly stress his dedication to his country. This celebration is also in a public space. It is directed at school children and the general public. It is intended to make them proud of their country, and to highlight the role of science and technology, and of the Party in promoting them. A celebration of a national hero anywhere in the world, including in the United States, would make similar choices. However, as scholars we need not only appreciate the meaning that such an exhibition has: we can also analyze how that meaning is constructed. That meaning, as I have told the story here, functions by making choices, by specifically including certain features of his life in the exhibition which reinforce an image of him as a patriotic Chinese citizen. But there is also a process of exclusion at work in the exhibition, that is, of specifically omitting certain features that would disrupt this nationalist narrative. I have described some of the elements that are included. I want to concentrate now on some of those that are omitted.

Two striking features of Qian Xuesen's life and work are not mentioned in the exhibition at Jiao Tong. First, in 1949, Qian Xuesen applied for American citizenship (Chang 1995, 143). We can only speculate as to why he did so. His country was in turmoil, its future still uncertain. He loved China, but he also loved his work. He had no idea how committed the new regime would be to him as a man who had studied in the United States, or to the kind of work that he did. Obtaining American citizenship in such a fluid situation would have provided material security for his family and professional security for himself. The important point here is not why he did it, but that he did it—and that this is not mentioned in the exhibition at Jiao Tong University.

Another significant omission is all reference to the help the Chinese missile program received from the Soviet Union in the late 1950s before Khrushchev withdrew all technological assistance from the country.[4] We must not forget that at the time China

4 For this paragraph see Chang 1995, 214–219.

lacked the resources and the infrastructure to embark on a major missile program. They even lacked basic materials like rubber and stainless steel pipes, and essential tools like lathes and large punching machines. On October 15, 1957, the two countries signed the Sino-Soviet New Defense Technical Accord, in which the PRC was offered missile models, technical documents, engineering designs for research and development, and the help of technical specialists. Chinese students could major in rocketry at the Moscow Aviation Institute—and remember, the Soviet Union was one of the world's leading space powers at that time. Of course, this collaborative period was short-lived. But there can be no doubt that it helped kick-start the Chinese missile program and saved the country a good deal of time and money compared to what it would have needed on its own.

Soviet assistance, like the decision to apply for American citizenship, is omitted in the exhibit presumably because it dilutes the national narrative that is central to the strategy of representation. It is as if, by mentioning his decision to take US citizenship, and by accepting that for three years at least the Soviet Union was willing to help Mao's China build its military strength against the capitalist world, we will somehow dilute Qian Xuesen's commitment to his country and dilute the value of his extraordinary technological achievement as a truly Chinese success. The nationalist urge trumps the transnational narrative that is otherwise so well represented in the exhibit. An appeal to an undiluted Chinese identity overwhelms an analysis of Qian Xuesen as a transnational actor with a hybrid identity.

The notion of hybridity has been developed and richly theorized in an attempt to grasp the fluid sense of self that is produced by the global circulation of people like Qian Xuesen. I shan't enter into that theoretical debate here. I shall simply emphasize some of its aspects inspired by the writings of Amartya Sen, who won the Nobel Prize for Economics in 1998 (Sen 2006). Firstly, all of us have hybrid identities, in the sense that we have multiple social personae that coexist easily with one another most of the time. To mention just three that matter here, we have a national identity, we have a residential identity, and we have a professional identity. Qian Xuesen's national identity was Chinese. His residential identity, at least when he was in the United States, was American in the sense that he lived and felt at home in the United States. And he had a professional identity as a member of an international community of scientists and engineers that transcended all national borders. Judging by the languages he read, that community included Anglo-Saxon scholars as well as Germans, Russians, and of course Chinese. To reduce his identity to national Chinese misses the immense richness of his personae, of the kind of man he was. It also—and this is the point I really want to stress here—serves to blank out how it was possible for him to make the crucial contributions that he did to the Chinese missile program. It was precisely because Qian Xuesen was open to learning from cultures and communities that were not his own, precisely

because he admired and valued what those cultures, including those research cultures, could contribute to his personal and professional development, precisely because he was fluent in several languages that he could become the national hero in China that he is today. It does not matter that at one point in his life Qian Xuesen tried to obtain American citizenship—no matter how badly he was treated by the American authorities afterwards. It does not matter that he learnt a lot from the Soviets when China badly needed their help—no matter how quickly the Soviets withdrew their support and how willing they were to crush Chinese military development soon thereafter. What is important is that Qian Xuesen seized the opportunities he had when he was presented with them, immersed himself in alternative professional and social cultures, and emerged an even more brilliant engineer than before. Hybridity is not a threat: it provides creative opportunities to go beyond the limits of the local and the national.

Salman Rushdie, another Indian Nobel Prize Winner, has put it beautifully in his reflections on his novel the *Satanic Verses*. Rushdie writes: "The *Satanic Verses* celebrates hybridity, impurity, intermingling, the transformation that comes from new and unexpected combinations of human beings, cultures, ideas, politics, movies, songs. . . . *Melange*, hotch-potch, a bit of this and a bit of that, that *is how newness enters the world*" (quoted in Krige 2012, 337). From this point of view it is not simply Qian Xuesen's national allegiance that makes him a great man. It was his capacity to learn so much from the Americans, his willingness to work with the Soviets in a new China struggling to modernize its military, along with his love of China and the support he received from the Communist Party authorities that enabled him to play an unprecedented role in his country's missile programs.

This is not a purely academic argument. It has major implications for how we, and our governments, perceive of ourselves and our place in the world. There is no shame in recognizing borrowings and appropriations from others. There is no alternative to recognizing inter-dependence as opposed to autarky, in understanding that globalization involves the construction of networks linking us together in a polycentric, culturally diverse world built by individuals with multiple identities who travel around the globe and who learn to live and work in diverse cultures. This is what hybridity seeks to capture. Against the claims for some pure, undiluted national essence or identity that has to be defended at all costs, it emphasizes the creativity and the richness that come from comingling different cultures, ethnicities, and ways of being. In fact, this is just what makes the kind of meeting we are having in Hangzhou so exciting and important; it is through this "mélange" of scholars from China, from India, from Singapore, from Europe, from the United States, that "newness comes into the world."

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