

Engaging people in physical science research undertaken since 1900 in the People's Republic of China and the UK: a 1+3/+3 year ESRC Collaborative MA/PhD Studentship based at the University of Manchester Centre for Chinese Studies starting in September 2012

Background

China recognises physics and technology research as essential for the country to play an increasingly prominent role in the global community. Since 1900, physics is a subject in which Western countries, especially Britain, have long led the way with major developments. In China, museums representing physical science and technology are a relatively recent development: since 2000, there has been a programme to create about 200 science museums throughout China, with about 100 opening in the last decade. These largely contain interactive exhibits explaining the principles and processes of science, rather than past scientific achievements and research taking place today. Historical research on Chinese museum culture is also in its infancy.

Aim and key outcome

The project aims to critically reflect on current methodologies and representations of physical science in China and the UK, and propose new ways of engaging people in both China and the UK in current research taking place both locally and internationally. The study will focus in particular on the local science museums of Shanghai and Zhejiang (East China) province, amongst the leading economic areas of China that can look back at a history of more than a hundred years, and the Museum of Science and Industry (MOSI) in Manchester. Both will be researched within the broader context of recent developments in science popularisation.

The project has both historical and practical components. Through collaboration with MOSI, the research will feed directly into museum practice via MOSI and Chinese science museums/ science popularisation organisations in Shanghai and Zhejiang province in the first instance.

Requirements:

The studentship is open to UK/EU undergraduates who have at least a 2:1 Honours degree in Chinese studies, History or Social Studies of Science/Technology, Museum Studies or a related subject. Proficiency in Chinese and English required (Classical Chinese advantageous). For applications for +3 yr (PhD) route an MA degree with merit or higher must be completed by September 2012.

Students applying for the 1+3 year (MA+PhD) are required to undergo MA training depending on previous qualifications in the subject area. For details of MA programmes available to study in connection with this project please go to:

- Museology: <http://www.arts.manchester.ac.uk/museology/postgraduatestudy/taught/>
- History of Science: <http://www.chstm.manchester.ac.uk/postgraduate/taught/>

- Languages and Cultures (research route):
<http://www.llc.manchester.ac.uk/postgraduate/taught/a-z/course/?code=08810>

Applicants are requested to submit a letter of application (of no more than 500 words) stating an outline of their interests and relevant qualifications for the project along with a CV by **23 March 2012 to Miss Rachel Corbishley at**

pg.languages@manchester.ac.uk. You also need to apply online for an appropriate programme (either PhD in Chinese Studies or one of the MA programmes listed above). To apply for a place on a programme please go to:

<http://www.manchester.ac.uk/postgraduate/howtoapply/>

Please note: you are advised to submit your programme application to the University by **7 March 2012**, to ensure that you are in receipt of an offer of a place on a programme in advance of the **23 March 2012** studentship deadline.

Further information please contact: Professor Dagmar Schaefer, University of Manchester, Samuel Alexander Building, Oxford Road, Manchester, M13 9PL, UK.
Tel: +44 (0) 161 275 7052. Email: dagmar.schaefer@manchester.ac.uk

Work programme

Four phases, each approximately a year in length, are planned. Adjustments are made for +3 applicants pending actual qualification. Initially, the candidate will concentrate on historical research. Formal training periods in developing science engagement programmes will also take place at MOSI. Collaboration with both the Fudan University in Shanghai and Zhejiang University, and engagement with practical museum issues in various science museums in Shanghai and Zhejiang province, will provide an introduction into museum practices in China, serving as background for research into conceptual issues in the main phase of the research project.

Appendix 1: background on the development of science museums in China

Chinese research in the fields of physics and technology is marked by major political events such as the Soviet-Chinese alliance of the 1950s, the initiation of the Great Leap Forward (1958-1961), the Cultural Revolution (1966-1977) and the beginning of the era Deng. Rocket and space technology were deemed leading in the Soviet era, industrial steel production took the lead in the early 1960s, while basic research was largely discontinued in public during the great proletarian cultural revolution. Engineering and biogenetic fields have been fields of major state investment since the 1990s. With economic growth, China has also won prowess in its scientific research capability which it displays in its museum culture. A clear line is drawn between the historical and the modern. Physics displays usually highlight a global culture of science, featuring figures such as Galileo Galilei, Issac Newton or Albert Einstein. The focus is on actual science issues, whereas sociological and cultural issues are largely neglected.

Historical research on Chinese Museum culture is in its infancy. Studies thus far addressed singular factors such as the presentation of China's Four Great Inventions and science associations. A study has been made of the history of the Nantong Museum that combined art, folklore and science exhibitions modeled on contemporary European ideals: this Museum was a private institution, initiated by the industrial entrepreneur and social reformer Zhang Jian. Another focus of historical research thus far has been the representation of political historiography, noting that the idea of science museums had already reached China by the 1830s. Initially, this was characterised by provincial exhibitions. In October 1915 the newly renamed science society initiated the first systematic public lecture series on Western science. Attempts to popularise scientific knowledge included the institutionalisation of public libraries, museums and research institutes in various disciplines. The focus was on scientific experimentation. A recent study divides the historical development of science museums into four phases: initiation (1830s-1940s), disruption (1940s-1980), development (1980-2000) and prospering (2000-present). The first phase is characterised by individual attempts. While the agenda is in line with Western models, these museums also show a strong inclination towards the identification of a uniquely Chinese development. Nature, science and art exhibits co-existed to the extent that museums also contained a living animals/zoo section. The second phase is marked by the idea of a detachment from the museum's feudal heritage. The five-year cycles of political planning inhibited long-term developments for the representation of modern Chinese research. Museums often changed to educative units or were closed. Individual activities maintained the museums 'underground'. With the beginning of the four modernisations under the era of Deng Xiaoping museums developed into spaces for the representation of Chinese cultural heritage and its capabilities in science and industry. In 1982 the PR China government explicitly requested that artefacts and scientifically-relevant objects collected by individuals should be given to museums for proper preservation. While museums included science, technology and natural history, specialist science museums were still rare. This changed with the year 2000 when central and local government bodies explicitly started to promote museum culture, signposting science and industry as a major field. This heralded a remarkable

programme of opening new science museums at provincial and municipal levels throughout China, along with the establishment of annual science festivals and other science popularisation programmes. However, in many parts of China, these programmes are still in their infancy.

Appendix 2: work programme

Phase 1. In the preparatory phase an outline history of the development of scientific and technological research from c.1900 with a focus on physics and technology in China and Britain will be produced. The centennial turn marks a shift in both cultures. Max Planck published his revolutionary 'quantum' theory that electromagnetic energy could be emitted only in quantised form – i.e. multiples of an elementary unit $E=h\nu$, where h is Planck's constant. This, of course, is the start of the period when Einstein, Rutherford and Bohr revolutionised our modern scientific understanding of the world around us. During this period Chinese literati laid the basis for modern physics research. In 1905 Zhang Jian opened the first "Hall for the Study of Things". Conceptually the design favoured a combination of scientific knowledge with a study of the trappings of civilization. A decade later Einstein toured China, while the first Chinese graduates in physics, and geology returned from Britain. This phase will also include seeking oral testimonies, for example through the Manchester Chinese Archive (the archive assembled recently from one of the largest Chinese communities outside China).

Phase 2. The individual history will be distinguished from the study of the impact of Western physics and technological developments on China and vice versa. This is mandatory to lay out the political and ideological implications of both contexts. Research in this field has mainly proceeded from the perspective of a unidirectional movement. New research in the field of geology and mining technology, however, shows that both sides profited from interaction during times of disconnection and at the same time substantially drew on local traditions rather than integrating an entirely new or alien model. Analysis in phase 1 and 2 will be based on the history and sociology of science and anthropological method. This will establish a new basis for phases 3 and 4, which focus on issues of methods of representation and implementation.

Phase 3. Particular attention will be paid to ways of connecting scientific research and technological development in China and the UK today and tomorrow (for example the science of sustainability and low-carbon technology) in critical ways. How could East and West collaborate in this research and in which ways can museums herein act as intermediaries and platforms, i.e. how can museums continue developing as key communicators for scientific communities?

Phase 4. The results of 1-3 will be brought to fruition in a dissertation project. It is also expected to feed methodologically into the development of new conceptual approaches for science museums to engage the public with 20th-21st centuries scientific discoveries and technological developments at the local level and as networks for the education and popularisation of science (in particular how to engage everyone in addressing the challenges we face, notably population growth, water supply, energy supply, food production, transport, reducing carbon emissions and adapting to climate change). Targeted are public events as well as the development of interactive local tools and new ways of globally connecting networks within museum cultures: potentially this would

include virtual exhibitions with local anchors (for example events and items presented using digital platforms and video conferencing).

Timeline

Year 0

Focus: science and national histories.

MA Research and Teaching at the LLC under the auspices of CCS, supervisor Dagmar Schaefer. Introduction to 'Science in Non-Western Societies' with a focus on China and methodological training in the history and sociology of science. Research and training to include the following.

Placement in Shanghai's Fudan University, Partner University of the University of Manchester: 2 month intensive language programme; internship at the Fudan University's Museum, Museum pedagogy, Zhang Fengcai 长风采, for 2 weeks.

Placement at MOSI: intensive training and practical experience of developing science engagement programmes (e.g. exhibitions, workshops, events) for specific audiences for 2-4 weeks.

Year 1

Focus: physics and technology in China and the UK.

Training at the CCS and History Department.

Research stay in Shanghai, Fudan University which holds one of the oldest physics departments of China (founded 1952).

Research at the University of Manchester School of Physics and the Cambridge University Cavendish Laboratory (key physical sciences research institutions in the UK which have been, and are, the workplaces of a significant number of Nobel Prize winning physicists) and MOSI (including oral history recording).

Archival research of conference proceedings and related papers and, potentially, oral history recording, relating to collaborative research carried out by physical scientists in China and the UK.

Year 2

Focus: science and the development of museum culture.

The history of Chinese and British science museum culture. Methodology of the history of science 19th-21st centuries. Imperial histories, national strands and museum pedagogy.

Research stay in Shanghai, Natural History Museum and archival work, 3 months.

Archival work and oral history recording at MOSI and other key science museums in the UK (London, Manchester, Bristol, Birmingham, Newcastle, Cambridge, Oxford, Cardiff and Edinburgh).

Year 3

Focus: the relation between past and present.

While issues of year 1 and 2 are carried on, the focus will now shift to the methodological and conceptual challenges of museum culture, identifications of past and present, classificatory methods and practical museum work.

Collaboration and potential internship with Shanghai Science and Technology Museum, Pudong which was newly founded in 2001.
Internship with MOSI.

Year 4

PhD writing up

Partners

MOSI

Shanghai - Fudan University, Language Training, History Department

Shanghai History Museum

Shanghai Science and Technology Museum

Hangzhou - Zhejiang University, Departments for Sociology and History

Hangzhou - Zhejiang Science and Technology Museum

Supervision

The project will be undertaken by a post-graduate student working towards a PhD under supervision of Prof Dagmar Schaefer (Professor/ Director of the Centre for Chinese Studies at The University of Manchester), supported by Dr Robin Holgate (Head of Interpretation & Learning at MOSI) and Dr Helen Rees Leahy (Professor/ Director of the Centre for Museology/ Director of External Relations, School of Arts Histories and Cultures at The University of Manchester).