

HONG KONG MUSEUM BULLETIN  
香港博物館誌

#001



**HONG KONG  
MUSEUM BULLETIN**  
**香港博物館誌**

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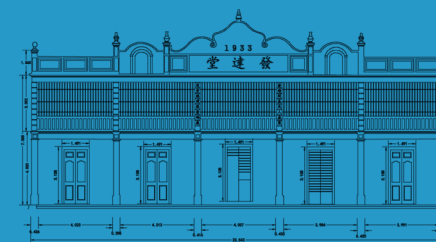
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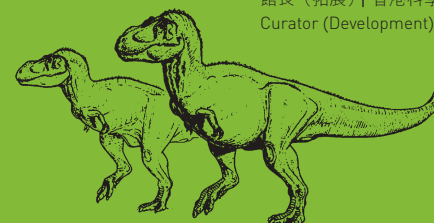
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# PAST PRESENT

過去 • 現在

# 被遺忘的高奇峰銅像

## The Forgotten Bronze Bust of Gao Qifeng

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### 概要

高奇峰 (1889-1933) 是嶺南畫派始創人之一，他雖天賦畫才，可惜他的一生短促，而在機緣之下，他卻留下一尊半身銅像讓後人景仰。這尊銅像可謂歷盡滄桑，在它完成近半個世紀之後才得以找到安身之所。本文作者藉香港藝術館館藏，結合香港文化博物館所藏趙少昂的信函，將這段已被世人遺忘的歷史重新發掘出來。

銅像作者為德國一位女雕塑家，她和丈夫於 1930 年代曾遠赴亞洲遊歷，期間曾拜訪高奇峰，並為之造像。銅像鑄成後卻遭戰火洗禮，猶幸絲毫無損。二次大戰結束後，這尊銅像便一直留在德國，其後交由高奇峰弟子趙少昂保管，後者於 1978 年將之轉贈予香港藝術館作永久收藏。

劫火為塵驚世變，天風吹夢挾霜凌。

— 鄭春霆

### Abstract

Gao Qifeng (1889-1933) was the pioneer of the Lingnan School of painting. He was gifted in painting, yet his life was all too short. Due to some particular circumstances, Gao left behind a bronze bust of his for people to respect and admire today. The bronze bust encountered considerable vicissitudes. Half a century after its completion, the bust has a place of settlement finally. The writer of this article rediscovers this forgotten history by sourcing information from the collection of the Hong Kong Museum of Art and the letters from Chao Shao-an collected by the Hong Kong Heritage Museum.

The creator of the bronze bust was a German sculptor, who accompanied her husband to embark on a journey to Asia in the 1930s. During that period, she paid a visit to Gao Qifeng and made a statue for him. Upon completion of the bronze bust, the outbreak of war caused tremendous damage, the statue was kept intact fortunately. After the end of the Second World War, this bronze bust was kept in Germany, it was then transferred to Chao Shao-an, the disciple of Gao Qifeng for his safekeeping. Chao bestowed the bronze bust to the Hong Kong Museum of Art for its permanent collection in 1978.

Earthshaking changes befell after a blazing inferno,  
heavenly breeze with fierce frost shattered the dreams.

— Zheng Chunting



1 1979 年 2 月，「趙少昂的藝術」展覽在大會堂高座的香港藝術館揭幕。由左至右：藝術館館長譚志成、趙少昂教授和市政局主席沙利士。

In February 1979, “The Art of Chao Shao-an” exhibition was inaugurated in the Hong Kong Museum of Art in the High Block of the City Hall. From left to right: Tam Chi-sing, Curator of the Hong Kong Museum of Art, Professor Chao Shao-an and Arnaldo de Oliveira Sales, Chairman of the Urban Council.

高奇峰 (1889-1933) 是嶺南畫派始創人之一，他雖天賦畫才，可惜他的一生短促，在世匆匆 45 載即因病辭世。他因感染肺炎，於 1930 年代初一度遷入廣州二沙島的天風樓療養。正是在這個機緣之下，高奇峰得以結識了兩位來自外地的異鄉人，並因此而留下一尊他的半身銅像讓後人景仰。這尊銅像可謂歷盡滄桑，在它完成後近半個世紀的歲月中，不單幾乎被毀於戰火，隨後又在異鄉漂泊，最終才得以找到安身之所。

這尊銅像於 1978 年正式移交予當時仍位於中環大會堂高座的香港藝術館作永久收藏，並於次年公開展覽。趙世光 (1916-2007) 這樣描述銅像展出時的情形：

一座丰神俊秀，雕工精妙，閃耀著各古銅色光輝的座像，將於今（十五）日，在政府主辦「趙少昂的藝術國畫欣賞會」預展酒會中，由吾師趙少昂教授移贈給市政局沙利士主席，作為永久陳列於大會堂博物館中的珍品，這是嶺南畫派創始者三傑中，著名的高奇峰先生唯一的銅像<sup>1</sup>。

由此可知，這尊銅像最後是由高奇峰的弟子趙少昂 (1905-1998) 捐贈予香港藝術館作永久收藏。

至於這尊銅像從漂泊他鄉到安身的過程始末，在香港文化博物館所藏趙少昂的信函中得以揭示，為我們重新發掘這段被遺忘了的歷史。

Gao Qifeng (1889-1933) was the pioneer of the Lingnan School of painting. Although he was gifted in painting, his life was all too short that he died of illness at the age of 45. He contracted lung disease and moved to Tianfeng (Heavenly Breeze) Pavilion on Ersha Island, Guangzhou to receive treatment in the early 1930s. In such circumstances, Gao met two people from abroad, hence a bronze bust of his was made for people to respect and admire today. This bronze bust encountered considerable vicissitudes. During the period of about half a century after its completion, the bust was almost destroyed amid the flames of war and then drifted from one place to another until it had a place of settlement finally.

In 1978, the bronze bust was officially transferred to the Hong Kong Museum of Art, which was formerly located at the City Hall in Central for its permanent collection. It was exhibited in the following year. Zhao Shiguang (1916-2007) described the display of the bronze bust as follows:

Today (15th), an exquisitely crafted handsome bust of sparkling bronze will be bestowed by my teacher Professor Chao Shao-an to Arnaldo de Oliveira Sales, Chairman of the Urban Council in the pre-show ceremony of “The Art of Chao Shao-an” exhibition as a relic permanently displayed in the museum of the City Hall. This was the only bronze bust of Mr Gao Qifeng, a renowned artist and one of the three eminent pioneers of the Lingnan School of painting<sup>1</sup>.

From the above, we can see that this bronze bust was finally donated by Chao Shao-an (1905-1998), the disciple of Gao Qifeng, to the Hong Kong Museum of Art for its permanent collection.

The entire process of the movement of the bronze bust, from drifting overseas to final settlement, can be revealed in the letters from Chao Shao-an collected by the Hong Kong Heritage Museum, they enable us to rediscover this forgotten history.

<sup>1</sup> 趙世光：〈高奇峰銅像歷險記〉，《趙世光紀念文集—談藝篇》（香港：香港商報出版社，2008），頁 39-41。原文見《華僑日報》（1979.2.15），又以篇名〈高奇峰銅像小記〉載於《美術家》（1981，21），頁 70-73。文中對銅像的經歷有所記錄，惟趙世光所記的某些細節與文化博物館所藏趙少昂信函所揭示的資料和其他史料卻略有出入。

Zhao Shiguang, “高奇峰銅像歷險記,” in 趙世光紀念文集—談藝篇 (Hong Kong: Hong Kong Commercial Daily Press, 2008), 39-41. The original article was published in Wah Kiu Yat Po on 15 February 1979. It was also published with the title “高奇峰銅像小記,” in Artist (1981, 21), 70-73. The history of the bronze bust was documented, but there are subtle differences among certain details told by Zhao Shiguang, the information of Chao Shao-an’s letters collected by the Hong Kong Heritage Museum and other historical records.



2 天風樓舊貌  
The historical outlook of Tianfeng Pavilion

## 頤養

整件事情要追溯至 1920 年代末的廣州。1929 年，高奇峰在梁培基（1875-1947）<sup>2</sup> 創辦的珠江頤養園留醫院療養，並延請德國籍的駐院醫生柯道醫生（Dr Johann H. F. Otto, 1892-1970 後）為他主治。翌年遷入他在二沙島上新建成的樓房作養病之用，並顏之曰「天風樓」，這座樓房與梁培基的住宅比鄰而建<sup>2</sup>。二沙島是位於珠江中心的一個天然沙洲，環境幽靜，景觀開曠，是休養的理想處所，這裡成為他一生最後的棲息之地。<sup>3</sup>

## Healing Days

The whole incident can be traced back to Guangzhou in the late 1920s. In 1929, Gao Qifeng was sent to *Zhujiang Yiyangyuan* Hospital founded by Liang Peiji (1875-1947).<sup>2</sup> Dr Johann H. F. Otto (1892-post-1970), a German resident doctor, was asked to serve as Gao's attending doctor. In the following year, Gao moved to his new pavilion on Ersha Island, which was coined "Tianfeng (Heavenly Breeze) Pavilion", to recover from sickness. This pavilion was built adjacent to Liang Peiji's abode<sup>2</sup>. Ersha Island is located at a natural sandbar in the central region of Zhujiang. The tranquil and serene surroundings with spectacular panorama was an ideal place for healing and recovery. This place became Gao's last residence.<sup>3</sup>

1933 年，高奇峰被國民政府任命為德國柏林中國美術展覽會的代表之一，在出席籌備會議途中肺病復發，於同年 11 月 2 日在上海猝然而逝，次年安葬於廣州。其後國民政府於 1936 年為他舉行厚葬，並遷葬於南京棲霞山，可謂備極榮哀。<sup>4</sup> 他的弟子為紀念老師教澤，遂有合繪老師畫像之舉。他們每年都會舉行紀念畫展，並展出高師的畫像，於是有多幅高奇峰的畫像傳世。<sup>5</sup> 在其中一次紀念高師的畫展中，鄭春霆（1906-1990）有題詩相贈：

高墳深掩在金陵，宿草年年感不勝。  
劫火為塵驚世變，天風吹夢挾霜凌。  
藝壇琬琰多生業，健筆丹青無盡燈。  
曾是及門諸弟子，至今回首愴師承。<sup>6</sup>

詩中流露諸弟子對高師的追憶與愴然之情，故藉畫像緬懷先師。除了弟子們所繪的這些畫像外，高奇峰在世時又得一位德國雕塑家文采夫人（Tina Haim-Wentscher, 1887-1974）為他造像。

In 1933, Gao Qifeng was appointed one of the representatives of the Contemporary Chinese Art Exhibition in Berlin, Germany by the National Government. On the way to attending the preliminary meeting, Gao suffered from the recurrence of lung disease, which led to his sudden death in Shanghai on 2 November of the same year. He was buried in Guangzhou the following year. Then the National Government held a grand funeral for Gao in 1936 and relocated his grave to Qixia Mountain, Nanjing. It can be said that Gao was highly respected in life and lamented in death.<sup>4</sup> To commemorate their teacher's guidance, his disciples made a concerted effort to create a portrait of Gao. They held a memorial exhibition every year and displayed Gao's portrait, resulting in numerous portraits of Gao handed down in the following decades.<sup>5</sup> In one of the memorial exhibitions of Master Gao, Zheng Chunting (1906-1990) presented his poem at the exhibition as follows:

Deeply buried was his noble grave in Jinling,  
from year to year withered grass scatters we can hardly endure.  
Earthshaking changes befell after a blazing inferno,  
heavenly breeze with fierce frost shattered the dreams.  
The gem of the art world had tremendous works,  
his artistic excellence illuminates ever after.  
We were once his disciples,  
now looking back and reminiscing his great teachings.<sup>6</sup>

The poem reveals how Gao's disciples reminisced about the days with their teacher and grieved over his death, hence they kept creating portraits to commemorate their late teacher. Apart from the portraits presented by his disciples, Mrs Tina Haim-Wentscher (1887-1974), a German sculptor, also made a statue for Gao when he was alive.

<sup>2</sup> 梁培基，原名梁斌，字慎餘，廣東順德人，出生於廣州。早年在博濟醫學堂學醫。由於當時華南地區瘧疾流行，他以中西藥配製成的「梁培基發冷丸」風行一時。他又在經濟上大力支持潘達微主編的《時事畫報》，而他的發冷丸廣告最早亦在畫報的創刊號（1905 年）上刊登，這可能是中國的第一幅美術廣告畫。圖見廣東省政協文史委員會、廣東美術館編：《魂繫黃花—紀念潘達微誕辰一百二十周年》（廣州：廣東人民出版社，2001），頁 118。

Liang Peiji, whose original name was Liang Bin, alias Shenyu, was a native of Shunde, Guangdong province. He was born in Guangzhou and received medical education in Pok Tsai School of Medicine at an early age. When malaria was rampant in the South China region at that time, he was once popular by making "Liang Peiji's Chill Pills" from Chinese and Western medicines. He offered generous financial support to *Current Pictorial* of which Pan Dawei was the Chief Editor. The advertisement of his chill pills was published the earliest in the first issue (1905) of the journal. It was possibly the first graphic advertisement in China. See the photo in Guangdong sheng zheng xie wen shi wei yuan hui and Guangdong Museum of Art, ed., *Soul of a Revolutionary Painter: Commemorating the Anniversary of the Birth of Pan Dawei* (Guangzhou: Guangdong People's Publishing House, 2001), 118.

<sup>3</sup> 朱萬章：〈天風七子緣起及其藝術論略〉，《嶺南近代畫史叢稿》（廣州：廣東教育出版社，2008），頁 80。  
Zhu Wanzhang, "天風七子緣起及其藝術論略," in *Lingnan jindai huashi conggao* (Guangzhou: Guangdong Education Publishing House, 2008), 80.

<sup>4</sup> 參見註 1，頁 40。查高氏於 1934 年 2 月 10 日安葬於廣州河南（即現時珠江）新鳳凰，見《高奇峰先生行狀》（中山大學圖書館藏），其後由國民政府於 1936 年 12 月 27 日為他舉行國葬，並遷葬於南京棲霞山，此事參見同日之《中央日報》上所載〈高奇峰先生公葬典禮通告〉。有關資料詳見中山大學圖書館繳健之〈嶺南畫聖高奇峰先生葬於何處？〉，2015 年 4 月 7 日，<http://www.tianya.cn/publicforum/content/books/1/99332.shtml>

See Note 1, 40. Gao was buried in New Phoenix, Henan (now known as "Zhujiang"), Guangzhou, see *高奇峰先生行狀* (Zhongshan University Library Collection). Later the National Government held a state funeral for Gao on 27 December 1936, his grave was then transferred to Qixia Mountain, Nanjing, according to the announcement of the "Public Funeral Ceremony of Mr Gao Qifeng" posted in *Central Daily News* on the same day. For relevant information, see Jiao Jian, "嶺南畫聖高奇峰先生葬於何處？" *Zhongshan University Library* (7 April 2015), <http://www.tianya.cn/publicforum/content/books/1/99332.shtml>.

<sup>5</sup> 朱萬章：〈高奇峰畫像探微〉，《嶺南近代畫史叢稿》，頁 173-177。  
Zhu Wanzhang, "高奇峰畫像探微," in *Lingnan jindai huashi conggao*, 173-177.

<sup>6</sup> 鄭春霆：〈紀念奇峰畫展會〉，《捲簾樓詩草》（香港：自刊本，1981），頁 90。  
Zheng Chunting, "紀念奇峰畫展會," in *捲簾樓詩草* (Hong Kong: Self-published, 1981), 90.

## 造像

文采夫人雙親皆為猶太人，她出生於土耳其，自幼隨父母移居德國柏林。1913至14年間到巴黎學習雕塑，並獲羅丹（Auguste Rodin, 1840-1917）讚譽。1914年在柏林與Julius Wentscher（約1888-1962）結婚。其夫曾服役於砲兵部隊，後來成為畫家。文采夫人的作品在柏林贏得極大聲譽，她並曾替德國表現主義版畫家及雕塑家柯勒惠支（Käthe Kollwitz, 1867-1945）造像。

1920年代，夫婦二人啟程到希臘和埃及遊歷，自1931年起更遠赴亞洲，涉足印尼、泰國、新加坡及馬來西亞等地，1932至33年間亦曾踏足中國。後來因為德國局勢發展對猶太人的處境極為不利，二人遂被逼繼續流寓海外。戰事爆發，夫婦二人因著德國籍的身份而淪為階下囚，在1940至42年期間被送往澳洲囚禁，戰事結束後落戶墨爾本。此後，文采夫人積極參與當地的藝術活動，而她的藝術也獲得很高評價，因而在澳洲藝壇佔有重要席位。<sup>7</sup>



## The Making of the Statue

Mrs Tina Haim-Wentscher was born in Turkey, whose parents were both Jewish. At an early age, she followed her parents to immigrate to Berlin, Germany. From 1913 to 1914, she pursued her studies in sculpture in Paris and was praised by Auguste Rodin (1840–1917) for her artistic excellence. In 1914, she got married to Julius Wentscher (around 1888-1962) in Berlin. Her husband had served in the artillery corps and became a painter afterwards. The works of Mrs Tina Haim-Wentscher received considerable acclaim in Berlin, she had also made a statue for Käthe Kollwitz (1867–1945), a German Expressionist printmaker and sculptor.

In the 1920s, the couple embarked on their journey to Greece and Egypt. Since 1931, they had even travelled to different Asian countries like Indonesia, Thailand, Singapore and Malaysia. From 1932 to 1933, they set foot in China. Later, as the situation of Germany was unfavourable to the Jews, the couple were made to wander abroad continuously. Upon the outbreak of war, they were reduced to prisoners and were sent to jail in Australia from 1940 to 1942. After the war, they settled down in Melbourne. Since then, Mrs Tina Haim-Wentscher had been involved in local arts activities proactively. She was highly regarded for her remarkable artistic talent and attained a prestigious status in the Australian art scene.<sup>7</sup>

When Mrs Tina Haim-Wentscher travelled to China, Dr Otto introduced Gao Qifeng to her. She paid a visit to Gao, who was receiving treatment in Tianfeng Pavilion, and made him a plaster statue<sup>3</sup>. However, there are different statements of fact concerning the year of her visiting and that of making the statue.<sup>8</sup> With reference to *Gao Qifeng xian sheng rong ai lu* published in 1934, we can locate the definite answer:

<sup>3</sup> 1933年夏，文采夫人（左）為高奇峰製作石膏頭像。

In summer 1933, Mrs Tina Haim-Wentscher (left) made a plaster statue for Gao Qifeng.

<sup>7</sup> 參見 Juliet Peers：〈文采夫人〉(1887-1974)，載於《澳洲傳記辭典》（第16冊）（墨爾本：墨爾本大學出版社，2002），頁521-522。

See Juliet Peers, "Wentcher, Tina (1887-1974)," *Australian Dictionary of Biography*, Volume 16 (Melbourne: Melbourne University Press, 2002), 521-522.

<sup>8</sup> 在柯道醫生與趙少昂的信函中，其中有數通提及處理銅像的歸宿問題。柯道醫生在1970年10月11日致《華僑日報》編輯彭煥堯的信中指該造像約於1931年作(E70.2)，而趙世光將之定為1932年，關國煊亦定於是年，參見〈嶺南畫派第二代宗師趙少昂〉，《傳記文學》（433，1998.6），頁48。至於有關文采夫人的傳記資料則指其於1932至33年間到過中國，參前引書。

Among the letters from Dr Johann H. F. Otto and Chao Shao-an, a few of them mentioned the settlement issue of the bronze bust. In the letter from Dr Otto to Pang Woon-yiu, Editor of *Wah Kiu Yat Po* written on 11 October 1970, he mentioned that the bust was made around 1931 (E70.2); whereas Zhao Shiguang defined the year of making the bust was 1932, and Kwan Kwok-huen also thought so. See "The Second Generation of the Lingnan School Master Chao Shao-an," *Biographical Literature* 433 (June 1998), 48. According to the biography of Mrs Tina Haim-Wentscher, she visited China during 1932 to 1933, *ibid*.

文采夫人到中國期間，因著柯道醫生的關係，曾經拜訪當時正在天風樓療養的高奇峰，並為之製作石膏像<sup>3</sup>，惟關於其拜會高奇峰和替他造像的時間卻有不同說法。<sup>8</sup> 考諸1934年出版之《高奇峰先生榮哀錄》，卻為我們提供了一個確切的答案：

德國雕刻鑄像名家文采夫人仰高學行，昨夏曾特來華，為高製一石像，歸途得訃，不勝悼惜，自願報效精神，竭其心力，更親為高再鑄銅像。嘗數函致柯道醫生與坤儀女士，懇切達其熱誠。茲聞汪院長已於日前將鑄像銅值匯去，而高之石像經由柯道託福爾特輪直接運德，以備作模之用。<sup>9</sup>

據此可知，文采夫人拜會高奇峰和替他造像的時間當在1933年夏天，亦即高奇峰逝世前不久。這段報道亦清楚交代了該石膏像其後被送往德國，而鑄像費用則由國民政府負擔。

該石膏像隨後被送往柏林，由一位名叫Noark的鑄造師鑄成銅像。<sup>10</sup> 可是，他的工作室於盟軍大反攻之際被戰火摧毀，但這尊銅像卻奇蹟地絲毫無損，後來交由柯道醫生代為保管。<sup>11</sup> 在文采夫人的造像之中，這尊銅像別具意義，因為這是由一位外國雕塑家為中國畫家製作銅像的特例，亦見證了一段中西藝術家交流的佳話。

German sculptor Mrs Tina Haim-Wentscher was an outstanding artist of great virtue and intelligence. Last summer, she took a trip to China and made a plaster statue for Gao. She deeply mourned the death of Gao after receiving the news of his death on her way home. She expressed her gratitude of her own will and was dedicated to making a bronze bust for Gao. She sent a few letters to Dr Otto and Ms Kunyi, asking them to help fulfill her aspirations sincerely. It is heard that Premier Wang has remitted the money for casting the bronze bust, and the plaster statue of Gao was shipped to Germany by Otto for making the mould.<sup>9</sup>

From the above, it is known that Mrs Tina Haim-Wentscher paid a visit to Gao and made a statue for him in the summer of 1933, right before the death of Gao. This news also made clear that the plaster statue was sent to Germany afterwards, and the charges for casting bronze were settled by the National Government.

Subsequently, the plaster statue was sent to Berlin and was cast in bronze by a caster called Noark.<sup>10</sup> However, during the counterattack of the allied forces, his studio was destroyed by the war. The bronze bust was kept intact miraculously and it was finally delivered to Dr Otto for his safekeeping.<sup>11</sup> Amid the artistic works of Mrs Tina Haim-Wentscher, this statue was particularly significant, as it was a special case in which a foreign sculptor made a bronze bust for a Chinese painter, it has proven an invaluable interaction between the Eastern and Western artists.

<sup>9</sup> 參見〈奇峰先生銅像之鑄造〉，載於中國圖書大辭典編輯館輯：《高奇峰先生榮哀錄》第一輯（南京：中國圖書大辭典編輯館，1934），頁74。該文之資料來源乃錄自1934年10月9日登載於各大報章包括《中華日報》、《中央日報》和《中國日報》等的報道。報道中提及的汪院長即為行政院長汪兆銘。

See "The Making of Master Qifeng's Bronze Bust," in *Zhongguo tu shu da ci dian bian ji guan*, ed. *Gao Qifeng xian sheng rong ai lu*. Di yi ji (Nanjing: Zhongguo tu shu da ci dian bian ji guan, 1934), 74. The information was sourced from the news articles published in various newspapers, including *China Daily News*, *Central Daily News* and *China Daily* on 9 October 1934. Premier Wang, as mentioned in the articles, refers to Wang Zhaoming, Premier of the Executive Yuan.

<sup>10</sup> 參見柯道醫生致彭煥堯的信函(E70.2)。此信函以英文寫成。信中所記與趙世光所述有所出入。趙世光指這尊塑像於1930年代由文采夫人親自於德國負責鑄成銅像，但鑑於德國當時的政治局勢和她的猶太裔身份，加上文采夫人當時一直身在遠東，她根本不可能返國，故銅像應一直由柯道醫生保管。

See the letter from Dr Johann H. F. Otto to Pang Woon-yiu (E70.2), it was written in English. What the letter documented was different from what Zhao Shiguang mentioned. Zhao Shiguang said this statue had been made by Mrs Tina Haim-Wentscher in Germany in the 1930s. However, she had been staying in the Far East at that time, in addition to the political situation of Germany and her Jewish identity, which made her unable to return to her homeland, therefore the statue must have been kept by Dr Otto.

<sup>11</sup> 據記，文采夫人曾於戰後返回被炸毀的工作室，發現高奇峰的銅像赫然無恙，參見關國煊：〈嶺南畫派第二代宗師趙少昂〉，《傳記文學》（433，1998.6），頁49。

According to some past records, Mrs Tina Haim-Wentscher came back to the studio after the war, she found that the studio had been destroyed by the war but the bronze bust of Gao Qifeng was kept intact. See Kwan Kwok-huen, "The Second Generation of the Lingnan School Master Chao Shao-an," *Biographical Literature* 433 (June 1998), 49.

柯道醫生自 1920 年代起即和一些德籍醫生在廣州行醫，其後梁培基請他們到頤養園作駐院醫生。<sup>12</sup> 由於他頗有名氣，加上在崇洋心態下，求醫者對這些外籍醫生均趨之若鶩，因而讓他結識了一些軍政界要人及文化界名人，如京劇演員梅蘭芳（1894-1961）便是其中之一。<sup>13</sup> 但是，這些德籍醫生卻藉他們的特殊身份濫收費用，其他華人醫生曾對此表示不滿，他們才有所收斂。<sup>14</sup>

高奇峰亦曾請柯道醫生治理，而在療養期間，他謝絕一切應酬之事，因宿疾時發，弟子張坤儀（1895-1967）恆侍居左右。<sup>15</sup> 又因閒居寂寞，高氏每邀友輩弟子雅集，談藝作畫。梁培基女兒梁藹怡對此有所憶述：

很多書畫界知名人士常聚集在二沙島天風樓吟詩、寫字、作畫，當時叫作「清遊會」的，就在我們家中雅集。參加活動的人當中，就有著名的嶺南派畫家陳樹人、高劍父、高奇峰等。他們在那裡飲酒作畫，留下不少墨蹟。<sup>16</sup>

由於天風樓經常舉行這些雅集，柯道醫生亦時有出席，因而結識了趙少昂和張坤儀等人。<sup>17</sup> 後來他在致《華僑日報》編輯彭煥堯的信中提及聽聞有女畫家在香港開設畫室教畫，還以為是張坤儀：

## Wandering

Since the 1920s, Dr Otto and other German doctors had been practising medicine in Guangzhou. Later, Liang Peiji invited him to be a resident doctor of *Yiyangyuan*.<sup>12</sup> Because of his fame, in addition to the admiration of the Western culture, the patients went after these foreign doctors. This offered Dr Otto an opportunity to meet some significant figures of the military, political and cultural sectors, one of them was Mei Lanfang (1894-1961), a Beijing opera artist.<sup>13</sup> Having said that, these German doctors abused their privileged position and overcharged their patients. When other Chinese doctors showed their discontent to the German doctors, they became restrained afterwards.<sup>14</sup>

Gao Qifeng once asked Dr Otto for diagnosis and treatment. During recovery, he turned down all social activities. As his chronic disease relapsed repeatedly, his disciple Zhang Kunyi (1895-1967) always stood by and took care of him.<sup>15</sup> Being in solitude and feeling lonely, Gao often invited his peer disciples to gather around for arts sharing and doing some paintings. Liang Aiyi, the daughter of Liang Peiji, recalled their gatherings as follows:

Many prominent figures who had expertise in painting and calligraphy always gathered in Tianfeng Pavilion on Ersha Island, reciting poems, doing calligraphy and paintings. They formed an association called “The Qingyou Poetry Society” at that time and had gatherings in my house. Among the participants were Chen Shuren, Gao Jianfu and Gao Qifeng, who were renowned artists of the Lingnan School of painting. They enjoyed wine and did some paintings, leaving plenty of ink works there.<sup>16</sup>

近期我聽到一個傳聞，有位女士在香港開設了畫室教畫。你知道此事嗎？她會否是張坤儀女士？張女士一直與高師居住於天風樓。<sup>18</sup>

事實是，張坤儀早在 1939 年移居美國，並已於 1967 年在紐約逝世。<sup>19</sup>

抗日戰爭期間，廣州失陷，柯道醫生仍留在廣州管理頤養園，亦因為他的德籍身份關係，又被委任於廣州的紅十字會醫院擔任義務院長，保護了頤養園和紅十字會醫院免受日軍的騷擾。<sup>20</sup> 抗日戰爭結束後，柯道醫生曾以戰犯罪被扣留，但不久為國民黨釋放，後來返回德國，<sup>21</sup> 並代文采夫人保管這尊銅像。自此，這尊銅像便一直伴隨著他經歷數十寒暑，期間他不時將銅像和他的藏畫一起展覽：

在這些年當中，此一胸像曾經使所有我的收藏展覽潤色與增光。<sup>22</sup>

其中他的藏畫包括有高奇峰、陳樹人（1884-1948）和趙少昂的畫作，甚至有居廉（1828-1904）畫作的摹本。<sup>23</sup>

As such arts gatherings were held at Tianfeng Pavilion, Dr Otto often joined them and met some artists like Chao Shao-an and Zhang Kunyi.<sup>17</sup> Later, he wrote a letter to Pang Woon-yiu, Editor of *Wah Kiu Yat Po* and mentioned that he had heard a female painter who was going to open a school for artistic painting in Hong Kong. He thought she was Zhang Kunyi:

Now I heard also the rumour, that a lady has opened a School for Artistic Painting at Hongkong. Do you know about that? Could it be, that this is Miss 張坤儀?, who lived with Mr Ko all the years in Tien Fung Lau.<sup>18</sup>

However, the fact was that Zhang Kunyi immigrated to the United States in 1939 and died in New York in 1967.<sup>19</sup>

During the War of Resistance Against Japan, Guangzhou fell. Dr Otto still stayed in Guangzhou to manage *Yiyangyuan*. Because of his German identity, he was appointed Honorary President of the Red Cross Hospital in Guangzhou, protecting *Yiyangyuan* and the Red Cross Hospital from the interference of the Japanese army.<sup>20</sup> After the end of the war, Dr Otto was detained on war crimes charges, but he was released by the Chinese Nationalist Party and returned to Germany.<sup>21</sup> He took care of the bronze bust on behalf of Mrs Tina Haim-Wentscher. Since then, this statue had accompanied him for tens of years, during this period he exhibited it with his painting collection from time to time:

In all these years, this bronze bust made all my personal collection brilliant and lustrous.<sup>22</sup>

Among his painting collection were the works of Gao Qifeng, Chen Shuren (1884-1948) and Chao Shao-an, and even a copy of Ju Lian (1828-1904)'s painting.<sup>23</sup>

<sup>12</sup> 據梁藹怡：〈珠江頤養園留醫院〉，《廣州文史》第 30 輯。梁藹怡為梁培基的女兒，她亦曾為該院的駐院醫生。

According to Liang Aiyi, “*Zhujiang Yiyangyuan Hospital*,” *Guangzhou wenshi* (Cultural and Historical Records of Guangzhou), no. 30, Liang Aiyi was the daughter of Liang Peiji. She was once a resident doctor of that hospital.

<sup>13</sup> 同上註。梅蘭芳南來廣州時，梁培基和柯道醫生就曾在頤養園設宴招待。另外，孫中山和蔣介石也曾到過頤養園暫住，可見頤養園成為軍政要人和社會名流的療養之所。

Ibid. When Mei Lanfang travelled southward to Guangzhou, Liang Peiji and Dr Otto held a welcome banquet for him at *Yiyangyuan*. Besides, Sun Yat-sen and Chiang Kai-shek had a temporary stay there. They all revealed that *Yiyangyuan* was the nursing home for social elites, as well as significant political and military figures.

<sup>14</sup> 同註 12。

See Note 12.

<sup>15</sup> 據趙少昂：〈嶺南三家〉，《藝海雜誌》（2（1），1977.11），頁 33。

According to Chao Shao-an, “A Study on Lingnan Three Masters’ Painting,” *The Yih Hae Magazine* 2, no. 1 (November 1977), 33.

<sup>16</sup> 同註 12。

See Note 12.

<sup>17</sup> 柯道醫生在致彭煥堯的信函 (E70.2) 中特別提到認識趙少昂和張坤儀兩人。

Dr Otto mentioned he had met Chao Shao-an and Zhang Kunyi in his letter to Pang Woon-yiu (E70.2).

<sup>18</sup> 同註 10。

See Note 10.

<sup>19</sup> 據黃少強日記，張坤儀是於 1939 年赴美，同年 1 月 24 日，黃氏與何漆園、趙少昂、容漱石等於勝斯酒店餞別張坤儀。參見〈黃少強日記摘抄（1939-1941）〉，廣東美術館編：《黃少強詩文資料選編》（澳門：澳門出版社，2006），頁 239。另外，關於張氏卒年，一般均參據鄭春霖所提出 1969 年的說法，見《嶺南近代畫人傳略》，頁 136。然而根據報章資料，張氏是於 1967 年 1 月 10 日卒於紐約，見加拿大《醒華日報》1967 年 1 月 26 日的報道。

According to Huang Shaoqiang’s diary, Zhang Kunyi travelled to the United States in 1939. On 24 January of the same year, Huang and He Qiyuan, Chao Shao-an and Rong Shushi held a farewell banquet for Zhang Kunyi in St. Francis Hotel. See “黃少強日記摘抄 (1939-1941),” in *Selected Poems and Articles by Huang Shaoqiang*, ed. Guangdong Museum of Art (Macau: Macau Publication, 2006), 239. On the other hand, regarding the year of Zhang’s death, it generally refers to 1969, as mentioned by Zheng Chungting, see *Lingnan jin dai hua ren zhuan lue*, 136. However, according to some information of a newspaper, Zhang died in New York on 10 January 1967, see the news article in *Shint Wah Daily News* (Canada) on 26 January 1967.

<sup>20</sup> 朱繼團、麥勝文：〈廣州最早的一批近現代醫院〉，《羊城晚報》（2010.3.14）。另參梁藹怡：〈珠江頤養園留醫院〉。

Zhu Jituan and Mai Shengwen, “The Earliest Batch of Modern Hospitals in Guangzhou,” *Yangcheng Evening News* (14 March 2010). See also Liang Aiyi, “*Zhujiang Yiyangyuan Hospital*”.

<sup>21</sup> 同註 12。

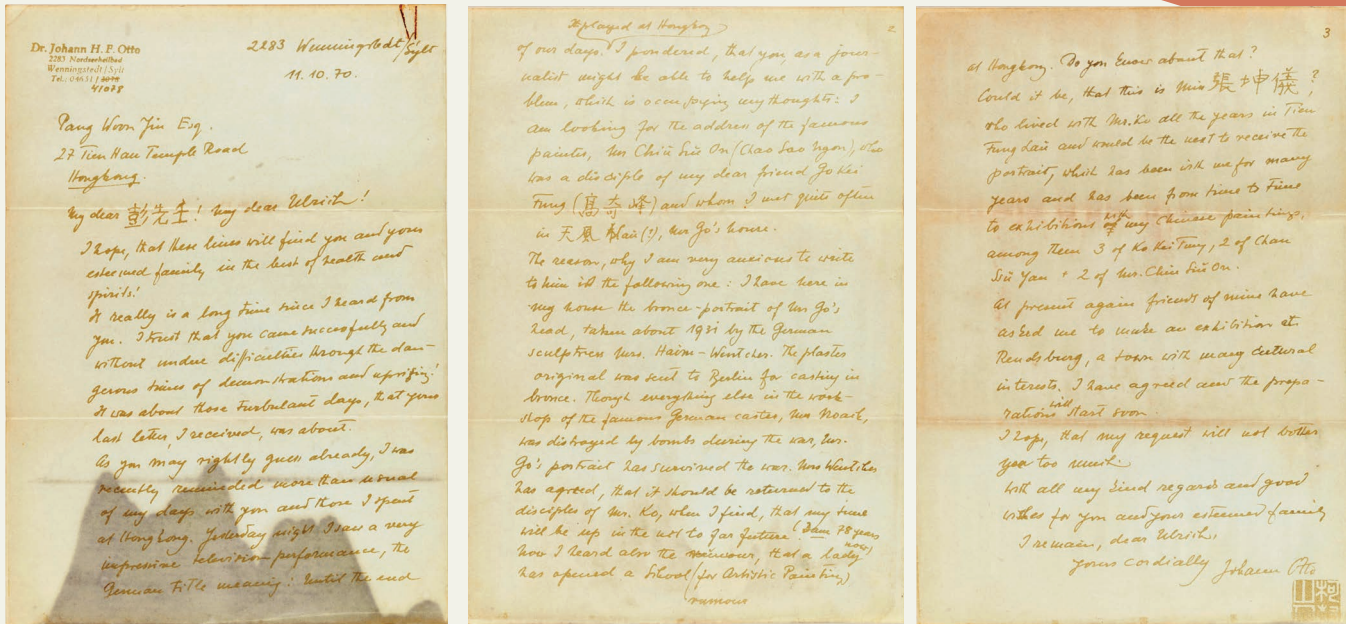
See Note 12.

<sup>22</sup> 柯道醫生致趙少昂的信函，1970 年 11 月 17 日 (E70.3.2)。此信函以中文寫成。

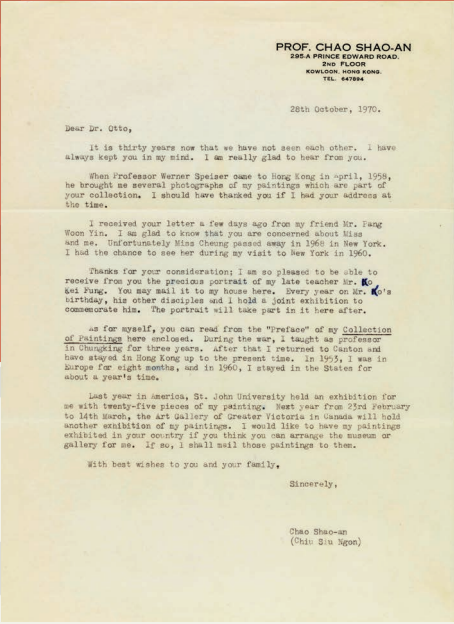
The letter from Dr Johann H. F. Otto to Chao Shao-an on 17 November 1970 (E70.3.2). This letter was written in Chinese.

<sup>23</sup> 柯道醫生在致彭煥堯的信函 (E70.2) 及致趙少昂的信函 (E70.3.2) 中分別提到他的部分藏畫，而在第二通信函中更附有一幅趙少昂《柳蟬圖》的照片，這幅畫作是趙氏於 1937 年畫贈予柯道醫生，相信這幅作品也在展覽之列。

In Dr Johann H. F. Otto’s letters to Pang Woon-yiu (E70.2) and Chao Shao-an (E70.3.2), he mentioned some collection of his paintings. In the second letter, he attached a photo of Chao Shao-an’s painting, *Cicada and Willow*, which was bestowed by Chao to Dr Otto in 1937. It was believed that this painting was also included in the display list.



4 柯道醫生致《華僑日報》編輯彭煥堯的信函，1970年。  
The letter from Dr Johann H. F. Otto to Pang Woon-yiu, Editor of *Wah Kiu Yat Po* written in 1970.



5 趙少昂致柯道醫生的信函，1970年。  
The letter from Chao Shao-an to Dr Johann H. F. Otto written in 1970.

## 回歸

直到柯道醫生晚年的時候，念及自己已屆垂暮之年，遂決心讓這尊漂泊多年的銅像落葉歸根，而文采夫人也同意把它交還予高奇峰的弟子。他首先致函《華僑日報》編輯彭煥堯，託他轉達趙少昂的聯絡方法<sup>4</sup>。在信函中，他懷著處理身後事的心情寫道：

昨晚，我看到一個令人非常印象難忘的電視節目，德文的節目名稱為「直至我們離世」……我恐不久於人世（我今年78歲），希望將銅像交還給高師的徒弟，而文采夫人也贊成此舉。<sup>24</sup>

在信中，他首先屬意將之歸還予趙少昂，若情況不許可，他希望可以把它轉交給張坤儀保管。<sup>25</sup>

## Return of the Statue

When Dr Otto was in his twilight years, he thought he was rather advanced in age and decided to revert the bronze bust which had been drifting for years to its origin. Mrs Tina Haim-Wentscher also agreed to return the statue to Gao Qifeng's disciples. He first wrote a letter to Pang Woon-yiu, Editor of *Wah Kiu Yat Po* and asked him for the contact details of Chao Shao-an<sup>4</sup>. He wrote the letter as if he was making his after-death arrangements:

Yesterday night I saw a very impressive television performance, the German title meaning “until the end of our days”... Mrs Wentcher has agreed, that it should be returned to the disciples of Mr Ko, when I feared, that my time will be up in the not too far future (I am 78 years now).<sup>24</sup>

In the letter, he mentioned that he first wanted to return the statue to Chao Shao-an, if he could not make it, he hoped he could deliver the statue to Zhang Kunyi for her safekeeping.<sup>25</sup>

趙少昂在收到柯道醫生的信函後，立刻予以回覆，請他將銅像寄往他位於九龍太子道的嶺南藝苑，並表示計劃隨後將之安排在紀念高師的展覽中展出<sup>5</sup>：

謝謝你的建議，我很高興從你手上接過先師高奇峰先生的珍貴銅像，你可將銅像送到我家。每年高師壽辰，我都會和其他徒弟合辦一個展覽紀念高師，他的銅像亦會在該展覽中展出。<sup>26</sup>

之後，銅像終於啟程回歸，柯道醫生在一通信函中向趙氏交代了銅像的付運過程：

今天高教授之胸像已開始其旅程。它首先取道火車至漢堡，然後由一家富有經驗之運輸公司負責轉運香港。<sup>27</sup>

After receiving Dr Otto's letter, Chao Shao-an replied immediately and asked him to send the statue to Lingnan Art Studio located on Prince Edward Road, Kowloon. He also mentioned that he would display the statue in the memorial exhibition of Master Gao<sup>5</sup>:

Thanks for your consideration. I am so pleased to be able to receive from you the precious portrait of my late teacher Mr Ko Kei Fung. You may mail it to my house here. Every year on Mr Ko's birthday, his other disciples and I hold a joint exhibition to commemorate him. The portrait will take part in it here after.<sup>26</sup>

The bronze bust embarked on the return journey afterwards. Dr Otto then wrote a letter to Chao to explain the delivery process of the statue:

Today, the bronze bust of Professor Gao has embarked on its return journey. It will be first conveyed to Hamburg by train and then transferred to Hong Kong by a well established freight forwarder.<sup>27</sup>

<sup>24</sup> 柯道醫生致彭煥堯的信函 (E70.2)。趙世光指文采夫人晚年因要移居澳洲而欲將銅像物歸原主，遂託柯道醫生玉成其事。然而，從信函中的語氣看，應是柯道醫生首先有此想法，而且文采夫人戰後便一直居於澳洲。

The letter from Dr Johann H. F. Otto to Pang Woon-yiu (E70.2). Zhao Shiguang mentioned Mrs Tina Haim-Wentscher wanted to return the bronze bust to the owner because she was going to settle down in Australia in her twilight years. She then asked Dr Otto to help her handle this matter. However, as revealed in the letter, it is believed that it was Dr Otto who first thought of returning the statue, as Mrs Tina Haim-Wentscher had been living in Australia after the war.

<sup>25</sup> 同上註。  
Ibid.

<sup>26</sup> 趙少昂致柯道醫生的信函底稿，1970年10月28日 (E70.1)。此信函以英文寫成。

The manuscript of Chao Shao-an's letter to Dr Johann H. F. Otto written on 28 October 1970 (E70.1). This letter was written in English.

<sup>27</sup> 柯道醫生致趙少昂的信函，1970年11月17日 (E70.3.2)。

The letter from Dr Johann H. F. Otto to Chao Shao-an written on 17 November 1970 (E70.3.2).



6 高奇峰銅像，趙少昂題字。  
The bronze bust of Gao Qifeng with  
Chao Shao-an's inscription.

After nearly 40 years, this bronze bust was finally returned to the disciple of Gao Qifeng in 1971. Chao considered donating the bronze bust to a museum of China after receiving it:

Yesterday, the bronze bust of my late teacher Qifeng was received, it was placed at the centre of my art studio. Although the war caused tremendous disasters and damage, the bronze bust was kept intact fortunately, thanks to the blessing of my teacher. I propose to send the statue to the National Museum of China. But now the world is in chaos and full of uncertainties, delivery of the statue will be arranged when our nation becomes more stable. The statue will then be subject to the custody of our nation.<sup>28</sup>

Afterwards, Chao was invited to participate in "The Art of Chao Shao-an" exhibition [1979] at the Hong Kong Museum of Art located at the High Block of the City Hall in Central. He then changed his idea and donated the bronze bust to the Hong Kong Museum of Art for its permanent collection, it was also displayed in the above exhibition.<sup>29</sup>

It spanned nearly half a century from completion of the bronze bust in the 1930s to its final settlement. Throughout these years, the statue has gone through substantial hardships of wars and drifted from place to place, rendering itself a touch of vicissitudes and more precious values 6. The settlement of the bronze bust of Gao Qifeng in the Hong Kong Museum of Art has also made its sculptor Mrs Tina Haim-Wentscher's trip to Southeast Asia a journey not-to-be-forgotten.

經過近 40 年的寒暑，這尊銅像終於在 1971 年初回到高奇峰弟子的身邊。趙氏於接收銅像後，曾經考慮過把它捐贈予國內的博物館：

奇峰先師銅像，已於昨日收到，即供於畫苑正中矣。烽火灰劫，幸能保存，皆拜先生之賜。將來擬將之送出國家博物院，但現在舉世騷然，風雲未定，一俟邦家安定，乃行送出，使國家保存之也。<sup>28</sup>

後來，趙氏還是改變主意，轉而把它贈予香港藝術館。事緣館方邀請趙氏於 1979 年在當時位於中環大會堂高座的香港藝術館舉行「趙少昂的藝術」展覽，趙氏遂決定把銅像贈予館方作永久收藏，並於同一展覽中展出。<sup>29</sup>

自銅像於 1930 年代中作成至它找到安身之所，大約過了近半個世紀的光陰。在悠悠歲月裡，它歷盡戰火和漂泊，使它的身影加添了一份滄桑，讓其更形可貴 6；而為高奇峰創作銅像的雕塑家文采夫人，亦因緣際會地在香港藝術館留下她的作品，為其東南亞之旅刻上不應被遺忘的印記。

<sup>28</sup> 趙少昂致柯道醫生的信函草稿，1971 年初 (60.15)。此信函以中文寫成。趙氏於信中所提及的「舉世騷然，風雲未定」，應該是指國內文化大革命所帶來的政治動盪。1971 年文革浪潮正席捲中國，故此趙氏雖心繫神州，但始終對國內的局勢仍存戒心，因此對銅像的歸宿一直未有定案。

The draft of Chao Shao-an's letter to Dr Johann H. F. Otto written in early 1971 (60.15). This letter was written in Chinese. In the letter, Chao mentioned "the world is in chaos and full of uncertainties", which should be referred to the political turmoil triggered by the Cultural Revolution of China. As the wave of the Cultural Revolution swept over China in 1971, Chao stayed alert to the internal situation of his country. Therefore, he had not reached a decision about the settlement of the bronze bust.

<sup>29</sup> 參見〈香港藝術館獲贈畫家高奇峰銅像〉，《華僑日報》(1979.2.24)。該尊銅像其後亦在館方於 1981 年所舉辦的「高奇峰的藝術」展覽中展出。

See "Bronze bust of painter Gao Qifeng donated to Hong Kong Museum of Art," *Wah Kiu Yat Po* (24 February 1979). The bronze bust was also displayed in "The Art of Kao Ch'i-feng" exhibition organised by the Hong Kong Museum of Art in 1981.

## 附錄： 香港文化博物館所藏趙少昂的相關信函

1970 年 10 月 11 日  
柯道醫生致《華僑日報》編輯彭煥堯的信函（英文）  
(E70.2)

1970 年 10 月 28 日  
趙少昂致柯道醫生的信函底稿（英文）(E70.1)

1970 年 11 月 17 日  
柯道醫生致趙少昂的信函（中文）(E70.3.2)

1971 年初  
趙少昂致柯道醫生的信函草稿（中文）(60.15)

## Appendix: The relevant letters from Chao Shao-an collected by the Hong Kong Heritage Museum

11 October 1970  
The letter [English] from Dr Johann H. F. Otto to Pang Woon-yiu, Editor of *Wah Kiu Yat Po* (E70.2).

28 October 1970  
The manuscript of Chao Shao-an's letter [English] to Dr Johann H. F. Otto (E70.1).

17 November 1970  
The letter [Chinese] from Dr Johann H. F. Otto to Chao Shao-an (E70.3.2).

Early 1971  
The draft of Chao Shao-an's letter [Chinese] to Dr Johann H. F. Otto (60.15).

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中國圖書大辭典編輯館輯：《高奇峰先生榮哀錄》第一輯（南京：中國圖書大辭典編輯館，1934）。

朱萬章：《嶺南近代畫史叢稿》（廣州：廣東教育出版社，2008）。

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## 香港藝術館 HONG KONG MUSEUM OF ART

香港藝術館主要展出香港及中國的視覺藝術品，是區內首屈一指的博物館。藝術館一向植根於本土文化傳統，重視本地創作，擁有地區與國際藝術視野。其藏品甚為豐富，包括中國書畫、古代文物、中國外銷畫及香港藝術創作。香港藝術館正於建築設計和定位上重整旗鼓，並拓展觀眾的藝術欣賞領域，將於 2019 年以全新形象與市民見面。

Hong Kong Museum of Art is a leading regional museum dedicated to disseminating the visual arts of Hong Kong and China. While being rooted in indigenous traditions, the museum also embraces regional and international art perspectives. Its collections include Chinese paintings and calligraphy, Chinese antiques, China trade art and works by Hong Kong artists. The museum is undergoing a makeover of its architectural design, intending to broaden the audience's horizon in art appreciation as well. Upon opening in 2019, the museum will be meeting you with a brand new image.

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<http://hk.art.museum>

由 2015 年 8 月 3 日起，藝術館正式閉館約三年進行大型翻新及擴建工程。我們預計 2019 年將會於尖沙咀以全新面貌呈現。於閉館期間，藝術館會以不同形式在香港不同地方繼續與大家接觸和見面，詳情請留意網站消息或於 Instagram 上緊貼藝術館的動向：<https://instagram.com/hongkongmuseumofart/>。

Starting 3 August 2015, the museum has been closed for around three years for a major renovation and expansion project. In 2019, we will present a brand new look in Tsim Sha Tsui. During this period, the Museum continues to host events in different forms and meet you in different regions of Hong Kong as well as overseas. For more details, please visit <http://hk.art.museum> or follow Instagram: <https://www.instagram.com/hongkongmuseumofart/>.

# ACROSS BEYOND

跨界 • 跨越

# 文物保育新領域—— 三維激光掃描

## New Trend on Heritage Conservation: Three-dimensional Laser Scanning

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### 概要

古物古蹟辦事處（以下簡稱「古蹟辦」）在2016年成立了三維掃描組，利用先進的三維激光掃描技術，測量文物建築及考古文物。三維激光掃描的原理是利用三維激光掃描儀，透過發出的激光束掃射立體實物的表面，並收集反射回來的數據，量度出物體與掃描儀之間的距離，從而得出物體的形狀。三維激光掃描較人手測量方法先進，取得的測量數據非常精準。截至2017年8月31日，古蹟辦已為22項法定古蹟進行掃描，所得的數據以三維座標儲存。數據既可用於監察文物的狀況，亦為修繕工程提供更準確的資料。古蹟辦透過生動有趣的教育活動，向公眾推廣三維激光掃描技術在文物保育上的應用，並研究建立一個法定古蹟的三維激光掃描檔案庫，讓公眾人士查閱和使用。

### Abstract

Established by the Antiquities and Monuments Office (AMO) in 2016, the 3D Laser Scanning Survey Unit adopts the state-of-the-art three-dimensional laser scanning technology to survey built heritage and archaeological heritage. The principle of three-dimensional laser scanning is to apply the laser beams emitted from the three-dimensional laser scanner to the surface of a stereoscopic object and to collect the reflected data. By measuring the distance between the object and the scanner, the shape of the object can be worked out. Three-dimensional laser scanning is much more advanced than manual measurement; the data obtained through three-dimensional laser scanning is also highly accurate. As of 31 August 2017, the AMO has scanned 22 declared monuments. The data obtained have been stored as three-dimensional coordinates, which can be used for monitoring the conditions of the heritage and at the same time, offer more accurate information for repair and maintenance. Through interesting educational activities, the AMO promotes the application of the three-dimensional laser scanning technique on heritage conservation to the public. It is also considering establishing an archive of three-dimensional laser scanning data on declared monuments, which can be accessed and used by the public.

### 導論

三維激光掃描是一種嶄新的技術，它能以激光束收集的數據，精確地測量建築物的位置。三維激光掃描又能掃描較細小的建築物構件和物件，準確地收集數據，以供日後修繕之用。

本文旨在介紹古物古蹟辦事處近年成立的三維掃描組（以下簡稱「三維掃描組」），利用三維激光掃描技術，測量文物建築及考古文物，把所得的數據應用於專業測繪和修繕工程，以及監察文物的狀況。除了專業測量的技術層面外，古蹟辦同時透過展覽和活動向大眾推廣三維激光掃描在文物保育的應用。本文亦介紹古蹟辦的未來計劃，為法定古蹟<sup>1</sup>成立三維激光掃描檔案庫，保存檔案和讓政府部門、專業人士及公眾閱覽和使用。

### 古物古蹟辦事處三維掃描組

古蹟辦在2016年成立三維掃描組，目的是利用先進的三維激光掃描技術，為文物建築及考古文物等進行測繪和紀錄，並以三維座標保存數據和資料供日後使用。

三維激光掃描是一種嶄新的測量方法，原理是利用三維激光掃描儀，透過發出的激光束掃射立體實物的表面，並收集反射回來的數據，量度出物體與掃描儀之間的距離，從而得出物體的形狀。激光掃描儀在掃描時收集的數據數量非常龐大，這些龐大的數據稱為「雲點」，而單點測量精度可達至兩毫米。三維激光掃描所得的數據龐大而精確，有助準確地測量文物。

### Introduction

Three-dimensional laser scanning is a new and high precision technology. By collecting data with laser beams, it can survey the location and spacing of buildings with high precision. Three-dimensional laser scanning can also scan smaller building components and objects, accurately collecting data for repair and maintenance in the future.

This article aims at introducing the 3D Laser Scanning Survey Unit established at the Antiquities and Monuments Office in recent years, describing how they have employed three-dimensional laser scanning technology to survey built heritage and archaeological heritage, and then applied the obtained data to professional surveying and drawing, repair and maintenance work, as well as monitoring heritage conditions. In addition to the technical aspects of professional surveying, the AMO has also been promoting the applications of three-dimensional laser scanning on heritage conservation to the public through exhibitions and activities. This article also introduces the future plans of the AMO, which is to establish a three-dimensional laser scanning archive for storage of declared monuments<sup>1</sup> so that government departments, professionals and the public can read and use the relevant information.

### 3D Laser Scanning Survey Unit at AMO

The AMO established the 3D Laser Scanning Survey Unit in 2016 with an objective to make use of the advanced three-dimensional laser scanning technology on surveying, drawing and recording of invaluable built heritage and archaeological heritage. Data and information are stored as three-dimensional coordinates for future use.

Three-dimensional laser scanning is a new surveying method. In principle, a three-dimensional laser scanner emits laser beams to scan the surface of stereoscopic objects and collect the reflected data to measure the distance between the object and the scanner, which can then be used to find out the shape of the object. A large body of data is collected by the laser scanner during the scanning process. Such voluminous data are known as “point cloud”; the level of precision of surveying of a single point can be up to 2 millimetres. The wealth of precision data obtained through three-dimensional laser scanning is helpful in accurately surveying heritage.

<sup>1</sup> 法定古蹟是由古物事務監督經諮詢古物諮詢委員會，並經行政長官批准後，藉憲報公告宣布個別地方、建築物、地點或構築物為法定古蹟，受《古物及古蹟條例》保護。

The Antiquities Authority may, after consultation with the Antiquities Advisory Board and with the approval of the Chief Executive, by notice in the Gazette, declare a place, building, site or structure as a monument. A declared monument is protected by the Antiquities and Monuments Ordinance.



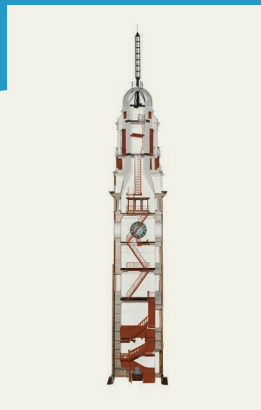
❶ 古蹟辦使用的坐地式激光掃描儀，非常輕巧。  
The terrestrial laser scanner used by the AMO



❷ 以手提式激光掃描儀掃描上環文武廟內的銅扇  
A portable scanner is used to scan the bronze fan in Man Mo Temple, Sheung Wan



❸ 為前九廣鐵路鐘樓進行三維激光掃描  
Three-dimensional laser scanning conducted at the Former Kowloon-Canton Railway Clock Tower



❹ 前九廣鐵路鐘樓的三維網格模型（橫切面）  
The 3D digital model of the Former Kowloon-Canton Railway Clock Tower (cross-section)

古蹟辦購置了兩台坐地式激光掃描儀❶和一台手提式激光掃描儀❷，用以測量文物建築和考古文物。坐地式激光掃描儀的體積小和輕巧，發出的激光可達 330 米，量度時需要多角度掃描物件，之後要經過後期處理和拼合，才能得出結果，適合掃描大型的建築物和周邊環境。測量師只需把掃描儀校準，便能自動每秒發出最多 90 萬點激光束掃射物體表面，並收集反射回來的「雲點」。手提式掃描儀則較適合掃描建築物構件和小型物件。手提式掃描儀能發出約 40 厘米的可見激光，使用時需要先在物件上貼上定位反射貼，經不同角度掃描後，便能即時得出結果。兩款掃描儀均能把收集的數據轉化成三維網格模型，但三維網格模型是沒有顏色的，測量師需要對照由相機拍下的照片，然後以專業的電腦軟件把顏色填上三維網格模型上，最後得出彩色的三維網格模型。測量師遂可直接在電腦熒幕上觀看或輸出至合適的格式作其他用途。

坐地式掃描儀除了擁有激光掃描的功能，還能拍攝 360 度全方位照片。由坐地式掃描儀拍攝而成的全方位照片達二億像素，解象度極高。它有別於一般常見的全方位的相片，由於拍攝時儀器架設的部分會被腳架阻擋，部分地面不會被攝入鏡頭，但為了令相片呈全方位效果，測量師利用另一部高解像單鏡反光機把地面拍攝，再利用專業軟件把相片拼合，把拍攝的位置一起加入相片內，然後再經其它專業相片編輯軟件調較，把拼合位置的瑕疵減至最少。

The AMO acquired two terrestrial laser scanners ❶ and one portable laser scanner ❷ to work on the surveying of built heritage and archaeological heritage. The terrestrial laser scanner is small and compact. It can emit laser up to about 330 metres. Multiple angles of scanning and post-processing are required for the measured object in order to obtain results, making it suitable for scanning large buildings and their surrounding environments. Surveyors only need to calibrate the scanner, which can then automatically emit as many as 900,000 points of laser beams per second to scan the surface of objects and collect the "point cloud" reflected. The portable scanner is more suitable for scanning architectural components and small objects. It can emit visible laser up to about 40 centimetres. Surveyors first put positioning reflective stickers on the object, the result can be shown immediately after scanning it from different angles. Both terrestrial laser scanner and the portable laser scanner can generate 3D digital models through collecting the data. As 3D digital models do not come with colours, surveyors must first take pictures of the objects with a camera and then make use of these reference pictures and a professional computer software to fill in the colours on 3D digital models, which result in coloured 3D digital models. Surveyors can then view the 3D models directly from the computer, or output them in suitable formats for other uses.

The terrestrial laser scanner does more than laser scanning; it can also take 360-degree pictures. The extremely high-resolution of panoramic pictures taken by a terrestrial laser scanner can reach 200 megapixels. Unlike common panoramic pictures, the part where the shooting equipment set up may be blocked, and therefore part of the ground level image may not be captured by the scanner. However, to achieve the panoramic effect of the picture, the surveyors used another high-resolution SLR camera

為配合三維激光掃描，古蹟辦更購入一台三維立體打印機，以粉末粘接成型的方式，打印三維實體模型。打印的原理像噴墨打印機一樣，先在平台上鋪上粉末，鋪平並壓實，噴頭根據三維實體模型的橫截面噴出加入顏料的黏著劑，黏著劑將需要固化的粉末黏在一起固化成形，便可按比例快速打印出實體模型。由於粉末幼細，打印機能打印出十分複雜的形狀，並無需再後期上色。打印後利用特殊的固化劑，增加強度，更可保護表層和增加顏色對比度，剩餘的粉末亦可循環再用。

### 三維激光掃描在文物保育上的應用

自三維掃描組成立以來，古蹟辦已掃描了 22 項法定古蹟，<sup>2</sup> 包括：

- 元朗下白泥碉堡
- 油麻地窩打老道東華三院文物館
- 粉嶺龍躍頭松嶺鄧祠祠
- 粉嶺龍躍頭老圍門樓及圍牆
- 尖沙咀前九廣鐵路鐘樓❸❹
- 尖沙咀前九龍英童學校（部分）
- 元朗新田大夫第
- 青洲燈塔建築群
- 元朗八鄉上村植桂書室（部分）
- 鶴咀鶴咀燈塔
- 元朗厦村楊侯宮（部分）
- 長洲石刻
- 上水廖萬石堂
- 港島大浪灣石刻
- 元朗厦村鄧氏宗祠
- 蒲台石刻
- 尖沙咀香港天文台
- 大嶼山石壁石刻
- 元朗屏山達德公所（部分）

<sup>2</sup> 數字截至 2017 年 8 月 31 日。  
Figures as of 31 August 2017.

to capture the ground area, and then merged the pictures using professional software to incorporate the part where image shooting takes place. Other professional picture editing software is used for fine tuning so as to minimise any visible flaws where the pictures are pieced together.

To complement three-dimensional laser scanning, the AMO also acquired a 3D printer, which forms and prints 3D models using powder and binder. The way the printing works is similar to the operation of ink-jet printers. A layer of powder is first laid flat and pressed on the powder bed. The printing head then emits coloured binders based on the cross-sections of the three-dimensional models. Powder must be adhered to the binder so that the model can solidify and form shapes. By doing so, physical models can be quickly printed out in proportion. As the powder is very fine, the printer is able to print out highly complex shapes, without the need of post-printing colouring. A special solidifying agent is used to strengthen the model after printing; it also helps protect the surface layer and enhance colour contrast. The remaining powder can be recycled.

### Application of Three-dimensional Laser Scanning on Heritage Conservation

Since the establishment of the 3D Laser Scanning Unit, the AMO has scanned 22 declared monuments,<sup>2</sup> including:

- Fortified Structure at Ha Pak Nai, Yuen Long
- Tung Wah Museum, Waterloo Road, Yau Ma Tei
- Tang Chung Ling Ancestral Hall, Lung Yeuk Tau, Fanling
- Entrance Tower and Enclosing Walls at Lung Yeuk Tau, Fanling
- Former Kowloon-Canton Railway Clock Tower, Tsim Sha Tsui❸❹
- Former Kowloon British School, Tsim Sha Tsui (partial)
- Tai Fu Tai Mansion, San Tin, Yuen Long
- Green Island Lighthouse Compound
- Chik Kwai Study Hall, Sheung Tsuen, Pat Heung, Yuen Long (partial)
- Cape D'Aguilar Lighthouse, Cape D'Aguilar
- Yeung Hau Temple, Ha Tsuen, Yuen Long (partial)
- Rock Carvings on Cheung Chau
- Liu Man Shek Tong Ancestral Hall, Sheung Shui
- Rock Carvings at Big Wave Bay, Hong Kong Island
- Tang Ancestral Hall, Ha Tsuen, Yuen Long
- Rock Carvings on Po Toi
- Hong Kong Observatory, Tsim Sha Tsui
- Rock Carvings at Shek Pik, Lantau
- Tat Tak Communal Hall, Ping Shan, Yuen Long (partial)

- 西貢龍蝦灣石刻
- 沙頭角下禾坑發達堂
- 西貢大廟灣刻石

除法定古蹟外，古蹟辦亦掃描了 30 多件建築物構件、雕塑和物件，它們包括：

上環荷李活道文武廟 Man Mo Temple, Hollywood Road, Sheung Wan	樑頭 (「天姬送子」和「狀元及第」、雀替 (八仙)、脊飾 (「吹簫引鳳」、鰲魚)、駝峰及廟內的物件 (銅扇、銅筆) 等 Head of the beam ("A Fairy Delivers Her Son to the Mortal Father" and "Victory of the First Scholar"), <i>Qyeti</i> (the Eight Immortals), decorative ridges ("Inviting Phoenix by Flute-playing", dragon fish), camel's hump and other objects in the temple (bronze fans, bronze brushes) etc.
元朗八鄉植桂書室 Chik Kwai Study Hall, Pat Heung, Yuen Long	駝峰 Camel's humps
上環廣福祠 Kwong Fuk Ancestral Hall, Sheung Wan	脊飾 Decorative ridge
元朗屏山清暑軒 Ching Shu Hin, Ping Shan, Yuen Long	駝峰 Camel's humps
元朗晉源押 Chun Yuen Pawn House, Yuen Long	木招牌 Wooden shop signboard
香港仔洪聖爺古廟 Hung Shing Temple, Aberdeen	駝峰 Camel's humps
中環花園道聖約翰座堂 St. John's Cathedral, Garden Road, Central	主教座、洗禮盤 Bishop's Throne, Font
大坑前萬金油花園 Former Tiger Balm Garden, Tai Hang	水泥老虎雕塑及剪瓷獅子 Cement tiger sculptures and trencadís lion statue
李祥和腐皮廠 Lee Cheung Woo Bean Curd Factory	石匾 Stone plaque

監察文物的狀況

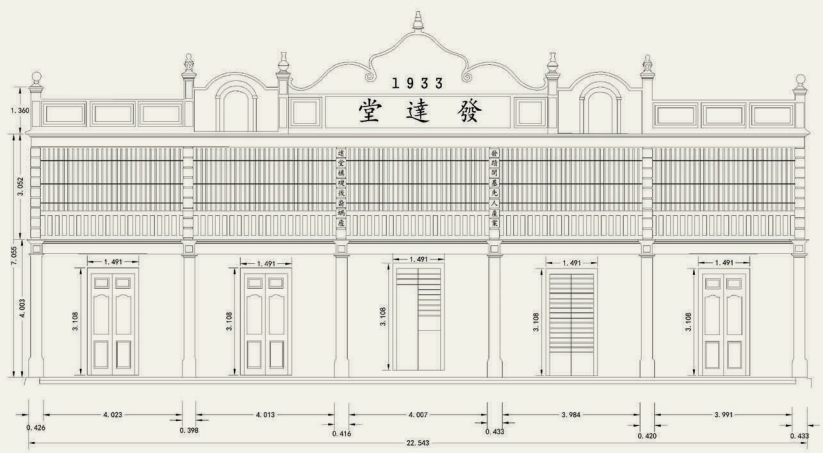
古蹟辦除了利用手提激光掃描儀作紀錄外，也用來監察文物建築和考古文物的狀況。香港古代石刻便是一個例子，由於手提激光掃描儀的精確度甚高，可達至半毫米，可以精確地掃描石刻的紋理，而且十分全面，亦不會破壞石刻。測量人員先在石刻附近穩固的地方建立參考點，然後每次把參考點和石刻準確量度，所獲的數據經電腦即時轉化成三維網格格式存檔。此外，每隔一段時間再把參考點和石刻重新掃描，得出的結果便可以利用專用的電腦軟件和過往的數據作出比較，便知其風化的情況。由於掃描的結果是

- Rock Carvings at Lung Ha Wan, Sai Kung
- Fat Tat Tong, Ha Wo Hang, Sha Tau Kok
- Rock Inscription at Joss House Bay, Sai Kung

In addition to the declared monuments, the AMO also scanned more than 30 items of building components, statues and objects, they include:

Monitoring Heritage Conditions

The AMO does not only use the portable laser scanner in recording, it also uses it to monitor the conditions of built heritage and archaeological heritage. The ancient rock carvings in Hong Kong serve as an example. As portable laser scanners feature high precision up to 0.5 millimetres, the grains on the rock carvings can be scanned very accurately. The scanning is also very comprehensive and there is no damage to the rock carvings. The surveyors would first set up a reference point at a steady location near the rock carving, and then accurately measure the reference point and the rock carving. The data obtained from the measurements are entered into a computer, which then immediately converts the data into 3D digital models for filing. From this, rescanning is done with the referent points



5 從三維座標轉化而成的二維圖則  
The two-dimensional drawing converted by three-dimensional coordinates

立體的，坑紋正面和側面的微細變化也可測量得到，這一種監察的方法比起過往的逐點量度進步，而且所需時間較少。截至 2017 年 8 月 31 日，古蹟辦已經完成掃描六個石刻，為未來的監測建立第一次參考數據。

至於坐地式掃描儀，雖沒有手提式掃描儀的精確度，但亦適用於監測大型歷史建築，尤其適合於較難接觸的建築物頂部。古蹟辦曾經把元朗上村植桂書室的 40 條屋頂橫樑掃描，計算出各橫樑的高度，然後利用繪圖軟件得出二維圖則，從而讓建築師、測量師和工人了解橫樑的變形情況而作出相應的維修。

修復文物建築

對於需要維修的文物建築，三維激光掃描也能夠發揮它的功用，例如位於沙頭角下禾坑的發達堂，建築圖則因為年代久遠而難以尋找，古蹟辦以往會利用傳統的方式量度，加上目測繪製圖則以協助維修。運用這些方法除了十分耗時外，其準確性也較低。三維激光掃描在這方面便大派用場，過往一些難以量度的地方，亦能快捷地獲得大量而準確的數據。測量師透過電腦軟件，把三維坐標轉化成二維坐標後，便可繪製出各層平面圖則和高程圖等，這些圖則在日後會附加於修復文物建築的工程招標書內，令投標人士更加了解建築物的詳情5。

and the rock carvings after a period of time. The obtained outcome is next compared with past data using specialised computer software which can offer information on the corrosion conditions. Since the outcomes of the scanning are stereoscopic, the fine details of the small changes in the grains on the front and sides can also be detected. This monitoring method is more advanced than the past method of measuring point by point, and it requires less time to complete. As of 31 August 2017, the AMO has completed the scanning of six rock carvings and constructed the first batch of reference data for future monitoring.

As for terrestrial laser scanners, although they are not as highly precise as their portable counterparts, they can also be used for monitoring large-scale historic buildings, and are suitable for barely reachable tops of buildings. The AMO scanned the 40 roof beams at Chik Kwai Study Hall in Sheung Tsuen, Yuen Long and calculated the height of each beam. They next made use of a drawing software programme to obtain two-dimensional drawings, so that architects, surveyors and workers can understand the conditions of the beams and conduct the corresponding repair and maintenance.

Restoring Built Heritage

For built heritage that requires repair and maintenance, three-dimensional laser scanning can also be put into play. The construction drawings of Fat Tat Tong at Ha Wo Hang, Sha Tau Kok, for example, were too old to be located. In the past, the AMO would measure it by traditional methods, which were supplemented by visual inspection in the drawing to help with the repair and maintenance of the building. Using these methods is very time-consuming and they are not particularly accurate. Three-dimensional laser scanning is very handy in this aspect. A large volume of accurate data for places that were once difficult to measure are now quickly available. Using a computer software programme, three-dimensional coordinates can be converted into two-dimensional coordinates and the floor plan and elevation plan of each level can be drawn. These drawings will be added to the project tender documents of the restoration projects of built heritage, so that tenderers can know more about the details of the buildings 5.



6 由三維激光掃描收集的數據製成的大型投影互動展品

Large-scale interactive projection exhibits produced using the data collected from three-dimensional laser scanning

除此之外，脊飾亦可利用三維掃描技術協助修復。脊飾一般位於屋頂上，製作精細，有些甚至有超過 100 年歷史，古蹟辦可以把整條脊飾掃描作紀錄，若日後損毀或嚴重風化，仍可以以儲存的數據來打印三維實體模型，讓修復人員參考，修復損壞部分。

## 文物教育

為了讓公眾明白三維激光掃描對文物保育的貢獻，推廣和教育便成為古蹟辦的重點工作。古蹟辦在 2017 年 1 月 21 日至 5 月 31 日舉辦了「時代 • 憶記 — 活在香港歷史建築」展覽，選取了香港天文台、元朗厦村鄧氏宗祠、聖約翰座堂等法定古蹟及其構件和物件，以三維激光掃描的數據製作多條影片、360 度照片和三維網格模型等，又利用「擴增實境」、「虛擬實境」和大型投影影像等技術製作互動展品，向公眾推廣三維激光掃描在文物保育的應用<sup>6</sup>。古蹟辦在 2017 年 6 月 17 日舉行「3-D 掃描工作坊」，由三維掃描組在元朗厦村鄧氏宗祠實地示範三維激光掃描的操作，讓古蹟辦的「文物之友」了解三維激光掃描的原理和操作。<sup>3</sup>

Furthermore, the restoration of the decorative ridges can also be aided by the three-dimensional scanning technology. Decorative ridges are usually above the top of the roof. They are delicately crafted and many of them lasted for more than a century. The AMO can scan and record the entire decorative ridge. In case it is damaged or corroded severely someday, the conservators can take a reference from the records and print 3D models for restoring the damaged parts.

## Heritage Education

Now, an important mission of the AMO is to facilitate the understanding of the public on the contribution of three-dimensional laser scanning to heritage conservation, promotion and education. The AMO held the “Reminiscences: Life in Hong Kong’s Built Heritage” exhibition from 21 January to 31 May 2017. Declared monuments such as Hong Kong Observatory, Tang Ancestral Hall in Ha Tsuen, Yuen Long and St. John’s Cathedral, as well as their components and objects were selected for three-dimensional laser scanning. The data obtained were used to produce a number of videos, 360-degree panoramic pictures and 3D digital models. Technologies such as “augmented reality”, “virtual reality” and large-scale projection imaging were employed to create interactive exhibits for promoting the application of three-dimensional laser scanning on heritage conservation to the public<sup>6</sup>. The AMO hosted a “3D scanning workshop” on 17 June 2017, when the 3D Laser Scanning Survey Unit demonstrated the operation of three-dimensional laser scanning on-site at Tang Ancestral Hall in Ha Tsuen, Yuen Long, so that the “Friends of Heritage” of the AMO understood the principles and operation of three-dimensional laser scanning.<sup>3</sup>

<sup>3</sup> 「文物之友」是古蹟辦在 1997 年成立的興趣組織，會員隔年招募，現有超過 400 名會員，會員可參與古蹟辦所舉行的講座、工作坊、參觀和教育活動的義務工作。參閱 [http://www.amo.gov.hk/b5/education\\_friends.php](http://www.amo.gov.hk/b5/education_friends.php) (2017.9.15)。

“Friends of Heritage” is an interest group established by the AMO in 1997. Recruitment is arranged biennially. At present, the group has more than 400 members. Members can join lectures, workshops, visits and volunteer in education activities organised by the AMO. Please see [http://www.amo.gov.hk/b5/education\\_friends.php](http://www.amo.gov.hk/b5/education_friends.php) [15 September 2017].

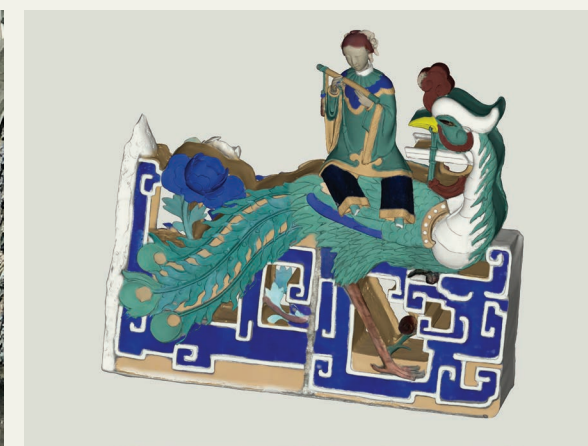


7 以教育活動向公眾推廣三維激光掃描在文物保育上的應用

The applications of three-dimensional laser scanning on heritage conservation are promoted to the public through educational activities

古蹟辦為了進一步向公眾推廣三維激光掃描在文物保育上的用途，在發展局文物保育專員辦事處舉辦的「文物時尚 • 荷李活道」大型活動中，<sup>4</sup> 以上環文武廟屋脊上的「鰲魚」陶塑的掃描數據，按比例打印成三維實體模型，再大量生產成塑膠模型。市民和遊客可在古蹟辦的攤位內為「鰲魚」塑膠模型填上顏色，達至娛樂和教育的目的<sup>7</sup>。古蹟辦又以上環文武廟屋脊上的「吹簫引鳳」陶塑<sup>8</sup>的掃描數據，製成三維網格模型<sup>9</sup>，並載入平板電腦，在當日「行街 • 賞故 • 遊古蹟」導賞中，向參加者介紹上環文武廟的建築特色。

To further promote the uses of three-dimensional laser scanning in heritage conservation to the public, the AMO used the scanned data of the “dragon fish” ceramic figurine on the ridge of Man Mo Temple, Sheung Wan and printed them in form of proportionate 3D models, and then mass produced them as plastic models for the grand event, “Heritage Vogue • Hollywood Road”, spearheaded by the Commissioner for Heritage’s Office, Development Bureau.<sup>4</sup> The public and tourists could fill in the colours on the plastic “dragon fish” models at the AMO’s booth to achieve both entertainment and education purposes<sup>7</sup>. The AMO also made use of the scanned data of the “Inviting Phoenix by Flute-playing” ceramic figurine on the ridge of Man Mo Temple in Sheung Wan<sup>8</sup> to create 3D digital models<sup>9</sup> and loaded them into tablet computers. The 3D digital models were employed to introduce the architectural features of Man Mo Temple in Sheung Wan to participants during the



8 上環文武廟屋脊上的「吹簫引鳳」陶塑（左）及 9 其三維網格模型（右）

8 “Inviting Phoenix by Flute-playing” ceramic figurine at the ridge of Man Mo Temple, Sheung Wan (left) and 9 its 3D digital model (right)

<sup>4</sup> 「文物時尚 • 荷李活道」是慶祝香港特別行政區成立 20 周年的活動，2017 年 7 月 1 日至 2 日在荷李活道舉行。除古蹟辦外，參加的組織包括大館、元創方、石屋家園、綠匯學苑、大澳文物酒店及其他活化歷史建築伙伴計劃的參與組織。參閱 <http://www.heritage.gov.hk/tc/online/press2017/20170614.htm> (2017.9.15)。

“Heritage Vogue • Hollywood Road”, one of the activities to celebrate the 20th anniversary of the establishment of the Hong Kong Special Administrative Region, was held on Hollywood Road from 1 to 2 July 2017. Tai Kwun, PMQ, Stone Houses Family Garden, Green Hub, Tai O Heritage Hotel and other participating organisations of the Revitalising Historic Buildings Through Partnership Scheme took part in the event alongside the AMO. Please see <http://www.heritage.gov.hk/en/online/press2017/20170614.htm> [15 September 2017].

## 未來計畫—建立檔案庫

世界各地已有使用三維激光掃描技術來記錄重要的文化遺產和遺跡，如中國敦煌莫高窟、柬埔寨吳哥窟、美國總統山和自由神像等，以確保因天災或發展而導致這些重要的文化遺產和遺跡消失後，仍保留數據供日後修繕或複製，以及承傳給後代欣賞。美國的非營利組織 CyArk500 成立於 2003 年，它利用數位技術推動世界文化遺產和保存工作，已把一定數量的文物以三維網格的形式上載網上分享。<sup>5</sup> 古蹟辦考慮借鏡此網站，為法定古蹟進行三維激光掃描，並建立一個檔案庫，把掃描所得的法定建築的數據適當地公開給公眾查閱，並構思分享以三維激光掃描製作的影片和 360 度全方位相片，甚至讓觀眾自行下載一些三維網格模型和打印三維立體模型。

## 結論

自三維掃描組在 2016 年成立以來，古蹟辦已為 22 項法定古蹟和 30 多件建築物構件、雕塑和物件進行三維激光掃描，所得的測量數據甚豐，部分已應用於編製測繪圖、修繕工程和監察古代石刻的風化狀況。古蹟辦亦利用這些數據來製作互動遊戲和模型，透過不同類型的活動，生動有趣地推廣三維激光掃描在文物保育上的應用。古蹟辦將繼續利用三維激光掃描技術，測量文物建築及考古建築，並計劃把測量法定古蹟所得的數據建立一個檔案庫，保存資料之餘，同時讓專業人士和公眾使用。

“Walk and Know Our Heritage” guided tour.

## The Future Plan — Establishment of an Archive

Three-dimensional laser scanning technology has been employed around the world to record important heritage sites such as the Mogao Caves in Dunhuang, China, Angkor Wat in Cambodia, Mount Rushmore and the Statue of Liberty in the United States. These are used to ensure that in case these invaluable heritage sites and relics are damaged or disappear as a result of natural disasters or certain developments, data can be reserved for repair or replication in the future, such that they can still be passed down to later generations for their appreciation. Founded in 2003, CyArk500 is a non-profit making organisation in the United States, it makes use of digital technology to promote world heritage and preservation work. The organisation has already uploaded a certain number of heritage properties in the format of 3D digital models online for sharing.<sup>5</sup> The AMO is considering taking references from this website for building a three-dimensional laser scanning archive, in which the data of the declared monuments will be open for public access. It is also considering sharing the videos and 360-degree panoramic pictures produced by the 3D Laser Scanning Survey Unit with three-dimensional laser scanning. It is even considering the possibility of allowing users to download some of the heritage in 3D digital models and print them out by 3D printers.

## Conclusion

Since its establishment in 2016, the 3D Laser Scanning Survey Unit has helped the AMO conduct three-dimensional laser scanning on 22 declared monuments and over 30 building components, statues and objects. Some of the rich resources of the survey data have already been used for compiling survey drawings, repair and maintenance projects, and monitoring the weathering conditions of ancient rock carvings. The data were also used for creating interactive games and models, so that the application of three-dimensional laser scanning on heritage conservation can be promoted in a lively and intriguing manner through diverse activities. The AMO will continue to employ the three-dimensional laser scanning technology to survey built heritage and archaeological heritage. It also plans to turn the survey data of the declared monuments into an archive,

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# heritage education

<sup>5</sup> 參閱 <http://www.cyark.org/about/>（2017.10.11）。  
 Please see <http://www.cyark.org/about/> (11 October 2017).

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# 乾隆皇帝－五福五代的八旬天子

## Qianlong: The Long-lived Emperor Who Saw His Great-great-grandson!

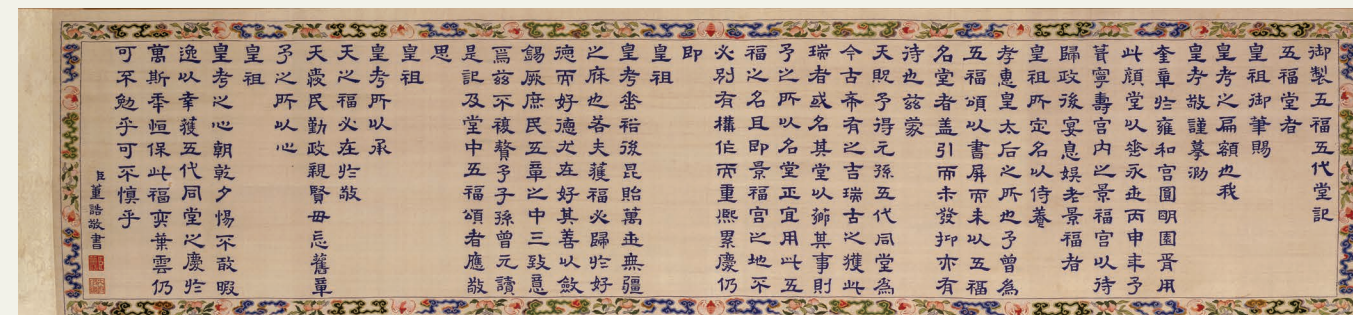
黃迺銀 WONG Nai-kwan

一級助理館長（自然歷史） | 香港歷史博物館  
Assistant Curator I (Natural History) | Hong Kong Museum of History

香港歷史博物館為慶祝香港特別行政區成立 20 周年，與故宮博物院合辦了「香港賽馬會呈獻系列：萬壽載德－清宮帝后誕辰慶典」展覽，透過 210 組故宮博物院珍藏清代（1644-1911）皇帝和皇太后祝壽的文物，介紹清宮慶祝萬壽盛典的禮儀制度，並反映了中國古代豐富的祝壽文化。在芸芸的珍貴文物中，「緙絲董誥書〈乾隆帝五福五代堂記〉卷」<sup>1</sup> 本是乾隆帝（清高宗愛新覺羅 • 弘曆，1711-1799，1736-1795 在位）因玄孫誕生、五代同堂而特別製作的紀念品，與慶祝壽辰無關。當乾隆帝慶祝過他的八旬萬壽後，把隆慶萬壽的詳情輯錄編纂成《八旬萬壽盛典》時，他把玄孫出生詳列於「盛事」一門之下，「緙絲董誥書〈乾隆帝五福五代堂記〉卷」也就成為展覽展出的文物之一。

### 1 緙絲董誥書〈乾隆帝五福五代堂記〉卷

*Kesi-Tapestry Scroll of Record of the Hall of Five Fortunes and Five Generations* composed by Emperor Qianlong and inscribed by Dong Gao



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<sup>1</sup> 《萬壽載德－清宮帝后誕辰慶典展覽圖錄》（香港：香港歷史博物館編製，2017），頁 72-73。

*Longevity & Virtues: Birthday Celebrations of the Qing Emperors and Empress Dowagers Exhibition Catalogue* (Hong Kong: Hong Kong Museum of History, 2017), 72-73.

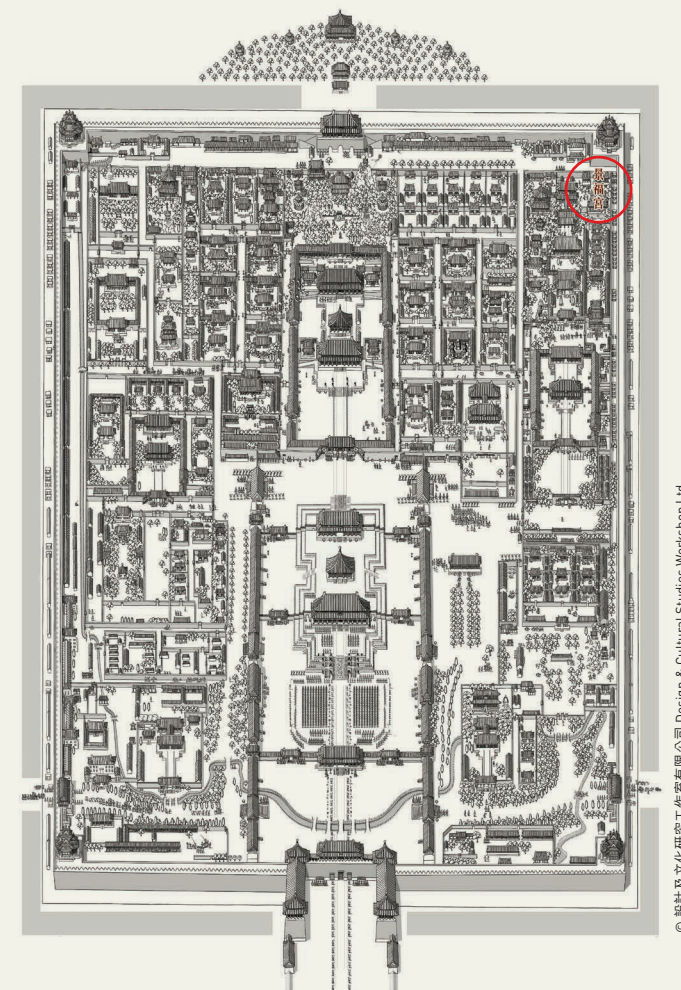
To mark the 20th anniversary of the establishment of the Hong Kong SAR, with the sole sponsorship from The Hong Kong Jockey Club Charities Trust, the Hong Kong Museum of History and The Palace Museum jointly presented the “Longevity & Virtues: Birthday Celebrations of the Qing Emperors and Empress Dowagers Exhibition”. Through the 210 rare sets from the precious collections of The Palace Museum in association with the birthday celebrations of the Qing emperors and empress dowagers, the exhibition highlighted the rituals of the imperial birthday celebrations in the Qing court and revealed the rich culture of ancient Chinese birthday celebration. Among the various invaluable artefacts, there was the “*Kesi-Tapestry Scroll of Record of the Hall of Five Fortunes and Five Generations*” composed by Emperor Qianlong and inscribed by Dong Gao”<sup>1</sup>. It was in fact a souvenir for Emperor Qianlong (1711-1799, reigned 1736-1795) to commemorate the birth of his great-great-grandson, instead of a memorabilia to celebrate his birthday. After the grand celebration of his 80th birthday ended, all relevant government archives and memorials to the throne were documented in chronological order, and edited into *The Grand Celebration of Emperor Qianlong's 80th Birthday*, and that the Emperor seeing five generations living under one roof was recorded under the sub-title *Shengshi* (Joyous events). Hence, the said artefact was also featured in the exhibition.



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### 2 景福宮今貌 *Jingfu Gong nowadays*

### 3 景福宮位置圖 *Map of Jinfu Gong*



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五福五代堂所在的景福宮，位於紫禁城內廷外東路<sup>2</sup><sup>3</sup>，原是康熙帝（清聖祖愛新覺羅 • 玄燁，1654-1722，1662-1722 在位）奉養嫡母仁憲皇太后（即清世祖順治帝的孝惠章皇后博爾濟吉特氏，1641-1718）的宮殿，始建於康熙二十八年（1689 年）；仁憲皇太后一直居住在景福宮，直至康熙五十六年（1717 年）崩。至乾隆三十七年（1772 年）起，景福宮進行大規模的改建，作為乾隆帝他日退位後頤養天年和宴遊之所。<sup>2</sup>乾隆四十九年（1784 年），乾隆帝喜得玄孫，五代同堂，乾隆帝認為是承蒙上天眷佑，是古今罕有的最大福氣，於是題匾景福宮為「五福五代堂」，並寫〈五

The hall called *Wufu Wudai Tang* (Hall of Five Fortunes and Five Generations) was located in *Jingfu Gong* (Palace of Great Fortune) on the Outer East Route in the inner court of the Forbidden City <sup>2</sup><sup>3</sup>. It was originally built by Emperor Kangxi (1654-1722, reigned 1622-1722) in the 28th year of his reign (1689) for his mother Empress Dowager Renxian (Empress Xiaohuizhang, consort of Emperor Shunzhi, 1641-1718). It remained the residence of Renxian until her death in the 56th year of the Kangxi period (1717). From the 37th year of the Qianlong period (1772) onward, the Palace was extensively reconstructed. Qianlong intended to retire to this place to enjoy himself after renouncing power.<sup>2</sup> When he was given a great-great-grandson in the 49th year of his reign (1784), Qianlong attributed the fortune of having “five generations living under the same roof”, which was



<sup>2</sup> 〈景福宮〉，《故宮博物院》，<http://www.dpm.org.cn/explore/building/236571.html?hl=%E6%99%AF%E7%A6%8F%E5%AE%AE>。  
“Jingfu Gong,” *The Palace Museum*, <http://www.dpm.org.cn/explore/building/236571.html?hl=%E6%99%AF%E7%A6%8F%E5%AE%AE>.



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4 乾隆帝晚年的朝服像  
Portrait of Emperor Qianlong in his old age

福五代堂記》，以作記念。<sup>3</sup> 及後乾隆六十年（1795年）歸政皇儲永琰（清仁宗愛新覺羅・顥琰，1760-1820，1796-1820 在位）時，也是在景福宮舉行。其實，除了在內廷景福宮題「五福五代堂」匾外，乾隆帝還先後於乾隆五十年（1785年）把圓明園的五福堂和於乾隆五十二年（1787年）把避暑山莊勤政殿的後殿同樣題為「五福五代堂」。<sup>4</sup>

乾隆四十九年閏三月，74歲的乾隆帝<sup>4</sup>正當第六度南巡，京師飛報他的第一個玄孫已於閏三月初八誕生的喜訊。<sup>5</sup> 玄孫的父親奕純（1767-1816），是綿德（1747-1786）的長子，而綿德則是乾隆帝的庶長子定親王永璜（1728-1750）的長子。

<sup>3</sup> 郭福祥：〈青玉交龍紐「五福五代堂寶」〉，《故宮博物院》，<http://www.dpm.org.cn/collection/seal/233673.html>。  
Guo Fuxiang, "Qingyu Jiaolong Niu Wufu Wudai Tang Bao," *The Palace Museum*, <http://www.dpm.org.cn/collection/seal/233673.html>。  
<sup>4</sup> 別廷峰：〈乾隆《避暑山莊五福五代堂記》注譯和說明〉，《承德民族師專學報》（1，1994），頁79-83；〈圓明園史話 | 翻開「萬園之園」之天然圖畫〉，《中國園林博物館》（2017.3.9），<http://www.gardensmuseum.cn/cn/1-2-2a-more.aspx?id=2419&type=a>。  
Bie Tingfeng, "Annotations and Explanations of *Bishushanzhuang Wufu Wudai Tang Ji* by Qianlong," *Journal of Chengde Teachers College for Nationalities* 14, no. 1 (1994): 79-83; "Stories of Yuanming Yuan: Open the Natural Pictures of the Garden of Gardens," *The Museum of Chinese Gardens and Landscape Architecture* (9 March 2017), <http://www.gardensmuseum.cn/cn/1-2-2a-more.aspx?id=2419&type=a>。  
<sup>5</sup> （清）阿桂等撰：《八旬萬壽盛典》（《四庫全書》本），卷二十五，〈盛事一・慶得皇元孫一〉。  
Agui, et al, eds., *Baxun Wanshou Shengdian* (The Grand Celebration of Emperor Qianlong's 80th Birthday) (Version of *Siku Quanshu*), Vol. 25.

extremely rare among Chinese emperors, to the blessing of Heaven. He ordered a plaque inscribed with "*Wufu Wudai Tang*" executed in his own hand to be hung at the hall of *Jingfu Gong* and wrote *Wufu Wudai Tang Ji* to commemorate this event.<sup>3</sup> It was in the same palace that Emperor Qianlong abdicated his throne to Regent Prince Yongyan (1760-1820, reigned 1796-1820) on completing 60 years of rule. In fact, Emperor Qianlong also inscribed plaques with "*Wufu Wudai Tang*" in the *Wufu Tang* (Hall of Five Fortunes) in the *Yuanmingyuan* Summer Palace and the rear hall of *Qinzheng Dian* (Court of Diligence) in *Chengde* Summer Palace in the 50th (1785) and 52nd year (1787) of his period respectively.<sup>4</sup>

In the intercalary third month of the 49th year of the Qianlong period (1784) while the 74-year-old Emperor <sup>4</sup> was on his sixth expedition to the South, an express message from the capital arrived, bringing him the good news of the birth of his first great-great-grandson or fifth-generation grandson on the 8th day of the same month.<sup>5</sup> The father of this baby was Yichun (1767-1816), the eldest son of Miande (1747-1786) who was the eldest son of Yonghuang (Prince Ding, 1728-1750), the eldest son of Emperor Qianlong by his imperial concubine.

其實當乾隆帝知悉奕純的嫡妻伊爾根覺羅氏（生卒年不詳）懷孕後，便寄予厚望，希望她會誕下男玄孫：因此，早在伊爾根覺羅氏臨盆前兩個月，乾隆帝先晉封綿德為貝子；當她分娩，玄孫確定是男嬰後，乾隆帝更是非常欣喜，除了親定玄孫輩以「載」字行，賜名載錫外，並親臨綿德府第，把載錫抱置膝上，又賦詩多首以誌慶。<sup>6</sup>

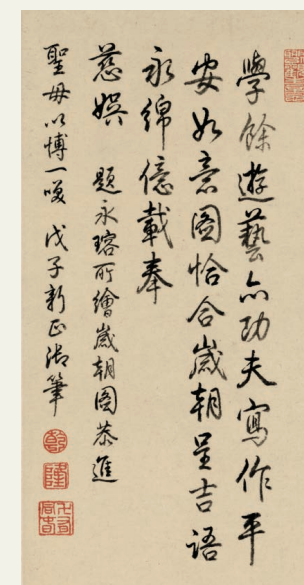
康熙帝在世的時候，已有數名曾孫，他親自定下了曾孫輩行用「永」字。及至乾隆十一年（1746年）乾隆帝於惇叙殿宴請宗室時，決定其孫子一輩名字的第一個字用「綿」字；其後又定曾孫輩用「奕」字。乾隆三十三年（1768年）新正，乾隆帝在皇六子永瑤（1744-1790）所繪，以恭祝母親崇慶皇太后（即孝聖憲皇后鈕祜祿氏，1692-1777）新歲平安的《歲朝圖》<sup>5</sup>（也稱《平安如意圖》）軸上御題七言絕詩一首，最末一句為「永綿億載奉慈娛」，當中首三

When Emperor Qianlong knew that Lady Irgen Gioro (Years of birth and death unknown), wife of his great-grandson Yichun, was pregnant, he cherished the hope of having a great-great-grandson. Therefore, two months before the expected delivery date, he conferred on Yichun's father Miande the title of *Beizi* (fourth-rank prince). After the birth of the baby boy, Emperor Qianlong was very pleased. In addition to choosing "Zai" as the "generation name" of his fifth-generation grandsons and naming his first great-great-grandson Zaixi, he also visited the residence of Miande to cuddle the baby and put him on his lap. Afterwards he composed some poems to commemorate this event.<sup>6</sup>

When Emperor Kangxi was alive, he already had a few great-grandsons. He chose "Yong" as the "generation name" of his fourth-generation grandsons. When Emperor Qianlong held a banquet for the imperial clan in *Dunsu Dian* in the 11th year of his period (1746), he decided to use "Mian" and "Yi" as the first character of the "generation name" of his third and fourth-generation grandsons respectively. In the first month of the Lunar New Year of the 33rd year of the Qianlong period (1768), Emperor Qianlong inscribed a seven-character quatrain upon the painting *Suichao tu* [New Year Offerings] (also known as *Pingan ruyi tu* [As Peaceful as One Likes]), which was used for wishing Qianlong's mother, Empress Dowager Chongqing (Empress Xiaoshengxian, 1692-1777) a peaceful New Year. The painting was composed by his sixth son Prince Yongrong (1744-1790) <sup>5</sup>. In the last line of the poem "*Yong Mian Yi Zai Feng Ci Yu*" [Lots of grandsons being filial to my mother ever after], the first three words, "Yong", "Mian" and "Yi", happened to synchronise with the first character



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<sup>5</sup> 永瑤繪的《歲朝圖》，又稱《平安如意圖》，故宮博物院藏。  
*Suichao tu* [New Year Offerings] (also known as *Pingan ruyi tu* [As Peaceful as One Likes]) composed by Prince Yongrong, collection of The Palace Museum)

<sup>6</sup> 同註5。  
See Note 5.

字正好暗合他的子、孫、曾三世名字裡第一個字的排序輩分，於是他在皇玄孫剛出生後就決定以載字來排輩。皇玄孫出生後同年十月，乾隆帝又降旨「本年因得伍世元孫，命名載錫；將來載字輩下再得六世來孫，應用奉字。」也就是說，他是以自己的題詩「永綿億載奉慈娛」來作為子孫字輩的根據。<sup>7</sup> 可是，到了道光六年（1826年）道光帝（清宣宗愛新覺羅 • 旻寧，1782-1850，1821-1850 在位）選用「溥毓恆啟」四字，作為載字輩以下宗室按序命名，並下旨奉字輩的著改用溥字。<sup>8</sup> 清宮掌故相傳，都說道光帝忌諱奉字，擔心大清江山會拱手奉送；奈何冥冥中似有主宰，清朝皇位傳到溥儀（即清宣統帝，1906-1967，1909-1911 在位）不到三年，就真的要遜位讓國了。

乾隆帝喜得玄孫之餘，更命大學士彭元瑞（1731-1803）、戶部尚書曹文植（1735-1798）翻查《四庫全書》「古來有元孫者」，結果典籍記載的有六人：唐錢朗、宋張燾、元吳宗元、明羅恢、歸璿（玄孫即著名「唐宋派」文學家歸有光）和文徵明。<sup>9</sup> 乾隆帝更自豪地說「查自三代以下帝王年逾七十者，漢武帝、梁高祖、唐明

of the “generation name” of the second, third and fourth generations respectively. Therefore Emperor Qianlong decided to use “Zai” as the “generation name” of his fifth-generation grandsons upon the birth of his great-great-grandson. In the tenth month of the same year, Emperor Qianlong issued an imperial edict which says, “My fifth-generation grandson was born this year and named Zaixi, and the ‘generation name’ of my sixth-generation grandsons should be ‘Feng’.” It can be said that he based on his poem for devising the “generation names” for his descendents.<sup>7</sup> However, in the sixth year of the Daoguang period (1826), Emperor Daoguang (Aixin-Jueluo Mianning, 1782-1850, reigned 1821-1850) chose “Pu”, “Yu”, “Heng” and “Qi” as the “generation names” of [Emperor Qianlong’s] sixth to ninth-generations grandsons. He issued an imperial edict to change the “generation name” of “Feng” to “Pu”.<sup>8</sup> According to some anecdotes, Emperor Daoguang abstained from using the character “Feng” as it literally means “giving away”. He was afraid his country would be surrendered. It seems that one’s destiny is predetermined, though. After Emperor Puyi (Xuantong Emperor of the Qing Dynasty, 1906-1967, reigned 1909-1911) had ascended the imperial throne, he was forced to abdicate less than three years later, and the Qing dynasty came to an end.

Feeling pleased with the birth of his great-great-grandson, Emperor Qianlong ordered the Grand Secretary Peng Yuanrui (1731-1803) and Minister of Revenue Cao Wenzhi (1735-1798) to comb through *Siku quanshu* [Complete Library of the Four Treasuries] to find out whoever had five generations living under the same roof in Chinese history. Six were found, namely Qian Lang of the Tang dynasty, Zhang Tao of the Song dynasty, Wu Zongyuan of the Yuan dynasty, and Luo Hui, Wen Zhengming and Gui Xuan [whose great-great-grandson was the renowned literary theoretician Gui Youguang, whose writings were greatly influenced by the style of Tang and Song works] of the Ming dynasty.<sup>9</sup> Emperor Qianlong also boasted, “Textual records have revealed that there were only six emperors who lived beyond the age of seventy since the time of the Three [Mythological] Sovereigns. They were Emperor Wudi of the Han dynasty, Emperor Gaozu of the Liang dynasty, Emperor Minghuang [Xuanzong] of the Tang dynasty, Emperor Gaozong of the Song dynasty, Emperor Shizu of the Yuan dynasty and Emperor Taizu of the Ming dynasty. None of them had witnessed [the birth of] their great-great-grandson.”<sup>10</sup> Emperor Qianlong also ordered all Provincial Governors to look for and award all gentry and

皇、宋高宗、元世祖、明太祖，凡六帝，然皆未親見元孫也。」<sup>10</sup> 另外，乾隆帝又下令各省督撫，查明所管轄的地方如有「紳士庶民身及五世同堂者加恩賞賚」，共查得有 192 戶，其中四人更是壽逾百齡。乾隆帝於是除給這四個「昇平人瑞」親作詩一首以作賞賜外，又御書匾額，賞給銀兩、緞疋等，並賜建牌坊；至於另外的 188 人並著各督撫按其年歲，給予匾額，賞給緞疋、銀兩等，<sup>11</sup> 以彰顯天子推恩賜福予同登高壽並五代同堂的百姓。

根據《爾雅·釋親》<sup>12</sup> 所說：

子之子為孫

孫之子為曾孫

曾孫之子為玄孫

玄孫之子為來孫

來孫之子為晁孫

晁孫之子為仍孫

仍孫之子為雲孫

《爾雅》列明曾孫之子（即五世孫）稱為玄孫，何以《八旬萬壽盛典》卻寫作「元孫」？元孫的本義是「長孫」，最早的文獻記載出現在《尚書·金縢》，可追溯至西周（公元前 11 世紀 - 前 771 年）初年。<sup>13</sup> 但清康熙朝起為避康熙帝本名玄燁的諱，凡「玄」字都改

peasant households having five generations living under the same roof. 192 such households were identified, and four of the surviving patriarchs were centenarians. In addition to honouring each of these *Shengping renrui* (Centenarians in an Era of Joy and Peace) with a poem composed by himself, Emperor Qianlong bestowed plaques on these centenarians inscribed with his calligraphy, together with silver ingots, bolts of satin silk and the privilege to build memorial gateways. As for the other 188 elders, the Provincial Governors were instructed to award them with plaques, bolts of satin silk and silver ingots according to their age,<sup>11</sup> to manifest the Emperor’s benevolence in sharing the blessings he received with his subjects who enjoyed longevity and had five generations living under the same roof.

According to the section *Shiqin* (Explaining kinship) in the oldest surviving Chinese dictionary *Erya* (The Semantic Approximator):<sup>12</sup>

*Sun*: Grandson, i.e. son of *Zi* (one’s third-generation)

*Zengsun*: Great-grandson, i.e. son of *Sun* (fourth-generation grandson)

*Xuansun*: Great-great-grandson, i.e. son of *Zengsun* (fifth-generation grandson)

*Laisun*: Son of *Xuansun* (sixth-generation grandson)

*Kunsun*: Son of *Laisun* (seventh-generation grandson)

*Rengsun*: Son of *Kunsun* (eighth-generation grandson)

*Yunsun*: Son of *Rengsun* (ninth-generation grandson)

According to *Eyra*, the great-great-grandsons (the fifth-generation grandsons) were coined *Xuansun*, but why *The Grand Celebration of Emperor Qianlong’s 80th Birthday* showed the term as “*Yuansun*”? The term *Yuansun* actually means “the eldest grandson”; the earliest textual evidence is found in the chapter *Jinteng* (Metal-bound casket) in *Shangshu* (Book of Documents) dated to the early Western Zhou dynasty (11th century BC to 771 BC).<sup>13</sup> However, since the personal name of Emperor Kangxi was Xuanye, from his reign onward it became a taboo to use the word “*Xuan*”. Very often it was substituted by its homophone “*Yuan*”. Hence *Xuansun* was written as *Yuansun*. *Xuanwumen* (Gate of Mysterious Valour), the rear gate of the Forbidden City, had to be renamed

<sup>7</sup> 同註 5，卷二十六，〈盛事二·慶得皇元孫二〉。

See Note 5, Vol. 26.

<sup>8</sup> 《清實錄·宣宗成皇帝實錄（二）（第三十四冊）》（北京：中華書局，1986），頁 846。

*Qing Shilu: Xuanzong Chenghuangdi Shilu (2)* (Beijing: Zhonghua Book Company, 1986), Book 34, 846.

<sup>9</sup> 同註 5。

See Note 5.

<sup>10</sup> 同上註。

Ibid.

<sup>11</sup> 同註 5。

See Note 5.

<sup>12</sup> （晉）郭璞註：《爾雅·爾雅音釋》（顧千里本），卷上。

Guo Pu, *Erya and Erya Yinshi*, Vol. 1.

<sup>13</sup> 漢語大詞典編輯委員會、漢語大詞典編纂處編纂：《漢語大詞典》（上海：漢語大詞典出版社，1994），第二卷，頁 214。

Hanyu Da Cidian Editorial Committee, ed., *Hanyu Da Cidian* (Shanghai: Publishing House of The Unabridged Chinese Dictionary, 1994), Vol. 2, 214.

以「元」代替，就連紫禁城的北門按照中國傳統名為玄武門的也要改稱神武門<sup>6</sup>；<sup>14</sup> 由於唐玄宗（李隆基，685-762，712-756 在位）諡號「至道大聖大明孝皇帝」裡有明字，<sup>15</sup> 清代自此以唐明皇來稱呼唐玄宗。正因為「元孫」一詞有其本義，為免混淆，《八旬萬壽盛典》多次出現「五代元孫」、「五世元孫」來表明所指的是玄孫。<sup>16</sup>

前面談到乾隆帝曾命彭元瑞、曹文植等大臣翻查《四庫全書》「古來有元孫者」，後來乾隆帝更賦七言律詩一首〈御製命彭元瑞曹文植檢《四庫全書》古來有元孫者有幾據奏自唐迄明凡六人詩以誌事（甲辰）〉：

五世元孫膝上珍  
（〔原註：〕子為膝下至若元孫反當抱之膝上矣）  
撿茲有幾命儒臣  
奏來詳悉翻四庫  
特出禎祥得六人  
（〔原註：〕四庫全書載唐錢朗宋張燾元吳宗元明羅恢歸璫文徵明六人皆以耆壽得見元孫）  
恰彼古稀帝同數  
（〔原註：〕庚子年屆古稀因查自三代以下帝王年逾七十者漢武帝梁高祖唐明皇宋高宗元世祖明太祖凡六帝然皆未親見元孫也）  
贏其家慶我饒臻  
如斯天貺叨駢疊  
忍不勅幾心愛民<sup>17</sup>

*Shenwumen* (Gate of Divine Valour) <sup>6</sup>.<sup>14</sup> Emperor Xuanzong (685-762, reigned 712-756) of the Tang dynasty was referred to as Emperor Minghuang during the Qing dynasty because his posthumous title contained the character “Ming”.<sup>15</sup> As “Yuansun” has its original meaning, to avoid confusion, “Wudaiyuansun” or “Wushiyuansun” (the fifth-generation grandsons) could always be seen in *The Grand Celebration of Emperor Qianlong’s 80th Birthday*. Such terms indicate clearly their real meaning is *Xuansun*.<sup>16</sup>

As hereinabove mentioned, Emperor Qianlong ordered ministers including Peng Yuanrui and Cao Wenzhi to read through *Siku quanshu* (Complete Library of the Four Treasuries) and find out whoever had five generations living under the same roof in Chinese history. Later, Emperor Qianlong composed a seven-character octave, “I issued an imperial command in which Peng Yuanrui and Cao Wenzhi were ordered to locate how many people had five generations living under the same roof. From their memorials, six people from the Tang to the Ming dynasties were noted. I composed this poem to document the event (in the *Jiachen* Year, the 49th year of the Qianlong period).”

Cherishing the fifth-generation grandson on my lap,  
([The original note:] The son is beneath the knees, whereas the great-great-grandson is on the lap.)

I ordered my scholar-officials to check how many people also saw their great-great-grandsons.

The memorials to the throne reveal the details of *Siku*,  
six people were particularly auspicious.  
([The original note:] According to *Siku quanshu*, Qian Lang of the Tang dynasty, Zhang Tao of the Song dynasty, Wu Zongyuan of the Yuan dynasty, and Luo Hui, Wen Zhengming and Gui Xuan of the Ming dynasty were the six people who saw their great-great grandsons in old age.)

There were also six emperors who lived beyond the age of seventy.  
([The original note:] I (Emperor Qianlong) was at the age of seventy in the *Gengzi* Year [the 45th year of his period]. Since the time of the Three [Mythological] Sovereigns, there were six emperors who lived beyond the age of seventy. They were Emperor Wudi of the Han dynasty, Emperor Gaozu of the Liang dynasty, Emperor Minghuang (Xuanzong) of the Tang dynasty, Emperor Gaozong of the Song dynasty, Emperor Shizu of the Yuan dynasty and Emperor Taizu of the Ming dynasty. However, they had not witnessed [the birth of] their great-great-grandsons.)

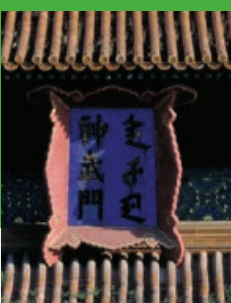
It boosts the joy of my family, I am utterly fulfilled.

Lavish heavenly gifts accrue incessantly,

reminding me to love my people more devotedly.<sup>17</sup>



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<sup>6</sup> 故宮神武門今貌  
*Shenwumen* (Gate of Divine Valour) of The Palace Museum nowadays

乾隆帝在詩中第五句的自註為「自三代以下，帝王年逾七十者：漢武帝、梁高祖、唐明皇、宋高宗、元世祖、明太祖凡六帝，然皆未親見元孫也。」然而，他的這個註並不完全正確；因為中國歷史上五代同堂的皇帝，在乾隆帝之前，就已有唐玄宗了。

安史之亂於唐玄宗天寶十四載（755 年）爆發；次年（756 年）太子李亨在靈武即位，是為唐肅宗，唐玄宗被遙尊為太上皇，六年後寶應元年（762 年）才去世，享年 78 歲。<sup>18</sup> 在唐玄宗去世前一年即上元二年（761 年），唐肅宗的皇太子李豫的兒子奉節郡王李适的長子李誦出生，也就是唐玄宗的玄孫；<sup>19</sup> 唐玄宗成為中國古代有史可稽首位五世同堂的皇帝。李豫、李适和李誦日後相繼繼承皇位，成為代宗、德宗和順宗。

In the fifth line of the poem, Emperor Qianlong made a note himself by saying, “Since the time of the Three [Mythological] Sovereigns, there were six emperors who lived beyond the age of seventy. They were Emperor Wudi of the Han dynasty, Emperor Gaozu of the Liang dynasty, Emperor Minghuang (Xuanzong) of the Tang dynasty, Emperor Gaozong of the Song dynasty, Emperor Shizu of the Yuan dynasty and Emperor Taizu of the Ming dynasty; however, they had not witnessed [the birth of] their great-great-grandsons.” But this note was not completely correct. In fact, prior to Emperor Qianlong’s reign, Emperor Xuanzong of the Tang dynasty had witnessed the birth of his great-great-grandson.

The revolt known as *An-Shi* Rebellion broke out in the 14th year of the Tianbao period of Emperor Xuanzong (755) of the Tang dynasty. A year later, Regent Prince Li Heng ascended the throne in Lingwu (in present-day Ningxia) as Emperor Suzong. Xuanzong became Emperor Emeritus. He lived six more years before passing away at the age of 78 in the first year of the Baoying period (762).<sup>18</sup> A year before his death (the second year of the Shangyuan period [761]), his great-great-grandson, Li Song, was born. He was the eldest son of *Fengjie* Commandery Prince Li Kuo, who was the son of Li Yu, Regent Prince of Emperor Suzong.<sup>19</sup> Thus Emperor Xuanzong became the first emperor in Chinese history having “five generations living under the same roof”. Li Yu, Li Kuo and Li Song later successively ascended the throne to become Emperor Daizong, Emperor Dezong and Emperor Shunzong respectively.

<sup>14</sup> 趙增越：〈清代皇帝的起名與避諱〉，《中國檔案》（5，2015），頁 74-75。  
Zhao Zengyue, “Naming methods and taboos of Qing’s Emperors,” *Chinese Archives* 5 (2015): 74-75.

<sup>15</sup> （後晉）劉昫等：《舊唐書》（《四庫全書》本），卷九，〈本紀第九·玄宗下〉。  
Liu Xu et al, *Jiu Tang Shu*, (Version of *Siku Quanshu*), Vol. 9.

<sup>16</sup> 同註 5。  
See Note 5.

<sup>17</sup> 同上註。  
Ibid.

<sup>18</sup> （宋）司馬光等編：《資治通鑑》（《四庫全書薈要》本），卷二百二十二，〈唐紀三十八〉。  
Sima Guang et al, eds., *Zizhi Tongjian* (Version of *Siku Quanshu Huiyao*), Vol. 222.

<sup>19</sup> 同註 15，卷十四，〈本紀第十四·順宗、憲宗上〉。  
See Note 15, Vol. 14.

唐玄宗和他的四代後裔  
Table of Emperor Xuanzong and the four emperors after him

廟號 ( 名字 ) Posthumous Title	生卒年 Years of birth and death	在位 Years of reign	與唐玄宗的關係 Relationship with Emperor Xuanzong
唐玄宗 ( 李隆基 ) Emperor Xuanzong	685-762	712-756 <sup>20</sup>	--
唐肅宗 ( 李亨 ) Emperor Suzong	711-762	756-762 <sup>21</sup>	兒子 ( 第三子 ) Son (Third son)
唐代宗 ( 李豫 ) Emperor Daizong	726-779	762-779 <sup>22</sup>	孫 ( 肅宗長子 ) Grandson (Emperor Suzong's eldest son)
唐德宗 ( 李适 ) Emperor Dezong	742-805	779-805 <sup>23</sup>	曾孫 ( 代宗長子 ) Great-grandson (Emperor Daizong's eldest son)
唐順宗 ( 李誦 ) Emperor Shunzong	761-806	805 <sup>24</sup>	玄孫 ( 德宗長子 ) Great-great-grandson (Emperor Dezong's eldest son)

當唐玄宗崩時，其玄孫李誦就只有一周歲多；而乾隆帝賓天時，玄孫載錫已 15 歲。載錫雖然是乾隆帝庶出長子的嫡長曾孫，可是，曾祖孫四代都並非皇位的繼承者；反而唐玄宗玄孫李誦連同其祖及父，日後都繼承皇位。

When Emperor Xuanzong passed away, his great-great-grandson Li Song was only a one-year-old boy. When Emperor Qianlong passed away, his great-great-grandson Zaixi was already 15 years old. Although Zaixi was the eldest great-grandson from the principal consort of Yonghuang (Prince Ding), since Yonghuang's mother was only Qianlong's concubine, the whole line was not entitled to succeed the throne. On the contrary, Emperor Xuanzong's great-great-grandson, Li Song, his father and his grandfather were all entitled to succeed the throne.

乾隆帝和他的四代後裔  
Table of Emperor Qianlong and his four generations

名字 ( 爵位 ) Name	生卒年 Years of birth and death	與乾隆帝的關係 Relationship with Emperor Qianlong
弘曆 ( 乾隆帝 ) Emperor Qianlong	1711-1799 <sup>25</sup>	--
永璜 ( 定安親王 ) Yonghuang (Prince Ding)	1728-1750 <sup>26</sup>	兒子 ( 庶長子 ) Son (Eldest son by a concubine)
綿德 ( 固山貝子 ) Miande (Fourth-rank Prince)	1747-1786 <sup>27</sup>	孫 ( 永璜長子 ) Grandson (Yonghuang's eldest son)
奕純 ( 固山貝子 ) Yichun (Fourth-rank Prince)	1767-1816 <sup>28</sup>	曾孫 ( 綿德長子 ) Great-grandson (Miande's eldest son)
載錫 ( 固山貝子 ) Zaixi (Fourth-rank Prince)	1784-1822 <sup>29</sup>	玄孫 ( 奕純長子 ) Great-great-grandson (Yichun's eldest son)

載錫於嘉慶三年（1798 年）成婚，當時已是太上皇的乾隆帝賦詩「六代來孫將繞膝，九旬太上孰齊肩」，<sup>30</sup> 滿懷希望可以在嘉慶五年（1800 年）他的九旬萬壽時「六代同堂」。可惜他在翌年嘉慶四年正月（1799 年）駕崩，<sup>31</sup> 未能見證他的六世來孫的出生，成為他漫長多采人生中的其中一個遺憾。載錫的長子要到嘉慶八年（1803 年）才出生，但同年殤。<sup>32</sup>

Zaixi got married in the third year of the Jiaqing period (1798). Qianlong as Emperor Emeritus composed a poem, "The coming sixth-generation grandson will stay with me, I wonder who can juxtapose himself with Emperor Emeritus of ninety years old",<sup>30</sup> earnestly anticipated having "six generations living under the same roof" in two years' time when he reached the age of 90. However, he died in the following year, in the first month of the fourth year of the Jiaqing period (1799),<sup>31</sup> and failed to witness the birth of his sixth-generation grandson, which became one of the various things he regretted most in his fabulous long life. Zaixi did not beget any son until the eighth year of the Jiaqing period (1803), but the boy died in the same year.<sup>32</sup>

<sup>20</sup> 同註 15，卷八，〈本紀第八·玄宗上〉；同註 18。  
See Note 15, Vol. 8. See Note 18.

<sup>21</sup> 同上註，卷十，〈本紀第十·肅宗〉；同註 18。  
Ibid., Vol. 10 and Note 18.

<sup>22</sup> 同上註，卷十一，〈本紀第十一·代宗〉。  
Ibid., Vol. 11.

<sup>23</sup> 同上註，卷十二，〈本紀第十二·德宗上〉及卷十三，〈本紀第十三·德宗下〉。  
Ibid., Vol. 12 and 13.

<sup>24</sup> 同上註，卷十四，〈本紀第十四·順宗、憲宗上〉。  
Ibid., Vol. 14.

<sup>25</sup> 唐邦治：《清皇室四譜》（台北：明文書局，1985），頁 24-26。

Tang Bangzhi, *Qinghuangshi Sipu* (Taipei: Ming Wen Publishing, 1985), 24-26.

<sup>26</sup> 徐麗華主編：《中國少數民族古籍集成·愛新覺羅宗譜》（成都：四川民族出版社，2002），頁 100。  
Xu Lihua et al, eds., *Ancient Books of Chinese Minority Group: Genealogy of Aisin Gioro* (Chengdu: Sichuan Nationalities Publishing House, 2002), 100.

<sup>27</sup> 同上註。  
Ibid.

<sup>28</sup> 同上註。  
Ibid.

<sup>29</sup> 同上註。  
Ibid.

<sup>30</sup> （清）慶桂等編：《國朝宮史續編》（《四庫全書》本），卷十六，〈典禮十·盛典〉。  
Qinggui et al, eds., *Guochou Gongshi Xubian* (Version of *Siku Quanshu*), Vol. 16.

<sup>31</sup> 《清實錄·仁宗睿皇帝實錄（一）》（北京：中華書局，1986），第二十八冊，卷三十七，頁 406。  
*Qing Shilu: Renzong Ruihuangdi Shilu (1)* (Beijing: Zhonghua Book Company, 1986), Vol. 37, Book 28, 406.

<sup>32</sup> 同註 26。  
See Note 26.



# 香港歷史博物館 HONG KONG MUSEUM OF HISTORY

香港歷史博物館是收藏香港歷史文物的主要機構，肩負搜集、研究和記錄香港歷史及文化的責任。博物館透過香港的獨特故事啟發思考，觸動心靈，並舉辦中外歷史的展覽，以擴闊觀眾視野。

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# 「恐龍夜派對」親子 留宿活動個案研究

## "A Night with Dinosaurs" Family Sleepover Programme – A Case Study

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### 概要

特備節目「恐龍夜派對」是一個為配合大型專題展覽「巨龍傳奇」而籌辦的家庭活動，讓大人和小朋友入夜後於展覽廳內與恐龍共處，探索恐龍世界，獲得非一般的奇趣體驗。節目藉著各式各樣的教育活動，由互動劇場、睡前故事，以至挑戰遊戲、恐龍工作坊、流動天象廳和手工藝製作工作坊等，令參加者從多角度認識恐龍的不同面貌，更於午夜迎來最精采的高潮時刻，當一家大小躺在地氈上，在恐龍腳下仰望這巨型生物時，「與龍同眠」這種滋味更是難忘。這個節目深受參加者歡迎，據調查顯示，90% 參加者對節目感到滿意，認為節目符合期望的更達至 100%。

### 節目內容

香港科學館由 2013 年底至 2014 年初舉辦了「巨龍傳奇」展覽，整個展覽佔地 2,500 平方米，共有四個不同主題的展區——帶領觀眾穿越時空回到恐龍時代的大型多媒體劇場；介紹恐龍飲食習性的機械動樂園；了解古生物學家艱辛的發掘和修復工作的化石發掘場；以及網羅了超過 120 件珍貴化石標本及展品以展示恐龍最新發現的化石展示區。在眾多化石當中，更包括身長 30 米，屬於

### Abstract

Tying in with the mega exhibition “Legends of the Giant Dinosaurs”, “A Night with Dinosaurs” was a family programme that provided participants a unique experience of staying amid a large number of dinosaurs in the museum gallery throughout the night to explore the world of dinosaurs. Participants took part in a variety of educational activities, from affective dramas and storytelling to dynamic and challenging games, investigative workshops, immersive planetarium demonstration, and artistic handicraft making, learning different aspects of dinosaurs in multiple dimensions. The programme climaxed at midnight when family groups laid on their floor mats by the feet of the dinosaurs, looking up at the gigantic animals and getting to sleep. The programme was well received by the participants, resulting in over 90% satisfaction and 100% meeting the respondents’ expectation according to the evaluative survey.

### The Programme

From late 2013 to early 2014, the Hong Kong Science Museum organised an exhibition called “Legends of the Giant Dinosaurs”, which occupied an area of 2,500 square metres. The exhibition covered four areas with different themes: a large-scale multimedia theatre bringing visitors back to the age of dinosaurs, the animatronic dinosaur zoo introducing the eating behaviour of dinosaurs, the reconstructed fossil excavation site helping participants appreciate the hard work of paleontologists, and a fossil gallery housing more than 120 precious fossils and exhibits

# 巨龍傳奇

1 節目資料單張  
Handout of the programme



全亞洲最巨型恐龍之一的炳靈大夏巨龍；以及擁有巨大椎骨，可能是世界上最大的恐龍巨型汝陽龍；其他化石展品還包括鳥類的祖先顧氏小盜龍、三角龍、暴龍、劍龍及恐龍蛋等。

香港科學館為這個展覽舉辦了一連串的教育活動，例如互動劇場、講座、工作坊、趣味實驗班、科學示範和科學電影等，當中包括備受大眾關注，首次在科學館舉辦的親子留宿活動「恐龍夜派對」。當節目推出時，吸引了傳媒廣泛報道，以至及後的報名情況和節目進行期間，都獲得大量媒體關注和報道。市民的反應亦相當熱烈，紛紛查詢活動詳情。大會合共收到 1,600 個申請，超額報名高達 11 倍，反應遠超預期。

這個節目主要為 9 歲至 11 歲的兒童而設，每名兒童可以由一名年滿 18 歲的成人陪同參與。節目合共舉行了四次，每次有 36 個家庭參加，合共 288 名參加者。整個節目包括十項教育活動，讓參加者從不同角度學習相關知識<sup>1</sup>。每個參與節目的家庭須繳付港幣 304 元費用。

for demonstration of the latest discoveries of dinosaurs. There was a rich array of fossils, such as the 30-metre-long *Daxiatitan binglingi*, which was one of the largest dinosaurs in Asia; the huge backbones of *Ruyangosaurus giganteus*, which might be the largest dinosaur in the world and *Microraptor gui*, which was the ancestor of birds. Other fossils included *Triceratops*, *Tyrannosaurs*, *Stegosaurus* and dinosaur eggs.

The Science Museum also organised a series of educational programmes tying in with the exhibition, including interactive shows, lectures, workshops, fun science classes, demonstrations and film shows. Among these was the first-ever family sleepover programme organised by the Science Museum, “A Night with Dinosaurs”, which drew much public attention. When it was launched, the programme attracted extensive media coverage for a period of time and led to follow-up reporting after the signing-up period and even during the operation. The public response was overwhelming and there were lots of inquiries about the programme. By the time the signing-up ended, 1,600 applications had been received and the programme was 11 times oversubscribed, far exceeding the expectation.

The programme aimed at children aged between nine and 11, each child could be accompanied by an adult aged 18 or above. The programme covered four sessions with identical content, each session served 36 families, totalling 288 participants. Each session comprised ten educational activities, stimulating participants to learn from different perspectives<sup>1</sup>. The programme was charged at HK\$304 per family.



2 表演者的趣怪造型為科學互動劇場增添不少娛樂氣氛  
Actors in funny costumes brought a joyful atmosphere to the interactive show

### 教育活動與學習體驗

香港科學館自 1991 年 4 月開幕以來，致力成為一個科技活動教育中心，推動香港的科普文化。因此，節目和服務的教育元素便成為了科學館工作的核心價值。

「恐龍夜派對」節目網羅了一連串精采活動，讓參加者透過多重感官刺激，從多角度獲享學習體驗。活動包羅萬有，包括透過情感學習的互動劇場、睡前故事、充滿活力的挑戰遊戲、益智工作坊、如親歷其境的天象儀示範，甚至是手工藝創作。對於參加者來說，每項活動都各具特色及吸引賣點，在參與整個節目的過程中，皆能得到新奇體驗。

節目共設有十項教育活動，首項名為「穿越恐龍世紀」的科學劇場，講述一名小女孩與她的家人回到過去，認識肉食性及草食性恐龍。這個特別為親子留宿活動而度身訂造的互動劇場，由一群資深的藝術工作者策劃和演出，不但為節目增添多元化色彩，還讓參加者透過情意學習模式，加深對恐龍的認識及提升學習氣氛<sup>2</sup>。

### Educational Activities and the Learning Experience

Since its opening in April 1991, the Science Museum has committed to positioning itself as an informal education centre focusing on science and technology, with an aim to popularise the science knowledge and foster a vibrant science culture in Hong Kong. As such, the core value of the business lies in the education content of all our programmes and services.

"A Night with Dinosaur" embraced a wide spectrum of activities, providing a learning experience in different dimensions and stimulating various senses of participants. It ranged from affective learning in dramas and storytelling to dynamic and challenging games, intellectual investigative workshops, immersive experiential planetarium demonstration and even artistic handicraft making. Each activity had its unique characteristics and attraction to draw participants' attention, enriching the programme with novelty throughout the whole period.

The programme comprised ten educational activities. The first activity was "Back to the Dinosaur World", a Science Drama which showed how a kid learnt about carnivorous and herbivorous dinosaurs when she travelled through time with her family. This was an interactive drama specially developed for the sleepover programme and presented by an experienced arts group. Not only did the tailor-made drama enliven the programme with diversity, but also helped participants know more about dinosaurs through affective learning and cultivated an interesting learning atmosphere<sup>2</sup>.

接著，參加者加入導賞團，進入「巨龍傳奇」展覽場地參觀，學習恐龍及古生物學知識。導賞團介紹展覽內的重點展品及不同展區的主題。由於挑戰遊戲緊接導賞團舉行，因此這部分亦兼備讓參加者熟習遊戲挑戰站位置的作用。此外，參加者亦獲派發展覽平面圖，作為挑戰遊戲的尋寶地圖。

挑戰遊戲充分利用「巨龍傳奇」的展品設計出各項挑戰任務，為親子留宿活動帶來高潮時刻。參加者需要運用他們的觀察力和分析能力，合力解決不同的挑戰難題，包括恐龍的分類方法、飲食習慣、牙齒結構、古生物學、蛋群及繁殖知識等，藉以透過體驗遊戲強化學到的知識<sup>3 4</sup>。遊戲進行期間參加者被分為六組，每組包括六個家庭，並被指派到位於不同展區內的六個挑戰站之一開始遊戲。在某個挑戰站完成指定任務後，便會獲得一個數字或運算符號，之後移師到下一個挑戰站繼續進行遊戲。當順利完成六項任務後，便可挑戰終極挑戰站的任務，利用之前收集到的數字和運算符號，計算出符合大會現場公布的特定範圍內的數值。如果手上的數字和運算符號未能計算出所需數值，該組別可

Then participants joined a Guided Tour in the "Legends of the Giant Dinosaurs" exhibition to learn directly the science of dinosaurs and palaeontology. The guided tour introduced the highlighted exhibits and the themes of different zones. The guided tour was quickly followed by a treasure hunt game, so it also served as an orientation for participants to familiarise with the checkpoints of the game. A floor plan showing the zoning of the exhibition was also given to participants as a map for their treasure hunting.

Treasure Hunt Game, which was the climax of the sleepover programme, made excellent use of the exhibits of the "Legends of the Giant Dinosaurs" exhibition. Participants were challenged to work together to exercise their observation skills and analytical power to solve problems about various aspects of dinosaurs, such as classification, diet and dentition, palaeontology, egg clusters and reproduction. Their learning was strengthened through the experiential game<sup>3 4</sup>. In the game, participants were divided into six groups, each with six families. Each group started the game at one of the six checkpoints at different zones. Upon completion of a task required for a particular checkpoint, the group was awarded a number or an arithmetic operator. Then they moved on to the next checkpoint to continue the game. Until all the six tasks were accomplished, the group would be eligible to challenge the final checkpoint where group members were required to use all the numbers and arithmetic operators collected to figure out a numeric calculation with the resulting value falling



3 挑戰遊戲中參加者合力尋找答案  
Participants cooperated to find out answers in the Challenge Game



4 參加者都全情投入，在展品間不停跑動尋找答案。  
Participants were running around the exhibits to look for answers



5 參加者合力闖關希望贏取獎項  
Participants tackled the challenge together, hoping to win the prize

進行附加遊戲，獲勝後可以選擇更換一個數字或運算符號。於最短時間內完成合共七個任務的組別便成為贏家並獲得獎品。這個遊戲的精髓在於富挑戰性的任務、團隊合作精神，以及教育性和娛樂性兼備的內容 5。

第四至第六個活動安排同時進行，參加者被分成三組輪流參與，其中特設的科學示範，引導參加者進行恐龍骨骼的調查研究，以及認識恐龍的體型大小如何影響牠們的步態。在立體恐龍模型製作工作坊，參加者開首先進行搶答遊戲，以鞏固所學習到的知識 6。每組家庭獲分派一套紙製模切恐龍模型組合，家長和小朋友須合力完成製作一具立體恐龍模型，兒童可發揮自己的想像力及創作力為恐龍模型上色。此外，大會向參加者提供一個有趣秘技，透過智能電話相機觀看立體恐龍模型時，無論鏡頭移動到哪兒，恐龍都會與他們保持眼神接觸。另一項活動流動天象廳，參加者重投史前世界，認識星體如何隨著時間而轉變。香港太空館同事引領觀眾在模擬的史前世界夜空下，穿梭宇宙探索深空天體，並從外太空觀賞銀河系。

在親子留宿活動中，大會在參加者臨睡前帶來「館長與你說故事」環節，讓他們再次體驗情意學習。各館長在每次節目內說一些睡前故事，內容包羅萬有，從恐龍化石的形成到恐龍的進化歷程。小朋友可發問與故事相關的問題，館長們現場逐一解答，藉此與小朋友進行互動交流，提高他們對學習恐龍知識的興趣。



6 家長與子女一起參與恐龍工作坊製作立體紙恐龍  
Families joined a workshop to make a 3D paper dinosaur

into a specific range announced on site. If the numbers and arithmetic operators could not produce the required value, the group could play an additional game to win a chance to exchange a number or an arithmetic operator. The group which successfully completed all the seven tasks in the shortest time was announced the winner and awarded gifts. The essences of this game were the challenging nature of the tasks, the spirit of teamwork, and the educational yet entertaining content 5.

The fourth, fifth and sixth activities were run in parallel where three groups of participants took turns to enjoy each of them. The specially developed Science Demonstration guided participants through an investigative study on the skeleton of dinosaurs and how a dinosaur's body size affected its gait. In the 3D Dinosaur Model Making Workshop, participants were first challenged with a quiz to consolidate their learning 6. Then a die-cut paper dinosaur model kit was distributed to each family group for the parents and their children to make a 3D dinosaur together. Children were encouraged to paint the dinosaur model with their imagination and creativity. A tricky technique was taught to participants that if they viewed the 3D dinosaur through their smartphone cameras, the dinosaur would keep looking at them while they were moving around. In the Portable Planetarium, participants immersed themselves in the prehistoric world to understand how constellations changed through ages. The colleagues of the Hong Kong Space Museum introduced the simulated night sky in the prehistoric world and took the audience to the deep space to see the galaxy from the outer space.

Before participants went to sleep, Bedtime Stories by Curators were delivered to them for their affective learning once again. The bedtime stories were told by individual curators in different sessions with contents ranging from the formation of dinosaur fossils to the evolution of dinosaurs. The curators interacted with the children and answered their questions about the stories, elevating their interests in understanding dinosaurs.

一般情況下，純粹讓參加者睡覺實在難以作為博物館的一項活動，但如果參加者與恐龍同眠，睡在巨型恐龍旁邊，感受非一般的奇趣體驗，這個環節便成為整個親子留宿活動中最重要的部分 7。為鼓勵參加者投入體驗學習，每人更獲派一支電筒，在不騷擾他人睡覺的情況下，可以在漆黑的空間內四處探索。

翌日早上，參加者參與趣味實驗班，從沙丘中挖掘恐龍化石模型碎片，然後組合成一具完整的恐龍骨骼。大會安排兒童分成小組，讓他們探究所重組的恐龍品種，然後在班內與其他參加者分享探究成果。這個活動讓他們進一步增進恐龍知識，以及古生物學的研究技巧。

最後一項活動為手工藝製作工作坊，參加者可自製恐龍印章、從藝術角度欣賞恐龍的不同面貌，並可將印章帶回家中留念。

本節目的各項活動均經過精心安排，讓參加者每參與一項活動，學習了一些與恐龍有關的科學及古生物學知識後，透過下一項活動鞏固所學到的知識。在節目臨近尾聲時，大會更鼓勵參加者透過挖掘、重組及分析，自行為所發掘到的恐龍品種進行調查，以增進古生物學的研究技巧。除此之外，所有活動都包含一個重要的共同元素，就是趣味和歡樂，讓參加者獲得愉快和成效高的學習體驗。

In general, sleeping itself can hardly be regarded as an activity of a museum, but Sleeping beside Dinosaurs, especially next to the gigantic dinosaurs, was such a unique and fascinating experience that it became the most significant part of the entire sleepover programme 7. To encourage experiential learning, participants were even provided with torches and allowed to venture around and explore the world of dinosaurs by themselves, as long as they did not disturb others who would like to sleep.

Next morning, participants joined a Fun Science Experiment to excavate pieces of dinosaur fossil models from a sand dune and assemble a complete dinosaur skeleton. Children worked in groups to research on the type of dinosaurs reconstructed and present their findings to other participants in the class, further consolidating their knowledge about dinosaurs and research skills in the area of palaeontology.

In the last activity, Handicraft Souvenir Workshop, through designing their own dinosaur stamps, participants appreciated different appearances of dinosaurs artistically and carried home the souvenirs with memories.

Individual activities were so arranged that after acquiring some scientific knowledge about dinosaurs and palaeontology in an activity, participants were able to consolidate their learning in a subsequent activity. At the end of the programme, they were even encouraged to do their own investigation by digging, reconstructing, analysing their own dinosaurs to consolidate their investigative skills in palaeontology. Apart from this, all activities were incorporated with a crucial element—interesting and fun, making the learning experience enjoyable and effective.



7 參加者在恐龍展示區準備就寢  
Participants were preparing to stay overnight in the museum amid dinosaur exhibits

## 定價

本節目向每個參與家庭收取港幣 304 元，乃根據部門核准收費及成本回收率的指引而訂定。雖然是次收費為香港科學館開館以來的最高金額，但市場上同類型的親子留宿活動的一般收費為港幣 1,000 元以上，相比之下，「恐龍夜派對」的收費較為相宜。

## 營運的考慮事項及活動預演

在舉行本節目時，除了核心部分的教育活動外，香港科學館還有不少後勤及營運的安排需要考量。

基於親子留宿活動的性質有別於一般活動，當中每項活動的目的和名額都各有不同，無論是參與活動的人流、參加者的精神和身體狀況、可用空間及一般參觀者與活動參加者的分流處理等都經過審慎規劃。為了減少對科學館一般入場人士的影響，是次節目中須在展覽廳進行的活動都設定於周五晚上七時閉館後才舉行，而實驗室及課堂活動則安排於周六早上九時半至十一時半進行。首個活動「科學劇場」是一個包含魔術玩意的互動劇場，參加者可以在輕鬆的氣氛下互相認識，為接下來的分組活動作好準備。接著舉行的導覽活動，讓參加者熟習展覽廳的各個展區分佈後，隨即參與既緊張刺激又消耗體力的挑戰遊戲，遊戲結束後大會安排了小休，讓他們補充體力。緊接的三項活動：科學示範、立體恐龍模型製作工作坊和流動天象廳同時進行，參加者以小組形式輪流參與三項活動以獲得更深入的學習體驗。當參加者準備好睡袋和地氈後，大會安排睡前故事環節，這個活動特意安排於化石展示區的入口處進行，讓炳靈大夏巨龍自然地成為活動背景<sup>8</sup>。最後，節目以趣味實驗班作結，參加者進一步鞏固他們的恐龍知識，並於手工藝製作工作坊創作屬於自己的恐龍印章，帶回家作為留念。

除了內容豐富及娛樂性兼備的教育活動外，其他支援事項如儲物及梳洗設施，均會影響參加者對節目的滿意度。由於參加者需要在科學館留宿一夜，他們一般會帶備很多日用品，例如牙刷、毛巾、睡衣等。在節目開始前，大會先安排他們存放隨身行李，以便放鬆心情投入活動；而入睡前，他們可以取回

## Pricing

The programme was charged a fee of HK\$304, which was set according to the guideline of approved limit and recovery rate but is the highest one ever since the opening of the Science Museum. An analysis was made to compare the price of the programme with that of other sleepover programmes available in the market. It revealed that “A Night with Dinosaurs” was moderately priced compared to the usual charge of over HK\$1,000.

## Operation Considerations and Trial Run

Besides the core part of educational activities, there were a lot of logistics and operation considerations in executing the programme.

Because of the special nature of the sleepover programme and a host of activities with different objectives and capacities, all activities were carefully scheduled with thorough consideration on the flow of participants, their emotional and physical condition, as well as the availability of space and separation of participants from ordinary visitors and so. To minimise the influence on ordinary museum visitors, activities that required accessing the exhibition galleries were scheduled on Friday night after 7:00 pm when the Museum was closed, and the Laboratory and Classroom activities were arranged on Saturday morning from 9:30 am to 11:30 am. The first activity, a Science Drama, was an interactive one with magical tricks. Participants were motivated to get acquainted with each other in a relaxed atmosphere and prepare themselves for the remaining activities that required teamwork. Coming after was the Guided Tour which helped participants familiarise with different locations of the exhibition hall. Next came the exciting and exhausting Treasure Hunt Game, which was followed by a break when participants could take a rest and have some snacks. The next three activities, the Science Demonstration, the 3D Dinosaur Model Making Workshop and the Portable Planetarium were run in parallel by rotation so that all participants could gain more in-depth experience in a smaller group. The Bedtime Stories were delivered after participants had settled their bags and mats. It was done right at the entrance of the fossil gallery with the *Daxiatitan binglingi* serving as the backdrop naturally<sup>8</sup>. Finally, the programme was wrapped up with the Fun Science Experiment where participants could consolidate their learning and make themselves a dinosaur stamp to take home in the Handicraft Souvenir Workshop.

Apart from the rich and entertaining education content of the programme, other supports such as provision of storage and cleaning facilities were also the factors affecting participant satisfaction. As participants were to stay overnight in the Museum, it was understandable that they would have quite a lot of stuff carried with them such as



<sup>8</sup> 參加者在炳靈大夏巨龍前合照留念  
Participants took photos in front of the skeleton of *Daxiatitan binglingi*

個人盥洗用品，以準備梳洗就寢。有關個人衛生問題，要同時安排 72 人刷牙及梳洗，情況會非常忙亂。由於科學館沒有浴室設備，洗手間亦零散分佈於各層展覽廳，而設計上也不能同時容納大量人士同時使用；再加上個人日常清潔如刷牙、洗臉及更衣均相當費時，如遇上有父親帶同女兒或母親帶同兒子參加，在男女洗手間分配方面更需要悉心編排。針對洗手間的有限空間及零散分佈的位置，我們設定了分組及指引措施，在可用性和方便性之間取得平衡，將 36 個家庭分配到不同洗手間，讓他們進行梳洗。我們亦考慮到部分參加者入睡前或想吃點小食，現場提供熱水，以便他們吃杯麵之用。翌日早上，大會亦提供了不同款式的三文治及飲品作為早餐輕食。

由於科學館首次舉辦留宿活動，尤其在短時間內安排 36 個家庭 72 名參加者進行各類型緊湊活動，我們都是基於判斷設定活動場地、活動進行時間、後勤及人手安排，特別是挑戰遊戲、留宿場地及各項活動之間轉移場地的過渡時間。我們針對各類事項，由人手調配到個別活動的後勤支援，嘗試構思詳盡及可行的計劃。由於各項活動由不同組別的員工負責及執行，我們舉行了多次工作會議，以協助參與的員工了解他們的職責及工作範圍。即使有周詳計劃，但考慮到活動的複雜性和涉及大量參加者，容易出現一些未能預見的問題，我們決定進行預演，以預先找出所有問題，並確保節目能順利進行、入場人士能保持秩序參與活動，以及在空間和後勤安排方面能獲得妥善處理。預演完畢後，我們收集了各方意見，令節目更趨完善。

toothbrushes, towels, pajamas and so. They were allowed to check in their bags at the start of the programme so that they could enjoy the activities without burdens. At night, they could also check out their belongings when it was time for cleaning up before bed. As for the cleaning issue, it would definitely be hectic for 72 people to brush their teeth and clean up at the same time in a museum where there is no such provision. The Museum is not equipped with shower rooms. The washrooms are scattered in the exhibition halls on different levels and they are not built to accommodate a large number of visitors at the same time. Personal care routines such as brushing teeth, washing face and changing clothes are very time-consuming. There was also a gender-related issue when it came to the choice of washrooms, for some participants might be a combination of a father and a daughter or a mother and a son. With the limited size and diverse locations of the washrooms, we had to devise a grouping and guiding system to take the 36 families to different washrooms with a balance of accessibility and convenience. Consideration was also made about the participants' need of having some snacks before bed. Hot water was provided in case they would like to have cup noodles. Next morning, light breakfast with different choices of sandwiches and drinks were also provided.

As it was the first time the Museum organised a sleepover programme, we had no experience in managing 36 families 72 people taking part in various types of activities packed in such a short period of time. As such, we based on our estimation to work out plans on the setup of venues, activity running time, logistics and manpower, especially the Treasure Hunt Game, the sleeping area and the time required for the transition between activities involving changing venues. We tried to work out detailed and viable plans for the programme in terms of different aspects from manpower planning to logistics of individual activities. Since the activities were managed and operated by the staff from different teams and backgrounds, many operation meetings were held to help the involved parties understand their duties and responsibilities. Even so, considering the complexity of the programme and a large number of participants interacting together, it is not uncommon to see

預演活動邀請了 30 名以家庭為組別的參加者，但年齡沒有嚴格限制。預演非常重要，不但讓我們找到後勤安排的不足，還讓我們微調節目內容以提升質素。預演活動完畢後，發現有不少活動都出現超時和出現意料之外的情況，於是我們大幅修改原有計劃，增加及重新調配人手，以解決在預演時遇到的問題：為免參加者在挑戰遊戲時未能清楚區分各展區邊界，在地板上加上分界線；重新調配導賞員以縮減設立睡眠區的時間；設定分組及時間表，指引參加者有秩序地使用各樓層的洗手間。這些改變均令整個活動進行得更為暢順，亦是促使親子留宿活動能成功舉行的的重要因素。

到了晚間活動，由於有 72 名參加者會於科學館內留宿，我們最關注他們睡眠時是否安全和舒適，這方面也是進行預演活動的原因之一——體驗參加者在活動現場的經歷和感受。另一方面，考慮到晚上或會發生緊急事故或參加者需要協助，我們增設額外人手駐守於留宿現場以作支援。留守員工身處在場地的顯眼位置，好讓參加者知道有大會員工在場留守，並可在有需要時向他們尋求協助。技術及運作部門的員工在活動舉行期間隨時候命，確保展品正常運作，以及睡眠區的溫度適中。

#### 與參加者連繫溝通

節目推出時，備受傳媒和大眾關注，報名人數超額高達 11 倍，亦有不少市民查詢節目詳情，如此熱烈的反應代表了他們對節目寄予很高的期望。為掌握參加者的期望及讓他們了解活動詳情，我們舉行了一個節目簡介會，讓科學館職員與參加者進行面談。此外，有些家長或因事未能抽空出席簡介會，我們將簡介會的錄影視頻和答問環節內容上載到科學館網站，讓他們可隨時瀏覽。

在簡介會中，我們介紹了節目流程及各項活動的舉行場地，並將資料製成單張派發給所有參加者；亦清晰講解了活動期間的行李存放安排、個人盥洗設備、留宿場地及設置、睡眠區的緊急出口及晚間支援服務等，讓他們了解整體安排。除了幾位參加者的情況需要特別處理外，大部分參加者都關注留宿安排，例如睡眠位置的選擇、地蓆種類及大小，可否自備帳篷、家長未

unforeseen circumstances during the operation process. Therefore, we decided to carry out a trial run to help spot all problems in advance and to ensure that the programme would be smooth, visitor flows would be in order, the spatial and logistic arrangement would be manageable. After that, we consolidated comments and refined the programme.

The trial run was conducted with about 30 participants who were also in family groups but under a looser age restriction. Later it was found not only helpful in identifying logistic loopholes, but also fine-tuning the programme. It turned out there were so many things being out of our estimation and expectation. We modified the original plan a lot to cope with the problems found from the trial run. We increased and redeployed manpower. To help reduce confusion, we marked physically on the floor to demarcate different zones for the Treasure Hunt Game instead of drawing a floor layout plan. We reassigned docents to help set up the sleeping area in order to speed up the process. A grouping and scheduling scheme was devised to direct participants to washrooms on different levels systematically. All these changes streamlined the operation and were crucial to the success of the sleepover programme.

At night, 72 participants would be sleeping in the Museum, thus their comfort and safety became our prime concerns. That was also one of the reasons for the trial run – experience what participants would experience to get to know how they feel. To play safe in case of emergency or any need for help from participants during the nighttime, additional manpower was deployed to stay with participants throughout the night. The staff were positioned at prominent positions so that participants knew they were not alone and from whom they could seek help when in need. Staff members of technical and operation teams were also on standby throughout the programme to ensure the normal operation of exhibits and to maintain an optimal temperature in the sleeping area.

#### Bridging with Participants

When the programme was launched, it drew much media attention and was well received by the public. It was 11 times oversubscribed and there were lots of inquiries about the programmes. Such an overwhelming response hinted a high expectation to the programme. To bridge the expectation gap, if any, we decided to hold a briefing session for the programme. This was also an opportunity of face-to-face communication between the museum personnel and participants about the details, including dos and don'ts, of such complicated programme. In addition, to cater for some busy parents who might not be able to attend the briefing session, videos, questions and answers regarding the briefing were uploaded to the Museum website for easy reference.

能準時到達的安排等。簡介會有效地讓我們詳盡了解參加者的需求，更可為不同人士的需要預早作好準備。

#### 參加者反應

我們進行了一項問卷調查評估本節目的成效，從 141 個參與家庭當中，合共收取了 132 份問卷，當中超過 90% 參加者對於節目的預備工作、籌劃及安排感到滿意或非常滿意；認為節目有趣或非常有趣的人士高達 90%；有 97% 人士認為節目增進了他們對恐龍的認識；而認為節目符合他們期望的人士更達到 100%。

除此之外，公眾透過不同媒體表達對本節目的讚賞，有參加者在 Facebook 撰寫心聲，感謝科學館職員的誠懇態度和努力付出。亦有參加者表示透過本節目的各項遊戲增長了知識，並激發他們對恐龍和科學的興趣。此外，香港經濟日報專欄作家亦分享了他與兒子參與本節目的體驗，孩子在晚上拿着小電筒自由地在恐龍群當中探索，感到無比雀躍；他指「這次留宿創舉，館方需要極大的勇氣和承擔，負責人員也是竭盡心思編排各項活動，務求成為孩子難忘的回憶」。他總結「恐龍夜派對」是一個用錢也不能買到的機會，讓孩子置身獨一無二的環境下近距離認識恐龍化石。(〈與龍同眠〉《香港經濟日報》，2014.1.22，頁 C9)

In the briefing session, the programme rundown and the exact locations of various activities were introduced. Handouts were distributed to all participants beforehand. In addition, various aspects covering luggage storage, personal cleaning, location and setup for sleeping, emergency exits in the sleeping area and recourse at night were clearly explained to help participants understand the overall arrangements. It turned out the briefing was very useful for us to understand the needs of participants. Apart from a few participants whose condition would need special attention, most participants focused more on the bed-down arrangement, like the choice of location, the kind of floor mat available and its size, whether a portable tent was allowed, what if parents could not arrive on time, and so. It ended up with no expectation gap. The briefing even allowed us to know individual needs in advance so that we could prepare to meet their needs more effectively.

#### Public Response

A questionnaire survey was conducted to evaluate the outcome of the programme. A total of 132 questionnaires were collected from 141 participating families. Over 90% of the respondents were satisfied or very satisfied with the preparation, organisation and arrangement of the programme. Up to 90% rated the programme interesting or very interesting. Among the respondents, 97% expressed that the programme had broadened their knowledge of dinosaurs and 100% reflected that the programme had fulfilled their expectation.

Besides, the programme was commended by the public in different media. There were messages in Facebook showing appreciation to the museum staff for their efforts and sincere attitude. Some participants stated that they had learnt through the games and the programmes did arouse their interests in dinosaurs and science. What's more, in the Hong Kong Economic Times, a columnist reported his experience with his son in the programme. Not only did he find his son so excited venturing among the dinosaurs in the dark with a little torch, he also appreciated that such an innovative programme called for courage and commitment from the museum staff and their earnest efforts in arranging various activities for kids to build up a memorable experience. He concluded that "A Night with Dinosaurs" was an opportunity for kids to learn about dinosaurs in a unique environment and such experience could not be purchased with money (Hong Kong Economic Times, 22 January 2014, C9).

# 香港科學館 HONG KONG SCIENCE MUSEUM

香港科學館是一個探尋科學知識的好地方，館內陳列豐富而有趣的互動展品，鼓勵大眾親身體驗，學習科學知識和認識科技發展在社會上的應用。展館題材廣泛，包括磁與電、生命科學、運輸、電訊、食品科學、家居科技等，其中全新開放的生物多樣性展廳及兒童天地，更為參觀者帶來全新的參觀體驗。

Hong Kong Science Museum is a fun place for learning science. It houses a number of engaging interactive exhibits, aiming to arouse curiosity and inspire interest in science by providing fun and hands-on learning experiences. The museum's galleries cover a wide range of topics including electricity and magnetism, life sciences, transportation, telecommunication, food science, energy, biodiversity, health and home technology, among others. The newly opened Biodiversity Gallery and Children's Gallery provide an entirely new exciting experience for visitors.

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