Hong Kong Institute for the Humanities and Social Sciences
The University of Hong Kong

Cultures of Innovation in East Asia's History,
with a focus on scientific, medical and technological change.

Syllabus for Course IHSS6003 at HKU, Jan –April, 2018

Venue: Room 201, 2/F, May Hall, HKU
Time: Thursdays 2:30-4:30 PM (except Feb 15, see details below)

Instructors: Prof. Dagmar Schäfer, Prof. Angela K.C. Leung

The aim of this course is to discuss the nature and history of East Asia's historical "culture(s) of innovation" (has it many, some or none?) and thus to develop a critical sense for comparative method in the History of Science, technology and medicine. Particular attention will be given to the regional and historical character of scientific, technological and medical change (Has innovation a regional history and did nations, state or individuals matter and if so, how? How and why do fields of expertise deal differently with innovation/newness?) and the role of production and use (versus consumption). Historiographies and historical sources are analysed and current theories are introduced. Students will learn the historical role and use of innovation theories in a way that will help them to critically engage with modern debates about sustainability, good life and a globalizing world. Students will engage with primary sources in Chinese, Japanese or English (partly by way of translations) on an introductory to medium level.

Rationale

Innovation is nowadays a commonly used term, but it is in fact historically rather vaguely defined. Historians and sociologists identify innovation as an action as much as a concept, a rhetoric or value (world of ideas), a process (world of practice) and even an afterthought, but rarely as an actual thing (although there is a world of material innovations). Different historical disciplines have approached the theme. Economic historians, for instance, long favoured "technical invention" as a major motor of economic growth (i.e. innovation). The history of technology adhered until the 1970s, discussing innovation mainly as an attitude, a social practice or communal activity. Only in the last forty years did researchers connect innovation to technology and commercialization trends. Global history trends in particular pushed debates on the regional and character of innovation and its dissemination, developing new explanation models for consumption patterns, the global/local distribution of knowledge and its channels of dissemination. Actors and the role of trans-local connections for innovation cultures have been discussed.

Although historians of the West such as David Edgerton criticize innovation-centric histories in favour of balanced accounts of use, the topic of 'innovation' still belongs to one of the most prominent topics in the history of science, technology and medicine, in particular in regional studies on the "rest." We will critically reflect on the reasons for this "obsession," such as presentist concerns (East Asia's economy is thriving), cultural identity debates of the twentieth century (East Asia imitated and did not innovate) or the historians' natural

interest in change (what remained stable is less exciting[1]) and explore alternatives. But we will also ask how, why and when "the new" required attention and explanation "more" than the familiar – and when it did not. Was this attention different – quantitatively and/or qualitatively – in different fields, such as agriculture, infrastructure (traffic, building, communication), crafts (textiles, porcelain, etc.), or health care, calculation methods (mathematics) or music?

Another focus will be on "East Asian" characteristics. Edgerton asked for a re-focus of "what does not change", claiming that such histories of use "can be genuinely global (Edgerton, *Shock of Old,* pp. xiii)," because they pay equal attention to innovative and familiar contexts. Can innovation – or Edgerton's assumed "other," that is, the familiar and vernacular "old" -- be the same everywhere and how should we interpret different scenarios and knowledge claims?

This course is hence a **research & training seminar** designed to enable students to develop a critical sense of the theme, to analyse and discuss collectively in class, and to deploy these thoughts in a substantial piece of academic work.

Requirements and Evaluation

The requirements of this class are:

1. Do the readings by the time indicated in the syllabus! Stay awake during lectures! Come to class having thought about the material, and be ready to actively discuss it with your instructors and colleagues!
2. Submit thoughtful **think-pieces** and thoughtful responses to your colleagues think-pieces on time. Late deliveries will not be accepted. Think pieces need to be uploaded to the following website LINK. For a template of think-pieces, see here LINK. Note that you are free in your media choice when it comes to Think-pieces (video, ppt, comic, blog-writing, images), but mind it must be made by you (no downloaded pre-fabricated materials)! Note not all media installations are self-explanatory! So best use images with captions, videos with subtext etc.
3. Students will take turns presenting a **source analysis** during one seminar session starting week 3. If you would like to present your own source, please discuss this with me.
4. Complete a written assignment that will include 2 (two) components:
    a. A review of literature (presenting the state of the field on your chosen topic for the final essay, also called 'critical analysis') by **March 15, 2018). This critical analysis should be no longer than** 3 pages. You will present this literature review together with your research proposal in class on March 22, 2018. Select at least one item from the bibliography of the syllabus with other related academic publications related to your study.

    b. A final essay. Choose a historical case elaborated in at least two frameworks out of the five discussed in class (rhetoric, value, space, theory, work). This final essay is due by **May 3, 2018, 5 pm** and should be no longer than 15 double-spaced pages (including references, Times New Roman 12 pt., 1-inch margins, for references use "author year: page

[1] Historians also regularly use "innovation" synonymously with "change" often in juxtaposition to "tradition."

number" format, e.g. Schäfer 2006:14). You will orally present your project on April 26, 2018.

We will discuss with you the topic and other details of the final essay later in the course.

NO LATE SUBMISSION OF ASSIGNMENTS WILL BE ACCEPTED.

Your performance in this course will be assessed according to the following criteria:

Participation (including think pieces, and responses): 25%
Presentation of source in class: 25 %
Literature review: 10 %
Final Essay: 40 %

Structure and Themes

1. Jan 18, Introduction 1: Theories of Innovation

During the first day, we will discuss chronologies of innovation and theoretical models (Schumpeter and economic history, Johnston, Godin and intellectual history, etc.) and how they reflect on EA history in general. How is innovation seen in history? What about different approaches such as the short and long-durée? What regional differences and characteristics are identifiable for Asian cultures. This will also be an introduction of innovation as a comparative concept that approaches the *production* (West; Modern) and *reception* (consumption/use) of innovation (East, global) as temporally and regionally distinctive with regard to its scale and scope.

We will discuss:

- why study innovation in history? How is it studied?
- the concept of innovation with regard to production/use focus
- temporal dimension of innovation

Readings:

- Edgerton, David. 1999. "From Innovation to Use: Ten Eclectic Theses on the Historiography of Technology." *History and Technology* 16 (2): 111–36.
- Schäfer, Dagmar and Popplow, Marcus. 2015. "Technology and Innovation within Expanding Webs of Exchange." *The Cambridge World History. Vol. 5. Expanding Webs of Exchange and Conflict, 500 Ce – 1500 Ce*, 309–38. Cambridge: Cambridge University Press.
- Wang et al. 2010. "Climate, Desertification, and the Rise and Collapse of China's Historical Dynasties." *Human Ecology* 38 (1): 157–72.

2. Jan 25, Introduction 2: Contexts of Innovation

Innovation chronologies on Asian cultures combine analyst and actor categories and are mostly linear. That is, they look for signs of modernity and economic prosperity (analyst)

within the framework of dynastic/political change (actors category) and, despite all discussion otherwise, often "explain" issues towards an assumed "present". Readings will provide the basis to catalogue the various attributes assigning innovation mentalities to different East Asian cultures and how it relates to identifications of cultures as innovative or traditional, or knowledge categories as scientific, vernacular, explicit, tacit etc.
Attributes: (1) Drivers of innovation (economic growth; efficiency; 'discovery'; war), (2) Institutions (property rights) (3) Innovation and power (risk; investment…), (4) Imagination and creativity.

We will discuss:

- Is innovation regionally specific? Does it have different histories?
- What does comparative mean? When is there comparability?
- Producing and adopting units of innovation
- The notion of innovation in historical units of innovation, east and west.

Readings:

- Wong, R. Bin. 2014. *China Transformed: Historical Change and the Limits of European Experience*, Introduction: 1–8. Ithaca: Cornell University Press
- Francks, Penny. 2016. *Japan and the Great Divergence. A Short Guide.* London: Palgrave.
- Bray, Francesca. 2002. "Towards a Critical History of Non-Western Technology," in *China and Historical Capitalism: Genealogies of Sinological Knowledge*, edited by Timothy Brook and Gregory Blue: 158–209. Cambridge University Press.
- Brandt, L., Ma, D., and Rawski, T. 2014. "From Divergence to Convergence: Reevaluating the History Behind China's Economic Boom." *Journal of Economic Literature* 52 (1): 45–123.

3. Feb 1, Rhetoric of Innovation

Different fields of history approach innovation differently. For economic historians, innovation is a combination of technological and (successful/failed) economic growth. The history of technology considers innovation as one historically explicit manifestation of change that actors have seen in a positivist sense since the nineteenth and twentieth centuries (Godin 2017). For historians of science, a thing, a process, an idea, a man can be innovative, i.e. new with the potential of becoming important. Man can innovate, while nature evolves (nature-nurture divide). During this lesson, we look into rhetoric also as a historically defined feature and how it reflects against different disciplinary approaches.

We will discuss

- Difference between analyst and actor categories, and languages of novelty
- Positive and negative notions of innovation, as value-adding notion or a loss
- Innovation as a collective or individual value, long or short durée notions
- Innovation = Novelty? Innovation = Originality?

Readings:

- Godin, Benoît. 2017. *Models of Innovation: The History of an Idea*. MIT Press, read epilogue and conclusion 181-221.
- Siebert, Martina. 2010. "Making Technology History." In *Cultures of Knowledge: Technology in Chinese History*, edited by Dagmar Schäfer, 253–82. Leiden: Brill.
- Marcon, Frederico. 2015. "Honzogaku after Seibutsugaku: Traditional Pharmacology as Antiquarianism after the Institutionalization of Modern Biology in Early Meiji Japan." In *Antiquarianism, Language and Medical Philology.*, edited by Benjamin A. Elman, 148–62. Leiden: Brill.
- Lei, Sean Hsiang-lin. 2016. "Science as a verb: scientizing Chinese medicine and the rise of Mongrel Medicine" *Neither Donkey nor Horse: Medicine in the Struggle over China's Modernity / Sean Hsiang-Lin Lei*: 141–66. Chicago: University of Chicago Press.

Primary sources/topic:
(A) preface to Honzogaku 18th c,
(B) Wuyuan xianggan zhi
(C) late seventeenth-century Qianlong's notion of newness,
(D) innovation statistics on France (discussed by Benoit and maybe one of the diagrams related to HK and the dragon states in the 1970s)

4. Course Feb 8, Value

This week, we look at the issue of monetary and non-monetary ways of valuing innovation in Asian societies and ask how is value decided when it comes to innovation in Asia? What are the yardsticks and how are they applied? Is value and value judgement differently in Asia or different when it comes to different fields of engagement, that is do actors consider innovation in crafts differently then let us say in infrastructure, or in sciences such as botany or physics?

We will discuss

- value systems monetary, non-monetary, owning or non-own-able
- issues of quality (Intrinsic and extrinsic; nominal; etc.), reputation, expertise,
- the role of distance or availability (luxury), new in space and in time

Readings:

- Wengrow, David. 2010. "Introduction: Commodity Branding in Archaeological and Anthropological Perspectives." In *Cultures of Commodity Branding*, edited by Bevan and Wengrow, 11–34. New York: Routledge.
- Schäfer, Dagmar. 2013. "Peripheral Matters: Selvage Inscriptions." *UC Davis Law Review*, no. 47/2: 705–33.
- Huang, I-Fen. 2012. "Gender, Technical Innovation, and Gu Family Embroidery in Late-Ming Shanghai." *East Asian Science, Technology, and Medicine*, no. 36: 77–129. doi:10.2307/43151278.

- Lean, Eugenia. 2014. "The Butterfly Mark: Chen Diexian, His Brand, and Cultural Entrepreneurism in Republican China." In *The Business of Culture: Cultural Entrepreneurs in China and Southeast Asia, 1900-65*, edited by Christopher Rea and Nicolai Volland: 62–91. Hongkong University Press.

Primary sources/topic:
(A) Local Gazetteer of Suzhou: wuchan chapter,
(B) Patent of Hongkong Government for new brewing method
(C) Japanese law on branding,
(D) "marketability" report of innovations from Korea 1953

5. Course Feb 15, Space *(Course will start at 11 AM this day)*

The thrust of historical research on innovation highlights the role of spatial conditions, a locality's materials and its geographic location for innovation capacity: spatial configurations and accessibility figure high in such debates. While a scarcity of resources can serve as an impetus for creativity, local prosperity is otherwise interpreted as a positive condition (providing surplus resources). During this lecture, we look at definitions of regions in Asia in terms of their innovative capacity:

We will discuss

- Regions as spaces of knowing (lieux de savoir) and doing
- Materials, space and distance
- Spatial transformation by innovations
- Innovation as locally distinct stimulus-response model, crisis and prosperity

Readings:

- Wright, Tim. 2007. "An Economic Cycle in Imperial China? Revisiting Robert Hartwell on Iron and Coal," *Journal of the Economic and Social History of the Orient* 50 (4): 398–423. doi:10.2307/25165205.
- Wu, Shellen Xiao. 2015. Chapter 1, "Fuelling Industrialization in the Age of Coal," *Empires of Coal: Fueling China's Entry into the Modern World Order, 1860-1920*:7–32. Stanford: Stanford University Press.
- Elvin, Mark. 2004b. "The Political Pattern of Historical Creativity: A Theoretical Case: Comment by Mark Elvin." In *Political Competition, Innovation and Growth in the History of Asian Civilizations*, edited by Peter Bernholz and Roland Vaubel, 31–35. Cheltenham: Edward Elgar Publishing.
- Lee, Victoria. 2015. "Mold Cultures: Traditional Industry and Microbial Studies in Early Twentieth-Century Japan." In: Phillips D., Kingsland S. (eds) *New Perspectives on the History of Life Sciences and Agriculture. Archimedes (New Studies in the History and Philosophy of Science and Technology)*, vol 40: 231–252. Cham: Springer

Primary sources/topic:
(A) Design of Shanghai Cotton Mill
(B) Japans Nisjhijin, Kyoto

Feb 22, Chinese New Year

6. Course Mar 1, Things

Mostly things manifest innovation as product, not only in the perspective of economic history, but also in the history of science/technology and medicine. Drawing on material culture, historians thus have traced innovation or identified thing-histories as histories of innovation. During this seminar, we will compare different thing-related innovation stories, and discuss the outcomes of innovation: commodities (textile fibres); materials (colour materials: cobalt/ cochineal/ indigo); mimesis (false marble); imitation; counterfeit and their varying evaluation in fields of science and technology. The first instance will be related to technologies/crafts.

- The matter of comparison: What makes 'things' an innovation?
- How are artefacts made into innovations: timelines and relocations?
- What do artefacts themselves tell us about innovation?

Readings:

- Little, Stephen. 1996. "Economic Change in Seventeenth-Century China and Innovations at the Jingdezhen Kilns." *Ars Orientalis* 26: 47–54.
- Lean, Eugenia. 2015. "Recipes for Men: Manufacturing Makeup and the Politics of Production in 1910s China." *Osiris* 30 (1): 134–57.
- Guth, Christine M. E. 2010. "The Multiple Modalities of the Copy in Traditional Japanese Crafts." *The Journal of Modern Craft* 3 (1): 7–18.
- Soon, Wayne. 2016. "Blood, Soy Milk, and Vitality: The Wartime Origins of Blood Banking in China, 1943–45." *Bulletin of the History of Medicine* 90 (3): 424–54.

Primary sources/topic:
(A) Hygiene regulations for blood sampling 1944, Japan (maybe earlier?)
(B) Pattern book, (by Rachel Silverstein)
(C) Japanese ceramic – ICH (intangible cultural heritage)
(D) Soap recipe – advertisement
(E) Duoneng bi shi 多能鄙事 Section on vinegar

Mar 8, Reading week

7. Course Mar 15, Work

During this session, we will look at the relationship between things and work in relation to one of the most popular contemporary and historical concepts in economic global history: the knowledge economy (Mokyr) and notions of reliable knowledge in comparison to scientific and technological knowledge.

- The relation of things and work
- Materiality and how-to knowledge

- Expertise and applied science discourses

Readings:

- Inkster, Ian. 2015. "Technology in World History: Cultures of Constraint and Innovation, Emulation, and Technology Transfers." *Comparative Technology Transfer and Society* 5 (January): 108–27
- Lewis, Mark Edward. 2003. "Custom and Human Nature in Early China." *Philosophy East and West* 53 (January): 308–22.
- Lee, Jung. 2013. "Invention without Science: 'Korean Edisons' and the Changing Understanding of Technology in Colonial Korea." *Technology and Culture* 54 (4): 782–814.
- Pitelka, Morgan. 2015. *Spectacular Accumulation Material Culture, Tokugawa Ieyasu, and Samurai Sociability*. Honolulu: University of Hawai'i Press, read chap 2.

Primary sources/topic:
(A) lexical entry on *kexue*, Chinese, Japanese 1920s
(B) Qiu Jun, The use of work, *Daxue yanyi bu* 1450s
(C) Lacquer recipe Japan; chemical

8. Course Mar 22, Student Presentations

Presentation of literature review and research proposals by students, joint discussion.

9. Course Mar 29, Health Technology

From class 10 onwards we will discuss innovation in relation to specific technologies in historical contexts. The readings provide examples of East Asian experiences that the class will discuss in the various frameworks already analysed in previous classes. We begin with health technology.

A set of questions to be discussed will be uploaded to Moodle one week before each class. Students must upload their preliminary comments on those questions on Moodle before the real discussion in class.

Readings:

- Leung, Angela Ki Che.2008. "The business of vaccination in 19th century Canton", *Late Imperial China* 29.1 Supplement, pp. 7-39
- Burns, Susan. 2018. "Japanese patent medicine trade in East Asia: women medicines and the tensions of Empire", in Leung and Nakayama eds., *Gender, Health and Medicine in Modern East Asia.* Hong Kong University Press.
- Lei, Sean H. 2014. "Research design as political strategy: the birth of the new antimalarial drug Changshan", in his *Neither Donkey nor Horse.* University of Chicago Press 2014: 193-221.

- Andrews, Bridie. 2001. "From case records to case histories: the modernisation of a Chinese medical genre, 1912-49", in Elizabeth Hsu, *Innovation in Chinese Medicine:* 324-336

Discussion on the modern development of artemisinin based on primary sources

Apr 5, Public Holiday

10. Course Apr 12: Food Technology

Readings:

- Mazumdar, Sucheta. 1998 *Sugar and Society in China. Peasants, Technology, and the World Market.* Chapter7 "Divergent outcomes: The Sugar Industry in Guangdong and Taiwan" pp. 338-386
- Schmalzer, Sigrid. 2002."Feeding a better China: pigs, practices, and place in a Chinese county 1929-1937", *The Geographical Review*. 92/1: 1-22.
- Cwiertka & A. Moriya. 2008. "Fermented Soyfoods in South Korea. The Industrialization of Tradition", in Du Bois, Tan and Mintz eds., *The World of Soy*. National University of Singapore Press: 161-181

Discussion on new technologies on soy, based on primary sources: A Hong Kong advertisement on soya milk (English)/ A Republican article on the "scientific" process of soy sauce making (Chinese)

11. Course Apr 19, Mobility Technology

- Steele, M. William. 2014. "Mobility on the move: Rickshaws in Asia", *Transfers*, 4 (3): 88-107
- McDonald, Kate. 2014. "Imperial mobility: circulation as history in East Asia under Empire", *Transfers*, 4 (3): 68-87
- Koll, Elizabeth. 2009. "Chinese Railroads, Local Society, and Foreign Presence: The Tianjin-Pukou Line in pre-1949 Shandong," in *Manchurian Railways and the Opening of China: An International History*, Bruce A. Elleman and Stephen Kotkin (eds.). M.E. Sharpe: 123-148

12. Course Apr 26, Oral presentations of final paper

General discussions: Is There an East Asian Mode of Modern Innovation?

In this last class, we will reflect on the questions raised at the beginning of this course, focusing on innovation and economic growth in modern East Asia.

Readings:

- Sugihara, Kaoru. 2003. "The East Asian path of economic development: A long-term perspective ", in G. Arrighi, T. Hamashita, A. Seldon eds. *The Resurgence of East Asia, 500, 150 and 50 year Perspectives.* Routledge: 78-123
- Michele K. Bolton.1993. "Imitation versus innovation: Lessons to be learned from the Japanese ", *Organizational Dynamics.*21/3: 30-45.
- Grove, Linda. 2006*A Chinese Economic Revolution. Rural Entrepreneurship in the 20th century.* Chapter 2 "Gaoyang entrepreneurs". Lanham: Rowman & Littlefield: 43-78.
- Baark, Erik. 2007. "Knowledge and innovation in China: Historical legacies and Emerging Institutions". *Asia Pacific Business Review.*13/3: 337-356.

If you have time, read also:

- Martin Fransman. 1985."Conceptualising technical change in the Third World in the 1980s: an interpreative survey", *Journal of Development Studies*, 21/4: 572-652
- Wan-wen Chu. 1997. "Causes of growth: a study of Taiwan's bicycle industry", *Cambridge Journal of Economics.*21: 55-72.
- Special issue on economic development and industrial upgrading: East Asia and China, in *Journal of the Asia Pacific Economy.*2015, 20/3.