

Shanghai's Zikawei Museum (1868–1952): Jesuit Contributions to the Study of Natural History in China

Over the last two decades, the role played by museums in the advancement of knowledge has received increasing recognition and attention from historians of science.¹ However, so far only a scant number of studies have paid attention to the importance of museums in the development of science in China. This article focuses on the Zikawei Museum 徐家匯博物院 in Shanghai;² its aim is to analyze the museum's contributions to natural history in late-Qing and Republican China, as well as to describe the parties involved in the development of this field.³

Although the museum, founded in 1868, has been overlooked for some decades, its importance was widely acknowledged in the early-

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¹ See for example John V. Pickstone, *Ways of Knowing: A New History of Science, Technology, and Medicine* (Manchester: Manchester U.P., 2000); the articles compiled in "Focus: Museums and the History of Science," a special dossier in *Isis* 96 (2005); Samuel J. M. M. Alberti, "The Status of Museums: Authority, Identity, and Material Culture," in Davis N. Livingstone and Charles W. J. Withers, eds., *Geographies of Nineteenth-Century Science* (Chicago: U. Chicago P., 2011), pp. 51–72.

² Zikawei is spelled Xujiahui in Pinyin. The Chinese translation of the term museum, *bowuyuan* 博物院, can be traced back to Samuel Wells Williams' *An English and Chinese Vocabulary, in the Court Dialect* (Macao: Printed at the Office of the Chinese Repository, 1844). Scholar Wei Yuan 魏源, following Lin Zexu 林則徐, used the term *bowuguan* 博物館 in his 1843 *Haiguo tuzhi* 海國圖志. Despite the existence of these two terms, which appeared around the same time, various other terms and phonetic transliterations were also used by different authors during the following decades to describe the museums in the Western world and none of them was more prevalent than the others. The term *bowuyuan* seems to have prevailed roughly from the 1860s to the 1920s, since most of the museums established during this period used this term. However, from the 1930s onward, the term *bowuguan* became more common among newly established museums than the term *bowuyuan*.

³ In this article, the Hanyu Pinyin system is used for the transliteration of Chinese words and names. However, for the official names of institutions established in the 1930s we have opted for the spelling used at the time.

twentieth century. In the 1930s, the then newly established Chinese Association of Museums 中國博物館協會 conducted a nationwide survey and identified it as China's first museum.⁴ Tseng Chao-Yu 曾昭燏 (1909–1964), a renowned Chinese museologist who in the late 1930s wrote one of the first books on museum studies to be aimed at the Chinese public also listed this Jesuit-run institution as the nation's first.⁵ *The China Journal*,⁶ which reported extensively on all kinds of scientific activities in China and is regularly cited in Joseph Needham's multi-volume *Science and Civilisation in China*, considered the Zikawei Museum "not only the most outstanding of its kind but also the oldest in the Far East."⁷

The term "first museum in China" may cause controversy: some scholars argue that a collection of natural history artifacts established by British expatriates in Macao should be considered "the first museum in China" since it was set up in 1829, some years before the establishment of the Zikawei Museum.⁸ Following a contemporary Chinese point of view, which often recognizes only Chinese-led enterprises and tends to overlook foreigners' endeavors, others consider the Nantong Museum founded by Zhang Jian 張謇 in 1905 to be China's first museum.⁹ This article does not intend to argue which museum should be listed as the

⁴ A related survey was conducted by the Museums Association of China 中國博物館協會, which was established in 1935. The results were published in *Zhongguo bowuguan yilan* 中國博物館一覽 (Beijing: Zhongguo Bowuguan Xiehui, 1936). For more on the objectives and establishment of this association, see the first issue of its journal: *Zhongguo bowuguan xiehui huibao* 中國博物館協會會報 1.1 (1935.9).

⁵ Tseng Chao-Yu 曾昭燏, *Bowuguan* 博物館 (Chongqing: Zhengzhong shuju, 1943), p. 41. Tseng listed as the second modern museum in China the Shanghai Museum, founded by the North-China Branch of the Royal Asiatic Society in 1874.

⁶ *The China Journal* was an English-language periodical published in Shanghai from 1923 to 1941. It was initially called *The China Journal of Science and Arts*. On its establishment, see an article by its founder Arthur de Carl Sowerby, "The China Journal," *The China Journal* 6.1 (1927), pp. 1–6.

⁷ B. K., "Anniversary of the Heude Museum," *The China Journal* 30.5 (1939), p. 252.

⁸ See Rogério Miguel Puga, "The First Museum in China: The British Museum of Macao (1829–1834) and Its Contribution to Nineteenth-Century British Natural Science," *Journal of the Royal Asiatic Society* 22 (2012), pp. 575–86. Puga indicates the existence of a so-called "British Museum in China" but does not provide information about the location, size, and exact content of this "museum." As such, I suspect it was a collection in an exhibition room or a "cabinet of natural history," rather than an entire museum housed in a designated building, or at least in a structure designed for that purpose.

⁹ Counting Nantong Museum as the first museum in China is a common assumption among scholars in the field of museum studies; see, e.g., Zhongguo Buowuguan Xuehui 中國博物館學會, ed., *Huigu yu zhanwang: Zhongguo buowuguan fazhan bai nian* 回顧與展望, 中國博物館發展百年 (Beijing: Zijincheng chubanshe, 2005). Some Western scholars have also followed this view without questioning; see for example Lisa Claypool, "Zhang Jian and China's First Museum," *The Journal of Asian Studies* 64.3 (Aug. 2005), pp. 567–604, which briefly mentions Zikawei Museum but contains some factual errors.

“first,” but rather lays the foundation for further studies, given that our current understanding about the Zikawei Museum is limited and scholarly work on the topic almost nonexistent.¹⁰

Before entering into a detailed analysis, it is necessary to expound what has been termed the “second period” of Jesuit presence in China, the period in which the Zikawei Museum was established.

The Society of Jesus was founded in Paris in 1534 and partially suppressed in 1773. In 1814, however, Pope Pius VII formally granted the order permission to restore its preaching activities. Subsequently, certain Chinese converts by Jesuits invited European Jesuits to resume work in China, and the first group of missionaries arrived somewhat later – in Jiangnan 江南 in 1842.¹¹ Because the Beijing diocese was by then already under the jurisdiction of the Congregation of the Mission, the Jesuits chose the area known as Zikawei 徐家匯 as the base for their missionary work in China,¹² with a view to branching out into other areas in the future. After certain Church reforms in 1856, the original Beijing and Nanjing dioceses were abolished and replaced with four apostolic vicariates. Among these, the newly founded Apostolic Vicariate of Jiangnan 江南代牧區, which encompassed an area now known as Jiangsu and Anhui provinces, and the Apostolic Vicariate of Southeastern Zhili 直隸東南代牧區 were placed under the supervision of the Jesuits. The former was run mainly by Jesuits from the ecclesiastical province of Paris, while Jesuits from the ecclesiastical province of Champagne headed the latter.

The history of the museum can be divided into two periods:¹³ The first period started in 1868, when its founder Pierre Marie Heude

¹⁰ The results of my research were first published in an article written in Chinese; see Li-Chuan Tai, “Cong Xujiahui Bowuyuan dao Zhendan Bowuyuan: Faguo Yesuishi 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, *Zhongyang yanjiuyuan lishi yuyan yanjiusuo jikan* 中央研究院歷史語言研究所集刊 (*BIHP*) 84.2 (2013), pp. 329–85. The content of the present English-language version has been updated since the publication of the original, Chinese version.

¹¹ For more information on the history of the Jesuit mission in Jiangnan, see Joseph de La Servière, *Histoire de la mission du Kiang-Nan: Jésuites de la province de France (Paris)* (Zikawei: Imprimerie de l’Orphelinat de T’ou-sè-wè, 1914).

¹² The origin of this place name can be traced back to the location of Xu Guangqi’s 徐光啓 tomb as well as the region where his descendants lived. Xu Guangqi (1562–1633) was a Chinese scholar-bureaucrat during the Ming dynasty. He was one of the first Chinese scholars who converted to Catholicism and is generally considered one of the “Three pillars of Chinese Catholicism.”

¹³ See for example Jacques Flamet, “Le Musée Heude, ses fondateurs et ses richesses scientifiques,” *Bulletin de l’Université l’Aurore*, 2d ser. 39 (1938–1939), pp. 46–50; Octave Piel, “Le 70e anniversaire du Musée Heude,” *Bulletin de l’Université l’Aurore*, 2d ser. 39 (1938–1939), pp. 56–59.

(1836–1902) arrived in China, and ended in 1930 when it was merged with Zhendan University 震旦大學 (Aurora University). During this first period, the institution was known among expatriates as “Musée de Zikawei.” The second period started in 1930 and ended in 1952 when both the university and the museum were forced to cease operations by the new Chinese government, which carried out a thorough reorganization of higher education institutions across the country. During this second period, Heude’s successors relocated the museum to the campus of Aurora University, prompting the university to commission the construction of a building capable of housing the ever-increasing collection. During this time, the museum’s Chinese name was changed to Zhendan Museum 震旦博物院, while its French name became Musée Heude (Heude Museum) to commemorate its symbolic founder.

This chronology deserves some further explanation. When Heude first arrived in China in 1868, the local church enlisted him to enrich its initial collection of zoological specimens. However, the mere idea of creating a museum went undecided for some time. Therefore, this date should strictly speaking not be considered the Zikawei Museum’s founding year. It was not until August 11, 1872, when Adrien Languillat (1808–1878), the vicar apostolic of Jiangnan, officially ordered the establishment of a museum of natural history and assigned Heude to be in charge of this task, that the museum was officially listed as one of the Jesuits’ scientific projects in the Apostolic Vicariate of Jiangnan.

In 1872, titular bishop Languillat and father Agnello Della Corte (1819–1896), the then superior of the Jesuits in the Apostolic Vicariate of Jiangnan, decided to found a “Comité scientifique de Jiangnan” in the Zikawei area. The committee initially consisted of four working groups: The first group was tasked with running the observatory and scientific publishing and was headed by father Auguste Colombel (1833–1905); the second group was responsible for natural history research, with father Heude overseeing the museum and publishing its research findings; the third group, headed by father Aloys Pfister (1833–1891), who was also in charge of the Zikawei Library (Bibliotheca Zikawei), was responsible for research on China’s history and geography; and the fourth group handled the translation into Chinese of documents and materials required for both preaching and scientific projects and was initially headed by two Chinese clerics, brother Joseph Ma 馬建常 (1840–1939) and brother Matthias Ma 馬建忠 (1845–1900).¹⁴

¹⁴ La Servièrre, *Histoire de la mission du Kiang-Nan*, vol. 2, p. 194. Joseph Ma and Matthias Ma left the Jesuit order in the mid-1870s to become prominent bureaucrats. Ma Jianchang 馬建常 is the original given name of the famous Jesuit priest Ma Xiangbo 馬相伯.

The four groups were set up concurrently but developed their tasks at varying speeds. Since the Society of Jesus was the sole sponsor, the initial budget only covered the construction of the observatory, which was completed in 1873. The construction of the museum building – located not far from the observatory, just south of the Jesuit headquarters – was delayed and finally completed in 1883. These institutions, together with the previously established the Zikawei Library (founded in 1847),¹⁵ St. Ignatius High School (founded in 1850),¹⁶ and Tushanwan Press 土山灣印書館 (founded in 1869), made the Zikawei area the cradle of scientific and humanities research in China during the second half of the nineteenth century.

The actual building was not completed until 1883, but Heude's successors considered the year of his arrival in China (1868) to have been the year of the museum's founding, in order to recognize his contributions. This view of the founding helped to spur the Zikawei Museum's elaborate celebration of its seventieth anniversary in 1939. The chronology as maintained by the Jesuit fathers gives the impression that the plan to establish the museum had already been made when father Heude arrived in China and that its construction proceeded smoothly. Although this is not entirely accurate, all available sources show that in the first half of the twentieth century, it was already widely accepted that the Heude Museum was founded in 1868, while the significance of the years 1872 and 1883 was commonly neglected. With this nuance in mind, this article follows the conventional timeline to explain the Zikawei Museum's more than eighty years in operation.

THE ZIKAWEI MUSEUM PERIOD (1868-1930)

During its first period, the Zikawei Museum's initial goal appears to have been to increase Europeans' understanding of Chinese natural history through a collection of botanical and zoological specimens. Three things are of particular significance: Father Heude's efforts to collect and classify specimens, the training of local orphans in the skills required to become publication and illustration professionals, and collaboration with the Shanghai Museum (R.A.S).

¹⁵ For more on this library, see Gail King, "The Xujiahui (Zikawei) Library of Shanghai," *Libraries & Cultures* 32.4 (1997), pp. 456-69.

¹⁶ For more on the history of this school, see Zhuang Xiaofeng 庄小鳳 and Ma Xueqiang 馬學強, ed., *Xixue dongjian di-yi xiao: cong Xuhui Gongxue dao Xuhui Zhongxue* 西學東漸第一校, 從徐匯公學到徐匯中學 (Shanghai: Shanghai cishu chubanshe, 2010).

Father Heude's Collection and Study of Specimens

Father Pierre Marie Heude was born in the Brittany region of France, and entered the Society of Jesus in 1856 at the age of 20. He had been fond of biology since childhood, and after his entry into the Jesuit order he continued to study at the Muséum National d'Histoire Naturelle in Paris. He also studied the regular Jesuit curriculum, which included theology and philosophy. In 1867, vicar apostolic Languillat went back to France to recruit and encourage young Jesuits to go to China for preaching services, which convinced the thirty-one-year-old father Heude to make the journey.¹⁷ According to his personal diaries and letters, father Heude left Marseille on November 19, 1867, and arrived in Shanghai on January 9, 1868, which marked the beginning of his more than thirty-one years in China.¹⁸ Between 1869 and 1880, he conducted more than ten research trips in the Jiangnan region. During these trips, the primary goal was to collect fish, shellfish, and turtle specimens. Heude's passion for discovering new species brought him far beyond the boundaries of China: He fell ill in Hanoi in July 1900, and returned to Zikawei where he died on January 3, 1902. But from the mid-1880s, until that point, he had traveled through southeast and northeast Asia numerous times, augmenting the museum's collections with animal and plant specimens from Annam, Siam, the Malay Archipelago, Manchuria, Korea, Japan, and eastern Siberia. Later sources show that he walked over 250,000 km over the course of these years, to, among other things, discover 572 new species of mollusk.¹⁹

Based on his specimens, Heude published a series of ten booklets titled *Conchyliologie fluviatile de la province de Nanking et de la Chine centrale* between 1874 and 1885 in France, which were later compiled into a thickly bound volume. In it, he described 189 types of shellfish, 150 of which were previously unknown. His research findings were held in high esteem by his international peers and he became a prominent figure in this field.²⁰ Like many other French explorers, diplomats, and missionaries in China at the time, father Heude frequently donated specimens to the French Muséum National d'Histoire Naturelle for further examination and to add them to its permanent collection. In

¹⁷ Frédéric Courtois, "Le P. Heude et le musée de Zi-ka-wei," *Mémoires concernant l'histoire naturelle de l'Empire chinois* 5.2 (1906), pp. 1-32, p. 3.

¹⁸ Joseph Dehergne, "Les débuts d'un naturaliste en Chine: Les premiers voyages du Père Heude, d'après son Journal et ses Lettres (1868-1875)," *Bulletin de l'Université l'Aurore*, 3d ser. 30 (1947), pp. 192-243.

¹⁹ Flamet, "Le Musée Heude, ses fondateurs et ses richesses scientifiques," pp. 46-50.

²⁰ See for example Henri Fischer, "Le R. P. Heude, nécrologie," *Journal de conchyliologie* 52.4 (1904), pp. 372-76.

appreciation for his services, the museum awarded him the honorary title of “Correspondant du Muséum.”

After a nearly seventeen-year stay in Asia, Heude returned to Europe at the end of 1884, where he remained until April 1885. In Europe, he witnessed the heated discussions surrounding the theory of evolution, of which he disapproved.²¹ Upon his return to China, he continued to send specimens to France but with a new objective: He hoped to use his extensive collection of specimens from Asia to refute the new theory. Starting from the mid-1880s, he shifted the focus of his collection from shellfish to mammals and published his findings in the *Mémoires concernant l'Histoire naturelle de l'Empire chinois*, a publication that will be discussed in the following section.

His goal-oriented approach to specimen collection during this time was rather controversial. After unnecessarily renaming several species that had already been identified by others, he was labeled by some as being quite careless, and this criticism had a detrimental effect on his academic reputation. As he gradually stepped away from the more mainstream opinions of the professors at the Muséum National, scholars became reluctant to mention or cite his works in their publications. Slowly but surely, father Heude fell out of favor with the academic world. As a result, he was not as widely remembered in France after his death as some of his contemporaries and successors, such as father Armand David (1826–1900).²² This latter French missionary from the Congregation of the Mission, who also spent many years collecting specimens in China, was more fortunate regarding his historical legacy. David collected many valuable specimens for French scientific institutions and clearly sided with the academic mainstream. He was therefore often praised by the professors at the Muséum National and frequently cited in their publications.²³

In spite of the controversy surrounding his research, the importance of father Heude's contributions to the Zikawei Museum is beyond doubt.²⁴ During his lifetime, he was often portrayed as a leading

²¹ Courtois, “Le P. Heude et le musée de Zi-ka-wei,” p. 7.

²² For more on Armand David, see Emmanuel Boutan, *Le nuage et la vitrine: Une vie de Monsieur David* (Bayonne: Editions Raymond Chabaud, 1993).

²³ For example, Henri Milne-Edwards and Alphonse Milne-Edwards often cited Armand David, see Henri Milne-Edwards and Alphonse Milne-Edwards, *Recherches pour servir à l'histoire naturelle des mammifères; comprenant des considérations sur la classification de ces animaux* (Paris: G. Masson, 1868–1874). Armand David also collaborated with Emile Oustalet, see Armand David and Emile Oustalet, *Les oiseaux de la Chine* (Paris: G. Masson, 1877).

²⁴ For a more recent evaluation of mammal specimens in his collection, see Anja Braun, Colin P. Groves, Peter Grubb, Yang Qi-Sen, and Xia Lin, “Catalogue of the Musée Heude

figure in natural history research in Asia, mainly due to his vast set of specimens and his donations to museums. Diligently acquiring, Heude rapidly expanded his collection during his time in Asia and quickly became well known among his peers. As early as 1873, Heude had begun exchanging work and ideas with other prominent scholars: The aforementioned father Armand David and British consul Robert Swinhoe (1836–1887), for example, both paid visits to his collections.²⁵

The museum was keen to provide support to local researchers by allowing them to examine its specimens and was well known among Western naturalists residing in China. For example, in 1876, the honorary curator of the Shanghai Museum, J. P. Martin (?–1877), invited father Heude to help examine and classify mammal specimens.²⁶ Augustine Henry (1857–1930), a customs officer and prominent scholar of natural history within the British community in China, also sought Heude's advice regarding the identification of the gorals he had collected.²⁷ John David Dignes La Touche (1861–1935), a customs officer and well-known ornithologist who resided in Shanghai from 1907 to 1921, also frequently exchanged his ideas on the identification of birds with father Frédéric Courtois (1860–1928), father Heude's successor.²⁸

After father Heude's passing in early 1902, his successors concentrated on classifying the museum's existing collection, while also systematically expanding it. During father Courtois' tenure from 1902 to 1928, the museum continued to enrich its collections, despite a chronic shortage of personnel. Since father Heude had already acquired many specimens of shellfish and mammals, father Courtois focused on plants and birds. Father Auguste Savio (1882–1935), who succeeded Courtois in 1928, further contributed to the collection of insect and bird specimens, including bird's nests and eggs, while father Octave Piel (1876–1945), Savio's successor, focused solely on the collection and study of insects. By virtue of these systematic efforts, the Zikawei Museum had

collection of Mammal Skulls," *Acta Zootaxonomica Sinica/Dongwu fenlei xuebao* 動物分類學報 (2001. 4), pp. 608–60.

²⁵ Dehergne, "Les débuts d'un naturaliste en Chine," p. 214. David visited in 1873, Swinhoe in 1874; see Emile V. Bretschneider, *History of European Botanical Discoveries in China*, vol. 2, p. 871.

²⁶ See J. P. Martin, "Curator's Report," *Journal of the North-China Branch of the Royal Asiatic Society* (1877), p. ix.

²⁷ Gorals are small, antelope-like animals. See E. Charles Nelson, "Charles Rathouis' Painting (1889) of Augustine Henry's Goral from the Yichang Gorges, China," *Archives of Natural History* 21.1 (1994), pp. 43–47.

²⁸ John David Dignes La Touche, *A Handbook of the Birds of Eastern China* (London: Taylor and Francis, 1925–1934), vol. 1, p. 3.

become a well-rounded institution by the time it moved to the grounds of Aurora University at the end of the 1920s. When the newly organized museum opened its doors to the public, it boasted more than 50,000 cataloged plant specimens, owing in large part to the efforts of father Courtois and father Henri Belval (1893–1949), who were responsible for the plant section.²⁹

Training of Publication and Illustration Professionals

In addition to expanding the collection, the fathers were keen to engage with the scientific community through a publishing endeavor. Father Heude's first publications, the previously mentioned booklets on shellfish, were printed in France by Librairie F. Savy, a Parisian house that specialized in science books; the large number of illustrations were created on commission by French malacologist and naturalist Arnould Locard (1841–1904). The booklets were released to great acclaim and later reissued in a bound volume.

By the end of the 1870s, the fathers decided to publish their findings independently, instead of seeking publishers in France, and they moved the printing work to the Zikawei area to facilitate dissemination in China. In 1880, the first "cahier" of its new series, *Mémoires concernant l'Histoire naturelle de l'Empire chinois*, was printed on the grounds of Tushanwan Orphanage by a local printing factory, which later became known as Tushanwan Press. Between 1880 and 1920, a total of six volumes was published, comprising more than 200 detailed illustrations of animal and plant specimens that used stone lithography. To accomplish this, the fathers at the museum, led by father Charles Rathouis (1834–1890), trained young, local apprentices to render illustrations of the specimens.

Father Rathouis was born in Nantes, France, and joined the Jesuits in 1865. Before that, he had received medical training and taught natural history at a church school in Paris. In late 1877, he joined the fathers in the Zikawei area and became an indispensable assistant to father Heude. Because of his expertise in the use of microscope and scalpel, as well as his knowledge of scientific drawing techniques, he quickly became the chief illustrator of the Zikawei Museum's scientific

²⁹ Frédéric Courtois, "L'herbier de Zikawei: Herborisation dans le Kiangsou en 1918," *Mémoires concernant l'histoire naturelle de l'Empire chinois* 6.1 (1920), pp. 1–136; In this publication, Courtois identified and described 1,055 plants native to Jiangsu province. See also Henri Belval, *Contribution à la flore du Kiangsou* (Shanghai: Université de l'Aurore and Musée Heude, 1931); Henri Belval, ed., *Flore de la région montagneuse du Ngan-Hoei, énumération des plantes récoltées et déterminées par le P. Courtois au cours des années 1906–1922* (Shanghai: Université de l'Aurore and Musée Heude, 1933).

publications. All of the illustrations in volumes 1 and 2 of *Mémoires concernant l'Histoire naturelle de l'Empire chinois* were drawn by Rathouis (see figure 1 as an example). In the same period, he began to teach the children at Tushanwan Orphanage to draw and use stone lithography.³⁰ The contributions made by these young apprentices began to appear in the series from volume 3 onward; they either co-created the illustrations with father Charles Rathouis or worked independently. In the latter case, they signed the pictures with either their Romanized names or, in some cases, their Chinese names (see figures 2 and 3). After father

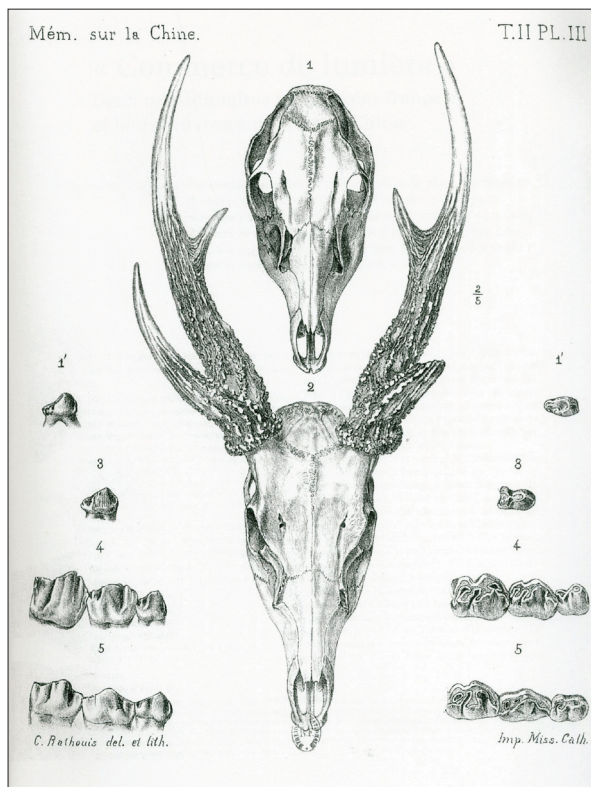


Figure 1. Lithographed Plate Produced by Father Charles Rathouis

Source: *Mémoires concernant l'histoire naturelle de l'Empire chinois*, vol. 2, pl. 3.

³⁰ Courtois, "Le P. Heude et le musée de Zi-ka-wei," p. 12.

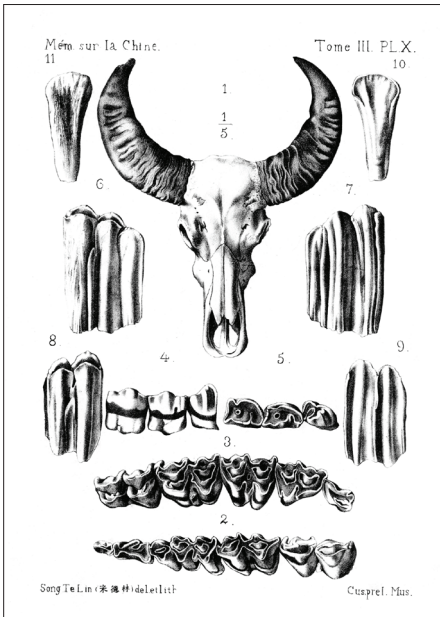


Figure 2. Lithographed Plate Produced by Song Te Lin

Source: Mémoires concernant l'histoire naturelle de l'Empire chinois, vol. 3, pl. 10.

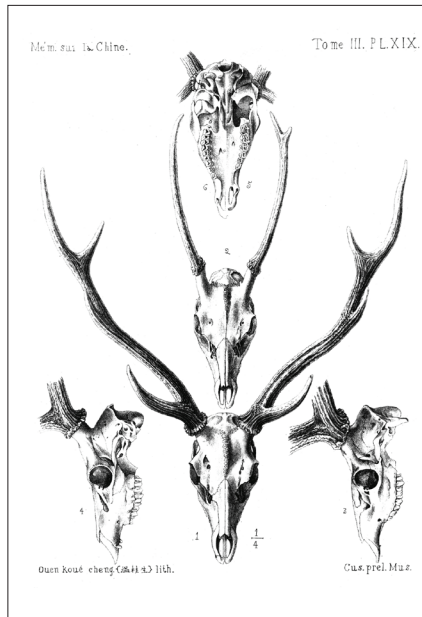


Figure 3. Lithographed Plate Produced by Ouen Koué Cheng

Source: Mémoires concernant l'histoire naturelle de l'Empire chinois, vol. 3, pl. 19.

Rathouis' passing in 1890, the young Chinese illustrators independently produced the majority of the series' drawings. The drawing technique employed was of the same high quality found in European natural-history publications. The scientific illustrations produced at Tushanwan differ markedly from works that blended Chinese and Western methods, such as Giuseppe Castiglione's paintings, Suzhou wood engravings, or Canton trade paintings, to name just a few well-known examples. Even the most popularly discussed drawings produced following East-West cultural exchanges in the field of natural history – the drawings that British amateur naturalist John Reeves (1774–1856) commissioned anonymous painters to produce³¹ – differed significantly from the scientific drawings produced by Tushanwan Press. Whereas the former

³¹ See Peter James Palmer Whitehead, "The Reeves Collection of Chinese Fish Drawings," *Bulletin of the British Museum (Natural History) Historical Series* 3:7 (1969), pp. 13–232; Fan Fa-Ti, *British Naturalists in Qing China: Science, Empire, and Cultural Encounter* (Cambridge, MA and London: Harvard U.P., 2004), especially chap. 2.

portrayed animals or plants, the latter usually featured cross-sections of animal skulls or teeth. To achieve an adequate level of accuracy in their drawings, the illustrators at Tushanwan Press not only had to be familiar with sketching techniques, but they also needed to have a good command of microscopy and dissection.

These images were clearly intended for scientific study and were not likely used merely as decoration. How were the young illustrators at Tushanwan capable of drawing such pictures? To answer this question, we must delve into the background of this Jesuit-run orphanage. The consensus among scholars so far has been that the Tushanwan Painting Workshop 土山灣畫館, established at the orphanage, became the cradle of Western painting techniques in China. More than 100 Chinese orphans received professional training in sketching, the use of watercolor, oil painting, and engraving techniques at the workshop between 1864 and 1960, the year the orphanage was officially closed.³²

Tushanwan Orphanage traces its history back to 1849.³³ After a series of major floods and famines beset Jiangnan, along with the turmoil caused by the Taiping Rebellion, many people sought refuge in nearby regions. To aid these refugees, the Jesuits founded a shelter, welcoming believers and non-believers alike, and refugee orphans became the orphanage's first inhabitants. Partly due to the ever-increasing number of children in need of housing, the orphanage was forced to relocate several times within the Shanghai area. Finally, the Jesuits acquired a large piece of land at Tushanwan – the southernmost tip of Zikawei – and in late 1864 Tushanwan Orphanage officially opened its doors at this location.

To alleviate the orphanage's financial burden and ensure that the orphans would enter adult life equipped with some professional skills, the fathers not only provided basic education, but also set up workshops aimed at cultivating crafts. Some of these workshops had already been established during the orphanage's Caijiawan 蔡家灣 period in the 1850s, with the carving workshop and painting workshop being the first ones. After the orphanage relocated to Tushanwan, the number and scale grew, with ateliers specializing in leatherwork, carpentry,

³² Wan Qingli 萬青力, *Bingfei shuailuo de bai nian: shijiu shiji Zhongguo huihua shi* 並非衰落的百年, 十九世紀中國繪畫史 (Taipei: Xiongshi, 2005), p. 180.

³³ See La Servière, *Histoire de la mission du Kiang-Nan* 2, pp. 274–79; idem, *L'Orphelinat de T'ou-sè-wè, son histoire, son état présent* (Zi-ka-wei: Imprimerie de l'Orphelinat de T'ou-sè-wè, 1914).

shoemaking, molding, coppersmithing, church organ production, book printing, and photography – all housed within the same compound.³⁴

To fulfill the needs of the increasing number of Catholic churches in Shanghai, the workshops initially focused on making liturgical objects, including altars, icons, wood carvings, and various items used during daily masses. The workshops, particularly the ones specialized in drawing and book printing, quickly became known among foreigners in China. The printing workshop at Tushanwan was established around 1869, at first printing only missionary books but later fulfilling most of the printing needs of local churches as well as those of churches and businesses in the French Concession in Shanghai.³⁵ During the first half of the twentieth century, it continued to serve as one of the leading publishing enterprises in Shanghai and was known for being superior to its local counterparts in both stone lithography and photo-engraving techniques.³⁶ Before the establishment of any professional training facility for Western art in Shanghai, the Tushanwan Painting Workshop had already trained a number of young talents capable of creating both Chinese and Western style art.

Children at Tushanwan received training in pencil and charcoal drawing, as well as watercolor and oil painting, beginning their artistic education with imitation and working their way through different styles. Calendar (*yuefenpai* 月份牌) artist Xu Yong-Ching 徐咏青, Chinese Institute of Fine Arts founder Zhou Xiang 周湘, clay sculptor Zhang Chong-Ren 張充仁, and wood sculptor Xu Bao-Qing 徐寶慶 were among the workshop's most famous pupils.³⁷ Regarding the identities of the illustrators of the above-mentioned scientific diagrams, we still have very little knowledge.

With photography still in its infancy, illustrations of animals and plants played an important role in the production and dissemination of

³⁴ For pictures of these workshops, see Song Haojie 宋浩杰, ed., *Lishi shang de Xujiahui* 歷史上的徐家匯 (Shanghai: Shanghai wenhua chubanshe, 2005), pp. 100–27.

³⁵ See La Servière, *L'Orphelinat de T'ou-sè-wè*, p. 37, as well as an article in *Shengjiao zazhi* 聖教雜誌 (*Revue Catholique*) published on the fiftieth anniversary of Tushanwan Press: “Tushanwan yinshuasuo wu xun jinqing zhisheng” 土山灣印刷所五旬金慶誌盛, *Shengjiao zazhi* 聖教雜誌 (1920.6), pp. 284–85.

³⁶ See Zou Zhenhuan 鄒振環, “Tushanwan yinshuguan yu Shanghai yinshua chuban wenhua de fazhan” 土山灣印書館與上海印刷出版文化的發展, *Anhui daxue xuebao* (zhexue shehui kexue ban) 安徽大學學報 (哲學社會科學版) (2010.3), pp. 1–14; Joachim Kurtz, “Messenger of the Sacred Heart: Li Wenyu (1840–1911) and the Jesuit Periodical Press in Late Qing Shanghai,” in Cynthia Brokaw, ed., *From Woodblocks to the Internet: Chinese Publishing and Print Culture in Transition, circa 1800 to 2008* (Leiden and Boston: Brill, 2010), pp. 81–109.

³⁷ Wu Jialing 吳嘉陵, *Qingmo Minchu de huihua jiaoyu yu huajia* 清末民初的繪畫教育與畫家 (Taipei: Xiuwei zixun keji, 2006), pp. 92–93.

scientific knowledge in Europe. Hand-produced pictures supplemented written documentation and provided visual records of the work done by collectors and researchers. When specimens were lost, damaged, or otherwise inaccessible, these images were used as an alternative source of data. It was common for researchers to use high-quality scientific illustrations as a duplicate of a specimen, which allowed them to exchange information with other scholars more easily. With their formulaic layout, detail, and usage, these illustrations served as a “museum on paper,” helping those who were interested in, but unable to gain access to, the specimens. The illustrations allowed a wider audience to conduct research on, or simply appreciate, newly discovered species.³⁸ As an acknowledged form of visual evidence, this type of scientific illustrations had by the sixteenth century begun to take on a new importance and became increasingly popular among the scientific community in western Europe. By the end of the eighteenth century, there was already a set of conventions regarding the production and presentation of scientific images.³⁹

In China, the scholarly community had not placed a strong emphasis on this kind of scientific drawings prior to the establishment of Tushanwan. However, instructed by foreign Catholic fathers who were engaged in religious as well as scientific activities, the young artists at Tushanwan mastered the techniques required for the production of these scientific plates, as was clearly demonstrated in the Zikawei Museum’s publications at the end of the nineteenth century. Unfortunately, in more recent discussions on the history of scientific drawings in China, Feng Cheng-Ru 馮澄如 (1896–1968) – active as a botanical illustrator from the 1920s to the 1940s – is often regarded as a pioneer,⁴⁰ while the pieces created by the young talents at Tushanwan, several decades before Feng’s, are generally overlooked.

Exchanges with the Shanghai Museum (R.A.S.)

After its official opening, the Zikawei Museum cooperated not just with other Jesuit-run institutions, but frequently with similar institutions

³⁸ See Denis Lamy, “Le dessin botanique dans la transmission des connaissances,” in *Passions botaniques: naturalistes voyageurs au temps des grandes découvertes* (Rennes: Editions Ouest-France, 2008), pp. 139–54.

³⁹ Valérie Chansigaud, *Histoire de l’illustration naturaliste: Des gravures de la Renaissance aux films d’aujourd’hui* (Paris: Delachaux et Niestlé SA, 2009).

⁴⁰ See for example Hu Zonggang 胡宗剛, *Jingsheng shengwu diaochasuo shigao* 靜生生物調查所史稿 (Jinan: Shandong jiaoyu chubanshe, 2005), pp. 49–54; Sun Yingbao 孫英寶, Ma Lüyi 馬屢一, and Tan Haining, 覃海寧 “Zhongguo zhiwu kexuehua xiaoshi” 中國植物科學畫小史, *Zhiwu fenlei xuebao* 植物分類學報 (*Acta phytotaxonomica Sinica*) 46.5 (2008), pp. 772–84.

in Shanghai. Until the 1920s, there were only foreign-managed institutions in China engaged in systematically collecting and researching biological specimens. The first such Chinese-managed institution was established when the Science Society of China 中國科學社 founded a private Biological Laboratory 中國科學社生物研究所 in Nanjing in 1922. Because of this, in its earlier years the local institution with which the museum most frequently interacted was a museum founded by the North-China Branch of the Royal Asiatic Society (NCBRAS), commonly known as the Shanghai Museum (R.A.S.).⁴¹ Aiming to investigate various aspects of the Chinese empire and her neighboring countries, British expatriates in China founded the Shanghai Literary and Scientific Society in September 1857. One year later, it was renamed the China Branch of the Royal Asiatic Society after joining a more established organization in the field, the Royal Asiatic Society (RAS), which was founded in 1823 in London. However, because another branch of the RAS, based in Hong Kong, had already adopted that name in 1847, the new branch in Shanghai decided to call itself the North-China Branch to avoid confusion.⁴²

The new branch had three objectives: The first was to investigate “subjects connected with China and neighboring countries;” the second was to publish a journal on the association’s findings; and the third was to establish a library and museum.⁴³ In 1874, it established the Shanghai Museum on Upper Yuanmingyuan Road (renamed Museum Road in 1886), following successful fundraising. Originally, it was located in the same two-story building that housed the office and library of the North-China Branch. Comprising just a single exhibition room on the upper floor, the scale of its operations was initially rather modest. It was only in 1881, after the association’s library was relocated to the Shanghai Library,⁴⁴ that the Shanghai Museum was expanded to include two exhibition rooms.⁴⁵

Apart from the assistance offered by father Heude to the Shanghai Museum from 1876,⁴⁶ sustained exchanges between the two mu-

⁴¹ For a brief history of this museum, see Arthur de Carle Sowerby, “The History of the Shanghai Museum,” *The China Journal of Science and Arts* 19:5 (1933), pp. 219–25.

⁴² Wang Yi 王毅, *Huangjia Yazhou Wenhui Bei Zhongguo Zhihui yanjiu* 皇家亞洲文會北中國支會研究 (Shanghai: Shanghai shudian chubanshe, 2005), pp. 11–12.

⁴³ See “Rules of the North-China Branch of the Royal Asiatic Society,” *Journal of the North-China Branch of the Royal Asiatic Society* vol. 9 (1875), p. xvii.

⁴⁴ See the Librarian’s report, *Journal of the North-China Branch of the Royal Asiatic Society* vol. 14 (1880), pp. xi–xii.

⁴⁵ Arthur de Carle Sowerby, *China’s Natural History: A Guide to the Shanghai Museum (R.A.S.)* (Shanghai: Royal Asiatic Society, North China Branch, 1936), p. 3.

⁴⁶ Sowerby, “History of the Shanghai Museum,” p. 220.

seums only began in 1922, after British explorer and naturalist Arthur de Carle Sowerby (1885–1954) was named the Shanghai Museum's acting curator. Born in Taiyuan, Shanxi, Sowerby was the son of reverend Arthur Sowerby, a Baptist missionary whose career in China spanned nearly forty years. His great-great-grandfather, James Sowerby (1757–1822), was one of the founding figures of the botanical field in Great Britain and was well known for his hand-drawn atlas of British plants and minerals. His great-grandfather, James de Carle Sowerby (1787–1871), was also a naturalist and one of the co-founders of the Royal Botanic Society in Britain.⁴⁷ Having spent a large part of his childhood in China, Arthur de Carle Sowerby seems to have spoken fluent Chinese. He moved to Britain to attend college but returned to China in 1905 to teach at Tientsin Anglo-Chinese College, a school founded by the London Missionary Society. At this college, Sowerby helped establish a natural history museum with the specimens he had collected. His linguistic talents and knowledge of China gained him invitations to participate in several long expeditions during which he continued to collect.

In 1908, Sowerby made his most famous journeys when he joined up with American millionaire Robert Sterling Clark (1877–1956) on a number of expeditions in Shanxi, Shaanxi, and Gansu. The accounts that he published established him as a noted scholar in the field of Chinese natural history.⁴⁸ In 1916, he became a member of the NCBRAS and began identifying specimens of large mammals for the Zikawei Museum around 1917.⁴⁹ In the early 1920s, he decided to permanently settle in Shanghai and took up the position of joint honorary curator of the Shanghai Museum, after Arthur Stanley (1868–1931) vacated this post in 1921.⁵⁰ He acted as the Shanghai Museum's honorary curator

⁴⁷ Richard Raine Sowerby, *Sowerby of China: Arthur de Carle Sowerby* (Kendal: Titus Wilson and Son, 1956), pp. 1–2.

⁴⁸ See Robert Sterling Clark and Arthur de Carle Sowerby, *Through Shên-kan: The Account of the Clark Expedition in North China, 1908–9* (London: T. F. Unwin, 1912).

⁴⁹ Examples of his publications related to Zikawei Museum include “On Heude’s Collection of Pigs, Sika, Serows, and Gorals in the Sikawei Museum, Shanghai,” *Proceedings of the Zoological Society of London* (1917), pp. 7–26; “Notes upon the Sika-Deer of North China,” *Annals and Magazine of Natural History* 2 (1918), pp. 119–22; “Notes on Heude’s Bears in the Sikawei Museum, and on the Bears of Palaearctic Eastern Asia,” *Journal of Mammalogy* 1.5 (1920), p. 225.

⁵⁰ Arthur Stanley was an officer in the Health Department of the International Settlement and served as an honorary curator of the Shanghai Museum from 1906 to 1921. He greatly enriched and reorganized this museum’s collection, see an obituary written by John C. Ferguson, *Journal of the North-China Branch of the Royal Asiatic Society* 62 (1931), pp. i–ii. The position of honorary curator was one without remuneration. In 1932, Sowerby changed the title from “Honorary Curator” to “Honorary Director” to conform to the practice of similar institutions around the world, see Sowerby, *China’s Natural History*, p. 4.

from 1927 until 1946⁵¹ and also served as NCBRAS president from 1935 to the end of 1940.

During his tenure, the Shanghai Museum and Zikawei Museum continued to work together, with Sowerby writing a number of reports on the activities of the two institutions for *The China Journal of Science and Arts*, which he had set up in 1923 with John Calvin Ferguson and Clarice Sara Moise, whom he later married.⁵² In 1933 and 1934, Sowerby donated hundreds of academic journals from his personal collection to the library of the Zikawei Museum, which by then had been renamed the Heude Museum.⁵³ In December 1941, Japanese forces took control of the International Settlement and placed Sowerby under house arrest, which forced him to remain in Shanghai. He continued to conduct research and throughout the war published some works included in the Heude Museum's series,⁵⁴ but decided to return to Great Britain for good in the fall of 1946 due to ill health.⁵⁵ Although the NCBRAS was still fully operational on the eve of his departure, Sowerby chose to donate his large personal collection – which included biological specimens, artifacts, and books – to the Heude Museum. It was in recognition of his donation and high regard for the Heude Museum that the fathers named a showroom – Sowerby Hall – after him.⁵⁶

One of the collaborative projects initiated by the Zikawei Museum and the Shanghai Museum involved the training of Chinese taxidermists. With public displays and exhibitions in mind, the curators at the Shanghai Museum recognized the importance of well-trained taxidermists, but they had long failed to find qualified individuals to fill these

⁵¹ The society and museum's activities were suspended at the end of 1941 due to the war, but they were resumed in 1946 after the war had ended. Both institutions were permanently shut down on May 19, 1952. See Wang, *Huangjia Yazhou wenhui bei Zhongguo zhihui yanjiu*, p. 27. Apart from his activities at the museum, Sowerby also acted as the head of the Association of British Residents in China and the Association of Foreign Residents in China. In addition, he was actively involved in the conservation of bird species in China, especially in the Shanghai area. See Ning Jennifer Chang 張寧, "Zai Hua Yingren jian de wenhua chongtu: Shanghai 'yundongjia' duikang 'niaolei tuhaizhe', 1890-1920" 在華英人間的文化衝突, 上海運動家對抗鳥類屠害者, 1890-1920, *Zhongyang Yanjiuyuan Jindaishi Yanjiusuo jikan* 中央研究院近代史研究所集刊 34 (Dec. 2000), pp. 89-144.

⁵² Sowerby, "China Journal," *The China Journal* 6.1 (1927), pp. 1-6.

⁵³ V. P., "Le Musée Heude: Un an d'activité scientifique," *Bulletin de l'Université l'Aurore*, 2d ser. 28 (1933-1934), p. 81.

⁵⁴ See his correspondence with successive directors of the Heude Museum in the Aurora University archives, Shanghai Municipal Archives, Bund Location, folder Q 244-470.

⁵⁵ Sowerby, *Sowerby of China*, p. 49.

⁵⁶ Joseph Dehergne, "Le fonds Sowerby," *Bulletin de l'Université l'Aurore*, 3d ser. 24 (1945), pp. 812-15; Keith Stevens, "Naturalist, Author, Artist, Explorer and Editor and an Almost Forgotten President: Arthur de Carle Sowerby 1885-1954 President of the North China Branch of the Royal Asiatic Society 1935-1940," *Journal of the Royal Asiatic Society Hong Kong Branch* 38 (1998), pp. 121-36.

posts. When in April 1874 father Armand David returned to France, Wang Shu-Heng 王樹衡,⁵⁷ a taxidermist whom David had instructed during his stay in China, was initially recommended to the Zikawei Museum but finally joined the staff of the then newly established Shanghai Museum (R.A.S.).⁵⁸ Although at first the Shanghai Museum was only equipped with one showroom, its exhibitions received an enthusiastic appraisal, and *Shun Pao* 申報, a popular local newspaper, reported positively on them by emphasizing their novelty.⁵⁹

For the first period – from the establishment of the Zikawei Museum until its relocation to Aurora University – the Jesuit fathers, who took the Muséum National d’Histoire Naturelle in Paris as a model, focused more on collecting, classifying, and identifying specimens than on exhibiting them to the general public. The basic functions a museum should fulfill – namely to collect, preserve, research, exhibit, and educate – were in fact only gradually agreed upon in the early twentieth century when museologists tried to professionalize the field.⁶⁰ It was not until the 1930s that the Jesuit fathers started to pay more attention to the educational functions of the museum in regards to university students and the general public.

During this first period, the fathers shared their findings mainly by publishing research reports, many of which were well received among Western scholars. Since the Western academic community was at the time still quite unfamiliar with China’s biodiversity and geography, these publications became widely-used reference works. The Zikawei Museum played an important part in creating a platform for Chinese scholars to learn about the collection and preservation of biological specimens, especially considering that China had not yet developed a specialized agency dedicated to such tasks. Although the museum’s founder, father Heude, had felt compelled to use his research to argue against the theory of evolution, causing some scholars to doubt his cred-

⁵⁷ Sowerby, “History of the Shanghai Museum,” p. 220. Wang’s Western name is Clement Wang.

⁵⁸ Father David mentioned this in his writings, but he did not provide further details; see Armand David, *Journal de mon troisième voyage d’exploration dans l’empire chinois* (Paris: Hachette, 1875), vol. 2, p. 319. Henri Cordier mentions in the obituary he wrote for David that Cordier introduced Wang to the Shanghai Museum; see Henri Cordier, “Armand David,” *TP* 2.1 (1901), pp. 94–96.

⁵⁹ “Chuangshe bowuyuan” 創設博物院, *Shun Pao* 申報 (1875.11.04). The importance of taxidermists for the Shanghai Museum will be discussed further in a forthcoming article on this museum.

⁶⁰ See for example Frederic A. Lucas, “Purposes and Aims of Modern Museums,” *Proceedings of the Staten Island Association of Arts and Sciences* 2 (1908), pp. 119–24.

ibility, the museum's achievements and scientific contributions should not be underestimated.

THE HEUDE MUSEUM PERIOD (1930-1952)

In 1930 the Zikawei Museum relocated to the campus grounds of Aurora University, situated at 223 Dubail Avenue. To match the university's Chinese name, the museum's Chinese name was changed to Zhendan Bowuyuan 震旦博物院. Meanwhile, its French name became "Musée Heude," and its English name became "Heude Museum."⁶¹ The possibility of a merger between the two institutions had been on the table for several years, but it was ultimately father Auguste Savio, the museum's director from 1929 to 1935, and father Lefebvre, Aurora University's rector from 1927 to 1931, who got the merger process started. After relocating to the university's grounds, the museum started to not only to stress its role as an educational institution, but also to engage more with local Chinese scholars by facilitating knowledge exchange and setting up initiatives to popularize science.

Merger with Aurora University

Aurora University was founded in 1903 by Joseph Ma Xiangbo S. J. 馬相伯 and was one of the several educational institutions supported by French Jesuits in China. The university's Chinese name, Zhendan 震旦, is a transcription of an old term for China used in some ancient Sanskrit (Buddhist) texts originating from India. In Taoist cosmology, *zhen* symbolizes the east, while *dan* symbolizes sunrise. Combined, *zhendan* means "the break of dawn" in Chinese, which explains the university's French and English names – "Aurore" and "Aurora."⁶² According to a 1935 guide book published by the university, its name encompassed the idea of "a light in the east with a boundless future 東方光明前途無量."⁶³

The university was originally located in the northern part of Tushanwan, Zikawei, and offered classes in philosophy, Latin, English, and French. Following a quarrel between Ma Xiangbo and the Jesuit dean of academic affairs, the university suspended its operations in 1904. In 1905, Ma founded the Fudan Public School 復旦公學 (later

⁶¹ Zhendan Daxue 震旦大學, ed., *Sili Zhendan daxue yilan* 私立震旦大學一覽 (Shanghai: Tushanwan yinshuguan, 1935), p. 14.

⁶² Zhendan Daxue xiaoyouhui 震旦大學校友會, ed., *Zhendan Daxue jianxiao bainian jinnian, 1903-2002* 震旦大學建校百年紀念, 1903-2002 (Shanghai: Zhendan Daxue xiaoyouhui, 2002), p. 41.

⁶³ Zhendan Daxue, *Sili Zhendan Daxue yilan*, p. 1.

Fudan University), while Aurora University was taken over by the Jesuits, who appointed as its head Chinese father Li Wen-Yu 李問漁.⁶⁴ In 1908, Aurora University moved to its new location on Dubail Avenue. By then, it had grown from a basic liberal arts institute into a comprehensive university, which boasted departments of law, medicine, and science and engineering. The university quickly attracted a large number of applicants, resulting in an exponential annual growth of its student body. It was around this time Aurora became known as a cradle of young talent in a range of academic disciplines.

With a campus of approximately 103 acres, the university had ample room for a new building on the north side of its grounds to house the Zikawei Museum. A groundbreaking ceremony on April 26, 1930, was attended by many prominent local figures and was reported in local newspapers. In his speech for the occasion, father Lefebvre highlighted the mutual benefits the merger would bring. For the museum, whose old building in Zikawei had become incapable of holding the ever-increasing collection of specimens, the new location's purpose-built structure would meet all its curatorial and research needs, while a natural history museum would provide the opportunity for the university's medical and science students to closely observe specimens. This would not only enrich the curriculum, but also encourage students to engage in further studies in this field. Furthermore, the already renowned museum was expected to attract many visitors, thus increasing the fame of the university, especially among expatriates. According to Lefebvre, Aurora University intended to welcome young scientists – both local and visiting – to make use of the research facilities at the museum, and in doing so, assist China in modernizing its agricultural and public health systems.⁶⁵

The new museum building was completed in the spring of 1931 and featured a three-story, L-shaped structure, which housed six large rooms for collections, three laboratories, three libraries, and a botanical garden.⁶⁶ According to the above-mentioned guidebook, the Heude Museum also served as the university's Institute of Natural Science, making it “not only a building of displays, but also a place to conduct research.”⁶⁷

⁶⁴ Concerning the importance of Li, see Kurtz, “Messenger of the Sacred Heart,” pp. 81–109.

⁶⁵ See “Chronique du 2e semestre 1930,” *Bulletin de l'Université l'Aurore*, 2d ser. 21 (1930), pp. 91–95.

⁶⁶ This building still exists and is located on the campus of Jiaotong Daxue 交通大學. However, the building that housed the museum at Xujiahui has been destroyed.

⁶⁷ Zhendan Daxue, *Sili Zhendan Daxue yilan*, p. 195.

The relocation also gave the Zikawei Museum an opportunity to complete a comprehensive inventory and to reassess its future research goals. Museum records reveal that, at the time, its collections included nearly 1,000 mammal furs, over 1,000 animal skulls, and a number of complete skeletons of large mammals native to China. It also had several thousands of bird specimens, covering nearly 300 different genera and more than 1,000 species, mainly from Jiangsu and Anhui provinces. One of the special collections was a complete set of nests and eggs from birds indigenous to the Shanghai region, collected by father Auguste Savio. Research related to these assets, including a series of specimen photographs, was published in the fifth volume of *Mémoires concernant l'Histoire naturelle de l'Empire chinois* in 1914.

The museum's collection of reptiles included some 350 snakes from 30 species, a number of lizards and Yangtze crocodiles, and nearly 1,000 turtle specimens in need of further classification. While its collection of amphibians and fish was relatively small, it maintained a rich inventory of mollusks from across the Yangtze River region. Totaling nearly 1,500 species, most of these mollusks had been examined and identified by father Heude. From the 1920s onward, insects became another key area of focus. Father Octave Piel, a specialist in the study of hymenoptera, was an expert on the nesting and parasitic behaviors of this order of insects and was frequently consulted by other naturalists and institutions in China. In order to better identify specimens, the Heude Museum also established a knowledge-sharing network with its counterparts around the world, including the U.S. Department of Agriculture (Bureau of Entomology) in Washington D.C., Harvard University, Imperial Institute of Entomology in the United Kingdom, and the Vienna Museum, to name a few.

The museum also held some 50,000 plant specimens, about 30,000 of which were from 3,000 different species indigenous to Jiangsu and Anhui provinces. Father Frédéric Courtois published *L'herbier de Zikawei: Herborisation dans le Kiangsou en 1918*, and using the unpublished manuscripts Courtois left behind, father Henri Belval later completed *Flore de la région montagneuse du Ngan-Hoei, énumération des plantes récoltées et déterminées par le P. Courtois au cours des années 1906-1922*. As the operations and management of the museum stabilized, it also began to receive a number of generous donations of specimens from private collectors and institutions.

In addition to conducting research at the Zikawei Museum, the fathers taught biology at the university; and in turn, the university's

other faculty members became involved in the management of the museum. This shared pool of human resources greatly diminished the strain on manpower the museum had previously experienced. Museum directors father Savio and father Piel, father Bernard Becquart from the insect and animal department, father Albert Bourgeois from the bird department, and father Jacques Roi from the plant department all held adjunct professorships at Aurora University.

This cooperation between museum and university staff shows that the merger achieved the directors' goals of further developing the museum and simultaneously strengthening the university's reputation. Within the pages of *The China Journal*, Sowerby continued to report on scientific developments in Shanghai, and in 1935 he wrote that he considered the Heude Museum China's leading museum.⁶⁸

In a speech delivered at the celebration of the museum's seventieth anniversary in 1939, its director, father Piel, clearly laid out the institution's three main objectives. Its first task was to conduct scientific research on all aspects of Chinese natural history, particularly its flora and fauna, and keep systematic records of specimens. Its second task was to exchange knowledge and resources with both local Chinese and international institutions. Finally, the museum's third task was to encourage and support Chinese youth in their intellectual endeavors. Although it was not an educational institution, it hoped to play a role similar to that of the Muséum National d'Histoire Naturelle or the Collège de France. In other words, its goal was to become a higher research institution in the field of natural history, which would promote the expansion of knowledge in the field.⁶⁹

In the period between its relocation and the outbreak of the Pacific War, the Heude Museum appears to have been reasonably successful in fulfilling these goals, forging long-term partnerships with other prominent scientific institutions and organizations in China at the time, including the Science Society of China, Academia Sinica, the National Academy of Beiping 國立北平研究院, and the NCBRAS. The photographs taken at the museum's seventieth anniversary show hanging scrolls that bore congratulatory words sent by both the Science Society of China and the National Research Institute of Biology at Academia Sinica 中央研究院動植物研究所,⁷⁰

⁶⁸ Arthur de Carle Sowerby, "The Naturalists' Club of Shanghai," *The China Journal of Science and Arts* 23.6 (1935), p. 395.

⁶⁹ Octave Piel, "Le 70^e anniversaire du Musée Heude," *Bulletin de l'Université l'Aurore*, 2d ser. 39 (1938-1939), pp. 56-59.

⁷⁰ See photographs included in Flamet, "Le Musée Heude, ses fondateurs et ses richesses scientifiques."

attesting to the Heude Museum's good reputation among local scientific institutions (see figure 4).



Figure 4. Congratulatory Messages on the Heude Museum's Seventieth Anniversary
 These messages were sent to the museum by the Science Society of China and the National Research Institute of Biology at Academia Sinica. They are pictured hanging on a hallway wall. From Flamet, "Le Musée Heude, ses fondateurs et ses richesses scientifiques" (cited n. 13).

Exchanges with Local Scholars

At the time of the Zikawei Museum's founding, China had not yet developed a procedure for systematically training scientists in natural history; only a handful of Western-run organizations devoted any effort to this field. However, the situation would change in the next five decades. Following its relocation to Aurora's campus, the museum participated in a number of exchanges and collaborative projects with local counterparts, reflected in both the museum's publications and in their collaborative study of the museum's collections.

The new museum gave up on the large-print, bound volumes of *Mémoires concernant l'Histoire naturelle de l'Empire chinois*, which took a long time to compile and publish, opting instead to issue several shorter, intermittent publications that covered the works of scholars from a variety of fields. Whereas previously all publications were written in French, the new publications featured articles in both English and French, which allowed for a wider readership. Major publications

during this period include *Notes d'Entomologie chinoise*, *Notes de Botanique chinoise*, and *Notes de Malacologie chinoise*.⁷¹

The above contents reveal that during the founding years the fathers at the Zikawei Museum mainly focused on the study of shellfish, mammals, and plants. However, beginning in the 1920s, their attention shifted toward entomology, and from the 1930s onward, entomological research enjoyed a dominant position within the institution. The shift reflected the fields of expertise of the successive presiding fathers,⁷² all of which was related to the development of biological studies and the in China for further agricultural research.

As the need to study methods of pest control and prevention became more pressing, new institutes dedicated to entomology were set up in the mid-1920s, including the first pest control institute in China – the Jiangsu Bureau of Entomology 江蘇昆蟲局 (1922) – and the national authority on plant pest control at the time – the Central Research Institute of Agriculture 中央農業實驗所 (1933). The Biological Laboratory in Nanjing (1922) and the Fan Memorial Institute of Biology in Beijing (1928),⁷³ both founded by the Science Society of China, as well as the National Research Institute of Biology at Academia Sinica,⁷⁴ and other similar organizations, also conducted entomological research.⁷⁵

In terms of both foundational research and its applied uses, entomological research reached its first peak in China in the 1930s. Since conducting entomological research required large quantities of specimens, the Heude Museum and the Hoangho-Paiho Museum in Tianjin 天津北疆博物院, another museum founded by French Jesuits, were considered valuable resources since they boasted much larger specimen collections than their counterparts.⁷⁶ To illustrate, the Heude Museum, which originally had some 70,000 insect specimens, saw its collection grow by between 20,000 and 25,000 annually between 1933 and

⁷¹ The museum published twelve volumes of *Notes d'Entomologie chinoise*, nine volumes of *Notes de Botanique chinoise*, and six volumes of *Notes de Malacologie chinoise* between 1929 and 1950.

⁷² Both father Savio and father Piel specialized in entomology and were members of the French Society of Entomology.

⁷³ For the history of this institution, see Hu, *Jingsheng shengwu diaochasuo shigao* 靜生生物調查所史稿 (Jinan: Shandong jiaoyu chubanshe, 2005).

⁷⁴ This institute was preceded by the Metropolitan Museum of Natural History, which had been in its preliminary stages since January 1929 and was formally established in January 1930. In July 1934, the museum was reorganized and renamed the National Research Institute of Biology.

⁷⁵ Wang Siming 王思明 and Zhou Yao 周堯, *Zhongguo jindai kunchongxue shi (1840-1949)* 中國近代昆蟲學史 (1840-1949) (Xi'an: Shaanxi kexue jishu chubanshe, 1995), pp. 64-76.

⁷⁶ Wang and Zhou, *Zhongguo jindai kunchong xue shi*, p. 119.

1937.⁷⁷ Entomological Department director father Bernard Becquart stated in an article that in 1940 the Heude Museum held about 400,000 classified insect specimens, 600 of which were newly-discovered species. Becquart also mentioned in the article that despite the nation's political turmoil, the museum and one of its partners, Chinese scholar Wang Zhong-Yi 汪仲毅, had managed to complete a bibliographic index of existing Chinese entomological studies in Chinese and Western languages. These efforts were invaluable to both the Chinese and international entomological research communities.⁷⁸

In fact, the Heude Museum regularly received international scholars who studied its collections and published their results in its journals, particularly in *Notes d'entomologie chinoise*. From 1929 to 1948, the publication produced a total of twelve issues, primarily featuring articles written in French or English. Among the more than forty contributors at least ten were Chinese entomologists, namely Wang Zhong-Yi,⁷⁹ Chen Shi-Xiang 陳世驥,⁸⁰ Liu Jun-E 劉君諤,⁸¹ Liu Chong-Le 劉崇樂,⁸² Lu Jin-Ren 陸近仁,⁸³ Ma Chun-Chao 馬駿超,⁸⁴ Yang Wei-Yi 楊惟

⁷⁷ Piel, "Le 70^e anniversaire du Musée Heude," p. 34.

⁷⁸ Bernard Becquart, "L'entomologie au laboratoire du Musée Heude," *Bulletin de l'Université l'Aurore*, 3rd ser., 3 (1940), pp. 308-12.

⁷⁹ Wang graduated from Zhejiang University and was thereafter employed at the Zhejiang Province Pest Control Bureau 浙江省植物病蟲害防治所. He published *Zhongwen kunchongxue zhushu huilu* 中文昆蟲學著述彙錄 in 1932 and *Zhongguo kunchongxue wenxian suoyin* 中國昆蟲學文獻索引 in 1935. His article in *Notes d'Entomologie chinoise* was an updated version of his earlier Chinese work and was published both in Chinese and in French. See Chung-nie Wang, "Index bibliographique sur l'entomologie chinoise," *Notes d'Entomologie chinoise* 7.10 (1940), pp. 205-462.

⁸⁰ Chen Shi-Xiang (1905-1988) graduated from Fudan University in 1928 and received his doctoral degree from the University of Paris in 1934. He was employed as a research fellow at the Institute of Zoology and Botany at Academia Sinica when he published his articles in Heude Museum's publication. See Sicien H. Chen, "Catalogue des Chrysomelinae de la Chine, de l'Indochine et du Japon," *Notes d'Entomologie chinoise* 3.5 (1936); "Etude sur les diptères conopides de la Chine," *Notes d'Entomologie chinoise* 6.10 (1939); "Galerucinae nouveaux de la faune chinoise," *Notes d'Entomologie chinoise* 9.3 (1942).

⁸¹ Liu Jun-E was considered a leading figure in the study of wood borers in China, especially the Chinese Mulberry-Borer. At the Heude Museum, she often collaborated with father Piel and was encouraged to publish her findings there. See K. O. V. Lieu, "Study of a new Species of Chinese Mulberry-Borer: *Paradoxecia pيلي*," *Notes d'Entomologie chinoise* 2.10 (1935); "The Study of Wood Borers in China," *Notes d'Entomologie chinoise* 11.2 (1947).

⁸² Liu Chong-Le (1901-1969) was working as a professor at the Graduate Institute of Agriculture at National Tsing Hua University when he collaborated with the Heude Museum. See C. L. Liu, "Revisional Studies of the Vespidae of China I: The Genus *Pareumenes* Saussure, with Descriptions of Six New Species," *Notes d'Entomologie chinoise* 8.6 (1941).

⁸³ Lu Jin-Ren (1904-1966) obtained his doctorate from Cornell University in 1936. When he published his findings in Heude Museum's publication, he was working as a professor at the Graduate Institute of Agriculture at Tsing Hua University in Kunming. He specialized in *Lepidoptera larvae* taxonomy. See Chin-Jen Luh, "Note on the Presence of Ocellar Sutures on Butterfly Larvae," *Notes d'Entomologie chinoise* 9.1 (1942).

⁸⁴ Ma Chun-Chao (1910-1992) worked at the Heude Museum during the 1930s and in Fujian

義,⁸⁵ Zhang Guang-Shuo 張光朔,⁸⁶ Huang Xiu-Ming 黃修明,⁸⁷ and Tao Jia-Ju 陶家駒.⁸⁸ The journal also featured articles written by Japanese and Western scholars, who were either teaching in China or conducting entomological research related to China in their own countries. Since their research was based on the Heude Museum's collection of specimens, they published their findings in its academic journal. *Notes d'entomologie chinoise* was one of the five leading academic journals on entomology in China at the time.⁸⁹ It was the longest-running entomological journal of the five, after its peers had ceased publication due to budgetary constraints and wartime difficulties. Its last issue came out in 1948.

Another publication worth mentioning here is *Notes de malacologie chinoise*, published between 1934 and 1945. Although the journal only issued six thin booklets containing identification reports and mainly dealt with research conducted at the Heude Museum, its authors included prominent scholars such as Bing Zhi 秉志, cofounder of the Science Society of China and a renowned biologist, as well as other young biologists such as Yan Dun-Jian 閻敦建,⁹⁰ who went on to work for the

Province from 1939 to 1945. In 1946, he moved to the Taiwan Agricultural Research Institute 臺灣農業試驗所. His publications in *Notes d'Entomologie chinoise* are as follows: Tsing-Chao Maa, "On the Nomenclature of Certain Xylocopa- Species (Hymenoptera)," *Notes d'Entomologie chinoise* 7.6 (1940); "Records and Descriptions of Some Chinese and Japanese Urostylidae (Hemiptera: Heteroptera)," *Notes d'Entomologie chinoise* 11.3 (1947); "On Some Eastern Asiatic Species of the Genus *Psithyrus* Lepel," *Notes d'Entomologie chinoise* 12.3 (1948).

⁸⁵ Yang Wei-Yi (1897-1972) worked at the Jiangsu Bureau of Entomology before studying in France from 1931 to 1935. He became a research fellow at the Fan Memorial Institute of Biology after he returned from France. He published an article in the journal in 1938: We-I Yang, "Genre nouveau et espèce nouvelle de la famille des pentatomidae," *Notes d'Entomologie chinoise* 5.4 (1938).

⁸⁶ Zhang Guang-Shuo taught at St. John's University in Shanghai, while also contributing to this museum's research efforts, see K. S. Francis Chang, "Index of Chinese Tettigoniidae," *Notes d'Entomologie chinoise* 2.3 (1935); "Some New Acrididae from Szechwan and Szechwan-Tibetan border (orthoptera: acrididae)," *Notes d'Entomologie chinoise* 4.1 (1937); "The Groupe *Podisma* from China (Acrididae, Orthoptera)," *Notes d'Entomologie chinoise* 7.2 (1940).

⁸⁷ Huang Xiu-Ming was an employee of the Shanghai Government Testing Bureau 上海商品檢驗局 and specialized in *Lycenidae*, see S. M. Yekfa Huang, "The Chinese *Lycenidae*," *Notes d'Entomologie chinoise* 10.3 (1943).

⁸⁸ Tao Jia-Ju (1911-1999) graduated from Jiangsu Agriculture School 江蘇農業學校 and received further training at the Pest Control Bureau of Zhejiang Province. He taught at a number of colleges and moved to the Taiwan Agricultural Research Institute after 1946. For his contribution to the museum's publication, see Chia-Chu Tao, "Descriptions of Three New Aphids from West China," *Notes d'Entomologie chinoise* 11.5 (1947).

⁸⁹ See Wang and Zhou, *Zhongguo jindai kunchong xue shi*, p. 133. The four other periodicals mentioned in this book are *Zhejiang kunchongju nianjian* 浙江昆蟲局年鑑 (1931-1936), *Jingsheng shengwu diaochasuo xuebao* 靜生生物調查所學報 (1931-1941), *Kunchong yu jibing* 昆蟲與植病 (1933-1937), and *Quwei de kunchong* 趣味的昆蟲 (1935-1938).

⁹⁰ The first volume of *Notes de Malacologie chinoise* included articles by Bing and Yan. See Yan Dun-Jian, "Notes on Protoconchs and Conchs of Some Marine Gastropods"; "Notes on

Fan Memorial Institute of Biology. Their papers were especially important to the field's understanding of coastal gastropods in China.

Bing's cooperation with the Heude Museum did not end at this point. According to Aurora University rector father Georgius Germain (who served from 1931-1946), Bing was the driving force behind the creation of the university's Chinese Medicine Society. Even during the war, he spent many hours at the university laboratory instructing the research team. Bing remained there until around March 1945, when Japanese forces occupied the campus.⁹¹ In a 2006 publication, Bing's daughter added rich details to this story:⁹² When Nanjing fell to the Japanese in 1937, Nanjing's Central University relocated to Chongqing in southwestern China. Although he was a faculty member, Bing had to stay in Shanghai to care for his bedridden wife, instead of moving with the university. According to his daughter, the Japanese were eagerly seeking his cooperation, prompting Bing to disguise himself to avoid having to work for the enemy. The laboratory and the museum at Aurora University were his hideouts during this period, allowing him to continue his research covertly.

Besides showcasing the museum's research findings, the above-mentioned journals also played an important role in the scientific exchanges between the Heude Museum and its international counterparts. Thanks to publication exchange agreements and subscriptions, scientific books and periodicals were available in great numbers at the museum. During the exhibition for its seventieth anniversary, just one of the display tables showcased ninety-four periodicals that were in some way related to research there, including local publications (in Chinese and foreign languages) and journals from Western countries, as well as from India, Japan, and Indonesia. This was a remarkable achievement and shows the extent to which the Shanghai-based institution had reached out to overseas scientific circles.

Some Marine Gastropods of Pei-hai and Wei-chow Island"; "Additional Notes on Marine Gastropods of Pei-hai and Wei-chow Island"; "Notes on Some Freshwater Pulmonata in China"; and Bing Zhi, "On Some New Gastropods from Anhui."

⁹¹ Caiermeng 才爾孟 [Georgius Germain], "Kangzhan qijian zhi Zhendan: dui houfang tongxue zhi jianlue baogao" 抗戰期間之震旦，對後方同學之簡略報告 (n.p., n.d.), p. 4.

⁹² See Zhai Qihui 翟啓慧 and Hu Zongang 胡宗剛, eds., *Bingzhi wen cun* 秉志文存 (Beijing: Beijing daxue chubanshe, 2006), vol. 1, p. 17.

Popularizing Science

The Heude Museum also played a major role in bringing science to China's general public. Following the completion of the new building, the museum opened its doors in 1933. The interior of the L-shaped building was divided into two sections. The director's description of the building, given in a speech at the groundbreaking ceremony,⁹³ indicates that the section adjacent to Avenue Dubail was used for general purposes and was open to the public. The wing facing the campus was reserved for researchers – including resident students, alumni, and other research professionals – and comprised a laboratory, library, and storage rooms for specimens.

The first showroom on the ground floor, which was open to the general public, displayed some 3,500 ancient artifacts that had been transferred from Tushanwan Orphanage to the Heude Museum.⁹⁴ The second showroom was on the first floor and contained mainly animal specimens, while the third showroom, on the second floor, was dedicated to plant specimens. Two maps next to the entrance to the second showroom featured the regions that had been explored by father Heude or other researchers as well as a number of areas that still awaited exploration.

According to an article by Hu Dao-Jing 胡道靜, a local journalist and at that time one of the main contributors at Shanghai General Annals House 上海通志館, the Heude Museum was open daily from 2 PM to 5 PM, except on Tuesdays. The admission fee to all three showrooms was 20 cents of the national currency. About 1,000 crates of plant and insect specimens were not accessible to the public, but those who wished to examine them could apply to the staff for access.⁹⁵

After much anticipation, the Heude Museum was officially opened to the public on June 1, 1933. Many Catholic newspapers in China reported on the event, and Sowerby wrote an article in his *China Journal* on museum's importance.⁹⁶ The institution's annual report indicates

⁹³ “Zhendan Daxue xin jian bowuyuan xing dianjili zhi sheng” 震旦大學新建博物院行奠基禮誌盛, *Shengjiao zazhi* 聖教雜誌, 19.6 (1930), p. 285.

⁹⁴ The majority of the Chinese artworks and craft objects in this collection were collected by Aloysius Beck (1854–1931), a German Jesuit who arrived in China in 1892 and served as the head of Tushanwan's carpentry workshop. Under his supervision, craftworks made by Tushanwan orphans won awards in several World Expositions. For a brief presentation on this hall in English, see Arthur de Carle Sowerby, “The Hall of Antiquities in the Heude Museum,” *The China Journal of Science and Arts* 20.4 (1934), pp. 170–71.

⁹⁵ Hu Dao-Jing 胡道靜, “Zhendan bowuyuan shi lue” 震旦博物院史略, Shanghai tong she 上海通社, ed., *Jiu Shanghai shiliao huibian* 舊上海史料匯編 (Beijing: Beijing tushuguan chubanshe, 1982), p. 382.

⁹⁶ Arthur de Carle Sowerby, “Societies and Institutions: the Heude Museum,” *The China*

that it received 2,588 visits (individuals and groups) during its first year, including visits by students, naturalists, and antique hobbyists. Visiting groups included researchers and students from St. John's University 聖約翰大學醫學院, the Science Society of Shanghai, the Institute of Botany at the National Academy of Beijing, Nanking University, Nanjing's Central University, and the Biological Laboratory of the Science Society of China.

Representatives of the Geological Survey of China in Beijing also traveled to the Heude Museum to conduct comparative studies on animal skulls,⁹⁷ while foreign scholars came to study the museum's specimens prior to embarking on field research in other Chinese provinces. Because the two curators in the 1930s were both famous entomologists, Lingnan, Shandong, and Yenching universities regularly sent batches of insect specimens in order to receive help to identify them.

Apart from these specialized groups and individual professionals, how much did the general public know about the museum? For instance, how many visitors did it attract each year? While I was unable to find reliable figures, two types of records might help us more broadly understand the relationship between the museum and Shanghai's local community, namely records detailing a number of the larger special exhibitions and records of donated objects.

Certain local newspapers, such as *Shun Pao*, wrote lengthy reports on the special exhibition held to commemorate the Heude Museum's seventieth anniversary in 1939. For this event, the museum opened a new showroom to launch an accompanying special exhibition and waived the price of admission for the general public from May 21 to June 5, resulting in more than 70,000 visits over the fortnight. In its main showroom were displayed research notes, scientific writings, and specimens collected by father Heude, in addition to a number of detailed maps he used during his explorations. These items were flanked by specimens collected by other fathers, all arranged in order of succession, and included displays showing the nesting and parasitic behaviors of insects. The exhibit also featured a description of the parthenogenesis of hymenopterans, which showcased the specialization of father Piel, the museum's curator at the time. In addition to displaying its drawing equipment, the entomology laboratory put on a demonstration of the techniques used to catch insects and displayed a brooder, which allowed

Journal of Science and Arts 19.1 (1933), pp. 48-50.

⁹⁷ V. P., "Le Musée Heude: Un an d'activité scientifique," p. 79.

visitors to observe the lifecycle of butterflies. Meanwhile, the showroom dedicated to vertebrates showed a complete crocodile skeleton.

On this occasion, visitors were also allowed access to the laboratory and library, where displays were arranged to help the public understand the functions of various reference materials and laboratory equipment. Library books were displayed to inform visitors about selected specimens, classification methods, and other recent discoveries.

The reaction of the audience was described in one of the university's periodicals:

There were quite a few visitors who were here only out of curiosity, but such visitors could be found at any exhibition. There were also teachers leading their students, as if on a field trip. Some other visitors paid close attention to the displays at each showcase and took notes. Some even returned the next day to examine the exhibits further. Some people asked about how to catch insects and the methods we used to make specimens. For example, one young member of the audience asked about the composition of the liquid that was used to prepare the butterfly specimen. On the whole, most of the general audience felt they had learned quite a lot from the visit, and this is exactly what we should be happy about.⁹⁸

The article also mentioned that the audience's positive feedback prompted the Heude Museum's curators to contemplate ways to popularize science in China. The curators then suggested establishing a public education department to cultivate talent among those interested in the field.

The museum's special exhibition on Chinese medicine, held in April and May 1942, was another event that received a lot of attention from the media. Curated by father Jacques Roi, who held a doctorate in botany, and Professor Wu Yunrui 吳雲瑞 of Aurora University, this exhibition featured medical implements and Chinese medical books,⁹⁹ including medicinal animals, plants, and minerals listed in the *Compendium of Materia Medica* 本草綱目. In addition to its exhibits, the host organization arranged a series of special talks by experts, and these

⁹⁸ "Han shi bowuyuan qishi zhounian jinian" 韓氏博物院七十週年紀念, *Zhendan yi kan* 震旦醫刊 4.4 (1939), p. 329.

⁹⁹ See Wang Xingyi 王興義 and Wu Yunrui 吳雲瑞, "Zhongguo yaowu zhanlanhui zhi gaikuang" 中國藥物展覽會之概況, *Bulletin Médical de l'Université l'Aurore*, 7.2-3 (1942), pp. 147-61. Wang Xingyi (Jacques Roi) was a French Jesuit who obtained his doctorate in botany. He arrived in China in the mid-1930s and worked at the Huangho Paiho Museum in Tianjin for a while before studying Chinese medicinal plants at the Heude Museum. Wu Yunrui was a physician and professor at Aurora University.

events received a lot of coverage in *Shun Pao*.¹⁰⁰ The exhibition was open daily from 1:30 pm to 5 pm, except on Tuesdays, and reportedly attracted over 10,000 visitors in the first week alone.

According to media reports on the event, during the 1930s the staff at Heude Museum had more time and freedom to interact with the general public than they had previously enjoyed and were no longer confined to working in the research laboratory. Moreover, records of donated objects also hint at the start of the spread of scientific knowledge among the general public. The Heude Museum, like its counterparts, wanted to expand its holdings, and procuring private donations of objects was a key part of acquiring collections. Due to its reputation and stability in its operations, the museum was able to attract donations from many prominent private collectors. Besides Sowerby, Charles Gayot, then chancellor of the Consulate General of France in Shanghai, donated a comprehensive collection of birds indigenous to Shanghai, which included 143 genera and 226 species.¹⁰¹ Customs officer Charles Oliver also donated 900 plant specimens. La Touche, an old friend of father Frédéric Courtois, regularly donated specimens over an extended period, with his gifts including a batch of fish specimens he had obtained near Qinhuangdao.

Donations from such an urbane group – amateur collectors and students of natural history – were common. Interestingly, the legendary gang boss Du Yueheng 杜月笙 joined the roster of donors in 1945 when he gifted a pair of *Cervus cameloides* antlers to the museum. According to an article by father Joseph Dehergne, one of the editors of the *Bulletin de l'Université l'Aurore* at the time, the antlers were an exceedingly rare specimen. The endangered animal had first been sighted by father Armand David in China in the second half of the nineteenth century and was later identified by prominent French zoologist Alphonse Milne-Edwards.¹⁰² Dehergne's article did not provide details on how Du Yueheng came to possess the antlers or why he decided to donate them to the museum.

A review of the museum's developments in the 1930s reveals that the institution was slowly realizing father Lefebvre's dreams for it.

¹⁰⁰ See reports in *Shun Pao*, published on the following dates: April 10, 1942, April 11, 1942, April 13, 1942, April 14, 1942, April 18, 1942, April 24, 1942, April 30, 1942, and May 4, 1942. According to this newspaper, the exhibition received widespread support and large donations in the form of specimens and exhibits from several scholarly societies and large Chinese pharmaceutical companies.

¹⁰¹ Savio, "Le Musée Heude," p. 9.

¹⁰² Joseph Dehergne and Arthur de Carle Sowerby, "Chronique du Musée Heude," *Bulletin de l'Université l'Aurore* 3d ser. 28 (1946), pp. 678–80.

However, the war interrupted all of these plans, and the museum was forced to halt its planned exhibitions. After the war, Aurora University resumed operations. Following father Piel's death on July 5, 1945,¹⁰³ the school's rector arranged for father Albert de Cooman (1880–1967) from the Paris Foreign Missions Society, who had previously worked as an entomologist in French Indochina, to oversee the museum's entomology department.¹⁰⁴ The position of curator was filled by father Albert Bourgeois, who had until then been the acting curator. Father De Cooman became curator after father Bourgeois passed away due to an illness in 1948.

A turning point came, however, in 1952, when most of the foreign fathers were forced to leave China, and the Heude Museum put an end to its eighty-three years of service. Its collections were expropriated by the East China Military Administration Committee 華東軍政委員會 and redistributed among several different scientific institutions. An extensive collection of animal specimens that had previously been stored there was taken over by the Institute of Zoology at the Chinese Academy of Sciences, along with some collections of the Institute of Zoology at the National Academy of Beijing, the Fan Memorial Institute of Biology, the National Research Institute of Biology at Academia Sinica, and the National Palace Museum.¹⁰⁵ The Shanghai Museum of Natural History 上海自然博物館, founded in November 1956 by the city government, took over most of the collections previously owned by the Heude Museum and the Shanghai Museum. The ancient artifacts that had been displayed on the first floor of the Heude Museum were given to the new Shanghai Museum, which was established by the city government in 1952, after several years of preparation.

Shanghai's local government expropriated Aurora University in 1951, and only Chinese nationals have been allowed to preside over the school since. When the foreign fathers were forced to leave, in fall of that year, 1952, the People's Republic of China government restructured the nation's higher education system 高等學校院系調整. The medical college at Aurora University, together with its counterparts at St. John's University and Tongde Medical College 同德醫學院, were merged to form the Shanghai Second Medical College 上海第

¹⁰³ "A la mémoire du Père Piel, directeur du Musée Heude (1935–1945)," *Notes d'Entomologie chinoise*, 11 (1947), pp. v–vi.

¹⁰⁴ For more background information on this Belgian father, see "Albert Joseph Marie de Cooman," *Missions Étrangères de Paris* <<http://archives.mepasie.org/notices/notices-biographiques/de-cooman-1>> (accessed on February 2, 2013).

¹⁰⁵ Song, ed., *Lishi shang de Xujiahui*, p. 156.

二醫學院, which took over Aurora University's campus. All of Aurora University's remaining departments were merged into those of other local colleges. It was at this point that Aurora University was officially consigned to history.

CONCLUSION

During its eighty-three years in operation, the Zikawei Museum (later named Heude Museum) made many valuable contributions to China's natural history field. In the first years, there were not enough local scholars capable of systematically collecting, preparing, and preserving animal and plant specimens, which explains why the Zikawei Museum was predominantly staffed by foreigners interested in natural history. However, as the specimen collections grew, so did the fathers' ambitions to conduct natural history research, thus they decided to train local Chinese to aid them in the collection and identification of specimens as well as in the production of scientific illustrations.

The museum's efforts clearly paid off: Compared to the science books published in China's Republican era, the works produced by Tushanwan Press were thirty years ahead of those of other publishing houses in terms of quality and accuracy. The young scientific illustrators at Tushanwan and the first generation of Chinese taxidermists, who were all trained by Western naturalists at the Zikawei Museum and later at the Shanghai Museum, greatly contributed to the development of these fields.

Despite all these contributions, it is regrettable that Chinese scholars were not often able to make use of the Zikawei Museum's research findings, as these were mostly published in French and were destined for the international community. This situation changed after 1930 when it became the Heude Museum. The museum not only frequently collaborated with local Chinese scientific institutions and scholars, but it also worked closely with the teaching staff at Aurora University. Moreover, its exhibitions raised public awareness of the natural sciences.

The 1930s are often considered the golden age of scientific development in modern China, and this foreign-run natural history museum played an important role by making valuable contributions to the nation's scientific community. Whether it was the first modern museum in China or not, the Zikawei Museum deserves further investigation so that we can better understand the research activities in the field of Chinese natural history prior to the large-scale investigations conducted by Chinese scholars from the 1930s onward.