



Needham Research Institute

李約瑟研究所

How much history of science research can secondary school students do?

Experience from the [Independent School Foundation Academy \(Hong Kong\)](#) summer program in the [Needham Research Institute \(Cambridge, UK\)](#)

WU Huiyi
(Needham Research Institute, Cambridge, UK)



ABC of the **NRI-ISF** Program

- Annual summer school (mid-June to mid-July) since 2013
- Takes place in **Needham Research Institute (NRI), Cambridge, UK**
- Select group of 8-10 students (Mandarin-English bilingual, aged 14-17) from **Independent School Foundation (ISF) Academy, HK**
- Students individually research on a topic related to history of science in China (**3000-10000 words paper**)
- Under the guidance of the NRI post-doc funded by ISF (myself)

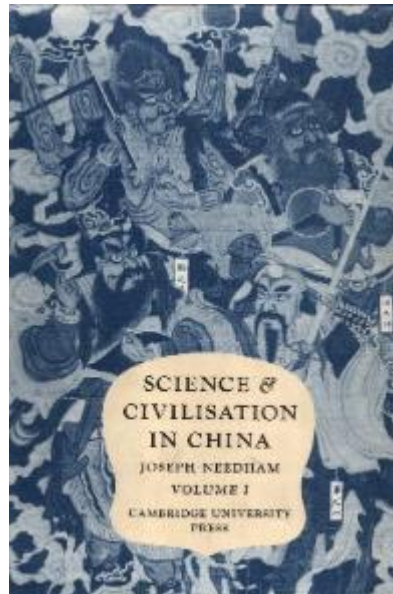


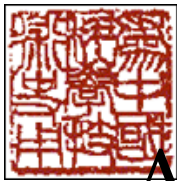
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About the Needham Research Institute, Cambridge, UK

- Joseph Needham FRS (1900-1994)





About the Independent School Foundation Academy (ISF), HK

- Since 1997
- Mandarin-English Bilingual School
 - Strong commitment to Chinese language and culture
- International Baccalaureate (IB) Program
 - Constructivist and inquiry-oriented pedagogy in regular curriculum











Needham Research

- Extra-curriculum learning (Latin, Greek, classical Chinese)
- Research partnership with universities (Robotics, sustainability)

智·志·考·仁·愛·禮·義·和·平
Independent · Chinese · Global

Student Development Student Achievements Admissions News Calendar

Shuyuan Milestones

-  [The Needham Research Institute \(NRI\) : ISF-NRI Scholars' Retreat](#)
-  [Classics Field Trip](#)
-  [Scientific Conferences and Presentations](#)
-  [Sustainability Projects](#)
-  [Chinese Language Education Research Centre](#)
-  [Bauhinia](#)



Students' Profile

- Age group: 14-17
- Maturing brain; learning to be self-reflexive
- Bilingual and Bicultural (sometimes more)
- ... Though Chinese in unavoidable weakness
- Outspoken and inquisitive
- ... Though unused to reading (physical books)



Program Time Flow

By March: Application; Student's Statement of interest

April: My Trip to HK; First Conversations with Student ;
Tentative definition of topic
(Eg: Chinese Garden – Chambers's Design of Chinese Garden)

Late June- Mid July: Students in Cambridge;
Week 1: general reading, confirming topic...
Week 2: Focused reading
Week 3: Preparing for Presentation

September-next June: Students' writing drafts;
Continued supervision via email and Skype;
Select publication in School Journal (*Bauhinia*) and external
Journal (*The Concord Review*)



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Patterns of Students' Interests

- Exceptional: Interest in a specific document (Selden Map; McGiffin report on the 1894 Sino-Japanese naval battle)
- “Icons ” of China (Great Wall, Terracotta Army, Silk, porcelain, garden...)
 - “Arch ” icon: Chinese Medicine
 - → The development of Artemisinin; The Manchurian Plague 1911; 18th c. European reception of acupuncture; Establishment of the Western asylum in Canton; Yun Tieqiao – Yu Yunxiu debate 1917-1922



Patterns of Students' Interests (2)

- “Niche” topics: history of [+personal interest] (forensic anthropology, flute, lute, chess, football, aviation...)
- Needham Question and Derivatives (“Why the Scientific Revolution did not happen in China?” “Why China lagged behind the West?”)
 - Reading chapters from Pomeranz’s *Great Divergence*



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“Community Service”: Sorting Joseph Needham’s archives

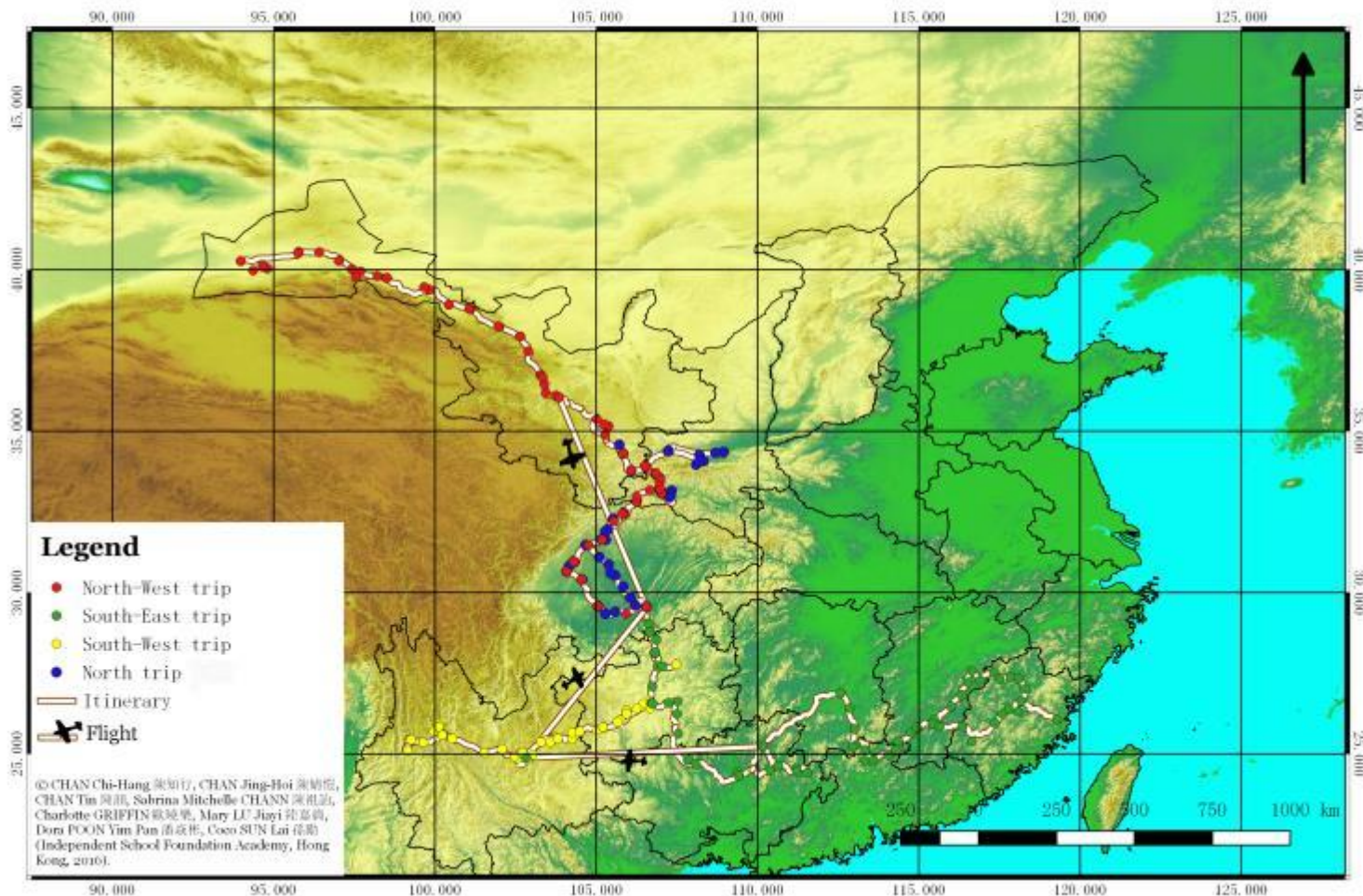
- Mesuring books, counting negatives...
- Constructing a GIS on Joseph Needham’s trips in WWII China





- Downloadable maps and datasets
- Integrated with digital library

Joseph Needham's Wartime Trips in China (1943-1946)





How much research can secondary students do?

- Individual research:
 - Learn to DO research (using a library...), to read critically, to WRITE an academic paper...
 - Engage with academic scholarship in a meaningful way
 - Fulfill a curiosity... reliably.
- Collective project:
 - Win-Win situation between professional historians and school students
 - Engaging learning, effective outreach



- Thank you
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