"Technology and Visual Culture"
Panel Organizer, Dr. Roslyn Lee Hammers, The University of Hong Kong

Art and technology collaborate in the production of visual culture. The creation of works of art or objects of material culture historically utilized scientific knowledge. The production of innovative art objects, informed by economic demands, has generated developments in technology. This panel will focus on the intersections of technology and visual culture, areas traditionally presumed to be separate, discrete disciplines with varying degrees of intellectual merit. It questions such assumptions, exploring the various mediations of scientific inquiry and artistic endeavors. The papers in this panel each consider the presentation of technology as a component central in the content of the (art) object's function. The presenters employ interdisciplinary approaches to the visual culture of scientific knowledge, offering innovative methods for discussing interactions between technology and art in historical contexts.

Discussant for this panel: Dr. Angela Sheng, School of the Arts, McMaster University

Individual Paper Abstracts

"(Re)viewing the legend of Huang Daopo: Visualizing textile art and technology on Hainan Island in the 13th century"

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According to Tao Zongyi's 1366 text of *Zhuogenglu* (Record of resting the plough), a woman surnamed Huang from Wunijing of Songjiang (near modern Shanghai) during her time (1295-1297) on Hainan Island learned some new techniques of processing cotton for weaving. Upon her return home, she was said to have further innovated technology for the production of cotton textiles. As this led to prosperity, the locals addressed her respectfully as Huang Daopo (the Daoist granny surnamed Huang).

The most famous innovation credited to Huang Daopo is the treadle-operated multiple spindle-wheel. It greatly increased the rate of production by allowing one to spin two or three yarns of cotton simultaneously rather than one yarn at a time. This invention predated the equivalent elsewhere in the world by a few centuries. However, we lack textual evidence to support this legend.

Instead of seeking to substantiate this claim, this paper asks if cotton production were advanced on Hainan Island in the 13th century, what it would entail. Or, what did the local inhabitants do to harvest the cotton and transform it into textiles? Lacking archaeological finds of the period, this paper suggests methods of exploring the past by examining textile artifacts and traditional techniques of the ethnic Li people still active today. Based on contextual analysis of visual

culture, this paper will further hypothesize a feasible explanation for the invention of the treadle-operated spindle-wheel.

"What's wrong with this picture? Reviewing the viewing practices of early Ming dynasty illustrations in technology manuscripts"

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In the Southern Song dynasty (1127-1279) Zheng Qiao (1104-62) asserted that pictures combined with texts enabled apprehension. According to recent scholarship, by the late Ming dynasty (1368-1644), the publication of printed illustrations was a highly problematic enterprise. One preface of a seventeenth-century illustrated book noted that "Illustrations in books are like pictures for children." Other publishers criticized earlier printing technology, claiming, "Illustrating books does not appear to be such an elegant thing. In old editions the illustrations are indeed coarse and labored, offending the senses." While these comments are directed to the inclusion of imagery in literary texts, we can ascertain that by the late Ming, the value of imagery in texts was contested, a debate that present-day historians of science and technology continue in their evaluations of "scientific" imagery.

What can we say about the functioning of imagery in technological treatises of the early Ming? What kinds of information were they delivering and how? By focusing on an early Ming example of Wang Zhen's *Book of Agriculture*, this paper will re-evaluate current perceptions on how Ming dynasty printed illustrations were regarded within contemporaneous viewing protocols. The paper investigates the heuristic framework of early Ming dynasty illustrations and text through analysis of the physical structure of the book and commentary contained within it.

"Practical Learning, Technical Drawing, and Painting in the Late Joseon Korea"

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The 18th century during the Joseon dynasty has been viewed as a momentous turning point in the history of Korean art when realism first emerged, and the rise of the so-called "School of Practical Learning," a conceptual designation given to a group of scholars dedicated to the disciplines of applying knowledge for practical use, is often cited as the evidence exemplifying this change in course. The School of Practical Learning is frequently linked to the increased interest in Western science and new philosophies that evolved during a century or so prior to the start of Korea's modern era.

To art historians, the supposed commitment of the School to reality (actuality) had its roots in the realism and scientific ideas present in Western art of that time. Close examination of technical drawings from the late Joseon period would lead to a reassessment of the influence of Western art from a much broader perspective and to a redefinition of its impact on Korean art.

"What is a Glaze? French Sevres Chemists and Jingdezhen Porcelain in the Production of Art and Technology: 1850-1900"

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In 1844, a Chinese Catholic priest, Father P.J. Ly, sent samples of kaolin clay, porcelain stones, and glazes from Jingdezhen in southeast China to the Sevres National Factory near Paris. There, the samples were subjected to quantitative chemical analysis, the empirical findings of which were used to develop a porcelain manufacturing center in France. This transfer of scientific knowledge took place in the midst of a period in Chinese history marked by foreign occupation, defeat in war, and declining political sovereignty. Reflective of such socio-political disarray was a lagging china (porcelain) industry, which just one hundred years earlier had reached a peak in reputation domestically and overseas. With a weak central Qing government and the advancement of porcelain techniques in Europe, "China" in both senses was beset by mounting crises. There has been much scholarship on porcelain from both art historical and technology studies perspectives; yet, few studies interrogate the changing meanings of porcelain's materiality and visuality. As the above episode suggests, investigations into porcelain bodies and glazes were part and parcel of broader global contexts: worldwide industrialization and imperialism.

This paper examines a pivotal moment in the history of porcelain technology – the transfer of knowledge about porcelain and the specific institutional contexts in which it occurred. Specifically, it focuses on the terms by which porcelain came to be understood through these chemical experiments and the ways such terms came to be integrated into universal discussions about science and technology during the latter half of the nineteenth century.