



# Overview of Science and Society in the Mao Era: Radicalism and Technocracy

1. Binaries: Two visions of science
2. Review of timeline
3. Yan'an (1935-1949)
4. Learning from Soviet Union (1949-1958)
5. Sino-Soviet split and Great Leap Forward (1958-60)
6. Early 60s technocracy / liberalization (1961-64)
7. Cultural Revolution (1966-76)
8. After Mao: Hua Guofeng (1976-78) and Deng Xiaoping (1978-97)



# Binaries

Mao Zedong promoted bringing together binaries to create revolutionary science

- Practice and theory （实践与理论）
- Red and expert （红与专）
- *Tu* and *yang* （土洋结合）
  - *Tu* 土 (literally, “soil”; symbolized local, native, Chinese, rustic)
  - *Yang* 洋 (literally “ocean”; symbolized foreign, Western, elite/ivory tower)



# Two Visions for Science

## TECHNOCRATS

*Yang* 洋

Professional science

Expertise

Transnationalism

Theory/basic science

Science and politics: separate

## RADICALS

*Tu* 土

Mass science

Redness

Native self-reliance

Practice/applications

Science and politics: inseparable

\*\*\*\* BOTH groups care about science and socialist modernization: they just have different ideas about the relationship between science and politics!

(Note this is a *revisionist argument* advanced by your professor and some of her colleagues.)

# Back to the Timeline

## **1912 - 1949 Republic of China**

1912-1916 President Yuan Shikai's rule

1916 - 1927 The Warlord Period

c. 1915-1925 "The May Fourth Movement"

1921: Chen Duxiu and others form the Chinese Communist Party

1923-1927 "First United Front" between Nationalists and Communists

1928-1937 beginning of the Civil War between Nationalists and Communists

1937 - 1945 The Second Sino-Japanese War and Second United Front

1945 - 1949 The Conclusion of the Civil War

## **1949 - Present People's Republic of China (PRC)**

(Communists found PRC on the mainland. The Republic of China continues on the island of Taiwan.)

1949 - 1976 The Mao Era

1950-1953 Korean War

1958-1960 Great Leap Forward

1960 Sino-Soviet Split

1966-1976 Cultural Revolution

1976 Mao dies

1976-78 Hua Guofeng era

1978-97 Deng Xiaoping era



# Yan'an

- Revolutionary base area in the north  
Mao cemented his leadership here in 1930s-40s

- “Self-reliant science”
  - Production of matches, soap, candles, explosives, etc.
  - Emphasis on:
    - 
    - 
    -

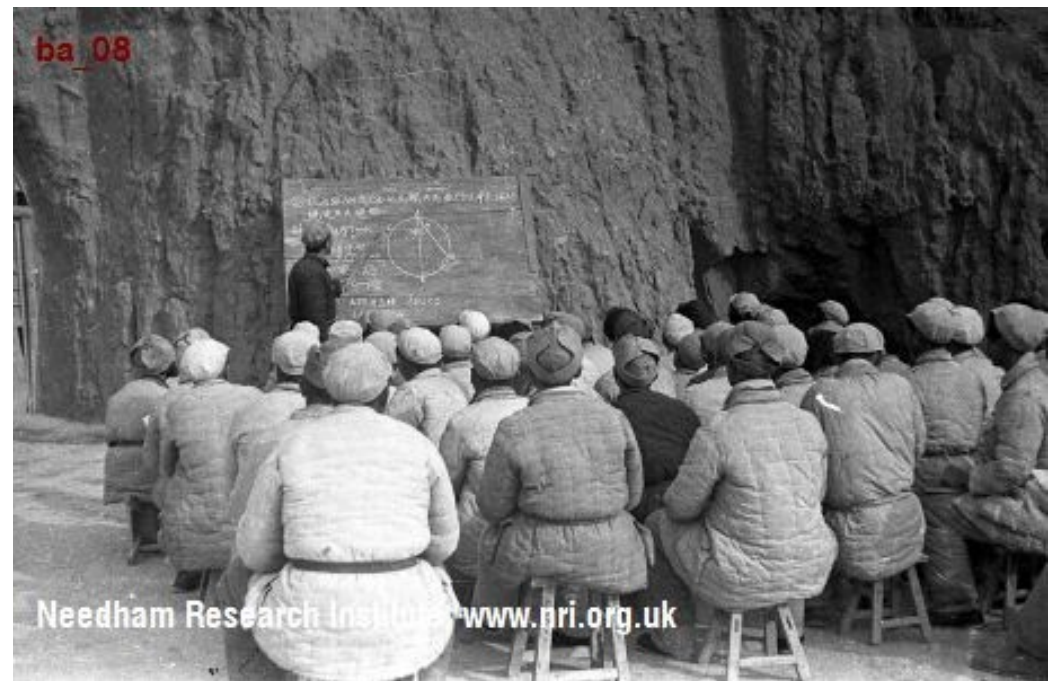






Making glassware

Geometry class



**Two photographs by Joseph Needham (李约瑟) taken at Yan'an depicting self-reliance in science and technology, manufacturing, and education**



# After the Revolution: Learning from the USSR (1949-57)

- Shift from US influence to Soviet influence: US is China's chief enemy during this period
- Soviet Union
  - Revolution was back in 1917
  - No longer a revolutionary society
  - Technocracy
- Soviet advisors program:
  - Soviet scientific and technical experts stationed in China to support development of science, technology, industry, state organization, etc.



Let the "Sputnik" of high production circle around the sky forever  
(1958), <http://chineseposters.net>





# Late 1950s: The Sino-Soviet Split and the Great Leap Forward

- Soviets not sharing nuclear technology
- Mao frustrated by Soviet technocratic approach



- Great Leap Forward
  - Return to emphasis on radical, self reliant science
    - Nuclear program
    - “Mass science”
    - Tu > yang; practice > theory; red > expert



**“The vegetables are green,  
the cucumbers plump, the  
yield is abundant” (1959)**



**“We and Ore Together  
Make Steel” (1959)**





# The Sino-Soviet Split and the Great Leap Forward

## Enforced Utopianism Leads to Disaster

Reports of miraculous results

Demands for outrageous projections



*People's Daily* in 1958



# The Sino-Soviet Split and the Great Leap Forward

**Famine (i.e. the “three difficult years” , 三年困难时期 )**

20-40 million people died of famine

Causes?

Then: blamed on natural disasters

Today: most people blame on human factors

- Too much planning?
- Too little planning?
- Too little science / rationalism?
- Too much authoritarianism / squashing of dissent?
- Too much extraction from the countryside?



# Early 1960s Liberalization (Technocracy)

Mao and other radicals retreat

Rise of technocrats: Liu Shaoqi, Deng Xiaoping, Nie Rongzhen, Zhou Enlai

“Meetings of Immortals” ( 神仙会 ) → Fourteen Articles on Scientific Work (1961)

Claims science is universal and “without class character” (separation of science and politics)

The “Four Modernizations”

“To achieve the four modernizations in agriculture, industry, national defense, and science and technology that will create a strong socialist nation in China, the key is the modernization of science and technology” (Nie Rongzhen 1963)





# The Cultural Revolution (1966-76)

## The Return of Radicalism

1964: “scientific experiment movement” ( 科学实验运动 ) begins

“Three-in-one” 三结合 scientific experiment groups

**bringing together:**

1966 Liu Shaoqi, Deng Xiaoping, and other technocrats accused of taking the “capitalist road”

1966-1968: Urban youth mobilized as “Red Guards”  
combat liberal tendencies in schools and beyond

1968 Urban youth “sent down” to the countryside to learn from peasants and share scientific knowledge



# The Cultural Revolution (1966-76)

## **1971: Major shift in relations with US**

- new transnationalism
- theme of self-reliance continues!



# A Peek Ahead (to Unit 3): Hua Guofeng and Deng Xiaoping

1976 Death of Mao, arrest of radical Cultural Revolution leaders

1976-78 Hua Guofeng era

Combines radical Maoist “mass science” AND liberal “four modernizations”

Overthrown by Deng Xiaoping faction

1978-97 Deng Xiaoping era

Declares “springtime for science” ( 科学之春 )

Adopts “Four Modernizations” as platform

Revives technocratic vision: science separate from and above politics



# Review of Pendulum Shifts

1942 Yan'an Party Rectification

Swings toward radical (self-reliance, mass science)

1949 Establishment of PRC, Learning from Soviet Union

Swings toward technocratic (transnational, prof. science)

1958-1960 Great Leap Forward / Sino-Soviet Split

Swings toward radical

1961-1964 Post-Famine Years

Swings toward technocratic

1964-1976 Cultural Revolution (including lead-up)

Swings toward radical

1976-1978 Hua Guofeng Era

Radical in rhetoric; technocratic in policy

1978-1997 Deng Xiaoping Era

Swings profoundly toward technocratic