

Pictures for Action: Painting and Collecting Nature in Modern China, from Zhao Zhiqian

(1829-1884) to Jin Cheng (1878-1926)

by

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Abstract

The thesis project concentrates on the *Ouzhong wuchan juan* (Scroll of Local Products from Wenzhou, 1861) by late Qing artist Zhao Zhiqian (1829-1884) and its copy (1922) by the Republican-era artist Jin Cheng (1878-1926). The two paintings, which are not only aesthetic objects but also pictorial collections of natural objects, pose a range of questions regarding the role of visibility in producing “scientific” knowledge in modern China: How does a painting of natural objects claim to be a representation of authentic knowledge? How do texts and images create a visual experience equivalent to looking at the actual natural objects? What did it mean to depict and collect natural objects in modern China? Answering these questions by examining materials associated with the two artists’ artistic and intellectual practices, the thesis seeks to illuminate the discourse on seeing and knowing in Chinese tradition underlying in both Wuchan scroll and its copy, with which the artists engaged in representing and organizing “scientific” knowledge of both nature and culture from late nineteenth century to early twentieth century China.

The first chapter, “Collecting Nature in the Age of Evidential Study: Zhao Zhiqian’s *Scroll of Natural Products from Ouzhong* and the *Scroll of Strange Fishes* (1861)” seeks to examine Zhao’s two “natural history” scrolls within the context of the epigraphic movement and evidential scholarship during the late Qing period. Asking how the pictorial surface of traditional Chinese painting was transformed into a site to collect natural objects and represent their knowledge, the chapter situates Zhao’s scrolls in both the artistic tradition of “*xiesheng*” in Chinese art and the production of technical

illustration (*tu* 圖) in late imperial China. Zhao's scrolls, I hope to demonstrate, created a visual effect of realness not by delineating the visual details of each object, but through capturing the liveliness of these beings from living nature, careful arrangement of text and image to represent the process of knowing, and turning the artist's personal experience *in situ* into a visual statement on the pictorial surface.

The second chapter, "Collecting Nature in Modern China: Jin Cheng and his copy of the *Scroll of Natural Products from Ouzhong* (1922)," explores the conceptual complexity of Jin's practice of copying, with regard to his practice of collecting and scientific studies of nature. Bringing together Jin's copy of the Wuchan scroll and his other copies, the chapter examines how Jin saw and used the practice of copying as a means to acquire both art historical knowledge and knowledge of natural science, meanwhile engaging with the Republican-era discourse on cultural preservation. The chapter further examines Jin's later involvement in the Peking Laboratory of Natural History and the production of scientific illustrations, bringing his intellectual trajectories in art and science into conjunction. Jin's practices of collecting natural objects pictorially both responded to and reflected on the Republican-era intellectual trend emphasizing the visualization and organization of the nation's material knowledge.

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Introduction

The story begins in 1922, when the Republican-era artist Jin Cheng 金城 (Kung-pah King, 1878-1926) saw a curious painting, *Ouzhong wuchan juan* 甌中物產卷 (*Scroll of Local Products from Ouzhong*; Wuchan scroll thereafter; Fig.1), and produced a faithful copy of it. The original Wuchan scroll was created by Zhao Zhiqian (1829-1884) in 1861. The scroll depicts twenty local species from the Ouzhong region (now Wenzhou), including fourteen species of plants and six species of aquatic animals.¹ The scroll, highly appreciated by Jin as a work that could “fill the gaps in gazetteers,” shows not only the images of the natural products, but also their names and referents based on Zhao’s evidential research.²

One marked peculiarity of this painting – the “natural historical” urge of the artist to identify each species depicted in it – brings my attention to Zhao and Jin’s intellectual practices in addition to their artistic commitments. The Wuchan scroll was noted as one of the a few paintings showing Zhao’s interest in curious natural objects – a “naturalist”

¹ Zhao Zhiqian was born and raised in Shaoxing, Zhejiang province, and was sojourning in Wenzhou when he executed the scroll. Jin Cheng originated from Huzhou, Zhejiang province, which is not far from Zhao’s hometown. According to Jin’s inscription on the copy, he copied the Wuchan scroll in Beijing, where the work is now collected. More biographical information about the two artists will be given in the following sections. On Zhao’s life and career, see Zou Tao 鄒濤, *Zhao Zhiqian nian pu* 赵之谦年譜 (Zhao Zhiqian: A Chronology) (Beijing: Rong bao zhai chubanshe, 2003); Zhang Xiaozhuang 張小莊, *Zhao Zhiqian yanjiu* 赵之谦研究 (Zhao Zhiqian Research) (Beijing: Rongbaozhai chubanshe, 2008). On Jin’s family and his career, see Siu Wai-man 蕭瑋文, “Jin Cheng (1878-1926) yanjiu” 金城 (1878-1926) 研究 [A Study of Jin Cheng (1878-1926)] (PhD diss. Chinese University of Hong Kong, 2001).

² “博采方物, 可補志乘之缺,” Jin Cheng’s inscription on *Lin Zhao Zhiqian Ouzhong wuchan juan*, 1922. All the translations are by myself, unless specified.

interest that was replaced by an interest in epigraphic studies after 1860s.³ The act to copy the Wuchan scroll, in a different light, is connected to the interest in natural science of Jin Cheng, who is widely known as one of the leading figures in the Northern artworld during the early twentieth century, but is less known as an ardent supporter and practitioner of scientific communities in modern China.

Noted by Jin Cheng as a work that could “fill the gaps in gazetteers,” the Wuchan scroll itself also sits in a gap between an aesthetic object for pleasure and a functional object for communicating knowledge of nature. My argument here is not based on the assumption of a strict categorical separation between painting and functional pictures in the cultural conventions of China.⁴ Indeed, throughout the history of Chinese painting we can find a few examples of the same kind – one that takes the familiar traditional visual format of handscroll and medium of ink and color, to represent a collection of natural curiosities and to record their textual knowledge, with a clear aim to document the actual existence of these flora and fauna.⁵ Although the study of natural history never actually became a widespread phenomenon in imperial China, the Wuchan scroll is not at all marginal or peculiar. What is especially intriguing about the scroll, however, is not its

³ See Chao-jen Wu, “Between Tradition and Modernity: Strange Fish of Different Species, Products of Wenzhou by Zhao Zhiqian (1829-1884) and Their Relationship of the Epigraphic Studies of Late Qing” (PhD Diss., University of Kansas, 2002).

⁴ The issue of differentiating a “painting” from other “functional” pictures is beyond the scope of the thesis. It is also almost an impossible task, as the categories of “painting” and “pictures” are too fluid. Craig Clunas notes the meaning of the term “painting (*hua*)” and “pictures (*tu*)” could be completely different in different period of Chinese history. While a painting could sometimes be functional, instructional, and for pleasure at the same time, the reverse may also work. See Craig Clunas, *Pictures and Visuality in Early Modern China* (Princeton, N.J.: Princeton University Press, 1997), 102-110.

⁵ There are a few examples, both from the past and the same period of the Wuchan scroll, which use the format of handscroll to record the antiquities, flowers, and peoples. There are also pictorial collections of flora and fauna, in different formats, such as albums, produced from the seventeenth century to the nineteenth century. Some of these works will be discussed in the thesis.

“natural history” content alone, but the seeming “mismatch” between its mode of representation and its function: while the scroll seeks to document actual natural products, the artist showed little interest in rendering descriptive optical details and materiality of these objects. What is more visible in the scroll, instead, is the artist’s subjectivity: Zhao Zhiqian is known for his mastery of painting, calligraphy and seal carving – all skills of a man of letters. He crafted his individualistic brush with all these skills, and applied it to depict these natural objects, capturing the strange forms with his expressive calligraphic brush traces.

If there is something intensely personal and subjective about Zhao’s painting, in what way could the scroll be viewed as a pictorial collection of natural objects? How does a painting of natural objects as such claim to be a representation of authentic knowledge? How does the hand of the artist construct on the pictorial surface an experience of the eye which is equivalent to looking at the actual things on display? How do we perceive from a pictorial surface a sense of reality? These questions will be examined in my following discussion of the scrolls. The central theoretical issue is about how to see a thing and how to make that experience of seeing it visible, as well as how this practice was mediated by cultural and historical conditions.

This issue has been widely discussed in the scholarship of Western scientific culture, with specific regard to how representational and visualizing techniques, such as naturalism, served as a primer for new scientific investigation. Discussions about the relationship between the rise of empiricism and scientific revolution and Renaissance artistic achievements has its onset, according to art historian David Topper, as early as in

1952 from a lecture of Erwin Panofsky.⁶ What is relevant of this question to my research is the discussion on how the mode of representation is associated with a specific way of looking, and how a different understanding of visibility contributes to different modes of knowledge production, or as Bruno Latour put it, how “a new kind of vision...defines what is science, what is art.”⁷

If a certain mode of representation is connected to a certain way of seeing in scientific inquiry, then the Wuchan scroll could potentially reveal to us another way of seeing for “scientific” inquiry in its specific cultural and historical settings which differs from the eye for empirical observation in Western scientific culture. The term “scientific” here needs to be clarified, since the concept of “science” in modern Chinese context is highly dependent upon the “historical situation” and “the nature and characteristics of the movements” to which the term was applied.⁸ Since the original Wuchan scroll predates the proliferation of modern scientific language in China, which was not until the early twentieth century, it would be more useful to adopt here a more general notion of “science” used by art historian Florike Egmond in her study of sixteenth-century European natural history drawings, which refers to “expert but not necessarily academic knowledge...that involved serious attention, investigation, study and accumulation.”⁹ The

⁶ David Topper, “Towards an Epistemology of Scientific Illustration,” in *Picturing Knowledge: Historical and Philosophical Problems Concerning the Use of Art in Science*, Brian Scott Baigrie ed (Toronto, Ontario: University of Toronto Press, 1996), 221-229.

⁷ Bruno Latour, “Visualization and Cognition: Thinking with Eyes and Hands,” *Knowledge and Society: Studies in the Sociology of Culture Past and Present*, 6 (1986), 10.

⁸ Wang Hui, “The Fate of ‘Mr. Science’ in China: The Concept of Science and Its Application in Modern Chinese Thought,” *Positions*, 3, no. 1 (1995), 2.

⁹ Florike Egmond, *Eye for Detail: Images of Plants and Animals in Art and Science, 1500-1630* (London, UK: Reaktion Books, 2017), 9.

kind of “expert” vision is not limited to an eye for the detail, and optical naturalism is not the only representational technique for reconstructing material reality and scientific truth on the pictorial surface, as the thesis will further demonstrate.

These questions and issues shaped my thesis, which investigates the Wuchan scroll, its Republican-era copy, and the artists’ practices and ideas within the context of their respective intellectual trends, as well as other historical circumstances surrounding the production of the two works. The pairing of the original scroll and its copy provides an opportunity to study the particularity and continuity of the two different moments of a time which is generally defined as the modern period of China.¹⁰ On the one hand, questions about representational modes are specific to the analysis of Zhao’s original scroll created in 1861, as it was the result of the artist’s first-hand study of the local living nature and first act to gather these objects. On the other hand, Jin Cheng’s copy produced in 1922 re-contextualized the representational mode within the Republican era, opening the space for a further discussion about the fate of the traditional mode of seeing and knowing in the face of modernism. Bringing together the two works and their specific contexts, the thesis examines the relationship between the practice of painting and the production of “scientific” knowledge from late nineteenth-century to early twentieth century China.

¹⁰ My use of the term “modern” here is chronological rather than conceptual. It refers to a period marked by the end of the First Opium War (1842) to the end of the Chinese Civil War (1949). The discourse of modernity and modernism in China is much more complicated and beyond the scope of the thesis. Yet parts of the thesis will touch, specifically, on the relationship between vision, visibility and China’s modernism.

Literature Review

Zhao Zhiqian's Wuchan scroll is among his most original and important early works. Along with the *Yiyu tu* 異魚圖 (the *Scroll of Strange Fishes*; *Yiyu Scroll* thereafter), the Wuchan scroll been regarded as representative of Zhao's sparkling creativity and curiosity during his early sojourning years in Wenzhou.¹¹ Wu Chao-jen's doctoral dissertation is amongst the earliest studies that treated the two scrolls in scholarly depth. Wu examines the thematic and formal particularity of the two scrolls, connecting their creation to Zhao's interest in evidential studies and the "realism" inspired by the evidential culture of "seeking truth from facts." Wu identified a few possible sources related to the highly original subject of exotic flora and fauna in Zhao's painting, including natural historical illustrations produced in Japan, paintings of natural products in Taiwan by professional painters, and contemporary paintings inspired by epigraphic studies and the taste for high antiquity.¹² However, asking why the evidential pursuit of accuracy did not enter Zhao's painting and resulted a "realistic" natural history painting, Wu's hypothesis on the relationship between the mode of knowing and the mode of representation, however, is problematically situated in the European formulation of "optical naturalism" as the only validated mean to make sense of the world.¹³ While Wu's conception of "realism" and its relation to the mode of knowing has its historical and intellectual origin in the ideas of a number of Republican thinkers, he did not go

¹¹ See Zhang, *Zhao Zhiqian yanjiu*, 204-208.

¹² Chao-jen Wu, "Between Tradition and Modernity: Strange Fish of Different Species, Products of Wenzhou by Zhao Zhiqian (1829-1884) and Their Relationship of the Epigraphic Studies of Late Qing" (PhD Diss., University of Kansas, 2002), 32-108.

¹³ *Ibid.*, 5, 34-35.

further to explore the oversimplified construction of “realism” and its underlying assumption on “modern Western science” as the only valid means of knowing the world, to which Zhao’s “natural history” scrolls could serve as a critique.

As Wu points out in the conclusion, Chinese artists in early twentieth century sought for external sources to “modernize” Chinese art but neglected the achievements in their own tradition, as demonstrated in the Zhao’s combination of evidential “realism” and the autonomy of brushstroke, the Wuchan scroll and the twin Yiyu scroll indeed imbedded a rich discourse about the relationship between the modes of seeing, knowing, and representation in Chinese cultural convention.¹⁴ As an attempt define the discourse and map out the field, I would like to examine some previous scholarship in both history of art and history of science that contributed, from different perspectives, to our understanding of the issue of visibility and knowledge production in China.

The first is the visual convention of technical illustration. The field is mapped out by historian of science Francesca Bray in her review of the history of *tu* 圖 (chart, diagram or image) presented as the introduction to a collection of essays on scientific and technical images in premodern China. Bray divided pre-modern Chinese scientific and technical images into two categories: one is the symbolic or iconic diagrams that “created understanding or generated action by guiding the viewer through a strictly ordered trajectory”; the other is representational images, which are “closer in intendant in cognitive operation to technical illustrations in the modern sense.”¹⁵ Adopting Peirce’s distinction of image and diagram, Bray notes that while the former group of images is

¹⁴ Ibid., 181-183.

¹⁵ Francesca Bray, “Introduction: The Powers of *Tu*,” in *Graphics and Text in the Production of Technical Knowledge in China: The Warp and the Weft*, ed. Francesca Bray et al. (Leiden: Brill, 2007), 4.

“designed to draw viewers into the image and so to guide them along an ordered trajectory through space and time,” the representational technical illustrations for practical knowledge “provide the basis for action on the world,” where the readers are “outside the image” rather than being part of the image. But both types of *tu* follow the same “conceptual unity in Chinese thought” that “it was an encoding of knowledge and served as a template for action.”¹⁶ The introduction, as most articles in the book, is a powerful call for further intellectual inquires on the function of images in technical communication in China, but it is not without flaw from an art historical point of view. Bray’s definition of “*tu*” as “technical or instructional” pictures is vague and not without problem.¹⁷ As art historian Craig Clunas has shown in his discussion of Ming dynasty visual culture, the meaning of the term “painting (*hua*)” and “pictures (*tu*)” could be various in different period of Chinese history, and it is almost impossible to completely separate the two categories based on the function of the picture.¹⁸ Furthermore, Bray’s category of *tu* as technical images leaves out those art objects such as the Wuchan scroll, which are considered closer to another “visual category” of *hua* but do “convey specialist knowledge.”¹⁹

It is not my intention to refine the category, which is almost impossible, as many natural history paintings belong to such a grey area, which are “not quite art, nor quite

¹⁶ Bray, “The Powers of *Tu*,” 40-41, 73.

¹⁷ *Ibid.*, 2

¹⁸ Craig Clunas, *Pictures and Visuality in Early Modern China* (Princeton, N.J.: Princeton University Press, 1997), 102-110.

¹⁹ Bray, “The Powers of *Tu*,” 2

science, nor purely decorative.”²⁰ As historian of science Georges Métaillé suggests, the different purposes of botanical illustration and flower painting would have attributed their different choices of representational mode and capacities to reveal the “reality” of the plant.²¹ Noting that most botanical and medical illustrations printed in imperial China are not served to record the visual information of the plant but function “rhetorically” as a reminder of the knowledge of the plant, Métaillé implies the existence a different mode of knowing in the Chinese epistemological tradition.²² This may have in part “discouraged” the development of a “naturalistic” approach of visualization in the tradition of representational technical illustration in China, which resulted in an uncomfortable lack, if not absence, of pictorial study and collection of natural objects in China, comparing with the culture of natural history in Tokugawa Japan and early modern Europe.²³

Nevertheless, the history of technical illustrations tells only part of story regarding how and to what extent seeing could contribute to knowing given the text-centered tradition of knowledge production, accumulation, and transmission in imperial China. A wider range of visual and textual materials needs to be considered to fully address the

²⁰ Egmond, *Eye for Detail*, 12.

²¹ Georges Métaillé, “The Representation of Plants: Engravings and Paintings,” in *Graphics and Text in the Production of Technical Knowledge in China: The Warp and the Weft*, ed. Francesca Bray et al. (Leiden: Brill, 2007), 487-519.

²² *Ibid.*, 493.

²³ On the culture of natural history and the tradition of pictorial collection in early modern Europe and Tokugawa Japan, see Egmond, *Eye for Detail*; Paula Findlen, *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley: University of California Press, 1994); Federico Marcon, *The Knowledge of Nature and the Nature of Knowledge in Early Modern Japan* (Chicago: The University of Chicago Press, 2015); Imahashi Riko 今橋理子, *Edo no kachōga : hakubutsugaku o meguru bunka to sono hyōshō 江戸の花鳥画 : 博物学をめぐる文化とその表象 (Bird-and-flower paintings in Edo Japan: the Culture of Natural history and its Representation)* (Tōkyō: Sukaidō, 1995).

issue on visibility and knowledge production. To narrow down and illustrate this dimension, I take “the broad learning of things” (*bowu* 博物), a field of inquiry central to my thesis, as an example. Regarded as the Chinese version of “natural history,” this field of inquiry, however, is a fluid tradition of learning rather than a systematically defined discipline, ranging from the collection of curiosities and wonders such as *Classic of Mountain and Sea*, to the study of medical plants (*bencaoxue* 本草學), to the etymological study of classical literature, “study of things and their referents” (*mingwuxue* 名物學).²⁴ In its most general sense, *bowu* or natural history in China is a practice of the “textual collection” of things, phenomena and affairs. As pointed out by historian of science Benjamin Elman, the study of *bowu* in China, unlike natural history in early modern Europe, is primarily based on collecting textual information on the things and rectifying the names in classical literature.²⁵ Although the practice of collecting and studying actual natural objects and to recognize them pictorially could be found in some works on medicine or antiquities, a large number of books about things are not illustrated.²⁶ The lack of visual images could even be found in one of the most influential

²⁴ On the concept and range of *bowu* (natural history) and the traditional practices of knowing the natural world in China, see Kong Lingwei 孔令偉, “Bowuxue yu bowuguan zai zhongguo de yuanqi,” 博物學與博物館在中國的緣起 (The Origin of natural history and museum in China), *New Arts*, 29, no. 1 (2008), 61-67; Chen Yuanpeng 陳元朋, “Chuantong bowu zhishi li de zhenshi yu xiangxiang: yi xijiao yu xiniu wei zhuti de ge’an yanjiu” 傳統博物知識裡的「真實」與「想像」：以犀角與犀牛為主體的個案研究 [Reality and Imagination in the Knowledge of Traditional Natural History: A Study Based upon the Rhinoceros and Rhinoceros Horns], *Guoli zhengzhi daxue lishixue bao*, 33 (2010): 1-82; Carla Suzan Nappi, *The Monkey and the Inkpot: Natural History and its transformations in early modern China*. (Cambridge, Mass: Harvard University Press), 20-32; Benjamin Elman, *On Their Own Terms: Science in China, 1550-1900* (Cambridge, Mass: Harvard University Press, 2005), 4-9.

²⁵ Elman, *On Their Own Terms*, 4-5.

²⁶ Clunas, *Pictures and Visibility*, 55-57.

medical treaties of Chinese history, Li Shizhen's *Bencao gangmu* 本草綱目 (Compendium of Materia Medica).²⁷

The difficulty of production and cost might count for the absence of illustrations in natural history books, but the absence of “natural history drawings” in the intellectual tradition remains unexplained. However, large-scale collections of pictures of flora and fauna could be found in other social spaces, such as the court and the port cities in Southern China. Productions of these natural history paintings were usually considered products of a “contact zone” rather than the intellectual tradition of *bowu* studies.²⁸ Some, if not all, of these paintings demonstrated a “hybrid” visual pattern more or less incorporating the style of optical naturalism. The best example could be found in the works commissioned by the Qing court. Art historian Lai Yu-chih has examined the *Album of Beasts* and *the Album of Birds* and identified their origin from European natural history prints. Rather than serving as scientific records of the knowledge of exotic flora and fauna, the purpose of these albums was to construct a political imagination of the Qing empire. The use of “western” realistic style was not only a taste for the exotic or court fashion, but also to heighten the sense of reality of these fantastic creatures as auspicious signs for good governance.²⁹ The interest of the Qing court in collecting

²⁷ Nappi, *The Monkey and the Inkpot*, 18.

²⁸ Here I adopted Mary Louis Pratt's theory of the “contact zone,” which defines “social spaces where cultures meet, clash, and grapple with each other.” I do not, however, adopt her assumption of the asymmetry power relation in the contact zone. Mary Louis Pratt, “Arts of the Contact Zone,” *Profession* (1991): 34.

²⁹ Lai Yu-chih 賴毓芝. “Qinggong dui ouzhou ziranshi tuxiang de zaizhi: yi qianlongchao 'shoupu' weili” 清宮對歐洲自然史圖像的再製：以乾隆朝《獸譜》為例 [Reproducing Renaissance Naturalist Images and Knowledge at the Qianlong Court: A Study of the “Album on Beasts”]. *Zhongyang yanjiuyuan jindaishi yanjiusuo jikan*, 80 (2013), 1-75; Lai Yu-chih 賴毓芝, “Tuxiang, zhishi yu diguo: Qinggong de shihuoji tuhui” 圖像，知識與帝國：清宮的食火雞圖繪 [Images, Knowledge and Empire: Depicting Cassowaries in the Qing Court], *The National Palace Museum Research Quarterly*, 29:2 (2011), 1-76.

pictures of local natural products might have driven the local officials to produce pictures of this kind, such as the *Fanshe Caifeng tu* 番社采風圖, an eighteenth-century album depicting natural products and social customs in aboriginal villages in Taiwan. Art historian Xiao Qiongrui studied those paintings of Taiwanese natural objects and local life by the sojourning scholar-official in detail, noting the relation of these paintings to the literati tradition from the mainland.³⁰ Outside of the court, along the coastal line in Southern China, the production of natural history drawings by export painters commissioned by foreign naturalists has been examined by historian of science Fan Fa-ti. These group of paintings also shows a “western” style, as they were produced by Chinese export painters supervised by European Naturalists, following the standard of European zoological and botanical illustrations.³¹

These paintings of flora and fauna showing various new visual interests could be situated within the studies on the cultural and historical of vision in late imperial China. This body of scholarship has provided more insights and the theoretical framework to discuss issue regarding visibility and knowledge production in China. Some of these studies explore the interest in the technology of looking, examining optical devices in relation to “western” illusionistic representation in late imperial China, such as art historian Kristina Kleutghen’s research about the use of illusionistic paintings in Qing palaces and Chenghua Wang’s study of woodblock prints produced in Suzhou during the

³⁰ See Xiao Qiongrui 蕭瓊瑞, *Liu shiqi(fanshe caifeng tu)zhi lishi kaocha: shiba shiji zhongye taiwan yuanzhumin shenghuo tuxiang* 六十七(番社采風圖)之歷史考察: 十八世紀中葉臺灣原住民生活圖像 (Historical investigation of Liu shiqi’s *Album of nature and culture of aboriginal villages: images of the life of Taiwan indigenous people in mid-eighteenth century*) (Tainan: Jiuyang, 1997).

³¹ Fa-ti Fan, *British Naturalists in Qing China: Science, Empire, and Cultural Encounter* (Cambridge, Mass.: Harvard University Press, 2004).

eighteenth century.³² Others trace the idea of an artist and a particular intellectual discourse on vision, such as art historian Anne Burkus-Chasson's study of Shitao's painting and the definition of sight in seventeenth century China based on "the notion of the eye/body within the body of the natural world" exemplified in Shitao's painting and writing. Shitao's ideas about visuality show a strong affinity with the religious thoughts and the philosophy of Wang Yangming of the corporeal unity of the world and the self, which differs fundamentally from the mode of looking based on the notion of vision in western visual culture – a separated observing subject looking at the world.³³

This philosophical foundation of vision and visuality in China has been discussed in Craig Clunas's ground-breaking book *Pictures and Visuality in China* (1997). Reflecting on how historians such as Joseph Needham found the uncomfortable lack of studies on optics, Clunas, reviewing Burkus-Chasson's study, pointed out the necessity to examine competing models of visuality and how they affected image making.³⁴ In addition to exploring how a wide range of visual materials were produced and utilized in the context of commercial expansion during the Ming period that challenges the Eurocentric narration of modernity, Clunas also examined how the discourse of visuality originated from Confucian and religious, mainly Buddhist and Daoist, sources, directing scholarly attentions to further comparative studies of different "ways of seeing, ways of knowing,

³² Kristina Kleutghen, *Imperial Illusions: Crossing Pictorial Boundaries in the Qing Palaces* (Seattle: University of Washington Press, 2015); Wang Cheng-hua 王正華, "Qingdai chuzhongqi zuowei changye de suzhou banhua yuqi shangye mianxiang" 清代初中期作為產業的蘇州版畫與其商業面向 [Art as Commodity: The Commercial Aspects of Suzhou Single-Sheet Prints in the Early and Middle Qing Dynasty], *Bulletin of the Institute of Modern History Academia Sinica*, 92 (2016): 1-54.

³³ Anne Burkus-Chasson, "'Clouds and Mists That Emanate and Sink Away': Shitao's Waterfall on Mount Lu and Practices of Observation in the Seventeenth Century," *Art History* 19:2 (1996): 169-190.

³⁴ Craig Clunas, *Pictures and Visuality in Early Modern China* (Princeton, N.J.: Princeton University Press, 1997), 111-133.

ways of connoisseurship” in China and the West.³⁵ Clunas’s call for further studies of ways of seeing and knowing is specially inspiring for my thesis.

In Clunas’s wake, art historian Jennifer Purtle took up a specific example, Min Qiji’s illustrations for “The Romance of the Western Chamber,” to examine how binocular visual experience of moving vision in the theatre and the experience with transient material culture was rendered in these illustrations, at a time when binocular vision was threatened by the monocular vision brought into China by European prints.³⁶ Purtle’s study of the transfer of a visual experience in the social space to the pictorial surface echoes with some recent literature on how technical pictures function, which, driven by the attempt to encode holistic experience rather than optical or material information alone, had developed modes of representation very different from the “realistic” pictures seeking to reconstruct perceptual space and material details. How such pictorial representation worked in specialized fields of knowledge have been illustrated in studies on some individual illustrated books, such as Dagmar Schäfer’s study of Song Yingxing’s *Tiangong kaiwu* 天工開物 [The Works of Heaven and the Inception of Things] and Lilian Tseng’s study of illustrations by Chu Jun 褚峻 in *Jinshi jingyan lu* 金石經眼錄 [Record of viewing bronzes and stones].³⁷ Both illustrators developed a kind of representation as a rhetoric of acquiring the practical and experiential knowledge, or

³⁵ Ibid., 133.

³⁶ Jennifer Purtle, "Scopic Frames: Devices for Seeing China c. 1640," *Art History* 33, no. 1 (2010): 54-73.

³⁷ Dagmar Schäfer, *The Crafting of the 10,000 Things: Knowledge and Technology in Seventeenth-Century China* (Chicago: The University of Chicago Press, 2011), 10-19; Lilian, Tseng Lan-ying, Lilian, "Between Printing and Rubbing: Chu Jun’s Illustrated Catalogues of Ancient Monuments in Eighteenth-Century China," in *Reinventing the Past: Archaism and Antiquarianism in Chinese Art and Visual Culture*, ed. Wu Hung (Chicago: Center for the Art of East Asia, 2010), 255-290.

“*jianwen zhi zhi*” 見聞之知 (knowledge of seeing and hearing), which is an important way of knowing in the age of evidential studies. While all these studies deal with pictures very different from Zhao’s Wuchan scroll in terms of both subject matter and format, the approach to pictorial surface as an active site for epistemic and experiential activities provide theoretical basis to discuss the practice to collect natural products in handscroll.

Zhao’s paintings were produced in the late nineteenth century, and his Wuchan scroll was copied and brought into the context of early twentieth century by Jin Cheng in 1922. The sixty some years from Zhao’s production to Jin’s reproduction was generally illustrated as a period of reform when China’s traditional social, cultural and cultural enterprise were in direct confrontation with the modern “western” influxes. The actual picture of this period is in fact much more complicated. Literature on visual culture from the late nineteenth-century to early twentieth-century China demonstrate that visual experiences associated with new medium and social spaces, such as newspaper and magazine, urban architecture, public facilities, museums, and expositions, played a significant role in creating new self-representation and self-knowledge of modern Chinese nation.³⁸ On the one hand, modernity seemed to have opened various spots and means for looking and introduced more diverse visual experience. On the other hand, “visual modernity” also introduced a unified, superior kind of vision that prevailed the language and pictorial representation of modern Chinese art – the “scientific” vision. Art

³⁸ Laikwan Pang, *The Distorting Mirror: Visual Modernity in China* (Honolulu: University of Hawai‘i Press, 2007); Lisa Claypool, "Ways of Seeing the Nation: Chinese Painting in the National Essence Journal (1905-1911) and Exhibition Culture," *Positions* 19:1 (2011): 55-82; Claypool, "Zhang Jian and China's First Museum," *The Journal of Asian Studies*, 64:3 (2005): 567-604; Cheng-hua Wang, "The Qing Imperial Collection, Circa 1905-25: National Humiliation, Heritage Preservation, and Exhibition Culture," in *Reinventing the Past: Archaism and Antiquarianism in Chinese Art and Visual Culture*. ed. Wu Hung (Chicago: Center for the Art of East Asia, 2010), 320-341.

historian Yi Gu in her dissertation traces how the language of “scientific” vision was incorporated into the training and practices of traditional-style landscape painting. Gu also specifically reveals how the privilege of a certain way of looking – observation – in art training “played a significant role in forming and disseminating ‘science’ in modern China.”³⁹ In her later study of the reception of photography in China, Gu further complicated the constructiveness of “truth” in pictorial representation and optical experience as part of Chinese art’s claim for modernity.⁴⁰

Parallel with Gu’s study of visual truth are studies of the role of photography and printing in the establishment of archeology, preservation of cultural heritage, and promotion of historical knowledge in China. It is specifically illustrated in several studies by Chenghua Wang, who notes that photography and collotype printing were widely used by intellectuals in China to preserve cultural heritage by reproducing and disseminating the image and knowledge of antiquities.⁴¹ What is especially notice-worthy about the cultural phenomenon is the increasing emphasis on “an eyewitness experience” tied with the formation of a public space for displaying cultural objects in which one could perceive the material continuity of Chinese history. Wang further notes: “The combination of visuality and materiality epitomized the tremendous gap between the

³⁹ Yi Gu, *Scientificizing Vision in China: Photography, Outdoor Sketching, and the Reinvention of Landscape Perception, 1912-1949*, PhD Dissertation (Providence, Rhode Island: Brown University, 2009).

⁴⁰ Yi Gu, “What’s in a Name? Photography and the Reinvention of Visual Truth in China, 1840–1911,” in *The Art Bulletin*, 95:1 (2013): 120-138.

⁴¹ Cheng-hua Wang, “New Printing Technology and Heritage Preservation: Collotype Reproduction of Antiquities in Modern China, Circa 1908-1917,” in *The Role of Japan in Modern Chinese Art*. Edited by Joshua Fogel (Berkeley: University of California Press, 2013), 273-308; Wang, “Luo Zhenyu and the Formation of *Qiwu* (Antiquities) and *Qiwuxue* (the Studies of Antiquities) in the First Decade of the Republican Era,” in *Lost Generation: Luo Zhenyu, Qing Loyalists and the Formation of Modern Chinese Culture*, ed. Yang Chia-ling and Roderick Whitfield (London: EAP in conjunction with the Department of History of Art, University of Edinburgh, 2013), 32-57.

traditional and modern concepts of antiquities.”⁴² While publication, collotype technology and photography contributed greatly to the construction of archeological and historical knowledge by allowing a “visuality and materiality” accessible from the pictorial surface, Lisa Claypool’s study of the *National Essence Journal* discusses the multifaceted formation and implications of the new possibility of seeing in constructing the knowledge of traditional culture in early twentieth century China. Claypool notes that, “the exhibition carried the impetus for a new kind of public ‘seeing’, offering an alternative to the long educative labor required of the elite to learn about the material world.”⁴³ The new space of exhibition venue confirms “what can be seen,” which defines “what is real, rational, objective, and scientific.”⁴⁴

Discussions about the role of new visual technologies, such as collotype printing and photography, in transforming ways of knowing in modern China shed light on several unexplored areas which deserve more attentions from art historians and historians of science. One is the role of visuality and pictures in establishing the discipline of natural science and the new geo-political conception of modern China.⁴⁵ Especially relevant to my study is the introduction and formation of modern natural history (*bowuxue* 博物學) in China since the late nineteenth century. Fan Fa-ti notes that the meaning of “*bowu*” has shifted from traditional broad learning of things encompassing, but not limited to, natural objects, to the modern denotation as “a modern Chinese term for the science of natural

⁴² Wang, “New Printing Technology and Heritage Preservation,” 300.

⁴³ Claypool, “Ways of Seeing the Nation,” 70-71.

⁴⁴ *Ibid.*, 71.

⁴⁵ Gu’s dissertation has touched on the use of photography in geographical survey, but there are still gaps within this realm. Part of my thesis will discuss Jin Cheng’s practices in scientific illustration and biological survey.

history” by the end of the nineteenth century.⁴⁶ It was formally incorporated into the curriculum of elementary and middle school during the curriculum reform in the first decade of the twentieth century, and the discipline includes a number of specialized subjects such as botany, zoology, physiology and mineralogy.⁴⁷ Scholars of modern Chinese art have recently noted the specific attraction of these subjects to Chinese artists. Claypool’s recent and forthcoming studies bring together the practices of painting and the interest in specialized fields such as entomology, ethnography and zoology of modern Chinese artists.⁴⁸ In her research on Liu Kuiling’s *gongbi* style animal paintings, for instance, Claypool contextualizes Liu’s artistic practices and his representation of animals in the shifting conception of “animal” in China with the development of zoological studies since late nineteenth century, responding to John Berger’s question “why look at animals” based on a history of visual culture in China.⁴⁹ Another artist frequently discussed is Gao Jianfu 高劍父, who is also featured in Yi Gu’s study on photography. Art Historian Li Weiming’s pioneering study has shown that Gao Jianfu developed the conception of “visual truth” on which his practice of “New Art” from the “realistic depiction of nature” that he learned from his early training in natural history

⁴⁶ Fa-ti Fan, "Nature and Nation in Chinese Political Thought: The National Essence Circle in Early-Twentieth-Century China," in *The Moral Authority of Nature*, ed. Lorraine Daston and Vidal Fernando (Chicago: University of Chicago Press, 2004), 434.

⁴⁷ Wang Nan 王楠, “Diguo zhi shu yu difang zhishi – jindai bowuxue yanjiu zai zhongguo” 帝國之術與地方知識——近代博物學研究在中國 (Imperial technique and local knowledge – modern natural history in China), *Jiangsu shehui kexue*, 6 (2015): 241.

⁴⁸ Claypool, "Beggars, Black Bears, and Butterflies: The Scientific Gaze and Ink Painting in Modern China." *Cross-Currents: East Asian History and Culture Review*, 14 (2015). Accessed Jan 14, 2018: <https://cross-currents.berkeley.edu/e-journal/issue-14/claypool>; Claypool, "Habitat Dioramas: Liu Kuiling's Animal Paintings in Republican-Era Tianjin," *Archives of Asian Art*, 64:2 (2014), 165-190.

⁴⁹ Claypool, “Habitat Dioramas,” 165-190.

(*hakubutsugaku* 博物学) in Japan.⁵⁰ Like Gao Jianfu, a number of important artists, such as Chen Shizeng 陳師曾 (1876-1923), He Xiangning 何香凝 (1878-1972) and Jin Qinbo 金勤伯 (1910-1998), have also been trained in natural history or biology.

The above studies all concern about the interest in scientific knowledge manifested in the practices and works of the artists. However, the artist's direct engagement in the production of scientific knowledge still seems less visible or imaginable. The role of hand-drawing and painting in producing "scientific" knowledge, which has attracted fewer discussions than printing technology, photography, and illustrations in mass media.⁵¹ The intersection of art and science, nevertheless, should not be unidirectional. If both science and art offer ways to "look at" the world and "languages" to make sense of it, how do these ways of looking and representation interact with each other? How would they both affect and be affected by new ways and discourses on seeing? But these questions could not be answered without clarifying the ambiguity that lies in the term "science" itself. Historian Wang Hui identifies a tendency of "scientism" in China's encounter with western science, that "Chinese thinkers tended to make use of the prestige of science in areas that had hardly any relevance to science itself."⁵² In general, late Qing reformists and Republican intellectuals believed that "science" and its epistemic system

⁵⁰ Li Weiming 李偉銘, "Jiuxue xinshi: bowu tuhua yu jindai xieshizhuyi sichao -- yi gaojianfu yu riben de guanxi wei zhongxin" 舊學新知: 博物圖畫與近代寫實主義思潮——以高劍父與日本的關係為中心 [Old Learnings and New Knowledge: Natural Historical Illustrations and Realistic Trend in Modern China -- Based on the Gao Jianfu's relationship to Japan] (2002), in Li Weiming 李偉銘, *Chuantong yu biange: Zhongguo jindai meishushishi kaolun* 傳統與變革: 中國近代美術史事考論 (Tradition and Reform: Studies on the History of Chinese Modern Art) (Beijing: Shangwu yinshuguan, 2015), 152-203.

⁵¹ This point is inspired by Florike Egmond's insightful study about sixteenth century natural history drawings, in which she discussed the less attention in the study of hand drawings than prints. Egmond, *Eye for Detail*, 10-11.

⁵² Wang, "The Fate of 'Mr. Science' in China," 1-2.

would be ultimate tool to modernize China and empower the nation in a globe of competition, but the historical circumstance was in fact much more complicated. After all, what was “science”, how should it be applied, and who were in power to interpret it? On the one hand, Wang Hui argues that rather than systematically introducing the ideas and modes of western science, Chinese intellectuals developed their own conceptions of “science” based on traditional modes of thinking.⁵³ On the other hand, historian Tong Lam identifies “an epistemic shift” and the resultant “culture of facts” in China in his study of the development of social science, mobilized by the Chinese intellectual elites’ response to the “epistemic violence...which charged that China was a place without rational thought and factual knowledge.”⁵⁴ Lam’s study echoes with Larissa Heinrich’s study of medical portraits and literature, which shows it would be the same “scientific” language used by Euro-America to represent “Chinese-character” that, ironically, circulated back to constitute China’s self-representation in the early twentieth century.⁵⁵ From various perspectives, these studies have demonstrated that “science” plays a central role in shaping China’s experience of modernity; it lends the language and epistemic power to China to represent itself as a modern nation – a representation regarded to be truthful and universal.

While the intersection of science and art in modern China as a larger theoretical issue still awaits further exploration, as has been mentioned above, historians have begun to

⁵³ Ibid., 58.

⁵⁴ Tong Lam, *A Passion for Facts: Social Surveys and the Construction of the Chinese Nation State, 1900-1949* (Berkeley: University of California Press, 2011), 7.

⁵⁵ Ari Larrisa N. Heinrich, “Handmaids to the Gospel: Lam Qua’s Medical Portraiture,” in *Tokens of Exchange: The Problem of Translation in Global Circulations*, ed. Lydia Liu (Durham and London: Duke University Press, 1999), 239-276; Heinrich, *The Afterlife of Images: Translating the Pathological Body between China and the West* (Durham: Duke University Press, 2008).

explore how the production and circulation of natural history illustrations or paintings has participated in shaping some of the crucial structures, discourses, and experience in China's process of modernization. Historian Wu Fangzheng shows that the practice of copying natural historical illustrations as teaching supplies was part of the school curriculum after the educational reform in the last decade of imperial China. Wu also proposes that copying and using these natural historical illustrations, usually from Western or Japanese sources, might have played a role in introducing the "Western style painting" to the Chinese public.⁵⁶ Specimens and pictures of natural objects were not only shown in museums, expositions, and school performance exhibitions, but also published in journals or books. In her study of another Canton-based artist, May-bo Ching sees the natural history pictures (*bowu tuhua* 博物圖畫) published in the *National Essence Journal* in the late 1910s by artist Cai Shou 蔡守 (1879-1941) as "the attempts made by the late Qing Chinese literati to apply Western scientific approaches to the study of plants and animals indigenous to China."⁵⁷ Ching discusses Cai Shou's artistic career in the same tone as Wu's view of Zhao Zhiqian, lamenting the fact that Cai never turned back to his naturalistic studies. Adding to Ching's discussion about Cai Shou's natural history paintings, Fan Fa-ti's research offers a more complicated view of the conception of nation and nature of the National Essence circle, noting that "while the ancients studied

⁵⁶ Wu Fangzheng 吳方正, "Zhongguo jindai chuqi de zhanlanhui: cong chengjizhan dao meishu zhanlanhui" 中國近代初期的展覽會：從成績展到美術展覽會 (Exhibitions in Modern China: From School Performance Exhibitions to Fine Art Exhibitions), in *Zhongguoshi xinlun: Meishu kaogu fence* 中國史新論：美術考古分冊 [New Chinese History: Art and Archeology], ed. Yan Juanying 顏娟英 (Taipei: Lianjing chuban, 2010), 477-544.

⁵⁷ May-bo, Ching, "Picturing Knowledge: Chinese Brushwork Illustrations of Western Natural History in a Late Qing Periodical, 1907–1911," *Journal of Modern Chinese History*, 1:1 (2007): 32.

nature to cultivate virtue and learn the Way of the Heavens and the Earth, the modern Chinese pursue *bowu* studies as part of the enterprise of preserving their intellectual heritage, saving the nation, and maintaining a cultural identity.”⁵⁸ To re-conceptualize and invent a modern narration of the Chinese nation, as Fan illustrated, the Chinese thinkers invented new languages accommodating both traditional learning and western science, new concepts of nature, culture, and history, all condensed in the modern intellectual enterprise of natural history transformed from the ancient “*bowu*” studies. In the same light as Fan examined the role of scientific language in constructing knowledge of nature and nation, this thesis seeks to investigate the role of visuality and the practice of painting in embodying China’s experience of modernity. I contend that more insights would be gained from deconstructing the tradition-modern, East-West binaries, and especially the naïve conception of “realism,” by looking into the examples of how art acted in promoting looking, experiencing and learning.

Methodology

My central objects are three handscroll paintings: Zhao Zhiqian’s *Ouzhong wuchan juan* (1861), in the collection of Rongbaozhai, Beijing; Zhao Zhiqian’s *Yiyu tu* 異魚圖 (1861), in an unidentified private collection; Jin Cheng’s copy of *Ouzhong wuchan juan* (1922), in the collection of Xizhitang, Taipei, where I traveled and collected first-hand information in August 2016. Due to the fact that I have no access to Zhao’s two scrolls in person, I am hindered from performing an in-depth examination of the direct experience with the painting from the perspective of a connoisseur, what Jin Cheng would have

⁵⁸ Fan, “Nation and Nature,” 435.

experienced (while the materiality of Jin Cheng's scroll is telling of the efforts that he had put to reproduce Zhao's original scroll).

But I should also clarify that this distance from Zhao's scroll in the flesh does not effect an indirect "reading" of the painting from its print reproduction.⁵⁹ In fact, the "legibility" of the pictorial surface is one of my theoretical interests in this thesis, which is related to the question of how texts and images on the pictorial surface are to be perceived as real natural objects in the Wuchan and the Yiyu scroll. By "reading," I do not mean the scroll could be reduced to textual signs; I do want to highlight, instead, the visual experience of "reading" a painting in the practice of the viewing tradition of Chinese painting. While the continuity between images and words in Chinese art has been widely discussed, Clunas specifically analyzed the term "reading" (*du* 读) used in the Ming context to designate the activity of viewing a painting. He points out that "reading" specifically refers the kind of looking involved a moving vision, "scanning the characters of a text or the surface of a picture."⁶⁰ This kind of "moving" vision is constantly associated with the format of handscroll, which is also noted by Wu Hung.⁶¹

The idea of a moving vision associated with the act of viewing a painting is crucial to my analysis of the visual experience of the scrolls. As discussed in the literature review

⁵⁹ Zhao's Wuchan scroll is published in Liu Jiu'an ed., *Zhongguo wenwu jinghua daquan* 中國文物精華大全. 書畫卷 (Selection of Chinese cultural relics: calligraphy and painting) (Taipei: Shangwu yinshuguan gongsi, 1995), 450; Zhao's Yiyu scroll has also been published in various sources, the one I used is reproduced in Chen Zhenlian 陈振濂 et al., *Xi ling yin she xin mao qiu ji ya ji zhuan ji* 西泠印社辛卯秋季雅集专辑 (Special issue of the elegant gathering of Xiling Seal Art Society in autumn 2011) (Hangzhou: Xiling yinshe, 2011), 40-41.

⁶⁰ Clunas, *Pictures and Visuality*, 119-120.

⁶¹ Wu Hung, *The Double Screen: Medium and Representation in Chinese Painting* (London: Reaktion, 1996), 57-60.

section, my analysis of the scrolls and its associated discourse on vision and visuality reject the conception of vision as a privileged and separated component in the sensory system of an observing subject. “Visuality” is not only about the faculty of vision, or the activity of the eye; as how I would use and theorize the term in the thesis, visuality is to be understood as part of a holistic experience in which seeing plays a primary role to evoke, activate, and coordinate with other sensory or motor faculties. This conception of visuality has its theoretical underpinning in phenomenology, but my theoretical tools are those that specifically analyze what determines the eye’s experience on the surface of Chinese painting and other pictures and how the experience is significant for knowing.⁶²

I first turn to studies of the “embodying function” of Chinese painting, in art historian Jonathan Hay’s words, namely, how paintings serve as embodiments of “cultural axioms” and “the underlying structural patterns of experience”.⁶³ For instance, art historian John Hay’s works on the discovery of “surface” and the construction of “poetic space” reveal the complexity of perceptual experience evoked by both graphical and verbal inscriptions in Chinese painting.⁶⁴ Historian of literature Robert Hegel’s study on book illustration illuminates the similar function of the conventional pictures to “re-create by invocation rather than any mere representation the emotional power and even the moral significance

⁶² For a comprehensive review on the phenomenological discourse on vision and perception, see Martin Jay, *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought* (Berkeley: University of California Press, 1993), 263-328.

⁶³ Jonathan Hay, “The Functions of Chinese Painting: Toward a Unified Field Theory,” in *Anthropologies of Art*, ed. Mariet Westermann (Clark Institute of Art, 2005), 118-120.

⁶⁴ See John Hay, “Surface and the Chinese Painter: The Discovery of Surface,” *Archives of Asian Art*, 38 (1985), 114; Hay, “Poetic Space: Chi’ en Hsüan and the Association of Painting and Poetry,” in *Words and Image: Chinese Poetry, Painting and Calligraphy*, eds Alfreda Murck and Fong Wen C. Fong (New York: Metropolitan Museum of Art, 1991), 184.

of a human situation.”⁶⁵ These studies of visual experience of the pictorial surface are more than a confirmation of Chinese painting being “beyond-representation.” They recognize and invite further discussion about a pictorial space where visual experience plays a significant role in creating meanings of the world – “image is reality,” which has its philosophical foundation in Confucian epistemology. As Sinologist Roger Ames notes, both image and word are not the representation of an object but “the act of generating meaning by circumscribing, isolating, and compositing 'things'” and thus “the very differentia and character of reality.”⁶⁶

Nevertheless, there are specificities of the visual experience evoked by the scrolls which aim to represent concrete knowledge of the natural objects. Considering how visual experience of a physical thing could be perceived from the pictorial surface, I also adopt the theoretical tool analyzing the nature of behavior of signs. Following Bray and Tseng, I primarily consulted Charles Sanders Peirce’s theory of signs. Peirce categorizes signs into symbol, icon, and index based on their relationship between signifier and the signified. Among them, the concept of an indexical sign is especially illuminating in theorizing what it means to be “visual truth.” Peirce defines index as “a sign which would, at once, lose the character which makes it a sign if its object were removed, but would not lose that character if there were no interpretant” and index is “like a pronoun demonstrative or relative, forces the attention to the particular object intended without

⁶⁵ Robert E. Hegel, *Reading Illustrated Fiction in Late Imperial China* (Stanford, Calif: Stanford University Press, 1998), 320.

⁶⁶ Roger T. Ames, "Meaning as Imaging: Prolegomena to a Confucian Epistemology," *Culture and Modernity: East-West Philosophic Perspectives*, ed. Eliot Deutsch (Honolulu: University of Hawaii Press, 1991), 228-229.

describing it.”⁶⁷ A photograph or a rubbing are examples of indexical signs, which signify the physical presence of the objects. One knows the photographed object or the stone stele when seeing the photo or the rubbing even though the latter does not look like the original object. In this way, the nature of indexical sign provides a theoretical framework to understand a pictorial surface could function as a collection of natural objects without depicting their optical details.

In addition to the behavior of the pictorial components – the images and words, what is of equal significance to the analysis of seeing and knowing is the historical conditions in which the scrolls and their specific representational modes were created. As the thesis deals with the issue between painting and production of knowledge, it is necessary to bring into the context of intellectual history and history of science, with a focus on methods for collecting and presenting scientific knowledge. The thesis thus examines a wide range of archival materials, both textual and pictorial, that was rarely considered together before, including traditional scientific texts, gazetteers, botanical and epigraphical illustrations, the artist’s own writings and publications in various fields, journals published by scientific associations, modern art magazines and newspapers. Some of these materials from the history of science, natural history, evidential studies, and other relevant areas of intellectual culture were brought into art historical study for the first time. Specifically, Jin’s practice and conception of copying have not yet been examined from perspectives other than archaism and traditionalism.⁶⁸ Part of the thesis

⁶⁷ Charles S. Peirce, *Peirce on Signs: Writings on Semiotic*, James Hoopes ed. (Chapel Hill: University of North Carolina Press, 1991), 181, 239.

⁶⁸ The most comprehensive studies on Jin Cheng are three theses, all published in Chinese: Yun Xuemei 云雪梅, “Xinjiu yerong, gubu bufeng – Jin Cheng chulun” 新旧冶熔, 故步不封--金城初论 (Blending the old and the new: A preliminary study on Jin Cheng) (MA Thesis, Graduate School of Chinese National

could seek to reveal the connection between Jin's art and his social practices in establishing the Institute for Exhibiting Antiquities and his involvement in the Peking Laboratory of Natural History.

I shall specifically point out that this study is not intended to identify the “Chinese” standard for scientific illustration from a culturally essentialist point of view. Neither am I going to argue that there exists a linear evolution in visualizing natural knowledge in China in addition to the mainstream textual tradition. Concerning the larger issue of visibility and visualization in production of knowledge and China's modern experience, I am indebted to a number of studies about the construction of scientific culture in early modern and modern Europe and America. A new research question that has recently received more scholarly attention is the role of vision in “transporting” objects, bringing together issues of visibility and the materiality, such as Jennifer Roberts's study on the “material transposition” rather than an optical one in Audubon's bird illustration, and Pamela H. Smith's study of the “artisanal” bodily knowledge in relation to naturalism.⁶⁹ Prior to these studies, Bruno Latour had proposed the concept of “immutable mobiles,” defined as inscriptions on physical mediums that could be transformed and could meanwhile serve as the equivalent of the original object. While “immutable mobile” is the crucial property for the development of modern scientific

Academy of Arts, 1997); Siu Wai-man 蕭瑋文, “Jin Cheng (1878-1926) yanjiu” 金城 (1878-1926) 研究 [A Study of Jin Cheng (1878-1926)] (PhD diss., Chinese University of Hong Kong, 2001); Qiu Minfang 邱敏芳, “Jincheng huihua yanjiu” 金城繪畫研究 [Research on Jin Cheng's Art] (MA Thesis, Taipei National University of the Arts, 2003). Among these studies, Siu's analysis on Jin Cheng's biography and career is the most valuable one in my view, for he collected oral historical materials from his interviews with Jin's families and students to compensate for the lack of archival sources, such as those on Jin's pedagogy and the fate of Jin's works after he passed away in 1926.

⁶⁹ Jennifer Roberts, *Transporting Visions: The Movement of Images in Early America* (Berkeley, Los Angeles: University of California Press, 2014); Pamela H. Smith, *The Body of the Artisan: Art and Experience in the Scientific Revolution* (Chicago: University of Chicago Press, 2004).

culture, by collecting and gathering information across time and space and to construct “harder” facts, Latour’s theory also opened the theoretical field to examine how did art – and the technology of visualization – interact with the culture of modern science.⁷⁰

These studies and new scholarly trends offer tools and insights for my thesis to contemplate and analyze, specifically, how artists engaged in the practice of collecting things and knowledge pictorially, that is, to represent visual experience with material objects not solely for aesthetic purpose and the process by which visuality became increasingly significant in knowledge production in modern China.

Structure

The thesis is structured upon three focal paintings by the two respective artists. The first chapter, “Collecting Nature in the Age of Evidential Study: Zhao Zhiqian’s *Scroll of Natural Products from Ouzhong* and the *Scroll of Strange Fishes* (1861)” seeks to examine Zhao’s Wuchan scroll and its “twin” scroll within the context of epigraphic and evidential scholarship in the late Qing period. Asking how the pictorial surface of traditional Chinese paintings was utilized and transformed into a site to collect natural objects and to present knowledge of natural history, the chapter situates Zhao’s scroll in both the tradition of “*xiesheng*” in Chinese art and the tradition of technical illustration (*tu* 图) in late imperial China. Zhao’s scrolls, I hope to demonstrate, achieved a visual effect of realness not by delineating the visual details of each object but through capturing the vivacity of the beings from the living nature, careful arrangement of text

⁷⁰ Bruno Latour, “Visualization and Cognition: Thinking with Eyes and Hands,” *Knowledge and Society: Studies in the Sociology of Culture Past and Present*, 6 (1986): 1-40.

and image to represent the process of knowing, and turning the artist's personal experience *in situ* into a visual statement on the pictorial surface.

To examine how this specific representational mode could present the authentic knowledge of these natural objects, and how the scrolls managed to bring the absent objects to the viewers, I would historicize the visual experience represented in the scroll within the context of the epistemological turn in the age of evidential studies. The visual effect of “realness” of the objects collected the scroll is closely related not only to Zhao's artistic skill but also to his engagement with evidential studies and epigraphic culture. These intellectual trends emphasized personal experience in acquiring authentic knowledge, which suggests a deviation from the text-centered tradition in traditional Chinese way of knowing. The new trend in knowledge production might have motivated the artist to collect concrete knowledge of the unknown world with his brush and, furthermore, to construct a greater level of experiential reality on the pictorial surface.

The case study of the production of the Wuchan scroll in the age of evidential studies offers a perspective to consider how the newly risen emphasis on “witnessing” and visuality in knowledge production manifested on the surface of painting. This trend continued into the Republican period, as will be discussed in the second chapter, “Collecting Nature in Modern China: Jin Cheng and his copy of *Scroll of Natural Products from Ouzhong* (1922).” This chapter explores the conceptual complexity of Jin's practice of copying, with regard to his practice of collecting and scientific studies of nature. Bringing together Jin's copy of the Wuchan scroll and his other copies, the chapter examines how Jin saw and used the practice of copying as a mean to acquire and represent the knowledge of art history and natural history, while engaging with the

Republican-era discourse on cultural preservation. As such, this chapter also complicates Jin's identity as a traditionalist, seeking to complicate the binary of "modern" and "tradition" divided by the choice of style and medium in art history of modern China.

Jin's copy of the Wuchan scroll further provides a referencing point to examine Jin's engagement in scientific societies such as the Peking Laboratory of Natural History and the production of scientific illustration.⁷¹ On the one hand, Jin's emphasis on the significance of personal engagement and first-hand experience in collecting objects resonated with the discourse on art and science in China since the early twentieth century. On the other hand, his idea about copying and collecting as crucial means of learning echoes with a period marked by growing new social spaces for collecting and viewing, such as museums, expositions, and printed media. These spaces bestowed things, both natural and cultural, with an unprecedented visuality that transformed the modern conception of art, knowledge, and the state. Bringing Jin's intellectual trajectories in art and science into conjunction, the chapter seeks to demonstrate that Jin's practices of collecting natural objects pictorially both responded to and reflected on the Republican-era intellectual trend emphasizing visualizing and organizing the nation's material knowledge.

⁷¹ This is not to say that Jin only became engaged in the study of natural history after he painted the copy of Wuchan scroll in 1922, although the Laboratory and the PSNH were both founded in 1925. While we do not know when exactly Jin became engaged with the two societies before they were founded, indeed, he has proposed the establishment of a "national museum" to collect both cultural and natural objects in the 1910s.

Chapter 1. Collecting Nature in the Age of Evidential Studies: Zhao Zhiqian's Scroll of Natural Products from Ouzhong and the Scroll of Strange Fishes (1861)

In the Spring of 1861, Zhao Zhiqian (1829-1884) left his family and his hometown in Shaoxing, sojourning in the Wenzhou region to make a living and prepare for his trip to Beijing to take the civil examination.¹ It was also the year when he completed the Wuchan scroll (Fig. 1) and the Yiyu scroll (Fig. 2), arguably the two most original paintings which depict the local flora and fauna of the Wenzhou region. To Zhao, these local natural objects were exotic and curious, which might have driven him to collect them in his paintings as well as his writings.² The Wuchan scroll features fourteen species of plants and six species of fishes and other sea animals; the Yiyu scroll shows fifteen species of sea animals including fishes, shrimps, crabs, and the sea anemones and goose barnacle.

While the Wuchan scroll was presented as a gift to Jiang Shi 江澍 (1818-1866) when Jiang was departing for Fujian, the Yiyu scroll traveled together with Zhao to Beijing after 1862. During the journey, Zhao had several intellectual friends leave their colophons on the Yiyu scroll. One of the colophon by Hu Shu 胡澍 (1825-1872), an epigraphic scholar and Zhao's close friend, praised the scroll as a work that is capable of

¹ In 1859, Zhao Zhiqian passed the provincial exam in Hangzhou and returned to his hometown Shaoxing in 1860. On his way to Shaoxing, Hangzhou and several cities in the Jiangnan region was taken by the Taiping rebels. Zhao lost his mentor and means of livelihood in the war. In the spring of 1861, invited by an old friend, Zhao traveled to Wenzhou and found a temporary job. On Zhao's career and experience from 1850s to early 1860s, see Zhang Xiaozhuang 張小莊, *Zhao Zhiqian yanjiu* 趙之謙研究 (Zhao Zhiqian Research) (Beijing: Rongbaozhai chubanshe, 2008), 40-63; Zou Tao 鄒濤, *Zhao Zhiqian nian pu* 趙之謙年譜 (Zhao Zhiqian: A Chronology) (Beijing: Rong bao zhai chubanshe, 2003), 34-101.

² On Zhao's poetry and other writings on the natural objects, see Zhang, *Zhao Zhiqian yanjiu*, 45-47.

“keeping a record of the local products of a region [and thus] surpass common *xiasheng* paintings.”³ Hu’s colophon identified Zhao’s “naturalist” sensibility and effort to collect factual knowledge in the Yiyu scroll, which manifests in the Wuchan scroll likewise, but was hardly found in Zhao’s later paintings. Wu Chao-jen sees them as a point of Zhao’s stylistic disjuncture, after which Zhao’s interest in natural studies was replaced by epigraphic studies.⁴ Wu located the intellectual origin of the two scrolls in the evidential studies and identified the visual sources of the scrolls from genre paintings, botanical studies, and epigraphic aesthetics of the time. But the particular capability of the two scrolls to represent the reality of the flora and fauna and bring them into presence could not be simplified as “realism”.

This chapter seeks to provide a new reading of Zhao’s Yiyu and Wuchan scrolls by highlighting their association with the discourse on visuality and knowledge production. I examine the two scrolls as a pair, for their similar visual formats and purposes for the artist to collect natural products of Wenzhou. I am not intending to propose Zhao’s scrolls as “scientific illustrations,” nor would I try to identify a Chinese version of “naturalism” or “realism.”⁵ Instead, understanding Zhao’s scrolls of “natural history” could shed light on an alternative visual strategy for building a pictorial collection of things, in addition to representing their optical details.

³ “此卷足備一方物產”, Hu Shu’s colophon on Zhao’s Yiyu scroll.

⁴ Wu Chao-jen, *Between Tradition and Modernity: Strange Fish of Different Species, Products of Wenzhou by Zhao Zhiqian (1829-1884) and Their Relationship of the Epigraphic Studies of Late Qing* (PhD Dissertation. University of Kansas, 2003), 5, 67-86, 181-182.

⁵ Zhao’s “natural studies” were far from scientifically accurate and precisely, which was barely mentioned in any studies of these two works. However, this point also adds to my question about the validity of the scrolls as collections of natural objects that could fill the gap of knowledge.

This chapter proposes that Zhao's scrolls could be viewed as a visual argument of the artist's intellectual engagement in addition to his artistic achievement. While collecting things on the pictorial surface has a long history in China, how things could be represented more "realistically" and how to present authentic knowledge were emerging questions in Zhao's scrolls as well as during the time of evidential studies.⁶ It was not a time when more attention was devoted to empirical study of the natural world; it was, instead, a time when personal experience became increasingly important in knowing a thing. I choose the word "personal experience" to denote a corporeal sense of presence *in situ* in acquiring concrete knowledge, which is based on a different knowledge structure from that of the early modern European natural history.⁷ Zhao's two scrolls embodied both the Chinese epistemological tradition and contemporary intellectual trend, giving them visual form on the pictorial surface, where the complex discourse on seeing and knowing, art and knowledge production came into play and constituted the peculiar visual experience and artistic originality of the Wuchan and Yiyu scroll.

The Pictorial Life of Living Things in Chinese Painting

In Hu Shu's comment on the Yiyu scroll, he praised that scroll as a work that "ordinary *xiesheng* works are not comparable to."⁸ The artistic genre of *xiesheng* 寫生, with which Hu was comparing Zhao's Yiyu scroll, has complex and fluid meanings in

⁶ Benjamin Elman. *On Their Own Terms: Science in China, 1550-1900* (Cambridge, Mass: Harvard University Press, 2005), 111.

⁷ Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (London: Tavistock Publications, 1977), 134-137.

⁸ "非尋常寫生可比", Hu Shu's colophon on Zhao's Yiyu scroll.

Chinese artistic tradition. The term *xiesheng*, literally meaning “depicting life,” originated from as early as the Northern Song Dynasty (960-1279).⁹ Commonly used in the title referring to a genre of paintings that captures the life of an animated being, the discourse on *xiesheng* was closely associated with the development of flower and bird genre, which was established around the same period.¹⁰ During the Ming and Qing period, *xiesheng* had developed multiple meanings: it could refer to a genre, a style, or a technique; sometimes it was used as the synonym as flower and bird painting; it was also occasionally used to denote the meticulous *gongbi* style in contrast to the expressive style (寫意 *xieyi*).¹¹ Despite of these fluid definitions, *xiesheng* was associated almost exclusively to a certain category of subject matters, which, being flowers, birds, vegetables, fruits, insects, or animals, are all beings from living nature. This connotation

⁹ Art historians Ruan Pu and Kōno Motoaki both observe that the term *xiesheng* began to be commonly used during the Northern Song Dynasty, while Ruan Pu proposes that the origin of the term could be traced back to Five Dynasties or Northern Song Dynasty. Scholars generally agree that it was in Northern Song period that the term became standardized as a terminology in Chinese art. On the etymology of *xiesheng* in Chinese painting, see Ruan Pu 阮璞, “Huaxue xuzheng” 畫學續證 (Extended Studies of Chinese Painting), in *Tan ze suo yin: Zhongguo huaxue yanjiu lunwen ji* 探蹟索隱: 中國畫學研究論文集: 紀念阮璞先生誕生九十周年 (Probing into hidden truths: Collected essays of the study of Chinese painting: In honor of Ruan Pu’s Ninetieth Birthday), ed. Pi Daojian 皮道堅 et al. (Shijiazhuang: Hebei meishu chubanshe, 2009), 144-146; Kōno Motoaki 河野元昭, “Shasei’ no Gensen: Chūgoku” 「写生」の源泉: 中国 (The origin of the “drawing from life”: China), in *Akiyama Mitsukazu hakushi koki kinen bijutsu ronbinshū* 秋山光和博士古稀記念美術史論文集 (Collected Essays in honor of Dr. Akiyama Mitsukazu in his Seventies), ed. (Tokyo: San’ichi shobō, 1991), 481-514.

¹⁰ Both Ruan Pu and Kōno Motoaki have studied the list of titles that contain the word *xiesheng* in Xuanhe huapu 宣和畫譜 (The Xuanhe Catalogue of Paintings), see note 9. Chen Yunru 陳韻如, “Ba zhi shiyi shiji de huaniaohua zhi bian” 八至十一世紀的花鳥畫之變 (Transformations in bird-and-flower paintings from the Eighth to Eleventh Centuries), in *Yishushi zhong de Han Jin yu Tang Song zhi bian* 藝術史中的漢晉與唐宋之變 (Transformations between Han and Jin, Tang and Song dynasties in Art History), ed. Shi Shouqian 石守謙 and Yan Juanying 顏娟英 (Taipei: Shitou chuban gufen youxian gongsi, 2014), 343-345.

¹¹ Ruan, “Huaxue xuzheng,” 146.

of the term *xiesheng* remained consistent from the Northern Song to the Ming and Qing period.¹²

Sharing common subjects – things from living nature – with this extant artistic tradition, Zhao’s *Yiyu* and *Wuchan* scroll would refer to the same aesthetic criterion, at least to some extent, as those “ordinary *xiesheng* painting”. In Zhao’s own inscription recording how he had executed the *Yiyu* scroll, Zhao stated the goal and the criterion for the scroll:

In 1861, I was sojourning in the region of Oudong, [where] I saw many sea creatures in strange shapes and forms. I drew [them] in a mixed way on this paper. In between [the images], I wrote down my evidential studies of their names and referents. Conveying the spirit [of these fishes], this is what I am intending for!¹³

咸豐辛酉，攝叔客東甌，見海物有奇形怪狀者，雜圖此紙，間為考證名義。傳神阿堵，意在斯乎！

Zhao referred his intention and criteria of the scroll as “*chuanshen adu*” 傳神阿堵, a term literally means “to convey the spirit.” It is an idiom originated from the aesthetic theory in Chinese pictorial tradition of portraiture. The term could be traced back to an anecdote about the Six Dynasty (222-589) master Gu Kaizhi 顧愷之 (348-409), who saw the eyes as the source of “*shen*” 神 (the anima or the spirit), that could fully convey the inner personality of his figures.¹⁴ Gu’s anecdote, as well as his idea of

¹² However, the meaning of *xiesheng* in China underwent drastic transformation in the modern period (the twentieth century) and differed greatly from its earlier usage. On the modern transformation of *xiesheng*, see Wang Cheng-hua, “In the Name of the Nation: Song Painting and Artistic Discourse in Early Twentieth-Century China,” in *A Companion to Asian Art and Architecture*, ed. Rebecca M. Brown and Deborah S. Hutton (Chichester, West Sussex, UK: Wiley-Blackwell, 2011), 548-549.

¹³ Zhao’s inscription in the *Yiyu* scroll.

¹⁴ Cai Zong-qi, *Chinese Aesthetics: The Ordering of Literature, the Arts, and the Universe in the Six Dynasties* (Honolulu: University of Hawai’i Press, 2004), 315-319.

chuanshen adu, was canonized as the aesthetic foundation of figure painting in China. Figure painting, as well as portraiture, is in a way similar to *xiesheng*. In the first place, both genres are based on the presence of a living model, and thus the relationship of the representation and the original model is the central concern. Additionally, the original model of the two art forms are both life forms -- human or natural beings -- from the living nature. In the ancient Chinese thought of “ladder of souls,” dated back to the third century, the quality of *sheng* (生) was what separated the inorganic from the organic, both of which were formed by the basic element, *qi* (氣).¹⁵

In such a light, the meaning of *sheng* could be understood as the anima or the spirit, which had a subtle resonance in painting theories: the best pictorial representation was considered to be the one effectively convey the *shen* (神), or the invisible and immaterial inner quality of the original model. From the Six Dynasties, *shen* was established as a separated aesthetic component from the form (*xing* 形).¹⁶ While the relationship between the likeness of *shen* (*shensi* 神似) and form-likeness (*xingsi* 形似) was contestable from the beginning, painting theories in later dynasties generally championed *shen* over *xing*. During the late Tang period, when the terminology of *xiesheng* was not yet coined, Zhang Yanyuan 張彥遠 (815-907) disfavored the meticulous depiction that renders every detail of the object. Zhang famously (and infamously, in the opinion of the Republican advocators of Song realism), divided paintings into five ranks, with the “natural” (*ziran* 自然) ranked the highest, followed by

¹⁵ Joseph Needham, *Science and Civilization in China*, vol. 2 (Cambridge: Cambridge University Press, 1956), 21-26.

¹⁶ Cai, *Chinese Aesthetics*, 315

“divine” (shen 神) and “marvelous” (miao 妙), and then “delicate” (*jing* 精) and “meticulous” (*xi* 細) at the bottom.¹⁷ In the thirteenth century, when the tradition of literati painting was established, form-likeness was further considered unnecessary or even impedimental to capture the spirit. But it does not mean that meticulous descriptive style is always a hindrance to convey the *shen* of the subject. Yun Shouping’s bird and flower paintings, for instance, were also regarded as “*Chuanshen adu*” for the artist’s ability to render the birds as if they were about to fly (*shengdong yufei* 生動欲飛).¹⁸ *Shen*, thus, could be conveyed in evoking a visual experience of the reality of life.

The aim to “convey the spirit” in Zhao’s inscription, as such, would mean to capture the life of the fishes and other natural products that he found in Wenzhou, which has no direct relation with capturing the materiality of the objects. It is thus very different from the kind of *xiesheng* painting intended as a study of the forms and activities of the birds or other animals, as seen in the early masterpiece of *xiesheng*, and probably the first extant work of the genre, *Xiesheng zhenqin tu* 寫生珍禽圖 (Rare birds drawn from life) by Huang Quan 黃荃 (903-965) (Fig. 3). Bringing Huang’s work could help to clarify the different focuses of the two kinds of *xiesheng* paintings with two different policies of realness. Huang’s birds and other animals are oriented in the pictorial surface separately against the blank, negative background. They are represented as separated elements to be

¹⁷ Zhang Yanyuan 張彥遠, *Lidai minghua ji* 歷代名畫記 *juan* 2. It should be noted that “natural” here should not be confused with its modern meaning of relating to the natural world but a state of effortlessness and without artificial trace.

¹⁸ Yun Hesheng 惲鶴生, “Yun Nantian xiansheng jia zhuan” 惲南田先生家傳 in Yun Ke 惲恪, *Nantian Huaba* 南田畫跋 (Colophons of Nantian), Zhu Jihai 朱季海 and Shi Lihua 施立華 eds. (Shanghai: Renmin meishu chubanshe, 1987), 17.

further apply to construct a bird and flower “scene,” which shows that the painting is more likely to be a preparatory drawing.¹⁹ Huang’s careful observation and meticulous brush capturing the materiality and morphology of the birds and animals make them appear as real animals. However, these birds and animals, in a sense, were not represented as individual lives, nor natural studies of these individual species, but forms and patterns as a repertoire for further composition of a bird and flower painting.

Zhao’s fishes and plants were also arranged against a blank background in an elongated horizontal space of the handscroll medium. Stylistically, Zhao pursued the simplified, and sometimes awkwardly crude manner, or *zhuo* (拙), an aesthetic standard that he embraced in *Zhang’an zashuo*, a collection of his writings composed at the same time of the scroll.²⁰ His stylistic choice reflected an understanding of *shen* separated from *xing* – in his individualistic, expressive style, the realness of these fishes and plants were bestowed completely by the sense of liveliness and mobility. The overall visual effect in Zhao’s painting outweighed the particular visual details of separated individual objects. Zhao’s fishes, flowers, and other sea creatures are all moving together towards one direction, although they might be completely unrelated in reality: four sea anemones on a long vegetable leaf, four mudskippers swimming pass a cut hibiscus. The pictorial goal, *chuanshen adu*, thus would mean to make them appear real and lifelike in the viewer’s eye, as if they were all moving when the scroll was unrolled.

Nevertheless, for these natural objects to appear real in front of the eye, Zhao removed and erased the space and time of each of these objects, mixing and juxtaposing

¹⁹ Chen, “huaniao hua zhi bian,” 369-371.

²⁰ Zhao Zhiqian 趙之謙, *Zhang’an zashuo* 章安雜說 (Miscellaneous discussions about Zhang’an) [1861] (Shanghai: Shanghai renmin meishu chubanshe, 1999), 7.

them together onto the same surface, simultaneously decontextualizing them from the original environment. These living things are not illusionistic pictorial lives, and the visual effect of mobility and vivacity are not the result of *trompe-l'œil* or any kind of optical trick. The surface of Zhao's Wuchan and the Yiyu scroll is thus different from one described by art historian John Hay as the "illusionary surface," which is characterized by a perceptual instability constructed with the interplay of ink and water on paper or silk.²¹ Artists who specialized in fish paintings were familiar with this "trick" to construct a space with the void on a given pictorial surface. In a Ming dynasty painting by Liu Jie 劉節 (Fig. 4), for instance, the artist created an illusionistic effect by establishing an organic interaction between various pictorial components: the central fish with its dramatic vivacity with its movement and human-like eyes rendered by the artist's skillful brush, interacting with other smaller fishes and animals, and the exuberant vegetation at the shore. The interaction between these pictorial components constructed an aquatic ecosystem in the viewer's eye, turning the blank surface into air and water, thereby forming an optically coherent diorama. It is not a complete illusionist space based on a geometrical system, but a calculated surface where the interaction between different forms representing the fish, the vegetation, and the shore, could evoke a touch of shallow water at the negative blank space. This composition of a living diorama of nature with interactive pictorial components has been standardized in the genre of flower and bird paintings since early Northern Song period.²²

²¹ John Hay, "Surface and the Chinese Painter: The Discovery of Surface," *Archives of Asian Art*, 38 (1985): 114.

²² Chen Yunru proposes that *zaojing* 造景 (to construct a diorama), in addition to the skill of *xiesheng*, was the key to complete and fully establish the genre of flower and bird painting. See Chen, "huaniao hua zhi bian," 372-373.

Zhao's scrolls, however, create the lively visual effect not by constructing a coherent diorama. The natural objects in the Wuchan and the Yiyu scroll – the pictorial components – juxtaposed onto each other and jumbled together, are only visually interactive on the surface but not in any space. As has been discussed above, these pictorial beings sharing the same pictorial surface are in fact not spatially – optically or actually – related to each other like those in a still life painting. Both scrolls reject a perceptual certainty and stability based on a single homogenous visual field (space) or a coherent visual narration (time). In other words, while the overall visual effect is a lively group of objects on a continuous pictorial surface, these objects are ultimately intended to be viewed – and “read” – separately and individually. In terms of the visual effect and aesthetic quality, the Wuchan and Yiyu scroll is also comparable with a handscroll of calligraphy, in which each script could be recognized without disturbing the flow of writing.²³ As such, the Wuchan and Yiyu scroll could be seen as a more complicated version of the pictorial formula combining the genres of “the scroll of myriad flowers” (*baihuatu* 百花圖 or *baihuaquan* 百花卷) and “the miscellaneous” (*zahua* 雜畫), both representing an array of objects such as flowers, animals, fruits or other things in an elongated surface. The pictorial format of “myriad objects” could be regarded as a form of image-writing, or more specifically, a type of “object-writing”.²⁴ In the *Baihua baiguo*

²³ As has been noted earlier, Zhao Zhiqian is known for his mastery of painting, calligraphy, and seal carving, as well as his erudition as a devoted epigraphic scholar. It is highly likely that the visual format of the Yiyu and Wuchan scroll is also inspired by his experience with works of calligraphy. I am indebted to Professor Walter Davis who pointed out possible influence from calligraphy and epigraphic studies, which is worth further examination. The “epigraphic aesthetics” is also noted in Wu Chao-jen’s study, but the specific tension between independent objects and the effect of a coherent, moving vision has not been discussed. See Wu, “Strange fishes of different species,” 79-81, 147-149.

²⁴ The term “object writing” was borrowed from Jonathan Hay’s “image writing,” which refers to “the capacity of any one pictorial image to evoke others from almost any visual domain.” Jonathan Hay, “Qi

tu 百花百果圖 (Fig. 5) executed by Zhao's contemporary Zhou Xian 周閑 (1820-1875), for instance, the images of objects could each serve as a sign to evoke other objects of similar kind, all of which together construct an exuberance or auspicious view of the festival or harvest. Zhao's Wuchan and Yiyu scroll could also be read in this way as an "object writing" about his sojourning experience in Wenzhou and the exoticism of the region, with images of the objects continuously revealing themselves to the viewers with striking flatness and confrontational directness like scripts written on books.

Nevertheless, Zhao's emphasis on *chuanshen adu* counts for the major difference between his scroll and other "object writings." The vivacity of his natural objects rendered by his skillful brushwork serves as the reminder of the original model of these lives – their presence and authenticity. The images are both signifying and evoking of the absent natural objects that the artist once encountered, and thus neither the Yiyu nor the Wuchan scrolls is a self-contained, autonomous aesthetic world but a real world transformed. Although these fishes and plants were deprived of their own original environment, space and time, they are embodiments of the natural world of a specific region – thus "an inventory of natural products" in Hu Shu's word.

Internalizing the aesthetic theory of *chuanshen adu* from the traditional category of *xiesheng*, the Wuchan scroll and the Yiyu scroll bestowed these uncommon, or even strange natural objects with an indisputable sense of reality, which comes from the sense of liveliness and mobility of the figures and their pictorial life rather than the presentation of optical details. As such, Zhao's *chuanshen adu* came to denote the visual effect of the

Baishi: Three Questions," in *Qi Baishi guoji yantaohui lunwenji*, ed. Wang Mingming (Beijing: Wenhua yishu chubanshe, 2010), 427-428.

living original objects rather than their materiality. Zhao's *xiesheng* literally draws the “life” rather than the visible surface of these objects, weighting more on creating the visual experience of a lively collection of natural being.

While the overall emphasis on achieving a visual effect of liveliness with the expressive brush capturing general forms over meticulous optical details was based on the long-established discourse of Chinese painting, Zhao indeed made use of the aesthetic discourse to augment the visual effect of reality, seeking to bring these absent objects into presence. Both the scroll of “strange” fishes and the scroll of natural products represented not common objects but objects that appeared strange in the eyes of his viewers. It is true even for people who had seen these natural objects in Wenzhou, because these objects rarely showed up in a Chinese painting. Zhao's task, thus, was not only to make these objects look real but also to make the strange familiar, so that they were to be seen as “real” objects from the living nature.

It was thus noted by Hu Shu in his colophon that “[Zhao] depicted strange fishes not because of [his] taste of the strange, [but that] there is no need to draw other fishes.”²⁵ Hu's comment echoes a saying of Guo Pu 郭璞 (276-324), the explicator of the *Classic of Mountains and Streams*, a compilation of the studies of natural oddities: “We observed based on what we habitually see, and we regarded as strange what we have rarely heard about.”²⁶ It was the choice of his individual style and the less descriptive visual language of literati painting made the natural oddities look familiar, and thus more real – a visual

²⁵ “圖異魚，非好異也，他魚不待圖也。” Hu Shu's colophon on Zhao's Yiyu scroll.

²⁶ Guo Pu 郭璞, “Xu 序” (Preface), in *Gezhi congshu* (Collectanea for investigating things and extending knowledge), vol. 10. pp 1a-4b, translated by Benjamin Elman. Elman, *On Their Own Terms*, 42.

effect of reality, and a visual policy of “realism” based on the dialectics of the commonly seen and the unseen, the known and the unknown. Zhao’s aim was not to showcase his taste for the strange, in Hu’s words, but to bestow the strange things with a sense of familiarity, to bring the absence into presence by imbuing them with vivacity, and thus to bring the natural objects from a remote region into further studies.

Images, Words, and the Epistemological Surface

Inscriptions function both textually and visually in Zhao’s two scrolls, playing a crucial role in completing the *Yiyu* and *Wuchan* scrolls as natural historical collections. These texts are not simply working as labels of objects in a museum display. The point could be elaborated by reenacting the experience of reading the *Wuchan* scroll from its beginning section, where four individuals of *Shaxun* were portrayed. The four animals were represented generally in two different forms: one with short, bulky cylindrical body attaching to a bundle of mop-like tentacles; another has a long extending tube-like body with spreading tentacles. Beside the longest individual, the exegesis goes:

Shaxun. The local people of Wenzhou call it *shasuan*. It is also called *tusuan*. Its length depends on the depth of water. It uses its floating tentacles to attract the small fishes and prey on them. It shrinks after being taken out from the water. Some call the small ones *shasuan*, and the large ones *tusuan*.²⁷

沙巘。温州土人呼沙蒜，一名塗蒜，長短視水淺深，以鬚浮揚水面，吸小魚鮭食之，出水則縮。或以小者呼沙蒜，大者呼塗蒜。

On the one hand, the inscribed text describes the depicted natural object in the same way as labels. The text shows why there needs to be four individuals of *Shaxun* while most other plants and larger fishes appear singularly. The species vary in size, and

²⁷ Zhao’s inscription in the *Wuchan* scroll.

larger and smaller individuals are called differently; the text also describes how the animal behaves differently in and out of water as the image does. Zhao's choice of depicting the same species in various forms is as "professional" as a naturalist sampling specimen from the field. He intentionally chose to depict a variety of states and morphologies to keep a comprehensive record of the same species. As such, it is not overrated for both his contemporary viewers and later art historians to see the scroll as a natural historical painting and a natural history collection.

On the other hand, the function of these textual inscriptions is significantly visual. The "natural history painting" uses the text to illustrate the images rather than the opposite way. Images of natural objects dominates the pictorial space, while the texts are written in small regular script (*xiaokai* 小楷), which is one of the most readable calligraphic scripts, as well as a standard script style for the civil examination since the eighteenth century.²⁸ These scripts function in several ways to construct the overall visual experience of the scroll. In the first place, the texts are crucial graphical elements for Zhao's pictorial design. Zhao intentionally brought his images and texts into the closest contact, seemingly to cast a tension between the graphical forms and the scripts. The delicate small scripts were sometimes orderly placed beside the bold images; sometimes scripts closely surround or circumscribe the images, like part of the bodily structure of

²⁸ It is worth pointing out here there might be various reasons accounting for Zhao's use of the regular script. As a calligrapher, Zhao's style was under transformation in the 1860s, influenced by his attachment to the calligraphy on the steles. The small regular script was among his favorite. On the other hand, Benjamin Elman pointed out that practicing the small regular script was popular among official exam candidates, for it was the required style in the essay section of the court examination. Passed the provincial examination (*shengshi* 省試) at his third trial in 1859, Zhao was preparing financially for his trip to Beijing to attend the court examination (*dianshi* 殿試), which he did not participate until 1863. On the use of small scripts in civil examinations, see Benjamin Elman, *A Cultural History of Civil Examinations in Late Imperial China* (Berkeley: University of California Press, 2000), 377-379. On Zhao's experience as an exam candidate, see Zhang, *Zhao Zhiqian yanjiu*, 44-63.

these pictorial organisms, both attached onto them and confining them. A good example of the latter could be found at the beginning section of the Yiyu scroll, where the exegesis of the octopus (*Zhangju* 章拒) is written in between the tentacles and visually becomes part of the animal's corporeality. In the later section of the Yiyu scroll, texts "framed" the smaller fishes, crabs and other creatures and, in a way, decompartmentalize their pictorial space, separating them from each other – and from being in the same habitat of the pictorial surface.

Furthermore, Zhao used the textual inscriptions to further augment the anti-illusionistic flatness by anchoring the images onto the same surface as the textual inscriptions. The scroll is designed to create a coherent visual experience of reading rather than as a book or a group of museum exhibits where images and textual inscriptions are clearly discriminated. This is a specific quality in many of Zhao's paintings. As an artistic celebrated not only for his mastery of painting, calligraphy and seal carving, but also for incorporating the three crafts imbued a sense of epigraphic aesthetics to create a bold, brash, unique personal style, Zhao well managed the writing with both textual and graphical signs with his controlled, powerful brush traces.²⁹

The synthesis of painting, calligraphy and seal carving into one was not unfamiliar in Chinese artistic tradition, especially in literati painting, which had been celebrated as the unity of painting, calligraphy, poetry. Art historian John Hay has discussed, in a study of thirteenth century artist Qian Xuan's painting, how the co-presence of text and image constructed a continuous experience:

²⁹ Yang Yi 楊逸 (1864-1929), *Haishang molin* 海上墨林 [1919] (Shanghai: Shanghai shuhua chubanshe, 2006), 63.

The space between the painting and the inscription interpenetrates both...In passing between painting and inscriptions ...our perceptual system seeks a spatial continuum and must adjust to the clarity or ambiguity of certain clues ...it is with space that the problem of organic unity in the perception of a physical object, a painting, parts company from that problem in the reading of a text, an intellectual object having only limited connection with the physical extension of the printed page. Picture and text both become emotional objects.³⁰

Although John Hay is describing the visual effect of a different kind of pictorial space, his discussion on “a space between painting and the inscription” is crucial to the following reading of the text-image interaction and their effect in Zhao’s scrolls. The words and images in the Wuchan and Yiyu scroll produce a different kind of “space” for experience – not of emotional continuum, but an epistemological one. It is a flat surface, rather than one with certain perceptual depth and distance, onto which the actual natural objects are projected as images and texts. The Wuchan and Yiyu scroll show up as a disordered diagram or a matching game, inviting the viewers to pair the image of the natural object and its name and referents. The space between the images of these objects is both a pictorial and an epistemic vacuum where the unknown could be turn into the knowable. As the space was filled by the texts of their names and referents, the vacuum was transformed into a space for knowing, in the process of the images being nominated and explicated. This process of knowing occurs repetitively as the Wuchan or the Yiyu scroll is unrolled. In such a way, the visual experience of seeing these natural objects is at the same time an experience of knowing, and the pictorial surface of the two scrolls became one for experiencing the knowledge of these natural products primarily through one’s vision – an experience not to be discriminated with the experience of reading.

³⁰ John Hay, “Poetic Space: Chi’en Hsüan and the Association of Painting and Poetry,” in *Words and Image: Chinese Poetry, Painting and Calligraphy*, eds Alfreda Murck and Fong Wen C. Fong (New York: Metropolitan Museum of Art, 1991), 184.

The epistemological surface of the Wuchan and Yiyu scroll is closely related to the ancient learning of the study of things in Chinese intellectual tradition. Following the Confucian teaching of “[increase] one’s knowledge of names (*ming*) of birds and beasts, plants and trees,” a discipline of inquiry, “the study of names and their referents” (*mingwuxue* 名物學, “the study of names” thereafter), emerged as the basic approach to know about things, affairs, and phenomena.³¹ The primary way for knowing a thing was by rectifying its name or names, and thereby collecting its textual life in the classics and recognizing its social, moral, or cosmological order. Zhao’s natural study of these natural products, demonstrated in his textual inscriptions, followed the same methodology used in the study of names. He collected textual information of these objects from gazetteers, *biji* 筆記 (essays), and what he heard from the locals.³² Nevertheless, he was not satisfied with collecting the textual lives of these objects and collecting their images – he brought the text and image together not only for collecting knowledge of the things but also to collect the experience of knowing them.

In this sense, although the Wuchan and the Yiyu scroll did not deviate from the traditional methodology of learning about things fundamentally, they epitomize a new way of presenting the knowledge by visualizing the process and experience of knowing things. Such a presentation of knowledge could only be possible for a “naturalist” who is also an artist and calligrapher like Zhao Zhiqian. A colophon on the Yiyu scroll by Jiang

³¹ Confucius, *Analects*, translated by Carla Nappi, in Nappi, *The Monkey and the Inkpot*, 23.

³² On the exegesis of Yiyu and Wuchan scroll, see Lin Jinzhong 林進忠, “Zhao Zhiqian ‘Ouzhong santu’ kuanji dulue” 趙之謙「甌中三圖」款記讀略 [the Inscriptions of Zhao Zhiqian’s “three paintings of Ouzhong”], *Yishu xuebao*, 6 (1999), 11-31.

Shi best addresses the specificity of the scroll as a presentation of the knowledge of the fishes by reenacting the experience of knowing:

Explicating the plants, fishes and insects is none of Huishu's business, but he still made it, wasting his mental effort ... When Huishu was sojourning in Rui'an this year, he has seen enough of [these strange creatures], thus he could use his brush as the knife to mince them. [When he] throws the residues [of the strange fishes] into the sea, they will transform into thousands of strange fishes, which cannot be exhausted in paintings.³³
疏草木，注蟲魚，非我搗叔事，然且為之枉其心矣……搗叔今年客瑞安，既飽見之，使能以筆為刀而盡脍焉。弃其殘者於海，必且化為千百千種異魚，而為畫所不能盡矣！

Jiang first referred Zhao's practice as "the study of insects and fishes" (*chongyu zhi xue* 虫魚之學), which means the kind of trivial scholarship not concerning about important matters such as the governing of the state.³⁴ He continued to note that how Zhao's practice of picturing the fishes is like "using his brush as a knife to mince" the fishes, so that the curious fishes are transformed by artist's brush into edible dishes, a metaphor celebrating the skill turning raw materials into digestible knowledge. He further notes that "the residues" of these fishes could turn into thousands of fishes, suggesting that the process of knowing natural objects would extend beyond the scroll. How a scroll could promote and extend knowledge is not explained in Jiang's colophon, but it is embodied in Zhao's scroll: a scroll that visualizes the process and experience of knowing

³³ Jiang Shi's colophon on the Yiyu scroll.

³⁴ The term originated from a poem by Han Yu 韓愈 (786-824), which despised the people who studies trivial matters like explicating insects and fishes rather than important things useful for governing the country. In the poem by Gong Zizhen 龔自珍 (1792-1841), it was similarly used to denote the same kind of trivial evidential studies with a similar connotation, but to him the trivial study is not completely useless. See *Gudai hanyu cidian* 古代漢語詞典 [Dictionary of Ancient Chinese] (Beijing: Shangwu yinshuguan, 2014), 182; Liu Yisheng 刘逸生 ed., *Gong Zizhen shi xuan* 龔自珍詩選 (Selected poems by Gong Zizhen) (Hangzhou: Zhejiang renmin chubanshe, 1980), 122-123.

– seeing the unknowable forms in nature, naming them and connecting them to the textual knowledge.

It is in such a process that the knowledge of natural things could be produced. The Wuchan and Yiyu scroll are not only representations of natural objects but presentations of the knowledge of things, which is not a fixed, static object but a motile process. Zhao's vision of knowledge demonstrated in the two scrolls is firmly grounded in the Confucian epistemology as noted by Sinologist Roger Ames, that knowing (*zhi* 知) is “imaging a world.” In a Confucian world where “there is not the familiar disjunction between reality and the concrete world of phenomena,” image, as “the act of generating meaning by circumscribing, isolating, and compositing things,” and the creative process of imaging, is the very process of knowing the world.³⁵ Knowledge, or *zhi*, is “fundamentally performative – it is ‘realizing’ in the sense of ‘making real.’”³⁶

Thus, by bringing together the text and image, and organizing them in a way that effectively visualizes the very process and experience of knowing itself, Zhao's paintings of natural objects presents the reality of these plants and fishes so “realistic” that these objects could be recollected by its viewers by reenacting the experience of knowing the things. Jin Cheng's copy, to be discussed in the next chapter, is not the only example nor the best one. A hanging scroll *Oumin qiwu tu* (Exotic fish, Strange Creatures of Zhejiang and Fujiang), executed by Gu Dachang 顧大昌 (1815-1886, also known as Gu Zichang 顧子長) in 1863, in the collection of Kaohsiung Museum of Fine Art, could better

³⁵ Roger T. Ames, "Meaning as imaging: Prolegomena to a Confucian epistemology," *Culture and Modernity: East-West Philosophic Perspectives*, Eliot Deutsch ed. (Honolulu: University of Hawaii Press, 1991), 229-230.

³⁶ *Ibid.*, 239.

demonstrate how the visual knowledge of curious fishes presented in the Wuchan scroll was re-collected as “things” (Fig. 6). Gu’s painting, from left to right, depicts a red cornetfish (*mabian* 馬鞭), a white plaice (*tayu* 搨魚), and beneath them is a flat, round stingray (*hongyu* 魷魚). Not only are these fishes all featured in Zhao’s Wuchan scroll, their visual characteristics, such as the unnatural stiffness of the cornetfish and the spiky caudal fin of the stingray, and the textual description of the fishes are so conforming to their visual features in the Wuchan scroll that it is unlikely that Gu has never seen Zhao’s painting. Gu was a friend of Jiang Shi, and both of them were sojourning in Fuzhou from 1862 to 1863, when Jiang received the Wuchan scroll from Zhao as a gift.³⁷

Curiously, Gu did not give a credit to Zhao’s painting; nor would he have to, perhaps, since his intention was not to study Zhao’s style but to build his own pictorial collection of curious fishes among the twenty species of natural products. For Gu, there was perhaps no difference between observing the actual natural products and seeing the images in the Wuchan scroll. Gu also designed a completely different composition and view for his scroll, depicting the fishes vertically with their tails pointing upwards. He titled his collection as “curiosities of Zhejiang and Fujian” and added some personal observations into the description. It is a new visual experience created based on the knowledge of the fishes collected and displayed in the epistemological pictorial surface of Zhao’s Wuchan scroll. It is a visual experience with words and images conforming to the process of knowing a thing that equates the activity of viewing the Wuchan and the Yiyu scroll with studying the actual natural products in reality.

³⁷ Jiang’s friendship with Gu was recorded in a number of Jiang’s poems, including personal visits, and comments or inscriptions of Gu’s paintings. See Jiang Shi 江澍, *Fuyu tang shilu* 伏敵堂詩錄 (Collected poems from Fuyu tang) (Shanghai: Shanghai gu ji chu ban she, 2008).

Knowledge of the Eye and the Hand

The epistemological surface of the Wuchan scroll and the Yiyu scroll has its origin both in Zhao's intellectual endeavors and the intellectual trend of his time, which this section seeks to explore. It has been noted that Zhao was never a devoted naturalist. He did not return to his project of collecting natural products in Wenzhou after 1861, leaving only the first volume of the Wuchan scroll, which seems more to be a personal statement of his artistic skill of *xiesheng* and his self-awareness as an evidential and epigraphic scholar. The artistic project of collecting natural objects should be viewed as part of a greater intellectual tradition that Zhao committed himself to throughout his life, including his scholarship of *jinshi* (金石學, the study of metal and stone) and his evidential studies. Previous studies have detailed Zhao's commitment to the evidential and epigraphic studies in relation to the development of his artistic style.³⁸ But what remains to be examined is the underlying knowledge structure within Zhao's natural history scrolls contextualized in this intellectual tradition.

Zhao's motivation to collect these natural products might be best described in a preface by late Qing scholar and collector Qi Zhirong 祁之鑠 to his later publication *Yonglu xian jie* 勇盧閒話, a book that records and gives exegesis to various snuff bottles: "A Confucian scholar should be ashamed of not knowing a thing."³⁹ Qi appropriated a

³⁸ On Zhao Zhiqian's commitment to epigraphic movement and his stylistic development, see Wu, "Strange fishes of different species," 109-149; Zhang, *Zhao Zhiqian yanjiu*, 208-215.

³⁹ "夫一物不知，儒者以為恥。" Qi Zhirong 祁之鑠, "Preface," in Huang and Deng, *Meishu congshu*, 171.

“popular” expression that could be dated back to Han dynasty.⁴⁰ Later versions of the statement was applied specifically to designate what is fundamental to scholar learning, especially in the scholarship about “things.”⁴¹

Generally speaking, there exists a variety of intellectual traditions of studying “things” in Chinese history, which are not completely conceptually independent from each other. One is *bowu* 博物 (the broad learning of things), which is usually referred as early natural history in China that has its origin in Han Dynasty. Scholars of *bowu* usually sought to “identify and classify natural phenomena through language.”⁴² Another more systematic field of inquiry with a clear philosophical agenda is *gewu* 格物 (the investigation things), which was established during the Song dynasty by Zhu Xi 朱熹 (1130-1200) and Cheng Yi 程頤 (1033-1107), seeking to search in the Classics “the universal principles of all things, events, and phenomena.”⁴³ The approach labeled “Learning of the Way” (*Daoxue* 道学) was ferociously debated and challenged in the wake of evidential studies during the Qing period. Zhao Zhiqian, for instance, was devoted to Han learning and despised the metaphysical inquiry of *Daoxue*.⁴⁴

⁴⁰ One of the earliest use of the expression could be found in the Han collection of aphorism *Fayan* 法言: “The Sage’s relation to the world is such that they are ashamed if there is one thing that they do now know.” (聖人之於天下，恥一物之不知。) Translated by Jane Geaney. Jane Geaney, *Language as Bodily Practice in Early China: a Chinese Grammatology* (Albany, NY: State University of New York, 2018), 38.

⁴¹ See Martina Siebert, “Making Technology History,” in *Cultures of Knowledge: Technology in Chinese History*, ed. Dagmar Schäfer (Leiden: Brill, 2012), 265.

⁴² Elman, *On Their Own Terms*, 41. See also note 31 and the previous section on *mingwu* studies.

⁴³ On the contesting theories of “investigating things” in the Song Dynasty, see John Makeham, *Dao Companion to Neo-Confucian Philosophy* (Dordrecht: Springer, 2010); Elman, *On Their Own Terms: Science in China*, 5-6.

⁴⁴ For instance, Zhao expressed his loathing towards the uncultivated philistines who labeled themselves as Dao scholars in his letter to Pan Zuyin. Zou, *Nianpu*, 208.

The challenge to the authoritative *Daoxue* came from the “epistemological turn” emerged in the seventeenth century. Marked by the championing of high antiquity and the quest for authentic ancient classics, the *kaozheng* scholarship (evidential studies) placed “proof (證) and verification (徵) at the center of organization and analysis of the classical tradition.”⁴⁵ The evidential scholars saw authentic classics veiled by the lost, forgeries, and reinterpretation in previous dynasties. They were thus concerned about their methodology of verification, which gave rise to what Elman terms “the empirical criteria for verification,” in which empirical was defined as “an epistemological position that stresses that valid knowledge must be corroborated by external (textual and otherwise) facts and impartial observations.”⁴⁶ The evidential attitude towards knowledge is explicit in Zhao’s own preface to the *Yonglu xian jie*: “This is a trivial affair, and after all, it is just related to what was once popular for a time. The textual record [of snuff bottle] is scarce, and I could hardly establish any belief without verification.”⁴⁷ Zhao’s approach of “verification” (*zheng* 徵) in compiling the manuscript on snuff bottles was not limited to textual research of classics, or “*xungu*” 訓詁, which entails “the tracking down of the particular meaning at a particular place and time” and “the identification and explanation of old objects.”⁴⁸ Limited by the lack of textual sources on snuff bottles, Zhao would have to compose his own history of snuff bottles imported from Europe and

⁴⁵ Elman, “Philosophy vs. Philology”, 199.

⁴⁶ Ibid.

⁴⁷ “至事甚微，要亦一時風會之所系。記載闕如，無徵不信。” Zhao Zhiqian, “Self-preface,” *Yong lu xian jie* 勇盧閒話 (Free talks of Yong lu), in *Meishu congshu* 美術叢書 (Art Compendium) vol.1, ed. Huang Binghong 黃賓虹 and Deng Shi 鄧實 (Shanghai: Shenzhou guoguang she, 1947), 172.

⁴⁸ Ames, “Meaning as imaging,” 231.

establish his own categorical system to discriminate various kinds of snuff bottles by direct studies of the objects which he himself was interested in collecting. Zhao's "encyclopedia" of snuff bottle encompasses both textual reference from classical texts and his description of his own experience of the culture of snuff bottles.⁴⁹

Zhao's study of snuff bottles epitomizes an important aspect of the epistemological shift in the age of evidential studies, that is the emphasis on personal practical experience in producing authentic knowledge, or "jianwen zhi zhi" 見聞之知 (knowledge of seeing and hearing). This very approach to knowledge was illustrated in Dagmar Schäfer's study of Song Yingxing's *Tiangong kaiwu* 天工開物 [The Works of Heaven and the Inception of Things], a treatise on practical knowledge and technology in China published in the late Ming period.⁵⁰ With her detailed studies of Song's writings and illustrations, Schäfer identifies a shift from textual study of classics to the study of concrete things and practical affairs through personal experience and empirical observation *in situ*, and an expanded notion of what could be considered as legitimate knowledge.⁵¹ Although Song's theory was not widely accepted during his time, it in a way anticipated the epistemological shift in the Qing dynasty.

While Song's focus was primary on handicrafts and technology, the significance of personal experience in acquiring knowledge has emerged in a number of studies on natural objects during the Qing period. In 1698, Nie Huang 聶璜 completed the *Haicuo*

⁴⁹ Zhang Yulin 张钰霖, *Fusheng yinhen: Zhao Zhiqian zhuan* 浮生印痕: 趙之謙傳 (Imprint of the floating world: a biography of Zhao Zhiqian) (Hangzhou: Zhejiang renmin chubanshe, 1977), 211-212.

⁵⁰ On the discussion of Song's rhetoric of knowledge inquiry based on experience, and his emphasis on observation, see Dagmar Schäfer, *The Crafting of the 10,000 Things: Knowledge and Technology in Seventeenth-Century China* (Chicago: The University of Chicago Press, 2011), 130-174.

⁵¹ Schäfer, *The Crafting of the 10,000 Things*, 10-14.

tu 海錯圖 (Illustration of Sea Creatures), which depicted more than three hundred of sea creatures he had seen along the coastal line from Tianjin to Fujian. In the preface, Nie notes that most strange sea animals remained unknowable not because of no one have seen them, but that the fishermen who saw them could not name them, and the literati who knows the name and description had never seen them and thus could not verify it. Now the painter himself “saw [these strange sea creatures] and [thus] believed [their existence], and then [could] depict and explicate these creatures.”⁵² Similarly, in *Ranxi zhi* 然犀志 compiled by Li Tiaoyuan 李調元 (1734-1803) in 1779, the author emphasized in the preface that “for every object [that I] got, [I] recorded their shapes and appearance, and studied where it came from.”⁵³ The emphasis on personal experience and witness the natural beings with one’s eye as the basis for collecting authentic knowledge reflects part of “the empirical criteria for verification” that evidential scholars was seeking to construct, where empirical was defined by Benjamin Elman as “an epistemological position that stresses that valid knowledge must be corroborated by external (textual and otherwise) facts and impartial observations.”⁵⁴

How might the personal experiential approach to knowledge and the “empirical criteria” migrate into Zhao’s Wuchan and Yiyu scroll? While one of the example discussed above, the *Haicuo* album, used the pictorial surface to collect fishes, it was unlikely that Zhao would have encountered the work in the collection of the Qing court.

⁵² “見而信，信而圖，圖而且為之說。” See Wen Jinxiang 文金祥 ed., *Qinggong Haicuo tu* 清宮海錯圖 [Catalog of marine creatures collected in the Qing Palace] (Beijing: Gugong chubanshe, 2014), 44.

⁵³ “每得一物，即誌其形狀，考其出處。” Li Tiaoyuan 李調元, *Ranxi zhi* 然犀志 [Compilation of Burning Rhino Horn], in *Conshu jicheng xinbian* 叢書集成新編, vol 44 (Taipei: Xinwenfeng chuban gongsi, 1986), 211.

⁵⁴ Elman, “Philosophy vs. Philology”, 199.

His pictorial collection of natural products and its underlying visual policy of “realness” are likely to be more closely associated with the culture of epigraphic scholarship or *jinshixue* (the study of metal and stone). From the Northern Song period, *Jinshi* scholars and connoisseurs collected not only antique vessels or stone stela but also rubbings or illustrations of these objects. When scholars had to travel to remote areas or mountains to look for ancient architecture or monuments, a practice termed “visiting steles” (*fangbei* 訪碑), it was usually unlikely to bring back original materials directly.⁵⁵ Therefore, epigraphic scholars developed various methods to recorded what they found in the field. Rubbing was the most common and favorable practice to keep a faithful record of the calligraphy and the original material condition of the stone.⁵⁶ To produce a rubbing, a paper is first placed on the object to be transferred, and with ink and press applied on the paper, producing sunken inscriptions or images shown in white on the paper against black background. The resulting rubbing on the paper is a two-dimensional, authentic imprint directly produced from a three-dimensional object.

For this indexical connection established by the physical contact of the paper surface with an actual object, rubbings were arduously produced and collected by connoisseurs and scholars. However, the method of rubbing has several weaknesses that call for other alternative methods to collect archaic objects. First, the technique of producing rubbing without damaging the original object requires specialized training. For

⁵⁵ Clarissa von Spee, “Visiting Steles: Variations of a Painting Theme,” in *On Telling Images of China: Essays in Narrative Painting and Visual Culture*, ed. Shane McCausland and Yin Hwang (Hong Kong: Hong Kong University Press, 2014), 213.

⁵⁶ Wu Hung, “Rubbings and their materiality and historicity,” in *Writing and Materiality in China: Essays in Honor of Patrick Hanan*, ed. Judith T. Zeitlin and Lydia H. Liu (Harvard University Asia Center, 2003), 2009.

epigraphic scholars visiting steles in remote regions or mountains where the condition was harsh, it was hardly practical to produce rubbings on site. Second, due to the special training and efforts required to skillfully reproduce rubbings, the labor was difficult to find and expensive.⁵⁷ Third, and most importantly, despite their portability, rubbings were not readily transferable to printable materials before xylography was invented. This also suggests that the only means to make a reduced-size copy of a large stele or monument would only be hand-reproduction. These were the problems puzzling epigraphic scholars in the eighteenth century who sought not only to keep personal copy but also to print books on the metal and stone scholarship.

Chu Jun 褚峻, the author and illustrator of *Jinshi jingyan lu* 金石經眼錄 (Record of viewing bronzes and stones) and *Jinshi tu* 金石圖 (Bronze and stone illustrated), developed a unique visual format to accommodate these problems.⁵⁸ Unlike previous illustrations of antiques that presented writing and physical context separately in the pages, Chu invented a style of illustrations registering the materiality of writing by placing inscriptions on the image of the object.⁵⁹ With the inscription containing object drawn in black and the scripts written in white, Chu's illustrations mimicked the effect of a rubbing, which was considered as a more authentic medium due to its indexical

⁵⁷ This is fully discussed in Bai Qianshen's study of collector and epigraphic scholar Wu Dacheng 吳大澂 (1835-1902) and his relationship with his rubbing makers. Bai Qianshen 白謙慎, *Wu Dacheng he ta de tagong* 吳大澂和他的拓工 (Wu Dacheng and his rubbing makers) (Beijing: Haitun chubanshe, 2013), 31-39.

⁵⁸ Chu's practices of compiling the two books and developing a novel visual form to present his record of archaic objects and steles are well illustrated in Lilian Tseng's study, which I will not repeat here. See Lilian Tseng Lan-ying, "Between Printing and Rubbing: Chu Jun's Illustrated Catalogues of Ancient Monuments in Eighteenth-Century China," in *Reinventing the Past: Archaism and Antiquarianism in Chinese Art and Visual Culture*, ed. Wu Hung (Chicago: Center for the Art of East Asia, 2010), 255-290.

⁵⁹ Tseng, "Between Printing and Rubbing," 261-264.

relationship with the original object. As such, Chu imbued his illustrations with a sense of reality by mediating the material quality of the context of writing and by mimicking the visual style of a rubbing. The purpose was to give the readers a feeling “as if they were visiting the monuments in situ while reading the catalogue.”⁶⁰

This virtual experience of visiting actual sites was crucial for Chu’s illustrations to function as collections of these steles and vessels. In the synopsis to the *Siku* compilation of *Viewing*, the compilers noted that Chu’s work was significant because they sought to illustrate the stones and metals had neither been recorded nor “witnessed” (*muji* 目擊) before according to what he “saw with his own eye” (*qinjian* 親見).⁶¹ Both the synopsis and the title of Chu’s work, “viewing” (*guoyan* 過眼), register the central role of the eye in producing knowledge of the antiquities. The experience of witnessing is also highlighted by viewers of the *Yiyu* scroll and Zhao Zhiqian himself: Zhao described how he executed the painting after “seeing these fishes of strange shapes and curious forms;” Jiang Shi’s colophon notes Zhao could depict and explicate these fishes only after he “has seen enough” (*baojian* 飽見) of them; Chen Baoshan’s colophon similarly notes how Zhao “records what he has seen in his spare time;”⁶² Hu Shu similarly notes how Zhao “depicted everything according to what he saw.”⁶³ Seeing, or more

⁶⁰ Ibid, 277.

⁶¹ Ji Yun 紀昀 (1724-1805) et. al. ed., “Jinshi zhi shu tiyao” 金石之屬提要 (Synopsis to the category of gold and stone), in *Qinding siku quanshu* 欽定四庫全書 (1773-1782), *shibu* 史部, *juan* 14, *mulu lei* 目錄類, 2.

⁶² “閒記其所見”, Chen Baoshan’s colophon on the *Yiyu* scroll.

⁶³ “隨所見悉圖之”, Hu Shu’s colophon on the *Yiyu* scroll.

specifically, “witnessing,” has become the trope for both Chu and Zhao to claim the authenticity of the knowledge they collected pictorially.

Furthermore, their illustrations and paintings also seek to recreate the visual experience of witnessing. Neither Chu nor Zhao ever attempted to imitate how the object actually looks. Instead, they translated the physical objects onto the surface of paper with their personal pictorial languages to “mimic” the visual experience of witnessing: Chu depicted the material context of writing, and Zhao sought to “convey the spirit” of the living beings as they are living in front of the viewer’s eyes. The resulting picture thus was an equivalence of the original things, through which the viewer-readers could acquire their experiential knowledge – though it was no longer firsthand, but seeing through the artist’s eye and hand. As E. H. Gombrich notes: “All artistic discoveries are discoveries not of likenesses but of equivalences which enable us to see reality in terms of an image and an image in terms of reality.”⁶⁴ Chu’s illustrations sought to establish the equivalence with an indexical connection to the object it depicted, first by manipulating the visual effect of the rubbing, which is physically connected to the original object, and second with the artist’s body functioning as “the physical connection between antiquity and his readers,” via his observing eyes looking at the steles and his reproductive hand.⁶⁵

Like Chu Jun’s illustration, Zhao’s two scrolls also established its indexical connection with the viewers through the artist’s witnessing eye and reproductive hand. This argument is both textually and visually supported. The textual support comes from the emphasis on his personal perceptive experience with the natural objects both in his

⁶⁴ E. H. Gombrich, quoted in Tseng, “Between printing and rubbing,” 277.

⁶⁵ Tseng, “Between printing and rubbing,” 278.

inscriptions and his depiction. Not only did Zhao state in the inscription of Yiyu scroll that he “saw many sea creatures in strange shapes and forms,” the exegesis given to the fishes or plants was mostly based on personal observation rather than paraphrasing from previous text, which differs from the tradition of “explicating names” as textual collection.⁶⁶ In the Wuchan scroll, for instance, Zhao depicts the flower called *zhuqiu* 珠球 and notes that he saw the flower in the private garden of Zhou family. He also recorded in the exegesis what he heard from the local people or how the species was called in the local region, with specific attention given to its relation to people’s livelihood. The most concrete exegesis was on a plant called *fengchicao* 風癡草 (storm weed), which describes how local people predict typhoon according to the number and locus of nodes on its leaves.

While the inscriptions give the artist a bodily presence at the site where he collected information and made his own observation of these natural objects, the images are themselves extensions of the artist’s eye and hand, a rhetoric borrowed from the lexicon of traditional Chinese painting, as the controlled, calligraphic brush traces are considered as the physical extension of the artist, while the practice of *xiesheng* itself indicating the presence of model in the artist’s eye.⁶⁷ In addition, Zhao’s compositional choice of not showing the objects in greatest clarity but instead jumbling not only different things but also images and texts could mobilize the visual attention of the viewer. It is the practice of looking at things itself rather than the visible details of every

⁶⁶ On the exegesis of Yiyu and Wuchan scroll and their sources, see Lin Jinzhong 林進忠, “Zhao Zhiqian ‘Ouzhong santu’ kuanji dulue” 趙之謙「甌中三圖」款記讀略 [the Inscriptions of Zhao Zhiqian’s “three paintings of Ouzhong”], *Yishu xuebao*, 6 (1999): 11-31.

⁶⁷ Hay, “Discovery of Surface,” 99-101.

object that establish the indexical connection of the vision of the artist with that of the beholder. Like Chu Jun, Zhao similarly presented himself as the “physical connection” between the natural objects and the beholders.

What is physically involved in the process of representation is not only the artist’s body, but also the cognitive faculty, which is illustrated in Zhao’s discussion about honing the skill of seal carving (*moyin* 摹印):

The law of seal carving is to carve the eye with the seals, to carve the mind with the eye, and to carve the hand with mind. The eye has seen plentiful [seals], the mind is familiar with [the seals], so that the craft of the hand could be virtuosic.⁶⁸

摹印法，以印摹目，以目摹心，以心摹手。於目豐，於心通，則於手工。

As the craft seal carving transforms the topography of the physical surface of the stone with a graver, Zhao saw vision has the same power to change the landscape of the mind and the movement of the hand, which allows one to achieve technical virtuosity. It is the power of the eye to leave imprints of the things that came into its view on the mind and the body so that a kind of empirical knowledge could be yielded. It affirms Jiang’s rhetoric of Zhao having seen so many strange sea creatures that he could render their life on the paper in an effortless manner. Zhao’s erudition is not regarded for his ability the rectifying the names but to mobilize these natural objects on his pictorial surface and to reenact his viewer’s experience of seeing and knowing.

⁶⁸ Zhao Zhiqian, quoted in Zou, *Nianpu*, 191-192. Translation note: “*mo*” here means “to carve” or “using a tool to shape something.” Zong Fubang 宗福邦 et al, *Gu xun hui zuan* 故訓匯纂 (Beijing: Shangwu yinshu guan, 2003), 918.

The Surface for Collecting Natural Objects

Zhao's Wuchan and Yiyu scroll both embody the newly risen emphasis on personal experience of witnessing in investigating things and acquiring concrete knowledge, which is appealing for his peer evidential scholars. Hu Shu's colophon fully expressed the appeal he found in Zhao's Yiyu scroll:

Drawing strange fishes is not because of [Zhao's] fond of the strange, [but that] there is no need to draw other fishes. Huishu was intelligent ever since his young age, and was skillful in various fields. Currently he is devoted to the scholarship of practical statecraft, and painting is one of his hobbies. Nevertheless, this scroll is capable of preparing [an inventory of] the local produce of a region, which makes it a work to which other paintings from life could not rival. Nowadays we have a sage emperor, the center and periphery are like one family, crossing the oceans is as easy as walking across the land, and everything is available to us. Huishu illustrated everything that he saw, which could expand our knowledge of seeing and hearing, and facilitate evidential studies. Isn't this more wonderful?⁶⁹

圖異魚，非好異也，他魚不待圖也。撫叔少穎悟，長多能，近大肆力於經世之學，圖續其余事。然此卷足備一方物產，非尋常寫生可比。方今聖人在上，中外一家，涉重洋如履平地，使得盡有。撫叔者，隨所見而悉圖之，將以廣見聞、資考訂，不更快乎哉！

Hu's tone and vision were symptomatic of a post-Opium-War worldview of Chinese intellectuals, found in the political expressions, such as "the center and periphery are like on family" (*zhongwai yijia* 中外一家)⁷⁰ and "crossing the ocean is as easy as walking across the land" (*she chongyang rulüpingdi* 涉重洋如履平地).⁷¹ The experience

⁶⁹ Hu Shu's colophon on the Yiyu scroll.

⁷⁰ The term was "an idiomatic expression of the Qing multiculturalism," David A. Bello, *Across Forest, Steppe, and Mountain: Environment, Identity, and Empire in Qing China's Borderlands* (Cambridge: Cambridge University Press, 2015), 51.

⁷¹ The term was commonly used by intellectuals who embraced western learnings, and especially for those who were first officially sent overseas. For example, it was used in a preface to Zhang Deyi's writing on his overseas experience, published in 1866. Meng Bao 孟保 [late 19th century], "Preface," in Zhang Deyi 张德彝 (1847-1918), *Hanghai shuqi* 航海述奇 [1866] (Changsha: Yuelu shushe, 2008), 436.

of seeing and knowing local flora and fauna was merged into the geopolitical imagination of the nation, which anticipated the establishment of institutions specialized in ordering things and knowledge, offering a social space to look at actual things – natural historical museums would not appear in China until two decades later.⁷² Nevertheless, Zhao's *Yiyu* and *Wuchan* scroll could not be reduced either to an illustrated inventory of natural products or a common *xiesheng* painting. The two scrolls collect natural products not by depicting their forms “realistically” and inscribing their textual knowledge but instead by merging aesthetic experience with the process of knowing, putting the viewer into the position of the “witness” of these natural objects. It is a pictorial surface registering Zhao's own skill and intellectual awareness, epitomizing an age when personal experience became an increasingly important approach to acquiring authentic knowledge. It also imbedded the discourse about the role of visibility in knowledge production continued from early modern China, and would continue to develop in the modern period.

Georges Métaillé has noticed the general lack of descriptive information in botanical illustrations produced in imperial China.⁷³ It is true that illustrations in Chinese medical treatises were barely information-laden and less “realistic” in comparison to the European natural historical illustrations produced around the sixteenth century. Unlike

⁷² Tai Li-chuan 戴麗娟, "Cong xujiahui bowuyuan dao zhendan bowuyuan -- faguo yesu huishi zai jindai zhongguo de ziranshi yanjiu huodong" 從徐家匯博物院到震旦博物院--法國耶穌會士在近代中國的自然史研究活動 [From Zikawei Museum to Heude Museum: The Natural History Research of French Jesuits in Modern Chin]. *Zhongyang yanjiuyuan lishi yuyan yanjiusuo jikan*, 84:2 (2013): 329-385.

⁷³ Georges Métaillé, “The Representation of Plants: Engravings and Paintings.” In *Graphics and Text in the Production of Technical Knowledge in China: The Warp and the Weft*, ed. Francesca Bray (Leiden: Brill, 2007), 487-519.

the printed botanical illustrations, more “realistic” natural historical paintings could actually be found in a variety of sources, from the Song dynasty court style paintings to the natural historical albums committed in the Qing court, and the “pictorial specimen” of Chinese flora and fauna produced by Cantonese export artist under the commission of European naturalists.⁷⁴ These materials prove that the case is never that Chinese artists or draftsmen lack the skill or dismiss empirical observation but that there existed competing models or discourses on the role of visuality in producing knowledge of things.

In her study of Li Shizhen’s *Bencao gangmu* [Compendium of Materia Medica], Carla Nappi notes that Li acknowledged the significance of illustration “for depicting the form or appearance (形狀 *xingzhuang*) of plants and animals” and indeed put great emphasis on the role of seeing and observation in identifying the plants.⁷⁵ Paradoxically, Li did not intend to have the celebrated medical treatise illustrated. A possible explanation would be that the significance of visual information was offset by the forgery of the same appearance as the true object. As Nappi further notes, “merchants frequently created misleading visual cues... [and] peddled drug-related goods. As a result, authors...cautioned against a simple reliance on observation as a guarantor of truth.”⁷⁶ The problem is not only that optical information could be forged both for medicine and art market, but also that visuality was never solely conceptualized based on an observing

⁷⁴ Lai Yu-chih 賴毓芝. "Qinggong dui ouzhou ziranshi tuxiang de zaizhi: yi qianlongchao 'shoupu' weili" 清宮對歐洲自然史圖像的再製：以乾隆朝《獸譜》為例 [Reproducing Renaissance Naturalist Images and Knowledge at the Qianlong Court: A Study of the "Album on Beasts"]. *Zhongyang yanjiuyuan jindaishi yanjiusuo jikan*, 80 (2013): 1-75; Fan Fa-ti, *British Naturalists in Qing China: Science, Empire, and Cultural Encounter* (Cambridge, Mass.: Harvard University Press, 2004), 41-57.

⁷⁵ Nappi, *The Monkey and the Inkpot*, 18.

⁷⁶ *Ibid.*, 41.

subject and an observed object. Art historian Anne Burkurs-Chasson shows that the discourse on vision was thematized in the works of early Qing literati artist like Shitao, whose painting fashioned “a representation of looking that problematized the acts and techniques of the observing subject.”⁷⁷

With competing models on the role of visuality in producing authentic knowledge of the world, optical naturalism or meticulous delineation never became the mainstream in representing botanical or zoological knowledge in imperial China as in Japan and Europe.⁷⁸ Nevertheless, as demonstrated in the previous analysis of Zhao Zhiqian’s Wuchan and Yiyu scroll, there existed alternative visual models recruiting visuality and visual experience in acquiring and presenting natural history knowledge, especially in the wake of the epistemological shift. As experiential knowledge was put at an unprecedented position within the scheme of “proof and verification,” both scholars and artists began to experiment with the pictorial surface to evoke various kinds of visual experience. New visual possibilities, sensibility with materiality, and the “immersive” experience of seeing, witnessing and observing, began to show up on the stage of both popular visual culture and intellectual realms. This could be observed in the emergence of new art forms and representational modes never appeared before, such as one genre of *bogu* 博古 paintings adopting the practice of composite rubbing and the *bapo* 八破 painting representing a variety of broken inscribed papers which creates a *trompe-l’oeil*

⁷⁷ Anne Burkurs-Chasson, “Clouds and Mists That Emanate and Sink Away”: Shitao’s Waterfall on Mount Lu and Practices of Observation in the Seventeenth Century.” *Art History* 19:2 (1996): 171.

⁷⁸ European natural historical illustration was also not that “real” even the technique of naturalism has been well developed during the Renaissance. On the discussion on the politics in representing “real” natural objects, with a vivid example of a “traditional” versus a “real” illustration of a salamander, see Martin Kemp, “Taking it on Trust: Form and Meaning in Naturalistic Representation,” *Archives of Natural History*, 17:2 (1990): 130.

effect.⁷⁹ An earlier example of an album of *The Romance of the Western Chamber*, published in 1640, has been explored by various scholars as an embodiment of the most complex discourse on visuality in Chinese painting.⁸⁰

It is beyond the scope of my thesis to give a comprehensive review of all these new visual interests emerged in the late nineteenth-century paintings. Instead, what I would like to highlight is the connection between new interests in visual experience and new modes of representing natural history knowledge. Zhao's "natural history" scrolls are perhaps peculiar in the art scene of the long nineteenth century in China.⁸¹ Yet the same drive to visualize the process of knowing could also be found in a botanical treatise published around the same time. In 1848, the *Zhiwu ming shi tukao* 植物名實圖考 (Illustrated Research of Names and Facts of Plants) was published. Compiled and illustrated by Wu Qijun 吳其濬 (1789-1847), a high official and a botanist, the thirty-eight-volume compendium encompasses one thousand seven hundred and fourteen plant species, among which five hundred and nineteen species were never recorded before.⁸² The compendium, not so influential when it was first published in 1848, was later

⁷⁹ Nancy Berliner, "The 'Eight Broken': Chinese Trompe-l'oeil Painting," *Orientalism*, 23 (February 1992): 45–59.

⁸⁰ On the discussion about the late Ming dynasty album, see Jennifer Purtle, "Scopic Frames: Devices for Seeing China c. 1640," *Art History* 33, no. 1 (2010): 54-73; Wu Hung, *The Double Screen: Medium and Representation in Chinese Painting* (London: Reaktion, 1996), 246-59; Clunas, *Pictures and Visuality*, 56-57.

⁸¹ The practice combining traditional art form to produce knowledge of natural world was well-established in Japan during the Tokugawa period. It is beyond my scope here to discuss the connection between Zhao's scroll with the Japanese culture of natural history, but it would be interesting to note that Zhao's Yiyu scroll was for a long time in the private collection of a Japanese collector. Ohashi Shuichi 大橋修一, "Chou Shiken Zakki: Igyotsu wo chushin ni shi te" 趙之謙雜記: 〈異魚圖〉を中心にして [A Study of Zhao Zhiqiang: Focusing on Yiyu Scroll], *Calligraphic Studies*, 21 (2011): 3-4.

⁸² Huang Shengbai 黃勝白 and Chen Chongming 陳重明, "Tantan zhiwu ming shi tu kao" 談談植物名實圖考 (Discussing the *Illustrated Research of Names and Facts of Plants*) *Zhiwu zazhi*, 5(1978): 42.

rediscovered and highly appreciated by botanists overseas, noticeably by Japanese botanist Ito Kesuke 伊藤圭介 (1803-1901), who initiated the project of republishing the *Tukao* in Japan in the 1880s.⁸³ Its Japanese editors were especially impressed by the meticulous and detail-loaded illustrations that part *Tu kao* from previous Chinese botanical books. Métaillé similarly notes that the work developed “a new approach to picturing plants,” rendering the plants “in the same spirit as illustrations in modern botanical books,” although the taxonomical system is traditional, similar to that of Li Shizhen’s *Bencao gangmu*.⁸⁴

To demonstrate how Wu’s work embodies the “spirit of modern botanical illustration,” I take the safflower (紅藍 *honglan*) as an example (Fig.8). The *Tukao* illustration shows the upper part of the plant with erected stem, serrated leaves, and three globular flowers aligned asymmetrically within the pictorial frame. Unlike the iconic image of the whole plant usually used in previous botanical works, *Tukao* seems to be brought these objects so close to the viewer’s eyes as if they were specimens examined under a magnifier or a microscope. Wu also utilized the frame skillfully to augment the “scopic” effect, deliberately using the frame to “cut out” part of the plant in an unexpected manner. In effect, only part of the specimen was enlarged and scrutinized, thereby transforming the frame into a scopic field. The visual experience created by Wu’s illustration demonstrates a different kind of learning with the eye from that of Zhao’s scrolls – an expert kind of looking paying great attention to the morphological details of

⁸³ Liang Congguo 梁從國, Riben mingzhi shiqi “chongxiu zhiwu ming shi tu kao” kaoshu 日本明治時期《重修植物名實圖考》考述 [An examination on the *Republished Edition of Research of Image and Reality of Names of Plants* in Meiji Japan], *Wakumon*, 31:25 (2014): 36-38.

⁸⁴ Métaillé, “The Representation of Plants,” 489.

plant. Wu also did not apply optical naturalistic technique to reconstruct the materiality on the pictorial surface. Instead, his illustrations sought to recreate the visual experience of scrutinizing a plant with one's scholar eye.

There is no evidence showing that Wu observed the plants with an optical device to enhance the vision. Neither would it be my intention to propose that Wu's botanical illustrations or Zhao's scrolls marked a visual breakthrough in their own pictorial genre. The real significance of their works lies in their use of different visual modes to engineer a surface for seeing and knowing, which implies their approaches to the production of visual knowledge of things. It is the discovery of an epistemological surface that continues to function and metamorphize during the late nineteenth century and the early twentieth century.

Chapter 2. Collecting Nature in Modern China: Jin Cheng and his copy of *Scroll of Natural Products from Ouzhong* (1922)

Jin Cheng's encounter with Zhao Zhiqian's Wuchan scroll was dated to the summer of 1922. He should have been impressed by this handscroll depicting twenty local species from Wenzhou, which mobilized him to produce an exact copy of the work. He faithfully reproduced the original title, Zhao's inscription, the form and display of every object, as well as the position of names and exegesis (Fig. 9). The only difference with the original scroll is Jin's own inscription added at the end of the copy of the scroll:

Zhao Bei'an depicted the *Ouzhong wuchan tu* as a gift presented to Jiang Taoshu of Changzhou. As Zhao noted it as the first volume, he might have made more than this. Widely collecting native natural resources can make up for the defects of the gazetteers. Copied by Jin Cheng in Yen-ching, July 6, 1922.

赵悲盦畫甌中物產圖，贈長洲江弢叔者，自記為第一卷，所作當不至此。博采方物，可補志乘之缺。壬戌七月六日，吳興金城臨于燕京。

Taking Jin Cheng's copy of Wuchan scroll as the point of reference, this chapter seeks to examine how Jin conceptualized copying as a means to collect things and acquire knowledge in his specific historical circumstance. It is not my intention to review the function of copying in Chinese art history, which has been studied in depth. My aim is instead to historicize Jin's practices of copying and the underlying intellectual discourse in early twentieth-century China. This chapter thus highlights Jin Cheng the copyist, the illustrator, and the collector, which differ from how he has been portrayed in most previous literature. Jin is widely known as the leading figure of the traditionalists

and defender of “National Essence” in the Northern artworld.¹ His artistic achievement, pedagogy, and influence have been well examined in a number of previous studies.² His social and cultural practices have also been discussed, more or less, in studies focusing on the Institute for Exhibiting Antiquities (*Guwu chenliesuo* 古物陳列所, the former Palace Museum in Beijing), the Sino-Japanese Joint Art Exhibitions and the Peking Society of Natural History.³ Nevertheless, Jin’s copies and his practice of copying were generally described as his attachment to artistic tradition, or a proof of his skill, and their conceptual complexity and contextual specificity have not been given enough attention. Neither has his interest and undertaking in natural science been taken seriously in any scholar work, despite being occasionally related to his skill in “observation and realistic

¹ Jin Cheng is regarded as one of the representatives of the “traditionalist group – the National Essence School” opposing to the “reformists.” See Kuiyi Shen, “Traditional Painting in a Transitional Era, 1900-1950,” in *A Century in Crisis: Modernity and Tradition in the Art of Twentieth-century China*, ed. Julia F. Andrews et. al. (New York: Guggenheim Museum, 1998), 87.

² The most comprehensive studies on Jin Cheng are three these, all published in Chinese: Yun Xuemei 雲雪梅, “Xinjiu yerong, gubu bufeng – Jin Cheng chulun” 新舊冶熔, 故步不封--金城初論 (Blending the old and the new: A preliminary study on Jin Cheng), MA Thesis (Beijing: Graduate School of Chinese National Academy of Arts, 1997); Siu Wai-man 蕭瑋文, “Jin Cheng (1878-1926) yanjiu” 金城 (1878-1926) 研究 [A Study of Jin Cheng (1878-1926)] (PhD diss. Chinese University of Hong Kong, 2001); Qiu Minfang 邱敏芳, “Jincheng huihua yanjiu” 金城繪畫研究 [Research on Jin Cheng’s Art] (MA Thesis, Taipei National University of the Arts, 2003).

³ Jin Cheng’s involvement with the establishment of the Institute for Exhibiting Antiquities is noted in Wang Cheng-hua, “The Qing Imperial Collection, Circa 1905-25: National Humiliation, Heritage Preservation, and Exhibition Culture,” In *Reinventing the Past: Archaism and Antiquarianism in Chinese Art and Visual Culture*, ed. Wu Hung (Chicago: Center for the Art of East Asia, 2010), 323; on the organization of Sino-Japanese Joint Art Exhibitions in the 1920s, see Tsuruta Takeyoshi 鶴田武良, “Nikka (Chunichi) kaiga rengou tenrankai nit suite: kin hyakunen rai Chugoku kaiga shi kenkyu” 日華 (中日) 繪畫連合展覽会について : 近百年來中國繪畫史研究 [About Sino-Japanese Joint Art Exhibition: The Study of Chinese Art History of the Recent a Hundred Years] *Bijutsu kenkyu* 383 (2004): 1-33; Wong, Aida Yuen, *Parting the Mists: Discovering Japan and the Rise of National-Style Painting in Modern China* (Honolulu: Association for Asian Studies, 2006), 100-114; Jin’s role in the Peking Society of Natural history is noted in Sun Chengsheng 孫承晟, “Ge Lipu yu Beijing bowuxuehui” 葛利普與北京博物學會 [Amadeus William Grabau and the Peking Natural History Society], *Ziranhexueshi yanjiu*, 34:2 (2015), 187.

depiction.”⁴ Jin’s devotion to scientific illustration in the last few years of his life seems to be a deviation rather than a congruent part of his identity as a “traditionalist artist,” an identity that has been taken for granted, oversimplified, unified as the antonym of reformist in the narration of modernism in twentieth century China.

The re-discovery of Jin’s copy of Wuchan scroll, however, provides the material to explore the rich conceptual connection between Jin’s ideas on copying and knowledge production. Taking the copy of a painting about the knowledge of natural objects as the primary example, this chapter seek to analyze Jin’s practice of copying, his conception of art and in relation to his other intellectual activities, and a specific case of the collaboration between the painting and scientific studies during the Republican era. This chapter argues that both Jin’s practice of copying and his “scientific depiction” of nature are predicated on the artist’s knowledge of the eye and hand, which can participate in collecting objects for studies of both art history and natural history. These objects collected and displayed in the pictorial space are visible materials embodying the historical and geographical continuity of the nation. With the reproductive hand, Jin thus identified a space where art could participate in the production of scientific knowledge and push forward China’s modernization.

“Meta-copy”

Jin’s inscription elaborates that his interest in the Wuchan scroll was triggered more by the subject matters of the scroll than by Zhao’s style. Jin was curious about the

⁴ Qiu also mistakenly states that Jin’s bird illustrations, which will be discussed later in this chapter, was prepared for the “National Museum of Art” (中華博物院). Qiu, “Jincheng huihua yanjiu,” 25, 95.

Wuchan scroll titled “the first volume” and speculated if the scroll was part of a larger project that Zhao had conceived to “broadly collect the local natural products.” Although it was not mentioned in the inscription, elsewhere Jin has expressed his appreciation of Zhao’s skill and style. In his writing on painting theory, *Huaxue jiangyi* 畫學講義 (A handout of painting study), which was completed and published in spring of the same year 1922, Jin praised Zhao’s skill of using the “slanted brush” (*cebi* 側筆) from the calligraphy of seal script to depict natural objects, achieving an “innovative structure” (*jiiegou zhi xinqi* 結構之新奇) and “a layout that is close to the real” (*buzhi zhi Jinzhen* 佈置之近真).⁵ He encourages beginners in flower painting to study Zhao’s artistic technique, noting that “after long practice and achieving Zhao’s technique, one can freely compose elegant pictures with strange and curious flowers.”⁶ Jin saw Zhao’s ability in capturing the strange and exotic flowers realistically and aesthetically useful for the beginners to imitate and study. He thus appealed for Zhao in *Jiangyi*, which was thought to be used as the textbook for pedagogy in the newly founded Chinese Painting Research Society.⁷

The Wuchan scroll does not belong to the genre of flower painting, strictly speaking, but it fully demonstrates what Jin saw as Zhao’s “innovative composition” and “realistic layout”, and the artist’s ability to vividly portray the uncommon or exotic natural objects that one could rarely see both in real life and in paintings. In the *Jiangyi*,

⁵ Jin Cheng, *Huaxue jiangyi* 畫學講義 (A Handout of painting study), in *Huaxue Jicheng* 畫學集成 (Anthology of painting study), ed. Wang Bomin 王伯敏 and Ren Daobin 任道斌 (Shijiazhuang: Hebei meishu chubanshe, 2002), 919.

⁶ “久之得其法，雖見奇異之花，亦能任意構圖而美觀也。” Ibid., 919.

⁷ Qiu, “Jin Cheng huihua yanjiu”, 102.

Jin did not specify why or how Zhao's method could capture the exotic flowers realistically. He simply urged the students to study Zhao's works and "carefully practice" his method. In such a light, it could probably be assumed that the copy of Wuchan scroll would be his own assignment of studying Zhao's painting.

Jin was widely known for his skill in copying ancient masterpieces during his time. It has been noted that Jin Cheng usually made three types of copies: exact copies of the original work made by directly imitating the original work, copies made based on his memory upon seeing the original work, and copies with minor modifications "according to his own aesthetic standard."⁸ Some have noted that Jin also practiced facilitated copying. He embraced new techniques such as the "tracing table," which was made by placing a lamp under two layers of glass, in between which a painting could be inserted. Facilitated by the "tracing table," Jin would be able to transfer the original painting to the new surface without missing any trace of the brush.⁹ Jin's "tracing table" was unavoidably discussed in a poignant tone among some intellectuals during the time. Ma Xulun 馬敘倫 (1884-1970), a scholar from the National Essence Circle, pointed out that the dependence on trace copying resulted the situation that "none of [Jin's own painting] is appreciable" (*wuyi keguan* 無一可觀).¹⁰ Whether or not Ma's criticism of Jin is fair, trace copying (*mo* 摹) has been a standard practice in art, especially for beginners in

⁸ Qiu, *Jin Cheng huihua yanjiu*, 53-54.

⁹ Jin himself never mentioned about the "tracing table." The information came from the oral historical record collected from an interview with Jin's nephew Jin Kaiying 金開英 (1902-1999). Siu, "Jin Cheng yanjiu," 119.

¹⁰ Ma Xulun 馬敘倫, "Hua ke fuding hu" 画可複定乎 (Could painting be copied), in *Shiwu yu shen* 石屋续渾 (Shanghai: Jianwen shudian, 1949), 172.

calligraphy who uses model books to trace the movement of brush. The unfacilitated copying by imitating the original or model, termed as *lin* 臨 (free copy), is usually a more advanced level practice. For pedagogy in calligraphy, specifically, both *lin* and *mo* are necessary trainings for different purposes: *lin* could readily capture the expressivity or “idea” of the brush (*biyi* 筆意) but might lose the position or structure (*weizhi* 位置); *mo*, in the opposite, could capture the structure but might miss the “idea” of the brush.¹¹

There is no source indicating how Jin used the “tracing table.” It is likely that Jin would use the facilitation only when he sought to transfer the original painting mechanically to produce copies that look exactly the same as the original, which was not the case for his daily practice. Most of his existing paintings were noted or titled as *lin* rather than *mo*, including the copy of the Wuchan scroll. There are certain circumstances when Jin would need to produce exact facsimiles with a tracing table. For instance, during his service at the Institute for Exhibiting Antiquities in the mid-1910s, Jin called together staff and some of his disciples to reproduce two facsimiles for each of the royal portraits. One copy would be used for display in the hall, and the other would be sent to other cities, while the original painting is to be stored permanently to avoid damage.¹² The use of “mechanical” one-to-one reproduction for practical purposes, such as public display and dissemination for the sake of preserving original artworks, was not to be confused with his regular practice of copying. In most cases, Jin never meant to forge any ancient paintings. He always left his own title, inscription or seals to discriminate his

¹¹ “臨書易失古人位置，而多得古人筆意；摹書易得古人位置，而多失古人筆意。” Zhang Honglai 張鴻來, *Shufa* 書法 [Calligraphy] (Beijing: Beijing wenhua xueshe, 1937), 74.

¹² “Jin Gongbei xiansheng shilue” 金拱北先生事略 (A short biography of Mr. Jin Gongbei), *Hushe yuekan* 湖社月刊, vol. 1-10 (1928): 5.

copy from the original work. These copies were either made for the purpose of self-training and pedagogy, keeping them for himself or to train his students. Some of them were also executed as gifts to his friends, families, and students.¹³

Jin Cheng's complex conception of the practice of copying could be revealed in his copy of the *Fang songyuanren suoben huaba ce* 仿宋元人縮本畫跋冊 [Imitations of Song and Yuan Masters, Copies in Reduced Size: Paintings with Colophons], now known as the *Xiaozhong xianda ce* 小中見大冊 [To See Large within Small] by Wang Shimin.¹⁴ The work, titled *Beilou lin Dong huace* 北樓臨董畫冊 (Album of Beilou's copy of Dong Qichang), took Jin more than one year to finish. Together with Wu Changshou 吳昌綬 (1867-1927), Jin compiled a full list of the twenty-two paintings in the otherwise uncredited original album. In Jin's inscription, he mentioned his practice as *duilin* 對臨 (free-hand copy), and that he started the project in 1916 when he found the original during his service at the Institute for Exhibiting Antiquities.¹⁵ He described how his own practice was inspired by the original album which "collected together huge works in tiny scale, compiled styles and rules from various canons, and stored a large amount of

¹³ Qiu, *Jin Cheng huihua yanjiu*, 53-54.

¹⁴ Jin and Wu wrongly attributed the work to Dong Qichang, and it was not until recently that the work was attributed to Wang Shimin, since Dong "never made exact copies." On the original *To See Large Within Small* album, see Wen Fong, *To See Large within Small in Possessing the Past: Treasures from the National Palace Museum*, eds. Wen Fong and James C.Y. Watt (New York: Metropolitan Museum of Art, 1996), 473-6.

¹⁵ Jin wrongly identified the album as Dong Qichang's *Fang songyuanren suoben huaba ce* 仿宋元人縮本畫跋冊. Deeply impressed by the twenty-two-page album, Jin Cheng spent one year to make an exquisite copy, and, together with his friend Wu Changshou, they compiled a full list of the twenty-two paintings in the otherwise uncredited original album. See the inscriptions in Jin Cheng, *Beilou lin Dong huace* 北樓臨董畫冊 (Album of Beilou's copy of Dong Qichang) (Beijing: Hushe yuekan, 1920s). The work was advertised in the Hushe yuekan, but the exact publication information was unclear. Also see Qiu, "Jin Cheng huihua yanjiu," 37.

paintings in a wrapped box.”¹⁶ In a similar tone, Wu Changshou in his colophon also discussed the practice of ancient masters reproducing famous paintings in reduced-size and keeping them as learning materials for various styles and canons. Wu continued to note that with the development of photography, nowadays most people would use reproduced photocopies to study ancient works conveniently, while Jin chose the difficult path to “copy with his mind and follow [the ancient masters] with his hand.”¹⁷

For both Jin and Wu, the *To See Large Within Small* album is not only an ancient masterpiece by the orthodox school master Dong Qichang – to whom the album was wrongly attributed at their time – but also an evidence of the artistic tradition of which they were a part and a continuation. What makes the *Beilou lin Dong* album especially interesting is its characteristic as a “copy of copies” – a copy that engages in the discourse of copying. It could be termed as a “meta-copy,” borrowing from Etienne Gilson’s definition of “meta-pictorial.”¹⁸ Different from a “metapicture” that could “stage the self-knowledge of pictures” in its pictorial space, the *lin Dong* album demonstrated its self-knowledge about copying as a whole project, including its next reproduction when it was printed by *Hushe Yuekan* a decade later.¹⁹

¹⁶ “斂鉅製於方幅，集師法於眾家，巾箱可儲煙墨。” Jin Cheng’s inscription after the *Beilou lin Dong huace*.

¹⁷ “尺度容有減縮，然全形俱在，霑惠來學甚鉅，昔賢固不如是之易。而北樓獨好為其難，心摹手追。” Wu Changshou’s inscription after the *Beilou lin Dong huace*.

¹⁸ Gilson originally coined the word to refer to the kind of artistic practice that “deals with philosophical and aesthetic problems raised by painting... but which painting itself is not able to tackle with its own means.” In Gilson’s wake, the term was widely adopted in contemporary art and visual culture in Euro-America, referring to the self-referential practices of art that is aware of its relationship with the discourse, the discipline, and its own ontology. See Carla Taban, *Meta- and Inter-images in Contemporary Art and Visual Culture* (Leuven, Belgium: Leuven University Press, 2013), 22.

¹⁹ Paraphrased from W. J. T. Mitchell’s statement on “meta-pictures”: “Meta-pictures are pictures that show themselves in order to know themselves: they stage the ‘self-knowledge’ of pictures.” W. J. T.

Jin and Wu's conceptions of copying were aligned with traditional Chinese art theories as well as culture of copying in Chinese art. From the most influential "Six Laws" of Xie He 谢赫 (active ca. 500-535?), "copying by transmission" (*chuanyi moxie* 傳移摹寫) had been set as the bedrock for practitioners of Chinese painting.²⁰ Learning from ancient masters by copying was a constituent to the artistic culture in imperial China. Its significance lies not only in apprenticeship, as Martin Powers notes, but also in the formation of canons in the artistic culture where exists an "art historical pluralism," namely multiple competing traditions.²¹ This very art historical aspect of mimetic practices put an emphasis on the accessibility of models – the masterpieces to learn and copy from. Both Jin and Wu have noted the difficulty of learning directly from original works due to their limited accessibility. The ancient master's solution to this problem, as they figured out from the "To See Large within Small" album, was to produce hand-made facsimiles. On the one hand, these reduced-size facsimiles are records of the training process, which is a fundamental function of copying in traditional Chinese art. On the other hand, the album is also a collection of "type specimens" that could potentially be used for future studies.

As such, the "To See Large within Small" album is both a record of the training process and a collection of actual objects – the masterpieces that Dong has viewed and

Mitchell, "Metapictures," in *Picture Theory: Essays on Verbal and Visual Representation* (Chicago: University of Chicago Press, 1994), 48.

²⁰ Katharine Persis Burnett. *Dimensions of Originality: Essays on Seventeenth-century Chinese Art Theory and Criticism* (Hong Kong: The Chinese University of Hong Kong Press, 2013), 35-36.

²¹ Martin J Powers, "Imitation and Reference in China's Pictorial Tradition." In *Reinventing the Past: Archaism and Antiquarianism in Chinese Art and Visual Culture*, eds Wu Hung (Chicago: Center for the Art of East Asia, 2010), 124.

directly learned from. While type specimens of an animal or plant function to represent the general features the species of a given region, the reduced-sized copy of the original masterpiece should ideally represent the feature of the artistic canon that it belongs to. Art historian Wang Jingling identifies the original “To See Large within Small” album as the “paradigm” established by Wang Shimin. On the one hand, the creation of the album, by collecting the structure and composition of a variety of canonical landscape paintings in reduced-size, is a process for the artist’s “training of the eye.”²² Furthermore, the album itself is also a pictorial collection of antiquaries rooted in the traditional Chinese practices of connoisseurship (*tuhui shoucang* 圖繪收藏).²³ As such, the album “To See Large within Small” is itself a pictorial collection of objects envisioning the cosmological system of Chinese art and structure of Chinese art historical knowledge.²⁴ The art historical consciousness of album found the expression in Jin’s inscription “storing a large number of paintings in a wrapped box” (巾箱可儲煙墨).

When Jin was copying Wang Shimin’s art history collection, he added several marks to construct his own collection. Jin and Wu identified the title of each original painting and constructed a catalogue, which was attached at the beginning of the printed version of the *Beilou lin Dong* album. On the one hand, it is a gesture showing that the “specimen” could never replace the original, which Jin has repetitively mentioned in his *Jiangyi*. He stresses that “one should first study art connoisseurship before learning how

²² Wang Jingling 王靜靈, “Jinli dianfan: Wang Shimin yu ‘xiaozhong xianda ce’” 建立典範: 王時敏與《小中現大冊》 [Establishing Paradigm: Wang Shi-Min and Album *to See the Large within the Small*], *Meishushi yanjiu jikan*, 24 (2008): 195-200.

²³ *Ibid.*, 203-209.

²⁴ Wang traced the Daoist origin of the term “*xiaozhong xianda*” and argues that album embodies the “ideal world of art” in Wang’s conception. *Ibid.*, 213.

to paint; if one is able to authenticate an ancient painting, [his/her] theory of painting is definitely accurate even though [he/she] never learned how to paint.”²⁵ On the other hand, reading together with Jin and Wu’s inscriptions, the whole *Lin Dong* album is a discourse on copying as the first and foremost practice of studying original masterpieces. Copying does not mean to mechanically mimic what one sees; it is but a process of comprehension with one’s eye, hand, and mind, as Jin stresses that one should always read theories before practicing painting.²⁶

Jin’s view towards art historical tradition shares some similarities with the Orthodox school, as demonstrated in his act to produce the *Lin Dong* album. Jin was an admirer of both Dong Qichang and Wang Shimin. He saw a high level of originality in the works of Dong, praising them as demonstrations of “real curiosity and creativity” (斯為真奇，斯為創作).²⁷ In Jin’s view, Dong’s creativity is inseparable from his ability to draw from and synthesize a repository of styles and principles of past canons, which is termed “art-historical painting” by art historian Max Loehr.²⁸ Dong’s “alleged copies,” in Loehr’s word, are indeed creations as the artist dissolved and digested concrete evidence, transforming them into abstract art historical concepts, based on which he developed his own style as ideas:

Going as far as renouncing the original work, the painter certainly does not longer copy or imitate. For his model with its sensuous reality disappears behind a more or less abstract concept of recurrent traits or principles, a concept in which the ancient master’s individual works merge into one single, blurred image. But if...entire oeuvres are telescoped into a

²⁵ “學畫當先學鑑別，能鑑別古畫，雖不學畫，而其論畫亦必精確。” Jin, *Huaxue jiangyi*, 959.

²⁶ “故欲摹古人之墨跡，須兼讀古人之畫論。” Ibid., 954.

²⁷ Ibid., 950.

²⁸ Max Loehr, "Art-historical Art: One Aspect of Ch'ing Painting," *Oriental Art*, 16:1 (Spring 1970): 35.

uniform body of stylistic tradition, matters become very abstract – we are faced with an historical concept of lineage instead of visual evidence.²⁹

Dong's originality, in both Loehr's discussion and Jin's view, is a product of his comprehensive art historical knowledge, whose bedrock is in the "To See Large within Small" album which embodies the industrious process of training and collection. Thus, for Jin Cheng, copying as a practice both of training and collection is the fundamental approach to acquire art historical knowledge. In this sense, the *lin Dong* album is both the reconfirmation of the traditional value and the evidence of the value itself. Like other copies he has produced, it is not "artistic creation" in any sense, yet nor is it ontologically inferior than the originals. It is Jin's own collection of art historical knowledge as well as the process of painting.

The later publication of *Beilou lin Dong* album added another level of meaning to the album and its nature as an exact hand-produced copy. While the exact year of publication is unknown, the latest colophon was dated to 1920. It was also advertised in the combined issue 11-20 of *Hushe Yuekan*, published in 1929, noting that "the album is divided into two volumes, and the price for each volume is twelve *yangyuan*".³⁰ Compared to another catalogue of Jin's paintings priced at eight *yangyuan* advertised in the same year, the album seemed to be targeting collectors who could afford a higher price.³¹ There might be more than one printed version, since the one I consulted is not divided into two volumes (Fig. 11). The album was printed on thick rice paper, with glassine paper and carbon paper bound in between and at the end of the book. The title of

²⁹ Ibid., 37.

³⁰ Qiu, "Jin Cheng huihua yanjiu," 41-42.

³¹ Advertisement on *Hushe yuekan*, 21 (1929), 2.

the album was written by Chen Baochen 陳寶琛 (1848-1935), who is known as the teacher of Emperor Puyi, and has written the epitaph for Jin Cheng. The title page follows Jin's portrait, the table of contents and ended with four colophons. These additions on the printed album further reconstructed the album as Jin's "original" work rather than a derivative of the original album. Entering the new cultural and social space as printed copies, the *lin Dong* album reaffirmed its new ontological status as collectible art historical objects closely associated with Jin's artistic persona.

The Space for "Broadly Collecting Natural Products"

Jin's scroll *Lin Zhao Zhiqian Ouzhong Wuchan tu* is a twin of the copy of "To See the Large within the Small" album. While the model of the latter is a pictorial collection of art historical objects, the former is a pictorial collection of natural historical objects. Jin refers to Zhao's Wuchan scroll as "broadly collecting natural products" (*Bocai fangwu* 博採方物), which could mean both collecting real objects and the knowledge of those objects. The sentence implies a subject, the artist, as an agency who enacts the action of "collecting local natural objects." It does not specify the method of collecting, and what are the "gaps" in the gazetteers – with which Jin might mean traditional gazetteers or modern encyclopedia. These ambiguities in Jin's statement could perhaps be clarified from a close reading of the painting, which is a copy and a "collection" of Zhao's pictorial natural historical collection. As a naturalist collects natural objects with nets, chemicals, and cabinets, the artist collects things with their images, names and textual life, using brush, paper, ink and pigments. The process takes

place in a pictorial space where knowledge of nature and art coexists and transform into each other. This section examines such a space in Jin's copy of the Wuchan scroll.

Having in the previous section mentioned that Jin might have used the tracing table to facilitate copying, we might speculate whether the Wuchan scroll is free copy or not. It could in fact be observed from some small "mistakes" that it is unlikely for Jin to use a "tracing table" to copy the Wuchan scroll. Jin's copy is slightly wider and longer than Zhao's scroll; Jin's scroll is 39 centimeters in width and 3.65 meters in length while the original Wuchan scroll is 35.6 centimeters in width and 2.9 meters in length. In some parts Jin "lost the trace" of the object's position. The most obvious part would be the *heyu changchun* 荷葉長春 (Indian crest), a creeping plant with freely extending stems and orange-red flowers at the beginning of the scroll. Jin also modified the form of some objects, such as the *tayu* 搨魚 (plaice), from an irregular spindle-shaped fish to one with "standard" streamline body which might make more sense to him (Fig.10). Despite these small deviations, Jin managed to transpose most of the curious natural objects to his pictorial space in exactly the same way as how Zhao arranged them.

Freehand copying, even with the original model placed side by side, is not an effortless means to keep track of the position – especially for copying a work Zhao's Wuchan scroll, where twenty kinds of exotic natural objects were almost arranged as a random jumble. In *Huaxue jiangyi*, Jin has noted two "tricks" for Zhao's flower painting to be "realistic": first is the composition by arranging the strange and curious objects in a manner "close to the real." Second is the brush should be "without any ambiguity" so that the flowers could be rendered "with no difference from the real flowers."³² The first is

³² "入手時須細心練習，無一筆模糊處，始能與真花無異。" Jin, *Huaxue jiangyi*, 919.

about how to arrange objects in the pictorial space, the second is on the control of brush to capture a form with clarity and accuracy.

The two artistic techniques each conforms to one kind of space in the Wuchan scroll defined by the images of the objects: one is their “natural environment,” which is defined by their vivacity; the other is the “exhibition space,” where they are placed together as a whole collection. In the first kind of space, they are seen as individual forms, movement of brush trace, lines, washes, colors; in the second kind of space, they are seen as the context of each other (rather than syntax, as they do not narrate the same meaning), defining and defined by the visibility and invisibility when two objects are closely placed together, and their interaction with the frame. If the first kind of space defines the organicity of the images and words, the second kind of space defines their characteristic of being concrete things.

Both artistic techniques are thus in fact associated with perceiving an object, a concrete thing from the pictorial space. However, the space itself is not defined as how the eye sees – a virtual space with a perceptual center defining a fixed geometrical structure, which is a common three-dimensional space. However, when an artist-copyist is seeking to copy the Wuchan scroll, he must perceive how the pictorial space is defined by the movement of the brush as well as the movement each individual object. As has been discussed in the previous chapter, the movement in part contributes to the visual effect of vivacity and bringing the fishes and plants into presence. That is to say, in Jin Cheng’s view, to what extent one could achieve the sense of realness as Zhao Zhiqian did is dependent on how one could reconstruct the pictorial space by resuming the movement of brush traces and the images.

In such a light, the real challenge for Jin to make a free copy of the scroll is to follow the movement of every brush trace in order to reconstruct not only a number of beings from the living nature, but also a continuous moving space. The pictorial task is much more than reorganizing a group of images and texts on the surface of paper. Moreover, even the texts would be perceived as real things and architectural structures of the visual field.

Copying a painting like the Wuchan scroll is far more complex than copying pictures or calligraphy in a model book with a group of orderly arranged forms and traceable brushes. It requires the copyist to fully comprehend the “biology” and “ecology” of the brush, images, and texts.³³ The process of copying thus is also a process of collecting the pictorial life of these natural beings that the copyist has never seen in reality, the strange sea anemones, long green vegetables, goose barnacles, fishes, whole plants, and cut flowers. Unlike diagrammatically displayed images in a common natural historical textbook, the composition of a random, disorganized jumble of objects further adds to the challenge and their mobility as life forms in the pictorial space. It is what Jin saw as the most challenging format for flower painting – the handscroll – which could serve as the “touchstone” of the artist’s skill.³⁴ The visual field of a typical handscroll with extended horizontal space and limited vertical space does not allow a visual center for the viewer’s gaze.³⁵ And for one to invoke a sense of reality on such a space, the

³³ The discussion about “biology” and “ecology” of brush is inspired by John Hay’s discussion about the space dialectic of brush and a “living, generative” surface in Chinese painting. John Hay, “Surface and the Chinese Painter: The Discovery of Surface,” *Archives of Asian Art*, 38 (1985): 100-103.

³⁴ “余嘗謂花卉者不作橫卷，其藝不得進。” Jin, *Huaxue jiangyi*, 919.

³⁵ On the format of handscroll, see Wu Hung, *The Double Screen: Medium and Representation in Chinese Painting* (London: Reaktion, 1996).

objects could not be depicted as an array of patterns; the artist would have to use images and texts to effectively construct a “moving vision.”

The artist-copyist’s craft is noted as the “reproductive hand,” in art historian Jonathan Hay’s words: “With the reproductive hand, the eye’s job is to constrain the hand, which has to follow the eye’s orders...With the productive hand, the eye imagines possibilities for the hand, on the basis of which the hand will make its own decisions.”³⁶ When we revisit the process of Jin copying the Wuchan scroll, it is in fact clearer that copying is ultimately the hard-work of the eye and the coordination of the hand. Yet what determines the “eye’s orders” is a “scientific” and expert kind of looking. The artist-copyist not only have to look, but also have to know what to look at and how to look. The knowledge of the eye is, firstly, accumulated from previous experience of looking by “broadly looking” (*bolan* 博覽) to reach a stage what Jin mentioned as “having paintings in the eye” (*muzhong you hua* 目中有畫).³⁷ In addition, one must learn how to look by comprehending the theories and principles of the world of painting, which are like physical laws of the real world.³⁸ Last but not least, the knowledge of eye is always connected with seeing “scenes and things” (*jingwu* 景物) in reality and daily life as much as possible.³⁹

In such a light, copying for Jin Cheng is an important approach not only to practice the hand but also to collect the knowledge of the eye. Jin Cheng sees the

³⁶ Jonathan Hay, “The Reproductive Hand,” in *Between East and West in Art*, ed. Shigetoshi Osano (Cracow: Artibus et Historiae, 2014), 330.

³⁷ Jin, *Huaxue jicheng*, 945, 959.

³⁸ See note 26.

³⁹ Jin, *Huaxue jicheng*, 953

knowledge of eye acquired from the pictorial surface continuous with what one sees in the real life, and thus to copy the Wuchan scroll would be for Jin Cheng also an act of collecting both Zhao's art and the natural products. Jin Cheng confirmed what he valued in Zhao's practice of "broadly collecting natural objects" by producing his exact copy of Zhao's Wuchan scroll: that is, a shared acknowledgement of the knowledge of the eye and the hand, of what to look and what the artist could do for the production of knowledge.

As a (re)collection of natural products and a collection of Zhao Zhiqian's artistic skill, Jin's copy of the Wuchan scroll further reflects on the meeting between the knowledge of nature and the knowledge of art, in a pictorial space where images and texts are fundamentally undiscernible. As has been discussed in the last chapter, the texts are not only linguistic signs but also visual and formal components of the picture, while the images could be read as verbal signs with their proper names attached. It is not a new notion that ink painting shares the same origin with the art of calligraphy, and both are predicated on the movement of brush and character of ink. These movements are not simply manifestations of artist's spiritual force or personal expression, as how literati painting was sometimes theorized in the early twentieth century. A pictorial space of traditional painting, constructed by the physicality of the brush, ink, water, and paper, is essentially material. The materials and medium of art were regarded as carriers and embodiment of the Chinese culture, which was part of the discourse on culture in the early twentieth century.⁴⁰

⁴⁰ Xu Beihong, for instance, also expressed the similar view in his 1918 talk, noting that "but art should still depend on other materials" (然藝術復須藉他種物質憑寄). See Xu Beihong, "Zhongguohua gailiang zhi fangfa" 中國畫改良之方法, in *Ershi shiji zhongguohua taolun ji* 二十世紀中國畫討論集 (Discussion

Jin Cheng's insistence on collecting by copying registers this material view on Chinese culture. He was noted to be fastidious about materials such as paper and pigments. He emphasized that when copying a painting from a specific period, one should use the similar kind of paper as the original painting.⁴¹ In the similar way that an artist skillfully organized these basic materials to give the intangible culture and history concrete forms, he would also contribute to knowledge in other disciplines with the same sensibility to present the materiality of knowledge with the same materials and intellectual faculties. In Jin's own words, painting is a way to "create things" (*shengwu* 生物), which conforms to the Confucian epistemological system illustrated by Roger Ames. To create things, the artist should have the "benevolence" (*renxin* 仁心) as that of the Heaven and Earth.⁴² The use of "benevolence" recalls Tan Sitong's "study of benevolence" published in 1896. Tan equates "*ren*" to "love...ether, force, gravity, heat, and electricity," adopting the concepts from western learning to accommodate the traditional worldview.⁴³ If the practice of painting is itself the process of making and generating mobilized by benevolence, the same power could also generate other forms of materials as embodiments of culture and knowledge; copying, by revisiting the process of generation and recreating the new cultural object, could serve as a mean to cultivate

about Chinese art in Twentieth Century), ed. Shao Qi 邵琦 and Sun Haiyan 孙海燕 (Shanghai: Shanghai shuhua chubanshe, 2008), 19.

⁴¹ Jin, *Huaxue jicheng*, 931.

⁴² "莫謂畫形圖影，徒供賞悅，生物之仁心化育托焉。" Jin, *Huaxue jiangyi*, 951.

⁴³ Fan Fa-ti, "Nature and Nation in Chinese Political Thought: The National Essence Circle in Early-Twentieth-Century China," In *The Moral Authority of Nature*, ed. Lorraine Daston and Vidal Fernando (Chicago: University of Chicago Press, 2004), 412.

benevolence, which is ultimately one's own knowledge of the mind, the eye, and the hand.

In such a light, Jin's copy of Wuchan scroll reconstructs a pictorial space where the materiality of culture and nature was displayed, both mediated by the generative hand of the artist. It is a pictorial space where the knowledge of natural objects was further transformed into and displayed as cultural knowledge and both given a material form, constructed by the artist's reproductive eye and the hand. The process of painting and copying are both a form of making, which is inseparable with careful observation of the actual things and grasp of the factual information. Thus, Jin would see figure and animal painting as two most difficult genres, due to their demand for historical, social and natural knowledge for the painting not to "lose its sense of realness" (*shizhen* 失真).⁴⁴

For Jin, the practice of painting is never to create from scratch, which he refers as "*techuang*" (特创), and "the entire enterprise of painting should not be divided as new and old."⁴⁵ The painter would be more properly defined as the transformer or mediator rather than the creator, by he or her would be the agency of knowing and making a thing knowable by transforming all kinds of materials.

Jin Cheng and Scientific Illustration

In the Wuchan scroll, Jin saw the potential of art to take part in the production of natural history knowledge, with the artist's reproductive hand, observing eye, and comprehensive mind to "broadly collect natural objects," by transforming the material

⁴⁴ Jin, *Huaxue jiangyi*, 913-914.

⁴⁵ "世間事務，皆可作新舊之論，獨於繪畫事業無新舊之論。" Jin, *Huaxue jiangyi*, 950.

things into materials of knowledge. Jin's career in the last five years of his life, when he made the copy of Zhao's painting, was closely associated with the study of flora and fauna and the pedagogy of scientific illustration in addition to traditional Chinese painting. However, Jin's interest in modern natural science has rarely been discussed by historians.⁴⁶ In this section, we plug this gap in historical knowledge by taking up Jin's fascination with natural science.

Jin Cheng was associated with a number of professional scientific communities in the 1920s. He was a member of the Chinese Science Society (中國科學社).⁴⁷ In 1925, he was also noted to have enrolled a bee-keeping class at Yenching University, together with his younger brother Jin Shuchu (金叔初 King Sohtsu, 1886-1949), who enrolled in a gardening class.⁴⁸

Jin's most noteworthy undertaking was the director of the Department of Illustration of the Peking Laboratory of Natural History (the Laboratory, thereafter), where he was to supervise the production of scientific illustrations for the Laboratory's scientific publications. The Laboratory was founded in 1925, with its headquarters at the Kaka Hutong (嘎嘎胡同), which was close to Jin Shuchu's home address. Consisting of six departments divided by different fields of specialization, the Laboratory aims for

⁴⁶ Jin Cheng's interest in natural science was mentioned as a small episode in Jin Cheng's life in Qiu's and Siu's works, but some of the historical facts were not accurately presented. Sun Chenghao's study on the Peking Society of Natural History was the most comprehensive historical study on the association, in which Jin Cheng was briefly mentioned. This section thus seeks to examine Jin's scientific illustration together with his artistic and intellectual undertakings. See note 3 and 4 of this chapter.

⁴⁷ *Zhongguo kexueshe sheyuan fenggu minglu* 中國科學社社員分股名錄 (Shanghai: Zhongguo kexueshe, 1934) 112.

⁴⁸ "Bankers and artists-Two Peking Brothers Turn to Bees and Gardening, from a Correspondent, Peking, Feb 14, (1925)," *The North - China Herald and Supreme Court & Consular Gazette (1870-1941)*, 338, ProQuest Historical Newspapers: Chinese Newspapers Collection.

“systematic description and illustration of the plants and animals in China and their publication in a uniform series of monographs.”⁴⁹ The Laboratory, with American Geologist Amadeus William Grabau (1870-1946) being the first president, was funded by Jin Shuchu. It is thus not surprising that Jin Cheng undertook the position as the head of the Department of Illustration and defrayed the charge of printing illustrated monographs on Chinese birds. As the director of the department, he aimed at “giving gratuitous training to a number of the younger Chinese artists, to enable them to become experts in the accurate and scientific delineation of the animals and plants of China.”⁵⁰ At the same time, Jin himself was preparing illustrations for G. D. Wilder’s book project on Chinese birds. The introduction in the pamphlet of the Laboratory praised Jin brothers’ financial and practical support as “the truly patriotic attitude towards the development of Science within their own country.”⁵¹

The Laboratory probably later derived another more important and long-lasting scientific society that devoted itself to bringing together the naturalists in the study of native flora and fauna in China. The Peking Society of Natural History (the PSNH, thereafter) held its inauguration meeting in the Anatomy Building of the Peking Union Medical College on September 21, 1925.⁵² Jin Cheng was one of its initiating members and was elected as a counselor for the PSNH. After Jin’s death in 1926, the 1926-1927 bulletin of the society published the “Chinese Birds” by N. Gist Gee, Lacy I. Moffett and

⁴⁹ *The Peking Laboratory of Natural History*, leaflet no. 1 (1925), 1.

⁵⁰ *Ibid.*, 6.

⁵¹ *Ibid.*, 7.

⁵² While the Laboratory was focused on publication, the object of the PSNH is more like promoting the study of the natural world in China. Both organizations are organized by the same group of initial members, with Grabau and Jin Shuchu as the central figure.

G.D. Wilder with an article in memory of Jin, who was supposed to be illustrator the monograph. The article highly appreciated Jin's practices of scientific illustration and training his students:

He was the first Chinese artist in Peking to prepare in a scientific way colored illustrations of natural objects and several of his pupils have followed in his foot steps. He has also trained young men to carefully and accurately depict natural objects in black and white for reproduction as illustrations. One of his former pupils has become well known for his illustrations of fossil invertebrates for the *Palaeontologia Sinica*... Of recent years his interest in the native fauna and flora has been especially keen, and he had an ardent desire to represent Chinese animals and plants in accurate forms and true colors. To this end he not only directed his own efforts but insisted upon accuracy in detail in the work of his pupils.⁵³

Noted as “the first Chinese artist in Peking to prepare in a scientific way colored illustrations of natural objects,” Jin was among the few established artist in early twentieth-century China who devoted himself to preparing scientific illustrations, which were hardly considered as an “art.” Nevertheless, the publication of colored-illustrated *Chinese Birds* remained an unrealized ambition suspended by Jin's untimely death in 1926. The section on Chinese birds published by PSNH and Gee's and Wilder's later manuscript did not contain any colored illustrations. However, Jin's preparatory drafts of bird illustration were published in an alternative form.

From 1932 to 1934, *Hushe Yuekan* published a series a bird paintings entitled *Jin Beilou xiansheng bainiao pu* 金北楼先生百鳥譜 (Album of a hundred birds by Mr. Jin Beilou). These bird paintings were found in Jin's unfinished drafts after his death, and was copied by Yang Min (杨敏, also known as 杨敏湖 or 惺坡), one of Jin's disciples.⁵⁴

⁵³ *Bulletin of Peking Society of Natural History*, Technical Series, No. 1, parts 2 and 3 (1928), 2.

⁵⁴ Little is known about Yang Min's career. It was noted that he was a member of the *Hushe* society and graduated in 1931, after which he co-organized the “*siyou huashe*” (四友畫社) to teach painting. He was

It is likely that these bird illustrations were originally prepared for Wilder's monograph on Chinese birds, both according to the preface of the publication and the visual characteristics of these pictures.⁵⁵ Each issue published a pair of paintings of the same species, with one showing a study of the bird in different gestures and positions, and the other vividly representing the birds on a branch, which reminds of the composition of a bird-and-flower painting. Each painting is accompanied by a brief introduction of the species of the bird and the plant, which seems to highlight the "scientific" nature of these paintings.

The preface mentions that these bird illustrations were modelled on bird specimens that Jin had collected for the Laboratory. While the author of the preface wrongly noted Jin as the director of the Department of Ornithology, which was in fact G. D. Wilder, it is likely that Jin studied the specimen collected by Wilder for their common book project on Chinese birds.⁵⁶ It was also reported that Wilder displayed the specimens of birds in Beijing that he collected and prepared at the inauguration meeting of the PSNH.⁵⁷ Whether or not Jin himself had participated in collecting and making the bird specimens, these drawings show that Jin's primary role was to collect these birds pictorially and made them ready for scientific publication.

one of the fourteen painters created the *Heping song* (和平頌) for the World Peace Council meeting in 1955. See Lü Peng 呂鵬, *Hushe yanjiu* 湖社研究 (Hushe studies) (Beijing: Wenhua yishu chubanshe, 2010), 256; He Zhuoxin 何卓新 *Beijing wenshi ziliao jingxuan. Haidian juan* 北京文史資料精選. 海淀卷 (Selected archives of Beijing culture and history, Haidian district) (Beijing: Beijing chubanshe, 2006), 120.

⁵⁵ Ding Guangxu 丁光煦, "Jin Beilou xiansheng bainiao pu xu" 金北樓先生百鳥譜序, *Hushe Yuekan*, 52 (1932): 10-12.

⁵⁶ Ding, "Jin Beilou xiansheng bainiao pu xu," 10-12.

⁵⁷ "A Natural History Society: Inaugural Meeting to Form Such an Association in Peking." *The North - China Herald and Supreme Court & Consular Gazette (1870-1941)*; Oct 3, 1925, 11.

Jin's original drawings themselves suggest that they were at least partially made by modeling from bird specimens. Amongst the bird in various lively postures, some of the illustrations show a bird depicted from its back with one wing extended, which could only represent an inanimate bird – being a dead bird or bird specimen (Fig. 12). This posture is of little use for preparing a flower-and-bird painting, but would be significant for species identification, since it clearly demonstrates the dimension and proportion of the body, and any patterns or spots (if any) on its wing, back and tail feathers. But it is equally important to show the bird observed from other angles, showing its abdomen, claws, beaks. The picture thus shows the important body parts for ornithological identification, conforming to the textual description of the bird in the same page. Jin probably “collected” the birds not only from the Wilder's specimens but also illustrated ornithology books – which he had studied the “scientific way” of preparing illustration for similar kind of scientific works.⁵⁸

Text and image in the *Hushe* magazine were also arranged differently from those in Zhao's Wuchan scroll. In printed bird illustration, the space for text and image were clearly demarcated, and the visual role of the text is minimized. The “standard” design separates reading and viewing into two different steps. On the one hand, the text and image are conforming to each other, the bird portrayed in various postures showing the identification traits described in the text, such as the shape of the beak, certain pattern of the feather, or the color of the bird – considering that these illustrations were intended to be published in color. On the other hand, the text and image are complimentary: the picture of the bird could be known once it was named and defined by the text, and the

⁵⁸ It was noted that Jin donated more than a hundred of ornithology books to the Library of Natural History Society (博物學會圖書館). See *Beiping xueshu jiguan zhinan* 北平學術機關指南, 254-255.

bird written in the text could be seen and perceived by the eye via the illustration. These bird illustrations were predicated on an alternative knowledge system to that of Zhao's scrolls: one brought by western ornithologists where image and language function separately as representations of a thing, rather than a process and part of the phenomenon in reality.⁵⁹

Despite the different epistemological systems to which they belong, Jin's bird illustrations, like the Wuchan scroll, utilized a pictorial surface to collect and preserve natural objects, both visually and materially. The surface for acquiring knowledge visually was increasingly significant with the more pictorial techniques becoming available in early twentieth century. It has been noted that photography and collotype printing were widely used by intellectuals in China to preserve cultural heritage by reproducing and disseminating the image and knowledge of antiquities.⁶⁰ In the study of natural science, photography was also used to record the species or the specimen, since a photograph could represent the object's three-dimensionality, optical details, and the physical presence of the object.

Jin Cheng was not unfamiliar with the technique of photography. His father, a rich merchant, was interested in collecting "western curiosities," such as the camera and microscope, and studying their physical principles when Jin Cheng was young.⁶¹ Jin himself was also well aware of how useful photography could be for keeping visual

⁵⁹ On a general comparison between western and Confucian ways of knowing, see Ames, "Meaning as imaging," 228-231.

⁶⁰ Cheng-hua Wang, "New Printing Technology and Heritage Preservation: Collotype Reproduction of Antiquities in Modern China, Circa 1908-1917," in *The Role of Japan in Modern Chinese Art*. Edited by Joshua Fogel (Berkeley: University of California Press, 2013), 273-308.

⁶¹ Siu, "Jin Cheng yanjiu," 21-22.

records: his diary recording his trip to United States and European countries from 1910 to 1911 noted that he always took pictures of the landscapes and events during his journey.⁶² He saw landscape painting and photography both had the capability to “capture the shape of the landscape of the Heaven and Earth in its natural status.”⁶³ Nevertheless, Jin insisted on using hand-copying as his own way to preserve and collect the ancient paintings. He aligned the kind of copying without self-judgement and thinking with photography, criticizing that “if one simply swallows the ancients without digesting them, how does he/she differ from a camera?”⁶⁴

Like unthoughtful and mechanical copying, for Jin, taking photographs does not require much labor of the eye and hand of the photographer. While photography has been proved useful to collect the original object truthful to the eye, and in a way that its materiality could be perceived visually, freehand copying collects the object transformed and mediated by the hand and the mind of the artist-copyist. In other words, painting is a practice of collection incorporating the process of mediation, optimization, organization, and reinterpretation rather than collecting the objects in their “unmediated” and “objective” presence.⁶⁵ The pictorial space thus functions as collecting site where

⁶² Jin Shaocheng 金紹城, *Shibaguo youli riji; Shiwuguo shenpan jianyu diaocha ji; Oulu shi cao* 十八國遊歷日記; 十五國審判監獄調查記; 藕盧詩草, ed. Tan Ku'an 譚苦龔 (Nanjing: Fenghuang chubanshe, 2015), 11, 24, 34, 39.

⁶³ “夫畫狀天地自然之景……如攝影然。” Jin, *huaxue jiangyi*, 920.

⁶⁴ “是又食古不化之弊也，與攝影機何異？” Ibid., 935-936.

⁶⁵ I put a quotation mark here as the objectivity claim of photography, which was widely believed in the early twentieth century, has been deconstructed. The case was more complicated in China, which is beyond the scope of my thesis. According to Gu Yi, while photography was increasingly used for its power to capture “truth” since the 1900s, it never substituted the belief in artist’s capability of truthful representation. See Yi, Gu, “What’s in a Name? Photography and the Reinvention of Visual Truth in China, 1840–1911,” *The Art Bulletin*, 95:1 (2013): 131-134.

meanings were constructed and attributed to existing things, while generating and producing new things – the knowledge of the thing in its materiality and visibility.

In such a light, the artist, draftsman, and those who master the knowledge of the hand to produce a painting could never be completely replaced by mechanical reproduction. Especially when it comes to the study of a being from the living nature rather than an ancient artifact. Photography claims its indexical truthfulness by concealing some significant loss of objectivity and materiality, but it could only present one view from a certain angle, freezing in a given location and time. It might be argued that photographs of a specimen taken from different angles could complement Jin's bird illustrations, showing birds in different postures or movements. But a lively staged specimen is hardly considered equivalent to a moving bird in its natural status. It requires the artist, who could only depict a single moment, to observe the animal in movement and synthetically construct the image in the mind. In other words, the artist should familiarize his eye with living birds rather than a bird specimen to accurately capture the movement and to create a lively illustration of the bird.

In a way, producing a scientific illustration is comparable to Jin's practice of copying. One should first comprehend the rules of the discipline (in the case of the bird illustration, what are the visual traits to identify a bird species), learning what to see and how to see before taking up the brush to depict. It is in such a process engaging both the viewing eye and the reproductive hand that painting could cultivate one's curiosity and ability to study the flora and fauna scientifically. Jin's commitment to "represent Chinese animals and plants in accurate forms and true colors" was conforming to his increasing

interest in studying native flora and fauna, which was manifested in his copy of Zhao's Wuchan scroll, with his belief in how art could contribute to the study of natural science.

The images and knowledge of things collected with artist's own hand are not only his personal possession, but could be transferred into a space for display to the public, as demonstrated in the publication and circulation of Jin's bird illustrations. The preface stated how Jin's original drafts were discovered and how these drafts were made publishable by Yang's practice of copying: "Because [Jin's] original drafts are messy and could not be sent for printing, [we] specially invited Yang Minhu to copy [all the drafts] again, and they suddenly became spectacular."⁶⁶ Although the bird illustrations were all titled as "Birds by Kungpah T. King" in English, every single illustration either had Yang Min's personal seal or his inscription "Yangmin" (杨敏) or "Xingpo" (惺坡). The publication of Jin's bird illustrations confirms the value of the copyist in the process of disseminating the artwork of Jin's scientific study of birds. Furthermore, it reveals that the potential of pictorial space to function as a public space for collecting and displaying the knowledge of art and natural objects, via the collaboration between the artist, the copyist, and the publishers.

Interdisciplinary Space

Jin's conception of a pictorial space for collecting knowledge examined in this chapter in his practice of copying and commitment to scientific illustration echoed with a branch of intellectual ideas in early twentieth century China. In 1922, the same year as Jin copied the Wuchan scroll, Liang Qichao (1873-1929) gave a presentation at the

⁶⁶ Ding, "Jin Beilou bainiao pu xu," 12.

National Academy of Fine Arts in Beijing. He personalized “Nature” as the mother of both “Mr. Science” and “Mr. Art,” a rhetoric recalling the famous “Mr. Science” and “Mr. Democracy” of the May Fourth Movement. Liang’s presentation claimed that the mission of art education should not be producing “specimen drawings” (*biaobenhua* 標本畫) by copying previous models, but to hone students’ ability in objective observation and to promote the collaboration between art and other disciplines. In conclusion, he anticipated to see “scientized art” or “artful science” in the future.⁶⁷ Liang’s theoretical basis, political stance, and concrete plan of the interdisciplinary collaboration were by no means similar to Jin’s. Liang proposed the collaboration at the methodological level, seeing the ultimate goal of art and science as discovering and representing the beauty and truth of nature;⁶⁸ Jin saw art and science as extensions of one’s moral and intellectual world, and thus the two disciplines could work together and contribute to the advancement of the nation.⁶⁹ But they would both agree on the intellectual function of artistic practice. Liang was sympathetic to the May Fourth movement, which Jin saw as a violation of the nation’s cultural traditions.

Jin’s cultural and political stance as a traditionalist and advocator for the “National Essence” mobilized him to engage in the preservation of “archaic objects” (*guwu* 古物), things that embodied the historical continuity of the nation, when he was serving an official role in the Ministry of Interior. The awareness to establish systematic

⁶⁷ Liang Qichao 梁啟超, “Meishu yu kexue” 美術與科學, in Liang Qichao, *Yinbingshi henji* 飲冰室合集, vol. 38 (Beijing: Zhonghua shuju, 1989), 12.

⁶⁸ Liang, “Meishu yu kexue,” 10-11.

⁶⁹ Jin, *Huaxue jiangyi*, 951.

collection of cultural and historical objects was demonstrated in Jin's involvement in establishing the Institute for Exhibiting Antiquities, the precursor of the Palace Museum. Wang Shixiang 王世襄 (1914-2009), the son of Jin Cheng's younger sister Jin Zhang, noted that Jin had proposed to Zhu Qiqian 朱啟鈞 (1872-1964), the Minister of the Interior to establish a facility to preserve and display the treasures in the Qing imperial collection.⁷⁰ In 1914, the Ministry of Interior proposed to the president Yuan Shikai to establish the National Museum of Art (*Zhonghua bowuyuan* 中華博物院), and Jin Cheng was a member of the executive board.⁷¹ Jin's knowledge of the English language and his early overseas experience granted him access to networks and experiences from European and American museums. In 1915, he discussed with Roy C. Andrews, leader of the American Museum's Second Asiatic Expedition, about ways of cooperation in heritage preservation, as a report notes that "Mr. King...was most active in the establishment of the National Museum of Art at Peking, and is again taking up the question of protection officially in spite of the difficulties in the way of effective action."⁷² Although the plan for the National Museum of Art was not realized due to the political upheavals in the later 1910s, Jin's practice of preserving the objects regarded as the material embodiments of history and national glory was carried on in his practice of

⁷⁰ Wang Shixiang 王世襄, *Jinhui bucheng dui: Wang Shixiang zixuanji* 錦灰不成堆: 王世襄自选集 (Beijing: Sanlian shudian, 2007), 47.

⁷¹ The English translation of *Zhonghua bowuyuan* was adopted from an English report in *Natural History* published in 1915. See note 66. On the proposal for establishing the National Museum of Art, see Li Xiaodong 李晓東, *Minguo wenwu fagui shiping* 民國文物法規史評 (Beijing: Wenwu chubanshe, 2013), 73-77.

⁷² *Natural History* vol. XIX, No. 2 (1915), 228-229.

copying and painting.⁷³ Jin's desire to collect objects in actual sites was paralleled with his practice of collection in the pictorial space.

Chinese intellectuals' conception of collecting objects and knowledge of them for the sake of the nation and the quest for making them visible in a given space could be found in various disciplines in addition to heritage preservation. Things to collect were not limited to things with historical value but also included natural objects that embodied the nation's geographical knowledge. The Nantong Museum established by Zhang Jian 张謇 (1853-1926) was an early example of the collection of objects displaying both cultural and natural historical knowledge of the nation.⁷⁴ While the awareness of establishing institutions to collect objects was growing in China in the early twentieth century, the virtual sites – such as the pictorial space discussed in this chapter, with their capacity to bring objects to viewer's eye, also became increasingly important as new locations to produce and organize knowledge. Jin Cheng's later practices in scientific illustration resonated with a talk by Jin Shuchu at the annual meeting of the PSNH on March 29, 1928. Jin Shuchu stressed nation-wide study of natural objects, namely biological surveys, not only for practical function or the “welfare of nation,” but for “purely scientific truth.” In the end, he emphasized a rather “nationalistic” education value: “Let us hope that...the day is not far distant when Chinese species will be

⁷³ Jin also continued to work on preserving cultural heritage and archaic artifacts. On January 26, 1922, *Shuntian shibao* posted the meeting of the “Society of Antiquaries” (*Guwu xuehui* 古物學會), in which Jin quoted the view of an American official to present the significance of heritage preservation. *Shuntian shibao* 順天時報, Jan 26, 1922, No. 6448, 7.

⁷⁴ Lisa Claypool, "Zhang Jian and China's First Museum," *The Journal of Asian Studies*, 64:3 (2005): 567-604.

described in our own publications.”⁷⁵ Jin Shuchu highlighted the significance of collection of natural products as “the beginning of all further intellectual endeavor,” since “Nature’s facts are everywhere about us, but how many of us have learned to see and recognize them.”⁷⁶ Therefore, Jin Shuchu continued, “collection, comparison, description and illustration are first of all necessary” for acquiring “systematic knowledge of the species of the various localities and their interrelations.”⁷⁷

It is not known whether or to what extent Jin Cheng’s devotion to accurate and scientific depiction of natural objects was influenced by his younger brother Jin Shuchu, who was himself a specialist of shells, and a long-term member and sponsor of the PSNH and the Chinese Science Society. Both for Jin Cheng and Jin Shuchu, the pictorial space and actual sites for collecting are intimately connected, and scientific advancement should always begin with the practice of collecting things – which is the process of learning how to see, how to act, and how to organize the world – to connect things systematically and construct the more universal understanding of the geography, history and culture of the nation. Especially for Jin Cheng, painting is the manifestation of a curious, intelligent mind and skillful hand that would be able to produce new knowledge and create new things, which is best expressed in the following quote from *Huaxue*

jiangyi:

Don’t just say [painting] is for personal cultivation, it is also where the spirit of the culture dwells. Don’t take painting as a trivial matter, it is where we find the essence of the nation. Don’t say art is irrelevant to study, it is connected to an individual’s mindfulness and intelligence. Don’t say picturing shapes and forms is only for visual pleasure, [it is

⁷⁵ *Bulletin*, vol 3, No. 1 (1927-8): 38.

⁷⁶ *Ibid.*, 33-34.

⁷⁷ *Ibid.*, 35.

where] the benevolence and nourishing power [of the Heaven and Earth] to create things was anchored. The manifestation of the learning of art, [lies in] the brush and ink [that] would not miss any concrete detail, the function would not omit any aspect, how could [we] see that the practice of art is irrelevant to the fate of the nation!

莫謂怡情適性，文化之精神寓焉。莫謂繪素微事，國粹之精華在焉。莫謂藝術無關學業，個人之心思知能系焉。莫謂畫形圖影，徒供賞悅，生物之仁心化育托焉。繪學之表徵，其筆墨無不具，其功效無不周，烏可視遊藝無關乎世運哉！⁷⁸

⁷⁸ Jin, *Huaxue jiangyi*, 951.

Epilogue

What does it mean to collect natural objects pictorially? What could natural history pictures tell us about the way of knowing and the nature of knowledge in a certain culture? Examining the two handscrolls produced by two artists during a period defined as the modern time of China, this thesis is the first foray into a larger inquiry of the rich and complex historical implications of the practice of collecting natural objects pictorially.¹ Neither Zhao's handscroll nor Jin's bird illustrations are comparable to the Qing court natural history albums in terms of labor or scale, which sought to construct a political narration of the legitimacy of the empire.² The Wuchan scroll is a small individual project rather than an institutional, systematic one. It registers, however, the similar desire for ordering the world and imbuing an experience of reality into the geographical imagination with its specific visual format.

Collection is a practice of narration. It is driven by subjective motivation, and “a process consisting of the confrontation between objects and subjective agency informed by an attitude.”³ Collection changes the meaning of objects by relocating and representing them in different cultural social and spheres, and recruiting them to participate in the production of scientific knowledge. As the natural products were

¹ There is a variety of literature on collecting and organizing natural objects in different cultures and times, which has been mentioned in the introduction section. Two works on the practice of collecting natural objects in China during the eighteenth century are especially relevant to my project: Lai Yu-Chih's series of studies on the natural history albums produced at the Qing court, and Fan Fa-ti's study on the activity of British naturalists at southern China coast. See Lai, “Qinggong dui ouzhou ziranshi tuxiang de zaizhi,” 1-75; Fan, *British Naturalists in Qing China*.

² Lai, “Qinggong dui ouzhou ziranshi tuxiang de zaizhi,” 1-75; Lai, “Tuxiang, zhishi yu diguo,” 1-76.

³ Mieke Bal, “Telling Objects: A Narrative Perspective on Collecting,” in *The Cultures of Collecting*. Edited by Elsner, John and Cardinal, Roger (London: Reaktion Books 1994), 100.

represented in Zhao's Wuchan scroll, they were no longer understood in terms of their association with local livelihood, but as knowledge of the gazetteers, the symbolism of the local natural world, as Hu Shu put them: "The scroll could document the local products of the region." It was no longer the Qing emperor who had the privileged access to the flora and fauna of the nation, and who possessed the absolute power to construct the narration of his Heaven and Earth. The artist-intellectual who collects with his subjectivity also came in to construct the world into a view. The scroll connects Zhao's artistic identity to his intellectual identity as an educated elite aiming at serving at the officialdom, who was deeply concerned about the social political reality of the world.

Zhao's drive to collect natural objects with his brush anticipated the later trend in the early twentieth century, when natural history (*bowu*) studies was pursued "as part of the enterprise of preserving their intellectual heritage, saving the nation, and maintaining a cultural identity."⁴ It echoes, also, with the "material modernism" and "education in material things" of Chinese nation termed by historian Susan Fernsebner in her study of the expositions, where commercial material things, with their visibility and accessibility, speaks to the viewers of their political and cultural meaning.⁵ Things themselves and their spectacle, rather than their textual life, stood out in modern China. However, Jin Cheng argued that what truly mattered in the "education in material things" was not only organizing of actual collections and establishing physical sites for display, but also the process of transforming material things onto pictorial surface with one's eye and the hand. While technical advancement provided various possibilities to transpose actual

⁴ Fan, "Nature and Nation," 435.

⁵ Susan R. Fernsebner, "Objects, Spectacle, and a Nation on Display at the Nanyang Exposition of 1910," *Late Imperial China*, 27:2 (2006): 107-108.

things onto the pictorial surface, Jin's insistence on copying and collecting with the artist's hand reveals that knowing and learning is not only the matter of vision, and visual fidelity is not the premise of visual truth. Collecting with the artist's craft is indispensable for constructing the artist's subjectivity and realizing his agency in the production of scientific and cultural knowledge.

There are several further questions awaiting further examination. Both Zhao and Jin's case reveal an increasing significance of personal experience and "witnessing," and a material sensibility not exclusively relying on optical naturalism in producing knowledge since the latter half of the nineteenth century in China. This has been observed and stressed earlier in the studies of epigraphic movement and the *jinshi* studies.⁶ Would it imply a transmission of visualizing technique from the discipline of art and culture to that of natural studies? Furthermore, it has been noted that the style of optical and the meticulous delineation embraced by most modern artists and intellectuals, were imported from the modern art world in Japan.⁷ However, it is worth to notice that *bowu* education and natural science has been brought into China from Japan much earlier, and it should have a wider and deeper influence than that of artistic ideas in the Chinese society. It would remain to be explore to what extent and in what way did the disciplines of natural science shaped the landscape of modern Chinese art and culture.

⁶ See the Introduction of the thesis, note 37 and 41.

⁷ See Aida Yuen Wong, *The Other Kang Youwei: Calligrapher, Art Activist and Aesthetic Reformer in Modern China* (Leiden: Brill), 155-185.

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Appendix I. List of Species in the Wuchan scroll⁸

Plants

1. *Qingjie* 青芥 (mustard greens): the height of the vegetable produced in Ouzhong could reach about two or three *chi*, which differs from those grown in other regions. 甌產者高二、三尺，與他處異。
2. *Youhua Guihai* 柚花桂海 (pomelo flower, some species of *Citrus maxima*.): the gazetteer of Yuheng nominated it as *paohua*. It is wrongly identified as *xiangyuan* (*Citrus medica* L.) and written as *xiangyuanhua*. 《虞衡志》作泡花，誤作香椽，書香椽花。
3. *Heyechangchun* 荷葉長春 (Indian cress, *Tropaeolum majus*): [I] speculate this is a species of *hanlian* (nasturtium) 疑旱蓮類。
4. (could be *Cordyline fruticosa* (L.) A. Cheval, a species of foliage plant): In the Ru Garden, there is a plant of this kind. Its leaves are like bamboo but is pure red in color. [I] do not know its name. 如園中有此一種，葉如箬，色純赤，不知其名。
5. *Fusang* 扶桑 (hibiscus): note: this is [known as] *shun* 按，此即舜。
6. *Honglan* 紅蘭 (urn orchid, *Bletilla striata*): it is [known as] *ruolan* 即箬蘭。
7. *Honglan* 紅藍 (Safflower, *Carthamus tinctorius*)
8. *Jinlian baoxiang* 金蓮寶相 (a species of plantain)
9. *Zhuqiu* 珠球 (could be *Ixora chinensis*, a subspecies of *Ixora coccinea*): [I have] seen this in Zhou's garden. Its flowers are as if carved by jade. Its leaves are 3-4 inches thick. It has an unpleasant smell. It was named "zhuqiu" only after its appearance. Note: the flower's name is *shandan*, and it is commonly called *hongxiuqiu*. [The plant] is originated from the region of Minzhong (Fujian). 周氏園中見之，花如玉琢，葉厚三四分，氣亦惡。問名呼「珠球」，象形而已。按，此花名山丹，俗呼「紅繡球」，閩中來。
10. *Baizilian* 百子蓮 (African Lily, *Agapanthus africanus* Hoffm.)
11. *Zhenzhulian* 珍珠蓮 (could be *Sarcandra glabra*)⁹
12. *Fengchicao* 風癡草 (species not identified): each stem has two or three leaves. [If] the leaf has a joint, then that year will have at least one storm. The joint looks ambiguous as if it is about to fall apart, [but] when [I] wiped them with my hand, a thousand leaves all remain union. The local people use them to predict storms, and it never failed [to forecast the storm]. When there will be a "great storm," then the joint could be found right at the middle of the leaf. I asked some local people to take [a leaf] and have a look. [Because they] only saw one joint, the storm would come in the eighth month of the year, and the joint is at the tip of the leaf. 每莖二

⁸ The list is constructed based both on previous transliteration by Wu Chao-jen and Lin Jinzhong, but the translations and identifications are conducted by myself.

⁹ Zhao Zhiqian mentioned in *Zhang'an za shuo* that the plant is also called "*Shanhu cao*," indeed its picture looks like what today is commonly called "*Cao shanhu*."

三葉，葉中有一節，則其歲必有風癡一次。節隱約如斷，以手抹之，千片如一。土人以候風，無爽者。又云「大風癡」，則節當中間。今招土人取觀，僅見一節，云期在八月，節當梢故也。

13. *Maying hua* 馬纓花 (possibly *Rhododendron delavayi*): it is different from [the one that appears in] painting manuals. 此與畫本所傳者異。
14. *Baozhu moli* 寶珠末利 (*Arabian Jasmin* or *Jasminum sambac*)

Fishes and sea animals

1. *Shaxun* 沙噀 (a species of anemone, could be *Edwardsia sipunculoides*): The local people of Wenzhou call it *shasuan*. It is also called *tusuan*. Its length depends on how deep the water is. It uses its floating tentacles to attract small fish and prey on them. It shrinks after being taken out from water. Some call the small ones *shasuan*, and the large ones *tusuan*. 溫州土人呼沙蒜，一名塗蒜，長短視水淺深，以鬚浮揚水面，吸小魚鮭食之，出水則縮。或以小者呼沙蒜，大者呼塗蒜。
2. *Shijie* 石蚌 (Japanese goose barnacle): The local people call it “turtle’s feet.” 土人呼龜腳。
3. *Hulan* 胡闌 (mudskipper, *Periophthalmini*): It is named *tantu* in the Gazetteer of Rui’an, and the local people call it *tiaoyu* (jumping fish). 瑞安縣志作彈塗，土人呼跳魚。
4. *Tayu* 搨魚 (a species of plaice): it is a kind of plaice. When the tide rises, fishermen use their hands to flatten the mud flat, marked it with a bamboo stick, and this fish will always come and attach to [the flattened mud]. [The fishermen] then use an awl to get the fish. One awl is used for one mark, sometimes they can get three or four. 鰈類也。潮至，漁人手平淺塗如榻，標以竹，魚來必貼其上，以錐取之，一錐則一標，間得三四頭。
5. *Hongyu* 魴魚 (stingray, *Dasyatis*): There are total fifty or sixty species. The one that I saw is as big as a cartwheel. 種五六十，余所見者大如車輪。
6. *Mabian* 馬鞭 (red cornetfish, *Fistularia petimba*): The eye of the fish is at the middle of its body. I suspect this is beltfish. 目在腰，疑即鞘魚。

Appendix II. Figures



Figure 1. Zhao Zhiqian 趙之謙, *Ouzhong wuchan juan* 甌中物產卷 (Natural Products of Wenzhou), 1861, ink and color on paper, 35.6 x 290 cm. Beijing: Rongbaozhai. As reproduced in Liu Jiu'an 劉九庵 ed., *Zhongguo wenwu jinghua daquan shuhua juan* 中國文物精華大全. 書畫卷 (Selection of Chinese cultural relics: calligraphy and painting). Taipei: Shangwu yinshuguan, 1995, 450.



Figure 2. Zhao Zhiqian 趙之謙, *Yiyu tu* 異魚圖 (Scroll of Strange Fishes), 1861, ink and color on paper, 35.4 x 222.5 cm. Private Collection. As Reproduced in Chen Zhenlian 陈振濂 et al., *Xiling yinshe xinmao qiujì yaji zhuānji* 西泠印社辛卯秋季雅集专辑. Hangzhou: Xiling yinshe, 2011, 40-41.



Figure 3. Huang Quan 黄荃, *Xiesheng zhenqin tu* 寫生珍禽圖 (Rare birds drawn from life), 10th century, ink and color on silk, 41.5 x 70.8 cm. Beijing: Palace Museum.



Figure 4. Liu Jie 劉節, *Yi gui hexie tu* 一鰕禾蟹圖 [Flower, Fish and Crabs], Ming dynasty, 15th century, hanging scroll, ink and color on silk, 175.9 x 107.3 cm. New York: The Metropolitan Museum of Art.



Figure 5. Zhou Xian 周閒, *Baihua baiguo tu* 百花百果圖 [A hundred flowers and a hundred fruits], 1862, handscroll, ink and color on paper, 29.8 x 544.7 cm, private collection. As reproduced in: Yang Dunyao 楊敦堯 et. al. eds. *Shibian, xingxiang, liufeng: zhongguo jindai huihua 1796-1949 xueshu yantaohui lunwen ji* 世變, 形象, 流風: 中國近代繪畫 1796-1949 學術研討會論文集 [Turmoil, Representation, and Trends: Modern Chinese painting, 1796-1949 International Conference Papers], vol.2. Taipei: Hongxi yishu jijinhui, 2008, cat. 2005.



Figure 6. Gu Dachang 顧大昌, *Oumin qiwu tu* 甌閩奇物圖 [Exotic Fish, Strange Creatures of Zhejiang and Fujian], 1863, hanging scroll, ink and color on paper, 116.1 x 31.6 cm. Kaohsiung: Kaohsiung Museum of Fine Art. As reproduced in: Yang et al., *Shibian, xingxiang, liufeng*, vol.1, cat. 1110.



Figure 7. A *Ding* vessel in Chu Jun 褚峻 and Niu Yunzhen 牛運震, *Jinshi tu* 金石圖 (Bronze and stone illustrated), vol. 1, 1743.



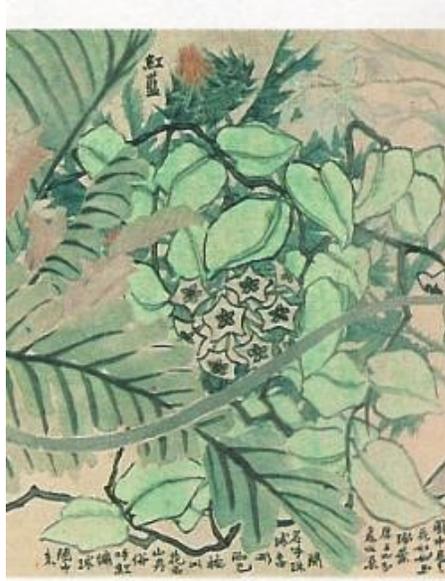
Figure 8. *Honglan* 紅藍 in Wu Qijun 吳其濬, *Zhiwu ming shi tu kao* 植物名實圖考 [Illustrated Research of Names and Facts of Plants], vol. 25, 1848.



Figure 9. Jin Cheng 金城, *Lin Zhao Zhiqian Ouzhong wuchan juan* 臨趙之謙瓯中物產卷 (Copy of Zhao Zhiqian's Natural Products of Wenzhou), 1922, ink and color on paper. 39 x 364.5 cm. Taipei: Xizhitang Gallery.



(10.1)



(10.2)

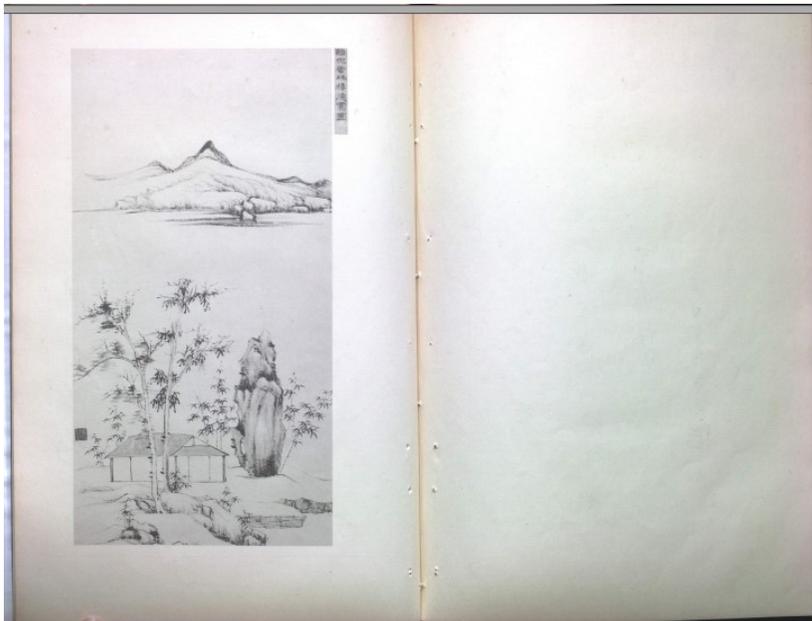
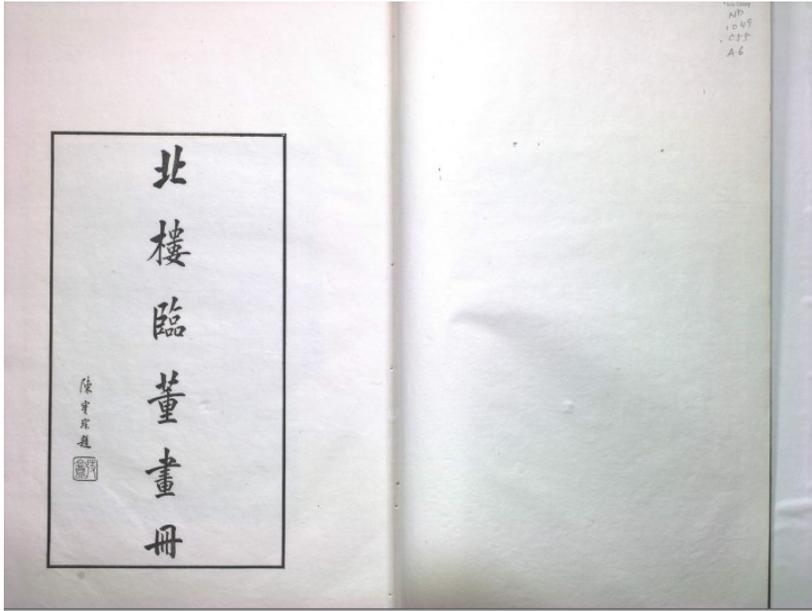


Figure 11. Jin Cheng 金城, *Beilou lin Dong huace* 北樓臨董畫冊 (Album of Beilou's copy of Dong Qichang), album, 1917. As reproduced in *Beilou lin Dong huace* 北樓臨董畫冊 (Album of Beilou's copy of Dong Qichang). Beijing: Hushe yuekan, 1920s.



Figure 12. Yang Min 楊敏, *Juniao* 駒鳥 [Erithacus akahige Temm Japanese Robin] in *Jin Beilou xiansheng bainiao pu* 金北樓先生百鳥譜 (Album of a hundred birds by Mr. Jin Beilou). As reproduced in *Hushe yuekan*, 56 (1932): 16.