



China, Space, Culture and Intent
Implications for US Policy

Union of
Concerned Scientists

“The accomplishments of the human space enterprise ... strengthen the determination and faith of all the county’s peoples in the Chinese dream of a **great renaissance** of Chinese culture.”

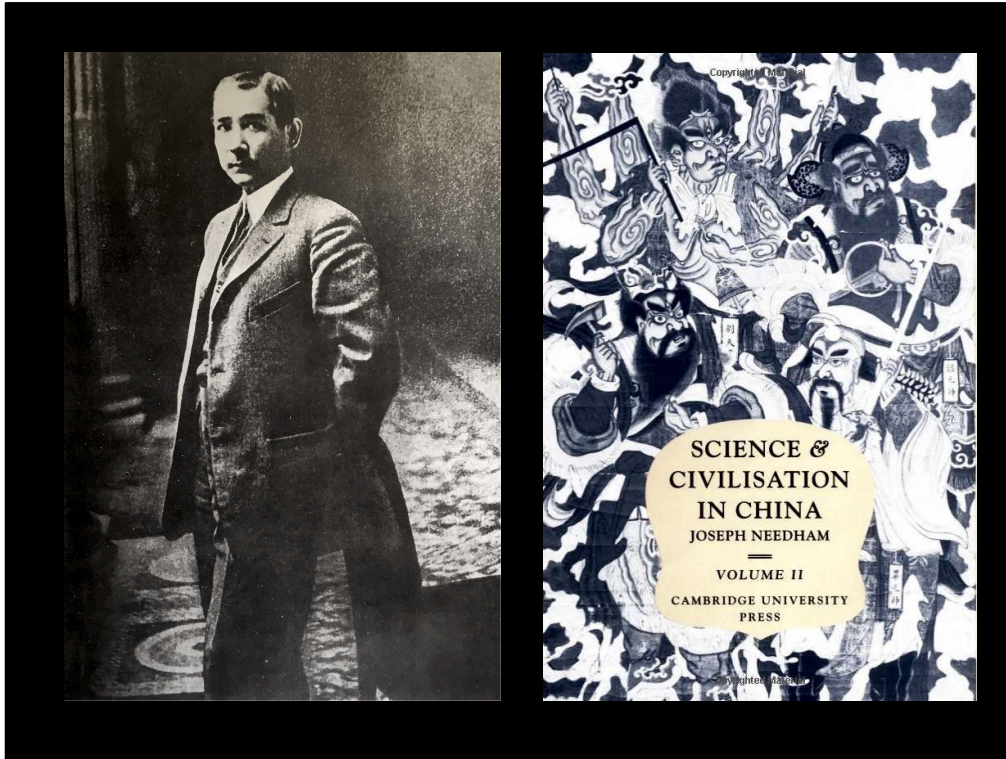
Using language that has its origins in the Chinese reform movements of the early twentieth century, Chinese president Xi Jinping recently tied China’s success in space to a renaissance of Chinese culture and civilization.



The idea of a renaissance implies something lost, and in China's case it was the loss of self respect and the loss of the respect of others for Chinese culture and civilization.

This occurred because China lost control of its own territory and of its ability to govern itself.

Young Chinese reformers and revolutionaries struggled to recover, and fought among themselves about the best way to do it.



They disagreed about so many things that Chinese revolutionary leader Sun Yatsen – pictured here – derisively described the Chinese body politic as “a loose sheet of sand.”

But they all agreed that China fell victim to the predations of other nations because China failed to develop modern science and technology.



The imperial Chinese government focused on acquiring Western military technology, especially a navy.



But a generation of effort to graft western military technology onto China's existing economic, political and social culture failed to prevent a disastrous defeat in the Sino-Japanese War of 1894-95.



In the wake of that defeat young, educated Chinese accelerated a great national effort to study the Western culture that created modern science.



Within a generation a “new youth” promoted a “new culture” organized around science, and around competing Chinese interpretations of Western "social science."



The Chinese Communist Party won this social science competition and was able to re-unify the country and reassert China's ability to govern itself.

Returned from the United States



Deng Jiaxian: Central figure China's nuclear weapons program



Qian Xuesen: Central figure in China's missile program

China's new leaders determined that keeping pace in advanced science and technology would be essential to preserving Chinese self-determination.

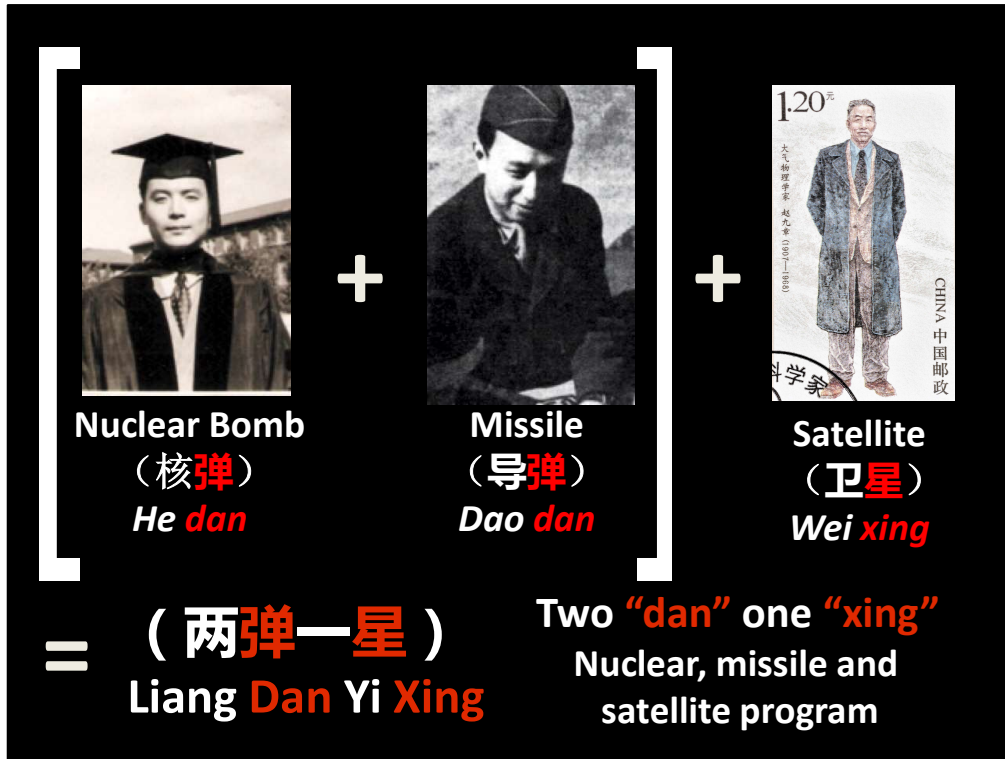
They encouraged Chinese scientists abroad to return home. Hundreds responded.

These two men were especially consequential. Deng Jiaxian, on the left, obtained a doctorate in nuclear physics from Neil Armstrong's alma mater: Purdue. And Qian Xuesen, on the right, directed the US Jet Propulsion Laboratory. He's pictured here in Germany, where the US Army sent him to debrief the German rocket scientist Warner Van Braun.



The emphasis on science did not prevent Chairman Mao from pushing manifestly unscientific agricultural policies that contributed to one of the worst famines in human history. Mao's misguided Great Leap Forward was animated, in part, by US and Soviet satellite launches. (The poster on the left reads "Agricultural Great Leap Forward, Communes Everywhere Launch Satellites")

The scientist on the right, Zhao Jiuzhang, led China's actual satellite program. He was hounded to death by red guards during the Cultural Revolution – another Mao-inspired mass movement that persecuted intellectuals and shut down Chinese higher education for a decade, crippling China's scientific and technological development.



Despite the chaos created by these two mass movements, the nuclear weapons and missile programs, run by the military, succeeded in meeting their objectives on time.

The satellite program, run by the Chinese Academy of Science, suffered repeated delays. China's first satellite, launched in 1974, could only play a Maoist tune. It would be another decade before China put its first functioning communications satellite into orbit.

These accomplishments are now remembered by the 4-character Chinese phrase "liang dan yi xing."



That China’s scientists were able to succeed despite the trials of the times is celebrated now with great reverence. Chairman Xi Jinping –seen here at the cemetery where many of these scientist are buried – is fond of reminding China’s scientists to carry out their work with the same spirit of dedication and sacrifice.

Some US observers interpret Xi’s frequent invocation of this “liang dan yi xing” spirit, especially when speaking about space, as an ominous indicator of aggressive intent. Another plausible interpretation is that Xi invokes it to educate and inspire Chinese scientists.



The current generation of Chinese scientists, like the “liang dan yi xing” generation, was enabled by exchanges with the United States, including US gov't efforts to help China develop carrier rockets to launch US satellites.

Indeed, the broad-based scientific aid provided to China during the 1980s allowed China to bridge a critical gap created by the collapse of higher education during the Cultural Revolution.

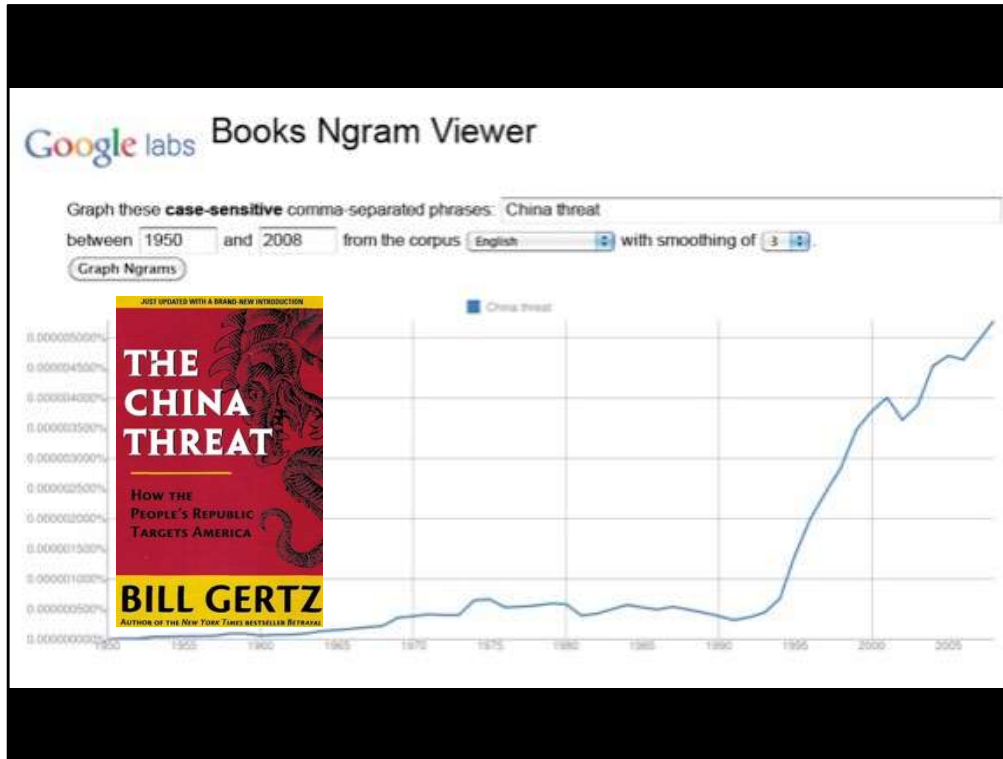
1986 March: China Responds to Star Wars



Despite generally good relations with the United States during this period, China launched a new program to accelerate the development of defense science and technology – the 863 program – named for the year and month four senior scientists from the “liang dan yi xing” era (王大珩、陈芳允、王淦昌、杨嘉墀), sent a report to China's leaders on the necessity of responding to President Reagan’s Strategic Defense Initiative.



As the decade turned, the combination of the collapse of the Soviet Union and the Tiananmen Massacre undermined US support for scientific cooperation with China.



Lack of support for cooperation gradually transformed into a fear of cooperation as the idea of China as a threat began to take hold in US public discourse

The graph depicts the increase in the appearance of the term "China threat" in English-language publications.

The U.S. Restricts Contact



Chinese Scientific and Technological Progress Accelerates

The US Congress responded by enacting progressively restrictive policies limiting cooperation with Chinese scientists, especially those working on space

These restrictions did not inhibit China's scientific development. China's space program progressed rapidly.

习语

探索浩瀚宇宙，发展航天事业，建设航天强国，是我们不懈追求的航天梦。

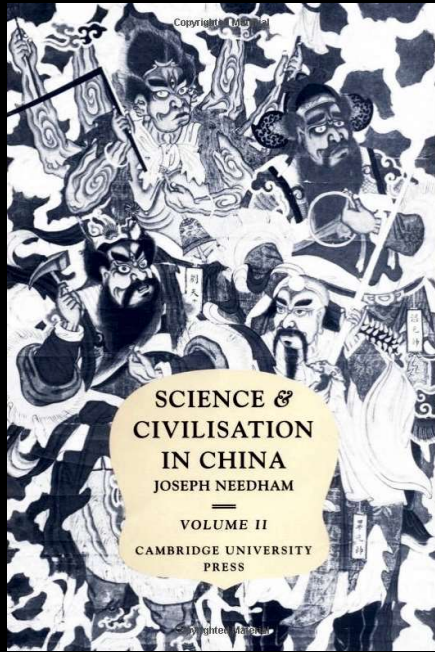
——2016年4月24日，在首个“中国航天日”到来之际，习近平作出重要指示

党建网微平台

"Exploring the vast universe, developing the space enterprise and building a strong space-faring nation are the space dream we unremittingly pursue"

- 2016-04-24 The important directive Xi Jinping made on the occasion of the first "China Space Day"

One of the most important consequences of these developments is that for the first time since the Opium Wars, China is not dependent on the good will of Western nations for continued scientific progress.



"I think that, if we are to feel at home in the world after the present war, we shall have to admit Asia to equality in our thoughts, not only politically, but culturally. "

(1946) Bertrand Russell
"The History of Western Philosophy" p. 400

(Pause)

The US political establishment seems to be having a hard time adjusting to China's hard won scientific independence.

That's understandable. It's unprecedented, and it is redefining the balance of power in US-China cultural relations.

☰ TIME

The 2013 TIME 100

TIME presents its annual list of the 100 most influential people in the world, from artists and leaders to pioneers, titans and icons

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Pioneers

Andrew Sheng

Economist, 66

By Joseph Stiglitz | April 18, 2013

In the wake of the global financial crisis, there is a consensus that the world needs good regulators to ensure that the financial sector serves society in the way that it should and does not wreak havoc. But it is not an easy task: regulators need to be smart enough to understand the market's complexities and not be captured by its easy nostrums, devoted enough to public service that they accept earning a pittance compared with what someone of their talents could make in the private sector, strong enough to resist the lobbying pressures from the financial sector, honest enough to resist its enticements and politically astute enough to manage a politics charged with money. Hong Kong has been lucky to have such a regulator in the form of Andrew Sheng, who served as deputy chief executive of its monetary authority. And China has been



Murshid Ahmad / Bloomberg / Getty Images

VIEW ALL

"Why should a financial engineer be paid 4 to 100 times more than a real engineer? Real engineers build bridges. Financial engineers build dreams. They were having massive private gains at public loss."

From the film "Inside Job" (Sony, 2008)

China's emergence from a century and a half of scientific dependence is also coming at the same moment Chinese elites are losing respect for the United States.

Recent events, especially the 2008 financial crisis, have undermined Chinese faith in US stewardship of global affairs.



So, as US policy-makers consider the question of Chinese intentions, it is important for them to keep in mind that the Chinese people are now well on their way to recovering the self-respect they lost 150 years ago.

The attitudes and behavior of their current government reflect this, and can be interpreted as expressions of an expectation of respect from others.

It should be possible for US policy-makers to acknowledge these expectations without harming themselves or their allies. Space science and exploration is one possible vehicle for safe and constructive engagement.