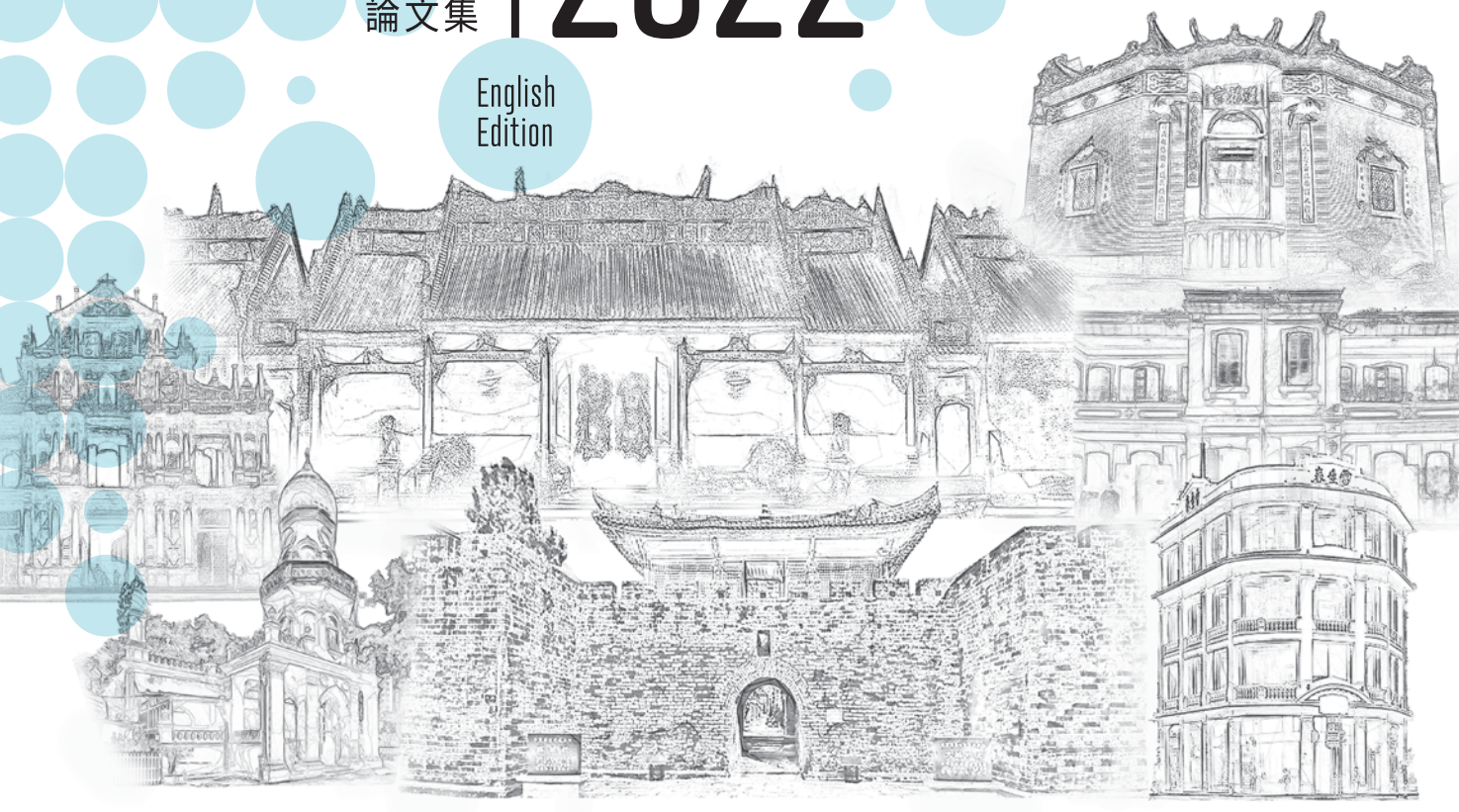
25th 周年紀念 ANNIVERSARY

Collected Essays of

The Greater Bay Area Built Heritage Summit 2022

大灣區
文物建築高峯論壇
論文集

English Edition



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The Greater Bay Area Built Heritage Summit 2022

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English Edition

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Message

It is a pleasure to welcome you to the inaugural Greater Bay Area Built Heritage Summit.

Built heritage bears testimony to history, culture and citizens' collective memories that are essential for the construction and inheritance of cultural identity. The architectural style, construction techniques, use, etc. of built heritage are influenced by factors such as traditions, culture, religions and the environment. The cities of Guangdong-Hong Kong-Macao Greater Bay Area (GBA), which fall within the cultural ambit of the Lingnan region, share the same origins. Many historic buildings in the GBA hence reflect the characteristics of Lingnan culture and tell the history of the Lingnan region.

Hong Kong, while located in the GBA, has developed along a distinctive path amalgamating Chinese and Western cultures. Our culture is inseparable from that of the Mainland on the one hand and, on the other, Hong Kong has been a converging point for Chinese and Western cultures in modern times. It is, therefore, not difficult to find heritage structures along streets and lanes that bear distinctive Chinese, Western or mixed features. These structures are still extremely vibrant and form part of the indispensable cultural heritage that constitutes part of our life and the unique history of our city.

My Government is committed to conserving and promoting cultural heritage. The Commissioner for Heritage's Office and the Antiquities and Monuments Office under the Development Bureau are responsible for the conservation, revitalisation, education, publicity, etc. of built heritage, in a bid to pass down the cultural treasures of Hong Kong to future generations and tell the story of Hong Kong in the best way.

The Summit is part of our effort to promote all-round exchange and collaboration of built heritage in the GBA. It focuses on conservation and revitalisation, application of new technologies, heritage education and promotion, community engagement, academic research, personnel training and exchange, and the development of cultural and creative products. While the Summit will certainly open up more opportunities for future collaboration among the GBA cities, greater degree of integration is also expected to better leverage the advantages of each place.

My thanks to the National Cultural Heritage Administration, the Department of Culture and Tourism of Guangdong Province, the Cultural Affairs Bureau of the Macao Special Administrative Region Government, museums and cultural organisations in the GBA, and the Hong Kong Jockey Club, for their strong support in making the Summit possible. I believe Hong Kong will continue to capitalise on our strengths and contribute our best to promote concerted cultural development in the GBA.

John KC LEE
Chief Executive
Hong Kong Special Administrative Region

Message

In *Our Nation's Great Architectural Traditions and Heritage*, Mr. Liang Sicheng praises Chinese architecture as "the most ancient and enduring architectural system with the highest vitality", since ancient Chinese architecture represents "our history, our arts and the glorious culture of our nation". He points out that "we should cherish and protect the fine traditions of our architecture in order to facilitate new creations that embrace Chinese traditions." Today, I am glad to hear and greatly appreciate that the first Guangdong-Hong Kong-Macao Greater Bay Area Built Heritage Summit will be held in Hong Kong and would like to share some of my thoughts.

My first thought is about the perseverance of heritage conservation practitioners. In 2002 when President Xi Jinping was Governor of Fujian Province, he pointed out in the preface to *Fuzhou Historic Houses* that "ancient buildings are not only a combination of science, culture, knowledge and art, but also a carrier of history", and that "protecting ancient buildings and cultural relics is like preserving history, urban fabrics, and the fine and intangible traditions of famous historical and cultural cities". In recent years, the Mainland has steadily taken forward major conservation projects for built heritage and its public access and use and launched pilot preventive conservation projects, making active efforts to preserve the historical roots and legacies in urban and rural areas. This Summit sheds lights on the conservation and adaptive reuse of built heritage, discusses the latest technologies and pioneering concepts, facilitates an exchange of ideas on new means to better interpret cultural heritage and further explore its intricate value, and generate new ideas about how to make heritage "become alive", in order to pass on both the tangible heritage and the history and culture it represents. This marks the enduring and persistent pursuit and exploration of heritage conservation practitioners for generations.

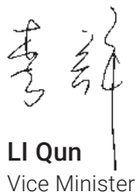
My second thought is about the unity of the Chinese nation. When celebrating the 25th anniversary of Hong Kong's return to the motherland and the 20th anniversary of Macao's return to the motherland, President Xi Jinping said with deep affection: "Hong Kong and the motherland have always been in the same boat and have shared a natural bond of affinity since ancient times"; "After Macao's return to the motherland, a vast number of Macao people firmly ranked patriotism and love for Macao first among their core values." This Summit brings together experts and scholars from the Mainland, Hong Kong, Macao and other places to discuss and learn from each other ways of jointly protecting heritage relating to Chinese culture. Over the years, the Mainland, Hong Kong and Macao have cooperated to carry out exchanges at various levels, and jointly launched international collaboration projects to pass down and promote Chinese culture, such as the conservation of the "Maritime Silk Road" and its nomination for inscription on the World Heritage List, and the "Asian Initiative for Cultural Heritage Conservation". In recent years, they have collaborated in programmes such as the "Inseparable Ties: Cohesion as Told by Hong Kong Historic Buildings" exhibition, "Promoting Cultural Heritage on Hong Kong and Macao Campuses", and other projects under the theme "Understanding History and Promoting Patriotism and Affection for Hong Kong and Macao". The aim of all of these programmes is to make a collective effort to build companionship, affection for the motherland, and a national soul among the people.

My third thought is about confidence in Chinese civilisation. President Xi Jinping once earnestly shared his views with students at Hou Kong Middle School, saying "Chinese civilisation is the only ancient civilisation that has developed until the present day without interruption. Its 5,000-year history is the source of our cultural confidence." As we review the past and think of the present, Chinese civilisation always stands firmly amidst changes in the world, with its rich history, unique charm and record of inclusiveness. It advocates and is committed to mutual learning amongst different civilisations with strong cultural confidence and a sense of responsibility. The Guangdong-Hong Kong-Macao Greater Bay Area has the most active record of conversation between the Chinese civilisation and other civilisations of the world. As depicted in the *Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area* and the "Fourteenth Five-Year Plan", efforts will be made to forge a "Cultured Bay Area", with Hong Kong as "an East-meets-West centre for international cultural exchange" and Macao as "a base for exchange and cooperation in which Chinese culture is the mainstream with diverse cultures coexisting". Therefore, the Greater Bay Area will be injected with new momentum to play an even more active role in the wave of exchange between Chinese civilisation and the rest of the world.

We have witnessed and will continue to witness many milestones, such as the completion of the Hong Kong Palace Museum and the establishment of the Macao World Heritage Monitoring Centre. Therefore, we very much hope that the Greater Bay Area, with its rich heritage in Chinese history and culture, and the unique advantages of Hong Kong and Macao in global communication, will further devote itself to the prosperity of Chinese civilisation, display cultural confidence, and facilitate global conversations.

As heritage conservation practitioners, we should demonstrate our perseverance to unite the Chinese nation and advocate confidence in Chinese civilisation. This is what I am looking forward to, and I believe it is also the common wish of all of us. I look forward to working hand in hand with all of you, using "heritage" as the carrier and "exchange and mutual learning" as the means to expand the influence of Chinese culture in the international arena and contribute to communication with other civilisations around the world in the new era!

Finally, I would extend my special thanks to HKSAR Development Bureau and its Commission for Heritage's Office and Antiquities and Monuments Office for their efforts to organise this Summit. I wish the Guangdong-Hong Kong-Macao Greater Bay Area Built Heritage Summit great success!



LI Qun
Vice Minister of Culture and Tourism
Administrator of National Cultural Heritage Administration

Message

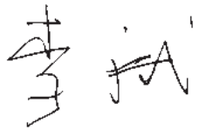
Shortly after the successful closing of the Twentieth National Congress of the Communist Party of China and during the celebration of the twenty-fifth anniversary of Hong Kong's return to the motherland, the long-awaited Greater Bay Area Built Heritage Summit is inaugurated. This summit is an important embodiment of the implementation of the *Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area* and a powerful measure to promote the conservation and utilisation of heritage in the area. On behalf of the Department of Culture and Tourism of Guangdong Province, I would like to extend my warm congratulations on the holding of the summit. I would also like to express my heartfelt thanks to the National Cultural Heritage Administration, the Development Bureau of the Hong Kong Special Administrative Region, the Cultural Affairs Bureau of the Macao Special Administrative Region, and friends from all walks of life who have long cared for and supported the cultural and tourism development of Guangdong province.

Since the implementation of the development strategy of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) more than three years ago, Guangdong, Hong Kong and Macao have entered a new stage of development in exchange and cooperation regarding culture and tourism, resulting in many fruitful outcomes. The Twentieth Greater Pearl River Delta Cultural Cooperation Meeting was successfully held, and museums in Guangdong, Hong Kong and Macao conducted in-depth exchanges and cooperation through mega exhibitions, such as "East Meets West", "Maritime Porcelain Road", "Historical Imprints of Lingnan", and "A Tale of Three Cities". In addition, more than 40 GBA Cultural Heritage Trails have been launched, and a series of training programmes and exchange activities, such as "Guangdong-Hong Kong-Macao Cultural Tours for Youth" and "One-journey, Multi-stop Tour" have been organised. Significant progress has been made in the construction of world-class tourist destinations in the GBA. With the diversified cultural activities and leisure facilities, the GBA is expected to enjoy a bright future and prospects.

According to President Xi Jinping, "As a valuable legacy from our ancestors, cultural relics reflect the brilliance of China's civilization, culture and legacy. They bond Chinese people together with the strong ethos they embody." In recent years, Guangdong has adhered to the policy of the new era for the protection of cultural relics: "Heritage protection comes first, along with strengthened management, deeper research on heritage value, and the effective use of heritage to make our cultural past come alive". As a result, our heritage resources have been effectively conserved and utilised. At present, more than 25,000 immovable cultural relics in Guangdong province have been inscribed and announced. Heritage buildings, which account for about 83% of the total number of immovable cultural relics in Guangdong province, can be put into adaptive reuse when they are redundant. We are proactively exploring new modes of utilisation of heritage buildings and vigorously promoting the use of a classification system for heritage protection and management. Historic buildings have been revitalised as parks, museums, tourist attractions, cultural and creative parks, inns, homestays, and so forth, in a series of innovative schemes. Yongqing Lane, in Guangzhou, Chaozhou Ancient City, the Port-Opening Area of Shantou Small Park, and the Cangdong Heritage Education Centre in Kaiping, Jiangmen, are all successful projects that meet the goals of conservation and utilisation.

Ladies and Gentlemen, as a Chinese poem goes, "Calm is the tide and broad are the banks. The wind is gentle and the sail is stretching." The development of the GBA has entered a brand new era. We sincerely hope that Guangdong, Hong Kong and Macao will continue to cooperate in good faith, and work together to develop a broader and more diversified mode of protection and utilisation of heritage buildings, so that the cultural heritage of the GBA will shine with unique charisma and values relevant to the present. This will help promote the inheritance and development of China's excellent traditional culture, and tell the world the fascinating story of China and the GBA.

In closing, I wish the Summit every success and a better future for the GBA! I wish you all good health and all the best!



LI Bin
Director General of the Department of Culture and Tourism of Guangdong Province

Message

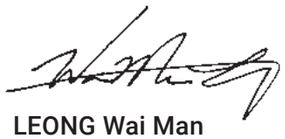
Our nation is committed to sharing and disseminating Chinese culture. In an era when promoting cultural exchange and mutual learning has become a trend, the establishment of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) is in full swing. The Development Bureau of the Government of the Hong Kong Special Administrative Region is duly hosting the Greater Bay Area Built Heritage Summit, which is dedicated to discussing the conservation, revitalisation, education, promotion of, and application of digital technologies to, heritage buildings, with the aim of fostering cross-disciplinary and cross-regional collaboration. This is of great significance for strengthening the protection and utilisation of Lingnan cultural heritage and for creating a cultural heritage preservation and generational-legacy system in the GBA. On behalf of the Cultural Affairs Bureau of the Macao Special Administrative Region Government, I would like to take this opportunity to warmly congratulate the Hong Kong Special Administrative Region on its 25th anniversary and wish the Greater Bay Area Built Heritage Summit great success!

Macao's unique history of over four centuries of international exchange has shaped today's harmonious society and its rich cultural environment. The "Historic Centre of Macao", which was inscribed as a UNESCO World Heritage Site, includes more than 600 Chinese and Western heritage buildings, which are representative of significant traditions and customs of intangible cultural heritage blending Chinese and Western cultures, bearing witness to Macao's history as a city where Chinese culture has always flourished, co-existing harmoniously with diverse cultures and manifesting the Chinese people's openness, tolerance, inclusiveness and broad-mindedness.

Therefore, in the development of the Guangdong-Hong Kong-Macao GBA, our nation has entrusted Macao with the mission of bringing to fruition "a platform for exchange and collaboration with Chinese culture as the mainstream and co-existence of diverse cultures". Based on this strategic approach to cultural development, the Cultural Affairs Bureau of Macao has actively established collaboration with its sister cities in the GBA in such fields as the promotion of World Heritage, the rehabilitation of heritage buildings, and the continuous development of cultural heritage education particularly among the young generation.

We have executed or participated in a number of related events and projects, including the Guangdong-Hong Kong-Macao GBA Culture and Art Festival, the World Cultural Heritage Carnival of the Guangdong-Hong Kong-Macao GBA, the Cultural Heritage Summer Course for Secondary School Students of the Mainland, and the Hong Kong and Macao SARs, and the Mainland, Hong Kong and Macao Symposium on the Adaptive Reuse of Historic Buildings. And now, inspired by the main theme of "the conservation of traditional Lingnan architecture", we have invited experts from Guangdong to provide training to Macao professionals. At the same time, with the aim of further fulfilling Macao's designated role as a platform for Sino-international cultural exchange, we have also been actively promoting communication and cooperation with the Cities Alliance of Maritime Silk Road Conservation and World Heritage Nomination on the Mainland, as well as with overseas cities along the Maritime Silk Road, and with World Heritage preservation organisations in Portuguese-speaking countries and throughout the world. We have also participated and organised cultural forums, and supported exchange and training opportunities focusing on World Heritage and heritage buildings, as part of Macao's designated role as "one platform" among the GBA cities.

As an integral part of the Lingnan region since ancient times, Macao and its sister cities of the GBA share the same cultural roots. Looking ahead, particularly in response to our nation's call to promote exchange and mutual learning across different civilisations, to foster closer people-to-people ties with other countries, and to expand exchanges and cooperation in the field of heritage preservation among the Belt and Road countries, Macao will make even more strenuous efforts to work with its sister cities to promote the conservation, inheritance, revitalisation and adaptive reuse of cultural heritage in the GBA, with the aspiration of making new contributions and writing a new chapter in the development of cultural heritage endeavours in this new era, thus enriching the public's understanding of Chinese civilisation and enhancing the influence of Chinese culture.



LEONG Wai Man
President of Cultural Affairs Bureau
Macao Special Administrative Region

Message

The Hong Kong Jockey Club is honoured to support the first-ever Greater Bay Area Built Heritage Summit organised by the Commissioner for Heritage's Office and the Antiquities and Monuments Office.

The Greater Bay Area has a rich history and culture and this first summit highlights the vital need to protect its built heritage. It is also the perfect opportunity to learn from the conservation projects already implemented as well as to promote cultural tourism across the Greater Bay Area.

Policymakers and industry experts will explore new strategies for heritage protection. Just as importantly the summit will engage the community, aiming to build awareness and support for conservation. An exhibition will showcase the Hong Kong's heritage while there will also be interactive sessions for students.

Committed to building a culturally vibrant city, The Hong Kong Jockey Club has long worked to preserve Hong Kong's built heritage and traditional culture.

In partnership with the HKSAR Government, The Hong Kong Jockey Club has conserved and revitalised the Central Police Station Compound as Tai Kwun – Centre for Heritage and Arts. To date Tai Kwun has received more than ten million visitors. It was also the recipient of an Award of Excellence in the 2019 UNESCO Asia-Pacific Awards for Cultural Heritage Conservation.

More recently, The Hong Kong Jockey Club funded the renovation of the "Heritage of Mei Ho House", which showcases the history of the first public housing estate in Hong Kong. And for many years the Club has supported the Tai O dragon boat water parade, the Tai Hang fire dragon dance and the Cheung Chau Jiao Festival, all of which have been inscribed onto the national list of intangible cultural heritage.

This is in addition to The Hong Kong Jockey Club's many other initiatives to support arts, culture and heritage. These include its HK$3.5 billion Charities Trust donation to construct the Hong Kong Palace Museum, and its support for a series of exhibitions and cultural events organised by the HKSAR Government to mark the 25th anniversary of the establishment of the Hong Kong Special Administrative Region.

All of this is made possible by The Hong Kong Jockey Club's unique integrated business model, through which racing and wagering generate tax and charity support for the community.

I would like to extend my sincere thanks to the HKSAR Government for initiating this summit. My thanks also to all our speakers for sharing their insights. And my best wishes to everyone for a most successful summit.

Michael T H LEE, JP
Chairman of The Hong Kong Jockey Club

Preface

The *Antiquities and Monuments Ordinance* (Cap. 53) was enacted in Hong Kong in 1976, and the Antiquities Advisory Board and the Antiquities and Monuments Office (AMO) were founded in the same year to assume responsibility for heritage conservation. In other words, Hong Kong has been on the heritage conservation journey for more than 40 years. As society develops, heritage conservation has become more complicated, covering not only history and culture, but also town planning, land administration and construction works. In addition, public awareness towards heritage conservation has also increased. Against this background, the Commissioner for Heritage's Office (CHO) was established in 2008 under the Development Bureau to review, implement and refine the policy of heritage conservation. The Advisory Committee on Built Heritage Conservation was also set up to provide professional advice on revitalisation of historic buildings.

This year marks the 25th anniversary of the establishment of the Hong Kong Special Administrative Region. The CHO and the AMO of the Development Bureau organised the first Greater Bay Area Built Heritage Summit to revisit and share experience in heritage conservation and the revitalisation of historic buildings and to build a shared platform to enhance exchanges across the region and collectively explore opportunities for future collaboration, with a view to leveraging on the strengths of the Greater Bay Area (GBA) to achieve synergy.

The location, design, space, materials, use, extension and alteration of built heritage are inseparable from their surrounding environment, users and contemporary culture and conditions. The composition and spatial order of buildings contribute to the formation of historical footprints, cultural context and collective social memories for groups, communities, and even cities and countries, providing essential elements for the creation of cultural identity. When heritage buildings have fulfilled their original mission, suitable revitalisation and adaptive reuse endows them with new life and further enriches their content and social memories to become part of the everyday life of the people in the community.

Technological advances allow breakthroughs in heritage conservation. For instance, the Geographic Information System (GIS) provides an integrative platform for historical research and heritage protection. Advanced 3D digital technologies assist in the identification, prevention and timely treatment of any inherent risks of historic buildings, the establishment of databases, and even heritage education, promotion and community participation. While new technologies are applied, it is important to accommodate the use of traditional materials and methods in a way that shows respect for the original structure and outlook of built heritage. We should, therefore, strengthen the conservation of heritage and inheritance of traditional craftsmanship to conserve the original state of historic buildings and integrate them into the modern society so as to achieve sustainable development.

This publication is a collection of 24 papers contributed by policy makers, experts and scholars for the first Greater Bay Area Built Heritage Summit. They share their experience and professional opinions in four subjects: (1) New Development in Built Heritage Conservation and Adaptive Reuse of Historic Buildings, (2) Knowledge Sharing and Public Engagement – New Strategies in Built Heritage Education, (3) Application of New Technology for Built Heritage Conservation and Education, and (4) Cross-boundary Collaborations. The aim is to enhance exchange and cohesiveness in the GBA and to put our collective strengths to good use to pave way for cultural development of the region as a whole.

My team and I will continue to make our best endeavours to conserve and promote built heritage in Hong Kong, strengthen collaboration and exchange across the region, and enhance higher cultural attainment and a stronger social identity and sense of belonging among people in the GBA for better inheritance and promotion of Chinese culture and history.

Bernadette LINN Hon Ho, JP
Secretary for Development
Hong Kong Special Administrative Region

Preface

I am delighted that the Antiquities Advisory Board (AAB) is able to participate in the first Greater Bay Area Built Heritage Summit (the Summit) to foster collaboration within the Greater Bay Area (GBA) in such areas as conservation, revitalisation and education of built heritage, community involvement, and application of technology so as to achieve synergy. The Summit, sponsored exclusively by The Hong Kong Jockey Club, is one of the signature events to celebrate the 25th anniversary of Hong Kong's return to the motherland. I sincerely wish that the Summit would proceed smoothly and strengthen collaboration among GBA cities in heritage conservation.

It is particularly meaningful to hold the Summit at the Hong Kong City Hall. In March this year, the AAB recommended to the Antiquities Authority (i.e. the Secretary for Development) the declaration of the 60-year-old Hong Kong City Hall as a monument under the *Antiquities and Monuments Ordinance* (Cap. 53). In May this year, the Antiquities Authority gazetted a notice announcing the declaration of Hong Kong City Hall and another two Grade 1 historic buildings, Jamia Mosque and Lui Seng Chun, as monuments.

Although Hong Kong City Hall has only 60 years of history since its opening, it is an iconic building of Modernist architecture in Hong Kong. Not only is Hong Kong City Hall the first multi-purpose cultural complex open to the public, it is also a platform for the exchange of Chinese and foreign arts. The Hok Hoi Library's collection, which aims to promote Chinese culture and studies, was once housed in the City Hall Public Library for the public to borrow, while the Concert Hall has been the venue for many important ceremonies, conferences and concerts. Hence, the Hong Kong City Hall is full of fond collective memories of Hong Kong people. Today, it witnesses another great event, which is the first GBA Built Heritage Summit!

The theme of the first Summit is built heritage, covering conservation, revitalisation, educational promotion, community engagement, application of high technology, etc. Thirty policymakers, experts and scholars will gather together to exchange and share their experience, knowledge and new strategies on conservation. Also, they will explore future opportunities for cross-territory co-operation among GBA cities so as to leverage the advantages of the GBA, foster mutual understanding, stimulate creativity and deepen the co-operation among the GBA cities on the existing good foundation in the areas of exhibition exchange, academic research, talent training and exchange, research and development of cultural and creative products, technological research on built heritage conservation, etc. They will join hands to lay a new milestone for heritage conservation, education, promotion and research, facilitating mutual understanding and appreciation of the unique cultural heritage in various cities among the people of the GBA.

I would like to take this opportunity to express my heartfelt gratitude to the National Cultural Heritage Administration, the Department of Culture and Tourism of Guangdong Province, the Cultural Affairs Bureau of the Macao Special Administrative Region and the cultural institutions within the GBA for their support which enables the smooth preparation for and proceeding of the first Summit. My special thanks also go to the Development Bureau of the Hong Kong Special Administrative Region as well as the Commissioner for Heritage's Office and the Antiquities and Monuments Office under its purview for their assiduous efforts in organising this Summit, the AAB's members for chairing the discussion sessions of the Summit, the Advisory Committee on Built Heritage Conservation and The Hong Kong Jockey Club for their staunch support for and assistance in organising this Summit.

Finally, may I wish the Summit every success!

Douglas SO, BBS, JP
Chairman of the Antiquities Advisory Board

Preface

Although Hong Kong is a small place, it has rich history and cultural heritage, including ancient sites from the Neolithic Age, rock carvings from the Bronze Age, and archaeological remains from the Song and Yuan dynasties dating back one thousand years, as well as contemporary Chinese and Western buildings. This historical heritage has witnessed the development of Hong Kong and is, therefore, a valuable part of our local cultural heritage, which should be properly preserved and passed on to future generations. The value and need to integrate conservation and revitalisation of historic buildings into society is a subject that has drawn the attention of both the public and the government in recent years.

The Advisory Committee on Built Heritage Conservation was set up by the Development Bureau of Hong Kong SAR Government in 2008 to offer professional advice to the government on the revitalisation of historic buildings. In the same year, the Development Bureau launched the Revitalising Historic Buildings Through Partnership Scheme (Revitalisation Scheme) with the aim of injecting new life into historic buildings. Through appropriate renovation and revitalisation, the mission of the historic buildings can be extended and history enriched, enabling them to integrate into the lives of the community.

I was honoured to be appointed Chairman of the Advisory Committee on Built Heritage Conservation by the Hong Kong SAR Government in 2016, leading the Committee to provide professional advice on the Revitalisation Scheme to the government, including assessing applications for the Revitalisation Scheme, monitoring the current revitalisation projects and the operation of the Financial Assistance for Maintenance Scheme on Built Heritage, and providing advice on the Funding Schemes for Public Engagement Projects and Thematic Research.

Since the introduction of the Revitalisation Scheme, more than twenty historic buildings have been revitalised for various new uses to effectively connect them with the community. The revitalised buildings are open to the public, through exhibitions, guided tours and other diverse activities, providing visitors with a deeper understanding of local history and the importance of heritage conservation and revitalisation. Among the revitalised historic buildings in operation, five revitalisation projects received awards from the United Nations Educational, Scientific, and Cultural Organization (UNESCO), including "Viva Blue House", the Blue House Cluster in Wan Chai, which won UNESCO's Award of Excellence in 2017. It was the first revitalised historic building in Hong Kong to win a prestigious award of this kind. The Blue House Cluster was a folk house built before the Second World War, commonly known as *tong lau* in Hong Kong, dating back about a hundred years. After revitalisation, it became a mixed-use building group, closely connected with the community by providing living places and diverse services.

The conservation and revitalisation of historic buildings encompass a wide range of professional sectors, including historic research, architecture, engineering, surveying, and urban planning. The fast-changing technology and ever-increasing public expectations result in new challenges for conservation and revitalisation, while at the same time providing new opportunities. This first Greater Bay Area Built Heritage Summit provides a professional and open platform for government officials, scholars, and experts from Beijing and the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) to gather together, and exchange and share their experience. They can have exchanges in areas such as conserving and revitalising built heritage, and promoting education and community engagement. They can also discuss research findings related to new science and technology applications and explore ways to leverage the advantages of the GBA to enhance cross-regional collaboration, understanding of and interest in the built heritage in the area, and promote economic development.

This publication is a collection of papers from participating policy officials, experts, scholars, and industry players from Beijing and the GBA, in which they share their research, experience and vision. It elaborates their research findings in the fields of conservation, revitalisation, adaptive reuse, education and promotion of built heritage, and use of advanced technology and to foster cross-regional collaboration. I hope that readers will get valuable insights from reading the papers, resulting in exploring new opportunities in built heritage conservation in the GBA and other regions in the future. I wish the first GBA Built Heritage Summit great success!

Prof Hon LAU Chi Pang, BBS, JP
Chairman of the Advisory Committee on Built Heritage Conservation

New Development in Built Heritage Conservation and Adaptive Reuse of Historic Buildings

Conservation and Promotion of Built Heritage in Hong Kong

Douglas SO BBS JP

Mr Douglas So, Chairman of the Antiquities Advisory Board of Hong Kong since 2019, is passionate about, and has rich experience in heritage conservation, museums, arts and culture. Mr So is also Chairman of Museum Advisory Committee and M Plus Collections Trust; Deputy Chairman of Hong Kong Academy for Performing Arts; a member of Advisory Committee on Built Heritage Conservation; an adviser to Our Hong Kong Foundation and Hong Kong Architecture Centre etc. In recognition of his contributions and distinguished public service, Mr So was appointed a Justice of the Peace in 2019 and bestowed Bronze Bauhinia Star by the Government in 2021.

Abstract

The Antiquities Advisory Board (AAB) is a statutory body established under the *Antiquities and Monuments Ordinance* (Cap. 53), which came into effect in 1976, to provide professional advice to the Government on heritage conservation in Hong Kong. The AAB has been playing a significant role in heritage conservation. Mr Douglas So, the Chairman of the AAB, will share details of the AAB's work, including its statutory purview, the grading system for historic buildings, the granting of licences to excavate and search for antiquities, the Heritage Impact Assessment mechanism, the promotion of public awareness of conservation, conservation policies, and so on, to give a clear picture of the AAB's role in promoting the conservation, revitalisation and education of built heritage; as well as the prospects for future co-operation and exchanges across the Guangdong-Hong Kong-Macao Greater Bay Area (GBA).

Foreword

The Antiquities Advisory Board (AAB) is a statutory body established under the *Antiquities and Monuments Ordinance* (Cap. 53) (the *Ordinance*), which came into effect in 1976, to provide professional advice to the Antiquities Authority (now the Secretary for Development [SDEV]) on heritage conservation issues. The scope of conservation issues has expanded over time. Currently, the Hong Kong Special Administrative Region (SAR) Government consults the AAB on matters such as the declaration of monuments; the granting of licences to excavate and search for antiquities; the grading, conservation, promotion and public engagement regarding historic buildings; as well as Heritage Impact Assessment (HIA) reports. The Antiquities and Monuments Office (AMO) was also established in 1976 to carry out heritage conservation work and to provide professional and secretarial support to the AAB. In 2008, the Government established the Commissioner for Heritage's Office (CHO) to take charge of work such as the policy on heritage conservation, revitalisation of historic buildings and the Financial Assistance for Maintenance Scheme on Built Heritage.

The AAB currently comprises 20 members (including the Chairman) from different professions, including history and archaeology, law, architecture, engineering, surveying, planning, social services, publishing, business, etc. It is a broadly representative board, providing an epitome of society.

The role of the AAB in heritage conservation

(1) Statutory functions and powers

As a statutory body, the AAB's functions and powers include giving professional advice to the SDEV on matters relating to antiquities, proposed monuments or monuments. For instance, it recommends to the Antiquities Authority the declaration of historic buildings and archaeological sites of significant heritage value as monuments under section 3(1) of the *Ordinance*, or as proposed monuments under section 2A(1) of the *Ordinance*. Buildings and sites declared as monuments have to be permanently preserved and, unless authorised by the Antiquities Authority, cannot be altered or demolished. As at November 2022, after detailed deliberations and recommendations by the AAB, 132 important historic buildings and archaeological sites have been declared as monuments by the Antiquities Authority. There is a great variety of declared monuments, including prehistoric rock carvings, an ancient tombs of the Han dynasty, rock inscription of the Song dynasty, and forts of the Qing dynasty. There are also traditional Chinese buildings such as ancestral halls, study halls, temples, *Yamen*, as well as Western-style buildings such as churches, mosque, courts, prisons, police stations and schools, reflecting Hong Kong's history and development. It is worth noting that about half of the architectural monuments are privately-owned, which shows the growing interest of private owners in conservation of their historic buildings. Under the policy of "respecting private property rights" and "balancing the protection of cultural heritage and development", economic incentives offered by the Government have encouraged more private owners to explore the "preservation-cum-development" option with the Government, so that the historic buildings under their ownership can be protected and conserved sustainably. Each declared monument is hard-won. Fortunately, with concerted efforts, the number of declared monuments is increasing every year.

(2) The grading of historic buildings

Apart from the above statutory functions and powers, the AAB has another very important function, which is the grading of historic buildings. The grading system of historic buildings is administrative in nature to provide an objective basis for assessing the heritage value and the preservation need of historic buildings. It does not affect the ownership, management, usage and development rights of the buildings concerned. The AAB holds public quarterly meetings to assess the grading of historic buildings, and site visits to buildings to be graded are also conducted before the meeting. At the meeting, members discuss in-depth the buildings' heritage value in accordance with six assessment criteria, namely historical interest, architectural merit, group value, social value and local interest, authenticity and rarity, so as to recommend a proposed grading for historic buildings, i.e. proposed Grade 1, Grade 2, Grade 3 or no grading. After the meeting, the proposed grading endorsed by the AAB and information of the items will be uploaded to the AAB website for a one-month public consultation.

AAB meeting

The AAB will take into account all the information and views received during the public consultation before confirming the grading.[1] As at 31 October 2022, more than 1,530 buildings have been graded, with 199 items accorded Grade 1, 396 items Grade 2, and 603 items Grade 3.

AAB site visit to Bonham Road Government Primary School

(3) Consideration of applications for licences to excavate and search for antiquities

The AAB is responsible for advising the SDEV on applications for licences to excavate and search for antiquities. Currently, before carrying out excavation or searching for antiquities in Hong Kong, the archaeologist must apply to the Antiquities Authority for a licence under the *Ordinance*. The applicant must submit relevant archaeological proposals with the details of excavation methods and procedures to AMO. AMO will consider the application based on three main factors, including whether the applicant has sufficient scientific training or experience, has sufficient staff and financial or other resources at his/her disposal, and is able to conduct or arrange for a proper scientific study of the antiquities discovered as a result of the excavation and search. After examination by AMO, the application will be submitted to the AAB for consideration and comment. If the application is supported by more than half of the AAB's members, the SDEV will grant to the applicant a licence to excavate or search for antiquities under section 13 of the *Ordinance*.

(4) Heritage Impact Assessment

To ensure a balance is struck between the requirements for development and heritage conservation, starting from 2008, the SAR Government requires project proponents and relevant works departments for all new capital works projects initiated by the Government to consider whether their projects will affect sites or buildings of historic or archaeological significance (hereinafter referred to as "heritage sites"). If the answer is in the affirmative, then an HIA will be required and mitigation measures should be devised to the satisfaction of AMO. Once AMO is satisfied with the HIA report, the proponent department and relevant works departments for the new capital works project will take follow-up action to submit the report and explain it to the AAB. After studying the report and mitigation measures, the AAB will give its advice and decide whether the report should be endorsed. A funding application for a new capital works project to the Legislative Council should only be made following the approval of the HIA report by the AAB. The proponent department for the new capital works project should also make reference to the AAB's advice so as to ensure proper protection for the heritage sites for the enjoyment of our future generations.

(5) Enhancing public awareness of conservation

On heritage conservation, the AAB strongly supports the work of CHO and AMO in heritage education, promotion and community involvement. For instance, in the eight-episode television series on Tai Po monuments produced by AMO and Cable TV recently, members of the AAB collaborated with professionals of AMO to introduce to viewers more than ten monuments, historic buildings and archaeological site in Tai Po under four themes, namely "Trade and Transport", "Ancestral Halls and Walled Villages", "Temples and Communities" and "British Governance". Adopting the "point-line-plane" approach, the TV series present the long history and important cultural heritage of Tai Po to enhance public understanding of the cultural heritage of the district.

Through CHO's Instagram social media platform, hkheritagelive, as well as columns in online publications, the AAB promotes the message of heritage conservation and releases the latest information to the public, with a view to strengthening public participation and interaction so that cultural heritage can be presented to the public in a lively manner, in particular to the younger generation.

From time to time, the AAB is invited to heritage conservation events and activities, such as offering professional advice on restoration and revitalisation of historic buildings, officiating at opening ceremonies of heritage conservation exhibitions and events, being interviewed by the media, or attending seminars and sharing sessions organised by public and private organisations. Recently, I attended a number of events as the AAB Chairman. For instance, representing Hong Kong, I gave a speech at the Asian Dialogue for Cultural Heritage Conservation organised by the National Cultural Heritage Administration. I also officiated at the Chiming Ceremony to Commemorate the Centenary of the Former Kowloon-Canton Railway Clock Tower Bell, and was interviewed at the SCOM^2 Talk Show of the Hang Seng University of Hong Kong. I hope the breadth and depth of the passing on and promotion of heritage conservation in Hong Kong can be enhanced.

The AAB proactively promotes the conservation of historic buildings under the "point (i.e. individual buildings)-line (i.e. streets)-plane (i.e. areas)" approach. As early as the early 1990s, the AAB proposed to the Government the establishment of heritage trails by linking up various historic buildings to enable the public to have a better understanding of the history, traditional culture and life of the areas concerned. The Government has accepted the AAB's proposal and set up three heritage trails, namely Ping Shan Heritage Trail, Lung

Yeuk Tau Heritage Trail and Central and Western Heritage Trail. I am glad that in order to support this Greater Bay Area Built Heritage Summit (the Summit), the Government has introduced a new initiative to promote the appreciation of the cluster of historic buildings at The University of Hong Kong (HKU) (conservation from the perspective of "plane") by linking up the historic buildings within the HKU to tell their stories vividly. This will not only inject life into the historic buildings, but also promote and develop leisure visit of monuments. The public and tourists are encouraged to respect fully the teachers and students attending lectures or working in the campus when visiting the historic buildings of the university so as to ensure that they will not be affected. I cordially invite all the guests attending this Summit to pay a visit to the historic building cluster on the campus to listen to the stories of the historic buildings and appreciate their architectural features leisurely. You can experience the fusion of Chinese and Western cultures in Hong Kong, as well as the aesthetic and rich culture of educational historic buildings.

(6) Policy review on conservation

The AAB is the advisory body and partner of the SAR Government in heritage conservation policy and work. At the Government's invitation, the AAB reviewed the policy on built heritage conservation in 2013 to address the challenges in conservation. The Report on the Policy Review on Conservation of Built Heritage was published by the AAB in 2015, in which recommendations were made in areas such as the protection of historic buildings, resources and public participation. The AAB recommended that the Government should provide more attractive economic incentives such as financial assistance for maintenance, relaxation of plot ratio and land exchange, to encourage private owners to protect and carry out timely maintenance works on historic buildings. However, the AAB was of the view that mandatory purchase or resumption of privately-owned historic buildings should not be pursued. Also, public money should not be used directly to purchase historic buildings.

The recommendations of the AAB were accepted and gradually implemented by the Government, including the setting up of the Built Heritage Conservation Fund in 2016 to provide funding support for the conservation and revitalisation initiatives on built heritage introduced by the Government (including the Revitalising Historic Buildings Through Partnership Scheme and Financial Assistance for Maintenance Scheme on Built Heritage (FAS)), and to provide subsidies for public education, community involvement, publicity activities and academic research. The Government also accepted the recommendation to optimise the application procedures for FAS and relax the eligibility criteria and grant ceiling to facilitate the owners of privately-owned graded historic buildings and tenants, which are non-profit-making organisations, and of government-owned declared monuments and graded historic buildings in applying for grants to carry out repair and maintenance works for the historic buildings. In addition, the Government successfully preserved a number of privately-owned historic buildings by devising appropriate economic incentives with regard to the specific situation of the historic buildings, including their heritage values, development potential and values of the land lots where the buildings are located, space available for planning in the lots, wishes of the owners, etc. Some examples can reflect the achievements of the new heritage conservation policy, they include Jessville at Pok Fu Lam (Grade 3), a shophouse at 179 Prince Edward Road West (Grade 3), Maryknoll House (Grade 1), King Yin Lei (Declared Monument) and No. 23 Coombe Road (Grade 1), etc.

In gist, the AAB plays an active and significant role in matters relating to its statutory purview, the grading system for historic buildings, grant of licences to excavate and search for antiquities, HIA mechanism and conservation policy. The AAB also works with the Government to promote heritage conservation and education.

King Yin Lei

Jessville, No. 128 Pok Fu Lam Road
(Photo by Kevin Mak, courtesy of Purcell)

Prospects

The "Outline of the Fourteenth Five-Year Plan for National Economic and Social Development of the People's Republic of China and the Long-Range Objectives Through the Year 2035", promulgated in March 2021, mentions the development and promotion of fine traditional Chinese culture, including strengthening heritage conservation and related technological innovation; implementing the National Research Project on Tracing the Origins of Chinese Civilisation and the National Archaeological Projects in China; strengthening conservation, research and usage of heritage and ancient books, etc. Subsequently, the "Plan for the Preservation of Cultural Relics and Related Technological Innovation During the Fourteenth Five-year Plan Period" was released in October 2021, which provides specific provisions for heritage work.

This year, the Hong Kong Government has proposed the development of the "Cultural and Heritage Sites Local Tour Incentive Scheme". The scheme aims at providing incentives for the industry to develop and launch tourism products with cultural and heritage elements, with a view to positioning Hong Kong as a core demonstration zone for multi-destination tourism and an international tourism hub, so as to realise the "Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area" promulgated in February 2019, and the "Culture and Tourism Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area" jointly promulgated by the Ministry of Culture and Tourism, the Office of the Leading Group for the Development of the GBA and the People's Government of Guangdong Province. The above plans promulgated by the Central Government fully reflects the great importance attached to heritage conservation by the Central Government.

Monuments and built heritage are carriers of our history and culture, which build cultural identity. We must continue to proactively promote conservation and education of local heritage, enabling the passing on of cultural heritage to future generations. Also, we have to attract visitors to come to Hong Kong through cultural heritage so that they can understand Hong Kong's history, monuments and ambience. Moreover, we have to build a world-class tourism destination in collaboration with the GBA.

The AAB will continue to play an important role in giving professional advice to the Government on heritage conservation via members' professional fields and networks, and proactively promoting co-operation and exchanges among experts in the GBA, with a view to sharing experience and success in the areas of protection, research and education of cultural heritage, enhancing heritage conservation synergy, and injecting innovative ideas, with the aim of jointly developing a cultured Bay Area. In this Summit, the AAB also commits to giving support for enhancing conservation, revitalisation and heritage education in the GBA. Serving as moderators during these two days' presentation sessions, members will give full play to their professional expertise, enabling speakers to share in-depth their experience, challenges encountered, realisation and insights regarding research, conservation and reuse of heritage; and to share their experience regarding the latest technology applied on restoration and heritage conservation, bringing in an impetus for this Summit.

Through the signing of a Memorandum of Understanding at this Summit, collaborations and exchanges across the GBA in such fields as heritage research, protection of built heritage, archaeological techniques, heritage resources management, cultural and creative industries, exhibitions, as well as public engagement, will be enhanced to strengthen the GBA's cultural soft power.

This Summit is a new chapter in the GBA's heritage conservation. I look forward to the Summit being held in different GBA cities in the future to enhance the exchange of experience and talents as well as collaboration in the area. I sincerely hope that the AAB will enrich and contribute to the conservation, revitalisation and education of heritage in the GBA under this new collaborative framework.

Conclusion

The development of the GBA is an important national development policy to further deepen the collaboration among Guangdong, Hong Kong and Macao and to utilise their combined advantages to the full. This Summit opens a new chapter in heritage conservation of the area. With the GBA's development and the opportunities presented by the "Fourteenth Five-Year Plan", Guangdong, Hong Kong and Macao will have more chances to collaborate and exchange ideas on heritage conservation, driving deeper integration of the area, so as to jointly promote mutual understanding and appreciation of the GBA's unique cultural heritage and history, strengthen cultural identity, and boost cultural heritage tourism.

[1] As stated in the administrative guidelines for the grading of historic buildings, Grade 1 status refers to buildings of outstanding merit, which every effort should be made to preserve if possible; Grade 2 status refers to buildings of special merit, efforts should be made to selectively preserve; Grade 3 status refers to buildings of some merit, preservation in some form would be desirable and alternative means could be considered if preservation is not practicable.

[2] School of Communication

The Adaptive Reuse Programmes for Macao's Historic Buildings

Engineer Choi Kin Long, Chief of the Cultural Heritage Department of the Cultural Affairs Bureau of the Macao Special Administrative Region (SAR) Government, has rich experience in heritage conservation projects and adaptive reuse programmes and has been successively coordinating and implementing important cultural heritage conservation policies in Macao.

CHOI Kin Long

Abstract

The Macao SAR Government recognizes adaptive reuse as an important conservation approach, which enables Macao's historic buildings to continue to play an active role in people's lives as living heritage. This paper provides a summary of Macao's history in developing adaptive reuse programmes, taking recent projects as case studies, including traditional Chinese courtyard buildings in "Pátio da Eterna Felicidade", the former site of the Leprosarium "Nossa Senhora Village", and the industrial sites of the "Lai Chi Vun Shipyards" and the "Iec Leong Firecrackers Factory". This is followed by an overview of the Macao Government's most recent directives to further enhance the cultural influence of the city's historic buildings, with the use of new technologies that are also aimed at providing more opportunities for public participation. These directives support the development of adaptive reuse programmes that can bring the community together and enhance the cultural value of Macao's historic buildings.

1. Preface

The *Cultural Heritage Protection Law* (No. 11/2013) defines a series of measures to safeguard and promote cultural heritage, including its identification, documentation, research, preservation, protection, maintenance, rehabilitation, publicity, promotion, display and inheritance. Article 5 is dedicated to the subject of adaptive reuse programmes in the field of cultural heritage. Over the years, the Macao Special Administrative Region (SAR) Government has considered adaptive reuse programmes as important approaches for the protection of historic buildings. These programmes remain and will continue to be the core focus of cultural heritage conservation work in Macao.

The local historic building clusters in Macao, of which the Historic Centre of Macao is the core, represent an orderly combination of Chinese and Western culture. From the past to the present, they are closely associated with the residents' lifestyles and customs, cultures and traditions. The cultural significance of these buildings also lies in the various past functions they served over the centuries, which are part of their history. Therefore, these buildings constitute the best examples of the mutual influence and close connection among different communities, as well as important landmarks in the context of nearby sites. The Macao SAR Government has, therefore, made a consistent effort to develop adaptive reuse programmes that respect the architectural value of these historic buildings and help revitalise and promote social and economic development, particularly in terms of improving the livelihood of local residents and their connections with the surrounding communities.

In addition, we note that during the almost three-year pandemic period, people's interest in cultural experiences has changed, thus improving the prospects of, and contributing to greater interest in, cultural heritage digitalisation. For instance, with the use of online guided tours and virtual reality (VR), cultural heritage has extended its reach from its geographical location to network-based platforms that are free from spatial constraints, bringing people much closer to distant historic buildings, while also providing broader mechanisms and extra technical tools for interpreting and understanding such buildings. This paper presents a few examples of adaptive reuse programmes that have been developed and implemented in Macao in recent years, and analyses their connection with the community and how their value has been rediscovered through various adaptive reuse programmes.

2. A Brief Retrospective

The evolution of heritage conservation policies in Macao can be traced back to the various achievements that were already accomplished by the Macao Government before 1999, especially the revitalisation and adaptive reuse of the Portuguese historic buildings, such as the Central Library and the Archives of Macao, which were transformed from Portuguese residential buildings into public facilities, as well as the Taipa House Museum, which was also transformed from Portuguese residential buildings into an exhibition centre and cultural venues. The latter is also one of Macao's Eight Scenic Spots and the best venue for the Lusophone Festival every year. These adaptive reuse programmes transformed formerly private Portuguese residential buildings into public space, while preserving their cultural and architectural characteristics, and enhancing the surrounding cultural environment. Providing more public space and serving as city icons, these two projects are considered successful examples of the adaptive reuse approach for heritage conservation in the twentieth century.

The inscription of the Historic Centre of Macao on the UNESCO World Heritage List in 2005 greatly enhanced the Macao community's pride in its local culture and prompted local residents to pay more attention to the city's history. The promulgation of the Macao *Cultural Heritage Protection Law*, which came into effect in 2014, enabled an even more comprehensive and solid legal basis for cultural heritage protection, greatly improving procedures for the survey, classification, repair, rehabilitation and implementation of adaptive reuse programmes for classified heritage buildings. This created and provided broader conditions, more support and more channels for the adaptive reuse of historic buildings. Since the promulgation of the *Cultural Heritage Protection Law*, the Macao SAR Government has pursued and completed the classification of three new batches of immovable properties and one individual facility, the Lai Chi Vun Shipyards, thereby increasing the number of classified immovable assets across Macao from 128 (prior to the promulgation of the *Cultural Heritage Protection Law*) to a total of 159 classified heritage properties. The local list of classified heritage will continue to be enriched. During this period, the Cultural Affairs Bureau of Macao has carried out much conservation works on historic buildings. It has strongly focused on upholding the principle of "authenticity", with the aim of respecting local history and fulfilling the social need for public space. It has effectively completed a significant number of adaptive reuse programmes, which have enhanced the quality of social life, while also showcasing local history. Examples include the Patane Library, the Patane Night Watch Station, the Former Chong Sai Pharmacy at No. 80, Rua das Estalagens and the Cinematheque·Passion.

Since the Historic Centre of Macao was inscribed on the World Heritage List in 2005, local cultural heritage protection efforts have strived to follow more closely the technical requirements stipulated in the related international charters, invest heavily in research work and adhere to well-established conservation concepts. The benefits derived from adaptive reuse programmes have also helped increase public support and awareness. These efforts are not only beneficial to individual historic buildings, but have also significantly enhanced the image of the city abroad, while providing functional advantages that enhance the quality of residents' lives. Social and economic development provide intrinsic long-term rewards. These programmes cover different types of heritage properties, ranging from Portuguese garden houses to clusters of traditional Chinese residential buildings. The conservation approach can be subdivided into three distinct types: 1) Preservation of the overall condition of the original building that has particularly important historic and architectural

Mandarin's House

The historic building clusters along Passion Lane

value, in particular, specific features that are indispensable for value interpretation. This type of project is usually initiated by the government. Examples include the Mandarin's House, General Ye Ting's Former Residence and the Lou Kau Mansion. After restoration, these buildings are integrated with functions such as exhibition centres or public venues for leisure and education. 2) Preservation of the parts of a building with cultural value and other important characteristics, fusing the architectural features with new functions that can serve the community to create public space with local characteristics. The Patane Library, the Cinematheque Passion, the Navy Yards and the Mong-Ha Villas fall into this category. 3) Similarly, retaining the parts of a building with special characteristics or historic value, but making appropriate adjustments and enhancements to the neighbouring space affiliated with the building. It is then possible to create display and activity areas for the presentation and promotion of the history of the local community. For example, the Na Tcha Exhibition Room, the Patane Night Watch House, and the Master Lu Ban Exhibition Room in most cases were collaborative projects, where the community or local organisations sought governmental support for the protection of particular traces of the local history and culture. Compared to the projects of the first type, which are usually initiated entirely by the government, these types of adaptive reuse programmes can attract higher public participation and greater public commitment from residents and local organisations.

During the implementation of various adaptive reuse programmes, a higher level of vitality and adaptability can be observed in the conservation projects that have a closer and more direct connection with community residents. For instance, the Patane Library and Patane Night Watch House projects are both located in a relatively cohesive neighbourhood in the Inner Harbour area. The original structure of the former is composed of seven *qilou* buildings (arcade houses) – which are typical commercial buildings in the Inner Harbour area, with the ground floor serving as a shop and the first floor as a residence. Because of excessive alterations done in the past and long-standing disrepair, these structures were badly damaged. After restoration and rehabilitation, the original façades were kept, and the buildings were renovated and transformed to serve as a community library. By transforming privately owned historic buildings into public facilities that can be used by the whole community, this project also helps retain the streetscape of the Inner Harbour area, preserve the emotional bonds that the community has with the area, and provide the Platane district with new library space that meets public needs. This project won the public's support because of the multiple benefits for residents. It is also interesting to note that the Patane Night Watch House was the result of a cooperative project between the Cultural Affairs Bureau and Patane's Tou Tei Mio Charity Association. The project enabled the revitalisation of a vacant, derelict building that was located within a traditional Chinese village in the urban area. The Patane Night Watch House now serves as an exhibition space to present the history of the night watch service and the traditional culture of the local Chinese community. As the local community association and the residents themselves take part in its daily administration, they can also explain to visitors directly the history and stories of their neighbourhood, creating a greater sense of unity among residents.

For this reason, regardless of the objectives set at the initial stage of different projects, the adaptive reuse programmes that are relatively successful are those with strong participation from the community and its residents. Only with the active participation of the community can the new functions gain popularity and vitality, thereby better meeting the real needs of the community. Therefore, in recent years, during the planning stage of adaptive reuse programmes on historic buildings, the Cultural Affairs Bureau has paid great attention to the compatibility between the revitalisation objectives and community needs, taking into account public opinions as well as the expectations and requirements of the community about the types of heritage buildings that should be preserved and how they should be used. The Cultural Affairs Bureau is also deeply committed to enhancing the public's dedication to, and appreciation of, historic buildings, encouraging everyone to be actively involved in the conservation and revitalisation of historic buildings, which is deemed crucial to make the programmes sustainable and to meet community needs, so that a greater sense of harmony can be nurtured in the community at large.

Macao residents' interest in, and awareness of, cultural heritage has been greatly strengthened since the inscription of the Historic Centre of Macao on the World Heritage List and the effective enforcement of the *Cultural Heritage Protection Law*. There has been a notable increase in the public's involvement and dedication to cultural heritage and historic buildings, which is clearly a result of the successful outcome of heritage conservation in Macao over the years. This also has a positive influence on the public's attitude towards the conservation and adaptive reuse programmes that are currently implemented or planned by the Cultural Affairs Bureau. In the next part of this paper, I will introduce various key projects involving the revitalisation, rehabilitation and reuse of historic buildings that are currently being planned or implemented by the Cultural Affairs Bureau.

3. Adaptive Reuse Programmes for Historic Building Clusters

Historic building clusters refer to specific districts in which historic buildings share common features relating to traditional and historic architecture and the urban fabric. These districts have a variety of buildings, streets and environmental elements, and reflect particular snapshots of the local lifestyle, customs, commercial activities and even spiritual connotations, such as religious beliefs. Conserving clusters of historic buildings as a whole through urban zoning is not a new approach. Compared to an isolated historic building, a cluster has greater potential to reflect particular cultural attributes of a city, and the wider coverage of an area inevitably relates more to the memories, environment and culture of the community, with residents having a more collective connection and closeness to them as a whole. In Macao, the cultural value of most historic buildings is not limited to the analysis of individual buildings, but instead the urban fabric encompassing the connecting streets and the lifestyle that is reflected and has survived in these spaces as a whole. Therefore, there is a strong focus on such methods in adaptive reuse programmes. Examples are the Inner Harbour's port area, which is closely related to the maritime trading history of Macao and was a pillar of the city's traditional economy, the "pátios" and "becos", which were an important part of local Chinese community life and culture in the past, the clusters of past industrial buildings, and the Portuguese residences that combine Chinese characteristics and early modernist architectural styles.

However, the adaptive reuse programmes in historic building clusters involve not only the restoration of buildings, but also the upgrading and improvement of infrastructure, public space, transportation networks, living condition, and other aspects of urban life, so it is essential for the government to have good communication and close cooperation with the residents to preserve and recast traditional culture in a sustainable manner. Macao has long experience in the protection of clusters of cultural heritage. The Historic Centre of Macao, a World Heritage Site, is itself a network of cultural heritage clusters, whose conservation involved all the considerations mentioned above. Through various supportive policies and measures, such as legislation, planning, restrictions, restoration and mechanisms, the Historic Centre of Macao has been effectively preserved and revitalised, and longstanding traditions can be carried forward. Therefore, revitalising historic buildings in clusters will undoubtedly create greater benefits for social development and improve living condition, making the work on cultural heritage conservation more appealing and residents more willing to participate.

Some adaptive reuse programmes of historic building clusters in recent years include the *Pátio da Eterna Felicidade*, which manifests the "pátios" and "becos" in traditional Chinese settlements, the *Nossa Senhora Village*, which is the former site of the Leprosarium, the former Iec Long Firecracker Factory, and the former Lai Chi Vun Shipyards. All of these revitalization projects are ongoing. Although these heritage sites are ordinary in appearance, and not as magnificent as churches and temples, nor as sophisticated as garden houses and other former grand residences of the rich, they showcase many aspects of the traditional lifestyle of Macao as a diverse city, including urban development, the various lifestyles in different social communities, various commercial activities, the public health environment, and efforts made by charitable organisations to provide social welfare over the years. These diversified heritage resources are, therefore, collectively and closely attached to the emotions and memories of the local residents of Macao and even the communities of neighbouring cities. For this reason, it is highly worthwhile to restore them for adaptive reuse, so that their relationship with the community can be extended with new functions that cater for the needs of the people in the present day. The projects also manifest the characteristics and, therefore, the special character and charisma of Macao, which supports the sustainable development of the society in general.

I. Case one: Pátio da Eterna Felicidade

Located close to the heart of the Historic Centre of Macao and near the Inner Harbour area, the *Pátio da Eterna Felicidade*, or "patio of eternal joy", is a relatively well-preserved cluster of traditional Chinese residential buildings with Macao characteristics and has played an important role in community life. In June 2019, the Kiang Wu Hospital Charity Association donated 13 houses in this pátio to the Macao SAR Government for heritage conservation purposes.

There are three definitions for "pátios/becos", which in the sense of land area, refer to grassroot's neighbourhoods formed by the contours corresponding to the outer roads and streets. In terms of architecture, they refer to a combination of small, closely arranged townhouses with structures such as entrance gates, passages, water-wells, earth god shrines and other public spaces. And in terms of the hierarchy of streets, they refer to the smallest type, adopting diverse layouts and covering a width of 1.5 to 3 metres. The conservation and research of the 200-plus streets named "pátios" and "becos" in Macao, most of which have been in existence since 1869, can help identify the lifestyle and customs of the Chinese community in the past. This is not only about protecting the old residential buildings that carry Macao characteristics, but also preserving the memories of the traditional way of life in the city's old neighbourhoods.

The Pátio da Eterna Felicidade is one of the best preserved, relatively large, and most typical surviving examples of traditional "pátios/becos" in Macao. Located at the foothill of Monte, the houses were built along the sloping terrain, featuring a spatial layout of staggered heights and changing scenery, with different styles, such as bamboo houses and others that

have central and side bays (rooms), as well as rich architectural and decorative elements, including water wells, cross-street entrance gates and Western-style features. However, the houses have been vacant for many years. Both the community and the government are very keen to see them restored and revitalised. Since early 2019, the Cultural Affairs Bureau has been clearing, mapping, planning, reinforcing and restoring the area in phases. In early 2021, house No. 10 and the adjacent public space was converted into a temporary exhibition space. It has become a living example, showcasing the most characteristic "pátios/becos" architecture in Macao and the living culture of the neighbourhood in the past.

With the cooperation between the government and the civil society, many themed exhibitions and cultural activities have been held there since 2021, including the *Pátio Memories – Exhibition of Life in Pátios and Becos in the Bygone Days*, the *Neighbourhood – Documentary Photography Exhibition*, by Chan Hin Io, and *Pátio da Eterna Felicidade – Exhibition of Advertorials and Short Videos about Cross Streets, Courtyards and Alleys*, made by Macao's higher education students. All of these initiatives focused on showcasing traditional life in the pátios, community stories, old building structures, festivals, and the rise and fall of various trades. These events provided a platform for the residents to share their own stories and at the same time enhanced public awareness of the traditional lifestyle of "old Macao".

The adaptive reuse programme of the *Pátio da Eterna Felicidade* encourages residents to enjoy the reuse of old buildings, walking in the old districts, and experiencing the ambience of the old neighbourhoods. These experiences increase people's recognition of the merits of heritage conservation and allow the public to appreciate, jointly preserve, and cherish the valuable local cultural heritage of Macao. In the future, the P*átio da Eterna Felicidade* will also integrate compatible and sustainable elements, such as intangible cultural heritage and cultural and creative industries, making this area a base for the inheritance and display of local culture and our intangible cultural heritage. These efforts will enable the pátio to regain vitality while retaining its spatial characteristics to serve as a community hub in the district.

II. Case Two: Nossa Senhora Village

Located in Ká-Hó, Coloane, *Nossa Senhora Village* was the only remaining architecture related to the medical history of leprosy in Macao. The Ká-Hó Leprosarium was built in 1885 and was expanded in 1930 to include five eclectic-style houses, a chapel, a pier and other amenities. Renamed "Nossa Senhora Village" in 1964, the old Leprosarium added the triangular-shaped Our Lady of Sorrows Church in 1966, making it an integrated community with residential, medical, religious and manufacturing facilities. The village was used until the 1990s. Since 2016, the Cultural Affairs Bureau has been restoring the village in phases to revitalise the buildings and recover the humanistic history of the site.

The prevention and treatment of leprosy in Macao dates back to the sixteenth century, when the first Bishop of Macao, D. Belchior Carneiro, established the Holy House of Mercy in 1568. To prevent the disease from spreading to the densely populated urban areas, a leprosarium was established in St. Lazarus District, which was outside the city wall. In 1878, another leprosarium was founded in Pac Sa Lan, and in 1885, a home for female lepers was built in Ká-Hó. Later the Ká-Hó Leprosarium was developed into the only quarantine and medical centre for both male and female lepers in Macao. After leprosy became curable, the Ká-Hó Leprosarium stopped its service in the 1980s, but continued to be a home for recovered patients for another decade.

The Cultural Affairs Bureau initiated the conservation of *Nossa Senhora Village* in phrases in 2016. To enliven the area and open up more cultural and recreational space for the general public, the site was partially opened in 2019 and fully opened at the end of 2021. The revitalization of the village is fully supported by religious and social rehabilitation groups, the government social welfare department and other organisations, and it has received positive feedback and support from society in general. The various facilities in this historic site were also listed as classified immovable properties of Macao in 2021. In addition to Our Lady of Sorrows Church, which has continued to function as a religious venue until the present, the other buildings in this area now have new functions for exhibitions, art galleries, catering, retail, and so forth. Of particular interest is the former recreational room, which is now used as an exhibition space to display nearly 100 artefacts and many important old photographs from the Archives of Macao. The four old bungalows are now used for activities related to the "Hold on to Hope" vocational training programme, a collaborative project managed and operated by a non-government organisation and supported by the Social Welfare Bureau of Macao. The project provides individual vocational rehabilitation opportunities for drug addicts, with cafes, exhibition galleries, and leisure and parent-child activity spaces, which provide opportunities to provide guided tours, sell arts and crafts, provide maintenance services, and even marketing and management. The project helps rehabilitants take up productive roles again in society and serves as a support centre with educational resources and opportunities for rehabilitants to develop professional skills in preparation of their gradual reintegration into society.

Nossa Senhora Village has been jointly managed and operated by the government, religious groups and social service organisations since its start. It has about 600 visitors a day on weekdays and 800 to 1,000 on public holidays. The revitalisation of the village is not only about reusing the buildings and allowing the public to appreciate the historical architectural features, but most importantly fulfilling an important social mission that is consistent with the site's past charitable and social welfare functions, acknowledging the pioneering work done for the treatment of lepers in the past, while perpetuating the spirit of hope, love and virtue.

III. Other Cases: the Lai Chi Vun Shipyards, the Iec Long Firecracker Factory and the Zona da Barra Complex

In addition to the two aforementioned adaptive reuse projects on historic building clusters, which are partially open to visitors, there are several other projects related to industrial heritage that are still in the process of planning and carrying out restoration works. Since their adaptive reuse programmes are still under way, only a brief introduction is provided below.

The Lai Chi Vun Shipyards area, located on the west coast of Coloane Island, is the largest site of the former shipyard industry in Macao. Lai Chi Vun, Coloane, started the shipyards in the early twentieth century; its heyday was in the mid- to late twentieth century. It produced mainly various types of wooden fishing boats before the industry started to wane from the 1990s onwards. The entire shipyard area consists of 17 old factory lots, arranged in contiguous rows along the shoreline, partially extending into the waters, which creates a picturesque landscape blend of man-made and natural scenery.

The Lai Chi Vun Shipyards were included in the list of Macao's Classified Immovable Properties in 2018, and the site was divided into five conservation zones. Relevant requirements corresponding to their heritage value are set out for each zone to offer better

protection of the characteristics of the site. In 2021, the Cultural Affairs Bureau took over some of the lots and immediately began a preliminary survey, site clearance, maintenance, and preparation of possible revitalisation designs. The Lai Chi Vun villagers, the shipbuilding industry and fishery groups spontaneously offered advice. After collecting opinions and suggestions from local residents, relevant organisations and experts, among others, the Cultural Affairs Bureau's current plan is to revitalise five of the existing lots (X-11 to X-15) to create a multifunctional space to provide people with a better understanding of traditional Chinese culture and at the same time enjoy the space as a cultural and creative bazaar and leisure venue.

Lai Chi Vun Shipyards

The former Iec Long Firecracker Factory is located in Taipa Village. The factory was the largest of its kind in Macao, operating for nearly six decades, from 1925 to 1984. Today it is the only remaining site of the old firecracker production industry. The factory retains most of its original layout and authentic environmental setting from the past, and thanks to the low-density usage of its land, the site has also retained the natural appearance of the old Taipa terrain, making it a site of great cultural heritage and ecological value.

The Cultural Affairs Bureau took over an area of 25,000m^2 of the former Iec Long Firecracker Factory in December 2020. Owing to the rich and complex natural resources, such as various old and famous trees, ponds and water channels, the preparation work for adaptive reuse programmes was immediately carried out after the acquisition, including ecological surveys, and clearing and structural repair works. To provide more cultural space for the public as soon as possible, the programme will be carried out in stages. Visitors will be able to walk along a footpath to enjoy the beauty of the site. The rehabilitation plan will dedicate the first phase to the recuperation of three old factory buildings located adjacent to the entrance area, which will be revitalised as a venue for exhibitions and workshops, and accommodate a visitor information centre, a cultural and creative gift shop, and a leisure cafe. The long-term goal is to transform the Iec Long Firecracker Factory into a special activity zone showcasing Macao's historic firecracker industry. For this purpose, the Cultural Affairs Bureau engaged a professional institution to conduct research on the natural environment of the site, including its ecological system, geology and water resources. The research will serve as a reference for the long-term planning of conservation, adaptive reuse, and additional use. As the factory is located in the heart of Taipa Village, its revitalisation will also help upgrade the old district, improve the surrounding environment, and enhance the quality of life, so the residents and other members of the public have shown a great interest in the programme.

Another project, the D. Carlos I Dock and its surrounding buildings (the "Zona da Barra Complex"), located in the southern part of the Macao peninsula, near the A-Ma Temple, is a cluster consisting of a group of buildings with the former government dockyard as the core, and other buildings, such as the former dry docks, cattle and pig slaughterhouses and navy offices. The buildings all together constitute the characteristics and particular cultural values of the Complex in terms of spatial layout and architectural design. Subsequent to the conservation works carried out in previous years, the Complex was turned into a venue for visual arts exhibitions and performing arts groups, and it can be used by local art groups. To further enhance public awareness and participation, the Cultural Affairs Bureau is currently planning to revitalise the area to achieve the best use of each and every component of the Zona da Barra Complex. In the future, the Complex will be partially operated by community or business organisations, integrating rich cultural and tourism resources in the vicinity to form a multifunctional cultural facility with family recreational space, and installations for the arts, cultural and creative industries, thereby promoting the sustainable use and social value of these historic buildings.

Macao's urbanisation started in the late nineteenth century. The above three industrial heritage sites of public and private shipyards and the firecracker factory are the best examples of industrial heritage from the early stages of the city's development. Although the sites are synonymous with obsolete and outdated industries, they carry the collective memories of the people of Macao and provide a solid record of the industrial activities in old Macao and of the history of the development of Macao. As the city grows, the conservation of industrial heritage sites becomes more important for preserving the remaining traces and memories of the city's urbanisation process and will become the impetus for future urban development. Through the revitalization of our industrial heritage, the Cultural Affairs Bureau hopes to revive people's memories of the city's historic legacy and enhance their sense of identity, which will pave the way for new methods and directions for the revitalisation of our cultural heritage of a similar nature.

4. Increasing Public Participation in Adaptive Reuse Programmes to Achieve a Win-win Situation

In recent years, adaptive reuse programmes, especially those concerning clusters of historic buildings, have attracted the participation and involvement of community residents and the general public, who have provided a large amount of valuable feedback on the formulation of objectives, exploration of potential new functions, and management and operation of the projects. With more extensive and active public participation, adaptive reuse projects have become more diversified and personalised, gradually reversing the longstanding government-led role. In the future, the Cultural Affairs Bureau will continue to encourage public participation in the programmes. For instance, the operation of some historic buildings can be commissioned to community or business organisations to better cope with public needs to achieve the goal of "protecting, operating and using the historic buildings by society". At the same time, the Cultural Affairs Bureau is successively developing more

innovative and interactive technologies for historic buildings and cultural facilities that are open to the public to enrich their presentation, to enable the public to play an active role in cultural heritage promotion and education, and to provide a better experience in cultural tourism. The Cultural Affairs Bureau will continue its efforts to apply innovative technologies, new media practices and new approaches that contribute to the goal of sustainable and effective protection of cultural heritage, diversified cultural industries, and the promotion of public participation.

I. Subsidy Programmes for the Maintenance and Revitalisation of Historic Buildings

The Cultural Development Fund, which was put into operation on 1 January 2022, is a crucial instrument for optimising and reintegrating the cultural resources and functions of the Macao SAR Government. The Fund also supports the implementation of adaptive reuse projects that can help ensure the long-term sustainable protection of historic buildings. This mechanism has encouraged local communities to independently take the initiative in revitalisation and helped private owners participate in the protection and maintenance of historic buildings.

For this purpose, the Macao SAR Government is preparing two subsidy programmes for the maintenance and revitalisation of historic buildings. The former encourages private owners of historic buildings to independently conduct regular repair and maintenance works with the Macao SAR Government's financial support, with an upper limit. The latter encourages relevant stakeholders to make good use of historic buildings by launching adaptive reuse programmes that are beneficial to society, the economy and cultural tourism. The government will provide free use of government owned historic buildings, financial support, and so forth. These mechanisms can better promote community participation in the preservation of historic buildings and allow cultural heritage to play an important role in the diversified development of Macao. The Subsidy Programme for the Maintenance of Historic Buildings is intended to mainly support owners of historic buildings and other buildings with cultural value, enabling them to apply for a subsidy if their building is in need of maintenance works, such as regular inspections, exterior maintenance and minor repair works, while at the same time encouraging more people to take part in heritage conservation.

The Subsidy Programme for Historic Buildings Revitalisation focuses mainly on historic building clusters under government ownership to be operated and managed by the community. As a pilot project in the first stage, it will be introduced to 10 out of 12 houses in the Mong Ha Villas. Three of these single houses will be designated to function as space for cultural performances, events or recreational activities for families, while the remaining seven villas will be planned more flexibly, allowing revitalisation proposals to facilitate the development of cultural products that suit the needs of the community and, therefore, boost Macao's cultural economy. The involvement of community results in innovative functions for the historic buildings and injects diversified functions and benefits that best fulfil the needs of the community.

II. Application of Innovative and Interactive Technologies for Better Promotion and Presentation of Historic Buildings

Since 2020, the Cultural Affairs Bureau has been applying innovative and interactive technologies in both online and onsite activities in the cultural facilities and historic buildings under its purview. In 2021, the Cultural Affairs Bureau launched online VR tours of the Guia Fortress and the Mandarin's House, two important attractions that are part of the "World Heritage – Historic Centre of Macao". The development of VR tours enables the public to enjoy online the Guia Fortress scenery, appreciate the beauty of the courtyard architecture of the Mandarin's House, and have a comprehensive visiting experience beyond physical boundaries. In addition, the Cultural Affairs Bureau strives to use creative ways to enhance cultural content for better appreciation of these historic buildings. In the AR (Augmented Reality) mobile app for the Mandarin's House, which was developed in 2021, the public can interact with certain characters through games. This encourages them to discover stories happening in different corners of the house, thus effectively enhancing the "replayability" of this World Heritage Site.

At present, the Cultural Affairs Bureau is designing a VR model for the ruins of St. Paul's College to offer a virtural St Paul's College that allow users to navigate, and in particular, to present the Church of the Mother of God virthually. Since only the façade survived the fire that burnt down the church in 1835, nowadays constituting the classified World Heritage Site that is commonly known as the Ruins of St. Paul's, the virtual-reconstruction requires considerable research on historical documents and old paintings to creating the historical scenes using VR. This VR project for St. Paul's College will offer a new and innovative visiting experience for the public. In addition to learning about the full extent of the former college, it will enable the public to explore the interior of the church that was behind the existing façade. Since it was China's first baroque church as well as the first university in the Far East, visitors will be able to go back in time four centuries ago and appreciate all the details of this monument, including scenes of daily life.

5. Conclusion

The adaptive reuse programmes carried out in recent years by the Macao SAR Government are in line with the guidelines set out by the Central Government, namely the "Plan for the Preservation of Cultural Relics and Related Technological Innovation during the fourteenth Five-Year Plan Period (2021-2025)", "Several Opinions on Strengthening the Reform of Cultural Relics Protection and Utilisation", "Opinions on Implementation of Expanding International Influence of Chinese Culture through Enlivening Cultural Relics", and "Guiding Opinions on Further Strengthening the Work for Cultural Relics". We will continue to enliven and enhance the use of heritage by carrying out more adaptive reuse programmes and encouraging more social participation. At the same time, with both online and onsite programmes, we will actively apply innovative technologies to strengthen the interpretation and promotion of the cultural value of the historic buildings and thus promote the inheritance and creative use of traditional Chinese culture. We believe that protecting, preserving and reusing built heritage will help improve the social and cultural environment of the city, enhance the quality of life, and promote cultural tourism, cultural activities and cultural industries. Thereafter, we will explore new ways to facilitate more and wider social participation and use of cultural resources. By formulating conservation policies that are compatible with urban development, heritage conservation can become a consensus with extensive social support and contribute to a brighter future for all.

Tai Kwun Unlocked

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Abstract

The conservation and adaptive reuse of the Central Police Station compound into Tai Kwun – Centre for Heritage and Arts has been recognized as an exemplary project, and has received international awards and recognition. Consisting of three Declared Monuments — the former Central Police Station, Central Magistracy and Victoria Prison — this historic site was originally designed to fulfil multiple functions of law and order within the walled compound. At that time, it was largely closed to the public. A new life and character was breathed into the historic site through its conservation and adaptive reuse by the partnership between The Hong Kong Jockey Club and the Hong Kong SAR Government. With the vision to contribute to the city's cultural vibrancy and creative capacity, Tai Kwun has been successfully transformed into an authentic and vibrant destination for cultural experiences. It has welcomed over 10 million visitors to the site since its opening in 2018.

This paper highlights the essential and interrelated elements, as well as the difficult choices, which underlie the conservation and adaptive reuse of Tai Kwun: Heritage values — how the project applies international values-based conservation processes so as to sustain the site's significance, and how decisions in management and cultural programming respect the heritage value; Change — how change is embraced and negotiated so as to accommodate new uses in dynamic contexts; Connections with people and urban environment — how the project involves public participation in considering the site's relation to the surrounding urban fabric; Cultural interventions — how a diversity of heritage and arts programming, space activations, and other uses and practices balances the cultural, social, and economic benefits for sustainability.

With adaptive reuse, the repurposed Tai Kwun significantly espouses its authenticity not only through its undisputed heritage values associated with the historic, physical fabric, but also with contemporary interactions within a broader range of art, cultural and social priorities. All these aspects are defined by the evolving city of Hong Kong and its contextual relationship with the Greater Bay Area along with the rest of the world.

As a walled compound with various clusters of buildings nestled on the hillside of Central, the Central Police Station compound has a history dating back to the 1840s. Consisting of the former Central Police Station, Central Magistracy, and Victoria Prison, the compound fulfilled multiple functions of law and order as it underwent different stages in its development (Fig. 1). The solidity of its surrounding walls and the imposing mass of its buildings served to affirm authority, security, and stability. The local Chinese refer to the former police headquarters as Tai Kwun, the Big Station, conveying an aura of power and hierarchy within the people's perception of the site.

The historic compound remained in use into the late 20th and early 21st centuries. In 1995, the Hong Kong government designated the Central Police Station, Central Magistracy and Victoria Prison as Declared Monuments. In 2003, the government began to consider the site's redevelopment. In 2006, the compound was officially decommissioned and vacated. It began a new life in 2008 when The Hong Kong Jockey Club led its heritage conservation and adaptive reuse project in partnership with the Hong Kong SAR Government. The vision pledged to protect, restore, and transform the heritage site into Tai Kwun — Centre for Heritage and Arts, a cultural hub contributing to the city's cultural vibrancy and creative capacity.

The conservation project was a masterwork by three renowned architectural firms — Herzog & de Meuron (Architect and Masterplanner), Purcell (Conservation Architect), and Rocco Design Architects Associates Limited (Executive Architect) in collaboration with The Hong Kong Jockey Club, the Development Bureau, and the Antiquities and Monuments Office. Being recognized as an exemplary conservation project, it has received several international awards and much recognition. These include: the Award of Excellence in the 2019 Asia-Pacific Awards for Cultural Heritage Conservation presented by UNESCO; the 2020 Quality Building Awards Grand Award in the Hong Kong Building (Renovation/Revitalization) category; and the 2021 RIBA International Award for Excellence. All these awards and recognition "have instilled a degree of confidence that Hong Kong can deliver conservation-led projects on an

Fig. 1 The Central Police Station compound consists of three Declared Monuments: the former Central Police Station, Central Magistracy, and Victoria Prison.

Fig. 2 With over 10 million visitors since its opening in 2018, Tai Kwun — Centre for Heritage and Arts has become a popular and vibrant cultural destination of Hong Kong.

international level" (Phillips, 2021). Furthermore, as the jury of the UNESCO Award remarked:

> The transformation of the former Central Police Station into a world-class center for Heritage and Arts has created a vibrant new civic space in the heart of the city's central business distinct.[1]

The formerly forbidding hub for law enforcement, judicial proceedings, and imprisonment — now unlocked and opened — has become an inviting place for heritage, arts, and leisure. Also, more significantly, it has provided accessible and inclusive spaces for the public through adaptive reuse. Since its opening in 2018, Tai Kwun has welcomed over 10 million visitors to the site (Fig. 2).

An aerial photograph of Tai Kwun shows the striking reality of the historic compound being dwarfed by modern high-rise developments (Fig. 3). Back in the mid-19th century, the site was "airy, and elevated" (*Chinese Repository, Vol. XII, From January to December, 1843*; as cited in Holdsworth & Munn, 2020, p. 4). In the southernmost section, the fact that the Prison Yard could be overlooked by the neighboring houses in Chancery Lane had already caused concerns. Thus, there was careful consideration of the wall height and the sight lines down into the prison (Fig. 4). Today, the physical discrepancies between buildings of the past and the present are far more drastic. The new form of the urban fabric — a low-rise historic block designated as heritage, surrounded by taller structures — has been reconceived as an "urban heritage bathtub" (Turner, 2021, p. 16). The symbiotic relationships between the heritage block and the surrounding urban fabric remind us that conservation and adaptive reuse must also consider the wider setting and contextual changes, as addressed in the 2011 UNESCO *Recommendation on the Historic Urban Landscape*. This approach promotes a holistic view of historic urban landscapes and sees urban heritage as a cultural, social, and economic asset for the development of a city.

Fig. 3 An aerial image showing the historic compound of Tai Kwun and its surrounding urban environment, 2018.

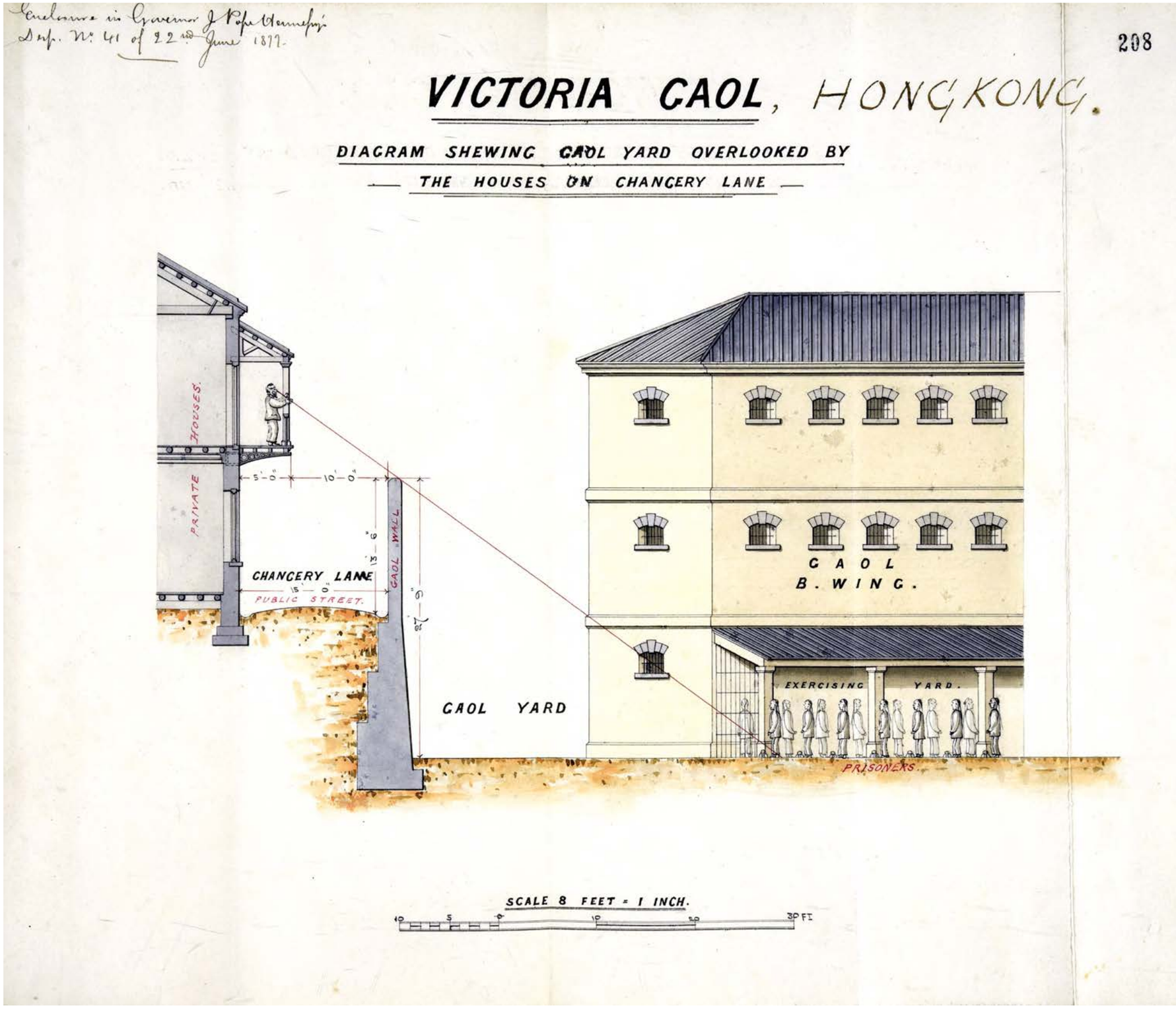


Fig. 4 Diagram showing the Prison Yard overlooked by the houses on Chancery Lane. Image courtesy of The National Archive, UK.

This paper takes a deeper look into the architectural conservation and adaptive reuse of Tai Kwun, highlighting essential and interrelated elements, as well as important considerations for redeveloping the site in response to the changes and challenges of the 21st century. It addresses the following questions: What purposes can heritage conservation serve beyond preservation and restoration of the historic ensemble? If heritage conservation and adaptive reuse are organized to serve contemporary society, then whom does Tai Kwun serve and how can it do so successfully?

Heritage Values

The conservation of Tai Kwun adopts a values-based approach that follows the philosophy and principles of international best practices, such as: *The Burra Charter: The Australia ICOMOS Charter for places of cultural significance* (2013); *Principles for the conservation of heritage sites in China*, or *China principles*, developed by China ICOMOS (2015) and approved by National Cultural Heritage Administration; as well as Conservation principles, policies and guidance for the sustainable management of historic environment, produced by Historic England (2008).

Establishing the cultural significance of Tai Kwun is vital to its conservation and adaptation, the essence of which is to achieve a sound understanding of why the place is valued and to whom it is valuable. This method of approach resonates with the current thinking of what conservation means and what purposes it serves. *The Burra Charter* (2013, article 1.4) states:

> Conservation means all the processes of looking after a place so as to retain its cultural significance.

The Conservation Management Plan prepared by Purcell provides an overarching philosophical framework for establishing the cultural significance of the compound.[2] It is a live, touchstone tool in developing recommendations and policies that guide decisions about conservation and ongoing management, in order to ensure that cultural significance is retained, interpreted, and revealed for the future.

Research carried out at the National Archives in the United Kingdom and at various archives in Hong Kong has been complemented by physical investigations of site evidence, archaeological excavations, and analyses of the built fabric to inform the masterplan (Purcell, 2019). The plan defines Tai Kwun's cultural significance in terms of the historic, architectural, social, cultural, technological, evidential, and archeological value. However, it should be noted that the Conservation Management Plan is not a definitive account of the history and significance of a place. While providing a frame of reference, it does not exclude a multivocal approach to history and heritage interpretation.

Tai Kwun's historic value is associated with its original function as a place for law enforcement and criminal justice. The compound bore witness to the development of police, judicial, and prison cultures over time. It also provided the theatrical backdrops for the encounters of diverse communities that have shaped Hong Kong's multiethnic makeup in different forms: segregation, discrimination, interaction, coexistence, and inclusion (Fig. 5).

Fig. 5 A multiethnic workforce of the Victoria Prison, consisting of Europeans, Indians, and Chinese, c. 1905.

Fig. 6 The design style features a combination of European architectural elements, Chinese roofing, and local adaptions, such as airy verandahs and window shutters.

The geographic setting of the compound highlights important features of Hong Kong's urban history. Located at the heart of Central, it was at the pivot of contrasting neighborhoods along Hollywood Road — the European quarter to the east and the Chinese district to the west (Holdsworth & Munn, 2020, p. 6). To the north was (and still is) the commercial and financial district extending to the shore; to the south were properties of missionaries and religious institutions as well as residences of wealthy merchants in the mid-levels of the mountainous island. Today, the compound numbers among other significant heritage places, along with the natural and cultural landscapes which define Hong Kong's urban heritage.

The compound suffered damage from bombings in the Battle of Hong Kong during WWII and was occupied by the Japanese military police, the *Kenpeitai*. When Hong Kong experienced a surge of Vietnamese refugees and undocumented immigrants in the 1970s and 1980s, the cell blocks were used by the Immigration Department to keep them in custody before repatriation. All these layers of history associated with the compound are inseparable aspects of Hong Kong history. They weave together such important themes as war, governance, institutional development, and the destinies of many people in relation to significant changes and events in local and world history.

Closely related to these is the site's archaeological value, due to the availability of tangible evidence for certain building foundations (C Hall and the radial plan of the Victoria Prison) among the artefacts from the past. There is also evidential value, both archival and architectural, that demonstrates how the compound was used and by whom (Purcell, 2019, vol. 1, p. 195).

Architecturally speaking, the compound is exceptionally valuable to the city of Hong Kong, where urban development happens so rapidly that the surviving historic ensemble is an unmistakable reminder of urban transformation. The physical fabric provides tangible evidence of a diversity of design styles, building materials, and techniques specific to mid-19th and early 20th centuries, many of which are unique in its combination of British (European) and Chinese approaches. Whether the architecture appropriates European classical styles to create awe-inspiring façades and layouts (e.g. Barrack Block, Central Magistracy, and Headquarters Block), manifests unique concepts, designs, and functions (e.g. radial-plan prison), or adapts to local and utilitarian contexts (e.g. airy verandahs, window shutters, and Chinese roofing), the compound is a precious and massive architectural set-piece in the heart of the central business distinct (Figs. 6, 7).

Fig. 7 Façade of the Central Magistracy, constructed in 1914.

Fig. 8 This chapel mural located at the entrance of the Victoria Prison was discovered and restored during the conservation process.

Moreover, the site's construction history provides insights into the transfer of design styles, craft skills, materials, and technologies across the transregional networks between Hong Kong, Asia, and the world at large. Just in terms of materials, the compound showcases the architectural history of granite, timber, brick and lime plaster, Portland cement for mortar and render, concrete, steel, cast iron, ceramic tile, and more (Purcell, 2019, vol. 1, p. 193). It demonstrates the acceptance of both local knowledge and imported construction technologies in the city's architectural development.

The social and cultural value of Tai Kwun is inseparable from its place in the consciousness of the Hong Kong people, as reflected by the intense public sentiment and opinions for conserving its physical and cultural heritage. When the government decided to develop the site in 2006, the Central Police Station Heritage Taskforce was formed to provide public opinions about its future use. After a survey online and in local newspapers asked the public to express their views, the response showed that the compound should be respectfully conserved. Public voices for respecting the legacy of Tai Kwun are exemplified as follows:

> These century-old historical monuments are a testimony to Hong Kong's development, imbued with the collective memory of Hong Kong citizens, and an invaluable heritage of ours and our descendants.[3]

In summation, all these heritage values embedded in the site constitute to its cultural significance. A better understanding of such tangible and intangible values can inform the integrity and authenticity in conservation and adaptive reuse.

As regards the conservation processes, the project followed methodical procedures, involving the appraisals of the physical and structural conditions of the built fabric; identifying restoration needs; conducting scientific research and analyses; and arriving at architectural and engineering solutions. As always, the conservation processes utilized judgement calls and at times difficult choices regarding ways to accommodate integrity, authenticity, safety, new regulations, building codes, and barrier-free access.

It is worth mentioning that conservation research has broadened our understanding of the site's attributes, especially in terms of construction and materiality. With paint analysis and reapplication of the earlier color schemes (prior to 'police blue'), the appearance of some of the historic buildings have been dramatically changed and their aesthetic integrity restored. Discovery of new material evidence during restoration — such as the chapel mural (Fig. 8) and the vaulted brick ceiling of D Hall — has added to our knowledge about past activities and designs. The participation of builders and crafts artisans in the repair of traditional Chinese roofing and plaster molding has also helped preserve specific craft skills and workmanship that are no longer in high demand today.

Change

Within the current trend of built heritage conservation, adaptive reuse is seen as "a way to conserve buildings or structures while allowing for respectful change" (Cummer & DiStefano, 2021, p. 8). When defining the conservation processes, *The Burra Charter* (2013, article 14) allows for "reintroduction of a use" and "adaptation". The charter (article 15.1) further states:

> The amount of change to a place and its use should be guided by the cultural significance of the place and its appropriate interpretation.

From the very beginning of the conservation project, the repurposed Tai Kwun site has been envisioned as a cultural destination to benefit the community. Thus, the conservation process has carefully considered the potential for integrating restoration work with alterations and adaptations which would improve the operation of the buildings. The cell blocks of the prison architecture offer a good example. The cells for keeping inmates behind bars cannot be sensibly used for other purposes without the freedom of spatial modification. The solution is to conserve certain cell blocks (B Hall, E Hall) and a portion of the cellular layout in the surviving D Hall, while accepting that other areas can be altered for new uses (Fig. 9).

Adapting the heritage place for contemporary reuse has involved the construction of modern infrastructure and amenities. Other significant transformations include the unlocking of the connections between buildings amidst the original zigzag routes to open direct passageways across the site, and the construction of a footbridge connecting the compound with the Central-Mid-Levels Escalator and Walkway System — all of which provide visitors with more convenient access.

The most distinguishable change is undoubtedly the construction of two iconic buildings— JC Cube and JC Contemporary — for the purposes of arts and cultural engagement with the public (Fig. 10). Given that the site is a very enclosed place, adding these new structures has required the demolition of some later-built structures of low significance. Designed by Herzog & de Meuron, these buildings are constructed with steel and concrete and protected by aluminum cladding made of recycled industrial materials (vehicle wheels). The geometric layouts of their aluminum façades echo the masonry blocks of the red-bricked buildings and granite walls. While the new additions are complementary to the historic architecture, they are markedly different in design and character. Housing a couple of white-box galleries for contemporary art exhibitions and an auditorium for performances and cultural events, these two iconic structures offer a new architectural expression that redefines Tai Kwun as a bold, innovative cultural hub.

Because every step of the conservation practice has been conducted to the highest possible standards of practice, this award-winning conservation project has raised the community's awareness of the impact of heritage conservation on the cultural development of Hong Kong. Ultimately, conservation and adaptive reuse allow for the ongoing construction of identities and meanings ascribed to the heritage place.

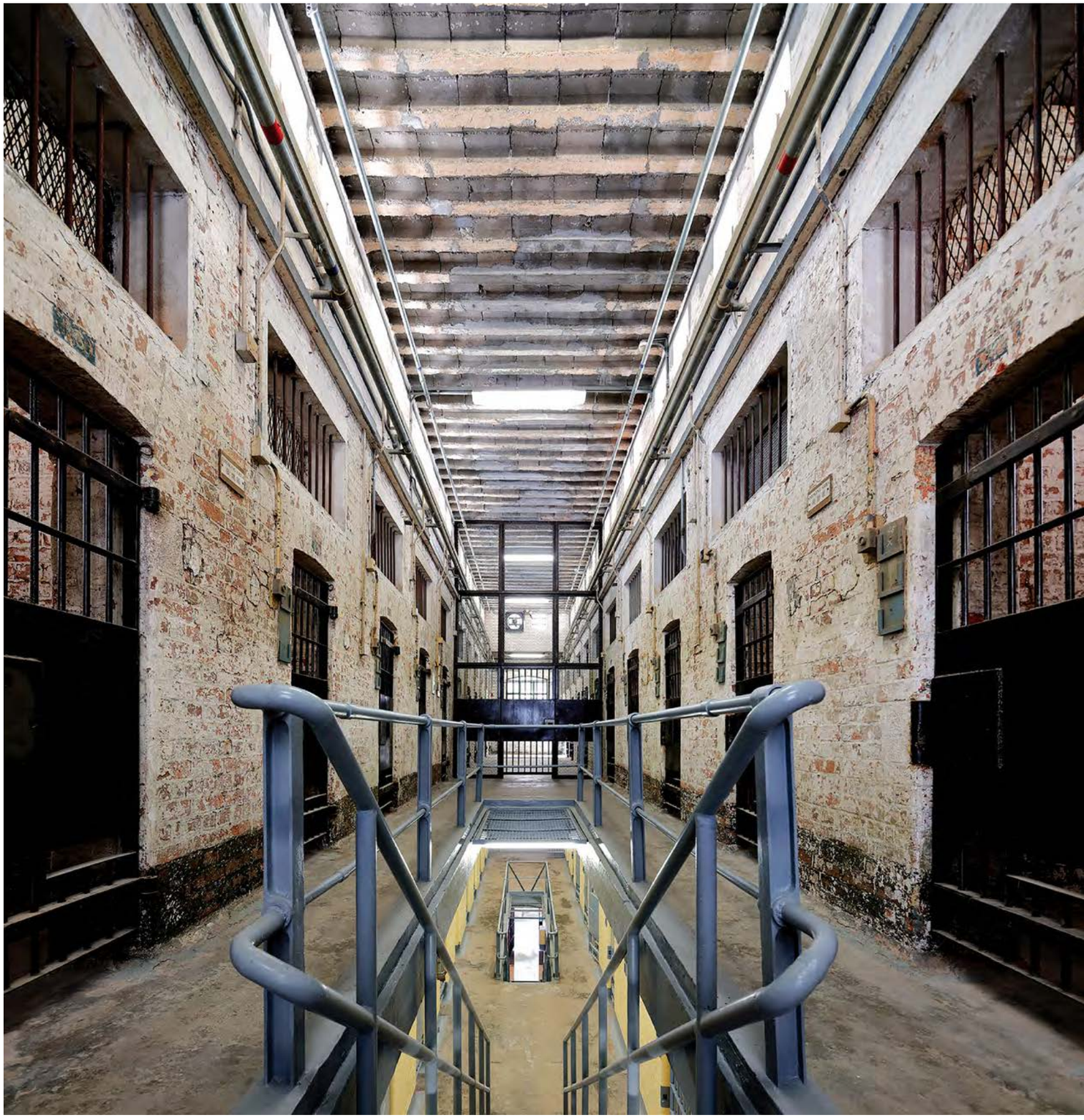
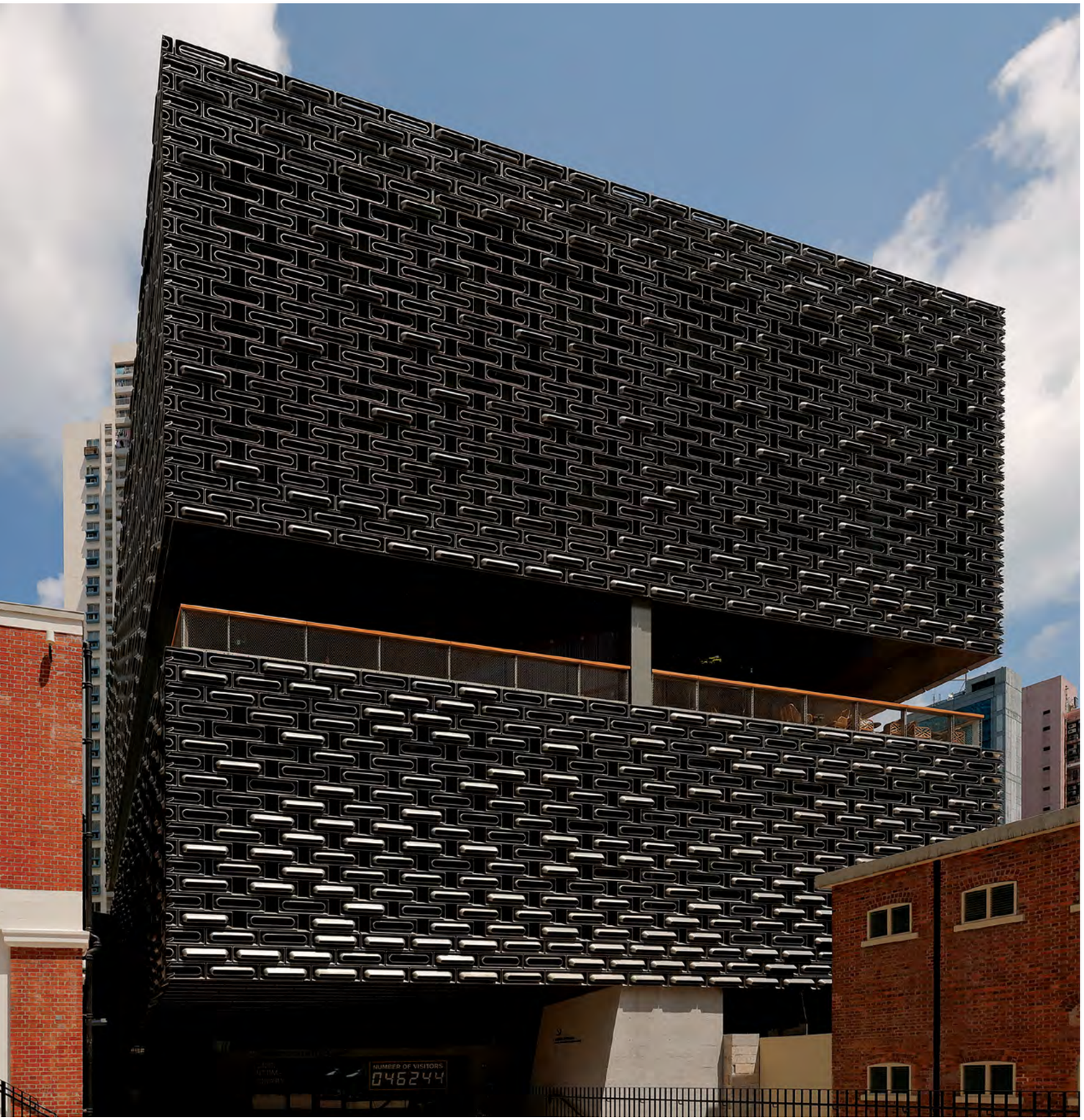


Fig. 9 One of the prison blocks, B Hall, is preserved in its authenticity for heritage interpretation.



Connections with People and Urban Environment

People are rightly placed at the heart of Tai Kwun's heritage conservation and cultural interventions. Ever since the government decided to redevelop Tai Kwun, public participation had reflected a strong sense of community attachment, with high expectations for its preservation and appropriate use (see Purcell, 2019, vol. 1, p. 88). When The Hong Kong Jockey Club leads the conservation and adaptive reuse project in partnership with the government, the process has continuously involved experts and stakeholders in order to help shape and reshape the outcomes. There have been commissioned specialist reports, meetings, and feedback gatherings which welcome different opinions.

To cite the example of the design of the contemporary additions by Herzog & de Meuron, there was an earlier proposal for the construction of a steel-and-glass tower with latticework structures ranging from 426 feet to 525 feet in height, nicknamed the "Bamboo Scaffolding Tower". When this proposal was met with different public opinions, due to its height and discordance with the surrounding neighborhood, the design concept was dropped (Law, 2008). Public participation also resulted in heated debate for the preservation of F Hall, which had been suggested for demolition to accommodate the new tower (Purcell, 2019, vol. 1, p. 88). F Hall was built in 1931 and was used for some time as a printing workshop, and was later converted into a reception center with interview booths for meetings between prison inmates and their visitors. What were the implications of involving public interaction in this instance? Here, the professionals and the community could jointly understand the values of the building, which informed decisions on what to preserve in accordance with relative levels of significance. Public participation in the processes of values-based conservation thus provided new modes of engagement for a wider range of stakeholders to respond to contextual challenges and to amplify the site's relevance (Avrami et al., 2019).

When opening up the spaces of Tai Kwun that had long been sealed off to the public, one of the challenges was to forge and deepen the site's new relationship with the community. This involved a reorientation of public perception about its renewed identity and relevance, without compromising the heritage significance. The process of establishing the site's new relationship with the community is ongoing, and this is particularly relevant to its surrounding neighborhood, with which Tai Kwun shares the urban environment. Prior to its public opening in May 2018, there were two days of special previews for *kaifongs* (neighbors) and residents to reconnect to Tai Kwun, enjoying full days of activities, entertainment, and light catering. The pre-opening communications strategy was to ensure that the wider community saw Tai Kwun as its own heritage asset belonging to the Hong Kong people, and not just as another tourism initiative that excludes a large number of locals. It was therefore a conscious decision to organize an inaugural heritage exhibition titled "100 Faces of Tai Kwun", featuring stories collected from over 100 *kaifongs* in the neighborhood to celebrate their myriad intricate relationships with Tai Kwun. Another solo art exhibition, as part of the inauguration of the contemporary art programming, presented the work of the emerging local artist Wing Po So (b. 1985), highlighting her experience growing up in the neighborhood and her family's heritage in Chinese medicine. All such efforts were directed towards creating community connections and leveraging the heritage value of the site as a community asset.

Fig. 10 JC Contemporary houses galleries for cutting-edge art exhibitions and is an active site of innovation and experimentation.

As the site continues to operate after its opening, continuous community engagement and feedback have been sought with regard to site activation projects and their impact on the neighborhood. This includes noise management and placemaking which inspire the creative use of open spaces in Tai Kwun. In the distant past, yells and screams from inmates subjected to corporal publishment mingled with the "terrible cries" of lunatics, who "kept the whole Hospital or Gaol in an uproar" (*Hong Kong Government Gazette*, 6 July 1878; as cited in Holdsworth & Munn, 2020, p. 4). Today, the Prison Yard, Parade Ground, and various spaces offer new public spaces for community-oriented activities. For example, in preparation for the first Prison Yard Festival (Projekt Berlin in November 2019) (Fig. 11), a series of acoustic tests from the rooftops of several apartment buildings along Chancery Lane was conducted to select the ideal sound system that balanced the quality of the audience experience with a fundamental commitment not to disturb the adjacent residential neighborhood. The inclusion in the Prison Yard Festival of a dedicated preview concert for neighbors is a gesture of goodwill and a demonstration of Tai Kwun's ongoing commitment to being a responsible neighbor.

Fig. 11 Live performance of Ute Lemper in Tai Kwun's Prison Yard, one of the highlights of Projekt Berlin, 2019.

Moreover, community workshops were organized to engage neighbors and residents in the reimagination of the Prison Yard and Lower E Hall (formerly Prison Laundry Room). These workshops were designed to accompany a special heritage exhibition, titled "Serendipity in the Street" (summer 2021), which celebrates the improvisational adaptation of spaces tucked away in the neighborhood in order to strengthen the connections between people and places. Altogether, the exhibition and the associated workshops transcended the boundaries of Tai Kwun's walled compound, which suggests the fluidity of urban spaces for innovative use and for capitalizing on a local community's potential to inspire meaningful transformation. The public reinvention of Tai Kwun's open spaces has contributed to the introduction of additional green spaces and outdoor seating for public use.

Fig. 12 ÉLAN Lost Child Project HK uses theater and arts to empower children and young people.

Cultural Interventions

By safeguarding heritage, promoting a diversity of cultural expression in contemporary visual and performing arts, and activating spaces within a historic setting for recreation and delivery of cultural and public services (with a bookshop, art galleries, hospitality, retail, food and beverages establishments), Tai Kwun is a cultural mosaic in all its tangible and intangible complexity — a composite environment for the enrichment of cultural and urban experiences.

How to sustain the heritage values of the site where historic functions cannot be replicated and where new uses take in different pulses and forms of life? How to sustain the ongoing construction of new meanings ascribed to the place, and continue the memory evoked by the physical fabric?

Cultural interventions through heritage interpretation and different forms of creativity, along with the aid of digital technologies, have facilitated comprehension of the heritage place and its layers of history. Heritage interpretation is an important component of Tai Kwun's cultural offerings to reveal and enhance the site's significance. Its aims are to provoke thought and reflection on history; to cultivate respect for heritage; to create contemporary relevance; and to foster dialogue across disciplines. Additional values can be derived from the benefits of heritage education and public learning which contribute to an appreciation of our shared heritage.

It must be recognized that the disciplines of history and heritage are always subjects to be contested. The Conservation Management Plan may have provided a clear statement of the heritage significance guiding decisions in conservation and management. Yet Tai Kwun's layered history also calls for alternative narratives. Recent scholarship about the history of Tai Kwun has offered a more representative sample of stories to broaden interpretations of history and heritage. It has also reminded us of the painful urban drama behind the backdrop of brick and stone of the architectural compound (Holdsworth & Munn, 2020). Enhancing the site's heritage values need not only be expert-led, but it can also be driven by the community—notably, through oral history to allow for valorization by the public through multiple perspectives. Viewing Tai Kwun as a bearer of multivocal narratives, heritage interpretation can lend the site an air of historic dignity and solemnity. It can also provide "new dimensions for spirit and feeling by authenticating the new values" (Turner, 2021, p. 15).

Today, Tai Kwun is one of the most visited cultural landmarks of Hong Kong. More than half of its visitor traffic consists of repeat visitors. In addition to the aesthetic appeal of its meticulously conserved architecture, there is the vibrancy and cultural stimulus of its 365-day programming which continuously attracts repeat visitors, most of whom have become Tai Kwun Fans. Contemporary visual and performing arts programs, as well as other lifestyle offerings, realize the potential of the site as a magnet for creativity, ingenuity, and contemplation. Whereas a diversity of visual and performing arts programs nourish spirituality by virtue of their revelatory and contemplative power, there are also signature celebratory programs anchored on traditional festivals and holidays, as well as socially engaged programs such as "ÉLAN Lost Child Project HK" that use theatre and arts to empower children and young people (Fig. 12). Transdisciplinary explorations of critical issues facing our world today — such as public health, labor, technology, borders, nature, gender, sexuality, identity, and cultural diversity — transform the site into an active platform for cultural dialogue and for the integration of heritage and arts into sustainability. In particular, the uniqueness of Tai Kwun as a major cultural destination of Hong Kong lies in its potential and capacity to create this balance of contemporary relevance, cultural excellence, and heritage authenticity.

Such an integrated approach recognizes that culture through heritage and arts not only offers intrinsic transformative experiences to improve wellbeing and quality of life, but also generates other social, environmental, and economic benefits through innovation, public participation, social inclusion, community placemaking, and the promotion of creative and cultural service industries. In this regard, heritage conservation and contemporary reuses support the UNESCO advocacy for "culture as an enabler and driver for sustainable development" and also affirm the idea that "a human-centered city is a cultured-centered space" (UNESCO Director-General, 2016, pp. 1, 28; UNESCO Director-General, 2018).

Significantly, beyond the balancing of heritage protection with other cultural and socio-economic benefits, there is the recognition of "the fundamental and pivotal role of the conservation of a community's heritage assets to future sustainable development", as remarked by Richard Engelhardt (2020) in his analysis of the future directions for heritage conservation. In this way, not only is heritage respected and safeguarded, but it also interacts with new values reflective of contemporary society. All are interconnected in sustaining the long-term viability of the heritage place.

Tai Kwun — Centre for Heritage and Arts defines its mission statement as follows:

> We conserve, activate, and sustain Tai Kwun as Hong Kong's most authentic and vibrant destination through our distinctive and holistic cultural experiences and through innovative collaborations, to celebrate our shared origins, stimulate curiosity and creativity, cultivate talent and excellence to become an enduring source of international prestige and community pride.

How do we know if Tai Kwun is achieving its mission and the ways in which it is perceived by its audience? What value does the audience derive from the experiences on site? To assess programmatic outcomes and overall institutional impact, a sector-developed metric framework — the Culture Counts Evaluation System — has been adopted to implement audience-based evaluation. The survey is concerned with the quality of the visitor experience, and uses a wide range of survey questions, covering respective dimensions within "cultural", "social", "economic", "civic", and "environmental" domains. The results from the 2021 annual survey revealed that recipients consistently and strongly agree that Tai Kwun's cultural programming offers an enrichment of "aesthetic experience" (a median value of 96%) and "meaning" (84%), and sparks "innovation" (95%) and "curiosity" (88%). When assessing Tai Kwun's ability to connect people to "a shared heritage" or "a sense of belonging", the overall median score was 81%. The dimensions used to assess "a sense of place" recorded an overall median value of 82%. The insights drawn from the data analyses, as provided by the external international accessors, suggest that "Tai Kwun [in 2021] was most successful at ensuring audiences experienced a sense of joy, beauty, and inspiration as a result of their visit" and "Tai Kwun was successful at helping visitors understand, appreciate, and feel connected to the precinct" (Culture Counts, 2022). An additional survey was also carried out throughout 2021 to measure audience experience with the Tai Kwun precinct, in which visitors attributed a high median score of 82% when assessing Tai Kwun's success in providing "an important addition to the cultural life of the area".

In conclusion, adaptive reuse as a conservation approach is a continuous process and goes beyond project-based architectural restoration. Heritage safeguarding, conservation, and its longer-term custodianship involve the capacity to manage change in response to the needs of society and to the challenges we face in the 21st century. Tai Kwun continues to demonstrate the relevance of heritage and arts in defining the legacies of the future. The site espouses authenticity not only through its undisputed heritage values associated with the physical fabric, but also through dynamic interactions with a broad range of cultural, social, and environmental priorities. All of these are responsive to the emerging needs of the evolving city of Hong Kong, and of its contextual relationship with the Greater Bay Area along with the rest of the world.

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[1] For the full remarks from the jury, see UNESCO Office Bangkok and Regional Bureau for Education in Asia and the Pacific, 2020, p. 290.

[2] The original masterplan was produced in June 2008 by Purcell (then Purcell Miller Tritton LLP). In 2013, an interim review was carried out to review the recommendations and policies. A further masterplan was prepared in May 2019 after the completion of the conservation project, incorporating a considerable amount of knowledge, research, and understanding of the site gained through the ten years of conservation project. See Purcell (2019).

[3] From the pamphlet produced by the Concern Group for Preservation of Hong Kong's Historic Buildings to advocate for the protection of the Central Police Station compound (2003); as cited in Purcell, 2019, vol. 1, p. 192.

Heritage Conservation and The Adaptive Reuse of Historic Buildings

—— Learning from Central Market

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Abstract

There is no argument that we need to preserve the cultural heritage and historic values of buildings in our city. However, a full architectural restoration, returning a building to its previous form and original completeness, may not be needed in every instance since not all historic buildings are restorable and can be made ephemerally anew. Improper restoration might also unintentionally destroy part of the building's historical values created overtime by the different roles taken up by the building in the community. Some alterations to the original building might have gained aesthetic value or historical significance rendering a return to the original state inappropriate.

With the passing of time, people have different needs than those of the past. A historic building in the city may require contemporary intervention to extend its life rather than being mummified as a lifeless edifice for museum collection. This paper will use Hong Kong Central Market as an example to discuss the challenges of adaptive reuse including the responsibility to preserve the original work authenticity and enhance the embedded historical values while satisfying the current functional and adaptive reuse needs.

In this short paper I will discuss the current heritage conservation practice in Hong Kong's built environment by sharing my experience of the recent adaptive reuse of Central Market. I have been involved in the revitalisation project of retrofitting Central Market, including its subsequent operation after refurbishment, and have three main points to share in this paper. The first point is we should not view the conservation of our built environment only as an indulgent exercise by the connoisseurs of architecture, but should acknowledge it as a collective social practice to keep the community's common memories alive. Buildings can be the pride of a place and ought to narrate the social history at the time of their original construction and subsequent alterations. The second point is that with the passing of time, not all old buildings require preservation or full restoration to their original condition. In some cases, it would be inappropriate to restore a building to its previous completeness owing to unsafe condition or obsolete functionality. The third point is the application of adaptive reuse as one of the practical strategies for heritage building conservation and as a way of making the refurbished buildings useful for current community needs. In adaptive reuse, one needs to guard against fake restoration that would destroy historical value associated with the refurbished building. However, the concept of architectural palimpsest is a legitimate tool in heritage building refurbishment and adaptive reuse. Applying the architectural concept of palimpsest can enrich the historic building with extra layers of meaning and add to the building's power of community storytelling.

Conserving the built environment as a collective social practice

The legendary doyen of the Chinese architectural heritage conservation movement Liang Sicheng (梁思成 20 April 1901 – 9 January 1972), no doubt influenced by the political reformer's vision of his father Liang Qichao (梁啓超 23 February 1873 – 19 January 1929) on 'national rebirth', considered:

> "The gradual evolution of building scale, form, engineering, and art is the reflection of the rise and fall of a particular civilization; the architecture of a country and ethnic group is apt in reflecting the materiality spirit that becomes visible in its historical progress."[1]

The May 1942 speeches of Mao Zedong (毛澤東 26 December 1893 – 9 September 1976) at Yan'an Forum on Literature and Art (延安文藝座談會) also made clear that the nature of literature and art was to serve the masses and must come from the life of the people. In Mao's conception, the finished product of art, regardless of its elementary or more advanced form – that is to say the buildings in our built environment under the context of this essay – was for the masses and could unite the people as an expression of people's thought and ought to reflect the mass culture at the time of its production.[2]

The role of architecture to unite people and be the pride of a country is also not new or limited to the East. The Renaissance humanist, architect, and one of the greatest polymaths in history, Leon Battista Alberti (14 February 1406 - 25 April 1472) in his architectural treatise, *The Ten Books on Architecture*, concluded that "let it be said that the security, dignity, and honor of the republic depend greatly on the architect [i.e. architecture]."[3] Christopher Wren (30 October 1632 – 8 March 1723), the astronomer-architect who rebuilt St Paul's Cathedral and 51 parish churches after the Great Fire of London in 1666, and also founded the Royal Society, wrote in the mid-1670s:

> "Architecture has its political Use; publick Buildings being the Ornament of a Country; it establishes a Nation, draws People and Commerce; makes the People love their native Country, which Passion is the Original of all great Actions in a Common-wealth. The Emulation of the Cities of Greece was the true Cause of their Greatness. The obstinate Valour of the Jews, occasioned by the Love of their Temple, was a Cement that held together that People, for many Ages, through infinite Changes. The Care of publick Decency and Convenience was a great Cause of the Establishment of the Low-countries, and the many Cities in the World. Modern Rome subsists still, by the Ruins and Imitations of the old; as does Jerusalem, by the Temple of Sepulchre, and other Remains of Helena's Zeal."[4]

While we should be open-minded and not overly obsessed by the zeitgeist's dogmatic pedagogy leading to historical determinism, it should be clear that art and architecture have their functional form as an object but also devise meaning from the embedded process and content. Boris Pasternak (29 January 1890 – 30 May 1960), the 1958 Nobel Prize laureate for Literature and author of *Doctor Zhivago*, the epic novel encompassing 40 years of Russian history, says art is "an idea, a statement about life" and "I have never seen art as form but rather as a hinder, secret part of content."[5]

From the above erudition, to preserve heritage buildings is not just a nostalgic indulgence in past architecture by the architect but a crucial collective practice of society to use the built environment for memory and historical value accounting. The architecture can instil pride in the community and the buildings are part of the documentation of the social system at the time of construction. The preservation, transformation, overwriting, and lacuna of such record at a particular period in the historical continuum are equally telling since they reflect the different priorities and values at different stages of social progress. More importantly, they represent ongoing history-making in progress rather than a static historical record, which I shall further discuss in the latter part of this paper.

In the case of Central Market, the government's decision to cease the market's operation in March 2003 after more than a century at the same location, since the second-generation of the market was built and opened in May 1895[6] and the subsequent 1939 rebuilt, was revealing. The initial plan to demolish the building and sell the land to make possible a Grade A office commercial development reflected government priority at the time, which was to

maximise the monetary return from urban redevelopment. Despite Central Market's Grade 3 historic building status, which was established in 1990, and the social significance of the market site, it was deemed appropriate to sell the site through tender to the highest bidder to enrich government coffers. The site was put into the List of Sites for Sale by Application (List of Sites for Sale) after land sales were resumed by government in 2004[7]. Unfortunately for the government but fortunately for Central Market, Hong Kong's economy continued to face headwinds and there was no clear recovery sign yet from the 1997 Asia financial crises. By then, Hong Kong property prices had dropped 60 - 70% from the 1997 peak price and people were not sure if the downward trend would continue. The investment risks and fears were intensified by the 2003 severe acute respiratory syndrome (SARS) epidemic[8], which caused developers to shy away from bids reaching government's reserved tender price set for the site. The Central Market site was left unsold for years.

The preservation of Hong Kong's built heritage under the British colonial government had received very low priority. A law for built heritage protection was only established in 1976 under the Antiquities and Monuments Ordinance (Cap. 53) with a subsequent establishment of a small Antiquities and Monuments Office (AMO) to be responsible for the conservation of the city's built heritage. AMO had no jurisdiction over other government departments; this lack of resources and support meant that in the 21 years from the Cap. 53 establishment to the end of the colonial era on 30 June 1997, only 65 out of thousands of historically significant buildings were declared monuments for protection. This meagre effort of three protections per year on average would seem to be a window-dressing exercise rather than a true effort to save the city's built heritage from destruction. The demolition of many historically significant buildings continued in the 1980s and 1990s, including the Hong Kong Club Building (built 1897) with its fine Victorian architectural details and the culturally rich Chinese Methodist Church (demolished 1994), designed in the aesthetic genre of the Chinese renaissance architecture movement.

After 1997, the HKSAR did not immediately address the shortcomings of the colonial era policy on heritage conservation until two watershed events in the mid-2000s awakened the public to the urgent needs to conserve the city's built heritage. The rampaging redevelopment of Hong Kong's historical districts had left many citizens speechless as they tried to make sense of the disappearance of familiar places and the city's identity. The conservation movement gained support, especially among younger generations, and became very vocal. The voices in the community to save heritage buildings from demolition grew louder. All this came to a watershed moment in 2006-07 with activists' judicial review legal challenges, sit-ins, and public protests on the demolition of Star Ferry pier (2006) and Queen's Pier (2007). Although the public outcries did not stop their demolition, they prompted the government to revisit its heritage conservation policy and devise a new plan on how historic sites should be conserved. By October 2007, it was clear that the government had acknowledged the importance of historic buildings/sites when the Chief Executive (CE), Donald Tsang Yam-kuen, announced in his Policy Address Paragraph 53(2) the removal from the List of Sites for Sale the historic Central School (中央書院) Hollywood Road Site, thereby saving the former Police Married Quarters (PMQ) on the site from demolition. A new built heritage conservation policy, with a revitalization priority to emphasis the economic and social benefit, was announced under the CE's Policy Address Paragraph 51:

> "In my view, revitalisation, rather than preservation alone, should be pursued to maximise the economic and social benefits of historic buildings. This is in line with the concept of sustainable conservation."[9]

Furthermore, the creation of a Commissioner for Heritage Office to coordinate the long-term conservation strategy was confirmed under Paragraph 55:

> "In the next five years, the Government will step up our work on heritage conservation. A Commissioner for Heritage Office, to be set up in the Development Bureau, will provide a focal point for public participation and the Government's heritage conservation work. This shows that heritage conservation will be a long-term commitment of the Government."[10]

Hong Kong's built heritage conservation had now entered a new era of utilizing revitalisation to facilitate conservation. Revitalization of the Hollywood Road Site was set in motion and in 2010 the Antiquities and Monuments Office rated the Police Married Quarters a Grade 3 Historic Building. Renovation work started in 2012 under the supervision of the Architectural Services Department and PMQ was reopened to the public in 2014 as a place for 'creative industries' and 'creative lifestyle experiences'.

What is interesting to note is the deliberations by the Central and Western District Council from 2005 to 2007 on future possible uses of the said Hollywood Road site, which included swimming pool, community hall, public library, etc. The Council further suggested that such public amenities could be located at the Hollywood Road site or the Central Market site[11]. I shall discuss later how the serendipity of such an embryonic swimming pool vision resurfaced in the subsequent Central Market design. At this point, it suffices to note that the Central Market site was only removed from the List of Sites for Sale, in the 2009-10 Policy Address, three years after the removal of the Hollywood site from the List despite the Central Market's Grade 3 Historic Building rating being given years before PMQ's. The Central Market site was entrusted to the Urban Renewal Authority (URA) for conservation and revitalization. The funding of the project encountered various difficulties, and a subsequent change of the modus operandi to involve a private sector operator was deemed necessary, which is the reason for my involvement with the Central Market adaptive reuse. Before I elaborate on Central Market's final adopted revitalization plan and its adaptive reuse, let us first consider why some historic buildings may not require full restoration.

Not all buildings require preservation or full restoration to their original condition

Article 1.7 of the *Burra Charter, The Australia ICOMOS Charter for Places of Cultural Significance* 2013, states:

> "Restoration means returning a place to a known earlier state by removing accretions or by reassembling existing elements without the introduction of new material."[12]

Furthermore, the following restoration requirement under Article 9 of The Venice Charter, 1964, accepted by the International Council on Monuments and Sites in 1965, makes it clear that restoration is about respecting the past and that there are two explicit values in the architecture, the aesthetic and historic, that require preservation.

> "The process of restoration is a highly specialized operation. Its aim is to preserve and reveal the aesthetic and historic value of the monument and is based on respect for original material and authentic documents. It must stop at the point where conjecture begins, and in this case moreover any extra work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp. The restoration in any case must be preceded and followed by an archaeological and historical study of the monument."[13]

I believe in the need to preserve the cultural heritage and historic buildings in our city because they constitute our common memories. I also consider genuine restoration is very difficult to achieve in our time because of the scarcity or unavailability of past material and bygone era craftsmanship. However, a full architectural restoration, returning a building to its previous form and original completeness, may not be required in every case nor be appropriate in some instances. What we should be aware is that until the 18th century, the concept of built heritage conservation received little emphasis in altering old buildings for new functional and economical needs of the day. The change came during the French Revolution (1789 -99) after the widespread vandalism prompted the revolutionary government to devise a public rationale for heritage protection in the midst of state confiscation of aristocrats' buildings and church properties.

Henri Gregoire (4 December 1750 – 28 May 1831), who was the president of the National Assembly in 1791, came up with the idea that heritage preservation should be a concern of the nation and worth conservation rather than destruction because historical structure recorded people's accomplishments and could have a historical documentary value.[14] Gregoire coined the term 'vandalism' in his 1794 *Report on the Destruction Brought About by Vandalism, and on the Means to Quell* with the conclusion that "the barbarians and the slaves detest the sciences, and destroy monuments of the arts; free men love them and preserve them."[15] Gregoire's reports enabled the Convention to set up a Committee of Monuments tasked with making rules to prevent ransacking. The restoration works were further anchored by Ludovic Vitet (18 October 1802 – 5 June 1873), appointed General Inspector of Historical Monument in 1830 and Chairman of the Committee of Historical Monuments in 1840, with help from Eugene Emmanuel Viollet-le-Duc (27 January 1814 - 17 September 1879). In 1844 Viollet-le-Duc, together with his mentor Jean-Baptiste Lassus (19 March 1807 – 15 July 1857), won a competition to restore the most prominent French Cathedral, Notre-Dame de Paris, founded in the 12th century. The commission enabled Viollet-le-Duc to promulgate a scientific approach of Gothic Revival and fine-tuned his restoration theory. In his seminal writing "On Restoration" in the *Dictionnaire Raisonne de l'Architecture*, restoration was not simply to restore historical buildings but included the use of better materials and modern design to improve the historical buildings. For example, Viollet-le-Duc argued that modern gutters should be added to all Gothic and Romanesque churches because the original architect would have designed them had such drainage systems been known and available. For Viollet-le-Duc:

> "RESTORATION, s.f. Both the word and the thing are modern. To restore an edifice means neither to maintain it, nor to repair it, nor to rebuild it; it means to reestablish it in a finished state, which may in fact never have actually existed at any given time."[16]

Viollet-le-Duc considered the 'restorer', with all the knowledge and skills of the original architect, could be "in the place of the original architect and try to imagine what he would do if he returned to earth and was handed the same kind of program ... restoration is something else besides literal reproductions."[17] Accordingly, restoration could be a creative act and it would be legitimate to 'reestablish' something that had not existed before.

Yet another approach opposite to Viollet-le-Duc's existed. John Ruskin (8 February 1819 – 20 January 1900), who together with Viollet-le-Duc dominated the restoration theories in the 19th century, was anti-restoration and against Viollet-le-Duc's restoration approach. Under Chapter VI, The Lamp of Memory in The Seven Lamps of Architecture, John Ruskin offers a reason on why restoration is inappropriate:

> "It is impossible, as impossible as to raise the dead, to restore anything that has ever been great or beautiful in architecture. That which I have above insisted upon as the life of the whole, that spirit which is given only by the hand and eye of the workman, can never be recalled. Another spirit may be given by another time, and it is then a new building; but the spirit of the dead workman cannot be summoned up, and commanded to direct other hands, and other thoughts ... We have no right whatever to touch the buildings of past times. They are not ours. They belong partly to those who built them, and partly to all the generations of mankind who are to follow us."[18]

Ruskin was against restoration because he saw the damage a deceitful restoration could do and the ease of distorting historical knowledge of human activities through a purposeful or unintended making of fraudulent architecture of the past. Furthermore, the restoration of the building did not guarantee the previous human activities of the restored building could be reinvigorated or reintroduced to the building. For Ruskin, restoration was a lie, as one could not give life back to a corpse.

> "Do not let us talk then of restoration. The thing is a Lie from beginning to end. You may make a model of a building as you may of a corpse, and your model may have the shell of the old walls within it as your cast might have the skeleton, with what advantage I neither see nor care: but the old building is destroyed, and that more totally and mercilessly than if it had sunk into a heap of dust, or melted into a mass of clay: more has been gleaned out of desolated [Assyrian city] Nineveh than ever will be out of re-built Milan. But, it is said, there may come a necessity for restoration! Granted. Look the necessity full in the face, and understand it on its own terms. It is a necessity for destruction. Accept it as such, pull the building down, throw its stones into neglected corners, make ballast of them, or mortar, if you will; but do it honestly, and do not set up a Lie in their place. And look that necessity in the face before it comes, and you may prevent it."[19]

It is obvious that Ruskin considered restoration, instead of protecting the historic building, could actually be a threat to the preservation of the cultural heritage and historical value of building.[20] I am against fake restoration to bring Central Market back to its original conditions because it would reduce the building's historical and aesthetic values created over time by the different roles it has taken up in the community. Viollet-le-Duc's restoration approach also did not require a full return to the buildings' original conditions and further stipulated that in alterations "we must scrupulously respect all traces or indications that show additions or modifications to a structure."[21]

Below are two examples on the undesirability of returning buildings to their original conditions, owing to subsequent alterations that have gained historical significance and aesthetic value rendering a return to the original state inappropriate. The first is evidenced by the historical significance and aesthetic value of the added-in features in the 1881-85 constructed neoclassical style Government House at Upper Albert Road, Hong Kong. The house served as the official residence of the colonial British Governor until 1997 except during the Japanese occupation of Hong Kong from December 1941 to August 1945. A tall tower and Japanese roof features were added to the original buildings by the Japanese occupier which still remain nowadays. Removal of the tower and a restoration to the original design would have erased a significant historical record of the occupation period and reduced the building's aesthetic presence.

The second example is the past alterations at Central Market. The 24-hour public passageway on the second floor of Central Market and the altered façade fronting Des Voeux Road Central are obviously not original features of the 1939 building. The alterations were part of the government's efforts to build a pedestrian route with escalators to overcome Hong Kong Island's steep topographical challenges and provide a much-needed north-south connection linking Mid-Levels with Central. The Central Market passageway is an integrated part of this elevated Central–Mid-Levels escalator-walkway system. The walkway system since opening in early 1990s has been used and enjoyed by millions of Hong Kong citizens and visitors alike. The specificity of the walkway system has gained historical significance and been listed by CNN as one of the world's seven coolest commutes.[22] Clearly, to revert Central Market to its original 1939 condition by eliminating the subsequent 24-hour passageway alteration would deprive Hong Kong of an important signifier of the city's development. I would also like to take this opportunity to point out the misinformation prevalent in public discussions that Central Market is one of the last remaining buildings in Hong Kong built in the Bauhaus style. As pointed out by Dr Lee Ho Yin, Associate Professor at Faculty of Architecture at The University of Hong Kong, in his co-authored book *City Development and the Conservation of Hong Kong Architecture* (《保舊創新：香港建築保育與城市發展》), both the old Wan Chai Market and Central Market were in the 'Streamline Moderne' style, a derivative of Art Deco, and not Bauhaus.[23]

To address the necessity of restoration, if we really care about preserving our city's heritage, we need to provide adequate resources to carry out proper repairs and maintenance to our buildings. We must remember that buildings will age and that the passing of time completes the architecture. It is better and cheaper if we can avoid the need for restoration by preventing the deterioration of buildings into a dilapidated state. Both Ruskin and Viollet-le-Duc were aligned on this point as they respectively stated:

> "Take proper care of your monuments, and you will not need to restore them. A few sheets of lead put in time upon the roof, a few dead leaves and sticks swept in time out of a water-course, will save both roof and walls from ruin."[24]

> "The fact is that the best of all ways of preserving a building is to find a use for it, and then to satisfy so well the needs dictated by that use that there will never be any further need to make any further changes in the building."[25]

There are two common points to take away from Ruskin and Viollet-le-Duc despite their seemingly opposite approaches to restoration and preservation. The first point is they did not advocate a return to an original condition of the subject building under restoration. For Viollet-le-Duc, restoration would be a modern attempt to re-establish the building to a state that never has "*actually existed at any given time*". For Ruskin, restoration would be a non-starter as "*we have no right whatever to touch the buildings of past times*." The second point is that if we are serious in preserving our built environment, we need to take care of our buildings and 'find a use for it', i.e., the adaptive reuse route is one of the ways for preservation. Unlike a restoration effort to preserve the authenticity of the original work in totality, the priority of adaptive reuse is to extend the lives of buildings; the latest architectural intervention could be an additional layer of text on the building to record the changing activities with the passing of time.

When the revitalised Central Market opened in 2021, there were some vocal criticisms on how the project had been 'restored', asking why it did not bring all the nostalgic old historical relics and past mode of operation back into the building. I consider these criticisms are of good intention but misguided, as they misread the project as a restoration project which has never been the case. We can debate if the adaptive reuse decision back in 2009-10 was right or not, but the fact that the current Central Market is an adaptive reuse project is now without dispute. Under the adaptive reuse criteria, the priority is to revitalise Central Market by incorporating contemporary interventions to satisfy the community's current needs rather than mummifying a historic building as a lifeless edifice for museum collection.

Adaptive reuse and the concept of architectural palimpsest

With the 2009-10 decision to revitalise Central Market, the Secretary for Development at that time, Carrie Lam, further reconfirmed "The Central Oasis Project [Central Market] was not driven by heritage conservation"[26] in her address at the 2011 International Forum on Conservation and Adaptive Reuse of Reinforced Concrete Buildings. Stakeholder surveys on the preferred usage of Central Market were carried out and to encourage public engagement with the project, URA held design charrettes among four architectural consortiums, as well as invited the public to provide feedback on the four schemes.[27] The public opinion survey and engaging the public in the decision process were bold moves at the time. The survey result showed a clear public preference for recreational, cultural, and public green space over commercial activities like dining and shopping.[28] The design scheme by Arata Isozaki and AGC, 'UFO (Urban Floating Oasis) and the New Marketplace' with roof garden, new extra structure and floor space added on top of the existing building was selected for implementation in 2011. Not surprisingly, the embryonic swimming pool vision of the mid-2000s Central and Western District Council resurfaced in the Urban Floating Oasis scheme. It is unfortunate that such an ambitious scheme did not survive the economic pressures of the day. Escalating construction costs and, for a time, a demand from Lands Department for URA to pay extra land premium for the change of use and additional floor space, were too much to handle. URA dropped the UFO scheme in 2015 and a much more subdued revitalization scheme with minimum intervention was adopted. The new modus operandi with the requirement of a financially self-sustainable operation was announced by URA in 2017, emphasising that no more public money would be available as "it is aimed for the future operation of the **Central Market to be financially self-sustainable, without funding from the Government**."[29] [my emphasis] The tendering for a private sector operator was carried out in September 2020 and the award was announced on 8 February 2021. Under the operational contract, the operator would be responsible for refurnishing and fitting out the building for its intended reuse and required to pay rent to URA.

My architectural approach to the Central Market adaptive reuse has been influenced by my education at the Rhode Island School of Design (RISD) in the late 1970s and early 1980s. Looking back, two memories stood out and guided my approach to Central Market. Providence in Rhode Island is a city founded by Roger Williams (21 December 1603 – January/March 1683) in 1636 and home to RISD. Located in the city centre is the oldest indoor commercial shopping mall in the United States, the three-storey Providence Arcade built in 1882 with its Greek revival-style façades and curated shops under a skylit gable roof. I remembered relaxing in the sunlight-filled atrium, appreciating the historic building elements like the majestic Ionic columns and delicate cast iron railings with mahogany top rail, observing people of all ages in various tempos passing through the arcade back and forth between Westminster and Weybosset streets, sensing the passing of time and reflecting on life. Away from the daily hassles, discovering life at one's own pace in a gregarious, non-threatening environment, is what I want to offer at Central Market. Central Market supports small local businesses and culture, welcomes all walks of life, and is a 'playground for all'. For me, the preservation of Central Market is only a means and not the goal; it is the humanity, the ongoing human activities that we shall treasure.

The other memory was from one of my teachers, Rodolfo Machado. He and his partner, Jorge Silvetti, were in 1980 awarded first prize in the 27th Annual Progressive Architecture Awards for The Steps of Providence, a project that traversed architectural and urban design theories and practices.[30] The project was realistic and implementable because it was within the construction capacity of the day, yet the project transgressed all the conventions, making it unprecedented and an unfamiliar architectural narrative in the city. It was a eureka moment for me to realise Machado's intention was to make architecture 'an intervention upon existing conditions', both physical and mental. This 'unprecedented realism'[31] is what I want to bring to Central Market, a sense of wonder and departure from the familiar line of remodelling a historic building.

In the retrofitting of Central Market interior architecture, I have adopted Machado's conceptual model published in the *Progressive Architecture* 1976 article, 'Toward a theory for remodeling: Old buildings as palimpsest', which has been considered "a moment-defining text … [that] transcends the 'internal conflict' between the restoration and anti-restoration movements and the external debate whether architectural design has to be based on a tableau rasa."[32] As Central Market acquired new functions under the new contemporary program – for example adding new cultural and event spaces, turning the old back-of-the-house bicycle storage area into a green courtyard for public enjoyment, and injecting a Tung Wah Group of Hospitals Man Mo Temple shop into one of the preserved stalls – the past, in the form of the historical Central Market, would become a 'canvas' that could be redrawn. According to Machado, "*in order to build a theory of remodeling it would be useful to consider a series of metaphors, including the one used in the title of this article [buildings as palimpsest]….If the original building is considered as a first discourse that conditions future discourses to be inscribed upon it, then remodeling can be conceived of as rewriting.*"[33]

Furthermore, depending on the changes to the building content,

> "remodeling can be seen as writing over, as underlining, as partially erasing, as interstitial writing (writing between the lines), as a way of qualifying, accentuating, quoting, commenting upon, as digression, interlude, or interval, as a way of writing parenthetically, or setting off by punctuation, as a new form of an old story…. [or when] the building is refunctionalized, a different story is born, a new plot is composed out of the old words, a new interpretation has taken place."[34]

Deep section of revitalisation project of Central Market
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Traditional red plastic lampshade lighting at the entrance
© SHADOW DESIGN

To rewrite the Central Market narrative to accurately record the ongoing activities with the latest architectural intervention as text, various design strategies have been used. The interior of Central Market has been intentionally kept as open plan with minimum solid partition for visual transparency, so that the conserved original structural column grid is respected and easily observable. Non-indigenous cactus planting has been purposefully juxtaposed adjacent to storefronts of local brands, intensifying the surrealism of seemingly incompatible elements existing together harmoniously. The traditional red plastic lampshade lighting, commonly used in local wet markets, has been reinterpreted and redesigned for installation at the Jubilee Street and Queen Victoria Street entrances. For the uninitiated, the cluster of redesigned red lampshades as a sign would not be obvious and could draw undue criticism,[35] but it does offer a multiplicity of semiotic reading to the users of Central Market regardless of whether the sign is serving as an icon, an index, or a symbol. The success and popularity of the red plastic lampshade sign is also undeniable as it has become one of the most popular postings in social media, anchoring the 21st century Central Market in Hong Kong memory.

Saving the past for the future does not mean the mummification of history, fabricating counterfeits, eradicating and marginalizing the value of our current life. Many years from now, future generations will be asking what the culture of our time and our contribution to human civilisation was. We do not need to romanticise the mythical past since we are part of the history in making, and we should not be ashamed to document our contributions to the continuum of human progress. Architecture is a signifier of human activities. The unity of the architectural artefacts with the associated human activities is a story worth telling to keep the activities rememberable for future generations. In adaptive reuse, the architect is addressing not just a technical question or imitating the past; the intervention can embed new values and create new life in an old building by adding to or changing the existing utilitarian and commemorative functions of the said building in society. Ruskin's insight is as valid today as it has been in the past: "*it is as the centralization and protectress of this sacred influence, that Architecture to be regarded by us with the most serious thought. We may live without her, and worship without her but we cannot remember without her.*"[36] For us, when doing adaptive reuse, we shall respect and allow multiple interventions to shape future memories by being self-conscious of the possible dialogues among our contemporary voices and those of the past, as well as the future.

In closing, I would like to share the following quote from the sculptor Claes Oldenburg (28 January 1929 -):

> "I am for an art that does something other than sit on its ass in a museum. I am for an art that grows up not knowing it is art at all, an art given a chance of a starting point of zero. I am for an art that involves itself with everyday crap and still comes out on top. I am for an art that imitates the human, that is comic if necessary or is violent or whatever is necessary. I am for an art that takes its forms from the lines of life that twists and extends impossibility and accumulates and dips and spits and is sweet and stupid as life itself…"[37]

[1] My translation of:「建築之規模，形體，工程，藝術之嬗遞演變，乃其民族特殊文化興衰潮汐之映影；一國一族之建築適及反鑒其物質精神，繼往開來之面貌。」梁思成：《梁思成文集》(三) (北京：中國建築工業出版社，1985年)，頁 3。

[2] 毛澤東澤東在延安文藝座談會上的講話 ，《毛澤東選集》第三卷。 Mao spoke at the Yan'an Rectification Movement (延安整風運動) on 2 May and 23 May 1942 and the speeches were first published on 19 October 1943, the seventhanniversary of the death of Lu Xun (魯迅 25 September 1881 – 19 October 1936). The original version, as part of the pre-1950 writings of Mao, was revised after the founding of the People's Republic of China in 1949.

[3] Under the Preface, "for the Service, Security, Honour and Ornament of the Publick, we are exceedingly obliged to the Architect", Leon Battista Alberti: *The Ten Books of Architecture*, The 1755 Leoni Edition (Dover Publications, Inc., 1986). The version I quoted is from Leon Battista Alberti, *On the Art of Building in Ten Books*, translated by Joseph Rykwert, Neil Leach, Robert Tavernor (The MIT Press, 1988), p. 5.

[4] Transcription of Tract I in Lydia M. Soo: *Wren's "Tracts" On Architecture and Other Writings* (New York: Cambridge University Press, 1998), p. 153.

[5] Cyril Birch: "The Particle of Art", *China Quarterly*, No. 13 (January-March 1963), pp. 3-14, esp. pp. 4-5.

[6] The original public central market, near Queen's Road and Pottinger Street, was established by government under the Government Gazette of 12 May 1842 and named "Hong Kong Market Place". Two private markets, Morgans Bazaar and Canton Bazaar, were further established in the vicinity and together with the government market served the daily needs of the community. If the original market is considered as first-generation, then the 1895 Market should be considered the third generation as there was a reconstructed market at the present site between the time of the original 1842 public market and the 1895 market. I use the description of second-generation Central Market for the 1895 market since it was the second reconstructed market at the present site. For a more detailed early history of the evolution of the Central Market, please refer to Bill So and Thomas Chung: "Sanitising Central Market – An early history of Hong Kong Government market No.1", *HKIA Journal*, Issue 76, 2020, pp. 120-122.

[7] The Application List system for land sales from a reserve list of available sites was introduced by the government in February 1999 to stabilise the property market after the 1997 Asia financial crisis. Government land sales were suspended in 2003 in view of SARS.

[8] Hong Kong had the highest SARS fatality rate in the world with 1,750 infected persons and 286 deaths in the short duration of three months between March and June 2003.

[9] 2007-08 Policy Address by Chief Executive, https://www.info.gov.hk/gia/general/200710/10/P200710100099.htm.

[10] 2007-08 Policy Address by Chief Executive, https://www.info.gov.hk/gia/general/200710/10/P200710100099.htm.

[11] Item 16 in Legislative Council Paper on Home Affairs, Subcommittee on Heritage Conservation: "The Original Site of the Central School at Hollywood Road", LC Paper No. CB(2) 1105/07-08(03), 22 February 2008, https://www.heritage.gov.hk/filemanager/heritage/en/content_242/LegCo_22_2_08_HCC_paper_on_Central_School.pdf.

[12] Article 1.7, the Burra Charter, ICOMOS Australia 2013, http://openarchive.icomos.org/id/eprint/2145/1/ICOMOS-AustraliaThe-Burra-Charter-2013.pdf.

[13] Article 9, The Venice Charter 1964, ICOMOS, https://www.icomos.org/charters/venice_e.pdf.

[14] In 1794, Henri Gregoire, also known as Abbe Gregoire, submitted three reports, including the seminal *Report on the Destruction Brought About by Vandalism, and on the Means to Quell*, to the National Convention addressing the heritage preservation needs. For more information on Abbe Gregoire's contribution on igniting and anchoring the idea of heritage preservation as an important measurement of public duty, please refer to Joseph L. Sax: "Heritage Preservation as a Public Duty: The Abbe Gregoire and the Origins of an Idea", *Michigan Law Review* Vol. 88 No. 5 (April 1990)(The Michigan Law Review Association), pp. 1142-1169. https://repository.law.umich.edu/cgi/viewcontent.cgi?article=5365&context=mlr.

[15] Abbé Henri Grégoire: R*apport sur destructions opérées par le Vandalisme, et sure les moyens de le réprimer* (Paris: Convention Nationale, Séance du 14 Fructidor, l'an second de la République une et indivisible). Google English translation of "Les Barbares et les esclaves detestent les sciences, et detruisent les monuments des arts; les hommes libres les aiment et les conservent".

[16] Eugène-Emmanuel Viollet-le-Duc: *The Foundations of Architecture: Selection from the Dictionnaire raisonne*, translated by Kenneth D. Whitehead, George Braziller, introduction by Barry Bergdoll (New York, 1990), p. 195.

[17] Eugène-Emmanuel Viollet-le-Duc: *The Foundations of Architecture: Selection from the Dictionnaire raisonne*, translated by Kenneth D. Whitehead, George Braziller, introduction by Barry Bergdoll (New York, 1990), pp. 222 -223.

[18] John Ruskin: *The Seven Lamps of Architecture*, first published 1849 (Century Hutchison National Trust Classics 1988 edition), pp. 194-197.

[19] John Ruskin: *The Seven Lamps of Architecture*, first published 1849 (Century Hutchison National Trust Classics 1988 edition), p. 196.

[20] The readers can refer to my more extended observations on Ruskin's restoration attitude in "Anti-Restoration: Learning from Ruskin", *HKIA Journal* Issue 77: Reuse, pp. 50-53. https://hkia-journal.net/anti-restoration-learning-from-ruskin%e5%bb%ba%e7%af%89%e4%bf%ae%e5%be%a9%e7%9a%84%e5%8f%8d%e6%80%9d%e5%90%91%e7%ba%a6%e7%bf%b0-%e6%8b%89%e6%96%af%e9%87%91%e5%ad%b8%e7%bf%92/.

[21] Eugène-Emmanuel Viollet-le-Duc: *The Foundations of Architecture: Selection from the Dictionnaire raisonne*, translated by Kenneth D. Whitehead, George Braziller, introduction by Barry Bergdoll, (New York, 1990), p. 213.

[22] "Seven of the world's coolest commutes", CNN, 23 February 2015, https://edition.cnn.com/travel/article/worlds-coolestcommutes/index.html.

[23]「不過，舊灣仔街市與舊中環街市常被稱作「包浩斯」建築，這實在是一個誤解。...其實這兩座街市的正確風格是屬於在 30年代中至 40年代末風行的「摩登流線型」(Streamline Moderne)」。李浩然、黎志邦：《保舊創新：香港建築保育與城市發展》(香港：花千樹出版有限公司，2021年)，頁 87。

[24] John Ruskin: *The Seven Lamps of Architecture*, first published 1849 (Century Hutchison National Trust Classics 1988 edition), p. 196.

[25] Eugène-Emmanuel Viollet-le-Duc: *The Foundations of Architecture: Selection form the Dictionnaire raisonne*, translated by Kenneth D. Whitehead, George Braziller, introduction by Barry Bergdoll (New York, 1990), p. 222.

[26] Lam Carrie, International Forum on Conservation and Adaptive Reuse of Reinforced Concrete Buildings, 22 January 2011.

[27] The four schemes were 'Urban Cocoon', 'Central Gateway', 'UFO (Urban Floating Oasis) and the New Marketplace', and 'Inspired by Our Heritage'. Please refer to "The Central Oasis" Design Concept Roving Exhibition Booklet, http://www.centraloasis.org.hk/chi/doc/brochure_a2.pdf.

[28] Only 12% preferred dining and shopping outlets whilst 88% preferred leisure and recreational, cultural and arts, and public green areas. "The Central Oasis" Design Concept Roving Exhibition Booklet, p. 7. http://www.centraloasis.org.hk/chi/doc/brochure_a2.pdf.

[29] URA, Press Release 29 March 2017, URA welcomes Government's approval of land grant in support of the revitalisation of Central Market, https://www.ura.org.hk/en/news-centre/press-releases/20170329.

[30] 27th Annual P/A Awards, Progressive Architecture, January 1980. The award for The Steps of Providence was not without controversies and generated heated debates in both academic circles and professional practice as to the boundaries of architecture.

[31] For a more in-depth discussion on the unprecedented realism in Machado's and Silvetti's works, please refer to Michael K. Hays: *Unprecedented Realism: The Architecture of Machado and Silvetti* (Princeton Architectural Press, 1997).

[32] Bie Plevoets and Koenraad Van Cleempoel: *Adaptive Reuse of the Built Heritage: Concepts and Cases on an Emerging Discipline* (Routledge, New York, 2019), p. 15.

[33] Machado, Rodolfo: "Toward a theory for remodeling: Old buildings as palimpsest", *Progressive Architecture*, November 1976, p. 46.

[34] Machado, Rodolfo: "Toward a theory for remodeling: Old buildings as palimpsest", *Progressive Architecture*, November 1976, p. 48.

[35] An article in HK Free Press criticized the installation: "you arrive at the decorative element that has become most familiar on Instagram and the like: a very high number of red market lights, all squeezed together in a tight oval, that attempts to find beauty in pattern repetition. But the lamps are not the type you can see everywhere in Hong Kong's wet markets, but a genteel version, a custom-made copy, small and silly which doesn't even do what it is supposed to do: shed light." HKFP, 11 September 2021, https://hongkongfp.com/2021/09/11/a-gentrified-mess-how-hong-kongs-central-market-restoration-tarnished-an-architectural-gem/.

[36] John Ruskin: *The Seven Lamps of Architecture*, first published 1849 (Century Hutchison National Trust Classics 1988 edition), p. 178.

[37] I would like to acknowledge my debt to my teacher at RISD Judith Wolin who introduced me to Claes Olderburg. This quote is from "Architecture in the Margin", An Exhibition of Student Work from the studio of Michael Hays, Shayne O'Neal, George Wagner, and Judith Wolin, Woods-Gerry Gallery, Rhode Island School of Design, 19-25 February 1986.

Poon Tong Ng Yeuk: Landscapes of Ordinary Alleys and Everyday Life in a Canton Water Village

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Abstract

Poon Tong Ng Yeuk (Pantang Wuyue) (the fifth subdivision in Poon Tong Village) is located on the banks of Lychee Bay in a suburb at the west end of Canton (Guangzhou). It is a waterside village where many clans live together and have preserved a lot of architectural relics and intangible cultural heritage from the Ming and Qing dynasties and the Republic of China. Since 2010, Poon Tong Ng Yeuk has undergone micro-renovations to reflect its historical originality and improve the living standard of the residents, by focusing on the visually ordinary alleys, collective spaces and properly introducing its courtyards. It has attracted people who like simplicity and elegance to visit and stay with the villagers, immersing themselves in the ordinary alleys and landscapes of everyday life. Reviewing the ongoing process of Poon Tong Ng Yeuk's micro-renovation and community building reflects the importance of conserving ordinary places and everyday life in historic sites.

Introduction

Located by Lychee Bay in the west suburbs of Canton, Poon Tong is a village inhabited by clans surnamed Liang, Liu, Huang and Li. The subdivisions of Poon Tong extend from the first to the fifth subdivision, from east to west. Poon Tong is well known historically for its eye-catching waterfront scenery and the "Five Aquatic Plants of Poon Tong".

There used to be many famous gardens in the Lychee Bay area, such as Tangli Garden, Haishan Xianguan, Xiaotian Garden, Lixiang Garden and Peng Garden. The east side of Lychee Bay is densely covered with Xiguan (*Xi* means west and *Guan* means gate) residences and mansions, which were built mostly by merchants, and were places for officials, merchants and literati to gather together and entertain themselves. Poon Tong is on the opposite side. It is separated from the area of mansions by a waterway, and is a local village for ordinary people. It is a peninsula stretching out into the lake. Poon Tong Ng Yeuk is hidden among shadows of trees in Liwan Lake Park, creating a secluded land of idyllic beauty (Figure 1).

Since 2013, a series of programmes in heritage conservation have been carried out in Poon Tong Ng Yeuk, including site investigation, assessment of the historical and cultural resources, development of a vision for conservation, a conservation plan, infrastructure improvement, design workshops, micro-renovation and community building. Especially since 2016, the quality of the spatial environment has been enhanced by non-profit micro-renovation to attract people who are fond of simplicity and a peaceful environment. The renaissance of traditional customs, such as dragon boat racing, the water parade for the Birth of Beidi (the North Deity) and lion dancing, have gradually attracted a lot of attention in both the professional and public fields.

As one of the key participants in the Poon Tong Ng Yeuk renovation project, I am pleased to share with you its progress and my views.

Figure 1 Bird's eye view of Poon Tong Ng Yeuk, 2012

Overall Layout, Fabric and Buildings of Poon Tong Ng Yeuk

Poon Tong, the closest village to Xiguan in the west suburbs, was clearly marked on local maps and maps made by Westerners (Figure 2). The river system and buildings at the time can be seen on a Canton map in the collection of the National Library of Australia.

After more than a century, the overall layout and fabric of Poon Tong Ng Yeuk remain intact. There were some obvious changes, such as river reclamation, and Western architecture and multi-storey collective housing were constructed in some areas.

The main inhabitants of Poon Tong Ng Yeuk were people with the surnames Li and Huang. There is a pavilion called "Poon Kai Ng Yeuk" under a big banyan on the west side of the village (Figure 3), which serves as a community space. The couplets on the door were written by a scholar named Huang Qibiao in the Tongzhi reign of Qing dynasty, presenting the geomancy of the village: "門接水源朝北極，路迎金氣盛西方"(the gate connects with the water and faces the north pole, and the road receives wealth and so prospers the western areas). It is interesting to learn that common auspicious orientations such as "the east" and "the south" are not used in the couplets. The north and west orientations in the couplets are truthful reflection of the village's location, reflecting adaptation to the actual situation.

Figure 2 Poon Tong on a map of Canton, made by Daniel Vrooman in 1860 (Source: Collection of the National Library of Australia)

The word "路" (road) in the couplet refers to Ng Yeuk Main Street, which is regarded as the *fung shui* "keel" by the villagers. It stretches from the Wuxiu Bridge and the Sanguan Temple (located near a waterway bend in Niulizui, which was built to control the water) in the west, to the Renwei Temple in the east, built for Beidi. The skeleton of Poon Tong Ng Yeuk was formed by holy spaces like temples, ancestral halls and shrines, as well as the main streets. The boundary was guarded by temple altars, and the order of the residences was guided by the ancestral halls, such as Dunben Hall.

The intertwined long streets and short lanes formed the overall layout of the village cluster, which was based on the principle of the fast flow of rainwater drainage. The buildings along Ng Yeuk Main Street and in the south end were oriented northwest to southeast, while the buildings in Ng Yeuk Pat Hong were east to west oriented (Figure 4). The cluster consists of five streets, Ng Yeuk Main Street, Ng Yeuk Outer Street, Chongbian Street, Sanguan Temple Front Street, and Ng Yeuk New Street, and main lanes, such as First Lane to Eighth Lane. Ng

Figure 3 Poon Kai Ng Yeuk Pavilion (Photo taken by Xiu Wenwen)

Figure 4 Overall layout and fabric of the villages of Poon Tong Ng Yeuk (drawn by Xu Haohao)

Yeuk Main Street, the keel, is eight-foot-wide paved with three rows of granite blocks, despite it being an ordinary alley. Chongbian Street became the widest street after the reclamation of land from the waterway.

The residential buildings in Poon Tong Ng Yeuk were neither Xiguan mansions nor the common dwellings with three bays and two verandas. They were one-bay houses side by side like rows of bamboo and two-bay houses styled like the Chinese character"明", which were common in suburban villages. The width of one-bay bamboo-like houses was in the range of 3m to 4.5m, or between 13 and 19 tile-rows. Their depth ranged from 6m to 20m.

The houses which looked like the Chinese character "明" were from 8m to 10m wide and usually shared a wall with the neighbouring house. There were only a few three-bay building compounds, all of which were ancestral halls and temples, indicating that the inhabitants were ordinary families from a variety of clans.

In addition to the traditional grey brick old houses, Poon Tong Ng Yeuk had red-brick Western-style buildings, built in China's Republican period. There were many multi-storey residential buildings built in the 1980s in the vicinity of Renwei Temple. Owing to the coexistence of buildings with different styles and size, the architectural styles of Poon Tong Ng Yeuk lacked coherence. However, the traditional features have been well preserved in general, and the overall layout remains distinctive.

Action and Procedures

The transformation of Poon Tong Ng Yeuk underwent a long process of discussion and implementation. In 2007, the old village of Poon Tong Ng Yeuk, which is located just outside the enclosed wall of Liwan Lake Park, was included in the demolition plan for the expansion of the Park. The land use was changed to greenbelt, and about 40% of the houses, including about 200 households, were taken over by the government for public use. Later, the expansion of the park was shelved.

Before the Guangzhou Asian Games of 2010, a new opportunity was offered for the protection and transformation of Poon Tong Ng Yeuk owing to the success of waterway restoration in Lychee Bay. In 2012, Guangzhou City proposed a conceptual plan to establish the Xiguan Cultural Centre by integration of resources (Figure 5). In July 2013, experts discussed the name and implementation of "Xiguan Plaza" and concluded that a large-scale plaza would not fit the character of Xiguan. The orientation of Poon Tong Ng Yeuk was, therefore, changed from a museum-style architectural assemblage to an authentic village history project.

In the process of conceptual planning, first, a "One House, One Form" survey and research into the historical value of the area were conducted to collect information for recommending heritage classification and implementing protection measures in stages. The method is to investigate accurately the historical and cultural resources of Poon Tong Sam Yeuk (the third subdivision) and Ng Yeuk (the fifth subdivision) (Figure 6). The researchers recorded 728 buildings, including Renwei Temple, the Cultural Relics Protection Unit of Guangdong Province, two district-level registered cultural relics, 15 recommended cultural relics, and 57 buildings with traditional features. The number of village buildings recommended to be preserved accounted for about 46% of the total number of buildings in Poon Tong. In the end, they wrote *A Dedicated Chapter on Protection of History and Culture in Renovation Planning of Poon Tong, Liwan, Guangzhou*, which was promulgated and reported by the media, such as the *Guangzhou Daily*, *Nanfang Daily*, *New Express*, and Sina.com. The cultural heritage investigation and assessment of Xiguan Plaza in Poon Tong is considered to be the first real "cultural assessment" project in Guangzhou, establishing a technical paradigm for cultural assessment in future.

On 5 September 2013, the detailed planning adjustment on the transformation of Xiguan Plaza in Poon Tong, Liwan District was adopted at the 16th meeting of the 2nd Guangzhou Municipal Planning Commission. The area was defined as "a showcase of Lingnan garden-style city demonstrating Lingnan and Cantonese culture". Four principles were formulated: conservation of the overall layout and renovation of the fabric; coordination by government and renovation of the whole area; planning with "reduction" principle and resident population reduction; and priority of people's livelihood and the perfection of infrastructure. The preservation focus in Poon Tong is clearly defined: "Liwan Lake, grey-brick houses, black-tiled roofs, the red of the litchis, granite roads, ancient trees, and the people of Poon Tong". The historical river system was restored and reorganised, old and valuable trees were protected, and aspects of Taoist culture, such as the birth of Beidi, and intangible cultural heritage, like the temple fair, ancestor worship, lion dancing, dragon boat racing, and the Five Aquatic Plants of Poon Tong, were preserved. The planned building area was 23,000m² less than the current building area, and the public green space was increased by 17,000m², with 1,031 fewer residents than in the original plan. This was considered to be the first reduction programme adopted by the Guangzhou Municipal Planning Commission. Next, a detailed construction plan was formulated following the conceptual plan.

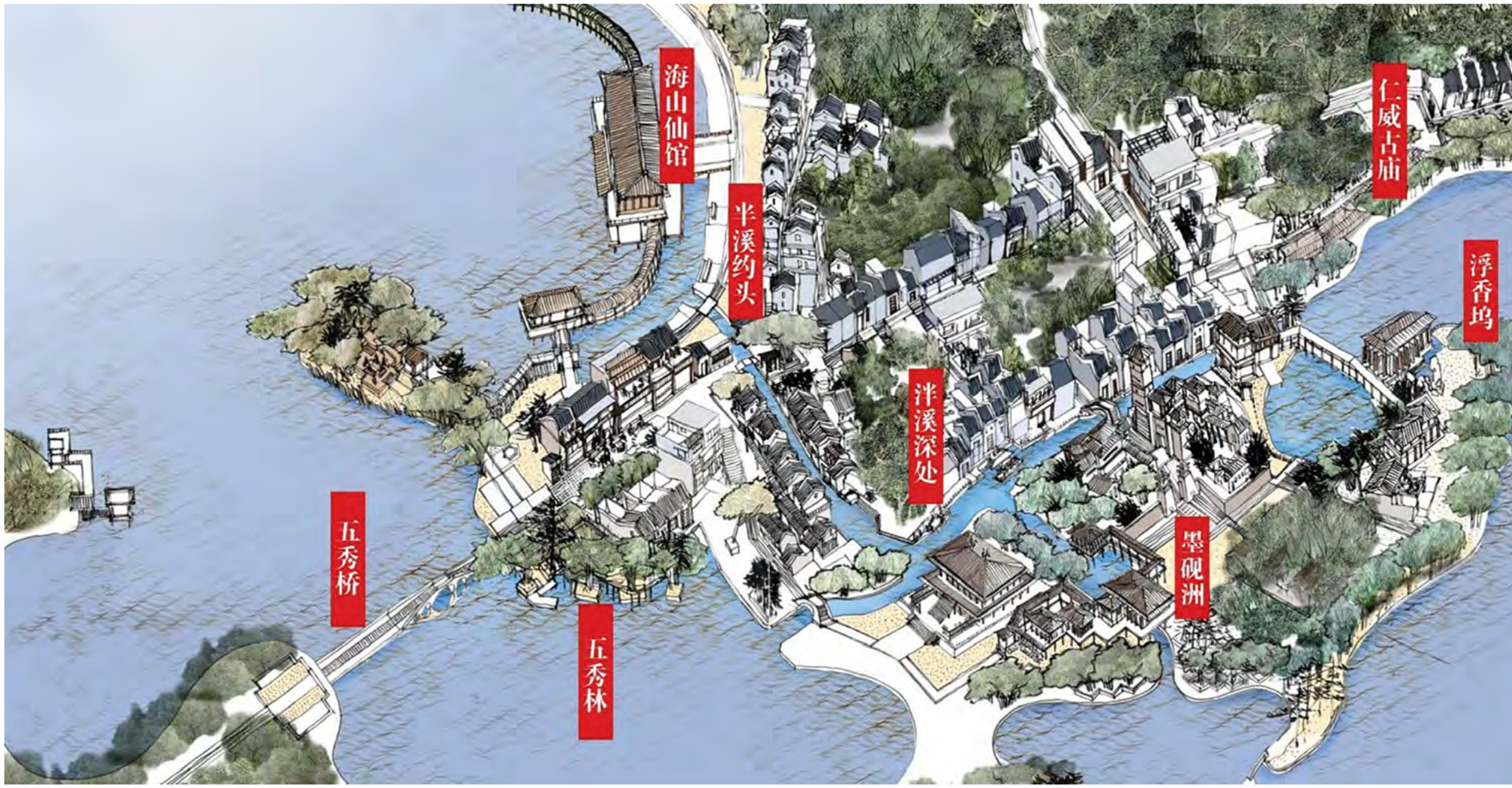


Figure 5 Conceptual plan and vision of Poon Tong in 2012

Figure 6 “One House, One Form” survey and research on building types

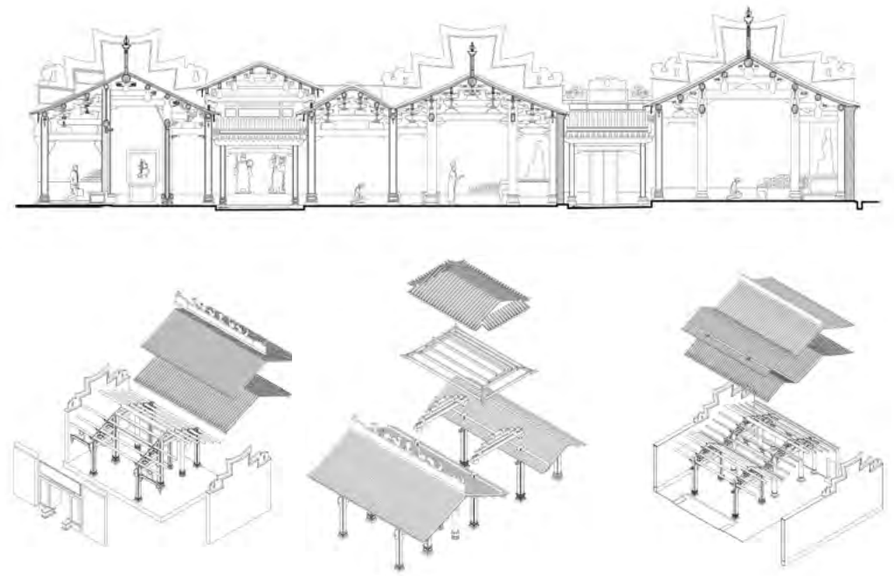


Figure 7 Drawing of the Renwei Temple (Source: Centre for Research in Architectural History and Culture, South China University of Technology)

In 2014, a public programme named “FAN-WU-QI” (Faan Uk Kei), co-organised by South China University of Technology, the Guangzhou Academy of Fine Arts, and Urban Elephant architects, was launched to establish an intermediary platform between the government and the property owners. In February 2015, South China University of Technology accomplished the modelling for the oblique photography of Poon Tong Ng Yeuk, and conducted detailed surveying and analysis of significant architecture, like the Renwei Temple (Figure 7). From 2015 to 2016, through micro media, discussion on the protection and development of Poon Tong Ng Yeuk was initiated on public platforms and exhibition venues. They also carried out over 100 interviews and investigations with local residents, observations of the living space in the villages, oral history interviews, as well as 22 consultation sessions to gauge the views of villagers, and public programmes such as briefings and exhibitions with photos and models about micro-renovation in Poon Tong Ng Yeuk (Figure 8).

Figure 8 Public consultation programme (Source: FAN-WU-QI (Faan Uk Kei))

On 1 January 2016, the implementation of *Method on the Urban Renewal of Guangzhou* commenced. Among the 38 pilot micro-renovation projects, Poon Tong Ng Yeuk was the only project that relied on public funds to physically intervene in the spatial arrangement of a historic district, with the aim of improving people’s livelihood. In the first phase, the relatively concentrated public housing was transformed from living space to cultural presentation and commercial-cultural tourism space. It explored a new mode of renovation by means of heritage conservation

and improvement of people's livelihood. At the end of December 2018, the protection and land use planning for Fengyuan Street - Liwan Lake Historical and Cultural District, where Poon Tong Ng Yeuk is located, was completed.

The renewal of Poon Tong Ng Yeuk involved concerted action taken by many parties, including universities, villagers and tenants, followers of Taoism, planning and architectural design institutions, volunteer groups, cultural heritage experts, and local governments. The School of Architecture of South China University of Technology launched a joint-design workshop with Bergen School of Architecture and the GSD of Harvard University regarding different aspects of Poon Tong. In November 2018, South China University of Technology, Tamkang University, Feng Chia University, and Ming Chuan University jointly organised a workshop on urban design on both sides of the Taiwan Strait to design the micro-renovation of Poon Tong Ng Yeuk. After the initial completion of the micro-renovation of Poon Tong Ng Yeuk, the villagers and tenants continued to live there. Visitors who appreciated the simple, peaceful life were also attracted to go there for business and tourism. The project was discussed in academic journals related to urban planning, architecture and cultural heritage, and received awards such as the Award for Guangzhou Social Innovation and the WA City Regeneration Award.

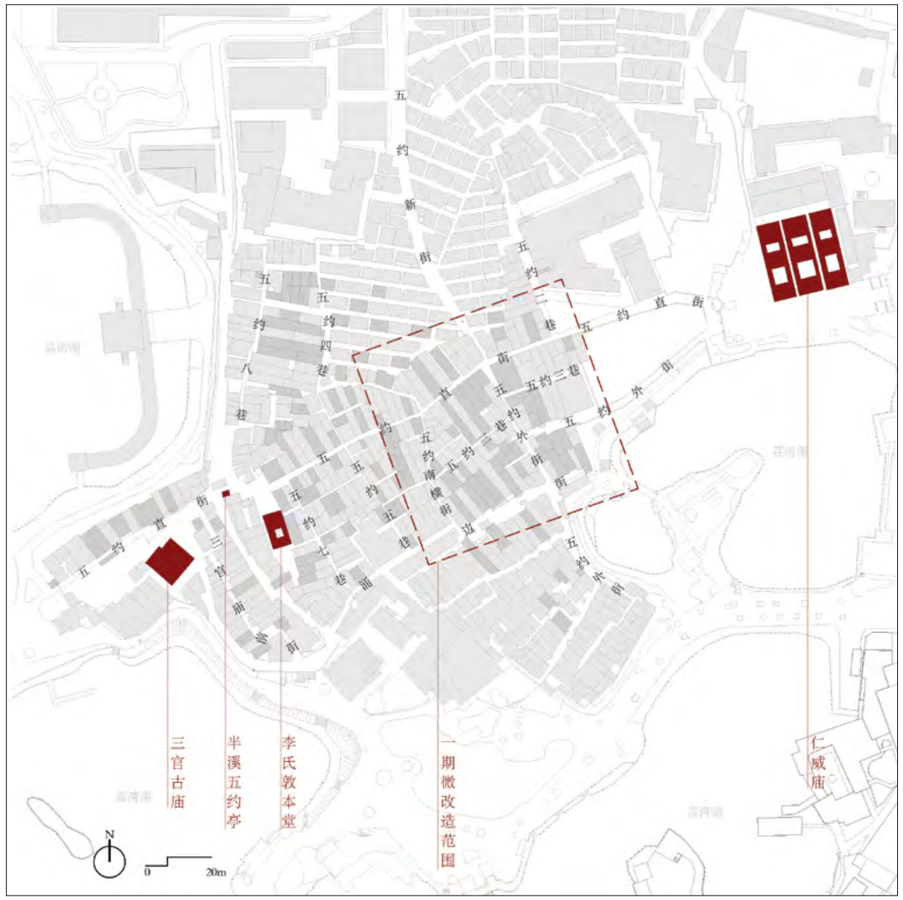


Figure 9 Master layout plan of the micro-renovation area of Poon Tong Ng Yeuk
(The dark grey areas are public housing)

Ordinary Alleys

The historical spatial structure of Poon Tong Ng Yeuk was consolidated in the renovation of historical streets and lanes to connect the keel laneway and by the preservation and restoration of the 1,525m-long granite street. As mentioned above, a sense of geniality has been maintained because of the narrow streets and lanes in Poon Tong Ng Yeuk. However, a better layout of streets and lanes was needed for the crowded Ng Yeuk Main Street and Chongbian Street, as reflected in detailed elements such as double doors, walls, courtyards and greenery.

The project was implemented in two phases. The Phase 1 site has a total usable area of 22,500m², with a gross floor area of 25,600m². The building renovation covers 8,900m², of which historic buildings cover 514.8m^2. The renovation of acquired buildings and the main streets, the pipeline installation, and the renovation of houses on both sides of the main street were conducted in four parts. The actual area and gross floor area of the space under transformation were 2,097.74m² and 3,196.08m² respectively. The degree of intervention was limited, as the so-called "acupuncture" treatment was mainly used to take forward the conservation and revitalization of the buildings in Poon Tong Ng Yeuk (Figures 9-10).

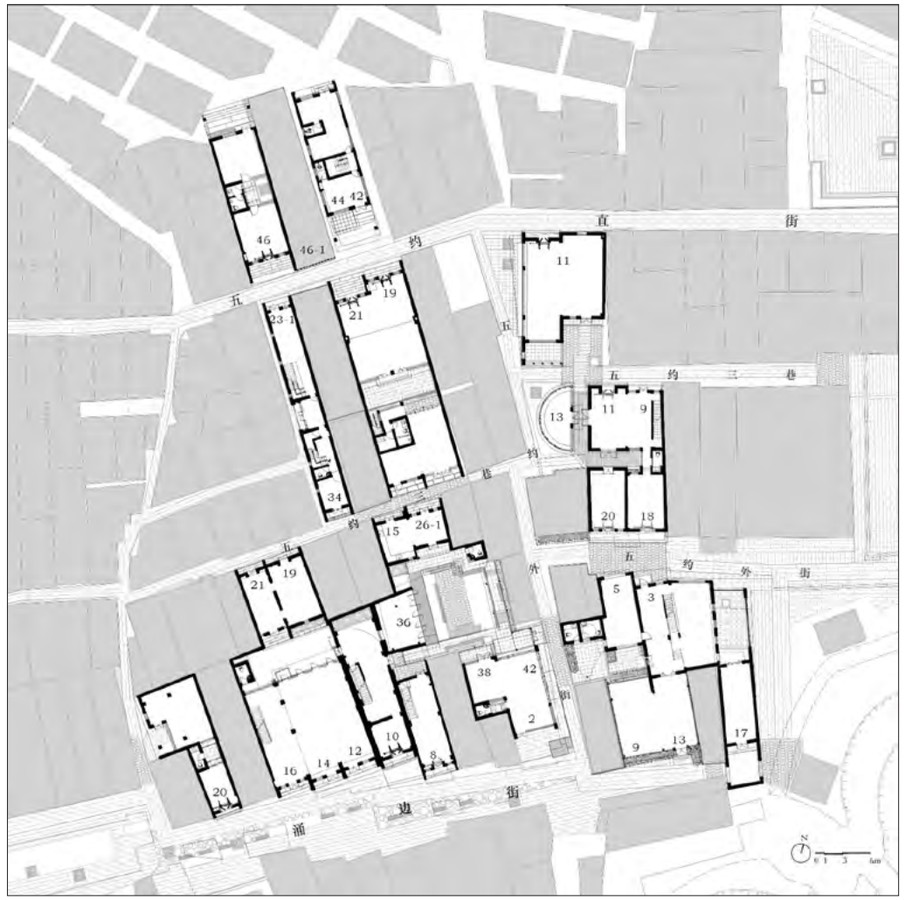
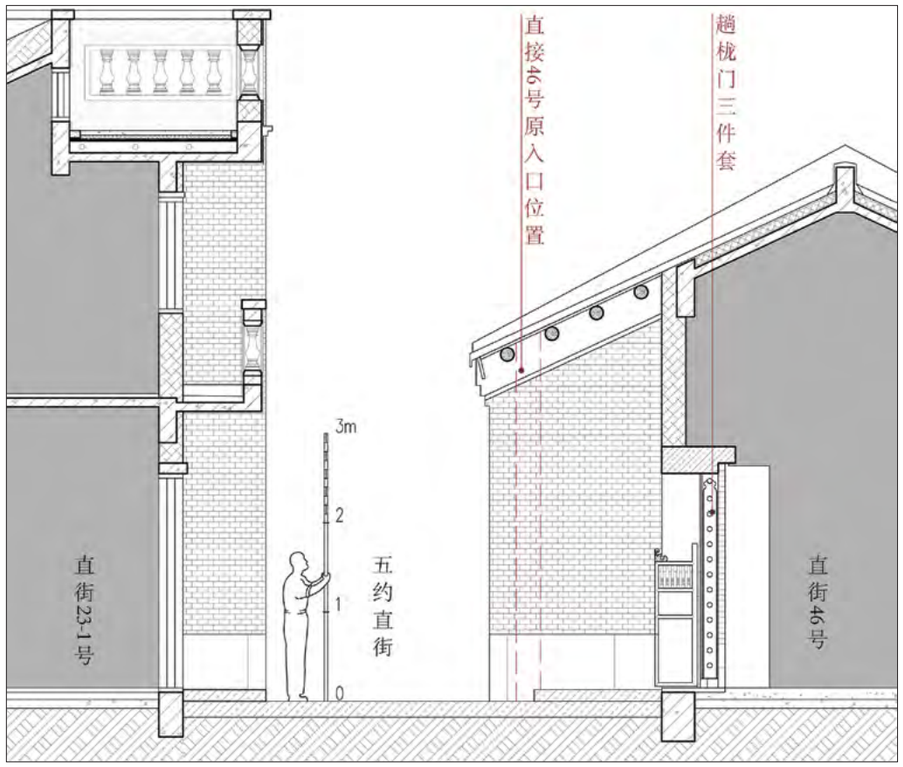


Figure 10 Floor plan of the micro-renovation area of Poon Tong Ng Yeuk



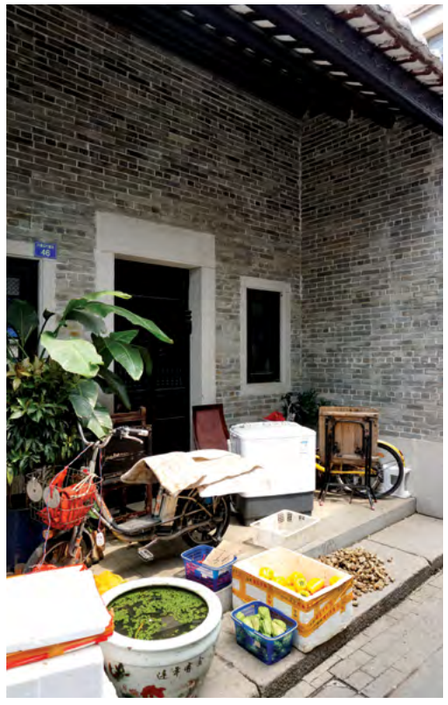


Figure 11 Cross-section diagram and photos taken before and after renovation of the space under the eaves of the entrance of No. 46 Ng Yeuk Main Street

No. 46 Ng Yeuk Main Street was the *mingjian* (central bay) of a traditional two-bay house styled like the Chinese character "明". The front elevation was the same before and after the micro-renovation, with no distinct changes. The sectional plans show that the cornice position, roof height and design of the original structure remain unchanged, but the outer wall and main door were moved inward by three purlins (about 1.63m) to create more space under the eaves, providing a buffer and transition to the narrow laneway. The traditional three-piece Cantonese sliding door, which was common and distinctive in traditional buildings in Canton (Figure 11). A similar practice was adopted in the neighbouring buildings, where part of the indoor area was changed to public space, a community-friendly design.

The entrance doors of the traditional residences of Poon Tong Ng Yeuk open onto the main streets. The walls, as a manifestation of morality, aesthetics and social segregation, were usually built along the land boundaries to maximize the private living space. In the micro-renovation, through the installation of "windows", the separation of the exterior and interior of the building by the gable wall was solved to form an interface that connects the interior and outdoor views to integrate the indoor space and the public outside face. During the transformation of No.11 Main Street and No. 13 Third Lane, a large steel-framed window was used to replace the original brick wall (Figure 12) to create a new interface on Ng Yeuk Outer Street. The micro-renovation therefore reveals some private living spaces to the public to revive the site.

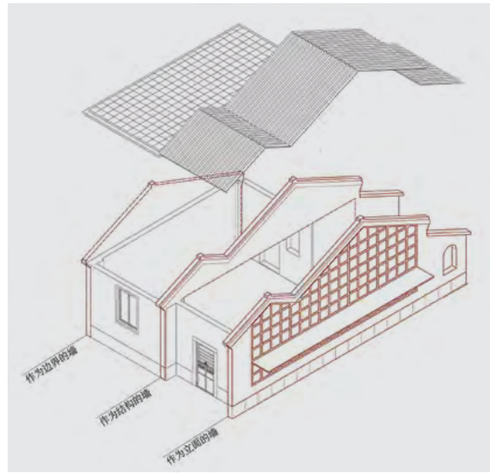
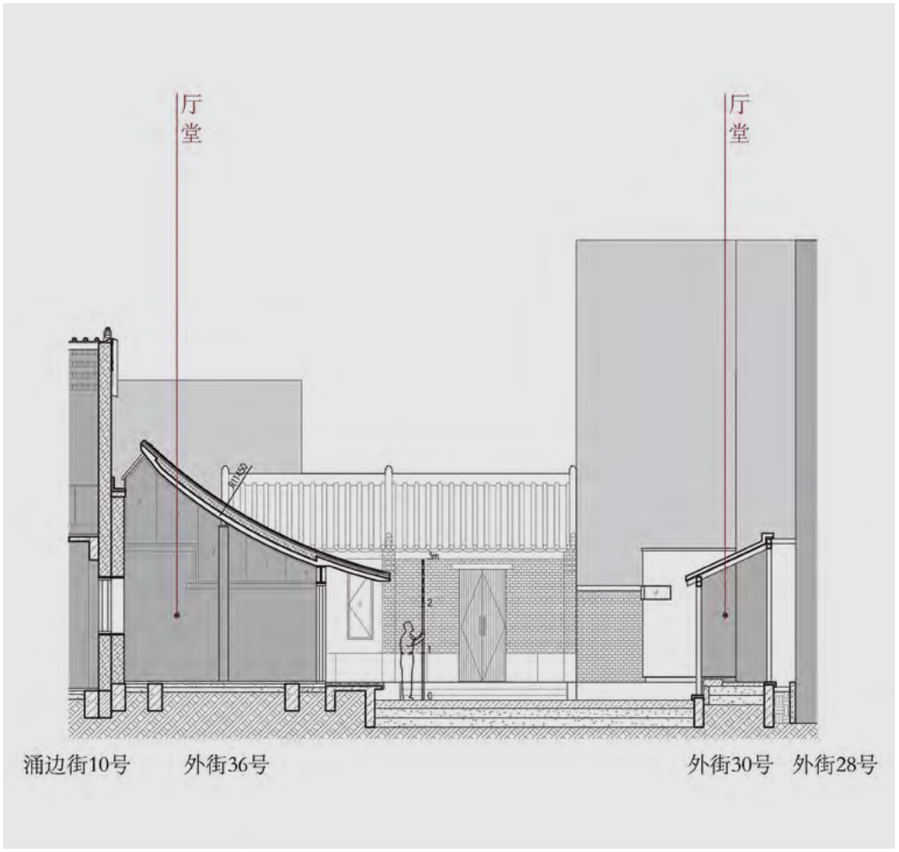


Figure 12 Gable Wall of No. 11 Ng Yeuk Main Street



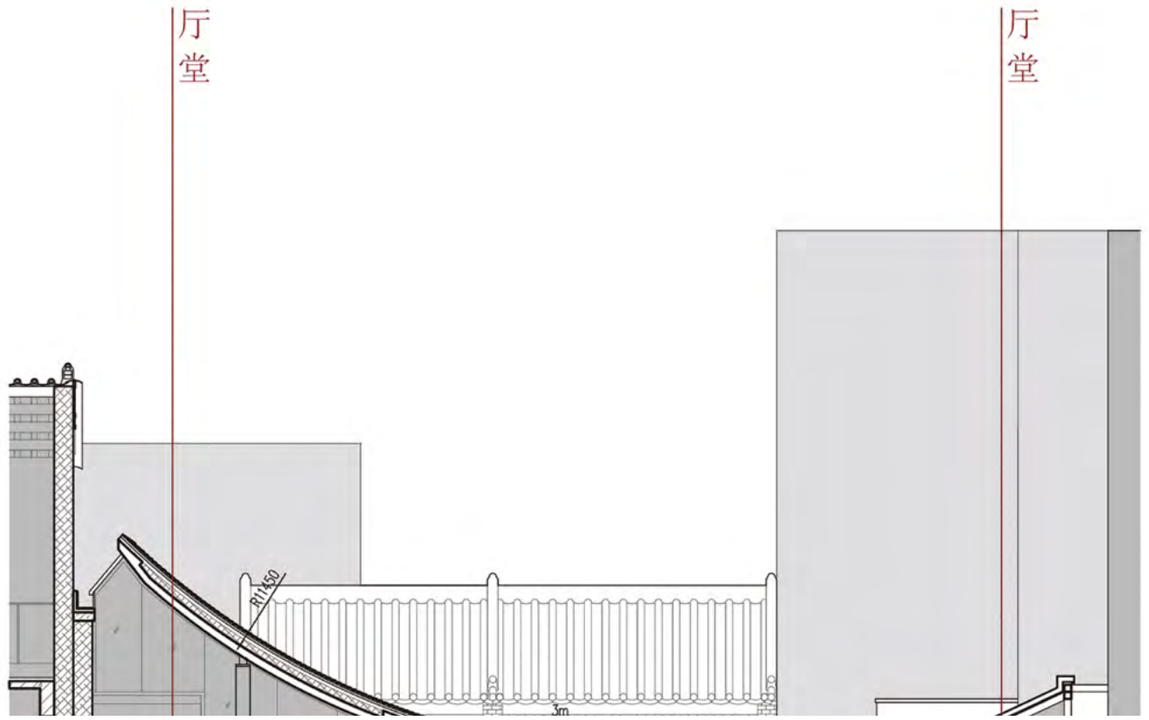


Figure 13 Courtyard of No. 30 Ng Yeuk Outer Street

Unlike traditional residences, courtyards, as architectural elements, were only found in public or commemorative buildings in Poon Tong Ng Yeuk, like ancestral halls and temples. In addition to daylight and ventilation, the courtyards provided spiritual space. After demolishing dangerous buildings, the vacant land was converted to an interior courtyard measuring 7m x 7m in a square shape, at No. 30 Ng Yeuk Outer Street (Figure 13) serving as an open space for the public and the surrounding buildings. A yard gate was installed at the side of the courtyard facing Ng Yeuk Ng Yeuk Outer Street, which, together with the steel-structure hall opposite, became the visual centre of the courtyard. A veranda was designed for the gable wall that backed against No. 28 Ng Yeuk Outer Street. The building profile and roadway dimension were indicated on the courtyard floor to disseminate historical information.

In general, the streets and lanes of Poon Tong Ng Yeuk have maintained the original layout (Figure 14). Improvements in the openness and friendliness resulted in delicate changes, allowing the ordinary lanes to provide better pedestrian movement, visiting experience and communication.

Figure 14 An ordinary lane after renovation

Landscapes of Daily Life

The word "*Yeuk*" (約) in Poon Tong Ng Yeuk means "oathsworn village cluster", which was a community bound together by a covenant as well as a commonly formulated arrangement observed by many clans. The village covenant was engraved on a stone tablet, which was placed in the building under the management of the village community. It could be read by villagers for educational purposes. The term *Yeuk* has three basic meanings: allied village cluster, the storing place of the village covenant, and the community managed by the village cluster.

The residences before micro-renovation were similar to those in other urban villages in Guangzhou. In addition to public housing, half of them were rented by workers from other places, and the other half were occupied by the indigenous inhabitants. The micro-renovation works in the first phase focused mainly on improving the living facilities and public space and the daily life of the residents. The original spatial structure of the village, the relatively slow pace of life, and the quiet and tranquil atmosphere were maintained. Particular attention was paid to the subtle modification of the ordinary lanes. The village and park were naturally connected by breaking the walls, which formed a mutual landscape that could be viewed from both sides. Upon its completion in June 2019, 60% of the public housing were rented out by the end of the year. The commercial space after revitalisation concentrated in the renovated spaces on both sides of Ng Yeuk Outer Street. After operating for half a year, a certain degree of secondary micro-renovation was undertaken in these spaces by the merchants.

As a method of urban renewal, unlike the traditional demolition method, the conservation of Poon Tong Ng Yeuk highlighted the "micro" technique, which does not require major adjustments in land use or planning standards. It emphasised residence-oriented public engagement and negotiation at the micro-level, in particular, seeking the views of the original residents. The goal was to foster the consciousness of the community, social identity and community spirit. The essence of the community micro-renewal was community governance, which is a continuing process to coordinate different interests and to boost community development through joint action.

The community building efforts involved informing the public through discussions related to Poon Tong Ng Yeuk from the past and the future, similar to the traditional "*Yeuk*", in which a village covenant was commonly observed by all. The public order and good customs have been passed down according to the village regulations and agreements. Villagers returned to a time when local covenants were established and honoured, thus bringing about a sense of identity in the re-established community. Through traditional festivals and the celebration of the deities' birthdays following local beliefs, the pace was set for their daily lives with the continuation of local traditions, such as the birth of Beidi, the Dragon Boat Festival, southern lion dancing, and ancestor worship. The spatial structure was formed by the temples, ancestral halls, the community and "*Yeuk*". Public open spaces were maintained according to the original layout and fabric. The residents' daily life became part of the landscape of space and time (Figures 15-16). The conservation and rebirth of Poon Tong Ng Yeuk invited people to become part of the landscape and to take part in forming the landscape instead of simply consuming or sightseeing.

Figure 15 Ordinary life in Poon Tong Ng Yeuk
(Source: School of Architecture, South China University of Technology)

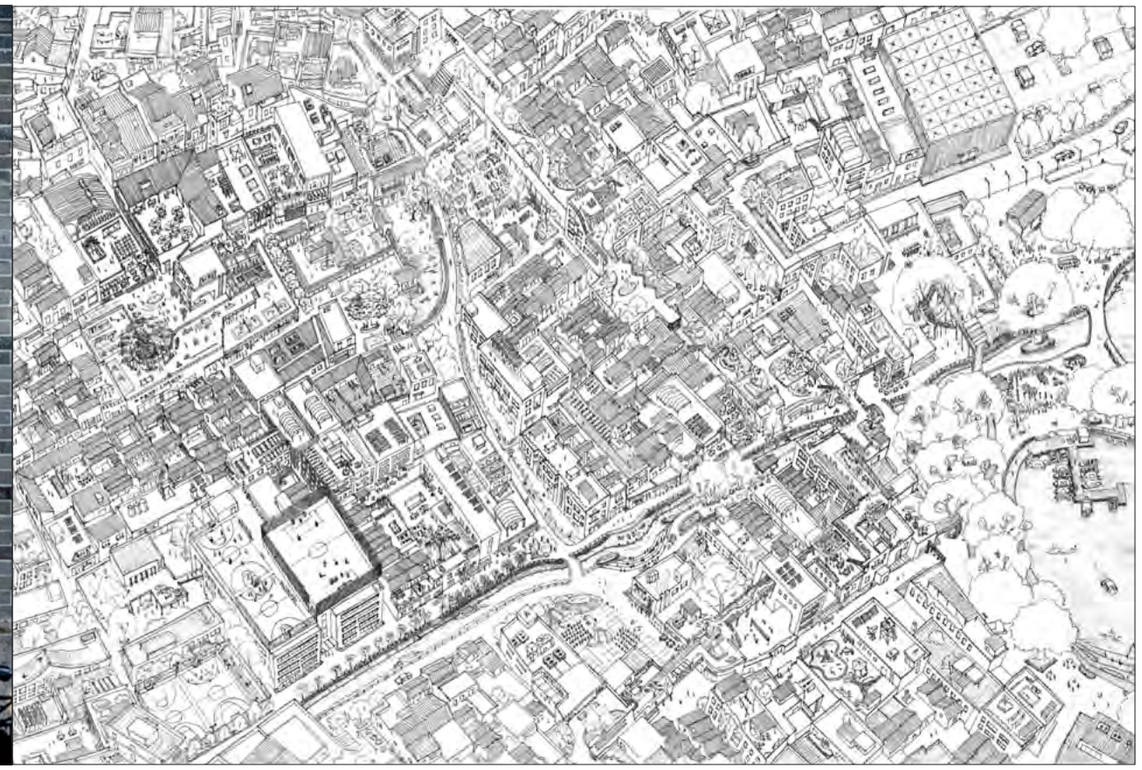


Figure 16 Poon Tong Ng Yeuk after renovation (Source: Urban Elephant)

Conclusion

Poon Tong Ng Yeuk is only one road away from the hectic Xiguan region. Because of its peninsular geographic location, Poon Tong Ng Yeuk has always been hidden in a grove beside Liwan Lake. The daily life of the waterside village was cordial, quiet and peaceful. However, it gradually declined owing to the aging of the buildings and infrastructure. By means of improving the infrastructure, rearranging the street spaces, and introducing cultural and tourist shops, micro-renovation has turned the collective memory of the village from private to public. The customs and memories that belonged to the village are now shared with the city. The people's livelihood has been maintained, and the vitality of the old village has been enhanced, highlighting the value of the traditional buildings and lifestyle.

There will be further improvements in the future after people have an opportunity to critically reflect on the conservation and renewal of Poon Tong Ng Yeuk. In terms of overall appearance, the historical waterway has not been restored, and there is a strong contrast between the local villages and the large number of Tang-style garden buildings newly constructed beside Liwan Lake. Regarding people's livelihood, the problems related to the vegetable market and park have yet to be resolved. As for architectural improvements, thanks to public funding, houses under public ownership were rebuilt, but the renovation of some significant buildings with collective property rights and privately owned residences has not yet commenced. For instance, the villagers wanted to restore the historic stone door frame in the Sanguan Temple, which had been dismounted many years previously. They tried to erect a full-scale model at various locations for demonstration purpose, but the door frame remains uninstalled so far. It is understood that some historic buildings with collective property rights were included on a list of renovations for the upcoming "Xiguan Memory" project. The improvement of private dwellings is still under discussion.

Poon Tong Ng Yeuk has also attracted commercial attention, which may disturb the peacefulness and balance. I hope that this anxiety is less than likely to be fulfilled.

Note: Figures without indicating the sources were offered by the author.

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Community building: FAN-WU-QI (Faan Uk Kei)

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Protection and Utilisation of the Donghu Hotel in Huizhou, Guangdong

—— A check-in hotspot in the Greater Bay Area Relating to the Rescue Operations of the Chinese Cultural Elites

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Abstract

Built in 1935, the Donghu Hotel (the East Lake Hotel) was the earliest European-style building in Huizhou. In the winter of 1941, the Japanese army captured Hong Kong, and many members of the cultural elite and patriotic democrats were trapped and in danger. The Central Committee and Southern Bureau of the Communist Party of China (“CPC”) were extremely concerned about the issue. Zhou Enlai, the then secretary of the Southern Bureau, repeatedly telegraphed Liao Chengzhi, head of the Hong Kong Office of the CPC, to rescue them. Under the guidance of the Central Committee of CPC, the Dongjiang Column of the Anti-Japanese Guerrilla Force carried out a rescue operation, which Mao Dun described as “the greatest rescue work since the start of the War of Resistance Against Japanese Aggression”. More than 800 members of the cultural elite and patriotic democrats were rescued. As a pick-up station in Huizhou for the secret rescue, the Donghu Hotel witnessed this major historical event. It has been renovated and opened with a gallery displaying the history of the rescue operations, and has become one of the hottest check-in spots for patriotic education in the Greater Bay Area.

In the 1930s, people of all ethnic groups and regions in China fought on all fronts in the War of Resistance Against Japanese Aggression. When the Japanese troops occupied Hong Kong in 1941, about 300 patriots and members of the cultural elite were trapped and in danger. The Southern Bureau of the Communist Party of China ("CPC") Central Committee expressed grave concern about this. Zhou Enlai, the then Secretary of the Southern Bureau, repeatedly telegraphed Liao Chengzhi, the head of the Eighth Route Army the Hong Kong Office, to rescue them as soon as possible. Under the guidance of the Central Committee, local organisations of the CPC in Guangdong, underground organisations of the CPC in Hong Kong, and the Dongjiang Column of the Guangdong People’s Anti-Japanese Guerrilla Force (the “Dongjiang Column”) carried out what was later described by Mao Dun as “the greatest rescue work since the start of the War of Resistance Against Japanese Aggression”[1]. Over 800 members of the cultural elite, patriotic democrats, international allies and their family dependents were rescued. More than 100 of them were transferred via the Donghu Hotel in Huizhou, Guangdong. As the vital pick-up station of the secret rescue in Huizhou, the Donghu Hotel witnessed this significant historical event.

I. The origin of the Donghu Hotel

The Donghu Hotel is located at No. 70 Shangtang Street, Shuidongdong Community, Qiaodong Street, Huizhou, Guangdong. According to the *Cultural and Historical Records of Huizhou*, the building was founded in the 24th year of the Republic of China (1935) by a member of the local gentry, Zhai Yuting. It was one of the earliest European-style buildings in Huizhou[2]. Built to the northwest, facing southeast, the building covered an area of nearly 1,000 square metres, with a forecourt and back yard. The existing main block, measuring 23 metres wide by 13 metres deep, covered an area of about 300 square metres. The three-and-a-half-storey building was a mix of Chinese and Western styles, with an overhanging gable roof with decorative drip tiles, and built of grey bricks edged in white. The structure is solid, pleasing and novel in outlook. There is an abandoned well to the left of the back entrance.

Zhai Yuting was a famous member of the gentry in Huizhou during the Republic of China era from Nanjin Village, Dongping. He was born in the seventh year of the Guangxu Reign of Qing dynasty (1881). He was admitted to Guangdong Higher Normal School in 1908 to study modern knowledge (mathematics and science), and after graduation, returned to Huizhou to serve as a teacher. Since the third year of the Republic of China (1914), he taught in turn in Hainan Island Qiongshan Middle School, Quangdong Women’s Normal School, and Guangdong Specialised Industrial School. In 1919, at the invitation of Zhou Xingnan, his former schoolmate and Secretary for Public Works in South Fujian (Minnan), Zhai left his school to work in Zhangzhou, Fujian, as the Head of General Affairs in the Public Works Office, where he contributed to highway construction and city development. He later participated in the urban construction of Xiamen. In 1935, Zhai moved back to Huizhou with his whole family. He purchased over 1,000 square metres of barren land near Donghu (East Lake), Qiaodong, where a private villa, later the Donghu Hotel, was built.

II. Functional changes to the Donghu Hotel

The Donghu Hotel has served various functions during different periods, which can be roughly categorised into five stages.

Stage one – a private villa. From 1935 to 1941, the building served as Zhai’s private villa, housing mainly the Zhai family. The name of the villa is still unknown.

Stage two – Donghu Restaurant. In October 1938, the Japanese troops landed in Daya Bay, Huizhou, and occupied the city and regions below the midstream of the Dongjiang River (East River). In May 1941, Huizhou fell for the second time. Japanese troops set fire to buildings on Shuidong Road, Tangxia Road and Dashi Street, to shops and houses on Wanshi Road, and to scenic spots and historic sites around West Lake, such as the Qichan Temple, Yongfu Temple and Yuanmiao Temple, causing heavy casualties and loss of property. The hotels and hostels in Huizhou were unable to resume business. Some of the local gentry converted their properties that remained into hotels, including Zhai, who turned his private villa into the Donghu Restaurant. After the fall of Hong Kong in 1941, many refugees flooded to the Mainland. Huizhou, therefore, became a significant transfer station, resulting in a thriving hotel industry. The Donghu Restaurant had more than 20 guest rooms, which were always fully occupied because of its convenient location and elegant design.

Donghu Hotel during the period of the Republic of China

Donghu Hotel before restoration

Stage three – the residence of the Zhai clan. Since the founding of the People's Republic of China ("PRC"), the building was used by Zhai's descendants until it was sold to Chen Zhiqiang, a citizen of Huizhou, in the 1990s.

Stage four – Shuidongyuanzi Coffee Shop. From the beginning of the twenty-first century to 2017, this building witnessed its first revitalisation. After basic renovation and maintenance, it was operated as a coffee shop on the ground floor, whilst the upper floor was designed as a creative space[3], with a musical instrument store, a wedding and event dressing room, a photography studio, and more.

Stage five – the Exhibition Gallery of "Rescuing Chinese Cultural Elites" in the Donghu Hotel. The Huizhou government completed the identification of ownership and acquired the Donghu Hotel in March 2017. In 2018, the government provided RMB 8 million in financing, and applied funds from relevant departments of the Guangdong government for conservation, renovation and exhibition set-up. The exhibition gallery was officially opened to the public on 30 January 2019.

III. Donghu Hotel as the main traffic station in Huizhou during the "Guangdong-Hong Kong Secret Rescue" (the "Rescue")

1. A large number of patriots and members of the cultural elite reached Hong Kong.

In 1941, when the Kuomintang (the Nationalist Party) agitated for a second anti-CPC movement, many well-known scholars, professors, writers, dramatists, musicians, artists and patriotic democrats from different sectors were persecuted owing to their anti-Japanese propaganda and patriotic advocacy. They found it difficult to stay in the Mainland. With the assistance of the Central Committee, they fled from Shanghai, Wuhan, Guangzhou, Guilin, Chongqing and Kunming and established a foothold in Hong Kong. They established newspapers and associations in Hong Kong and created a boost in the anti-war culture, which played a significant role in supporting the National Salvation Movement. They played an important role in seeking sympathy and assistance from Hong Kong, Macao, overseas Chinese and international communities.

2. The occupation of Hong Kong aggravated the dangerous situation of the cultural elites and patriots.

When the Kuomintang planned the South Anhui Incident, Song Qingling, Liu Yazi, He Xiangning and Peng Zemin wrote a joint open letter of protest to Chiang Kai-shek and the Central Executive Committee of the Kuomintang. They appealed to end the civil war and fight the Japanese together. Zou Taofen, Mao Dun, Jin Zhonghua, Yun Yiqun, Fan Changjiang, Yu Yifu, Shen Zhiyuan, Shen Zijiu and Han Youtong issued articles named "Our Attitudes and Views on National Affairs". These critiques shocked the whole country and the world. Therefore, the Manchukuo Puppet Government and the Kuomintang anti-communist conservatives saw these patriots as a thorn in their flesh that had to be taken out. During the fall of Hong Kong, about 300 patriots and members of the cultural elites were in danger[4].

3. Huizhou was situated in a key position to the north of Hong Kong during the War of Resistance Against Japanese Aggression.

In order to complete the Rescue, under the leadership of the Central Committee and the arrangement of the Southern Bureau of the CPC Central Committee, the Dongjiang Column opened up the eastern and western lines from the guerrilla station in Kowloon to the anti-Japanese guerrilla zone in Dongjiang, Baoan. The eastern line took them from the Kowloon urban area through Ngau Chi Wan, Kowloon Pass, to Sai Kung. Then they went by sea from Kei Ling Ha or Sham Chung Wan across Mirs Bay, and landed in Dameisha, Xiaomeisha or Shayuchung en route to the Huiyang guerrilla base. The western line started in the Kowloon urban area and went via Shanghai Street to Castle Peak Road, through Kau Wa Keng and Tsuen Wan, over Tai Mo Mountain to Shap Pat Heung in Yuen Long, past the Shenzhen River to the Baishilong guerrilla base in Meilin'ao and then to the Huiyang guerrilla station. They had to pass through Huizhou whether they arrived from the east or west, or by sea or land. Huizhou is a millennium-old city of strategic importance because of its rugged terrain. When the Japanese troops occupied Huizhou, the transport route between Shilong and the Kowloon-Canton Railway was cut off. The Dongjiang River became the only means of transporting war supplies to the north, making Huizhou's secret traffic station the main pick-up station for underground parties to transport the cultural elites and democrats.

4. The Donghu Hotel historic site became a traffic station in the Rescue in Huizhou by historical accident.

The Donghu Hotel (the "Donghu Restaurant" at the time) was located near the prosperous Shuidong Commercial Street at the intersection of the Xizhi and Dongjiang rivers. Accessible by both land and water, it was a convenient spot to transport people and materials from south to north. After the Japanese occupied Hong Kong, Zhang Guangqiong, the commander of the 187th division of the Kuomintang Garrison, was ordered to be stationed at Huizhou. When the Japanese evacuated from Huizhou, Zhang moved the division back to the suburbs and rented the top floor of the Donghu Hotel for accommodation and entertaining. The persons in charge of the local CPC organisation in Huizhou, Lu Weiru and Lan Zao, who were also responsible for the rescue operation, made use of the location and rented both floors of the hotel as a secret traffic station[5]. Zou Taofen, Mao Dun, Kong Dezhi, Hu Feng, Ye Yiqun, Hu Zhongzhi, Liao Mosha, Han Youtong and Hu Sheng checked into the hotel, leaving many impressive and acclaimed rescue stories.

IV. The significance of the Rescue

The Rescue has outstanding historical value. First, it preserved a strong force for cultural resistance, and constructing a democratic country and socialism. The rescued cultural elites and democratic patriots were crucial to these activities by gaining international support, overthrowing Kuomintang conservatives, establishing the PRC, and developing a strong post-socialist culture. Second, it propagated the CPC's attitude of fighting for the future of the nation and the world. This rescue operation was very influential in the history of the War of Resistance Against Japanese Aggression and the international anti-Fascist movement, showing how the CPC cherished the educated and the talented, putting political prejudice aside for the sake of the nation and the world. Third, it helped strengthen the fighting ability and bravery of the Dongjiang Column. None of the guerrilla members were arrested or killed during the rescue operations, which reflected their ability in covert operations, and their loyalty and revolutionary spirit, to say nothing of their willingness to take on responsibility and take risks, and the advanced battle skills of the CPC members. They received praise from the Central Committee ride telegram and won praise from all sectors, both local and abroad. Zou Taofen inscribed the comment "Defending the Motherland, Pioneer for the People" to show his esteem for Zeng Sheng, the leader of the Dongjiang Column.

V. The implementation of the Guangdong-Hong Kong-Macao Greater Bay Area ("Greater Bay Area") strategic planning and the promotion of the reuse of the Donghu Hotel in the new era of Huizhou

The development of the Greater Bay Area is on China's development agenda, as planned, deployed and advocated by President Xi Jinping, also General Secretary of the CPC and Chairman of the Central Military Commission. On 1 July 2017, President Xi witnessed the signing of the *Framework Agreement on Deepening Guangdong-Hong Kong-Macao Cooperation in the Development of the Greater Bay Area* between the National Development and Reform Commission and the governments of Guangdong, Hong Kong and Macao, indicating that the development of the Greater Bay Area was accorded the status of key national strategic planning. President Xi repeatedly gave clear instructions to put forward the "building [of] an energetic and globally competitive top-class bay area". It involves one country, two systems, three customs territories and three currencies, a situation that has never been faced by other developing bay areas. It is, therefore, not only a new attempt to shape a fully open era, but also a new practice in promoting "one country, two systems". At this important juncture, Huizhou implemented the protection and utilisation of the Donghu Hotel.

1. Brief on the protection of the Donghu Hotel: During the War of Resistance Against Japanese Aggression, many houses in Huizhou were blown up by the Japanese army. Fortunately, the Donghu Hotel survived the attack and remained intact. After liberation, its ownership changed hands several times. The protection and renovation process encountered many difficulties, such as the confirmation of property rights, acquisition of property acquisitions, termination of lease, and collection of materials. The CPC local committees of Huizhou and Huicheng Districts considered the protection and renovation of the Donghu Hotel to be of great importance. In 2012, the Donghu Hotel was recognised by the Huicheng government as an immovable heritage that had yet to be approved for declaration. The government took several years to confirm the property rights and acquired the Donghu Hotel for RMB 7.5 million in March 2017. In 2018, the Municipal Committee and Government of Huizhou implemented the protection and utilisation of the Donghu Hotel. The Huizhou government contributed RMB 8 million and applied for a special fund of RMB 2.6 million to the Publicity Department of the Guangdong Provincial Committee for renovation and protection. Despite being an immovable heritage that had yet to be approved, the Donghu Hotel was redesigned, renovated and supervised by qualified heritage conservation bodies with high standards and requirements. The municipal administrative department of heritage and heritage experts also participated and monitored the whole process, and later helped set up an exhibition. In December 2020, the Donghu Hotel was declared a Historical and Cultural Site at the city level by the Huizhou government. In 2021, it was recommended for declaration as a Guangdong Historical and Cultural Site under Government Protection, and was listed in the tenth batch of Historical and Cultural Sites of Guangdong.

2. Revitalising and turning the hotel into the hottest check-in historic spot with educational value: To make use of the history of the Donghu Hotel, the Municipal Committee and Government of Huizhou collected a large number of pictures and historical relics, and visited many heritage and history experts. The renovated Donghu Hotel became the Exhibition Gallery of "Rescuing Chinese Cultural Elites". The 1,200-square-metre exhibition area is divided into three display sections: "The Road to Rescue", "The Shift to Huizhou" and "The United Front". The authentic history of the Rescue is showcased in text, images, artefacts, multimedia programmes, sculptures and models. In the exhibition gallery, a variety of stories are shown to the audience, such as "Poems on the Natural Scenery of Huizhou" by Liao Chengzhi, "Busy Work" by Zou Taofen, "Yuanji Shop" by Liao Anxiang, and the story of Mao Dun and his wife cooking "New Year's Eve dinner"[6]. More than 10,000 old photographs and historic guns, knives and ammunition are on display. Old soldiers and CPC members who had experienced the Rescue were invited to tell the stories of escorting cultural figures. After its opening in 2019, the Donghu Hotel exhibition gallery received over 100,000 local and oversea tourists in the first year, and more than one million accessed the online virtual exhibition which was launched because of the pandemic. The quality of the tour guide service has been constantly improved and customised into four versions, catering for different target audiences. Selected well trained "red scarf" docent volunteers provide guided tour service for the public during holidays and festivals, which turned the hotel into a popular key education site on the history of the revolution and the CPC in Huizhou, and even in the Greater Bay Area. By the end of 2020, the Donghu Hotel came first in the "Top 10 Examples on Protection and Utilisation of National Revolutionary Cultural Relics in 2020".

The diorama of "New Year's Eve dinner" in Donghu Hotel

VI. Other arts and cultural developments derived from the Rescue

In 2021, the Huicheng Culture, Radio, Television, Tourism and Sports Bureau signed a contract with the China Coal Mine Art Troupe ("CCMAT"), an affiliate of the Ministry of Culture and Tourism of the PRC, to jointly present a large-scale original drama, entitled tentatively "The Vital Rescue". The CCMAT also hopes to direct a "Huizhou version", performed by local Huizhou artists on a regular basis in Huizhou, to boost the city's reputation. The Bureau also presented an original mini-drama entitled "Donghu Hotel in 1942", and local Huizhou writer Chen Xue wrote "Passing through the Blockade".

Donghu Hotel after restoration

VII. The direction of the future protection and utilisation of the Donghu Hotel

The Rescue is an enduring masterpiece with good spirit. As a key traffic station of the Rescue in Huizhou, the Donghu Hotel is a valuable heritage site. Huizhou will continue to implement President Xi's directive in the 31st Meeting of the Politburo of the CPC to properly use the revolutionary cultural heritage. To further protect and utilise the red resources and expand the red culture, along the following plans:

First, enhancing the depth of research. Assistance will be sought from the Chinese People's Political Consultative Conference and cultural-related organisations in Huizhou, such as the Committee on Culture, Historical Data and Studies, and from historians, to conduct in-depth studies and explore thoroughly the history of the Rescue using heritage sites, documents, archives and other historical materials.

Second, intensifying protection efforts. The route for rescuing members of the Chinese elites and democratic patriots from Hong Kong to Pingshan in Shenzhen, passed through Danshui, Chayuan, Zhoutian, Yonghu of Huiyang, and Sandong of Huicheng to the Donghu Hotel, and then by boat from Dongxinqiao Pier via the Dongjiang River to Laolong, Heyuan. Important sites such as Chayuan Village, Zhoutian Village and Dongxinqiao Pier remain to this day. After years of effort, Huizhou has been able to better preserve and utilise the Donghu Hotel. The next step should be to expand the protection to other important spots along the rescue route, such as the traditional villages of Chayuan and Zhoutian. Relevant departments, like housing, agriculture and rural affairs, should help improve the environment, develop infrastructure and renovate the key spots in these villages. The renovation of Liuzhao Building, Huixin Building, and the Siqian New Residence is under way in Huiyang. The synergy of the conservation work helps preserve the important historical sites along the route of the Rescue.

Third, broadening the usage. At present, the Huicheng Culture, Radio, Television, Tourism and Sports Bureau is preparing for the second phase of the renovation of the Donghu Hotel. The proposal has already been included in the key project plan of the Huizhou Development and Reform Commission. In the meantime, to make full use of the venue, the visiting route inside the gallery is designed for visitors to experience the Rescue route personally, to facilitate the making of educational videos and micro-lessons of party history, making the Donghu Hotel a popular check-in spot for learning in the Greater Bay Area. We have explored the possibility of organising a variety of activities, such as the "Cultural Elites Reading Club" and "Treasure Hunt for Teens" to broaden the usage of the Donghu Hotel. Apart from the adaptive reuse of the Donghu Hotel, Huizhou will work with the relevant departments to link together greenways and villages near the rescue route to boost all-for-one tourism, the revitalisation of villages, revolutionary education and eco-development, turning it into a model city.

Fourth, enriching artistic creations by exploring touching stories of the Rescue to create more films, TV series, documentaries, plays, songs and other revolutionary literary works, in particular, to produce excellent cultural repertoire. We should make use of the history of the Rescue to better organise our resources and rely more on professional organisations such as the Huizhou Symphony Orchestra and Chorus to do high-quality literature and art works of revolutionary memory and tell the story of Huizhou for the inheritance of the revolutionary spirit.

In 2021, President Xi pointed out that the revolutionary cultural heritage reflect the glorious history of the heroic struggles of the CPC and the people. They are records of the great progress and touching stories of the Chinese revolution and valuable assets of the CPC and the country. They serve as vivid teaching materials for promoting revolutionary traditions and cultures, reinforcing socialist ideological and ethical progress, and inspiring a strong sense of patriotism and invigorating national ethos. The Municipal Committee and the Government of Huizhou have been implementing President Xi's directive on preserving cultural heritage, particularly those related to revolutionary artivities. In accordance with the work plan of the central authorities, under careful supervision and substantial support from management, the relevant departments at all levels in Huizhou have continued to explore the value of revolutionary culture and to protect and utilise revolution-related historical sites. Huizhou should take this as an opportunity and a new starting point to further consolidate the foundation of its heritage work and continue to strengthen the protection and repair of heritage sites related to revolutionary activities. The promotion of revolutionary cultural legacy and tourism along the Dongjiang River will help strengthen the foundation work for heritage preservation and continue to yield positive results.

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Carlos MARREIROS GOOIDH

Heritage Rehabilitation of Albergue SCM and Its Reuse

Carlos Marreiros is an award-winning architect, urban planner, designer and artist, whose cutting-edge creations are widely recognised and have been internationally published. He was born in Macao and studied in Macao, Portugal, Germany and Sweden before returning to Macao in 1983. He is regularly invited to exhibit and lecture at galleries and universities in Europe, America and Asia. He is also a university professor and community leader, serving in many non-government and governmental organisations.

In 1987, he was awarded the "Medal for Cultural Merit" by the Governor of Macao, and in 1999, he was awarded the "Medal of Value" (Medalha de Valor), the highest distinction in the Territory, by the Governor of Macao. In 1999, he was decorated by the President of the Portuguese Republic with the title "Great Officer of the Order of Prince Henry; in 2002, he was decorated the "Medal of Professional Merit" by the Chief Executive of the Macao SAR Government; and in 2019, he was awarded the "2019 Identity Award" by the International Institute of Macao.

Abstract

The Saint Lazarus district is a 450-year old historical site in Macao. Since it was outside the city walls, it was a convenient location for the first leprosy colony built in Macao in the sixteenth century. It was next to the north branch of the city wall, which ran from S. Paulo do Monte Fortress to the Hermitage of Our Lady of Guia. The Saint Lazarus district was rebuilt in 1903, as part of the first effectively implemented sectorial city plan in Macao. It comprised social housing and a home for senior citizens, where the Albergue SCM is located today. The whole compound was rehabilitated in 2004 and became the first pole of the creative and cultural industries in both the area and Macao, attracting cultural and artistic associations and agents to move to this beautiful area, close to the UNESCO Historic Centre of Macao. Its rehabilitation was complex, as was its cultural and artistic development, but it took only three years to become a very successful project. The rehabilitation project was promoted through several documentaries, videos and stories in worldwide media, and was awarded the Gold Award of the Architects Association of Macao in 2009.

In addition to respecting all the original design, and construction materials and techniques, we kept its humble character of non-luxury construction, something that is not very common in this part of the world, as people like to show outward signs of wealth, adding unnecessary and non-genuine baroque features and golden ornaments.

The rehabilitation of the Albergue SCM complex was a widely recognised architectural rehabilitation milestone and gave a major boost to the entire area thanks to the development of the creative and cultural industries.

Revitalising The Pokfulam Farm:

A Community-based Project to Co-create an Exchange Platform to Build a Cultural Hub

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Mr Ko is a Member of the Royal Institution of Chartered Surveyors, the Founding Chairman of Pokfulam Village Cultural Landscape Conservation Company Limited and a Board Member of Pokfulam Farm Company Limited.

KO Wing Hong Nigel

Mr Lam is an architectural conservationist, a Fellow of the Hong Kong Institute of Architects, the Head of Property of Caritas Hong Kong, and a Board Member of Pokfulam Farm Company Limited. He has participated in conservation projects such as Tai Fu Tai Mansion, Kun Ting Study Hall, King Law Ka Shuk Ancestral Hall, Kowloon Walled City Park, Hong Kong Catholic Cathedral of the Immaculate Conception and St. Joseph's Chapel in Yim Tin Tsai.

LAM Sair Ling

Abstract

Caritas – Hong Kong ("Caritas") and Pokfulam Village Cultural Landscape Conservation Ltd. have joined hands to conserve and revitalise the Old Hong Kong Dairy Farm Senior Staff Quarters, also known as Braemar House, built in 1887, by utilising public resources allocated under the Development Bureau's Revitalising Historic Buildings Through Partnership Scheme ("R-Scheme") since 2015. The project is named "The Pokfulam Farm", after the name of the central part of the past Hong Kong Dairy Farm and to challenge the usual schema of Hong Kong heritage conservation, as this project focuses not just on a single historic building, but on the whole "Old Dairy Farm – Pokfulam Village – French Missionaries" cultural landscape. After four years of effort in gaining official approval from the relevant authorities, the capital works commenced in July 2019 and were completed in September 2021, allowing the Farm team to commence operations on 1 April 2022.

The Pokfulam Farm is a community-driven conservation project. The mission to reuse these heritage facilities as a unique cultural hub has brought groups of local people, of various interest and concerns, to contribute and work together, showing visitors the significance of, and the linkage between, all 60-plus historic buildings situated in this cultural landscape. The project involves a thorough understanding of the past and takes a holistic approach to narrate the community's collective identity and strengthen its social bonds, thus strengthening the community's resilience to rapid urbanisation and sustainability challenges.

The Trend of Conserving and Revitalising Hong Kong's Built Heritage

Before the 1970s, there was limited concern about conserving historic buildings, be it public or private, and the city authorities and landlords usually preferred to demolish old homes to make room for modern buildings. Only a small amount of built heritage remains, which charities can rent as office, educational or service space at a nominal rate as low as $1 per month, but the tenants are not required to do historical interpretation for visitors. In this utilisation model, the Government retains full ownership, and the tenants play no role in repairing or restoring the old buildings.

In the post-colonial era, there has been a lot of effort in civil society to narrate the history of the city, which is a public way to construct a collective identity. The Hong Kong Government also put into action a new policy, carried out by the Development Bureau, to involve charities and other non-profit organisations (NPOs) in collaborative heritage conservation. The new R-Scheme aims to promote the adaptive reuse of heritage buildings, encourage community participation, and support local employment. As of today, the R-Scheme allocated 26 heritage buildings for the use of NPOs in the first six batches, empowering NPOs with a lump sum subsidy for capital works with flexibility on the design of the architecture and operational business model. This Scheme has raised public awareness and has had a positive impact on all sectors of society to value these precious public assets.

However, this places a heavy burden on the NPOs' financial and manpower resources, since for each self-financed project, they have to bear the initial cost of securing a team of technical staff to fulfil all the statutory requirements and to handle the process of gaining the necessary approval from the relevant authorities and the Legislative Council for a period of about four years. After the completion of the revitalisation works, the NPOs have the further costs of operations and property maintenance. As a result, the design of the R-Scheme limits the participation of local civic groups, with only sizable charities, cultural and academic institutes, and NPOs recently established by large commercial entities capable of assuming the substantial financial burden. Though this is a good strategy to drive private resources to support the conservation of built heritage in the city, these resourceful organisations have their own mandates and values, and they may use the heritage buildings for their own purposes, which may not necessarily be connected with the past of the buildings and the surrounding community.

Breakthrough Strategy of The Pokfulam Farm

The Old Dairy Farm Senior Staff Quarters is one of the heritage buildings for conservation under the 4th Batch of the R-Scheme. It was built in 1887 and named Braemar, after a village in Aberdeenshire, Scotland. The present heritage includes 4,200 sq ft. of gross floor area and 23,000 sq. ft. of surrounding space. It is 490 ft. above sea level. It was one of the buildings in "The Mains", which was the central cluster of the original farm site.

In 1886, Sir Patrick Manson, together with five other businessmen, established the Hong Kong Dairy Farm, whose 300-acre development radiated eventually from the Mains towards an extension of Sassoon Road to the north and Kai Lung Wan (today's Wah Fu Estate) to the South. In 1985, the Old Dairy Farm was closed, it had become one of the most advanced industrial dairy production hubs in the Far East, with a herd of over 3,000 livestock housed in 47 cowsheds and other farm facilities. The Mains was still the heart of the Farm. All milk produced was collected from every cowshed and sent to the Boiler Room for pasteurization, and all the workers gathered at the Administrative Building to collect their wages on the 3rd and 18th day of every month. The Farm Manager supervised all work operations every morning, riding his motorcycle from Braemar to all corners of the Farm.

Surrounding the Mains are (1) Waterfall Bay, a fresh water source that attracted the first European entrepreneurs to take shelter on the island; (2) the Pokfulam Reservoir, the first public reservoir built in the city; (3) the Bethanie Sanatorium, built in 1875 by French Missionaries; (4) the Nazareth Press, operated by French priests to print Bibles for Far East believers; and (5) Pokfulam Village, established in 1730, which was included in the World Monument Watch List 2014 by the World Monument Foundation in recognition of its heritage and social value. This southwest corner of Hong Kong Island was long a home for British, French and Chinese entrepreneurs, who found the place open and free for social inclusion and cultural exchange. Today's Pokfulam residents launched a great initiative, a non-profit-making organisation, Pokfulam Village Cultural Landscape Conservation Ltd. Their approach to seek a partnership with Caritas to run The Pokfulam Farm illustrates the continuity of the spirit of entrepreneurship.

A. Community-driven Conservation: Injecting a Soul into Built Heritage

The first breakthrough for The Pokfulam Farm was that it is mainly a community-driven conservation project. The local Pokfulam Village community drove the repair and reuse of Braemar, while the Caritas team engaged in community organising, resource bridging, and communication facilitation. These choices characterised The Pokfulam Farm and differentiated it from other local conservation experiences.

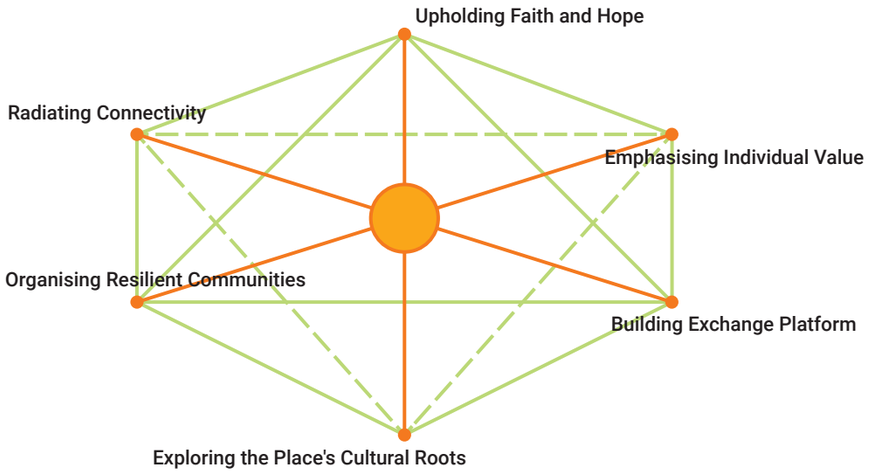


Fig. 1 Three-dimensional model showing the guiding principles of The Pokfulam Farm

Pokfulam Village had 36 original families, according to the 1893 Pok Fu Lam Village Crown Lease, which was the first Crown Lease ever issued by the Hong Kong Government. Before the establishment of Hong Kong Dairy Farm and the French missionary institute, the village was a traditional Hakka village, whose inhabitants made a living growing vegetables and raising pigs. It was only when Dairy Farm came to the valley, employing hundreds of workers, together with a huge number of refugees who came in the 1950s to 70s, that the rural landscape of the village changed, and left the stereotyped impression of being a squatter area.

In past decades, the government made plans to redevelop the area, but it was only in 2013 that the villagers were convinced of the imminent threat of clearance. They organised a "Stay with Pokfulam Village" movement, promoting the natural and cultural value of this historic settlement, as well as the surrounding agricultural, industrial and cultural landscape.

By coincidence, Braemar was made part of the R-Scheme, which was open for applications in 2014. At the time, few Hong Kong people knew that the Old Dairy Farm had once existed on Hong Kong Island, nor did the management of the Dairy Farm Company, which had become a multinational retailer. The Pokfulam villagers suddenly became the keepers of this unique page of Hong Kong history, for they shared vivid collective memories of life on The Dairy Farm. Turning Braemar into a cultural hub provides an opportunity for the villagers to tell their stories and to integrate and conserve the whole Pokfulam Cultural Landscape.

"Stay with Pokfulam Village" movement included several core groups, mobilising over 50 villagers to participate according to their interests and vision, including (1) Pokfulam Village Cultural Landscape Conservation Ltd., which focuses on tangible and intangible culture conservation, (2) Lok Kan Yuen, whose interest is in conserving traditional rituals and lifestyle, (3) The Craftswoman Workshop, which uses local and natural resources to create arts and crafts, (4) The Satoyama Club, which appreciates natural living style, (5) The Builder Club, which focuses on DIY built environmental enhancement, and (6) The Root Group, which promotes an age-friendly community. The number of core group members comprises approximately 1/60 of the village population, allowing them to become the critical mass to bring changes to the village's social system.

With the facilitation of the Caritas team, the core groups formed a collaborative decision-making platform, valuing participation more than power, and meaning more than materialistic concern. From deciding to file the R-Scheme Application and brainstorming of the project vision, to formulating the project proposal and implementing the business operations, the whole planning and execution process has been co-developed by all parties of this platform.

This open form of decision-making and full participation of local residents form the foundation of the governance structure of The Pokfulam Farm Company Ltd. Among the five directors of The Pokfulam Farm, two are from the Village, and of the eight Steering Committee Members, there are three villagers and two independent members. Of six paid staff, two are from the Village. From bottom up, The Pokfulam Farm is an implementation platform for villagers to showcase the historical and cultural value of their community. The villagers' efforts helped rebuild the collective image, and strengthen community cohesion and resilience.

B. Point and Line to Plane: A Radiating Cultural Hub to Connect Surrounding Heritage Sites

Conserving not only a single heritage building, but also every single characteristic defining element in the whole cultural landscape is a dream shared by the strategic partnership cultivating The Pokfulam Farm project. This is a "Point and Line to Plane" strategy, rejecting the city's current tactic of focusing too narrowly its conservation efforts only on individual historic buildings, while not effectively anchoring layers and traces of the livelihood of the people living in the community. The aim is for Braemar to become a radiating cultural hub to connect all the surrounding heritage sites to this unique agricultural-industrial landscape.

It has always been the footsteps and activities of the locals connecting these heritage sites. To illustrate this, back in the 1960s, the workers and cowboys from the Old Dairy Farm would go to Braemar to get directives from the farm manager and get paid in the accounting office, situated in the Administration Building still standing next to the Pokfulam Road. They would then gather together after the off-work bell and go to Pokfulam Village for a beer, to play mahjong, to buy groceries or to get a hair cut. Some decades earlier, after the French priests had designed and built a ropeway to carry books uphill to Bethanie, they were invited by the Old Dairy Farm to build another magnificent system to bring hay and other materials from a nearby pier to the Mains. One of the priests was later invited to be the Director of the Dairy Farm Company. Every Mid-autumn Festival, the Pokfulam Villagers would make Fire Dragons and have a dancing ritual to pray for good health. They usually got the hay for the dragons from the Old Dairy Farm cowsheds. Later on, the workers residing in the staff quarters uphill joined the ritual and made Fire Dragons too.

However, when the Old Dairy Farm sites were turned over to the Government, and the monuments of the French Missionaries fell under the management of two higher educational institutes, these connections among these built heritage faded. Some heritage sites are even covered by heavy vegetation and are hidden from the public. Fortunately, generations of Pokfulam residents have resided there for 300 years, so the history of the area has survived and can be passed on from generation to generation.

To promote community building and civic participation to enhance the collective image of the Pokfulam community, in 2012, the Caritas' Community Development Team published a collection of oral histories and co-built a community garden with over 40 villagers, in 2013, it organised a docent tour service for the public, and in 2017, it helped the villagers apply for the Fire Dragon Dance to be added to the Hong Kong Intangible Cultural Heritage Inventory and helped the Antiquities and Monuments Office map and survey over 60 Old Dairy Farm heritage

sites. These tactics helped the community consolidate their cultural assets and crystalise them into elements of the business that would be run in The Pokfulam Farm, so that members of the general public could enrol and experience the beauty of the local culture, and eventually develop The Pokfulam Farm into a portal for the general public to enjoy visiting the agricultural-industrial landscape. The villagers are organised as docent tour guides to share stories that have been passed on from generation to generation in their families.

C. Conserving the Future: Passing on the Legacy of Entrepreneurship and the Rural Spirit

The third breakthrough in implementation of The Pokfulam Farm Project is that, her operation focuses not only on revitalising and reusing the heritage building, but also on refreshing the Villagers' motivational drive in participation, platform building and access channeling, in order to pass on the sense of entrepreneurship and rural spirit to the next generations, a way to "conserve" the future of the community.

Based on the exploration and discovery conducted by both the Caritas Team and Villagers' groups in the past 12 years, it is consolidated that, the three mostly shared values in the Village is entrepreneurship, resilience and respect. These are also values that commonly shared in Hong Kong Society across classes and generations in the past decades, and are cultural drivers that made Hong Kong a legend. To pass on this legacy, one shall not just share it by simply teaching, but by creating experiential learning opportunities for the new generations. Building an exchange platform to encourage intergenerational dialogue and collaborations is the key to the ideal cultural sustainability.

To describe the nature of The Pokfulam Farm, one might say it is a "living" museum with contents being kept refreshed from time to time by the community; another one might say it is a "wall-less" museum, where visitors could go beyond the walls of the heritage building and take the surroundings, Pokfulam Village included, as objects of appreciation. The Farm team agrees with these illustrations, and at the same time envisions more, that it would be completed if the majority of the villagers would take the Braemar as part of the Village and as an extended living space of their home. Until that moment, the heritage building will no longer be standing alone, but being part of the village, re-owning her soul.

Take an ordinary weekend afternoon as example, while Master Ng Kong-kin the bamboo craftsman is preparing for his lantern workshop held on the day after, the Craftswomen Group has just finished nurturing their jar of indigo dye, and Master Kam helped a group of students to learn gazing for their ceramic art pieces. These are not performance like in too-much-tourism "cultural village", but real self-actualisation. These craftsmen love to talk to interested visitors and even ask them to join in and try out, having a genuinely authentic cultural exchange. Spending their time in The Pokfulam Farm throughout the year, the ever-changing seasonal features of the natural environment is an automatic generator for the villagers to renew their content, providing new information and experience for the Project Team to promote and attract old and new visitors. This strategy reflects the Project's fundamental value on believing the community has already had all assets it needs to take the future challenges.

The core villagers have continuously driven the "Stay with Pokfulam Village" movement for 10 years. The movement's key to success is the openness of the village community, and their proactiveness in inviting stakeholders from various disciplines to collaborate, forming a platform of action and exchange. The platform exerts strong carrying support for the local community. They are very open, so external collaborators are welcome to join their meetings, gatherings, mass events, and so forth, giving sufficient opportunities for motivated collaborators to understand the culture of the village and to become familiar with the villagers. These induction arrangements help the external parties learn a lot before starting their own creative works or developing plans for social and cultural programmes. This inside-out, or internally driven approach, empowers both the village community and external collaborators.

To strengthen the action core, The Pokfulam Farm commenced a new project, named "Regenerating Pokfulam", in August 2021. This two-year funding project helped recruit 20 "successors" from communities in the Pokfulam cultural landscape to be trained with the core villagers on creativity, social impact, craftsmanship, community history, and other themes that are relevant to promoting the rural spirit. The three-tier experiential learning process also includes practical and self-initiated project formation, allowing the successors to practice what they learned in the classroom and from local observation. The knowledge and practical wisdom gained will also be consolidated to form the basic content for visitors and students to learn in workshops and exhibitions.

Fig. 2 The diversity shown by The Pokfulam Farm project: Five development objectives and eight key stakeholders

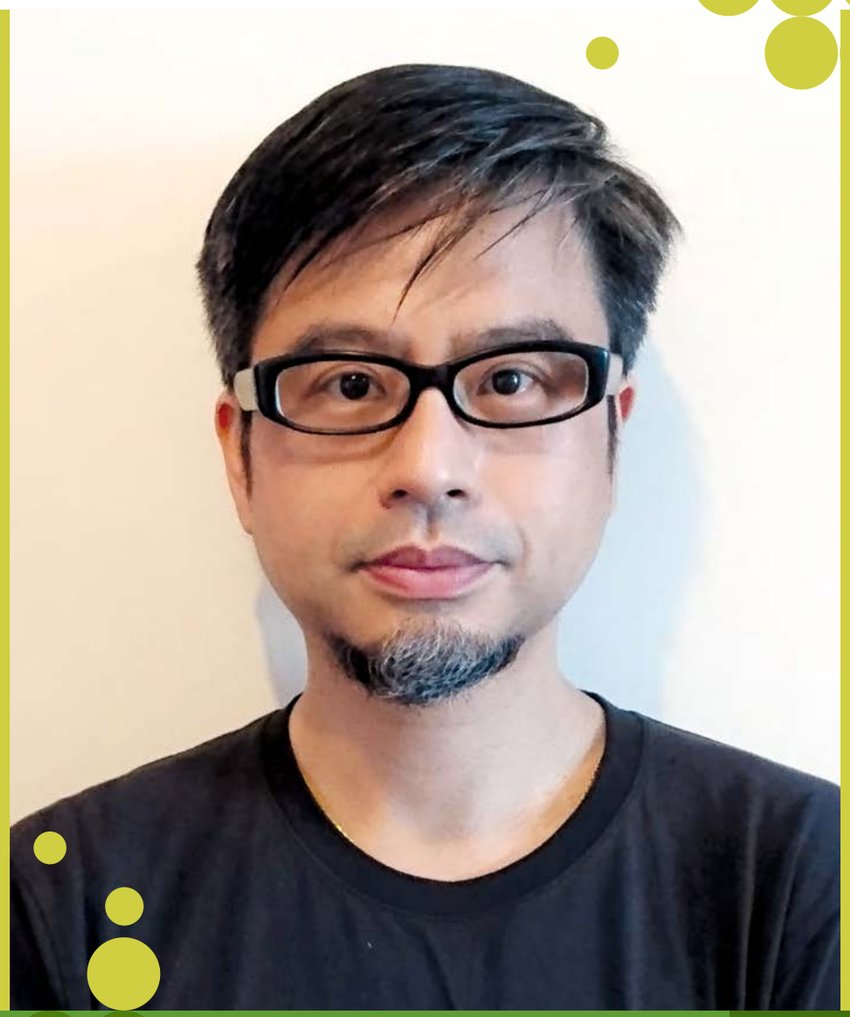
In April 2022, The Pokfulam Farm, based on the above three breakthrough strategies, commenced its socio-cultural business. Though the Farm Team is still exploring ways to tackle challenges related to project sustainability and financing, it is still strongly motivated to further integrate the tangible and intangible cultural assets, and facilitate the strengthening of the internal regenerative drive of the community. This could be an innovative approach for future heritage conservation.

Senior Staff Quarters, The Pokfulam Farm

Decades of Adaptive Reuse: The Former French Mission Building

FUNG Chi Shan Athena

Currently the Chief Project Manager of Architectural Services Department of the Hong Kong Special Administrative Region (ArchSD) who has been registered architect since 1994 and Authorized Person List 1 since 1995. With over 25 years working in ArchSD as an architectural profession and on project management, she has rich and wide spectrum of experience in different types of public building works including adaptive reuse of heritage buildings.



Henry LO

The Architectural Conservationist for ArchSD's conversion project of the former French Mission Building. Having worked in the built heritage field for 20 years, Henry has worked on a wide variety of architectural conservation projects, ranging from traditional Chinese vernacular structures, to colonial buildings and constructions of the modern era. The projects span all scales: simple repair and renovation, full-scale conservation, detailed feasibility studies as well as large-scale adaptive reuse projects.

Abstract

The Former French Mission Building (FMB) stood on an elevated ground that gives the place the vista of the Victoria Harbour. The building construction was commenced in 1917 in the neo-classical style and built of granite and red bricks. Because of its historical significance and a very high heritage value, the building was declared a monument under the Antiquities and Monuments Ordinance (Cap. 53) in 1989.

FMB's long history of adaptive reuse began in 1953. Various internal alterations were made to adapt the building for use by different government departments. Recently, it underwent a full restoration for its current use — accommodation for law-related organisations (LROs) as part of the Hong Kong Legal Hub to facilitate LROs' set up and development and related purposes.

We will share the experience in conserving FMB while upgrading it to meet the current statutory and functional standards, and the approaches and techniques used in restoring the beautiful historic building fabric.

I. Introduction: Background and Significance of the Former French Mission Building

The Former French Mission Building (FMB) is a four-storey building that occupies a prime position on an elevated ground. Sheltered by the Peak at the back, the slightly escalated location gives the place the vista of the Victoria Harbour, and across the city. It is surrounded by a wider arc of significant official institutions, including the Government House and the Justice Place, as well as St. John's Cathedral found in and around this small hill. Among these buildings was the Murray Battery which gave the Battery Path its name.

The first building that occupied the same site was the private residence of A.R. Johnston, the then Deputy Superintendent of Trade[1] – one of the first houses completed after the establishment of the Victoria City in the 1840s. It later served as a temporary residence of the early governors.

In 1860, the building was reconstructed into a three-storey building with a basement and two corner towers, which was the second generation of the building on the same lot, and used by private companies and the Russian Consulate as office and subsequently leased by the government for office use.

The French Mission purchased the house from the hands of Jewish merchant E.R. Belilios in 1915.[2] The FMB was inaugurated in 1919 as a four-storey procurator's house, serving as a regional base for Société des Missions Etrangères de Paris (MEP) to support missionary work in the Far East. This transformation marked the third generation of the building on the same lot, which is also the building on the site today (Figure 1).

Subsequent to the transaction in 1915, renowned British architect Alexander Colbourne Little was tasked to make drawings to erect a new building on the same building foundation of the site, resulting in the imposing red-brick structure on top of the Battery Path today. The first stone of the new building on the same foundation of the site was laid on 24 March 1917. The building was officially in use on 21 April 1919[3], marking the beginning of a new base of a Far East venture by this group of Catholic Fathers from France. Owned by a non-British religious organisation, it curiously found itself in the heart of Hong Kong's religious, political, and commercial centre in Central.

The French Mission and the Hong Kong Government signed a contract for the transaction of the building in 1952.[4] This historic site was thus brought back to the administration and has since been home to various government departments. Having served as major courts including the Victoria District Court, the Supreme Court, and the Court of Final Appeal for nearly four decades since the 1960s, the building was always perceived as a representative icon of the judicial system in Hong Kong.

The building was declared a monument on 14 September 1989. A renovation took place between 1995 and 1997, during which the interior space was modified to become the Court of Final Appeal. Fully appreciating its heritage significance, the Department of Justice decided to adaptively reuse this building in 2015 as offices for law-related organisations (LROs) to facilitate LROs' set up and development after taking over the building from the Judiciary.

Figure 1 Photo sent from Father Robert Leon (person-in-charge of Hong Kong MEP) to the Paris Headquarters, taken in the first quarter of 1919.
[Source: *Annual Letter of Father Leon Robert to the MEP-Direction in Paris*, 27 *February 1919*, File Number 158, Hong Kong Procure 316D. Missions Etrangères de Paris, Archives]

II. Research and In-situ Survey

Behind all the historical facts, there was a happy incident conducive to an archeological journey that had taken the adaptive reuse of this monument to a new height of excellence.

One time when the team discussed the project, a visiting professor[5] from Belgium in the same office caught the word "French Mission Building", checked in and offered to visit the archive of the MEP Headquarters upon returning to Europe. The professor kept his promise and made a trip to the headquarters in Paris. After a few tries, he finally managed to obtain a pile of documents, which contained all the findings that subsequently became the backbone the project team's comprehensive in-situ survey essential for the subsequent design of restoration and new interventions.

And so this fortunate stroke of serendipity kicked off months of meticulous research and investigation, which equipped the project team with extensive historical knowledge and thorough understanding of the original structure design before they formulated a series of well-thought-out conservation decisions.

The design process departed from the understanding of the historic place – from undertaking conservation-based research and analysis to understanding its significance, to identifying character-defining elements, and establishing project-specific conservation policies and guidelines. Relevant blueprints, letters, photos, and other records retrieved from the archive of the MEP Headquarters in Paris, which were not known to have existed previously, were essential for the project team's comprehensive in-situ survey.

The team's in-situ survey included cartographic and photographic survey, building condition survey, structural investigation, paint and mortar sampling test, and survey of the existing building services and the associated wall and slab openings. Because no structural information of the building was available, extensive research and in-situ investigation was conducted to learn the original structural design rationale retrospectively from the existing physical fabrics. Dimensional survey, radar scanning, and open-up inspections were carried out to re-interpret whether the original structural design followed the London County Council (LCC) 1919 prevailing at the time of the building construction. A full-scale loading test was also conducted to verify the structural checking based on available records and structural investigation results.

Among the blueprint records from the Paris headquarters were correspondences between Father Robert Leon, who headed the Hong Kong MEP at the time, and his peers in France. As Father Leon wrote, they "have used the best materials and also the best working methods. The new Procure will not collapse, and in several hundred years it will be a solid house."[6] His confidence in the construction of the procurator's house was well founded on the study findings of its construction and materials. It remains almost a mystery why the French Mission had such faith in Hong Kong, a port that had yet to become an international centre, during a tumultuous era such as the First World War. But times have proven that their investments in the best materials and workmanship came not from a sort of blind faith, but more of a foresight in Hong Kong's untapped potential. The former FMB manifested not only MEP's social and financial power at that time, but also their confidence and optimism in their work in the Far East.

Almost a century later, the spirit of excellency manifested in the FMB is inherited by this project's meticulous archaeological research and rigorous design process in the hope of bringing back the majestic appearance and glorious ambience of the building. The decision to adaptively reuse the building not only served a chance to enshrine this heritage's monument status, but has also revived the historic building with revamp that combined spanning legacy and contemporary professional knowledge.

III. Architectural Style and Heritage Values of the Former FMB

The former FMB was constructed with reinforced concrete structures that flourished in the Edwardian period, and exhibited elegant Neo-classical features. As shown in the blueprint records obtained from the MEP Headquarters in Paris (Figure 2), the original FMB had recreation area, kitchen, cellar, and servant's area on the lower ground floor, library, dining area, offices and reception on the ground floor, and private bedrooms on the upper floors. All rooms from the ground to second floors surrounded an internal courtyard, and rooms along the southeast façade also opened to verandahs. A cross-plan, double-volume chapel with a sacristy was located at the western corner on the first floor. The half religious and half residential design of the building provided both private dormitories and public areas for missionary duties. It is now possibly the only surviving example of "Procure House" prototype in Hong Kong.

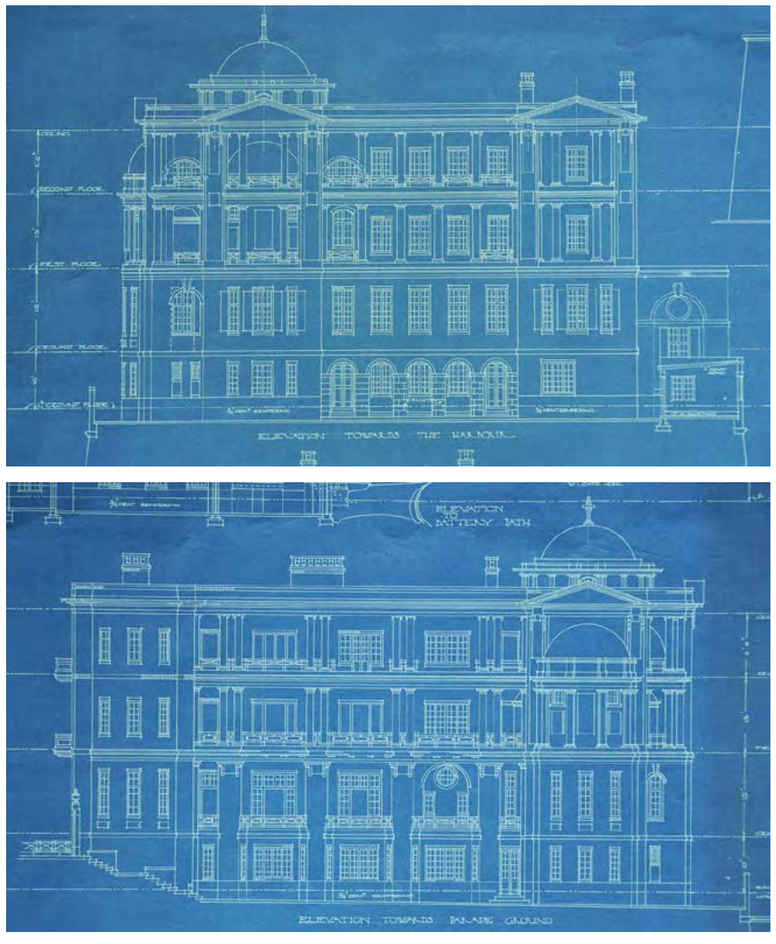


Figure 2 Northeast elevation facing harbour (top) and southeast elevation with verandahs facing the parade ground (bottom) of French Mission Building, 1915.
These drawings reflect the design intent of the building, which was very much the same as what was actually built in 1919, except that the entrance tower which was absent on the elevation.
[Source: "Inland Lot 82, section A, n1 Battery Path," 1915, retrieved on 27/05/2015, Paris, Missions Etrangères de Paris, Archives, K CHI 531]

The stunning external facades featuring fair-faced red brickworks and dressed granite that have been standing through a century without changes (Figure 3). Thanks to the technology of reinforced concrete and structural steel flourished in the Edwardian period, the building features construction components of high standards, including reinforced concrete floor and roof slabs of five inches thick, and beams embedded with structural steel.

A variety of neo-classical features also add to the elegance of the building. Apart from the eye-catching dome, bold classical features including pediments, Doric and Ionic pilasters, decorative mouldings and stringcourses can be found on the external facades. These architectural features are carried on into the interior, and can be seen on the columns of the internal courtyard, hallways, and especially in the highly decorative chapel.

Over the last century, the overall elevation design has generally remained unchanged, and the internal layout has undergone relatively minor adaptive alterations since the government took over. The southeast facing verandahs had been enclosed since the Victoria District Court years. A renovation took place in 1995 to 1997, mostly for modifying the interior space to become the Court of Final Appeal. Some key interventions of the top court's era included a lift shaft and a small fountain in the internal courtyard and a curved skylight above, a broken pediment above the entrance portico, as well as timber ceilings in most rooms, hallways, and corridors. In the chapel, the oculus was sealed by an air-conditioning supply outlet, alongside the addition of timber wall panelling, court furniture, and modern finishes.

Figure 3 Fair-faced brickworks of Flemish bond, with highlight of some areas using different brick laying patterns, 2016.

IV. Project Methodology and Key Objectives

This conservation project set out with the purpose of adaptively reusing the building from a courthouse to offices use by LROs, while encapsulating the heritage of the procurator house. The conversion was carefully managed throughout a process guided by the *Burra Charter*, adhering to the key principles of authenticity, minimum intervention, reversibility, repair rather than replacement, and integrating the new with the old.

The key objectives of restoration and revamp all served the purpose of honouring the legendary glory of the former FMB and paying respects to its historic architectural fabric. All these objectives aimed to upgrade the building to meet the current statutory requirements while complementing its century-old architectural fabric with modernised design:

1) Recovery and restoration: The project was devoted to recovering the monument's legendary authenticity as in 1919. Besides retaining the overall building configuration and the original architectural design, the conversion involved repairing and restoring multiple character-defining elements, external and internal finishes, and major architectural components by using the original and traditional building materials, techniques, and craftsmanship as far as practicable based on thorough research and investigation findings. All later-added neo-classical elements were, therefore, removed.

2) Respect for the architectural lineage: Selected elements of the renovation of the Court of Final Appeal were preserved in reminiscent of the building's significance in the law-and-order history of Hong Kong without distracting the restoration of the building.

3) Revamp: With contemporary professional knowledge, the project converted the building in a way that struck a balance between the users' operational needs with the inheritance of historic elegance. The project team also strived to locate and design new additions without altering the overall building configuration, and without mimicking, overwhelming, or distracting the historic building fabric and character-defining elements.

V. Restoration and Recovery

1) The Former Chapel

As the building's spiritual locus, the chapel is crowned with an oculus dome – one of the very few surviving examples of a dome in a building not being a church in Hong Kong. It also features a vaulted ceiling with coffers, cornices, entablature, festoon and drop mouldings, plastered panels, and multi-coloured mosaic tiles paved on the floor (Figure 4). The carefully designed cross plan, classical order, and decorative interior elevations demonstrate the sacredness of this room in the building.

According to the original design in 1919, the chapel was a double-volume space with a cross plan, where a domed ceiling with an oculus was placed above the crossing. It was accessible from the small lobby or from the adjacent room which was originally the sacristy. The interior was highly decorative with plasterworks. As seen in an old photo retrieved from the archive of the MEP Headquarters in Paris, contrasting colour was adopted to highlight the mouldings. The floor was finished with patterned mosaic tiles with borders, which was distinctive comparing to the rest of the building mainly finished with timber plank flooring.

The former chapel had been used as a courtroom upon the government's acquisition in the 1950s. When housing the Victoria District Court (1968-1979), the original altar was decorated with timber panels to serve as the judge's position, but the windows remained

Figure 4 Prominent classical features in the former chapel.
All the original decorative features of classical order remained intact in the Court of Final Appeal era, besides sealing the oculus up by an air-conditioning supply outlet, 2015. [Source: Design 2 (HK) Limited]

unaltered. When it served the Supreme Court between 1980 and 1983, the windows remained unblocked and the patterned mosaic floor tiling uncovered, but a flat false ceiling hid the domed and vaulted ceiling above.

After the Court of Final Appeal took over the building in 1997, the former chapel was used as the only courtroom of the top court (Figure 5). The oculus was sealed by an air-conditioning supply outlet and the walls were partially covered by timber panels, while the cross plan and all decorative details remained intact and unaltered. The windows at the original altar were blocked, and the patterned mosaic floor tiling was carpeted. The courtroom was generally illuminated by indirect light reflected by the domed and vaulted ceilings, which were excessively lit up by high-power flood lights installed above the entablature. A piece of board was added on top of each entablature to hide the flood lights from the view below, but such addition also disturbed the classical order of the original decorative features.

The conversion to a multi-purpose room strived to restore the former chapel to its original design (Figure 6). All later-added timber decorations were removed. The lighting fixtures previously installed above the entablature in 1997 were removed to restore the classical order of the original design. The damaged wall mouldings were restored with reference to the historic photos retrieved from the archive of the MEP Paris Headquarters. Layers of old paint on the mouldings, column capitals, cornices, etc. were carefully removed to reveal the intricate ornamentation, and traditional mineral paint was applied as new finishes.

Figure 5 The former chapel in 2015, which served as the only courtroom in the Court of Final Appeal era.
[Source: Design 2 (HK) Limited]

Figure 6 Original design of the chapel in 1919.
[Source: *Annual Letter of Father Leon Robert to the MEP-Direction in Paris, 27th February, 1919*, File Number nr 158, Hong Kong Procure 316D. Missions Etrangeres de Paris, Archives

Great efforts have been spent to revamp the entire air-conditioning system. New supply outlets are hidden above the doors behind custom-designed louvres that perfectly match other adjoining carpentry, replacing the old one at the oculus.

The oculus of the dome, which was sealed by an air-conditioning supply outlet during the 1997 renovation, was re-opened to allow sun rays in to fill the chapel and re-enact the French Mission's vision to bridge the heaven and the earth with skylights. A contemporary touch was added by hanging a new ring of light fittings from the oculus to provide general illuminance, supplemented by stand-alone floor lights on the periphery, in harmony with the classical interiors (Figure 7). A thin layer of acoustic plaster was applied to the surfaces of the dome and vaulted ceilings to achieve a reasonable reverberation time for the new functions such as meetings, seminars, speeches, and receptions.

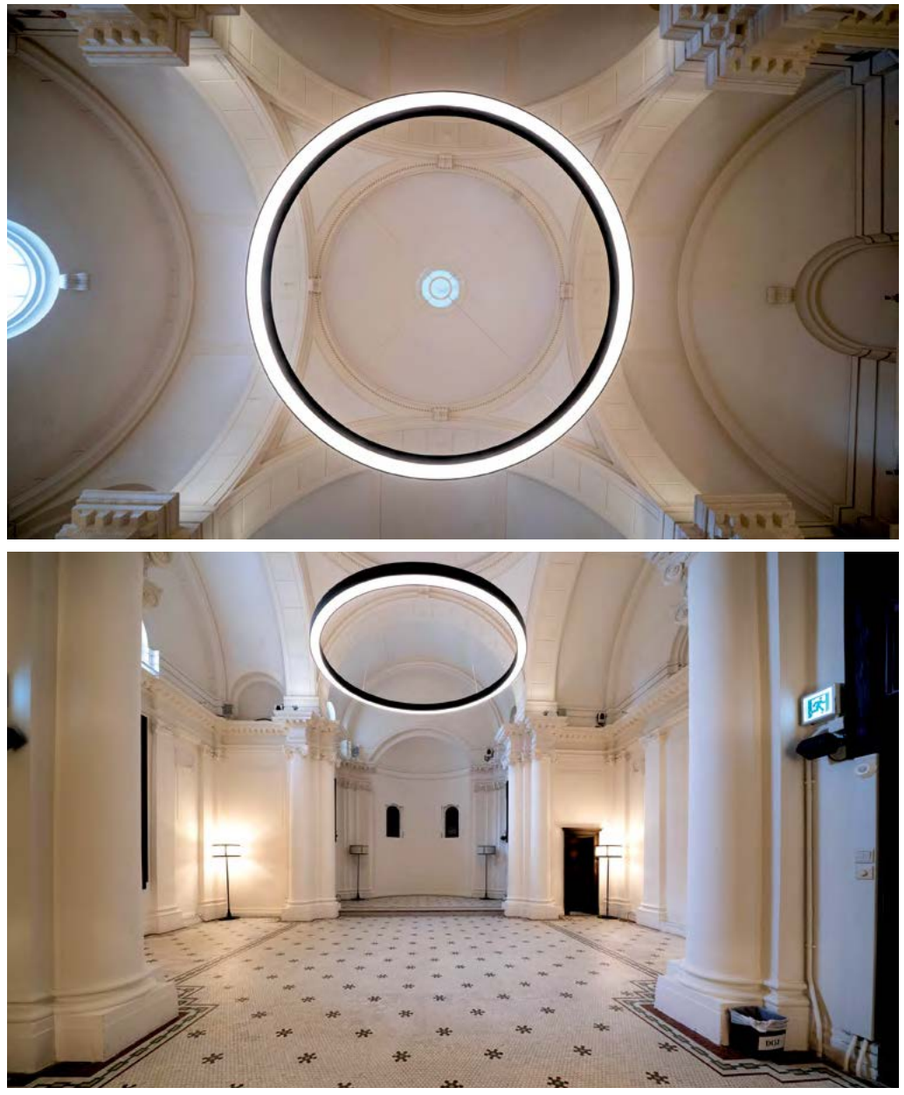


Figure 7 Multi-purpose room restored to the original design of the former chapel.
[Source: Design 2 (HK) Limited]

Repairing the patterned mosaic floor tiling was a painstakingly labour-intensive process. The removal of the court furniture and carpet revealed the original mosaic tile flooring with coloured pattern underneath, which was in a good condition save minor damages due to the previous cable containments serving the court equipment and building services. The contractor managed to procure mosaic tiles in sizes and colours matching the original ones. Those areas damaged by the services installations in the previous courtroom were carefully repaired with new tiles in accordance with the original pattern. The skillful masters were highly dedicated to restoring the beauty of the flooring with excellent workmanship and attention to detail (Figure 8).

An equally painstaking process was the installation of a sprinkler system in compliance with the fire codes while without compromising the reopening of the oculus or having a visual impact on the overall interior ceiling display. A full-size replica of the original structures of the chapel was created specifically for the rigorous testing of a side-wall sprinkler system, so as to ensure the sensibility and water pattern discharged of the sprinkler heads located and distributed above the mouldings can satisfy local regulations.

Figure 8 Repairing patterned mosaic floor tiles in the former chapel.
[Source: Hop Lee Builders Company Limited]

2) The Internal Courtyard

A key focus of the conservation of the courtyard, where all rooms from the G/F to 2/F floors surround, is to restore its original spatial quality. When housing the Court of Final Appeal (1997-2015), some key interventions in the internal courtyard included a small fountain (Figure 9), which might create a false sense of historical development, and a lift shaft that served only the G/F and 1/F (Figure 10). Both additions were removed to reinstate the spatial integrity of the original historical design and accentuate the majestic ambience of the heritage.

Figure 9 Restoration of internal courtyard.
Left: Condition before this project. Right: All later additions were removed after restoration.
[Source: Design 2 (HK) Limited]

Figure 10 Restoration of internal courtyard.
Left: Condition before this project: A lift shaft made of steel was added to serve the G/F and 1/F only when the building was converted to the Court of Final Appeal.
Right: After restoration: The old skylight is replaced by a pitched one and the old lift shaft was removed.
[Source: Design 2 (HK) Limited]

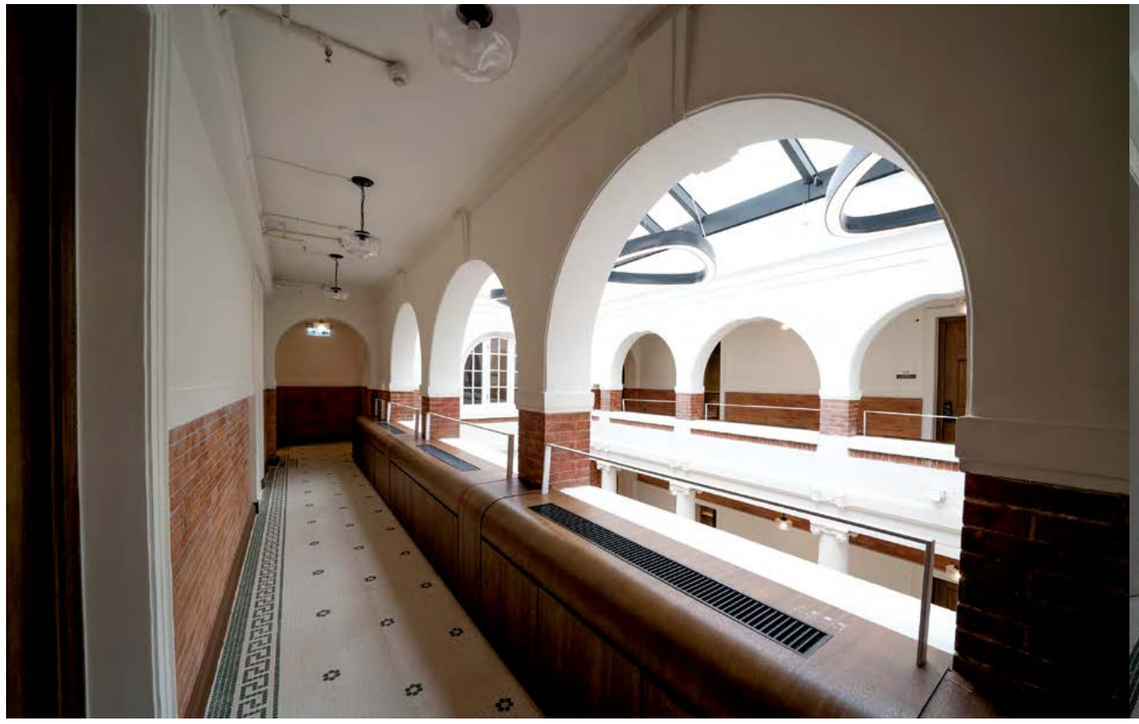
The internal courtyard originally opened to the sky, but a curved skylight was added when the building was converted to the Court of Final Appeal in 1997. The project team then replaced the old skylight with a pitched one, making a reference to the roof design of the preceding Johnston's House on the same site and introducing a roof form in harmony with the historic building fabric. A low-key charcoal grey colour was adopted to avoid distraction from the historic brickwork and other classical features. Contemporary geometric light fittings were added to create an interesting juxtaposition. Both the new skylight and the fittings were designed to be sympathetic to and distinguishable from the historic building without imitation.

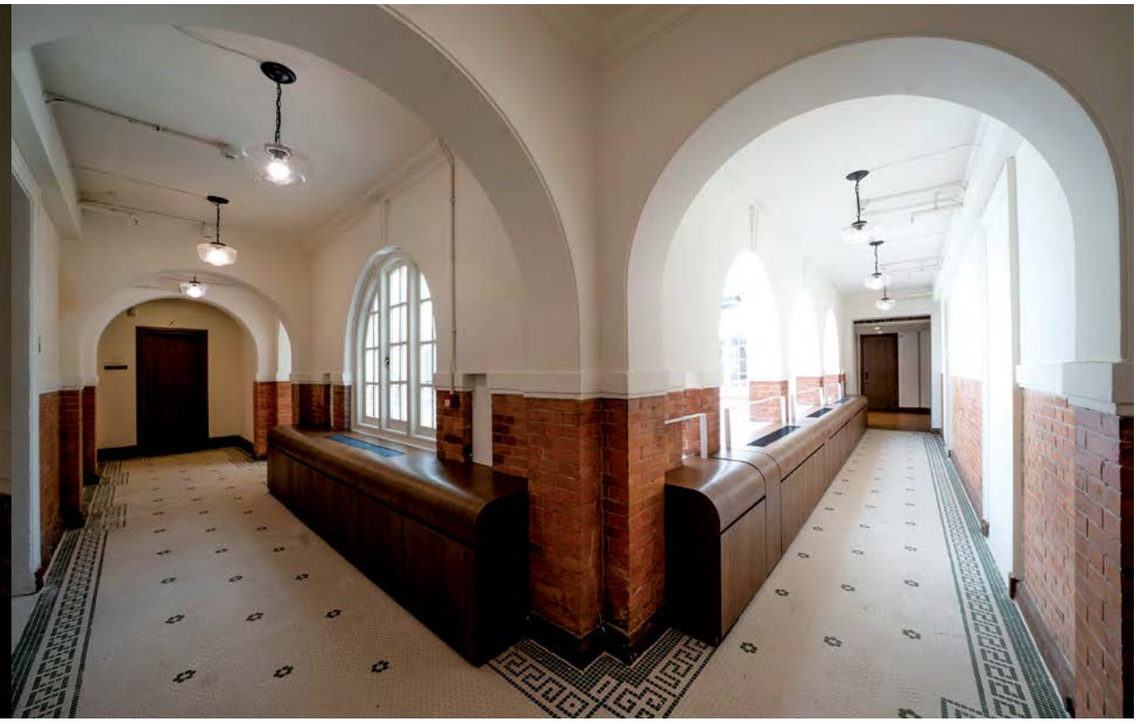
The 1997 conversion finished the internal courtyard and the surrounding corridors with outstanding chequer stone flooring, which was slowly and meticulously removed by the team to expose the original granite edging blocks underneath. The floor was then re-finished with patterned mosaic floor tiling as in other external / semi-external areas in the original building design based on thorough research and in-situ verification.

While the original fair-faced brick walls, arches, and other character-defining elements remained intact, the keystones of the corridors surrounding the courtyard were partly hidden by the timber false ceiling. The floor was covered by carpet. The floor cabinets next to the parapets housed air-conditioning units serving the corridors. There was a later-added door separating the corridor from the lobby.

Figure 11 Restoration of corridors surround the central courtyard.

Top right: Condition before this project: The keystones were partly hidden by the timber false ceiling and the floor was covered by carpet. There was a later-added door separating the corridor from the lobby.
Bottom right and left: After restoration: Like the verandahs, these corridors, which were originally designed as semi-external areas, are re-finished with patterned mosaic floor tiling. The corridor now directly connects the lobby without obstruction.
[Source: Design 2 (HK) Limited]





Adhering to the principle of restoration, all false ceilings were removed to fully reveal the original soffits, cornices, and keystones. Simple light fittings were installed. New timber floor cabinets with rounded corners – a coherent design feature for all new additions – replaced the old ones to house air-conditioning units serving the corridors, and all previously formed wall and floor openings were re-used for pipe and conduit penetrations. The cabinets also serve as barriers deterring people from getting close to the existing parapets, which do not fully meet the current requirements of protective barriers.

Like the verandahs, these corridors, which were originally designed as semi-external areas, were meticulously re-finished with patterned mosaic floor tiling. The corridor now directly connects the lobby without obstruction, and hence the spatial fluidity of the original design around the internal courtyard is restored (Figure 11).

3) Repairing the Exterior

The facades of the FMB feature handsome fair-faced brickworks of Flemish bond, with highlight of some areas using different brick laying patterns. Being one of the major character-defining elements, the external brick walls were thoroughly examined and meticulously repaired. Cracks in the external brick walls were repaired using inconspicuous modern techniques rather than brick replacement to avoid disruptive replacement as far as practical. Proven proprietary product "Helical Bar" was thus used to repair cracks, and then the joints were mortared to match the original brickwork.

At the main entrance, the broken pediment – a neo-classical decorative feature added on top of the entrance portico when housing the Court of Final Appeal – was removed to restore the original design that showcases a granite double-columned portico and granite steps (Figure 12).

Figure 12 Restoration of entrance portico.

Top left: The granite double-columned portico marking the main entrance remained generally unchanged as the original design during the Supreme Court era.
[Source: Information Services Department, District Court, Central, File Nos. 148J/29719-3 & 148J/29719-7, 1984]

Top right: Court of Final Appeal era: A broken pediment, a neo-classical decorative feature, was added on top of the entrance portico.
[Source: Design 2 (HK) Limited]

Bottom: After restoration: The original design is restored.
[Source: Design 2 (HK) Limited]

Figure 13 Southwestern façade – reconstructed timber shutters in green.
[Source: Design 2 (HK) Limited]

New timber shutters with delicate details and ironmongery were constructed to replace the dilapidated shutters. Since the blade-tilting mechanism in the original design is an exceptional craftsmanship rarely seen in modern times, a timber shutter from another historic building of a similar era was taken down – with the aid of the ArchSD – and carefully studied as a reference for the prior workable function. The new shutters are equipped with different adjustable pieces for tilting the blades and staying at the desired angle, all made with remarkable craftsmanship (Figure 13).

VI. Revamp with New Professional Knowledge

All new interventions are limited to those required to comply with the current statutory requirements and serve to upgrade the building to the intended adaptive reuse such as building services. To manifest full respect for the original building character, the additions have adopted contemporary materials and designs discernable from and harmonious with the historic fabric. They can be removed in the future without impairing the existing structures or overall building fabric.

The revamp seeks to exemplify congruous infusion of contemporariness, in which the modern interventions support the new functions while adding values to the building. Major additions to the building are a new accessible lift and a new escape staircase. Their designs, in particular, aim to create a novel experience for the occupants. Careful material selection and attentive detailing of the round-cornered glass lift shaft and the steel escape staircase spell the French Mission's spirit of excellency, which was evident in the use of "the best materials and also the best working methods" promised by Father Robert Leon in 1918.

1) Fixing New Steel Structural Members to the Original Brick Walls

New steel structural members were required to strengthen the existing floor slabs where openings were made for the new lift shaft and new escape staircase. The setting-out of each new steel structural member was accurately marked up on the original load-bearing brick wall. The old plastering was then carefully removed, and the bricks and mortar joints were thoroughly examined. Upon the structural engineer's inspection of the actual condition and the Antiquities and Monuments Office's acceptance of the contractor's method statement, the affected bricks were meticulously removed and salvaged one by one without damaging the adjoining pieces or impairing the overall structural integrity.

The structural engineer had to stringently specify step-by-step the steel member installation method and structural details, to which the workers were demanded to strictly adhere to throughout the construction process. To ensure structural stability, the structural engineer prudently insisted on installing one steel beam at a time. The slab openings could only be formed after all strengthening steel beams were in place – a tedious process that took months to complete to ensure safety and excellency (Figure 14).

The original bricks were salvaged as far as practicable for re-use in repair works at other locations of the building. Those removed bricks in a poor condition were broken down for making mortar with matching colour for surface repair of the brickwork. The salvaged bricks left over were handed over to the Antiquities and Monuments Office for use in other conservation projects.

Figure 14 Fixing new steel structural members to original load-bearing brick walls.
Left: The setting-out of each new steel structural member was accurately marked up on the wall.
Right: A new steel structural member was installed in the original brick wall. Only the affected bricks were removed, and all adjoining pieces were carefully retained.
[Source: Hop Lee Builders Company Limited]

2) Inception of New Accessible Lift

The location at the northern corner of the building, which was a room used as an office in the Court of Final Appeal era, was selected after careful review to minimise adverse impact on the overall building configuration. The lift shaft takes a detached form without touching or clashing with any of the major walls, windows, and other interior decorative features.

The adoption of contemporary materials such as glass and steel and of a different form of rounded corners mark a modern interpretation of the historic configuration. The pairing of timber and brass, as seen in the remarkably crafted handrails, push buttons and indicators, offers a distinctive vibe of elegance matching of the building's grandiosity.

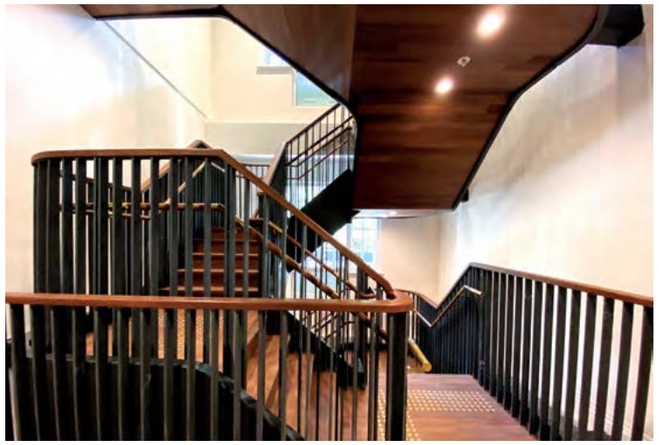
The design idea of transparency, materialised by the use of glass and steel, serves to allow natural daylight into the lift car through the surrounding windows, so that occupants and visitors can experience the historic ambience of the interiors when moving across the floors.

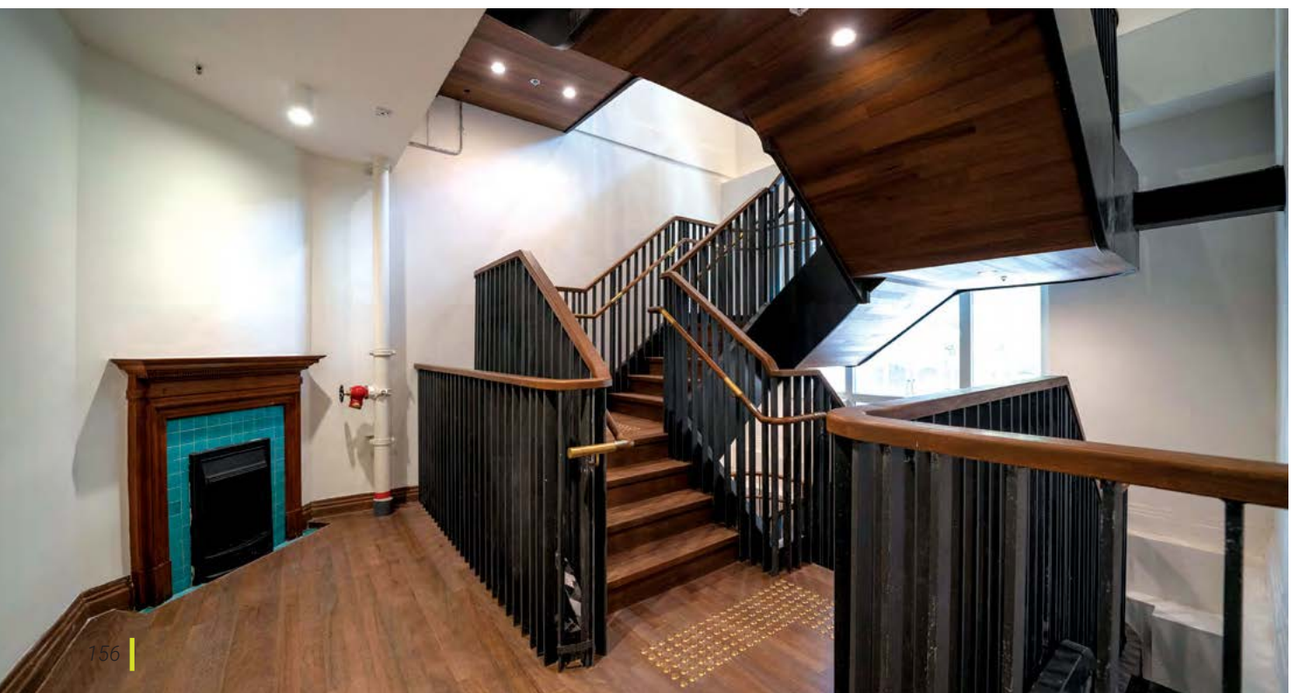
Figure 15 New accessible lift.
Top: Condition before this project: A room at the northern corner of the building, which was used as an office in the Court of Final Appeal era.
Bottom: After intervention: The design idea of transparency is to allow natural daylight through the surrounding windows to the lift car.
[Source: Design 2 (HK) Limited]

3) Inception of New Escape Staircase

Occupying a stack of rooms adjacent to the verandahs, which were previously used as offices, the design of this new escape staircase adopts the same principle of discernibility as the new accessible lift shaft: different materials (glass and steel), different form (rounded corners), and visually detached from the internal walls. The timber floor finishes and handrails, complemented by brass fittings, express warmth and sophistication in harmony with the architectural characters of the building. The staircase's refined design and workmanship reflective of a modern interpretation has also inherited the grandiose nature of the procurator's house (Figure 16).

Figure 16 New escape staircase
Top left: Condition before this project: A room which was used as an office in the Court of Final Appeal era. Top right and bottom: After intervention: The design of this new escape staircase adopts the same principle of discernability as the new accessible lift shaft: different materials (steel), different form (rounded corners), and visually detached from the internal walls.
[Source: Design 2 (HK) Limited]





With plentiful daylight from the adjoining verandahs, this staircase is designed as a "healthy staircase" where they can experience the historic ambience of the interiors during daily use, instead of a mundane staircase solely for emergency exit. Fireplaces, which are character-defining elements of the building, remain unaffected inside the stairwell.

These new additions were made possible upon successful implementation of an uncommon approach to loading test, which aimed at verifying the structural capacity of this century-old building and validating the desktop appraisal based solely on extremely limited records and non-destructive structural investigation findings.

The test was carried out in the room on the 1/F before the previous slab could be demolished for the construction of the staircase (Figure 17). The floor was fully covered up by waterproof plastic sheets, then the room was filled up with water. Monitoring equipment in the room below measured the slab reflection, and the data was checked against the structural engineer's desktop appraisal. Sufficient propping was provided in the rooms below in the same stack for safety purpose.

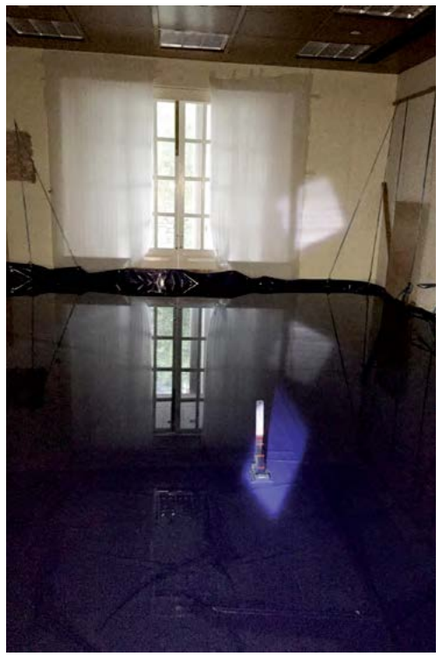


Figure 17 Loading test carried out in the room on the 1/F where the existing slab would be demolished for the construction of the new escape staircase.
[Source: Hop Lee Builders Company Limited]

4) Office and Meeting Room Fit-outs

Another major intervention is the fit-outs of offices and meeting rooms, which were furnished simplistically and elegantly to suit the overall ambience of the building (Figure 18). Maximum flexibility and adaptivity is allowed to accommodate the occupants' office set-up without impairing the character-defining elements such as fireplace, timber windows, and French doors. Where a fireplace is located, the entire wall is left unoccupied to avoid adverse impact. The original timber flooring was generally in a good condition, and only required minor repair and cleaning.

The new carpet simply sits on the timber floor without any adhesive or other fixings. New building services conduits are hidden behind the new acoustic wall panels without chiseling into the original brick walls. There are no wall and floor sockets so as to avoid damages to the brick walls and timber flooring. Instead, sockets are hidden in the peripheral cupboards to suit different furniture layout. The floor cupboards next to the windows serve dual purposes – providing storage as well as preventing people from getting too close to the window, of which the sill level does not meet the current statutory requirements.

Figure 18 Office and meeting room fit-out. [Source: Design 2 (HK) Limited]

VII. Conclusion: Contributions and Assessments

The conversion of the former FMB offered a precious chance to embrace the conservation of built heritage as an archaeological journey, to re-imagine and retouch it with the contemporary conservationist philosophy. Much of the project team's efforts have been dedicated to examining previous interventions to the building and reversing those that have become inappropriate or obsolete to suit the new functions and to meet the contemporary expectations of conservation nowadays. The restoration and revamp of this declared monument were executed with bespoke attention to detail and professional skills and craftmanship in accordance with present engineering practice over the span of six years.

The in-depth research undertaken in this project put right two major fallacies in public knowledge. Firstly, the year of completion of the FMB is emended to 1919 based on Father Robert Leon's letters retrieved from the MEP Headquarters in Paris, instead of 1917 commonly perceived from the foundation stone. Secondly, the building is designed by Alexander Colbourne Little, a British architect and one of the founders of a local practice named Little, Adams and Wood, instead of Leigh and Orange as mentioned in many publications. This important finding helps connect the former FMB to a number of other historic buildings also designed by Little in the early twentieth century, such as old Tsan Yuk Hospital and St Teresa's Church. This once well-known architect, who had made tremendous contributions to Hong Kong's built heritage, is now reintroduced to the general public.

Local workers were offered the rare opportunity to participate in straw reinforced lime plaster production, brick repair, delicate carpentry in the timber shutter reconstruction, and timber and mosaic tile flooring repair, which were completed to excellent standards. It provided a platform where masters of different generations shared skills and collaborated to develop new techniques from traditional practices throughout the repair and restoration process.

This project also showcases a conservation approach that has learnt, evolved and improved from the previous approach adopted in converting the same building into the Court of Final Appeal more than two decades ago. Meticulous research and thorough understanding of the original design rationale, albeit the length of time and depth of commitment involved, are necessary to prevent unnecessary modern intervention or strengthening.

[1] Katherine Mattock and Jill Cheshire, *The Story of the Government House* (Hong Kong: Studio Publications, 1994), p. 10.

[2] Public Records Office, Government Records Service, *I.L. NO. 82, S.A – Assignment*, 21.05.1915, File No. HKRS265-11A-348-2.

[3] On a letter written from Father Robert to the Missions Etrangeres de Paris in 27 April 1919, he announced the official inauguration of the new Procure, took place on the 21 April 1919. 'Annual letter of Fr ROBERT to the MEP-Direction in Paris, 14 February 1918, Inventaire descriptif, Hong Kong Procure 316 D – years 1917-1919', 1917, retrieved on 27/05/2015, Paris, Missions Etrangères de Paris, Archives. NR 144.

[4] Public Records Office, Government Records Service, *I.L. NO. 82, S.A – Deed of Surrender*, 23.12.1952, File No. HKRS265-11A-348-3.

[5] Prof. dr. Thomas Coomans, Faculty of Engineering Science: Department of Architecture, University of Leuven, Belgium

[6] Annual Letter of Father Leon Robert to the MEP-Direction in Paris, 14th February, 1918, File Number nr 144, Hong Kong Procure 316D. Missions Etrangeres de Paris, Archives.

Knowledge Sharing and Public Engagement — New Strategies in Built Heritage Education

V Value Understanding, Conservation and Social Participation in Cultural Heritage

Case Study: Beijing Central Axis

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Abstract

The facilitation of social sustainable development through conservation and participation is the essence of contemporary cultural heritage conservation norms. The conservation of the Beijing Central Axis, a large heritage project in Beijing's old town, has had a huge influence on the city. Through the exploration and communication of heritage value, the Central Axis of Beijing has raised society's awareness of the value of and participation in cultural heritage conservation. The vividly diversified social participation was evident during the nomination of the Beijing Central Axis as a World Heritage Site. The importance of cultural heritage conservation as part of the sustainable development of a historic city was demonstrated through the process of value understanding, conservation of and social participation in the Beijing Central Axis.

Historic and cultural heritage includes relics created and preserved by humankind during the process of historical change related to origin, environment, time, events, characters and thoughts. Remains and relics with outstanding value are considered as heritage[2]. This usually includes outstanding historical, aesthetic, scientific[3], social and cultural value[4].

In a city, historic and cultural heritage are never isolated. Both tangible and intangible heritage are pillars of history, produced and developed during the process of the evolution of urban history (this paper discusses mainly "tangible heritage"). The conservation of cultural heritage usually starts with the understanding of single objects, usually memorabilia or objects with a deep-rooted memorial or artistic value. This is prevalent in the history of conservation, covering cultural heritage in individual countries, as well as World Heritage accorded international protection. As a result, efforts made in the value recognition and management of protected objects have become fragmented. With the development of conservation and the increasing number of protected objects, fragmentation has become even more severe.

Beijing is a historic city. Its foundation can be traced back to the first peak period of urban construction, right after the establishment of the Zhou dynasty about 3,000 years ago. As a capital, its history can be traced back to the Liao dynasty in the tenth century AD. In the long history of China, Beijing has accumulated abundant sites of historic and cultural heritage. It currently has 7 World Heritage Sites, 138 Major Historic and Cultural Sites Protected at the National Level, and 407 Municipal Cultural Heritage Sites. While the number of cultural heritage resources which have been preserved is vast, there is also considerable fragmentation. Discussions about the relationship between a single preserved cultural heritage site and its historical context go back to the late 1970s. Beijing's cultural heritage conservation has extended from the conservation of individual cultural heritage sites to the conservation of the overall historical context, and then developed into the conservation of a famous historic and cultural city as a coherent whole. In 1982, the State Council published the first "List of National Famous Historic and Cultural Cities", one of which was Beijing.

The protection of historic and cultural cities has gradually evolved into three levels: historic and cultural cities, historic and cultural zones, and historic buildings. In practice, whether they are historic buildings, or historic and cultural zones, the traditional "styles and features" should be protected and passed down. Combined with the principle of "maintaining the original state of cultural heritage sites" promulgated by the cultural heritage site protection

Middle north section of Beijing Central Axis

units, a protection direction emphasizing the style and features of historic and cultural cities, and the original state of built heritage finally took shape. In about 2000, Beijing developed a method of protecting historic and cultural cities with the protection of 25 historic and cultural zones as the core content. In the latest edition of *Beijing's Development Plan for the Conservation of Historic and Cultural Cities*, the number of historic and cultural zones was increased to 49, including 1,056 historic buildings. Also announced were 13 areas with important characteristics, 68 areas with underground archaeological remains, 1 famous historic and cultural town, 5 famous historic villages, and 44 traditional villages. In addition, there are 126 items of national intangible cultural heritage, 273 items of intangible cultural heritage in Beijing, 197 time-honoured brands, 158 immovable revolutionary heritage sites, and 41,865 ancient and valuable trees.

The system for conservation of cultural heritage in China is built upon departmental guidance and local management. In terms of operation, the functions of different government departments were delineated and lists of protected objects were published, and local government agencies were assigned to manage the objects on the lists. But the lists were published by various departments, which exacerbated the trend towards fragmentation. However, local management can mitigate or eliminate this trend by establishing an integrated and coherent system for the protection of cultural heritage. In Beijing, the building of such a system was essential to enhance the level of heritage conservation and give full play to the comprehensive benefits of cultural heritage. The new edition of *The Development Plan for the Conservation of Historic and Cultural Cities* proposes key areas of conservation work, including the comprehensive protection of the old town of Beijing by nominating the Beijing Central Axis as a World Heritage Site, the protection of the Three Hills and Five Gardens, the restoration of the historical garden landscape[5], and the construction of cultural belts under the respective themes of canals, the Great Wall and the Yongding River in Xishan. The integration of cultural belts and zones allowed the construction of a system for the preservation and inheritance of history and culture as a coherent and systemic whole.

The Beijing Central Axis, which is located in the core of the old town, is now protected. The nomination of the Beijing Central Axis as a World Heritage Site has followed the relevant standards of the *Operational Guidelines for the Implementation of the Protection of World Cultural and Natural Heritage* ("*Operational Guidelines*"). Since the Beijing Central Axis has been recognized as having "Outstanding Universal Value"[6], its value should be effectively protected. From a practical perspective, the protection of the Beijing Central Axis has played an important role in the protection of the old town and the improvement of the environment. It has had a huge impact on promoting extensive social participation in heritage protection and value dissemination, drawing society's attention to the protection of the old town, and further promoting sustainable social development.

I. Rethinking of Outstanding Universal Value of the Beijing Central Axis

The nomination and protective management of world heritage is based on recognition of its value. The exploration and interpretation of heritage value raises awareness of its significance to human civilization, so that people treasure it, formulate a cultural identity, and participate in its protection. In consequence, no matter whether it is about World Heritage Site nomination or the social sustainable development of the Beijing Central Axis, value identification is of fundamental importance.

Located in the centre of the old town of Beijing, the Beijing Central Axis refers to the historic buildings and urban spaces that run from north to south in the core area. Its cultural heritage consists of ancient royal architecture, urban management facilities, middle roads, modern public buildings and public spaces.

Our understanding of the Beijing Central Axis is derived from the studies of scholars in the late 1940s. Hou Renzhi, a historical geographer, mentioned the Beijing Central Axis of the Yuan dynasty in a paper[7], in which he wrote that central axis was crucial to the urban layout and landscape formation during the reconstruction planning of Beijing in the Ming dynasty, from 1420[8]. In 1951, Liang Sicheng, an architect, described vividly the spatial and architectural rhythm of the Beijing Central Axis, drawing attention to the regular iteration of taller and lower structures. He believed that this represented Beijing's "unique magnificent and beautiful order" and stated briefly, "this is a great heritage, the most valuable property of the people"[9]. Liang's statement of value regarding the architecture and planning of the Beijing Central Axis became the basis for including it in the new tentative list for China's nomination of World Heritage Sites, which was adjusted by the National Cultural Heritage Administration in 2012. From 2009 to 2012, the definition, scope and possible World Heritage value of the Beijing Central Axis were studied, and the first draft of the nomination text was prepared. At the beginning of 2013, the Beijing Central Axis was included in a tentative list for nomination of World Heritage status released by the UNESCO World Heritage Centre, completing the work on the first phase of the World Heritage nomination for the Beijing Central Axis.

According to the first draft of the nomination text from 2009 to 2012, the Beijing Central Axis, as the core element of the symmetrical spatial framework in the old town of Beijing, was an incomparable masterwork of ancient China and contemporary urban planning. The planning and development process revealed the science, aesthetics and ancient philosophy of the Chinese people in urban design. Social order was built, and social life was regulated through urban planning. It shows the extraordinary ability of humans in urban planning and construction, meeting Standard 1, "[to] represent a masterpiece of human creative genius", stated in the criterion of World Heritage specified in the *Operational Guidelines*[10]. The spatial sequence of the Beijing Central Axis was the material expression of the foremost Chinese ritualistic culture, which reflected the traditional concept of the "eminence of the centre". As the spatial carrier of royal culture and the living space of folk culture in ancient China, it fulfilled Standard 3 of World Heritage: "[to] bear unique or at least exceptional testimony to a cultural tradition or to a civilization that is living or has disappeared." From city planning and architectural perspective, the Beijing Central Axis and the buildings in the surrounding area, such as palaces, temples and altars, landscape architecture, streets and lanes, defence engineering, and water system engineering, were built according to the ancient Chinese philosophy recorded in *The Rite of Zhou: The Artificers' Record*. This typical model of construction of a state capital in China's feudal society matured after thousands of years of evolution, symbolizing the supreme achievement in construction of capital cities in China's feudal society. As a typical example of the best-preserved ancient Chinese capital, it also conformed to the requirements for Standard 4 of World Heritage: "[to] be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history." The Beijing Central Axis witnessed the dynasties established by various nationalities, the demise of the last feudal dynasty in Chinese history, the emergence of Chinese social democracy, and the birth and prosperity of the People's Republic of China, meeting the requirements stated under Standard 6 of World Heritage: "[to] be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, or with artistic or literary works of outstanding universal significance."

Bell and Drum Towers, c.1924-1927.

The Beijing Central Axis, which was added to the tentative list for China's nomination of World Heritage Sites, includes mainly the imperial court area (the Forbidden City, Prospect Hill [*Jingshan*]); temples and altars (the Temple of Imperial Ancestors [*Taimiao*], the Altar of Earth and Harvests [*Shejitan*], the Temple of Heaven [*Tiantan*], and the Altar of the God of Agriculture [*Xiannongtan*]); the "hind market" (the Bell and Drum Towers [*Zhonggulou*] and Nanluogu Lane); Tiananmen Square and its surrounding main buildings (Tiananmen Square, Jinshui Bridge, a pair of ornamental columns [*Huabiao*], the Stone Lions, the Monument of People's Heroes, the Chairman Mao Memorial Hall, the Great Hall of the People and the National Museum); the city gates (Zhengyang Gate, the Arrow Tower of Zhengyang Gate and Yongding Gate), the main streets, and the Six Seas (*Liuhai*) (the Six Seas and Wanning Bridge). The Beijing Central Axis is a historical site of unique value, which determined the planning pattern and urban formation of the whole city of Beijing from the Yuan dynasty to the Ming and Qing dynasties, and has continued until today. It is a heritage project of unique value, which has continued the city-planning method from ancient times to the present day: something not currently represented in the World Heritage List in East Asia.

In 2017, Beijing launched the process of officially nominating the Beijing Central Axis as a World Heritage Site and revised the extent and heritage elements of the Beijing Central Axis.

> "The Beijing Central Axis is located in the core area of the old town of Beijing, extending north to south, for a total length of about 7.8 km. It is a hierarchical and orderly urban historical architectural complex composed of a series of ancient royal buildings, urban management facilities, middle roads, modern public buildings and public spaces.
>
> The Beijing Central Axis extends from the Bell and Drum Towers at its north end, southward through Dianmenwai Avenue, Wanning Bridge, Dianmennei Avenue and Jingshan Park, passing through the Forbidden City, Upright (Duan) Gate, Tiananmen, Outer Jinshui Bridge, the Tiananmen Square Complex, Zhengyang Gate, Qianmen Street, Tianqiao South Street and the remains of the Royal Road of Yongding Gate, to its south end at Yongding Gate. The Temple of Imperial Ancestors, the Altar of Earth and Harvests, the Temple of Heaven, and the Altar of the God of Agriculture are situated on its east and west sides. Functional spaces, such as royal palaces, ceremonial buildings for rituals of sacrifice, urban management facilities, historic roads, memorial buildings and public squares are arranged in an exquisite manner, connecting grand and solemn national places with bustling market-places and thus determining the spatial pattern of Beijing's old town with a strict landscape order, which is an exemplary work of the central axis planning of Chinese capitals in its mature stage"[11].

This definition emphasizes the order of buildings and spaces, deducting the historic zones of North Sea [*Beihai*] Park and the Front Gate [*Qianmen* or the Zhengyang Gate], Luogu Lane and the Back Sea [*Houhai*] from the wider heritage composition. The spatial extent and characteristics of the heritage area are also clearer. Based on this definition, the heritage value of the Beijing Central Axis was further placed in its proper place as "a masterpiece of the ideal Chinese capital order".

"The ideal order", reflected in the Beijing Central Axis when it first took shape in the thirteenth century, followed the notion of "capital cities built by craftsmen", as stated in the *Book of Craftsmanship*, which strived to construct the capital order with "the court at the front, the marketplace at the rear, and the ancestral hall and altar standing on either side of the royal road". This idea originated in the hierarchical system in the early period of the Western Zhou dynasty, which was the first peak period of urban planning in the history of China. Through the hierarchical regulation of the scale and layout of the city, restrictions were placed on the rank of fiefdom cities derived from noble titles. These regulations were recorded in the *Book of Craftsmanship*, which was composed in the Spring and Autumn Period and the Warring States Period. As a substitute for the lost chapter of the "Ministry of Works" in the *Rites of Zhou, the Book of Craftsmanship* (*Zhou Li*: *Kao Gong Ji*) was included as part of the *Rites of Zhou* in the Han dynasty. The relevant contents of the *Book of Craftsmanship* became an integral part of the Confucian classics. As part of the Confucian etiquette system, the regulations on the building of a capital city in the *Book of Craftsmanship* became "the ideal order" in Confucianism.

The "ideal order" has a profound cultural origin, since the "eminence of the centre" was the foundation of the traditional Chinese spatial order. By observing celestial phenomena, ancient people discovered that various stars were constantly rotating and moving around the centre of the Big Dipper (the north zenith) in a fixed process, which was regarded as the eternal order. This order reflected the world of mankind, with the emperor at the centre and everything else moving around him. The emperor's residence was called the Purple Forbidden City, which corresponded to the Purple Forbidden Enclosure in heaven. The "centre" became the core of the world order. This concept of the "eminence of the centre" determined the position of the emperor, palace and capital. In the Yuan, Ming and Qing dynasties, Beijing was regarded as the Big Dipper, which was also known as the "Imperial Chariot" in ancient times[12]. Li Lusun, in the Yuan dynasty, stated in his *Rhapsody on the Capital (Dadu), Written with a Preface* (*Dadu Fu Bing Xu*): "as the *Mathematical Work in the Zhou dynasty* (*Zhou Bi*) said, heaven embraces the earth like a cover, and the emperor's chariot is in the middle. The North Star remains in place, commanding the surrounding stars and facing *Youdu* (Beijing) below it. When we observe the sky, the north is at the centre." Qiu Jun, in the Ming dynasty, wrote: "[the capital city] is situated due north, representing the Purple Forbidden Enclosure in heaven, made superior by dimensions of the landscape and facing the ancestral Mount Taishan before it, which reflects the celestial phenomenon of the north as the ascendancy."[13] Emperor Qianlong, of the Qing dynasty, in his *Chapter of Imperial Capital*, wrote, "the northern region with Beijing as the centre, opened up by the Tao Tang dynasty, was located directly above the Kaiyang Star, so Beijing was auspicious as the imperial capital". The Beijing Central Axis is thus the expression of the relationship between heaven and humankind with reference to these traditional concepts, which deeply influenced the formation of the characteristics of Chinese civilization.

According to Confucianism, the core of Chinese civilization, proper etiquette was the basic rule of world operation, and all affairs should be carried out according to people's social status and rank. In the eleventh chapter of *Yan Yuan of the Analects of Confucius* (*Lun Yu*), Duke Jing of Qi consulted Confucius on political matters. Confucius replied, "Ruler guides subject, father guides son." This rule was also reflected in the Beijing Central Axis. The buildings in the Central Axis and on both sides express not only the relationship between superiority and inferiority, but also the strict hierarchical relationship in form and details. Etiquette activities and lifestyles in the Beijing Central Axis also strictly followed this order and relationship.

According to *Zuo's Commentary* (*Zuo Zhuan*), "worship and military affairs are the most important state activities". Thus, the most important ritualistic architecture of the country was arranged on the east and west sides of the central axis, while the open space on the central axis was reserved for ceremonies related to military expeditions and triumphs. According to the *Book of Rites* (*Li Ji*), "if heaven is the root of all things in the world, the roots of man are the ancestors", and Chapter 48 of the *History of the Ming Dynasty*, "respecting heaven and following the example of the ancestors is the only way". This is reflected in the positioning of the Temple of the Imperial Ancestors and the Temple of Heaven on the east side of the Beijing Central Axis, which is second in importance only to the prominent central axis. As the symbol of the nation, the Altar of Earth and Harvests was set on the west side of the Beijing Central Axis, which was symmetrical with the Temple of the Imperial Ancestors, expressing the tradition of family-state integration. At the beginning of the Ming dynasty, the Altar of Heaven and Earth was set on the east side of the south suburb of Beijing, and the Altar of Mountain and River was set on the west side of the extended central axis, composing a cosmic picture of heaven, earth, mountains and rivers, and inheriting the ancient tradition of worship.

As a material reflection of the core spirit of traditional culture, the Beijing Central Axis provides a unique record of Chinese civilization and cultural traditions.

Inner altar axis of the Temple of Heaven

The Beijing Central Axis reflects the long-term practice of the traditional concept of "eminence of the centre" in capital cities. The accumulation of more than seven centuries of history gave rise to a rigorous and symmetric pattern and orderly urban landscape. The axis not only reflects national etiquette culture, but also corresponds to the requirements of Standard 3 in the *Operational Guidelines*[14]: "[bearing] a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared" in traditional urban management.

> "After more than seven centuries of city evolution in the Yuan, Ming and Qing dynasties and modern times, the architectural complex continues to adhere to the rigorous and symmetric planning pattern to create a well-ordered urban landscape, which provides unique material witness to the long-term practice of the traditional concept of the 'eminence of the centre' in urban building, and expresses the core concept of 'rightness and harmony' and the 'unification of beauty and goodness' in Chinese civilization. The diversified spatial arrangement of the Beijing Central Axis is a powerful witness to national etiquette and traditional urban management. Since its completion, the Beijing Central Axis has had a great influence on urban development, demonstrating the continued vitality of this traditional planning concept."[15]

Regarding planning and architectural form, the Beijing Central Axis is an excellent example of the well-developed central axis approach of traditional Chinese capitals. With consideration of mountain shapes and water systems, it ingeniously shows the basic traditional Chinese concept of man and nature. It also presents the ideal city planning paradigm as stated in the *Book of Craftsmanship*, and highlights the etiquette order and corresponds to the requirements of Standard 4 in the *Operation Guidelines*, "[to] be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history" in various areas, such as richness in hierarchy and order, while exemplifying contrasts and change:

> "The Beijing Central Axis, with its unique site selection, illustrates the ideal planning paradigm of traditional Chinese capitals stated in the *Book of Craftsmanship* 2,000 years ago, which is rich in hierarchy and order, while also exemplifying contrast and change and a closely connected visual landscape. It is an outstanding example of the central axis of Chinese traditional capitals over thousands of years of development to maturity. It is also the largest and best-preserved central axis among traditional capitals in East Asia. Its unique cultural characteristics and aesthetic interest prominently illustrate the expression of etiquette order in the planning of Chinese traditional capitals since the thirteenth century."[16]

As the ultimate symbol of national order, the Beijing Central Axis witnessed the formation of the pluralistic but unified character of the Chinese nation and major events with outstanding universal value signifying the historical development of China. It, therefore, meets the requirements of Standard 6 of the *Operational Guidelines*: "[to] be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance:[17]

> "The location and basic pattern of the Beijing Central Axis has strong symbolic significance in constructing the national order, reflecting the traditional natural and philosophical ideas of China.
>
> As the core of the Yuan, Ming and Qing dynasties and modern Chinese capitals, the Beijing Central Axis witnessed the formation of the pluralistic but unified character of the Chinese nation. As a place where a series of important events took place that changed history, it witnessed the transformation of Chinese society from a feudal to a modern state, which is of outstanding universal significance."[18]

Reference has been made to World Heritage nominations and the relevant discussions at the World Heritage Conference in recent years concerning the application of Standard 1: "[to] represent a masterpiece of human creative genius". Since the Beijing Central Axis is an amalgamation of architectural complexes and urban spaces constructed from 1267 to the 1970s, the heritage components were built in different stages. Some of them, especially parts of zones, may affect the estimation of the overall heritage value. Therefore, this standard was not adopted in the revised version of the nomination text.

II. Conservation of the Beijing Central Axis

The value of the Beijing Central Axis should be understood as a whole by taking into account the combinations of building clusters, urban spaces, and historic streets and lanes. For this reason, it should be protected as an entirety. Among the wide range of elements that form the Beijing Central Axis, different subjects have different protection requirements, including the Palace Museum and the Temple of Heaven, which are listed as World Heritage Sites, Major Historic and Cultural Sites Protected at the National Level, Municipal Cultural Heritage Sites of Beijing, cultural heritage under general investigation, and other historic buildings. The Beijing Central Axis includes bridges built in the Yuan dynasty, ancient buildings built in the Ming and Qing dynasties, modern buildings built in the twentieth century, and street commerce that largely characterized the axis. As a space in Beijing's central region, it is living heritage that has a long inherited national protocol and thriving civil life. All these characteristics define the complexity of its conservation work.

In 1982, upon the foundation of a conservation system, Beijing was the first to be included in the List of National Famous Historic and Cultural Cities. It is always the key example of the conservation of historic cities. Since the late 1990s, the conservation of 25 historic and cultural zones has been undertaken to protect famous historic and cultural parts of Beijing. Protected areas were demarcated in accordance with different requirements. The land coverage of the Key Protected Areas was 649 ha in total, and that of the Development Control Areas was 389 ha. When the Key Protected Areas and Development Control Areas for over 200 cultural heritage sites at various protection levels approved by the Beijing Municipal Government in the old town were added, the total land coverage of the Key Protected Areas and Development Control Areas was 2,383 ha, which accounted for 38% of the land in the old town[19]. The principles of conservation, renovation and control of the Key Protected Area and Development Control Area were as follows:

"**(A) Principles for the conservation and planning of the Key Protected Area:**

(1) The overall layout of historic zones must be conserved according to the inherited nature and features of the heritage.

(2) The authenticity of historic zones must be protected by the retention of cultural heritage and their original appearance. Cultural heritage includes heritage buildings, traditional courtyard houses (*siheyuan*), valuable historic buildings and building components.

(3) A "micro-circulation" renovation approach must be adopted for gradual development and improvement.

(4) The environment and infrastructure must be improved to upgrade the quality of life of residents.

(5) Public participation in conservation work should be encouraged.

(B) Principles for the regulation and control of the Development Control Area :

(1) Newly built or rebuilt buildings must be consistent with the overall landscape, without any unfavourable effect on the environment and visual landscape of the Key Protected Areas.

(2) For new construction, the land use, building height, volume, architectural form and colour, plot ratio, and greening rate must be regulated.

(3) For new construction, large-scale demolition and construction should be avoided; the focus should be on historical continuity and coherence.

(4) Important historic buildings, traditional streets, lanes and alleys (*hutong* area), and old trees and other special wood species should be retained and protected.

(5) The Development Control Areas of Shichahai, Dashilan and Xianyukou must make reference to the principles of the Key Protected Areas." [20]

As Beijing is a famous historic and cultural city, these fundamental principles remain basic in conserving its historic and cultural blocks. Can this method also fit the protection and management requirements of the Beijing Central Axis? The challenge now facing the Beijing Central Axis is how to establish a more complete and effective protection method and system to consider its overall heritage value.

The Heritage Zone of the Beijing Central Axis is spread over 628 ha, with a buffer area of 4,449 ha. This scope amounts to about 80% of the old town, which is far larger than the Key Protected Areas and Development Control Areas of the 25 historic zones designated in the 1990s, and twice the total size of the Key Protected Areas and Development Control Areas of heritage sites and historic blocks in the old town of Beijing recorded in about 2000. For a heritage site of such massive scale running from north to south in the old town of Beijing, a system for the effective protection of its overall value is essential.

Cities and towns were classified as a heritage category in the first World Heritage List in 1978. Given their nature as crucial historic sites as well as living contemporary urban spaces, there are huge differences in protective management between this category of heritage and common heritage categories such as monuments, building complexes and historic sites. In 1987, the International Council on Monuments and Sites (ICOMOS) enacted the *Washington Charter*, which recommended that the conservation of historic towns and urban areas should be an integral part of coherent policies of economic and social development. It noted that the various functions of the towns or urban areas were acquired over time, and that any threat to these qualities would compromise their authenticity[21]. In 2005, the United Nations Educational, Scientific and Cultural Organization (UNESCO) put forward the concept of the "historic urban landscape" in the *Vienna Memorandum* for the Conservation of Historic Cities and Towns. In 2011, UNESCO's *Recommendation on the Historic Urban Landscape* was issued.

> "The historical urban landscape is the urban area understood as the result of a historical layering of cultural and natural values and attributes, extending beyond the notion of 'historic centre' or 'ensemble' to include the broader urban context and its geographical setting."[22]
>
> "This wider context includes notably the site's topography, geomorphology, hydrology and natural features, its built environment, both historical and contemporary, its infrastructure above and below ground, its open spaces and gardens, its land use patterns and spatial organization, perceptions and visual relationships, and all other elements of the urban structure. It also includes social and cultural practices and values, economic processes, and the intangible dimensions of heritage related to diversity and identity."[23]
>
> "This definition provides the basis for a comprehensive and integrated approach to the identification, assessment, conservation and management of historic urban landscapes within an overall sustainable development framework."[24].

The "historic urban landscape" becomes a significant way to conserve historic cities and towns in the discussion of World Heritage.

In 2018, during an international seminar in Beijing on the nomination of the Beijing Central Axis as World Heritage, some experts discussed whether the Beijing Central Axis should be nominated under the category of "historic urban landscape", shifting it from a kind of conservation method to a heritage category. In consideration of the complicated process of World Heritage nomination, the nature of the Beijing Central Axis as a historic urban landscape was not highlighted when it came to category classification. However, this was underlined when its value was described. The same principle also applied to the discussion of conservation methods.

The conservation of the Beijing Central Axis involves the delineation of the Heritage Zone, which emphasises integrity. The complete Heritage Zone includes all the basic elements that reflect the heritage value of the Beijing Central Axis, including monuments, buildings, building complexes, historic sites, bridges, river channels, streets, squares, and the like. The Buffer Zone comprises not only the Temple of Heaven and the Palace Museum, but also Xidan, Xisi, Dongdan and Dongxi districts to reflect the influence of the Beijing Central Axis on the symmetric spatial framework of the old town. In the submission to the Beijing Municipal Government about conservation requirements, the entire old town was classified as the Environmental Zone of the Beijing Central Axis, in which protective regulations were implemented in accordance with the regulatory plan of the core area of the capital. Therefore, the promotion of the Beijing Central Axis has accelerated the protection of the entire old town of Beijing.

The setting of a visual corridor centring on the Beijing Central Axis for landscape protection embodies the conservation of the entire environment, which was an application of the concept of the historic urban landscape. Its regulatory requirements were formulated not only for the construction in the old town, but also for development projects in the districts along the Beijing Central Axis facing north and west, which have a visual correlation with the ridges of Xishan and Yanshan. This was to regulate the relationship between the landscape of the Beijing Central Axis and the two mountain ridges in the vicinity.

The Beijing Central Axis has significant value and meaning since it carries historical evidence and cultural expression. It is also a site of contemporary real life. For its protection, we should, therefore, take into account the continuity of tangible heritage, as well as the authenticity of life, community structure and street functions. Di'anmenwai Street and the surrounding area of the Bell Tower and Drum Towers, have been the most significant commercial zones in Beijing since the Yuan dynasty. This is the "hind market" in relation to the city layout of the Beijing Central Axis. The continuity of the commercial function should be taken into consideration during the renovation and conservation of the environment to avoid disturbing the traditional community. As for protective measures, the original commercial activities should be retained and continued through "micro-renovations" to maintain the characteristics of the zones and street life.

Legislation is an effective means of conserving the Beijing Central Axis. In 2021, the revision of *Measures for the Protection of the Historic and Cultural Landmarks of Beijing* was adopted by the Beijing Municipal People's Congress, and the *Measures for the Protection of the Beijing Central Axis* were also prepared for legislation. In the first draft of the *Measures for the Protection of the Beijing Central Axis*, the following relationships were highlighted: (1) that between the natural environment and cultural heritage, (2) that between intangible and tangible cultural heritage, and (3) that between the building complexes and urban space of the old town of Beijing, and the surrounding areas of traditional courtyard houses. Apart from this, a mechanism was proposed for better protection, management and coordination to resolve the current problem of multi-level and multi-departmental management. A chapter entitled "Inheritance, Utilization and Public Participation" was stipulated in the *Measures for the Protection of the Beijing Central Axis*.

Situated in the core area of Beijing, the Beijing Central Axis is the political and cultural centre of contemporary China. The emphasis on value understanding and integrity is the result of recent trends in the protection of historic cities and towns and the accumulation of practical experience. It is also an important experiment in heritage protection for megacities using the method of the historic urban landscape.

III. Social Participation

Social participation in the conservation of cultural heritage indicates that conservation efforts have been expanded: professionals no longer act alone, and wider vision of social development has been taken on board. Community involvement has always been an important element in the conservation of historic cities and towns. According to the *Washington Charter* in 1987, "[a]ll urban communities, whether they have developed gradually over time or have been created deliberately, are an expression of the diversity of societies throughout history."[25] Community plays a major part in the protection of historic cities and towns because the continuation of community life has endowed the cities and towns with an individual character. Community residents, as the subject of urban life, have naturally become the centre in the process of conservation. In the twenty-first century, based on relevant theories, heritage conservation has become an excellent facilitator of sustainable social development, and the extensive participation of people from all walks of life is essential in contemporary heritage conservation.

Social participation is not simply a relationship between government and society; it involves dynamic interaction among all sectors of society. The initiator of core events may not necessarily be the government. It may also be professional institutions, communities or citizens. Social participation in relation to the Beijing Central Axis fully reflects the complexity of the multi-dimensional, multi-directional, interactive relationships involved in social participation. In the process of nomination as a World Heritage Site, stakeholders from various government agencies, including heritage offices, national land planning, urban and rural construction, development and reform, public finance, and cultural tourism departments, and governments at the regional level, all express concerns based on their respective interests. Their roles also constantly change during the development of intertwined events. Through the participation of different parties, interaction has become more complex and vivid.

The design of Tiananmen Square also follows the principle of central axis (photo by Jin Dongjun)

The propagation of heritage value is the basis of social participation. After the Beijing Central Axis was enrolled in the tentative list for nomination as a World Heritage Site released by the UNESCO World Heritage Centre, the conservation of the Beijing Central Axis became a government priority, as seen in the work statements of the Beijing Municipal Government over the years. After the Beijing Municipal Government put forward the formal nomination in

2017, there was concern in the media about the scope, conservation work, and impact of the nomination on the local residents. Local and national media attention on the Beijing Central Axis remained high, with a large number of news stories, interviews and cultural programmes produced. A variety show was well-received, which has become a popular way for young people to obtain general information about heritage. A large number of books related to the Beijing Central Axis have been published, including academic research, historical pictures and comic books. Among them, a drawing book was created by a young art studio, called *Paintings of the Imperial Capital*. The drawings explain the progress of planning and development, architectural art, and the rich and varied life relating to the Beijing Central Axis.

There are many poems about the Beijing Central Axis in literary compositions. For instance, a cyberspace writer, named "The Third Young Child of the Tang Family", composed a story about the life of a young restorer.

Many art clubs have created musical programmes about the Beijing Central Axis. The Beijing National Orchestra has created orchestral suites comprising nine movements, which premiered in the concert hall of the National Centre for the Performing Arts on 20 October 2020. A large number of songs with the Beijing Central Axis as the theme were also produced in various kinds of musical programmes. *The Most Beautiful Central Axis*, performed by many young singers, is well-loved by citizens. In 2021, some young musicians organized and planned *Music Season of Ancient Buildings*, which was a musical performance carried out in ancient buildings in and around the Beijing Central Axis.

Since the Beijing Central Axis is a significant heritage resource reflecting Chinese history and culture, as well as a representation of contemporary life in Beijing, it has been added to classroom learning and extracurricular activities in many elementary and secondary schools. For instance, Yucai School, which is located in the Temple of the God of Agriculture in the Beijing Central Axis Heritage Zone, has included traditional Chinese culture related to agriculture, as represented by the Temple, in its course content, and students participate in related agricultural activities. At Dengshikou Primary School and Beijing Xicheng Foreign Languages School, students were asked to describe the Beijing Central Axis in paintings and compositions. Pupils from Beijing Dongcheng Heizhima Hutong Elementary School shot a short video that explained the Beijing Central Axis, and the Experimental High School Attached to Beijing Normal University introduced a course on world heritage.

In a cultural and creative competition about the Beijing Central Axis organized by Beijing in 2021, nearly 35,000 works were collected within three months. Before the Beijing 2022 Winter Olympics, the Organizing Committee produced commemorative badges for the countdown with heritage elements along the Beijing Central Axis as the motif, which expressed Beijing's profound historic cultural features and propagated a positive image of the Beijing Central Axis.

On social media, citizens have uploaded countless short videos about the buildings, historical stories, characters, and community life of the Beijing Central Axis. Many exhibitions arranged by museums, cultural institutions and social organizations have attracted attention. Exhibitions about the Beijing Central Axis are popular with citizens during holidays like the Spring Festival. In various reporting sessions organized by cultural institutions and social groups, the history and culture of the Beijing Central Axis are analyzed and illustrated from different perspectives by many scholars. Their content is useful for reinforcing research on the value of the Beijing Central Axis.

The Beijing Central Axis is located in the core area of Beijing's old town. Some historic zones are densely populated, with a poor environment. During the process of improving the environment, residents, responsible members of the community, and related professionals were invited to converse through programmes on social issues, like "Step Forward", by Beijing Television Station, to express the interests of residents and explain the related policies. The requirements and suggestions for the living environment of the residents and communities were heard, and their requests were reflected during the process. For instance, feeding pigeons is a tradition for many Beijing citizens, but the installation of pigeon houses would result in chaos and pollution of the environment. Many residents argued that pigeon houses should be designed and installed for pigeon lovers during the renovation process, as this would not only improve the environment, but also allow this traditional lifestyle in Beijing to continue.

The application of digital technology is prominent in the process of heritage value dissemination and social participation in the Beijing Central Axis. Some well-known digital enterprises, such as Tencent and Beijing Hetu, have taken part in the relevant works. Tencent designed a promotional deskbar applet for the Beijing Central Axis and the digital ambassador, Yuyan. The figurative deskbar applet received about 540,000 hits after only five hours online.

Social participation in the Beijing Central Axis conservation project was vigorous and successful. All sectors of society were no longer being informed passively; they were being consulted and involved in the planning process, and in some matters, they were involved in collaboration.

Participation facilitates the positive role of cultural heritage conservation in social sustainable development. It is an issue that has attracted extensive attention in China. *Principles for the Conservation of Heritage Sites in China* (revised in 2015) stresses the cultural and social value of cultural relics and historic sites, the importance of social participation, and the value of conservation in preserving cultural traditions. In 2015, the central government proposed "the vision of people-centred development" to promote social participation in cultural heritage conservation. The interests of the people became an important consideration during implementation. The role of the community was crucial in the nomination of "Kulangsu, a Historic International Settlement", which was enrolled in the World Heritage List in 2017. The establishment of a community council empowered the community and residents by giving them a certain extent of participation in its protection and management. As a result, the community and citizens gained extensive experience in heritage protection through participation.

Cultural content has been included in the 17 sustainable development goals under UNESCO's 2030 agenda. Undoubtedly, the conservation, value discovery, interpretation, and promotion of cultural heritage, as well as innovations based on cultural traditions are all important aspects of sustainable development. Social participation will ensure that heritage conservation can truly play a role in social sustainable development.

Conclusion

In the late 1980s, Federico Mayor, the Director-General of UNESCO, presented the "cultural dimension of development" in a project titled "A World Decade for Cultural Development". In 2019, cultural indicators were included in UNESCO's "2030 Agenda for Sustainable Development": "[We] acknowledge the role of culture as an enabler and a driver of sustainable development. While the safeguarding and promotion of culture represents an end in itself, it also contributes transversally to many of the SDGs — including those on sustainable cities, decent work and economic growth, reducing inequalities, protecting the environment, and promoting gender equality, innovation, and peaceful and inclusive societies. The role of culture can be addressed both as a driver that contributes directly to bringing about economic and social benefits, and also as an enabler that contributes to the effectiveness of development interventions."[26]

In 2021, the 44th Session of the World Heritage Committee adopted the *Fuzhou Declaration*. In the face of global disasters, such as the COVID-19 pandemic, climate change, and armed conflicts, the World Heritage Committee reiterated the importance of World Heritage in representing universal common values shared by all humankind, accentuating the harmonious relationship of humankind with nature, emphasizing closer international cooperation, underscoring wider participation of academics, civil society and communities, achieving sustainable development goals, and maintaining "an open, inclusive, adaptive, sustainable, resilient, clean and beautiful world."[27]

Obviously, regarding the effect of culture in driving social sustainable development, heritage conservation has enormous potential to generate significant spill-over benefits. We should, therefore, focus on how to utilize cultural heritage fully, to benefit overall social development. In the Beijing Central Axis project, public awareness was raised during the process of exploration and promotion of its heritage value. Opportunities were created for society to understand, conserve and develop the heritage. Through social participation, the level of heritage management was improved, and the development of cultural and creative industries was accelerated. Society as a whole provided momentum to achieve equilibrium and inclusiveness, which is conducive to sustainable development.

It has been thirteen years since the Beijing Central Axis started preparation for inscribing as a World Heritage Site. The study and understanding of value is the basic driver of heritage conservation. By exploring the value and protecting the authenticity and completeness of our heritage, we can create the condition for social participation in the process of communication and conservation. By generating social awareness, the community and residents have been inspired to participate in topics and affairs related to the conservation of the Beijing Central Axis. In this way, consensus is enhanced to formulate social cohesion and support for sustainable development. This reveals the progress of cultural heritage conservation from value-based, to community-based and to people-oriented.

The conservation of the Beijing Central Axis has proved that cultural heritage projects are influential and meaningful to society.

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[6] "Outstanding Universal Value", or OUV, according to the *Operational Guidelines for the Implementation of the World Heritage Convention*.

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Education and Promotion of Built Heritage — Macao as an Example

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Abstract

This paper summarizes the efforts by the government, civic groups and tertiary institutes on the education and promotion of built heritage since the declaration of world cultural heritage in Macao. Although the account is not comprehensive, it reflects to some extent the development and current situation of built heritage in Macao.

Introduction

The conservation policy of built heritage is difficult to implement if we rely only on government departments and professionals. The impact of conservation is also hard to sustain without the wide acceptance and participation of society at large.

From 2003 to 2005, I studied this subject as part of my studies for a Master's Degree in Architectural Conservation in Paris, France. During this period, I found that architectural conservation is implemented smoothly in France because the public has basic education about heritage preservation. In addition, all members of society enjoy more opportunities to contact with knowledge of art, architecture, history, and so forth since childhood. Therefore, the popularity of related knowledge is relatively high, resulting in a large number of people in society who care about local history and architectural conservation. Coupled with effective monitoring by professionals and the media, there is rational discussion about projects that may affect the historic environment and landscape.

There is no doubt that the situation in France is related to its social development, and it may not be possible to directly put into practice in Asia, especially in developing countries.

Although the conservation of Macao's architecture dates back to the period of Portugal's governance, only a few people were concerned about it. Some even believed that architectural conservation hindered the development and modernization of urban landscape.

Since the establishment of the Macao Special Administrative Region (SAR), the history, culture and architectural conservation of Macao have attracted more attention, particularly due to the efforts made on the declaration of world heritage status. In 2008, owing to the proposed construction of high-rise buildings near the Guia Lighthouse, which would have affected the landscape and even the rating of this World Heritage Site, there was considerable concern in Macao society. In response, the Chief Executive implemented legal height restrictions for the buildings to preserve the landscape of this World Heritage Site. Since the successful inscription of world heritage site in Macao, a bottom-up civil conservation force has emerged, grown and gathered strength in society over the past twenty years.

This paper organises and analyses the major activities of government departments, civic groups, and academic institutions over the past twenty years to investigate the development of built heritage education and its influence on the conservation of Macao's architectural heritage. This will be beneficial to the formulation of heritage conservation policy in the future and serve as a reference for neighbouring regions.

Government Departments

In the Macao SAR government, the Cultural Affairs Bureau is responsible for cultural heritage conservation. Although other departments also organise educational activities related to heritage conservation, this paper focuses mainly on the projects of the Cultural Affairs Bureau, while those of other departments are also mentioned. For built heritage education, the innovative "Macao Heritage Ambassadors Training Programme" in 2001 was one of the most significant projects in built heritage promotion and education in Macao.

The "Macao Heritage Ambassadors Training Programme" came at a time when the SAR Government started the work of inscribing world heritage site. It was part of the "Macao Cultural Heritage Promotion Programme", which also included roving exhibitions about built heritage staged at different campuses.

The training programme focused on secondary school students. The trainees learned about built heritage and how to conduct guided tours. The content included theoretical courses, practice in conducting guided tours, and visits and exchanges, to enhance the young people's understanding of Macao's history and awareness of the value of cultural heritage protection. It also cultivated young people's ability to take independent action and their organisational and leadership skills. The trainees who completed the course were awarded the title "Cultural Heritage Ambassador" with the mission of promoting the conservation of Macao's cultural heritage.

After the first training course was held, in 2004, the trained young people founded the "Macao Heritage Ambassadors Association". Under the philosophy "Cherish Cultural Relics and Inherit the Culture" and with the support of the Cultural Affairs Bureau, it has held training programmes for heritage ambassadors since 2007, cultivating a group of young people who care about Macao's history and cultural heritage, and continuing to develop in related fields.

The Heritage Ambassadors Association conducts various promotion activities. In 2010 and 2018, it was awarded the title "World Heritage Youth Education Base" by the Suzhou Centre of the World Heritage Institute of Training and Research for the Asia and the Pacific Region of UNESCO. In 2019, with the support of the Macao SAR Government, it became a member of the "Guangdong-Hong Kong-Macao Greater Bay Area Youth Action Alliance".[1]

Fig. 1 Training Programme for Junior Docents of Macao's Cultural Heritage (Credit: Macao Cultural Heritage Association)

In addition to organising training for secondary school students, since 2016, the Cultural Affairs Bureau and various cultural heritage protection groups have jointly organised the "Training Programme for Junior Docents of Macao's Cultural Heritage" (Fig. 1), which is aimed at students aged 10 to 16. During the summer vacation in July and August, through classes and visits, students are trained in basic knowledge of Chinese culture and cultural heritage, and skills for conducting guided tours of World Heritage Site in Macao.[2]

For adults, since 2020, the Cultural Affairs Bureau has launched the "Cultural Ambassador" spokesperson programme. Through theoretical and practical courses, students who have completed the programme will become "Cultural Ambassadors" to actively inherit local and Chinese culture. The Cultural Affairs Bureau and the Cultural Ambassadors have also jointly organised the "Navigation Project", arranging activities such as guided tours, workshops and lectures for the public to participate in to promote cultural communication and inheritance. Although the programme is not limited to built heritage, Macao's World Heritage Site constitutes an important part of Macao culture. For this reason, the courses and activities are related mostly to the built heritage or the Historic Centre of Macao.[3]

To introduce cultural knowledge on campuses, since 2014, the Cultural Affairs Bureau and civic groups have co-organised the project "Lectures on Cultural Topics", providing schools with a series of thematic cultural lectures in different fields. The aim of the lectures is to broaden the students' cultural horizons, enhance their creative thinking and aesthetic perception, and promote cross-cultural understanding and the application of cross-domain knowledge to achieve the development of interlinked foci of understanding.

Later, the programme developed into an art popularization programme for P5 and above in schools, civic groups, institutions and the general public, with small-class seminars covering areas such as local history, visual art, architecture, music, film, animation, street culture, cultural planning, and the cultural and creative industries.[4]

Other governmental departments have also conducted workshops and lectures to promote the history and architecture of Macao.

The Macao Foundation's large-scale cultural and historical website "Macao Memory" is dedicated to collecting scattered historical materials of Macao, sorting and integrating them into an online multimedia database, and digitally and sustainably preserving Macao's history and culture to achieve the goals of co-construction, sharing and inheritance. Since 2020, Macao's cultural and historical workers have been invited to school campuses to hold a series of themed lectures targeting secondary school students. The themes cover Chinese and Western architecture, urban changes, the development of various trades, and feature stories about prominent figures, covering multiple professional fields, such as documentation, oral history, architecture and urban planning. This has established a vivid history of Macao to help students deepen their understanding of Macao's history and culture.[5]

The Municipal Affairs Bureau carried out the "Research on Streets" programme to collect interesting information about past events and stories of the streets and introduced them to the public to promote the inheritance of the profound historical and cultural heritage represented by the streets. The bureau published docent guide books, pocket booklets and research monographs, organised multiple promotion and publicity activities, and launched a mobile application, called "Taking a Walk through the Streets of Macao", to share the rich materials about streets and photos past and present to encourage people to explore and experience the streets together.

"Taking a Walk through the Streets of Macao" currently has 19 different themed routes, involving traditional living spaces such as historic buildings, "pátios" and "becos" (lowest existing level of roads of Macao).

In addition to the thematic website, the project regularly organises teaching activities in the form of guided tours and lectures, targeting the public, schools and groups.[6]

Civic Groups

Many civic groups have dedicated themselves to built heritage conservation in Macao. In addition to the Macao Heritage Ambassadors Association mentioned above, there have been more achievements in education and promotion of cultural heritage by the Heritage Society, the Macao Cultural Heritage Association, the Macao Cultural Heritage Reinventing Studies Association, and so forth. They organise courses, lectures, workshops, guided tours and exhibitions, and develop publications related to architecture. One example is the "Training Programme for Junior Docents of Macao's Cultural Heritage", organised by the Cultural Affairs Bureau in association with the Macao Cultural Heritage Association and the Macao Heritage Ambassadors Association. Other groups organise educational activities related to built heritage conservation, mainly lectures and workshops.

As mentioned above, the Macao Heritage Ambassadors Association originated from the Cultural Affairs Bureau's Training Programme for Junior Docents of Macao's Cultural Heritage. After its foundation, it continued to train heritage ambassadors and achieved a number of successes in education and popularization of heritage conservation. In addition, the association organises a number of activities to promote heritage knowledge every year, such as campus lectures, various competitions, night tours of Macao's world heritage, poetry composition for heritage sites, book publishing, and lectures and training workshops on cultural heritage. It also comments on the government's conservation policies and development plans.[7]

In 2014, with the vision "Love Heritage with Creativity and Knowledge", the Macao Cultural Heritage Reinventing Studies Association was founded to carry out research and recreation of cultural heritage to preserve the history and culture of Macao.

In 2014, the Heritage Society was founded by professionals in cultural heritage conservation. Through various activities (including culture and education projects), the Society facilitates the sustainable conservation and adaptive reuse of tangible cultural heritage, urban heritage, architectural heritage and industrial heritage as well as revival of intangibe cultural heritage to improve the quality and enrich people's cultural life. Past activities include investigating, documenting, researching and evaluating various types of heritage; formulating and implementing their revitalization and management strategies; collecting, analysing, comparing and researching heritage conservation cases across different nations; promoting theoretical and practical heritage conservation projects; facilitating international exchanges by building mutual assistance networks; organising seminars, lectures, workshops and exhibitions, and so on.

In addition to research, exhibitions, lectures, and publications, the Society organises guided tours on built heritage to increase public understanding of architecture (Fig. 2).[8]

The Macao Cultural Heritage Association was established in 2010 with the vision of enhancing education about, and the promotion of, cultural heritage conservation to raise public awareness of the field.

Fig. 2 Lecture on built heritage (Credit: Heritage Society)

In addition to organising a series of lectures introducing cultural heritage in secondary schools and inviting experts from various nations to give seminars, the Society increased the number of guided tours and workshops to raise awareness of the importance and value of cultural heritage conservation. Fixed-point guided tours are also available at cultural heritage sites, such as The Ruins of St. Paul's, Lou Kau Mansion, and the Guia Hill Military Tunnels.

The Society also co-organised the "Training Programme for Junior Docents of Macao's Cultural Heritage" in 2016 and 2018, and "Training Courses for Junior Docents of Macao's Museums" were launched in 2019 to cultivate students' understanding of Macao's world cultural heritage and relics, and to strengthen young people's participation in the development of Macao's cultural heritage.[9]

Higher Education

Government departments and organisations provide short-term education and promotion of cultural heritage to the public, and higher-education institutions train professional academic staff members.

There are not many tertiary institutions that have architecture specialties in Macao. Currently, only the University of Saint Joseph has a Bachelor of Architecture programme. The Faculty of Tourism has only a Bachelor in Cultural Heritage Management. In the past, the Bachelor of Design, offered by the Macao Polytechnic University (the former Macao Polytechnic Institute), included content on spatial design, which touched on the renovation of historic buildings.

With regard to cultural heritage conservation, the Macao University of Science and Technology launched master's and doctoral (design) degree programmes in cultural heritage conservation in 2014, followed by master's and doctoral degree programmes in architecture, to provide a professional learning and exchange platform for education and research on architectural heritage conservation.

Built heritage is also included in the courses of master's and doctoral degree programmes in urban planning and design at the City University of Macao.

Conclusion

The conservation of architectural heritage in Macao needs to be developed on the foundation of education.

Professional study and research provided by tertiary institutions open up the possibilities of in-depth research on heritage conservation and local history.

However, conservation of cultural heritage cannot rely only on professionals or be merely through academic exercises. Different education and promotion programmes should be developed for different age groups to fill the gap on architectural learning to make up the knowledge shortfall related to architecture in basic education. Following the efforts made in more than two dacades in the past, we have seen the growing of a large group of people care about cultural heritage conservation in Macao. Representatives of some concern groups have joined the related official advisory bodies.

Owing to the shortage of land resources in Macao, there are often disputes over urban development and conservation, such as landscape protection for Guia Hill and Penha Hill, the adaptive reuse of classified historic buildings, and the possible demolition of valuable historic buildings pending value assessment. In case of dispute, society needs to engage in scientific and rational discussion, but such discussions are difficult to implement without the popularisation of the relevant knowledge.

[1] 譚志廣、龐朝暉：《護遺路上》(澳門：澳門文物大使協會出版，2019年)，頁21。

[2] https://m.facebook.com/icmacao/photos/小小導賞員係我

[3] https://www.exmoo.com/article/151510.html

[4] https://www.icm.gov.mo/lecture/cn/?id=introduce

[5] https://www.gov.mo/zh-hant/news/870094/

[6] https://macaostreets.iam.gov.mo/zh_mo/index.html

[7] 譚志廣、龐朝暉：《護遺路上》(澳門：澳門文物大使協會出版，2019年)，頁21。

[8] https://bo.io.gov.mo/bo/ii/2014/20/anotariais_cn.asp#419

[9] http://www.mcha.org.mo

Prof ZHU Rong

Protection, Management, Revitalisation and Adaptive Reuse of Macao's World Heritage

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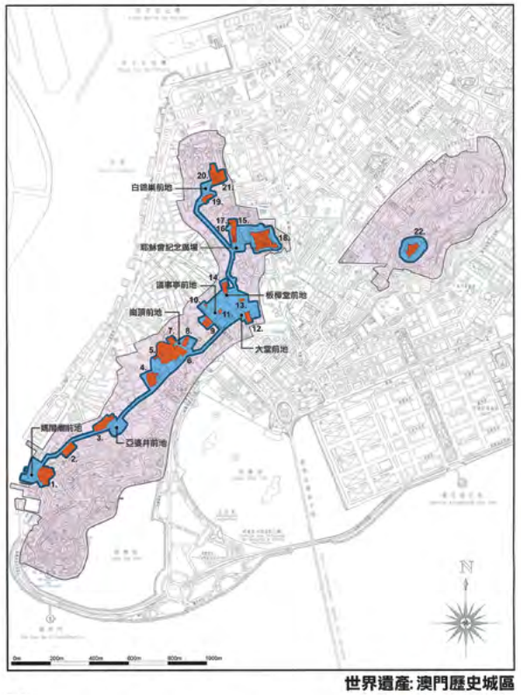
Abstract

In 2005, the “Historic Centre of Macao” became the 31st World Heritage Site in China, which was a major event in Macao’s urban development over the past 450 years. The Historic Centre of Macao has the dual goals of heritage conservation and economic development. This paper reviews the development and experience of the preservation, management, revitalisation and adaptive reuse of Macao’s world heritage before and after its inscription on the World Heritage List. In addition, in face of the opportunities and challenges under the strategic planning at both the national and regional levels, it puts forward suggestions for sustainable development in the post-inscription period.

I. Introduction

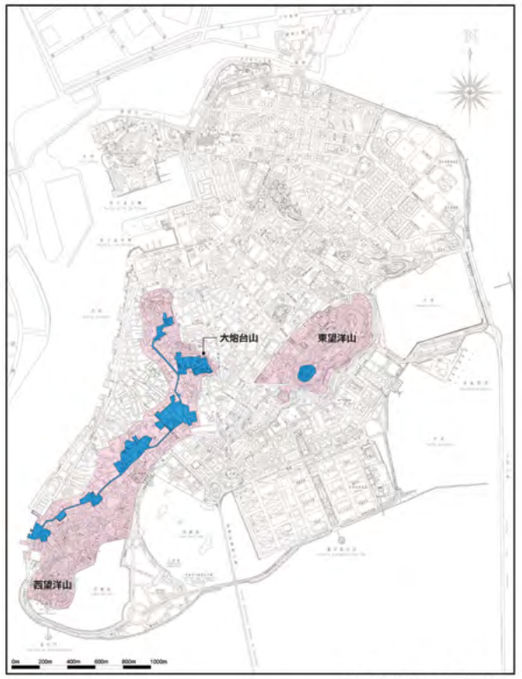
Macao had the oldest European settlement in China and was a transhipment port of trade in Asia in the early stage. The layout and development of the streets and the architectural style and features of the buildings express the coexistence of Chinese and Western aesthetics, culture, architecture and technology since Macao opened to the world in the mid-16th century. The “Historic Centre of Macao” was inscribed on the World Heritage List[1] on 15 July 2005, making it the 31st designated World Heritage Site in China (Figures 1-1 and 1-2). The “Historic Centre of Macao” [2] showcases the harmonious integration of oriental and occidental cultures in the past 400 years. The age-old streets, houses, religions and public buildings with Portuguese and Chinese styles are among a number of “The Bests in China” [3], testifying to the meeting of aesthetics, spiritual, architectural and technological influences from East and West. The historic area in a sense connected its harbour to other Portuguese cities, witnessing the earliest continuous communication between China and the West during the course of the thriving development of international trade. It represents the dialogue and interchange of aesthetics, culture, architecture and technology between the Chinese and European civilisations and helps retain the memory of urban cultures with significant historical and social value. Throughout the time of change and urbanisation in the past several centuries, these Chinese and Western style historic buildings have been well preserved, and their beauty has even been enhanced in the modern environment, continuing the splendid diversity arising from the interaction of the two major civilisations.

The “Historic Centre of Macao” comprises a compound of Chinese and Western historic buildings, which is the oldest, largest in scale, best-preserved and most concentrated in China. It fully represents Western religious culture and Chinese folk beliefs in China and even in the Far East, and reflects the integration of and respect for different religions, cultures and livelihood of both China and the West. It “testified to the collision and dialogue between Western and Chinese cultures, demonstrating the eternal vitality, openness and comprehensiveness of Chinese culture, and the possibility of peaceful coexistence of the two sides [translation]” [4]. As a World Heritage Site, the “Historic Centre of Macao” is not only a crucial part of Macao’s culture and civic life, but also a valuable example of the material wealth and spiritual resources of both Chinese culture and world civilisation. The protection, management and revitalisation of the site is of great significance to the inheritance of cultural traditions, the preservation of cultural diversity, and the formation of regional characteristics.



世界遺產: 澳門歷史城區
圖一

Figure 1-1 Historic Centre of Macao



世界遺產: 澳門歷史城區
圖二

Figure 1-2 Buffer zone of the Historic Centre of Macao

II. Development of the Protection, Management and Revitalisation of Macao’s World Heritage

Macao is one of the most representative Asian cities to start working on cultural heritage preservation at an early stage. Before its return to China, Macao adopted the Portuguese concept and mechanism regarding the preservation of built heritage[5], which is a top-down, government-led model focusing on the protection of Portuguese architecture. As early as the beginning of the twentieth century, the Macao government conducted research on and registered the built heritage. In the mid-twentieth century, special committees[6] and working groups were appointed by the government to conduct research on heritage with historical and artistic value[7] and proposed appropriate preservation measures. To preserve the architectural features and urban landscape of Macao, the first act for built heritage preservation was enacted in Macao in 1976, leading directly to the successful protection of Macao’s cultural heritage. In the last decade before Macao was returned to China, the government provided financial support on a regular basis to repair a multitude of important built heritage, including batteries, churches, temples and ensembles. Furthermore, many of the classified buildings, such as those located along Avenida de Almeida Ribeiro, Travessa de S. Paulo, St. Dominic’s Square and Senado Square, have been preserved for commercial and cultural purposes. Macao’s overall historic environment was well maintained and became a tourist attraction. During that time, numerous excellent projects of restoration, renovation, conservation and adaptive reuse sprang up, namely, the preservation of Lou Lim Ieoc Garden[8], the renovation and reuse of Senado Square (Figures 2-1 and 2-2), the Heritage Hotel of Pousada De Sao Tiago Macao[9], and the Taipa Houses in Ilhéu Kai-kiong.

Figure 2-1
Senado Square before renovation

Figure 2-2
Senado Square after renovation

After Macao's return to China in 1999, the government still considered the preservation of cultural heritage to be an important part of integrated urban planning. Simultaneously, the process of Macao's cultural heritage preservation was greatly boosted by work on the World Heritage nomination. At the theoretical level, all the academic research, surveys, census maps, documents and materials collected during the nomination process provided an important basis for the information needed for protecting Macao's cultural heritage. This gradually made the value and significance of the preservation work on Macao's cultural heritage clear and definite, from the idea of applying for inscription on the World Heritage List in the early stage, to the preliminary proposal on the "Historic Monuments of Macao", and finally to the confirmation of the "Historic Centre of Macao". At the practical level, in Macao, the attitude towards and methods for preserving cultural heritage became more rigorous, as the original limited understanding of World Heritage shifted significantly to follow the World Heritage standards. The inscription on the World Heritage List played an important role in promoting the protection of Macao's heritage. From 2000 to 2010, the Cultural Affairs Bureau of Macao invested MOP$150 million in 100 conservation projects to preserve and restore the cultural heritage, including the classified historic buildings and sites in the historic centre of the city. The landscape environs were also enhanced. Typical examples completed during this period were Lou Kau Mansion, the Macao Central Library at Tap Seac Square, the Tak Seng On pawnshop museum[10], Cathedral Square, and the rectification and revitalisation of Lilau Square.

The successful inscription on the World Heritage List in 2005 was seen as a landmark in the history of Macao's cultural heritage preservation. Thereafter, the preservation work progressed to a new development and transformation stage. With the increase in awareness among the government and citizens and their pride in the city's heritage, the content of Macao's cultural heritage preservation continually expanded under the framework of protection and management of World Heritage. Traditional Chinese culture has also been respected, given the self-identification of local culture. The perception of Macao's cultural heritage has, therefore, shifted from traditional Portuguese culture to a value connotation of Chinese culture as mainstream affiliated with diverse Western cultures. A multitude of Chinese-related heritage buildings in Macao, such as the Mandarin's House (Figure 2-3), General Ye Ting's Former Residence, No. 80 Rua das Estalagens (the former Chong Sai Pharmacy), and the Lai Chi Vun Shipyard, were preserved and restored. In impelling the preservation of various kinds of cultural heritage, the Macao government mirrored and absorbed the concepts and experience from abroad, conducting a study on tourism management and landscape protection of various cultural heritage buildings in the historic centre of the city. It also advocated feasibility studies and adaptive reuse of cultural heritage facilities and made efforts to raise the heritage preservation and management standards. Some abandoned or degraded historic buildings and forecourts were effectively conserved and revitalised in different modes, such as restoration, renovation, extension and adaptive reuse. These efforts dramatically improved the environment of public spaces in the city and made all kinds of tourism, commercial and cultural activities more feasible.

Figure 2-3
The Mandarin's House

In the development of Macao's World Heritage, the focus of preservation shifted from single "heritage building" to comprehensive "cultural heritage". The "connotation" and "extension" of the work also underwent a new evolution. On the one hand, the preservation works covered built heritage of different periods and social strata, which fully reflected people's respect for cultural subjectivity, diversity and different values. On the other hand, the preservation of single heritage building was extended to the district and holistic historical environment of the city. The focus also shifted from passively preserving the form of built heritage to a more comprehensive and dynamic approach, combining the management and revitalisation of

buildings with intangible elements, such as urban development and social life. This concept from "point" to "broad-brush" and from "static" to "dynamic" fully reflected the recent world trend of heritage preservation. This trend integrates past, present and future as an organic whole, and considers sustainable development from economic, social and ecological perspectives. The preservation and management of Macao's World Heritage fully affirms the significance of the World Heritage inscription system and provides valuable experience in heritage preservation and management for other similar cities.

III. Protection, Management and Revitalisation of Macao' s World Heritage

1. Zonal Protection Based on the Urban Landscape and Historical Ambience

Macao's World Heritage is a historic area connecting historic buildings ("point"), traditional streets ("line") and public plazas ("plane"). Its core value is to manifest the historical form and cultural landscape of the city which integrates Chinese and Western cultures. The preservation of the whole historic centre requires an overall study of the distribution pattern of single historic buildings, forecourts and streets, and their inter-relationship, respective functions and characteristics, allowing the scattered items or groups to form a reticulate system and enhance their value.

As Macao is one of the most densely populated places in the world, there is conflict between preservation of the historic centre and development within the city's limited space. Therefore, the best approach to preserve the overall style and characteristics of Macao is the zonal protection of urban landscape and historical ambience. The value of preserving single historic building as part of their surroundings and landscape was realised at the time under the governance of the Portuguese[11]. Since then, the idea of zonal protection of the urban landscape and historical ambience has been intensified through the adoption of a statutory list of protected properties and sites, changing the nomination of World Heritage from the "Historic Monuments of Macao" to the "Historic Centre of Macao", setting up buffer zones, and launching a series of rectification works in forecourts by the Portuguese government in the 1990s.

In recent years, the Macao government considered managing and preserving the "Historic Centre of Macao" from a wider planning perspective, connecting, integrating and revitalising single historic building with cultural development potential together with the surrounding space. This strengthens the impact of heritage zones by forming new cultural clusters for supplementing and further extending the content of Macao's World Heritage. Through enhancing the public facilities of the historic centre and its buffer zone, as well as the surrounding cultural cluster, the environment of the community was improved with unique cultural characteristics, thus becoming an attraction for both tourists and locals. This cultural and tourist development is a benign outcome of heritage preservation and reuse. There was a special focus on the revitalisation study and design of particular traditional residential spaces of *wai* (walled villages) and *li* (lanes), as well as historic blocks in the community. For instance, a study on a strategy to revitalise the urban area around Lilau Square and the Mandarin's House through functional zoning of different areas prompted the revitalisation and conservation of the Inner Harbour district[12]. The revitalisation project of the historic buildings in the St. Stephen's Church area, renovating the Portuguese gravel paving, reconstructing the traditional street lights, and organising regular street performances and flea markets by the creative industries enhanced the quality of the forecourt and created a cluster district for Macao's cultural creative industry (Figure 3-1).

Figure 3-1
Improvement of the public space in the St. Stephen's Church area

2. Building and Continuously Improving the Legal System as a Crucial Guarantee

The protection and management of cultural heritage must be carried out in accordance with laws and regulations. A sound legal system is a basic premise and guarantee for the implementation of cultural heritage preservation. Macao's first cultural heritage protection decree was No. 34/76/M (with 16 articles in total), promulgated by the Macao-Portugal Government on 7 August 1976. It clearly stipulated that Macao's built heritage and arts should not be destroyed for the sake of urban development. A list of 89 protected items was compiled, for which the protected cultural relics were classified and defined, regulations on "protected areas" were proposed[13], and a "Committee for the Maintenance of Macao's Urban Landscape and Cultural Properties" was established, directly under the Macao Governor. In 1982, the Cultural Institute of Macao (today's Cultural Affairs Bureau) was established to execute built heritage conservation and undertake amendments of the old decree. On 30 June 1984, Decree No. 56/84/M (with 40 articles in total) came into effect. The decree provided a precise and comprehensive definition and classification of heritage in Macao and stipulated the protection methods for each kind of heritage in detail. The annex to the relevant legislation also contained the first lists of classified monuments, ensembles and conservation sites (89 items in total). Various tax incentives were proposed for property owners of built heritage in the list to encourage them to preserve the buildings they owned. "Protection Zones" were designated around the assessed built heritage sites, specifically stipulating that the exercise of rights in the areas was restricted to protect the surrounding environment. On 31 December 1992, Decree No. 83/92/M (with 11 articles in total) was implemented, adding "buildings of architectural interest" to the protected built heritage. It supplemented the lists of monuments, ensembles and classified sites in Decree No. 56/84/M (with 128 items in total), and continued to be in effect until 2014. The latter two decrees basically formed the future legal basis for the protection of Macao's heritage and related administrative measures.

Since the successful inscription on the World Heritage List, the legal and procedural requirements for the protection and management of Macao's cultural heritage were set at a higher level. It also prompted Macao to consider heritage conservation, urban planning and economic development in a more comprehensive way. Macao has successively formulated and promulgated a number of laws and regulations related to heritage protection at different levels (Table 3-1) following the inscription on the World Heritage List in 2005. In 2013, three important laws, namely the *Cultural Heritage Protection Law*[14], the *Urban Planning Law*[15], and the *Land Law*, were promulgated by the Macao government, laying the foundation for the preservation and development of Macao's cultural heritage. The *Cultural Heritage Protection Law* played a prioritised and decisive role in the control of urban development affecting cultural heritage. At a higher legal level, its coverage of heritage preservation was more comprehensive and systematic than the previous decree, from immovable properties (buildings) to movable properties (all valuable cultural relics), and from tangible to intangible cultural heritage. In addition, a separate chapter on the "Historic Centre of Macao" was added, which stipulated the relevant protection principles, mechanisms and management. In addition, special provisions were included in classification procedures, the formation of a "Cultural Heritage Committee" as a government consultative organisation, the priorities of the government, and the norms of Macao's archaeological works, museums, libraries, archives, etc.

As the *Plan for the Protection and Management of the Historic Centre of Macao* is an important administrative regulation in the *Cultural Heritage Protection Law*, a public consultation was undertaken. The announcement of the Plan will further improve the legal system for cultural heritage protection in Macao from an operational perspective. The study and formulation of the guiding principles for technical protection of cultural heritage is also underway at the medium-micro level[16]. The operation and integration of these specific policies and regulations will need to be reviewed at a later stage. This is also the core factor for exploring and developing Macao's cultural heritage protection in the legal system in the future.

Table 3-1
Relevant Laws, Regulations, Guidelines and Directives for the Protection of Macao's Cultural Heritage after the Inscription on the World Heritage List

No.	Name	Content
1	Chief Executive Directive No. 202/2006	Geographical scope and protective areas of the monuments, buildings of architectonic interest, ensembles and sites classified as the "Historic Centre of Macao"
2	DSSCU's Internal Administrative Guidelines 2007	Overview of urban planning and introduction to zoning regulations
3	Chief Executive Directive No. 83/2008	Determining the maximum height allowed for buildings constructed in the area around the Guia Lighthouse
4	Law No. 10/2013	*Land Law*
5	Law No. 11/2013	*Cultural Heritage Protection Law*
6	Law No. 12/2013	*Urban Planning Law*
7	Administrative Regulation No. 3/2014	The Urban Planning Committee
8	Administrative Regulation No. 4/2014	The Cultural Heritage Committee
9	Administrative Regulation No. 5/2014	Detailed Rules for the Implementation of the *Urban Planning Law*
10	Directive No. 172/2015 of the Secretary for Social Affairs and Culture	In accordance with the provisions of No. 11/2013 *Cultural Heritage Protection Law*, a temporary buffer zone is established in the classification procedure of the Former Municipal Ranch site and the Municipal Kennel.
11	Administrative Regulation No. 1/2017	Classification of monuments and buildings of architectonic interest and establishment of a buffer zone
12	Directive No. 3/2018 of the Secretary for Social Affairs and Culture	Establishment of a temporary buffer zone in the classification process for the Lai Chi Vun Shipyard
13	Administrative Regulation No. 31/2018	List and diagrams of classified immovable properties and buffer zones
14	Administrative Regulation No. 33/2018	Classifying the Lai Chi Vun Shipyard and establishing a buffer zone
15	Directive No. 130/2018 of the Secretary for Social Affairs and Culture	Establishment of a temporary buffer zone in the classification process of Sin Fong Temple, House at No. 6 Calçade do Gaio, St. Miguel Arcanjo Cemetery (the former Western Cemetery), and Feira do Carmo (the former site of the Taipa Municipal Market)
16	Chief Executive Directive No. 234/2018	Preparation of a draft of the Urban Master Plan for the Macao SAR
17	Administrative Regulation No. 31/2019	Classification of the second batch of immovable properties
18	Directive No. 200/2019 of the Secretary for Social Affairs and Culture	Inclusion of several items on the *List of Intangible Cultural Heritage*
19	Directive No. 106/2020 of the Secretary for Social Affairs and Culture	In accordance with the No. 11/2013 provisions of the *Cultural Heritage Protection Law*, temporary buffer zones were established in the classification process of Shek Kam Dong, Sam Shing Temple (Ká Hó), the House at No. 2, New Road S. Francisco Garden, and Notre Dame Village in Ká Hó (the Former Site of the Leprosy Home and Recreation Room).
20	Administrative Regulation No. 37/2021	Classification of the third batch of immovable properties
21	Chief Executive Directive No. 168/2021	Approved *List of Ancient and Famous Trees*
22	Administrative Regulation No. 7/2022	Urban Master Plan for Macao SAR 2020-2040

3. Exploration of Diversified Models for Protection and Adaptive Reuse

After the inscription on the World Heritage List, the Macao SAR Government followed the fundamental principle of renovating heritage buildings, and invested heavily in a series of painstaking and thorough protective measures on the historic buildings and public spaces in the key areas of the World Heritage Site. Projects included restoration of more than 30 heritage buildings, like the Mandarin's House, Lou Kau Mansion, St. Dominic's Church, St. Lawrence's Church, and the Ruins of St. Paul; the landscape reformation and revamp of public spaces in Senado Square, Lilau Square, Cathedral Square, and Tap Seac Square; and the implementation of adaptive reuse for some historic buildings. The case of the Tak Seng On pawnshop museum was a small-scale pioneer attempt to preserve and manage cultural heritage through a public-private partnership (Figure 3-2). From an operational perspective, the guiding principle of "Protection and Rational Utilisation" was enacted to protect Macao's cultural heritage, to preserve the original value of the buildings, and to consider the business development, utilisation and operation of the buildings. Community investment on heritage preservation is encouraged by the government through land exchange and tax exemptions. The historic buildings have been restored and protected by cooperation among government, private owners and social organisations through acquisition, negotiation and exchange. With the help of modern technology, materials and design, the appropriate use of old buildings can be achieved, and the historic space can be retained to accommodate modern requirements.

The preservation, management and revitalisation of Macao's cultural heritage are characterised by the location and features of the various heritage assets. For instance, under the overall heading of World Heritage of the "Historic Centre of Macao", some well-recognised heritage sites and relics were grouped to form trails to deepen visitor experience. A number of projects were completed to transform built heritage resources into thematic museums, exhibition halls and showrooms, like the Former Residence of Ye Ting, the Tak Seng On pawnshop museum, the Patane Night Watch House, the Na Tcha Exhibition Room, the Exhibition Room of Master Lu Ban's Woodcraft Works, the Treasure of Sacred Art of St. Joseph's Seminary, and No. 80 Rua das Estalagens (Figure 3-3). The aim was for them to showcase different historical themes, such as the red culture in modern Macao, traditional industries and beliefs, Chinese traditional craftsmanship, cultural exchange between China and the West, Macao's urban development, and the history of travelling abroad. There were also projects to integrate different spaces with the concept of a modern city and community life to provide the local people with venues for cultural, educational, entertainment and charitable activities. Some examples are the Tap Seac Central Library, the Patane Library, the Music School of the Macao Conservatory, Cinematheque, and Academia Jao Tsung-I. There were also strategies for revitalising and altering heritage buildings to provide creative commercial sites for cultural, arts and design businesses, and to foster a cosy common area for both local people and visitors, including projects such as the 10 Fantasia-A Creative Industries Incubator, the Characteristic Shop of St. Lazarus Parish, Albergue da Santa Casa da Misericórdia (Figure 3-4), the G32 Gallery and the Ox Warehouse. These projects transformed the revitalisation and management of heritage from a passive approach to the direction of diversified protection and adaptive reuse. The core idea was to preserve and maximise the value of the heritage and to drive the protection and utilisation of heritage through sustainable development with comprehensive integration into economic activity.

Figure 3-2
The Tak Seng On pawnshop museum, a new public-private partnership preservation model

Figure 3-3
Restoration and alternation project at No. 80 Rua das Estalagens

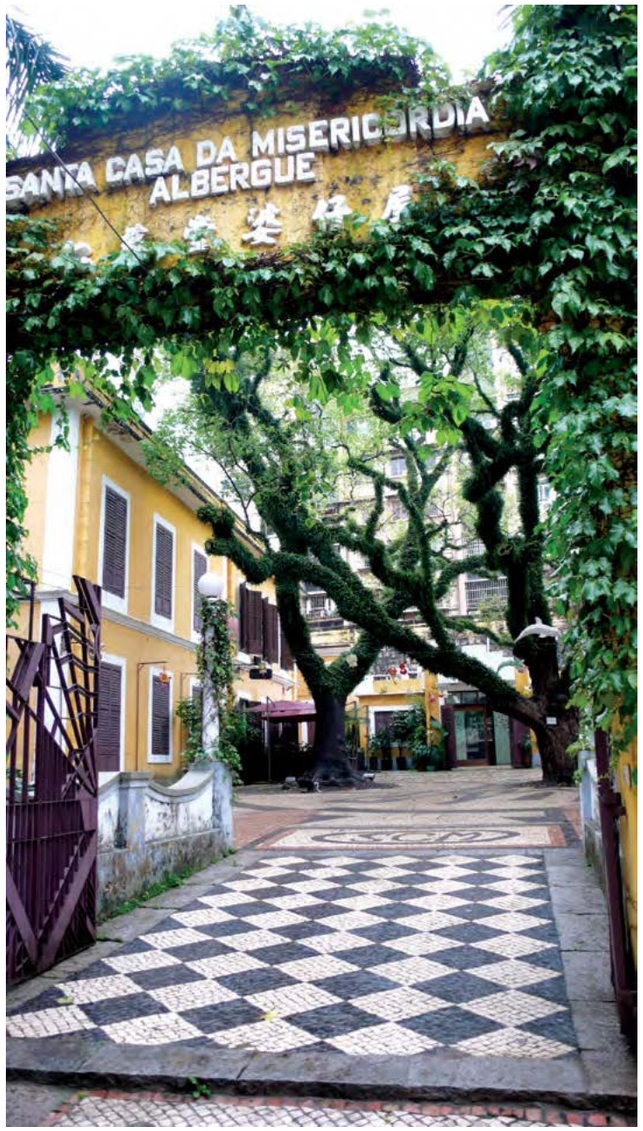


Figure 3-4
Albergue da Santa Casa da Misericórdia

4. Integration with Public Participation and Social Education

The protection and management of Macao's world heritage is not only an important responsibility of the Macao government, but also an obligation for all the local people. The sustainability of cultural heritage protection, to a large entent, depends on the extent of public participation. Thus, social education on cultural heritage is crucial for accelerating the interaction between local people and their heritage. Before Macao's return to China, public awareness of the value of participating in heritage protection was little, as the effort was limited only to the contribution of the Portuguese-Macao elite in the government. After the return to China, with the conflict arising between the rapid growth of social and economic development and the protection of cultural heritage, a large number of protection campaigns were implemented from bottom to top in Macao, proclaiming an intense identity of collective memory and a sense of social participation among the Macao people, especially the younger generation.

Henceforth, the Macao SAR government reinforced public engagement in the protection of cultural heritage, focusing especially on education and promotion of World Heritage in the community and among adolescents. In terms of social marketing of World Heritage, the Cultural Affairs Bureau of Macao has organised a series of activities, such as seminars and exhibitions, publications, research awards, cultural lectures and competitions, to keep promoting the protection of culture heritage[17]. Efforts have extended to organise activities related to World Heritage and intangible cultural heritage in the historic centre[18]. Regarding education, various government departments and social institutions have organised promotional activities and vocational-training programmes for teenagers of secondary and tertiary level educational institutions, such as the "Heritage Ambassadors Training Programme", the travelling exhibition "Macao Heritage Architecture Exhibition" for secondary schools[19], the "Training Programme for Student Researchers of the Museum"[20], the "Cultural Heritage Specialist Guide Programme"[21], and "Our Home, the World Heritage – Campus Promotion Plan for the Historic Centre of Macao"[22]. The "Heritage Ambassadors Training Programme" in 2001 was particularly successful. A group of young students were trained in professional knowledge and skills related to Macao's cultural heritage to offer free guided tours. This promoted knowledge of Macao's heritage from the perspective of local residents and intensified the young people's sense of cultural identity and awareness of the importance of heritage protection. On this basis, the Macao Heritage Ambassadors Association and other cultural heritage protection associations were set up to promote the importance of the public's participation in preserving Macao's cultural heritage.

IV. Conclusion: Sustainable Development for Macao's World Heritage in the "Post-Inscription" Era

In the more than 400-year history of Macao's urban development, the city evolved from a small fishing village to an international city, benefiting from its strategic advantage as a port city during the development of international trade (Figure 4-1). With its return to the motherland in 1999, the opening up of the gambling industry, and the successful inscription on the World Heritage List, Macao underwent unprecedented economic development and entered a period of pluralistic social transition. Given the new momentum of city development, Macao's cultural heritage was placed in a new position in both national and regional respects.

The "post-inscription" era offers myriad opportunities and challenges. Based on the master plan of Macao in the new era, we should promote and enhance the diversified values of Macao's World Heritage and pay attention to its role in enhancing Macao's competitiveness and the development of sustainable living environment. Under the national strategic guidance of "The Belt and Road Initiative" and the "Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area", the protection and management of Macao's World Heritage should adhere to inter-city coordination and cooperation in the region, and the integration of culture and tourism, with an open-minded and mutual-learning approach to function as a bridge to cultivate the international influence of Chinese culture and Macao's local culture. We should also integrate the preservation and adaptive reuse of Macao's cultural heritage with urban planning and development projects to achieve effective protection, scientific management and collaborative innovation. This sustainable development proposal also

Figure 4-1 Macao: A world tourism and leisure centre and cultural capital

integrates the concepts of city renewal, tourism, cultural industries, a green, low-carbon policy, and science and technology as a whole. With the aid of international standards, the foundation of a systematic and standard legal system, and appropriate public administration mechanisms, the adaptive reuse of cultural heritage resources with the engagement of society at large becomes more possible. These efforts will help realise the ideal of "Beautiful Home" with the harmonious development of the people, city, environment, and industry; help set a path as a "World Tourism and Leisure Centre" suitable for living, employment and tourism; and finally form a "Macao mode" of preservation and development. It is believed that with the promulgation of the *Urban Master Plan for the Macao SAR 2020-2040*, the Macao's World Heritage will enter a new chapter in the "post-inscription" era.

[1] At the 29th Session of the United Nations Educational, Scientific, and Cultural Organisation (UNESCO) World Heritage Committee in Durban, South Africa, there was unanimous approval to include the "Historic Monuments of Macao" nominated by China on the World Heritage List. At the same time, at the suggestion of the International Council of Monuments and Sites (ICOMOS), the State Party agreed and the World Heritage Committee recommended that the name of the nominated property be changed into the "Historic Centre of Macao".

[2] The "Historic Centre of Macao" is located in the old town in the central and south parts of the Macao Peninsula and covers a total area of 1.23 km2. It consists of two zones: Zone One is the central area located between Monte Fortress and Penha Hill, comprising eight forecourts, 22 classified historic buildings, and the streets connecting the forecourts and historic buildings; and Zone Two is Colina da Guia and its buffer zone, with Fortaleza da Guia (Guia Fortress) the core building.

[3] For instance, there are the earliest Catholic structures, the oldest church ruins, the oldest Western-style fortresses, the oldest missionary training compounds, the oldest Protestant cemetery, the first Western-style theatre, the first modern lighthouse, the first Western-style university, and the first Western-style hospital. *Macao: The World Heritage Information Kit* (Chinese edition) (Macao: Instituto Cultural of Macao, 2005), pp. 135-136.

[4] *Macao: The World Heritage Information Kit* (Chinese edition) (Macao: Instituto Cultural of Macao, 2005), p. 132.

[5] Both the reconstruction plan of St. Paul's Church in 1904 and the protection policy of the Ruins of St. Paul's in 1926 indicated that the architectural restoration policy of Macao was influenced by the ideas of "anti-restoration for heritage preservation" in Europe and Portugal at the time. Lui Chak Keong: *Beyond Memory: Looking Back at the Architectural Conservation in Macao in the Twentieth Century*《記憶之外：走回20世紀看澳門建築保育》(Hong Kong: Joint Publishing (H. K.) Co. Ltd.三聯書店香港有限公司, 2020).

[6] In 1953, during the administration of Governor Joaquim Marques Esparteiro (1895-1976; governorship: 1951-1955), a committee was established to classify memorials, movable and immovable properties of public value, and the archaeological, historical, artistic or landscape value of elements or groups [of historic sites]. This was the first time that Macao officially paid attention to the city's heritage work in written form. In 1960, a new working group was appointed by Governor Jaime Silverio Marques (1915-1986; governorship: 1959-1962), but no local laws on the protection of cultural heritage were formulated at the time.

[7] The concept of cultural heritage conservation was limited to individual Western churches, palaces, fortresses and batteries at the time.

[8] The restoration of Lou Lim Ieoc Garden and the Holland Park Road Ensemble resulted in the PATA Heritage Awards in 1982.

[9] The Heritage Hotel of Forte de Santiago won a PATA Heritage Award in 1984.

[10] In September 2004, the Tak Seng On pawnshop museum was given an Honourable Mention in the "2004 UNESCO Asia-Pacific Awards for Cultural Heritage Conservation".

[11] In the 1960s, only the framework of heritage buildings and protected areas were set. In 1976, the first statutory list of protected properties and sites was established to protect the individual architectural buildings and the surrounding landscape environment, forecourts and natural area landmarks.

[12] Research suggested dividing the area from Ha Wan to Bishop's Hill into four functional zones according to their characteristics and position of advantages: (1) the area from Fortaleza do Bomparto to Penha Hill, (2) the area surrounding Lilau Square, (3) Travessa do Mata-Tigre and Rua da Praia do Manduco, and (4) the area from Pátio Da Claridade to the Inner Harbour Dock. Three studies on the Inner Habour area were proposed: the first was to study the arcades and colonnades in the Inner Harbour area, to create a colonnade cultural area from Rua da Praia do Manduco to Patane; the second was to put forward suggestions on the renovation of the Inner Harbour and convert the warehouse space to community facilities; and the third was to revitalise the surrounding village areas of Pátio Da Claridade and Rua da Praia do Manduco. "Revitalisation of the Lilau and Mandarin's House"〈亞婆井鄭家大屋周邊活化〉, *Macao Daily*《澳門日報》, 2012.12.13, See http://www.zhmo.cn/article-60185-1.html.

[13] It was stipulated in Decree No. 34/76/M that a protected area be delineated around each building and that the boundary of the protected area be within a radius of 100 metres, with the protected building as the centre.

[14] *The Cultural Heritage Protection Law* came into effect on 1 March 2014. It states the definition of cultural heritage, the scope of protection, and the classification procedures and standards of cultural heritage, which was of profound significance for the implementation and development of the protection of Macao's cultural heritage.

[15] *The Urban Planning Law* came into effect on 1 March 2014, setting out the legal status of urban planning and Macau's planning mechanism with both master and detailed planing as the core. It stipulated the authority of the Urban Planning Committee and the Land and Urban Construction Bureau (DSSCU). The basic procedure for formulation and implementation of urban planning was set out, with details on public participation, implementation, revision and compensation.

[16] For instance, the Cultural Affairs Bureau of Macao entrusted Tongji University to compile the *Technical Guide for the Restoration of Buildings in the Historic Centre of Macao* (2021), and entrusted the Chinese Academy of Cultural Heritage to prepare the *Monitoring and Alert System for World Heritage of the Historic Centre of Macao* (2020).

[17] Several international academic conferences were organised, namely, the "modern Asian Architecture Network (mAAN) International Conference", the International Symposium for the "Protection of Urban Cultural Heritage – Macao's Vision", "The 2nd Asian Academy for Heritage Management (AAHM) Conference: Urban Heritage and Tourism – Challenges and Opportunities", and "The 7th World Heritage Forum". Other efforts and programmes included organising the "Award for Study Projects on History and Culture", publishing feature articles in the *Review of Culture*, financial support for the publication of research related to Macao studies, and subsidizing local organisations to carry out programmes to study Macao's intangible cultural heritage and history, with the publication of a book titled *Intangible Heritage of Macao*. A number of public programmes were organised, including the "Macao's Cultural Heritage Art Exhibition", the "A Gathering in Time and Space: the Historic Centre of Macao Exhibition", "Chinese Treasures – Monuments and Sites in China Bidding for UNESCO World Heritage Listing Exhibition", and a workshop titled "Touching the Intangible Cultural Heritage". Furthermore, many activities were organised in the community and tourist attractions, such as roving promotional programmes, travelling cartoon exhibition panels, and a parent-child hand puppet theatre, to popularise knowledge of Macao's cultural heritage and to advocate the vision of "Cultural Heritage – Join Hands to Protect and Enjoy".

[18] For instance, Chinese craftsmanship masters were invited many times to demonstrate traditional techniques in Lou Kau Mansion. Concerts were arranged in Holy Rosary Church and the Dom Pedro V Theatre. "Variety Performance of Intangible Cultural Heritage" was arranged at Largo da Companhia de Jesus, and "Cultural Heritage Tours of Macao Design Competition" was organised. Other activities included the launch of "Macao Heritage Net", the publication of a booklet titled *The Historic Ensembles of Macao*, organising "Classes to experience shipbuilding technology", a photography workshop on the history of Jiuao Virgin Village, a themed lecture on "Fun Cultural Heritage", and activities for "China Cultural and Natural Heritage Day", which started in 2006.

[19] These two activities under the "Promotion Plan for Macao's Cultural Heritage" were jointly initiated by the Cultural Affairs Bureau of Macao and Hou Kong Junior Chamber.

[20] Starting in 2006, the Municipal Affairs Bureau and the Macao Association for Historical Education jointly organised a programme in which 120 teenagers were trained to participate in research activities in local museums. Outstanding students were selected to provide tour guide services at the Leal Senado Building and Taipa Houses.

[21] In 2005, the UNESCO-ICCROM Asian Academy for Heritage Management (AAHM) launched a regional certification scheme for tour guides who completed a courses in a programme titled "Cultural Heritage Specialist Guide Training and Certification for UNESCO World Heritage Sites". The Macao Institute for Tourism Studies, a regional training centre, undertook the education and certification of the course. On 10 July 2007, eight of the first 28 graduates were honoured by being selected to become the world's first supervisors of the specialist tour guide for culture heritage recognised by UNESCO; 20 of them became specialist tour guides in the Historic Centre of Macao and were awarded with badges and certificates.

[22] To promote Macao's cultural heritage to about 100,000 teachers and students in the basic education system, activities were launched for two years through the cooperation of the Macao Foundation, the Macao Institute for Tourism Studies, the Macao Association for Historical Education, and all primary and middle schools of Macao in 2007, including the publication of *Historic Centre of Macao – Popular Reader of Campus*, training campus commentators of cultural heritage, Field Study of the Historic Centre of Macao, "Knowledge of Macao's World Heritage" inter-school quiz competition, and Award for Study Projects on the Historic Centre of Macao.

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Conservation and Revitalization of the Dapeng Fortress in Shenzhen

——The Finest Example of a Coastal Fortress

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Abstract

The *San On (Xin'an) Gazetteer* states that, "among all coastal fortresses, Dapeng is the finest". The quote originally suggested that this was "because of the location, for being strategically best located". In 1996, Zhang Wenbin, the then director of the National Cultural Heritage Administration, inspected Dapeng Fortress and inscribed the same comment, but the word "finest" bore a different connotation from the heritage preservation perspective, suggesting that Dapeng Fortress has become the best-preserved Ming and Qing coastal defence remains on China's 18,000-kilometre coast. Besides, it is also a prominent example of the traditional *tunbing* military system and defensive fortress construction in China. Historically, Dapeng City, Kowloon Walled City and Tung Chung Fort jointly guarded the left maritime route at the mouth of the Pearl River. It was the gateway to the provincial capital and the key to the Pearl River. It was the historical defence stronghold in the fight against foreign aggression in the Ming and Qing dynasties, and an important symbol of the history and culture shared by Shenzen and Hong Kong. The preservation of the Dapeng Fortress involved making use of archaeology and historic building surveys as the basis for planning and repairs to ensure the authenticity and scientific foundation of the conservation work. The revitalization of built heritage is like "filling old bottles with new wine". The conservation of the Dapeng Fortress reflects as much as possible the cultural characteristics of a coastal defence fort in the Ming and Qing dynasties, and highlights its function as a patriotic education base which serves the people of Shenzhen and Hong Kong by providing a better understanding of local history and culture. It offers venues and systems for participatory and interactive experiences as far as possible, so that visitors can experience an environment that is different from that in which they work and live. In addition, it also creates an international tourist destination that organically blends together culture and nature, and tradition and modernity.

Dapeng Fortress, which full name is "Dapeng Fortress Guarding a Thousand Households", was built in the 27th year of the Hongwu reign of the Ming dynasty (1394), and has a history of nearly 630 years. Dapeng Fortress, along with Kowloon Walled City and Tung Chung Fort, guarded the left maritime route of the Pearl River Estuary and was the gateway to the provincial capital and the key to the Pearl River. It played a major role in battles against Japanese pirates, and the Portuguese and British colonialists in the Ming and Qing dynasties. It was a witness to the defence against foreign aggression in the Ming and Qing dynasties, so it was an important bearer of the common history and culture of Shenzhen and Hong Kong.

According to the Kangxi period *San On Gazetteer*, "among all coastal fortresses, Dapeng Fortress is the finest." This quote was then used to suggest that it was the fortress with the most strategic location. Nowadays, the same quote is used to refer to the fortress as the best-preserved: The Dapeng Fortress is the best preserved Ming and Qing period coastal defensive remains along the 18,000-kilometre coast of China. With an area of about 100,000m^2, it comprises nearly 1,000 buildings of various types, which formed the size, pattern and overall scene of the city when it was founded in the early Ming dynasty. Today, ten mansions have been preserved in the style of the Qing dynasty, like the Residence of General *Zhenwei* Lai Enjue, the Naval Commander-in-chief in Guangdong, and the Mansion of General Liu Qilong, the ruins of administration offices of the Deputy Generals and the Deputy Magistrate, as well as old temples, like the Hau Wong Temple and the Tin Hau Temple, which have great historical, scientific and artistic value. In 2001, Dapeng Fortress was added by the State Council to the fifth batch of Major Historical and Cultural Site

Protected at the National Level. In 2003, Pengcheng village, where Dapeng Fortress is located, was promulgated as a "Chinese Historical and Cultural Village". Dapeng Fortress is also a patriotic education base of Guangdong province, at the head of the list of "Shenzhen's Top Eight Scenic Spots", among the "Top Ten Cultural Spots of Shenzhen", and is at the head of the list of "Ten Characteristic Cultural Streets of Shenzhen".

The conservation of Dapeng Fortress used an archaeology and historic building survey as the basis for the planning and renovation to ensure the authenticity and scientific foundation of the conservation works. The historical information of Dapeng Fortress was preserved as much as possible. The environment was enhanced, and the comfort of visitors and learners was improved. The revitalization of cultural relics was like "new wine in an old bottle". It highlighted the cultural characteristics of the fortress as a defensive structure in the Ming and Qing dynasties and its function as a patriotic education base that can serve the people of Shenzhen and Hong Kong in disseminating local history and culture. It offers venues and an environment for maximum participation and interactive experiences. It allows people to experience the history of the setting closely and nurtures their cultural confidence and identity. It has become an international tourist destination that blends culture and nature, as well as tradition and modernity.

I. History of Dapeng Fortress

1. Establishment and Development

In the early years of the Ming dynasty, the Ming court established a Fortress Guarding a Thousand Households in the Dapeng Peninsula because of its excellent strategic location. They deliberately established a dedicated fortress with separate beacon towers, guarded by hereditary soldiers who cultivated the fields and guarded the land in rotation to prepare to defend it against Japanese pirates. Although the Dapeng Fortress Guarding a Thousand Households was administratively under Nanhaiwei (*wei* means guard), it had the same grade structure and establishment as Nanhaiwei. The Dapeng Fortress Commander, Gao Xuan, was from Queshan in Henan province. His forefather, Gao Li, had been transferred to Dapeng Fortress as a thousand-household officer in the fifteenth year of the Yongle reign of the Ming dynasty. Gao Xuan inherited the rank and was promoted to Commander.[1] The stationing of a Commander in the fort reflected the importance of Dapeng Fortress.

Under the Dapeng Fortress Commander, there were also a thousand-household officer and deputy-thousand-household officers. The thousand-household officer was in charge of the seal and was at the upper fifth rank. The deputy-thousand-household officers were assistants in administrative affairs and were at the lower fifth rank. There were also hundred-household officers, who were at the upper sixth rank, and *zhenfu* officers at the lower sixth rank, responsible for military punishment and imprisonment. In addition, there were other officials, such as the chief clerk for the advisors, and the supervisor of clerical officers. "Dapeng Fortress included one thousand-household officer, one deputy-thousand-household officer, ten hundred-household officers, one *zhenfu* officer, one chief clerk for the advisors, and one supervisor of clerks".[2]

In the Qing dynasty, the status of Dapeng Fortress was continually raised, from a defence camp in the early Qing dynasty to a naval camp, from being commanded by a defensive garrison officer (*chengshou shoubei*) to a general (*canjiang*), then from a camp (*ying*) to a battalion (*xie*), and finally to the higher military garrison status under the command of a deputy general of the second rank. After the signing of the three Treaties, the sea area of Shenzhen and Hong Kong under the jurisdiction of Dapeng Fortress was ceded and, under force, leased to the British. Although the battalion status of Dapeng Fortress was not reduced, the military facilities, such as forts, batteries, bastions and outposts within its jurisdiction were diminished. During the period of the Republic of China, Dapeng Fortress lost its function of marine defence, which had lasted more than 500 years, and became the seat of the Dapeng District Office, the administrative centre of Dapeng Peninsula, which governed the four townships of Kuihua (Kuichong), Wangmu, Dapeng and Nanping[3] making up the current Dapeng New Village.

In the early years of the Qing dynasty, with the Qing government increasing its military presence in coastal areas, Dapeng Fortress gradually became a key area for maritime defence, and its strategic status was continually enhanced. After the lifting of the "Coastal Evacuation" Policy, Dapeng Fortress was a defence camp, and a defensive garrison officer was set up. In the middle of Kangxi reign, Dapeng was promoted from a "defence camp" to a "naval camp", and the number of cannons was increased to 118, enhancing the defence strength of the fortress.

At the beginning of the Qing dynasty, Dapeng Fortress had one defence officer (*fangshou qianzong*) in charge of 300 soldiers. In the fourth year of the reign of Shunzhi (1647), anti-Qing rebels, led by Li Wanrong, attacked and captured Dapeng Fortress, and were offered amnesty and enlistment in the thirteenth year of the reign of Shunzhi (1656) by Huang Yingjie, the chief troop officer. Fu Erzhi, magistrate of Xin'an County, requested that Dapeng Fortress be re-established as a defence camp with one defensive garrison officer, one *bazong* officer, and 500 soldiers.[4] During the process of the "Coastal Evacuation" in the early Qing dynasty, Dapeng Fortress, as the military organ to excute the evacuation policy of the imperial court, did not move out. Dapeng Fortress had its land access at the boundary with Guishan County, so that the officers and soldiers could transport food and get passed, after local officials checked the permits.[5] In the seventh year of the reign of Kangxi (1668), the Dapeng Fortress defence camp was changed to the jurisdiction of the Deputy General of the Huizhou Battalion. In the forty-third year of Kangxi (1704), the defence camp was changed to a naval camp, and was promoted to a guerrilla (*youji*) camp with 931 soldiers.[6] At that time, the camp controlled nine outposts: Kowloon, Lantau, Yantian, Shangtong Tang, Guanhu Tang, Xiashatang, Laodapeng, Hongxianglu and Tung Chung Estuary. This included three forts: Lantau, Tuoning and Fat Tong Mun. The defensive stations had 168 cannons in all.[7] Dapeng Fortress's defensive area was expanded to the entire sea area around today's Hong Kong.

In the fourth year of the reign of Yongzheng (1726), the Dapeng Camp was promoted from a guerrilla camp to a general (*canjiang*) camp, and jurisdiction over it was changed to the Guangdong Land and Water General. In the fifteenth year of the reign of Jiaqing (1810), the land and water governing area was split. Guangdong added a Naval Commander-in-Chief, stationed in Humen and set up five camps; the left camp was stationed in Xin'an county city, while Dapeng was an outer sea naval camp, still ranked as a general camp with 800 troops.[8] In the eleventh year of the reign of Daoguang (1831), with the increasing threat of opium smuggling and Westerners coming to the East, the Dapeng Camp had wide jurisdiction and was difficult to defend. The Imperial Court divided the Dapeng Camp into left and right camps; the left camp was stationed in Dapeng City, and the right camp was stationed in Tung Chung Fort on Lantau Island.

In the ninth month of the nineteenth year (1839) of the reign of Daoguang, Britain was provocative, resulting in the Naval Battle of Kowloon. Chinese officers and soldiers in Kowloon, Chuenpi and Kwun Chung Hill at the Pearl River Estuary repelled the British colonial invaders eight times. The Dapeng Camp's jurisdiction of the sea covered the Hong Kong and Kowloon areas, which were coveted by the British. In order to strengthen the defences, in the twentieth year of the reign of Daoguang (1840), Lin Zexu, in his *Request to the imperial court to promote Dapeng from a camp to a battalion*, wrote: "I humbly report that Guangdong Humen Haikou is a strategic area in the central route … west, Xiangshan, and east, Dapeng, form the two wings". He recommended that the camp be changed to a battalion, and that a deputy general be appointed to govern the area, equivalent in rank to the leader of the Xiangshan Battalion. He also expounded on the importance of the Dapeng Camp's jurisdiction over the sea. After the approval of the imperial court, Lin Zexu was to send the deputy general of the Dapeng Battalion to Kowloon Hill to command at the front.

The Dapeng Battalion lasted until 1902. Chen Shangfa, the deputy general, died in office. He Wenpu, who succeeded Chen Shangfa, remained in Dapeng Fortress. The residence of He Wenpu is preserved in the fortress. There is no clear document indicating when the deputy general post was terminated.

2. Historical Events

After the founding of Dapeng Fortress, it became a military stronghold in southern China's maritime defence. The fortress fought against the Japanese and pirates, and guarded the sea border during the Ming and Qing dynasties. The fortress played an important role in a series of anti-foreign conflicts in the Ming and Qing dynasties, including the battles against the Japanese pirates and the Portuguese in the Ming dynasty, against the British in the Qing dynasty, and against the Japanese in the modern period. The fortress became a stronghold in the southern borderland and a gateway to the Guangdong Sea. The Battle of Kowloon, which erupted in 1839, was a major historical event which affected the historical process of China. It demonstrated the historical value of Dapeng Fortress, leading to its becoming a Major Historical and Cultural Site Protected at the National Level.

(1) Building the Fortress

In the twenty-seventh year of the reign of Hongwu in the Ming dynasty (1394), Zhang Bin, the thousand-household officer of the left guard (*zuowei qianhu*) of Canton, was ordered to build Dapeng Fortress. The site was initially located in Xichong, south of Dapeng Peninsula, but construction was suspended for some reason. The current site was selected when construction resumed. Dapeng Fortress was at the foot of Dapeng Mountain, 120 miles[9]

to the east of the county city, paved with bricks and stones inside and outside the city wall. Among all coastal fortresses, Dapeng Fortress was the finest. The city wall was 1,084m long, 6m high and 2m wide; the width of wall foundation was 4.6m; and there were four gate towers. The city wall had 654 battlements, and the east, west and south parts of the city were surrounded by water. The city was surrounded by a ditch that was 1,325m long, 5m wide and 3m deep.[10] There were administrative office buildings, temples, residential houses, and other facilities, such as water wells, with North and South Street as the central axis, distributed according to the "left hall, right bedroom" layout. More than one thousand large and small dwellings were distributed in an orderly manner. Dapeng Fortress has preserved the scale, layout and overall style of the initial stage of its construction, making it an important example for the study of historical defensive fortress construction in China.

(2) The Younger Kang defends the city

According to the Kangxi period *San On Gazetteer*, "in the fifth year of the Longqing reign of the Ming dynasty (1571), Japanese pirates attacked Dapeng Fortress. Standing against the enemy was a *sheren* official, Kang Shoubai. The Fortress was besieged for more than 40 days, and the enemy placed ladders against the city walls. Kang Shoubai called for everybody to stand fast. He killed the enemy who climbed up the city wall and crushed the ladder, helping relieve the city. The authorities rewarded him." Kang Shoubai was the fifth son of Kang Senior, the thousand-household officer in the city. *Sheren* was an official rank of inheritance from his father rather than a military rank. When the main force guarding the fortress was transferred to other places to fight Japanese pirates, the fortress was weakly defended. At that critical moment, Kang Shoubai led the troops and people in the city to defend it bravely. Although Kang Shoubai was not a military officer, he loved martial arts from childhood. He imitated his father in troop manoeuvers and formations, and he had some military knowledge. He resisted the enemy for more than 40 days and defeated the Japanese pirates.

Regarding the surname Kang in Dapeng Fortress, the "Treatise on Officials" in the Kangxi period *San On Gazetter* recorded that Kang Shijie was formerly from Taihe county, Ji'an prefecture, Jiangxi province. His forefather was Kang Ning. He was transferred to Dapeng Fortress as deputy-thousand-household officer in the ninth year of the reign of Zhengtong in the Ming dynasty.

(3) Battle of Kowloon

In June 1839, Lin Zexu destroyed British opium stocks on Humen beach, shocking other countries and hitting the British colonialists heavily. The Western colonialists, led by Charles Elliot, were unwilling to submit to the failure and sought opportunities to provoke the Chinese. On 7 July, several drunken British sailors beat villager Lin Weixi to death in Tsim Sha Tsui. Lin Zexu demanded the British to hand over the murderers, but Charles Elliot refused. In an effort to defend China's judicial sovereignty, Lin ordered that the British be cut off from fresh water and food on 15 August, and the Macao authorities were ordered to expel them from the country. Charles Elliot was in a difficult situation of "not being able to live on land in Macao and not being able to stay on waters in Tsim Sha Tsui".

On 4 September 1839, at noon, Charles Elliot led five fast boats to the sea near Kowloon, ostensibly to ask for food, but abruptly launched a burst of shells. The British aggressors' action aroused great indignation from the Chinese soldiers. The Dapeng Camp's General, Lai Enjue, immediately ordered the ships and the Kowloon Battery to counterattack and began a battle against the British invasion. Regarding the Battle of Kowloon, Lin Zexu reported to Emperor Daoguang: "the British bully the weak and fear the strong. It is their nature. My naval troops tried to avoid battles, only because I aimed to avoid provoking a war. But the British turned on my troops, thinking that we were not able to defeat them. This time, they dared to shoot first and injured our soldiers. If we fight hard, our troops will win even with few soldiers. This will be enough to terrify the enemy."[11]

The Battle of Kowloon was the first battle in the Opium War. The heroic battle of the Chinese defending troops, led by Lai Enjue, who attacked the aggressors, demonstrated the strength and conviction of the Chinese people in defending the sovereignty of the motherland.

(4) Building Kowloon Walled City

After the British colonists occupied Hong Kong Island in the twenty-first year of the reign of Daoguang in the Qing dynasty (1841), Kowloon, across the harbour, became the frontier against Britain. In the twenty-sixth year of the Daoguang reign (1846), Qi Ying, the Viceroy of Guangdong and Guangxi provinces, based on the advice of Huang Entong, the Governor of Guangdong province, and the Naval Commander-in-chief in Guangdong, Lai Enjue, advocated the establishment of Kowloon Walled City to the Imperial Court. Officials and people from all over the country contributed up to 468,693 silver dollars for the project. According to the estimation of Gu Bingzhang, a member of the Kowloon Walled City Project Supervisory Committee and the Guangdong probationary magistrate (*tongpan)*, the various expenditures included: "the construction of the Kowloon City wall, temples, government buildings, drill halls, army chambers, military warehouses, outposts, watch towers, fast boats, the reconstruction of the old Kowloon battery", and so on, would require about 26,700 silver dollars.[12] The final settlement of the project was 36,000 silver dollars. Because the money donated to build the walled city was already "surplus without waste", the Imperial Court ordered the donations stop. The donation enthusiasm reflected the indignation of Guangdong officials and people against the British colonialists.

The construction of Kowloon Walled City commenced in November 1846 and was completed in May 1847. Kowloon Walled City was built at the southern foot of the Pak Hok Mountain in Kowloon. The perimeter of the city wall was 600m, and it was 4m high. There was one gate in each of the east, south, west and north walls of the city. The south gate was the main gate, with an inscription of four Chinese characters in regular script for "Kowloon Walled City", with the signatures of Qi Ying, the Viceroy of Guangdong and Guangxi provinces, Huang Entong, the Governor of Guangdong province, and Lai Enjue, the Naval Commander-in-chief in Guangdong. Inside the city, there were a deputy general's office and 14 drill halls. On the east, west and south walls, 32 cannons were installed to keep the whole Kowloon Sea (Victoria Harbour) within its range. From then on, Kowloon City became the front-line defence against Britain.

3. Historical Figures

During Dapeng Fortress' 600-year involvement in combat against foreign aggression, there were many great generals, including Ming period Generals *Wulue*, Liu Zhong and Xu Xun, five generals of three generations of the Lai family in the Qing dynasty, a father and son of the Liu family, Yang Yaozong of the Yang family, and generals of the Li and Zheng families. During the War of Resistance Against Japanese Aggression, Dapeng people inherited the "courage and uprightness" of their predecessors. The heroes included Dai Ji, Lai Zhongyuan, Liu Heizai and Ke Caifeng.

(1) Liu Zhong, known as General *Wulue*, in the Ming Dynasty

Liu Zhong (1398-1443) was born in Jiangxia County, Wuchang Prefecture, Hunan Province. His father, Liu Yuan, was posted to Dapeng Fortress as a hundred-household officer in the twenty-nineth year of Hongwu (1397). Liu Zhong fell in battle in the eighth year of the reign of Zhengtong in the Ming dynasty (1443). He was given the title of General *Wulue*. His son, Liu Changyin, inherited the position of thousand-household officer. The tomb of Liu Zhong from the Ming dynasty is well preserved. The tombstone is inscribed with: "Tomb of Liu, the General *Wulue* of the Great Ming, and Wife, Du. Given name, Zhong. Born between 7 and 9 p.m. on the twenty-nineth day of the eighth month in the Wuyin year (1398), and died on the first day of the first month in the Kuihai year (1443). Wife, Du, was born between 3 and 5 a.m. on the twenty-second day of the eighth month in the Jiayin year and died on the sixth day of the eighth month in the Xuzi year. Buried in a plain grave in a *chou-gen* orientation among the pines on the ancestral Mokun Mountain. Renovated by the descendants of the three houses in the second year of the reign of Guangxu in the Qing dynasty."

(2) Liu Qilong, a Famous Qing Naval General

Liu Qilong (1772-1830) was named Zhensheng and was known as Yunqi. He was a native of Dapeng and was a famous general in the Qing dynasty. He joined the army in his early years and moved up through the ranks. He fought bravely and was given a leadership position. He was repeatedly recognised for unusual valour in "eighteen battles" in the coastal defence against Japanese pirates. In the eighth year of the reign of Jiaqing in the Qing dynasty (1803), he was a *bazong* officer in the right guard in the Pinghai Camp. From the twentieth year of the reign of Jiaqing, he became a defensive garrison officer in the Guangdong Navy and the chief troop officer of Nan'ao County. In the sixth year of the reign of Daoguang (1826), he was promoted to Naval Commander-in-chief in Fujian and was given the title General *Zhenwei*. General Liu Qilong spent almost his whole life fighting the enemies of the Chinese people. He was said to love the people as his own children, and to be honest and incorruptible. He won universal praise from the people of Pengcheng. According to the *Dictionary of Characters from Chinese History*, Liu Qilong was from Xin'an, Guangdong and was promoted in the army. He was made a naval commander-in-chief in Fujian after distinguished service in battle. The Mansion of General Liu Qilong has been well-preserved in Dapeng Fortress and is the site of the exhibition "Historic Traces of Liu Qilong", with free public admission.

(3) Lai Enjue, A Famous Anti-British General

Lai Enjue (1795-1850), also named Jianyan, was a native of Dapeng Fortress. In 1795, he was born in the Residence of General *Zhenwei* on Centre Street in Dapeng Fortress. He was a famous general in the Qing Navy. He won in all thirty-six battles he fought along the maritime border, and made an outstanding military contribution. On 4 September 1839, Lai Enjue, General of the Dapeng Camp, led the navy officers and soldiers to valiantly beat back the British colonialists invaders, led by Charles Elliot, thus winning the first battle of The Opium War – the victory of the Battle of Kowloon – creating the prelude to the modern history of China. The emperor bestowed Lai Enjue with the title "Huerchatu Hero", and promoted him to Assistant General. After the Battle of Kowloon, Lai Enjue served as Chief Troop Officer of Nan'ao and Naval Commander-in-chief of Guangdong. Hong Kong Island was ceded by the Qing Court despite the victory in the Battle of Kowloon. Because of that, Lai Enjue advocated the building of Kowloon Walled City to withstand the British invasion. Owing to corruption and declining national strength, Hong Kong was not recovered during the rest of his life. In his last wishes, he said: "I worry about corruption of the state, and I would be pleased to see the return of Hong Kong." In 1997, Hong Kong was returned to the motherland. The descendants of the Lai family inside and outside Hong Kong gathered in Dapeng Fortress to console progenitors with a dragon-lion dance. Today, the Residence of General Lai Enjue has been turned into the most significant heritage site protected at the national level in Dapeng Fortress. The Residence was leased to the Lai clan after renovation by the Dapeng Museum and is exhibited to the public for free.

(4) Dai Zhuomin, Leader of Labour Movement

Dai Zhuomin (1892-1931), also known as Dai Dongjing, used the name Huang Jizhong. He attended the Constitution Protection Movement of Sun Yat-sen at an early age. Then as he got more involved in the labour movement, he became the head of the Hong Kong Luen Yee Organization and had a good reputation and prestige among workers. In 1925, he was voted as an executive member when the All-China Federation of Trade Unions was established. He organized and led the Canton-Hong Kong strike, as the leader of the labour movement of China in the early phase. In 1931, Dai Zhuomin was betrayed and arrested in Shandong. He was cruelly tortured by the enemy. However, he remained faithful and unyielding. Even after the enemy shot him, they did not know his true name. There was a martyr named Huang Jizhong in the Chinese revolution, but Dai Zhuomin was missing. Dai Zhuomin and Huang Jizhong were identified as the same person by the Guangzhou Public Security Bureau only on 13 January 1990, which confirmed his status as a martyr. Dai Zhuomin was the representative of the faithful revolutionaries of Dapeng.

(5) Liu Heizai, the Anti-Japanese Hero

Liu Heizai (1919-1946), whose original name was Liu Jinjin, was a native of the Northeast Village in Dapeng Fortress, and was honoured as a "crack shot". In October 1938, he became more determined after the War of Resistance Against Japanese Aggression. In the spring of 1939, Liu Heizai joined the Communist Party of China. In December of the same year, he participated in the Huibao People's anti-Japanese guerrilla force, led by Zeng Sheng (later converted to the East River Column), and he was subsequently occupied in underground work. In early 1941, Yuan De, the President of the pseudo-Vigilante Organization, and several traitors were shot dead in Wangmuxu, Dapeng. In December 1941, Liu Heizai was appointed Deputy Captain and Captain of the Canton-Kowloon Short Gun Squad. On 1 May 1946, Liu Heizai was surrounded by the army of the Nationalist Party while dealing with a civil dispute on the boundary of Nanxiong County. He was shot in the thigh when he broke out of the encirclement, got tetanus and died at the age of 27.

II. Heritage Preservation

1. Declaration of a Major Historical and Cultural Site Protected at the National Level

Dapeng Fortress' successful declaration as a Major Historical and Cultural Site Protected at the National Level is a milestone in the conservation and utilization of Dapeng Fortress, implying the state's recognition of its heritage value. In Shenzhen, a place once self-regarded as "a small fishing village", the declaration marks a new stage for the Shenzhen people and

the Chinese people's perception of the history of Shenzhen. This includes the Shenzhen Municipal Government, which played a very significant role in the process, and subsequently upgraded the strength and speed of the conservation, promotion, and development efforts. As a heritage site with national protection, Dapeng Fortress received the most stringent and scientific protection under the *Cultural Relics Protection Law*. Furthermore, as Dapeng Fortress is the only Major Historical and Cultural Site Protected at the National Level in Shenzhen, it was awarded a series of national honours. In 2003, Dapeng Fortress was included in the first batch of "Famous Historical and Cultural Villages in China" by the Ministry of Housing and Urban-Rural Development and the National Cultural Heritage Administration. It is one of the 12 national-level famous villages in China and one of only two in Guangdong. Dapeng Fortress is protected under both the *Cultural Relics Protection Law* and the *Regulation on the Protection of Famous Historical and Cultural Cities, Towns and Villages*. Dapeng Fortress subsequently received the following honours, among others: the International Cultural Exchange Base for Overseas Chinese, Chinese Traditional Village, the Head of Shenzhen's Top Eight Scenic Spots, Guangdong Patriotism Education Base, the Top of Ten Cultural Spots of Shenzhen, and the Head of Ten Characteristic Cultural Streets of Shenzhen.

2. Collection of Artefacts

Since the establishment of Dapeng Museum, the management organization, in 1997, the collection of relevant artefacts was taken in Dapeng Fortress by museum staff. It is fortunate that Dapeng Fortress was treated as a cheap rental estate, and the owners' things were kept well by the tenants. Therefore, in the past two dacades, many historical exhibits were acquired and subsequently kept in the collection stores and the exhibition hall of the museum. The artefacts were mainly derived from the lofts of buildings in the historic city and the archaeological excavation and field investigations in the vicinity. These artefacts have witnessed six centuries of history of Dapeng Fortress and comprise a comprehensive chapter about the fortress. There are several types of collected artefacts:

Building components: A large amount of building components for city defence, such as bricks for the walls, and pebbles and bricks for the horse roads in the Ming dynasty, were collected. Building components of government offices in the Ming dynasty, such as tiles for the eaves, were exhibited accordingly. They bore witness to the Dapeng Fortress as an important coastal fortress in the Ming and Qing dynasties.

Stele Inscription: The following stele inscriptions were collected: "Tablet Inscription for Renovation of Dapeng Fortress", "Donor Names for the Temple", "Stele of Donors Helpful for Renovation of the City God Temple", "Stele of the Establishment", "Stele of the Merits of Liu Qilong", and "Zhao Gong Academy". There were also many tombstones. With the rich historical information and valuable calligraphy art, the inscriptions provide valuable documents and data for studying the historical development of Dapeng Fortress.

Paper Artefacts: A large number of paper artefacts were found in the Residence of General *Zhenwei* Lai Yingyang in the Centre Street of Dapeng Fortress: documents regarding landed properties, title deeds for land, house bills of lading, and rent of Lai's family. Two boxes of letters, old photographs and deeds were discovered at No.15 Shizi Street. A large number of paper artefacts, including Cao An's Guangdong-Hong Kong Workers Strikes Certificate, passports, business cards, bills and letters, were found at No.4 Nanmen Street. These paper artefacts are of sociological significance regarding Dapeng Fortress as a coastal defence settlement.

Gold and Silver Vessels: Gold and silver vessels were unearthed from a well behind the City God Temple of Dapeng Fortress. They were dated back to the late Ming dynasty according to the archaeological stratigraphy. They were exquisitely made and well preserved. They are records of an important historical period of Dapeng Fortress.

Porcelain: A large amount of porcelain wares and sherds were unearthed from sites at the north gate of Dapeng Fortress, the City God Temple, and the Zhao Gong Temple. These porcelain wares and sherds have helped integrate the general history of Dapeng Fortress to demonstrate that commerce in Dapeng Fortress was well developed in the Ming and Qing dynasties and was closely linked to the Maritime Silk Road.

3. Historical Research

It is significant to conduct the relevant historical study for upgrading the heritage value of Dapeng Fortress. We launched field investigations in Ming and Qing coastal defence sites in southeastern China, including the Zhenhaiwei site in Longhai, Fujian, and sites in Liuaosuo, Tongshansuo, Xuanzhongsuo, Dachengsuo, Haimensuo, Jinghaisuo, Jiazisuo, Jieshengsuo, Pinghaisuo, and Leminsuo (in the Leizhou Peninsula). A comparative study with Dapeng Fortress and literature research on the historical value of Lai Enjue's Battle of Kowloon resulted in the following findings:

(1) Dapeng Fortress is an example of China's *tunbing* system. There were two major traditional Chinese military systems: the *tunbing* system (hereditary soldiers rotating between farming and the military) and the *mubing* system (conscription). The *mubing* system was predominant. Historically, the *tunbing* system normally had a supplementary status, such as the *fubing* military system in the Tang dynasty and the hereditary soldiery system in the Yuan dynasty. In the Ming Dynasty, the *tunbing* system was implemented on a large scale. "Guards (*wei*) and battalions (*suo*) were established from the capital to the commanderies and counties." The guard battalion *tunbing* system became the system backing the standing army of the Ming military. Dapeng Fortress was built according to guard battalion *tunbing* system of the Ming dynasty, providing soldiers in Dapeng Fortress. As an example of the *tunbing* system in traditional China, preserved within the walls of Dapeng Fortress are elements of the military defence, the settlement of 3,000 soldiers and their families, and a city defence system, including residential complexes and fiefs, which the soldiers depended on for their livelihood; a system of post-roads and bridges; and five Ming period beacon towers (which were the eyes and ears of the Dapeng Fortress); an "Underwater Great Wall"; a battalion wall (*tunwei*), etc. This makes Dapeng Fortress one of the best-preserved Ming and Qing coastal defensive military fortresses along the 18,000-kilometre coast line of China and is the reason it was declared one of the early Major Historical and Cultural Sites Protected at the National Level among the Ming and Qing coastal defensive remains.

(2) Dapeng Fortress was the starting place of the Opium War and witnessed the beginning of modern Chinese history. The Battle of Kowloon, under the command of General Lai Enjue of Dapeng Fortress, was identified by Mou Anshi, a famous Opium War expert, as the beginning of the Opium War, namely the first phase of the Guangdong Battle in the three phases of the Opium War. In this phase, Lin Zexu made the proper arrangements, and Lai Enjue and Guan Tianpei were courageous and skilful in battle. The British colonialists had little advantage at this stage, though they had strong ships and armaments. In the process of going north, the British colonists sidestepped Nan'ao when they had learnt that the commander of the Battle of Kowloon, Lai Enjue, was in charge of the defence of Nan'ao. This illustrated the deterrent effect of the Battle of Kowloon.

4. Renovation of Cultural Relics

After being identified as the first Major Historical and Cultural Site Protected at the National Level within Shenzhen, Dapeng Fortress was valued highly by the Shenzhen Municipal Government, and a site meeting in Dapeng Fortress was attended by representatives of five leading national bodies: the Committee of the Chinese Communist Party, the People's Congress, the Central Government, the Chinese People's Political Consultative Conference, and the Commission for Discipline Inspection. In 2005, the Shenzhen Municipal Government held a special meeting on the preservation of cultural relics in Dapeng Fortress, in which the approval of the Dapeng Fortress Conservation Project was confirmed. The project capital was RMB340 million, making it the largest-scale conservation project of cultural relics in Shenzhen.

(1) Archaeology First

To ensure the renovation is scientific and to provide a scientific basis for the preparation of the renovation plan, the Dapeng Fortress Museum entrusted the Shenzhen Institute of Cultural Relics and Archaeology to conduct archaeological works, such as an archaeological investigation, auger drilling and excavation. With regard to the moat and wall of Dapeng Fortress, appropriate locations in the east and north sections were first selected to be examined. Investigation, excavation and drilling were implemented to the outside of the west section of the southern wall, the inside of the west section of the northern wall, the northeast corner, the northern gate, and the water network in the southwest section of the fortress. Drilling was conducted at selected locations along the fortress wall to determine its layout. A comprehensive and systematic search was conducted on the monuments inside and outside the fortress by means of machine drilling and borehole digging with the "Luoyang shovel" to better understand their age, character, scope, layout and function. This provided the necessary archaeological findings to prepare the preservation and maintenance plan of Dapeng Fortress. This also led to more new clues and findings about coastal defence in the Ming and Qing dynasties, as represented by Dapeng Fortress. Was Dapeng Fortress built in the early Ming dynasty? Was there a city moat in Dapeng Fortress? Were there *mamian* bastions around the city wall? Was there a tower at the north gate? Were the four corners square or round? How many times was Dapeng Fortress renovated or reinforced in history? Scientific evidence provided many of the answers to these questions for the current conservation and development of Dapeng Fortress. This helps prevent the damage and destruction of cultural relics during the process of renovation and conservation. Dapeng Fortress is valuable coastal defence heritage of the Ming and Qing dynasties, with the largest archaeologically revealed area in China. Through archaeological works, the layouts of the significant government offices, temples, city walls and moats in Dapeng Fortress were confirmed, and there was a better understanding of the organizational system of coastal defence system, design ideas and historical origin. This supports the study of China's coastal defence in the Ming and Qing dynasties.

Generally speaking, the archaeological works aimed for a clear goal: a combination of individual sites and understanding the entirety of the fortress, with the principle of efficiency first. It strived to achieve a win-win situation of efficient archaeological works and heritage preservation.

(2) Building Research

As a Major Historical and Cultural Site Protected at the National Level listed under the building category, the quality of building research determines if the renovation can be conducted scientifically and if the conservation will be successful. Dapeng Fortress is located at an area shared by Guangdong, Hakka and Teochew people. The characteristics of the three ethnic groups have been integrated to create the features of Dapeng Fortress, such as the style of beam frames and vertical ridges, the connections between the main house and the associated houses, the layout, building decorations, and so forth. For this purpose, we took the Fortress as the centre, and conducted a historic building survey in three directions. We also conducted a survey of the remains of the coastal guards (*wei*) and battalions (*suo*). As a result, we categorized nearly 1,000 residential buildings, urban defence buildings, streets and alleys. We divided the buildings of Dapeng Fortress into more than 40 types, according to the various building grades and age. The results provided guidance for the renovation design and avoided the renovation result "being uniform in style and being completely new".

III. Exhibition and Application

In 2020, the Dapeng Fortress Trail was selected in the first batch of the "Guangdong-Hong Kong-Macao Greater Bay Area Cultural Heritage Trail (Guangdong)". The revitalization and utilization project of Dapeng Fortress was chosen as a "Typical Case of Revitalization and Utilization of Antiquities and Monuments in Guangdong in 2020". In 2021, the Dapeng Fortress Cultural Tourism Zone was listed as a "Guangdong Cultural and Tourism Integrative Development Demonstration Plot" and one of the "2021 Top 100 National Cultural Heritage Tourism Cases". In October 2021, the National Cultural Heritage Administration issued the "*Fourteenth Five-Year Plan for the Protection and Utilization of Great Heritage Sites*", and Dapeng Fortress was listed in the category of Ming and Qing coastal defences.

1. Dapeng Fortress was related to the origin of the name Shenzhen

Another name of Shenzhen, Pengcheng, originated from Dapeng Fortress. Shenzhen is a famous immigrant city in China. Dapeng Fortress represented the immigrants organized by the government. The soldiers who formed the guards (*wei*) and battalions (*suo*) were from different parts of the country. There were as many as 70 family names, unlike the traditional villages which were dominated by communities with blood relationships. People from Shenzhen – viewed as an immigrant city – found a sense of historical belonging in Dapeng Fortress. It also helps to elevate the cultural and historical connotation of this modern city, and upgrade the cultural life of the people.

2. Dapeng Fortress has witnessed the shared origin of the history of Shenzhen and Hong Kong

It was responsible for the safety of coastal defence of the left maritime route in the Pearl River Estuary in the Ming and Qing dynasties. The jurisdictional limits included all the sea areas of today's Hong Kong. On Hong Kong soil, there were also a large number of defensive facilities, such as forts, batteries, bastions and outposts.

Dapeng Fortress was the site of the Xin'an County Deputy Magistrate's Office. The County was established in the first year of the Wanli reign in the Ming dynasty (1573). The geographic coverage of Xin'an county included most of the area of today's Shenzhen and Hong Kong. The Deputy Magistrate's Office of Xin'an County was placed in Dapeng Fortress. Today, the Deputy Magistrate's Office Site remains in Dapeng Fortress with the display of the exhibition "The Deputy Magistrate's Office Site in Xin'an County". The Dapeng Fortress and the Deputy Magistrate's Office Site are valuable bases for Shenzhen and Hong Kong young people to learn their shared historical origins.

3. Site museum

The Dapeng Fortress Museum uses the fortress as the site of its exhibitions. Many spaces in the buildings and archaeological sites in the fortress are used for related themed exhibitions. Visitors can walk through the fortress and feel the history closely for a profound historical experience. As a Major Historical and Cultural Site Protected at the National Level, the educational function of Dapeng Fortress is fully utilized.

4. Heritage park

Heritage is the nature, and park is the function. Shenzhen is well-known as “A City of a Thousand Gardens”, and Dapeng Fortress is the most exceptional garden among them. Dapeng Fortress has the best park facilities as well. In this “Park”, you can have a cup of the best freshly grinded coffee by Sister V, enjoy a glass of limited edition whisky, and try local delicacies that cannot be enjoyed elsewhere.

5. Nomination as a World Heritage Site

After 629 years of change, Dapeng Fortress has preserved a complete historical context. It is the best-preserved coastal defence remains from the Ming and Qing dynasties along the 18,000-kilometre-long Chinese coast. It is also a symbol of the national defence system of the Ming and Qing dynasties, and has significant historical, scientific, artistic and social value. On 7 November 2017, the nomination of Dapeng Fortress as World Heritage Site related to the coastal defence of the Ming and Qing dynasties was proposed. Famous experts in coastal defence and world heritage nomination, as well as experts in coastal defence from Jiangsu and Fujian provinces, studied and discussed the feasibility and path of the nomination of Dapeng Fortress, and proposed the commencement of its joint nomination. After the survey and research of the coastal defence of the Ming and Qing dynasties, Guo Zhan, a famous heritage specialist, proposed that the scope for its nomination as a World Heritage Site be confined in the Pearl River Estuary because the Estuary witnessed the collision and conflict between the Oriental and Western civilisations in modern China.

Conclusion

The conservation and revitalisation project of Dapeng Fortress is a cultural heritage conservation and utilization project advancing Shenzhen to the notice of the entire nation. The project ensures the preservation of the original context of the cultural heritage and preserves the historical information to the greatest extent possible. It also provides a distinguished themed cultural heritage park for Shenzhen, the country, and the world. The study and preparation works for the nomination of the Ming and Qing Coastal Defence Cultural Heritage in Pearl River Estuary as a World Heritage Site, with Dapeng Fortress as a representative case, concurs with the strategy of the development of a cultured Bay Area, the promotion of traditional Chinese culture, and the encouragement of Sino-Western exchanges. It is conducive to heightening the cultural soft power of the Greater Bay Area, shaping the cultural awareness of the same roots, and enriching the dimensions of culture in the area.

[1] *San On Gazetteer* (Qing Jiaqing version) , Volume 6 清嘉慶《新安縣志》卷六.

[2] “Treatise on Officials”, *San On Gazetteer* (Qing Kangxi version) 清康熙《新安縣志・職官志》.

[3] Dapengyun 大鵬魂, “Nanping Town is planning to build a new school, and US$30,000 can be remitted by the end of the year”〈南平鄉籌建新校，美金三萬元年底可匯回〉, 1948. “In the entirety of Dapeng, there are four townships, 1 Kuihua, 2 Wangmu, 3 Dapeng, 4 Nanping.”

[5] “Kangxi Shilu”, *Qing Shilu*《清實錄・康熙實錄》, 5 June 1665.

[6] “Treatise on Defence”, *San On Gazetteer* (Qing Kangxi version) 清康熙《新安縣志・防省志》

[7] Lu Kun (Qing dynasty) 清盧坤, *An overview of Guangdong coastal defence*, Xiahan, Volume 40, Shiji 2《廣東海防匯覽》下函，卷四十〈事紀二〉, p. 23.

[8] Lu Kun (*Qing dynasty*) 清盧坤, *An overview of Guangdong coastal defence*, Volume 3《廣東海防匯覽》卷三.

[9] *San On Gazetteer* (Qing Jiaqing version) re-measured to 160 miles.

[10] “Treatise on geography”, *San On Gazetteer* (Qing Kangxi version) 清康熙《新安縣志・地理志》.

[11] *Foreign affairs in their entirety*, Volume 8《籌辦夷務始末》卷八, pp. 14-15.

[12] “The Complete case of the construction of the Kowloon Walled City”〈勘建九龍寨城全案〉, *Hong Kong miscellaneous notes (two types)*《香港雜記（外二種）》, p. 174.

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Abstract

Compelled by rapid modernization, demolition-based urban redevelopment has been the prevalent means to facilitate economic growth, both historically and in contemporary cities. Today, nevertheless, a growing awareness for the depletion of historic buildings as consequence has come to the fore, especially in the cities of rapidly developing Global East. Both for policy-makers and in popular spheres here, historic buildings as material artifacts that physically manifest the socio-economic and cultural developments and achievements that shape the city and society are becoming increasingly recognized as important and safeguarded as valuable.

As a historical institution of higher education, established against the backdrop of the civic university movement of the late nineteenth century embodied by the use of red bricks, The University of Hong Kong is both a historic site of cultural significance as well as crucial locale for the research and impact of contemporary conservation. This paper will highlight the buildings of historical significance located in The University of Hong Kong's campus, as well as the university more broadly as an important place of education and research on the value of historical architecture as cultural heritage.

Introduction

As a historical institution of higher education, established against the backdrop of the civic university movement of the late nineteenth century and the growing call for the modernization of China, The University of Hong Kong (HKU) is both a historic site of cultural significance as well as crucial locale for the research and impact of contemporary conservation. This paper will present the two-fold functions of the university, as a site itself of cultural significance and as an institution for the recognition and conservation of historical architectures. It will highlight how the HKU's historic buildings, which are today included as part of the two new heritage clusters, manifest the university's importance in Hong Kong and in the region through their constructions and the campus' growth and development. The contemporary uses and conservation of these historic university buildings today also reflect a growing regard for the material conservation of cultural heritage in a city known for its rapid depletion of older urban fabric, as speardheaded by the city's Antiques and Monuments Office (AMO). The university, thus, is crucial in serving locale for the education and research on the value of historic architecture as cultural heritage in the contemporary city, as led by the Built Heritage Research Collaborative (BHRC) at the Faculty of Architecture Urban Labs.

The significance of historical buildings and those of HKU

The idea that old buildings hold cultural significance to society grew at a time under modernity when rapid industrialization and modernization compelled a rapid demolition and construction to support development.[1] When a building is demolished, it is not only the material substance in of itself in its spatial configuration or the craft of construction alone that are lost and often irreplaceable. It is that the very conceptions for the building and the aspirations for its contribution to society that would also be eroded, overlooked, and eventually forgotten with the disappearance of the building's materiality that compelled the protection of its material substance. Protecting and conserving the historic building substance or ensemble of buildings, importantly, protects and conserves the meanings embodied symbolically by the buildings and ensembles and their cultural significance.[2]

The Main Building, 2015.
© Antiquities and Monuments Office

As the oldest institute of higher learning of the territory, the historic buildings of HKU and their ensemble in the formation of the university campus, are unquestionably significant culturally. After decades of demolition-based rapid development in East Asian cities, from which the rapidly growing universities of the region have also not been exempted, the dedication of this heritage trail to HKU's historic buildings reflects this burgeoning awareness of the cultural significance of historic buildings in the region and the city.

The material construction of the HKU campus went hand in hand with its establishment of the English-language university as an important institution for higher education in the entrepot city, its postwar role in the fostering the newly-established universities in the territory, and its rise as an internationally-ranked university in the Global East. Through re-looking at these historic buildings today, making up the heritage trail, we are thus also revisiting the formation of HKU as institution and the shifting ideals and aspirations over time.

The Main Building: Establishing a University in Hong Kong

HKU's development has largely been historicized into the eras from its conception and founding to the end of the Second World War,[3] the post-war growth of the university and the institutionalization of the government's support for higher education in the territory,[4] and the internationalization of the university and the growing campus since the 1980s. The buildings, included in the heritage clusters today are in some ways palimpsests manifesting the multi-layered developments on campus as well as reflective the broader growth of the city itself.

The first and most historic building of the university today is the Main Building located south of the bend of Bonham Road and set on the rising topography overlooking. The laying of the foundation stone of the university on 16 March 1910 by governor Sir Frederick Lugard is a well-recounted story followed by the incorporation of the University through the University Ordinance on 30 March. With the completion of the Main Building, which housed the three founding colleges of the new university, the College of Medicine, the College of Engineering, and the College of the Arts, HKU was opened on 11 March 1912.

Built through the donation of Sir Hormusjee Mody — known today for Mody Road in Kowloon, the Main Building was designed by the architecture firm of Leigh and Orange, established in 1874 in Hong Kong. The red-bricked multi-story building is built in the Edwardian Baroque architectural style, with its rustification on the ground floor, domed pavilions at the corners, columns in the Ionic order, and a central tower to create a dynamic silhouette. King Edward VII, who reigned from 1901 to 1910 and had an affinity for the seventeenth century neo-Baroque architecture of Christopher Wren, gave his name to an era of buildings of similar sensibility. The public buildings built at this time not only contrasted with the overt ornateness of the buildings of the Victorian era that had preceded them, but also distinguished itself, through the use of classical language of architecture, from the more modern Art Nouveau architectural language that was also concurrently being realized.

This founding building for the new university in Hong Kong also manifested a larger vision for an institution such as the university in the modernization of China. The Hong Kong College of Medicine for Chinese, established in 1887 and from which HKU would be built as an institution, was part of the broader impetus to modernize the higher education system in the aftermaths of the quelling of the Taiping Rebellion, which had lasted from the mid-1800s for a decade and half. Between the late 1800s to the early 1900s, this impetus for modernization through the establishment of higher education would lead to the founding of the forerunners of Peking University [北京大學] in Beijing and Peiyang University [北洋大學] in Tianjin in the late 1890s, Tsinghua University [清華大學] in Beijing in 1911, Sun Yat-sen University [中山大學] in Guangzhou in 1924, amongst many other institutions for higher education. In 1907, the establishment of the forerunner of Tongji University [同濟大學] in Shanghai, the German Medical School for Chinese by the German government seemed to have motivated the establishment of an English-language university in Hong Kong by the governing British.

While this regional drive for creating higher education institutions as part of modernization efforts motivated the establishment of HKU, a shift to conception and function of higher education in society was also taking place with what is now known as the 'civic university movement' in the major industrial cities of England in the nineteenth century.[5] The bestowing of full university status by Royal Charter to the University of Birmingham in 1900, the University of Liverpool in 1903, the Universities of Manchester and Leeds in 1904, the University of Sheffield in 1905, emphasized the education of students in the scientific and applicable knowledges of engineering and medicine. These universities, open to students of all backgrounds and classes, importantly, were established to contrast to the kind of elite selectivity, as emphasized by the learning for learning's sake approach inculcated in the Ox-bridge academies. HKU's first Vice Chancellor, Charles Eliot, had been the first Vice Chancellor of Sheffield, and was a widely-travelled diplomat who spoke more than two-dozen languages, linking the university's conceptions to the broader ideals of the time. Materially, even though the use of brick was not exclusive to these new civic universities, and also predated these new institutions in the older academies, the many civic universities became known as the Red Brick universities, because of the use of the masonry construction in their main buildings. This usage would not be lost of course on the office of Leigh and Orange, the architects of the Main Building of HKU.

The Main Building of HKU, with these larger contexts in the background, embodies these two broader forces taking place in England as well as in the rapidly changing East Asia. Multifunctional in the inclusion of all the functions of the university in its premises, the spaces of the Main Building were used as class rooms, administrative offices, library, clinic, and even housing for the students. The three founding colleges of Medicine, of Engineering, and the Arts, all housed in the newly built Main Building, manifested the aspirations for a geographically-situated modernization through the education of a better citizenry *in-situ*.

Growing a Campus: Living, Learning and Researching

Just as a vibrant cities are multifunctional in providing spaces for production, trading and commerce, education, leisure, as well as living, the university as it grows into a campus is in some ways a condensed version of specific functions that support its mission of educating a better citizenry. Soon after HKU's opening, the buildings of Lugard Hall, Eliot Hall, and May Hall would open in 1913, 1914, and 1915 as dormitories for the students, rising up the hill to the east of the Main Building. The Halls, as the dorms were and are still called, were named after Governor Lugard, who served also as the first university Chancellor, the first University vice-Chancellor Eliot and the second University Chancellor Francis Henry May. Being an English-language university, many of the students who boarded came from the other Commonwealth cities such as Penang, Malacca, Singapore, and Yangon, where English-language secondary education was already systematized. The unique role that HKU would play in the region and still plays is reflected in the diversity of the student body.

Designed by the architecture firm of Denison, Ram and Gibbs, who also completed the Matilda Hospital in 1906 and the Helena May building in 1916, Lugard, Eliot, and May Halls were built also in the prevalent Edwardian Baroque style of the time, with the use of symmetry and clear delineation of rusticated base punctuated by arched windows on which the two upper floors sit. The ensemble of three north-south oriented buildings rise topographically, the newest higher on the hill and each sitting atop retaining walls set into the steep site. While Eliot and May Halls align in axis, Lugard hall's is offset slightly.

Concurrent constructions showed that campus life became increasingly important. In 1913, the Old Morrison Hall building south of Hatton Road also opened as a hostel to accommodate the growing student population. In addition to providing residential spaces for student life, the Sports Pavilion opened in 1916, to uphold the principle of a sound mind in a sound body for high education. Its circular plan ringed by double-columns was also neoclassical in style. It was thus a few years later, in 1919, that the Union building [學聯會大樓] (now Hung Hing Ying [孔慶熒樓] building) opened to the north of the Main Building to house the University Union. Built also in red brick, the two-story Union building's prominent feature is a central dome aligning in axis with that of the Main Building. Its locational proximity to the Main Building, alignment with it, while being fronting Bonham Road below shows the way activities beyond that of disciplinary learning in the classroom are also part of the engagement of the students.

Hung Hing Ying Building, 2016.
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Alongside these centres of student life, the buildings built in the first decades of the university's establishment and for the growing needs and functions reflects the pillar faculties that ground the University. In 1917, the School of Anatomy and School of Physiology building and the School of Pathology and School of Tropical Medicine [熱帶病學館與病理學館大樓] opened in 1919. The Ho-Tung Engineering Workshop building [工科何東實驗樓] opened in 1925, and the School of Biology building [生物學大樓] in 1928. The construction of facilities for the engineering and the sciences continued to accommodate the growing needs of the disciplinary faculties. In 1934, the Peel Engineering Lab opened. In 1939, the Faculty of Science was established from the Faculty of Arts. Two years later, the Northcote Building for Science [羅富國科學大樓] opened in 1941, designed by John Potter, architect with Leigh and Orange.

It was not only engineering and medicine, the pillars for the civic university's establishments as well as part of the modernization effort for China, that were being developed, reflected by the buildings erected for their research and teaching. It was with the establishment of the School of Chinese, that the Tang Chi Ngong [鄧志昂樓] and the Fung Ping Shan [馮平山圖書館樓] buildings, which opened in 1931 and in 1932, that the impetus to modernize Chinese studies, in an English-language university, came to fruition. The Fung Ping Shan building was to house the Chinese library, and the Tang Chi Ngong building was built for the newly established School itself. Both were named after their benefactors — Fung Ping Shan was the founder of the Bank of East Asia and Tang Chi Ngong was another prominent businessman known for his philanthropy — whose donations showed also the difficulties of maintaining financial backing for the university in the changing times. Modernizing Chinese studies, not in the classical manner that had been read as static by modernizing thinkers including Hu Shih [胡適] and his contemporaries, but through comparative studies offering Chinese and Western literary, philosophical, historical and legal systems, was a way to reposition HKU's uniqueness as an English-language university in the region. In 1935, Hu Shih was conferred an honorary degree at HKU.

Tang Chi Ngong Building, 2016.
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Fung Ping Shan Building, 2018.
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Both the Tang Chi Ngong and the Fung Ping Shan buildings are located to the east of the Main Building and sit atop of the hill above the Bonham Road, with two smaller buildings between them. The three-storey Tang Chi Ngong building, flat-roofed, reduced in its overall form, and minimally adorned with modern motifs, is located further up the hill to the east. The rendering of its Shanghai plaster façade, grooved to resemble that of masonry construction, and the fretwork, between the ground and first floors as well as at the entablature, recall the use of similar motifs in search of an architecture language appropriate for modern Chinese architecture. The use of the building for a new institute for Chinese at HKU renders the formal modesty of this building, both in materiality as well as in location, subtle and appropriate. Its realization attests to the genre of buildings built at the time seeking a language for architecture that is both modern and Chinese. The Fung Ping Shan library building, on the other hand, is Neo-Georgian in style. It is designed by Leigh and Orange. Its tri-partite and fan-shaped plan bending towards the road and red-bricked façade organized by full-height pilasters, pediment in the classic orders, and architraved windows, are in contrast, more prominently visible at the bend of Bonham Road. It was only inside the Fung Ping Shan building, with a central atrium supported by octagonal columns and topped by an octagonal skylight introducing light into the high space, that the Chinese motifs are visible.

While the founding eras erected some of the most historical buildings for HKU as institution of higher education, the infrastructural developments that were fundamental to the growth of the city were also being constructed nearby, which would today become also important parts of the cultural heritage located on the HKU campus. After the construction of the first reservoir in Hong Kong at Pok Fu Lam in 1863, four filter beds for the drinking water for the reservoir built in 1890, with a bungalow alongside it to house the staff employed to safeguard the water.[6] At the time, they were still distant from the campus up the hill. Today they are part of the Lung Fu Shan Environment Education Center. In the mid-1910s, work began on a service reservoir and filter beds for the western portion of Victoria, which had

been where HKU was granted land but then relocated on the premises of the Elliot Battery further to the southwest of the campus.[7] In 1919, the Workmen's Quarters of the Elliot Pumping Station and Filters (now Visitor's Center) were built, and in 1924, the Eliot Pumping Station Staff Quarters (now Heritage House for HKU press) was built. The Workmen's Quarters was a one-storey red-brick building for housing the coolies and watchman, and is flanked by verandas on both sides. The two-story Staff Quarter, built of rough-honed granite and multi-paned casement windows, accommodated two flats one on each floor, with servants rooms visible in the side wing. With the expansion of the campus in the 2000s, these historical hydrological infrastructures would also be incorporated into the campus and today important nodes of the heritage trail.

Growing the University after the War and Institutionalizing public support

The war was a traumatic time and showed both the resilience of the campus buildings as well as the education institution in responding and contributing to the broader changes. The post-war re-constructions also pushed HKU to develop planning for its campus expansion as well as the formalization of the university's relationship to the government.

During the war, HKU became a regional hub for the scholar refugees from universities, despite the reuse of many of the buildings to accommodate war efforts.[8] These reuses showed their resilience to accommodate not only the functions of the university but shifting society. Eliot Hall's war-time function to support the Queen Mary Hospital, and later its reuse as the university gymnasium in 1956 and reversion to residential use in 1963 showed this resilience particularly. The Old Halls, as the ensemble of three-dorms would be called following a damaging landslide that sheared off the ends of Eliot and May Hall, would finally settle into their current use after the 1992 demolition of Lugard Hall to build the Chong Yuet Ming building, and the conversions of Eliot Hall for university offices and May Hall to house the Institute for Humanities and Social Sciences, established in 2001.

For architects, the built form is created for the uses or functions conceptualized and conversely these functions also shape the built form. This inextricable relationship between form and function is at the basis of architectural creation. At HKU, the functions of the buildings constructed in the different phases of the University's development manifest the broader shifts taking place as well as the university's role within. While the uses and functions of buildings may change over time, responding to external drivers, the specificities of the built forms nevertheless manifest the layers of history that have taken place that are fundamental to shaping the present.

One of the major projects after the war was the repair of the damages to the Main Building. The architect Raymond Gordon Brown, who arrived to lead the newly established School of Architecture in 1951, and was active in this renovation and extension project, would be also going on to be key in the new campus planning.[9] Two new courtyards enclosed by new wings were added to the south of the original Main Building and another floor was added atop this extension, the new additions visible in distinctions, for example, of the hexagonal floor tiles and terrazzo used, from the original tiles, and of the more simplified façade treatments.

The physical planning for the future of the campus went hand-in-hand with a fundamental reevaluation of HKU taking place in the post-war decade also. As an institution of higher education, a rethinking of HKU's role in society and contributions to the region accompanied the rebuilding efforts. The broader question regarding Chinese-English bilingual education would arise again, as had been during the conception of HKU. The English-language education system had brought many students from the Anglo-Chinese schools of the region, including from Malaya and Singapore, as well as the closure of the university system in China to the outside in the late 1950s led to a shift in Hong Kong to the Anglo-Chinese system in the secondary education. At the same time, the persistence of funding shortages that had been a source of stress for the university also compelled a rethinking of the state's relationship to higher education.

Planning for a campus from 1954-59 reflected a rethinking of the university's role in society and especially the financial responsibility the government to the institutions of higher education, which would lead to the new post of Assistant Colonial Secretary (Universities) in 1963 that confirmed the government support of the university and the establishment of the University Grants Committee a decade later in 1965. The year before, the Chinese University of Hong Kong (CUHK) was established, with HKU crucial to its formation and the shaping of the higher education as an ecology in Hong Kong.

The Old Halls, 1990.
© Antiquities and Monuments Office

The University Lodge, 2003.
© Antiquities and Monuments Office

It was against this backdrop that in 1950, the University Lodge building was realized, designed by the architectural office Chau and Lee for the Vice Chancellor's residence. A partnership of engineer Chau Yiu Nin [周耀年] and architect Richard Edmund Lee [李禮之] and founded in 1933, Chau and Lee is in the post-war decade one of the largest Chinese-owned architecture offices in Hong Kong, prominent in its engagement in public buildings.[10] Its well-known projects include the Chinese public dispensary in Sham Shui Po (1936), St. Mary's Church [聖瑪麗亞堂] (1937) on Tai Hang Road, the The Chinese General Chamber of Commerce [中華總商會] building (1954) on Connaught Road in Central, amongst many other projects. For the residence, sited at the southeast corner of the campus and atop of the topography at Kotewall Road, the mediation of the orientation of the prominent and welcoming entrance with that of the living spaces of the house overlooking the campus is resolved through the use of rhomboid forms and rounded walls that also brings together the public and private realms as a jointing space.[11] While the north-facing balconies and terraces emphasize the mountain-top view, the south and road facing side are more functional. In 1952, Chau and Lee, in collaboration Brown, also completed No. 2 University Drive, a staff housing building in the modernist style.

The stylistic reduction that modernism ushered in in the post-war era is visible in many of the forthcoming campus buildings. In 1951, the new student residence of Lady Ho Tung Hall opened, designed by Metropolitan Land Company's Hugh Braga.[12] Two years later, the Chemistry Building opened, designed by Brown, also modernist in sensibility with its brise-soleil and functionalism in design. The new University Pathology building that opened in 1959 similarly used the architectural vocabulary characteristics of the modernist style.

In 1956, the Great Hall [大禮堂] in the Main Building was renamed Loke Yew Hall [陸佑堂] in honor of the Malaysian-based Chinese benefactors who had supported HKU in its early days, which was echoed in the gathering of students from Kuala Lumpur, Penang, Bangkok, Rangoon, Ipoh, Singapore part of the Association of Commonwealth Universities for HKU's Golden Jubilee in 1961.[13]

A broader reorganization of functions was taking place through campus planning. In 1962, Fung Ping Shan's books were relocated to the new Main Library building that was built in 1961 by the architecture office of Eric Cumine, alongside a new building for the Student Union south of the Main Building.[14] In 1964, the Fung Ping Shan building changed use to become a new Museum of Chinese Art and Archeology. In the same year, an eastern addition was added to the building that had been for the Union building. In 1966, landslide damage to Eliot and May Halls resulted in their combination with Lugard Hall to become the Old Halls. In 1967, Robert Black College opened, designed by the architecture office of Szeto Wai, who was known also for his design of Statue Square as well as being the university architect for CUHK. In the same year, the Faculty of Social Sciences and the Sociology Department were established, followed by the Law Department in 1968. In 1973, the Knowles building by Cumine and the Pao Siu Loong buildings opened. A period of rapid growth and expansion would continue into the next decades for the University. Much of the physical structure of the contemporary campus as well as the institutions of the university as we know it today were put into place.

Growing the International University and the Recognition of Heritage

In 1976, the *Antiquities and Monuments Ordinance* [古物及古蹟條例][15] was enacted for regulation of antiquities preservation in Hong Kong and with it the Antiquities Advisory Board (AAB) and the Antiquities and Monuments Office (AMO) were also established. Eight years later, in June of 1984, the AAB declared HKU's Main Building a monument for protection and conservation.

Perhaps this was a reaction to the rapid growth taking place in Hong Kong in the 1980s, reflecting the productivity wrought by China's Reform and Opening. While icons such as the Bank of China and the HSBC towers were constructed at this time to show the city's role in the facilitating the economic growth that was to come, the campus of HKU also saw the expansion of buildings for its growing aspirations as a world class university. In 1980, the Swire Building opened in the plot between the Fung Ping Shan building and the Tang Chi Ngong. The Haking Wong building opened in 1982, the Composite Building in 1985, the KK Leung building in 1988, the Library New Wing in 1990, the Chong Yuet Ming in 1994 — clearing Lugard Hall in the process — and the Kadoorie Biological Sciences building in 1999. For the widening of Pok Fu Lam Road in the mid-1980s, the Northcote, Duncan Sloss buildings, were also replaced. The new campus buildings reflected HKU's rapid ascension in the global rankings starting in the 1990s, especially as the city shifted from manufacturing to service and innovation economies, and with the support of the Research Grants Council established in 1991. At the same time, the densification of the campus also mirrored the rapid growth of the city itself.

Against this background of rapid development in the city, the historic buildings on HKU's campus were also increasingly getting recognized. In 1995, the AAB declared the exteriors of Tang Chi Ngong building and the Hung Hing Ying building, which was renamed in 1986 following the donation of the Hung family, monuments. It was in the mid-2000s, with the growing concern for the depletion of historical buildings after decades of rapid growth that the Subcommittee on Heritage Conservation was established in May 2007. In October, the Chief Executive's Policy Address highlighted the importance of heritage in the city. The newly formed Development Bureau of the Special Administrative Region issued the *LegCo Brief on Heritage Conservation Policy* on the same day. It was also in the same year that the former Central Police Station compound commenced its conservation and renovation to become what is today known as Tai Kwun, one of the largest compounds of historical buildings in the city.

In 2009, as part of the new construction of the Centennial Campus, a reprovisioning of the service reservoir was undertaken. At the end of 2009, the AAB confirmed Grade 2 Historic Building status for the Eliot Pumping Station Staff Quarters, and at the beginning of 2010, Grade 3 Status for Workmen's Quarters of the former Elliot Pumping Station and Filters and Elliot Pumping Station and Filters Treatment Works Building. These historical hydrological infrastructures, part of the of the contemporary campus development, are recognized as important part of Hong Kong's history. In 2012, the new Centennial Campus opened, with the Faculties of Arts, Social Sciences and Law moving into the new premises.

After the 2016 renovations of the Eliot Hall, and May Hall buildings, the Antiquities Authority declared the exteriors of the Fung Ping Shan, Eliot Hall, and May Hall buildings monuments in 2018, mandating strict conditions for the alterations in order to protect the historical buildings. The contrast of these early 20th century buildings against the jungle of contemporary towers surrounding them further highlights their importance as witnesses to the city's advancements.

Researching Built Heritage Today

Compelled by rapid modernization, demolition-based urban redevelopment has been the prevalent means to facilitate economic growth, both historically and in contemporary cities. Today, nevertheless, a growing awareness for the depletion of historic buildings as consequence has come to the fore, especially in the cities of rapidly developing Global East.[16] Both for policy-makers and in popular spheres here, historic buildings as material artifacts that physically manifest the socio-economic and cultural developments and achievements that shape the city and society are becoming increasingly recognized as important and safeguarded as valuable.

The BHRC at HKU Urban Labs is one such research unit that is advancing the heritage conservation beyond that of singular buildings to include the way building ensembles and the way they situate in unique geographies create the valuable cultural landscapes that merit research and conservation. Through interdisciplinary research, bringing together the socio-cultural processes to the material manifestations of such processes, the Lab also takes on the challenge of sustainability for the future developments of the city in the region. The campus of HKU, in the way its layers reflect both the contribution of the university to society as well as the unique material history of the university campus itself. The buildings on campus that today constitute the heritage trails inaugurated are a testament to the importance of built heritage to the contemporary city.

[1] See, for example, Alois Riegl, "The Modern Cult of Monuments: Its Essence and Its Developments [Der Moderne Denkmalkultus, Sein Wesen, Seine Entstehung], 1903," in *Historical and Philosophical Issues in the Conservation of Cultural Heritage*, ed. Nicholas Stanley Price, Mansfield Kirby Talley, and Alessandra Melucco Vaccaro, trans. Karin Bruckner and Karin Williams (Los Angeles: Getty Publications, 1996), pp. 69–83; Françoise Choay, *The Invention of the Historic Monument [L'Allégorie Du Patrimoine]*, trans. Lauren M. O'Connell (New York: Cambridge University Press, 2001).

[2] See, for example, P. J. Larkham, Conservation and the City (London: Routledge, 1996); Nicholas Stanley Price, Mansfield Kirby Talley, and Alessandra Melucco Vaccaro, eds., *Historical and Philosophical Issues in the Conservation of Cultural Heritage* (Los Angeles: Getty Publications, 1996); Salvador Muñoz Viñas, "Contemporary Theory of Conservation," Studies in Conservation 47, no. sup1 (1 June 2002): pp. 25–34, https://doi.org/10.1179/sic.2002.47.Supplement-1.25; Gregory Ashworth, "Preservation, Conservation and Heritage: Approaches to the Past in the Present through the Built Environment," *Asian Anthropology* 10, no. 1 (1 January 2011), pp. 1–18, https://doi.org/10.1080/1683478X.2011.10552601.

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[5] See, for example, E. Allison(Edgar Allison) Peers, *Red Brick University* (London: Faber, 1945).

[6] Pui-yin Ho, *Water for a Barren Rock: 150 Years of Water Supply in Hong Kong* (Hong Kong: Commercial Press, 2001).

[7] "Hong Kong Water Supply – The Aberdeen Reservoirs Scheme – The Industrial History of Hong Kong Group", The Industrial History of Hong Kong Group, 3 March 2022, https://industrialhistoryhk.org/hong-kong-water-supply-the-aberdeen-reservoirs-scheme/.

[8] Clifford Matthews and Oswald Cheung, eds., *Dispersal and Renewal: Hong Kong University During the War Years* (Hong Kong: HKU Press, 1998).

[9] Gordon Brown, "The University of Hong Kong New Department of Architecture", *Far East Builder* 8, no. 6 (October 1950): p. 13.

[10] Leung-kwok Prudence Lau, "Traces of a Modern Hong Kong Architectural Practice: Chau & Lee Architects, 1933–1991", *Journal of the Royal Asiatic Society Hong Kong Branch* 54 (2014), pp. 59–79.

[11] "The Vice Chancellor's Residence", *Hong Kong and Far East Builder*, 9, no. 1 (June 1951), pp. 15–17.

[12] "Lady Ho Tung Hostel for the Hong Kong University", *Hong Kong and Far East Builder*, 9, no. 1 (June 1951), pp. 31–33.

[13] Mellor, *University of Hong Kong*.

[14] "University of Hong Kong's New Library and Students' Union Building", *Far East Builder* 17, no. 2 (August 1962).

[15] LegCo, "Cap. 53 Antiquities and Monuments Ordinance [古物及古蹟條例]" (1976).

[16] See, for example, Florian Steinberg, "Conservation and Rehabilitation of Urban Heritage in Developing Countries," *Habitat International* 20, no. 3 (September 1, 1996), pp. 463–475, https://doi.org/10.1016/0197-3975(96)00012-4.

100 Years of Education:

The Relation of Built Heritage to Early Education in Hong Kong

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LAU Sze Wing Carol

Abstract

Hong Kong is rich in built heritage. Nearly 190 graded items have been used for educational purposes, 33 of which have been listed as declared monuments by the Antiquities Authority (the Secretary for Development) in accordance with the *Antiquities and Monuments Ordinance* (Cap. 53). The built heritage related to education is diversified. By correlating all of them, we can review the history of early education in Hong Kong, as well as Hong Kong's relationship with the Mainland and Macao.

In the New Territories, various clans inherited ancestral traditions, which included attention to education. Their children received education in traditional Chinese private schools (*hok shuk*, *shu shuk* or *ka shuk*) or study halls (*shu yuen*, *shu uk* or *shu shat*). During their process of transformation into modern village schools, the historical imprint retains many examples of built heritage. In the mid-nineteenth century, foreign churches came to Hong Kong to run schools, intending to train Chinese missionaries and propagate Western religious beliefs in the Mainland. Later, the government began to develop secular education and established government schools. At the same time, missionary schools continued to transform and grew rapidly under government subsidies. Although most of these schools underwent multiple relocations, some existing school buildings still have a history of more than one hundred years. In addition to primary and secondary schools, which provided basic education emphasising both Chinese and English, tertiary and normal schools, among others, have left built heritage that bears witness to the development of education in Hong Kong.

This paper uses built heritage to explain the early history of education in Hong Kong. It also serves as a starting point for deeper study and better interpretation of built heritage related to education in the Greater Bay Area (GBA), in the hope of developing a heritage trail in the area and achieving concerted development with other existing heritage trails in the GBA.

1) Background

Among the built heritage in Hong Kong, up to November 2022, 114 items have once been used or are currently being used explicitly as places of education, including 21 declared monuments (16%), 10 Grade 1 historic buildings, 35 Grade 2 historic buildings, 45 Grade 3 (or proposed Grade 3) historic buildings, and 3 items pending assessment of their heritage value, so there is a considerable amount of built heritage related to education. Categorised by architectural style, 46 are Chinese-style buildings, 60 are Western-style buildings, and 8 are modern buildings. In addition, some built heritage was not intended explicitly for educational premises, but was used for teaching or lecturing purposes for a long time. A number of them have been closely related to education, and this part of history became an integral part of their cultural content. At least 78 items can be classified as this type of built heritage, most of which are ancestral halls. In traditional Chinese society, a large number of ancestral halls doubled as schools or study halls.[1] Also, many traditional private schools or study halls have served as places for ancestral worship, traditional festive functions and clan meetings. Temples and dwellings have also functioned as classrooms, which is a very distinctive characteristic of traditional education in Hong Kong.

Further analysis of this built heritage shows that their content is plentiful and diversified. Some of the buildings have a unique architectural style, with both Western and Chinese elements. Some were built by local Cantonese-speaking clans, while others were built by families from the Hakka ethnic group. They include institutes from elementary to tertiary level, and accommodating students of various nationalities. Some of them were solely for educational purposes, while others had other functions over the years. These buildings are like a living history book of early education in Hong Kong. Many of these buildings are well preserved, and some of them are open to the public. They are indeed cultural treasures and precious historical resources.

In the following, some representative education-related built heritage is selected to provide a sketch of the history of early education in Hong Kong.

Children studying in an ancestral hall, 1969.
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2) Traditional Education

Hong Kong has a longstanding education system. In the Song and Yuan dynasties, many clans moved south because of the intrusion of northern ethnic minority groups. Some of these clans settled in the New Territories. The earliest clan known to have moved south was the Tang clan, which settled in Kam Tin, and then the Man clan, in San Tin, the Liu and Hau clans in Sheung Shui, and the Pang clan in Fanling, among others. They inherited Chinese traditions and emphasised education, hoping that their male descendants would succeed in the imperial examinations to glorify their ancestors. By entering the gentry stratum, they could enjoy political and economic privileges and increase the influence of their clan. Since the plains and valleys were fertile in Yuen Long, Sheung Shui, Tai Po and Fanling, people there were relatively affluent, and the places were prosperous in terms of culture and education. With numerous traditional private schools and study halls, these places cultivated their rich traditional culture. They also manifested the way in which the central authority made use of the imperial examination system to expand its purview to the Lingnan region for edification and governance.

Traditional Chinese private schools in Hong Kong date back to the Song dynasty.[2] Teaching was commonly conducted by the method known as "*Bok Bok Chai*", which offered mainly basic education. Young children recited the *Four Books* and the *Five Classics*. There was neither an age limit nor a separation of classes. The duration of school time depended on each family's financial capability. Parents sent their children to school mainly to learn reading, writing and basic arithmetic, which would benefit their livelihood in the future. In the 1911 Census of the New Territories, about 57% of all adult men claimed to be literate,[3] but most had only very basic literacy after attending these very basic schools. Some traditional private schools had independent buildings, while others were situated in ancestral halls or temples. Since taking part in the imperial civil service examinations and becoming a government official were still regarded as the desired path for youngsters at the time, some traditional Chinese private schools specifically catered for students preparing for the imperial examinations. They were often known as "study halls" or "academies".[4] To evade the court's ban on the formation of joint ancestral halls of multiple clans[5] and to ensure the government's control of clan influence in the mid-Qing dynasty, it was common for "study halls" or "academies" to function also as ancestral halls.

Although Western schools started to flourish in the mid-nineteenth century, Hong Kong upheld longstanding Chinese traditions, and most students in the territory were still educated in traditional private schools at that date. Only a few students studied in government or subsidized schools. Despite the increasing number of Western schools, the enrolment of school children in these schools was tiny compared to the popularity of traditional Chinese private schools.

Traditional Chinese private schools were set up all over Hong Kong, but the scale on Hong Kong Island and Kowloon Peninsula was limited; the renowned schools were concentrated mainly in the New Territories. In the mid-nineteenth century and even after the British started to govern the New Territories in 1898, the New Territories was still the educational centre of Hong Kong.[6] Furthermore, as the government avoided intervening in the traditional life and culture of the New Territories, local educational affairs remained in the hands of the major clans. For this reason, for a long time, traditional Chinese private schools played a major role in providing basic education to local children, and there was no fundamental change up to the Second World War.

The existing built heritage related to education in the New Territories is of a considerable scale, reflecting the leading role of traditional education in Hong Kong before the war. The architectural style of the traditional Chinese private schools and study halls is generally graceful and modest, manifesting the spirit and academic accomplishment of scholars and the hierarchical order of traditional Chinese society. The most honoured locations were along the central axis, with the overall layout in bilateral symmetry. The major portions of the buildings were used for lectures or ancestral altars, and dormitories were often set up at the side. Steles or plaques were erected or hung to advocate Confucian ideas and traditional culture. Some plaques were related to scholarly honours or official ranks to manifest the achievements of the clan. Some couplets and tablets were written by local or illustrious clansmen or friends in Guangdong province. Apart from edificatory and decorative purposes, they are also solid proof of the cross-regional cultural network of local clans.[7]

2.1 Study Halls (*Shu Yuen*, *Shu Uk* or *Shu Shat*) and Traditional Private Schools (*Hok Shuk*, *Shu Shuk* or *Ka Shuk*)

Originating in Jiangxi province, the Tang clan moved to Kam Tin as early as the mid-Northern Song dynasty (960-1127). Later, their descendants spread far and wide and settled separately in Lung Yeuk Tau, Ha Tsuen, Tai Po and Ping Shan, as well as Dougguan and Xin'an counties in the Mainland. From the end of the Shunzhi reign to the early Kangxi reign (1661-1669) in the early Qing dynasty, the court forced the coastal inhabitants to move inland in view of the turmoil caused by Ming loyalties in the coastal areas. As a result, all the inhabitants were ordered to leave Hong Kong, and all buildings were destroyed. Thanks to petitions from Zhou Youde, Viceroy of Guangdong and Guangxi, and Wang Lairen, Governor of Guangdong, the evacuation edict was eventually rescinded.[8] **Chou Wong Yi Kung Study Hall** (Grade 2), located in Shui Tau Tsuen, in Kam Tin, Yuen Long, was erected to show gratitude to the two officials, so it is also called "the Governor's Temple". It was also used to educate children in the area. Its history partly explains why no ancient schools remain in Hong Kong.[9]

Yi Tai Study Hall (a declared monument) and **Lik Wing Tong Study Hall** (Grade 1) are also located in Shui Tau Tsuen, Kam Tin. Yi Tai Study Hall, a building with two halls and three bays, was the most important institution for higher education in the region,[10] and was dedicated to the worship of Man Cheong (the god of literature), Kwan Tai (the god of martial arts) and Fui Shing (the god for the imperial examinations). According to legend, the Tang Yi Tai Wui (Tang Society of the Two Immortals), comprising 16 renowned members of the local scholar-gentry in Shui Tau Tsuen and Tai Hong Wai, moved the statues of Man Cheong and Kwan Tai, along with the grey bricks from a demolished pagoda, to Shui Tau Tsuen to build Yi Tai Study Hall (*Yi Tai* stands for "Two Immortals").[11] The main hall of the study hall was used to prepare students for the imperial examinations in the arts and classics, and the open courtyard and Pak Shek Hong (White Stone Lane) in the forecourt were used to practice martial arts.[12] Students who attended the study hall were, therefore, honoured as "Students of White Stone Lane". When the AMO and the Architectural Services Department restored Yi Tai Study Hall in 1994, villagers narrated the story about Pak Shek Hong, so the concrete that covered the narrow lane at the side door was removed. Since the walkway paved with white stones was in good condition, it was restored and displayed to the public.

Chou Wong Yi Kung Study Hall, in Kam Tin, Yuen Long, 2002.
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Soul tablets of Zhou (Chou) and Wang (Wong), enshrined in Chou Wong Yi Kung Study Hall, 2002.
© Antiquities and Monuments Office

The White Stone Lane of Yi Tai Study Hall was once covered by concrete. The restoration recaptured its original appearance. Photos in 1993 (top) and 1998 (bottom).
© Antiquities and Monuments Office

Lik Wing Tong, commonly known as *Da Shufang* (Grand Study Room), is a traditional Chinese private school with two halls and three bays. According to the first line of a couplet on the moon gate of the open courtyard, success in the imperial civil service examinations is easily achievable, which reflects the pride of the clan, while the "longevity and virtue" plaque acclaims the long lifespan and moral achievements of the recipients.

When the coastal evacuation came to an end in the early Qing period, the economy recovered and the population gradually increased. **Kun Ting Study Hall** (Grade 1) was constructed at a time when the Tang clan in Ping Shan, Yuen Long, was vigorously developing. The study hall had the dual function of ancestral worship and education. In addition to direct teaching, education was supported by the spatial order and decorative features of the building. The ancestral altar is located in the middle of the main hall, which is the rear hall and the most prominent space in the study hall, showing respect for the ancestors and clan. Its decoration is exquisite and meticulous, with murals, carved panels and plaster mouldings. The themes, inscriptions and colours of the study hall all have edificatory implications and indicate wishes for a smooth career and high moral achievements. According to clan elders, the fascia board in the main hall is mainly green, a reminder that students are immature when they enter the study hall to start school, while the fascia board in the entrance hall is mainly red, symbolising the students' maturity and steadiness when they leave the study hall and graduate. The first floor of the study hall is the library, which is linked to the adjacent **Ching Shu Hin** (Grade 1) by a passage. Ching Shu Hin was a guesthouse for prominent visitors and scholars; its name suggests that the building remains cool even in the heat of summer. Title boards were placed along the passage, and a moon gate was set at the end, decorated with plaster mouldings.[13] The couplets in the main hall of Ching Shu Hin were written by Lin Zhaotang (1786-1872), *zhuangyuan* (principal graduate), from Guangdong province. After resignation from a government post, Lin was employed as a lecturer at Duanxi Academy, in Zhaoqing, and supported Lin Zexu's efforts to ban opium.[14] This shows that the Tang clan in Ping Shan had a close relationship with official government scholars.[15]

Founded in the Ming dynasty (1368-1644), **King Law Ka Shuk** (a declared monument) is the study hall and ancestral hall of the Tang clan in Tai Po Tau. Its ancestral altar is located in the main hall, which is the middle hall, where clan meetings and festive functions are held. The cockloft on the left was once a dormitory for teachers and single students, and the chambers on the left and right were classrooms. Above the main entrance is a slab with moulded Chinese characters denoting "King Law Ka Shuk", written by a well-known calligraphist, Tang Yi-nga (1883-1955). His father, Tang Yung-keng (1831-1900), a descendant of the Tang lineage of Dongguan, became a *jinshi* (imperial scholar) in the tenth year of the Tongzhi reign in the Qing dynasty (1871) in Dongguan, Guangdong province, which reflected the extensive interpersonal network of the Tang clan in Tai Po Tau.[16]

The main hall of Kun Ting Study Hall, 2015.
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Title boards along the passage leading to Ching Shu Hin, 2008.
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Slab above the main entrance of King Law Ka Shuk, 2000.
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The Liu clan in the New Territories moved from Fujian province to Guangdong province in the middle of Yuan dynasty (1279-1368), and subsequently settled in Sheung Shui. **Liu Ying Lung Study Hall** (Grade 1), in Po Sheung Tsuen, is the study hall of Liu clan in Sheung Shui, also known as Hin Shing Tong. Many title boards are displayed in the study hall, and an altar in the rear hall commemorates the achievements of the clan's ancestors in the imperial examinations.[17]

Among the study halls of the Hakka ethnic group, **Keng Yung Study Hall** (a declared monument), in Sheung Wo Hang, Sha Tau Kok, is particularly distinctive. It was built by the Li clan in the early Qing dynasty and is a rare example of study halls built solely for teaching purposes. The four Chinese characters "Keng Yung Shu Uk" above the main entrance were written by Li Pei-yuen in the eleventh year of the Tongzhi reign (1872). Li was a scholar who spent many years teaching in the study hall. Keng Yung Study Hall taught all the boys of the local village basic primary literacy, but it was particularly well-known for teaching the older boys more advanced skills. Students went there to prepare for the imperial examinations at preliminary level after studying in other places. Those who passed these examinations were known as *xiucai*. Renowned for its achievements, Keng Yung Study Hall attracted students from as far afield as Tai Po, Sha Tin and Tsuen Wan, and the cockloft was used as boarding space for students.[18] There is a saying that the name Keng Yung (literally "mirror" and "hibiscus") originated from the allusion of a "hibiscus-shaped mirror" (*ren jin [keng] fu rong [yung]*) related to Li Guyan (782-260), a prime minister in the Tang dynasty.[19] The mural over the main entrance of Keng Yung Study Hall still displays the inscription "*furong jinxia jidi*" (passing the imperial examination under the hibiscus-shaped mirror). It is also said that the naming of the study hall was possibly related to Tang Yung-keng, who was awarded the grade of *jinshi* and once visited Wo Hang. Over time, Keng Yung Study Hall evolved from an academy preparing students for the imperial examinations in the Qing dynasty to a village primary school in the early twentieth century. It was eventually closed only in 1986, bearing a history of education lasting more than two hundred years.

Keng Yung School, 1950.
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Keng Yung Study Hall, 1993.
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2.2 Military Examination (*Wuju*)

In addition to schools preparing students for the examinations in the arts and classics, there were schools set up to prepare students to take the imperial civil service examinations in the military stream. **Cheung Chun Yuen** (Grade 1), located in Shui Tau Tsuen, Kam Tin, Yuen Long, also known as Lau Kan Tong, is a two-hall, one-bay building. It has an open parade ground for martial arts training, and was used also as an ancestral hall. The building still has three iron halberds for training candidates in martial arts. The two round holes at the top of the facade were used for defence in the past.[20] **So Lau Yuen** (Grade 3), next to Yi Tai Study Hall, was originally a place for clan members to settle disputes, but it was later used as a traditional private school. The plaque with inscription "father and son succeed to gain titles in the examination" was hung in the entrance hall, which was a gift from the Viceroy of Guangdong and Guangxi and the Governor of Guangdong to congratulate a father and son of Tang clan who successively gained military degrees (*wujuren*) in the imperial examinations.[21] **Yan Tun Kong Study Hall** (a declared monument) in Ping Shan, Yuen Long, also known as Yin Yik Tong, attached equal importance to the arts and classics, and martial arts. The two giant granite stones in the main hall were apparatus for physical exercise.[22] **Shin Shut Study Hall** (Grade 1) in Lung Yeuk Tau, Fanling, used to have weapons such as long-bladed knives, swords, halberds and arrows used in the martial arts, but they were handed over when the British army took over the New Territories.[23]

Cheung Chun Yuen, 1978.
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Two granite stones, one at each side of the main hall of Yan Tun Kong Study Hall, were apparatus for physical exercise, 2014.
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2.3 Ancestral Halls

It was common for clans in the New Territories to use ancestral halls as traditional private schools. **Liu Man Shek Tong Ancestral Hall** (a declared monument) is the main ancestral hall of the Liu clan in Sheung Shui. It is said that in the Song dynasty, a distant ancestor of the clan and his four sons were high-ranking government officials, who earned an annual salary of 10,000 *shek* (a unit for measuring grain) in total, so the ancestral hall was named "Man Shek" (*Man* stands for 10,000). The building was not only an ancestral hall, but also a school for educating children. It was the oldest school in Sheung Shui Heung. Many members of the Liu clan succeeded in gaining titles in the imperial examinations; the honorary plaques hanging in the temple and soul tablets testify to their achievements.[24] **Man Ancestral Hall** (Grade 1), located in San Tin, Yuen Long, also known as Tun Yu Tong, is the main ancestral hall of the Man clan in the area and was used as a traditional private school in the past. It was the earliest school of the Man clan in San Tin.[25] The **Tang Ancestral Hall in Ha Tsuen** (a declared monument), Yuen Long, also known as Yau Kung Tong, has a number of honorary plaques and tablets advocating traditional doctrines in the middle hall, many of which are the handwriting of Tang Wai-lun (1839-1908), who led village resistance against the British army in the past.[26] The adjacent guesthouse, Yau Kung School and the ancestral hall were once used as classrooms and teacher dormitories.[27] **Yu Kiu Ancestral Hall** (a declared monument), located in Ping Shan, Yuen Long, was also used as a study hall by the Tang clan. It is said that when Britain took over the New Territories in 1899, the British had a meeting with the Tang gentry in the Tang Ancestral Hall. At their request,[28] the government subsequently set up "Ping Shan Anglo-Chinese School" in Yu Kiu Ancestral Hall.[29] It became one of the district schools set up by the government.[30]

Honorary plaques in the Tang Ancestral Hall in Ha Tsuen, Yuen Long, 2013.
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Liu Man Shek Tong Ancestral Hall, 1995.
© Antiquities and Monuments Office

Honorary plaque in Liu Man Shek Tong Ancestral Hall, 2013.
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2.4 Temples

In smaller villages, schools were set up in or next to temples.[31] For instance, the **Tin Hau Temple in Leung Shuen Wan, Sai Kung** (Grade 3) used to be a school for fishermen's children;[32] the **Hip Tin Temple in Shan Tsui, Sha Tau Kok** (a declared monument) was once used as a school building for the Fuk Tak Study Hall, and it was used by the Guangzhou College of Chinese Medicine during the War of Resistance Against Japsnese Aggression (1937-1945).[33] Wing On She, the adjoining building of **Tin Hau Temple in Tai Shue Ha ("Under the Big Tree"), Nga Yiu Tau, Shap Pat Heung, Yuen Long** (Grade 2), was dedicated to Man Tai (the god of literature) and Mo Tai (the god of martial arts) and was once used as a study hall.[34]

Tin Hau Temple "Under the Big Tree" in Nga Yiu Tau, Shap Pat Heung, Yuen Long, 1995.
© Antiquities and Monuments Office

2.5 Private Residences and Watchtower

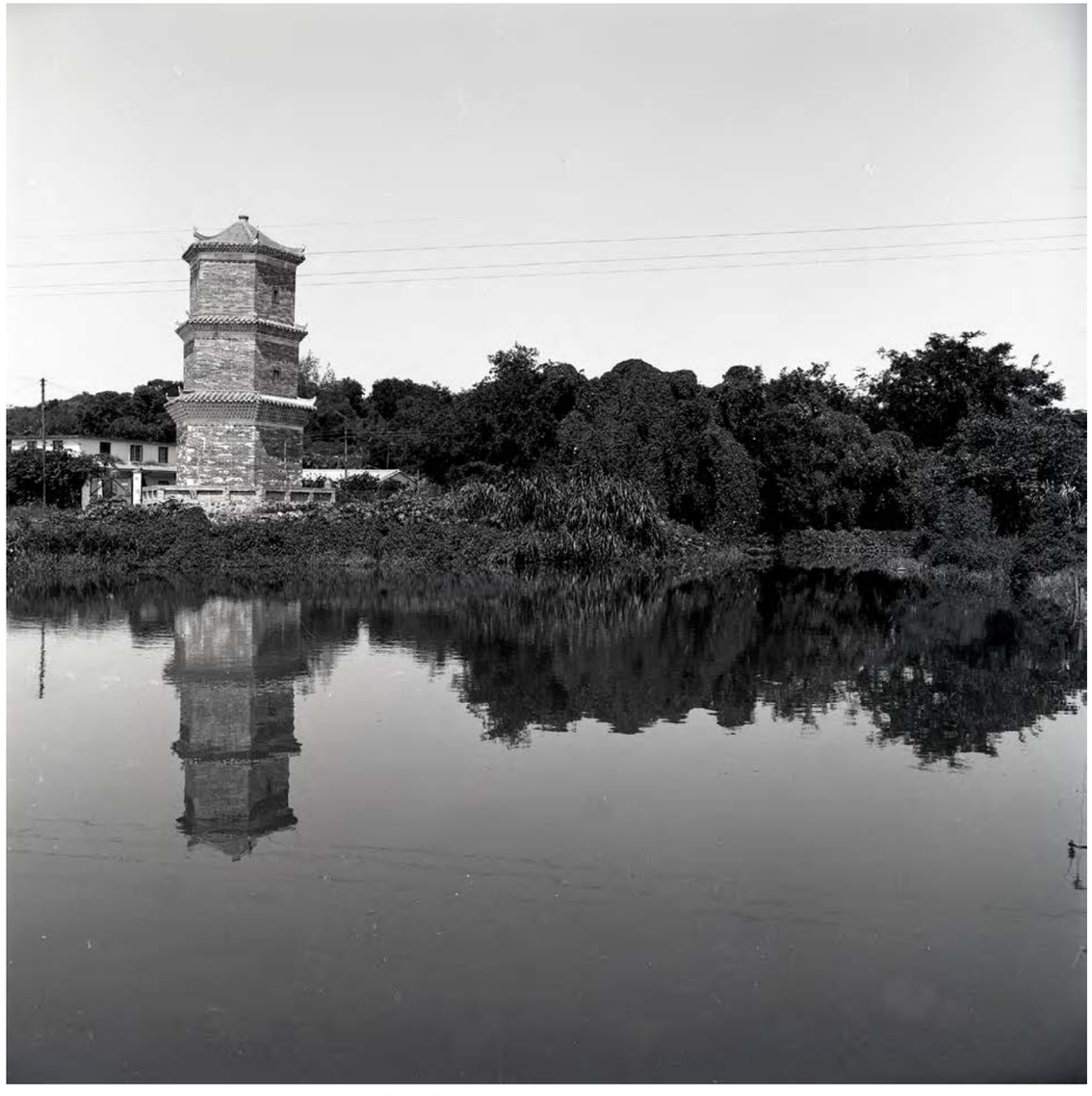
Most of the traditional Chinese private schools discussed so far were schools that taught older boys up to the level of the imperial examinations, but well over half the schools in the New Territories, especially in the poorer villages, taught only basic literacy, providing just three or four years of education. In these poorer villages the ancestral halls were too small to provide space for schools. Some schools in these villages used the private houses offered by enthusiastic clansmen, which were often small and poorly lit, and could accommodate at most five or six students, and often only two or three. **Sha Tau Kok Kwan Ah School** (Grade 3), built in 1930, was derived from Pan Lam Study Hall, run by a clansman from the Wans in Tam Shui Hang Tsuen during the Kangxi reign of the Qing dynasty (1662-1722), who used the hall of his dwelling as a school.[35] The former Kwu Tung Public Oi Wah School, in Sheung Shui, was derived from **Yan Wah Lo** (Grade 3), built in 1933,[36] and the former Shung Ching San Tsuen Primary School in Shap Pat Heung, Yuen Long, was derived from **Shun Tak Kui** (Grade 1), built in 1936.[37] Both of them were private residences, originally built by Indonesian overseas Chinese from Meixiang, Guangdong province, and once provided education for local village children.

Shun Tak Kui, predecessor of Shung Ching San Tsuen Primary School in Shap Pat Heung, Yuen Long, 1995.
© Antiquities and Monuments Office

One of these surviving tiny basic schools is situated in a two-storey **watchtower in Pak Mong, Lantau Island** (Grade 2), which was erected in the 1940s to defend against pirates, bandits and the invading Japanese. The watchtower was converted into premises for Pak Mong Heung School after the war until it was moved to a new campus in 1962. The ground floor was the school, and the second floor was the teacher's residence. The school name moulded on a cement board is still visible above the doorway.[38]

2.6 Pagoda

The **Tsui Sing Lau Pagoda** (a declared monument), located in Sheung Cheung Wai, Yuen Long, was built by the Tang clan in Ping Shan. Although it was not used as a study hall, it was dedicated to Fui Shing, the deity responsible for success or failure in examinations, to ensure the clansmen achieved success in the imperial civil service examinations.[39] Standing at the mouth of a river facing Deep Bay and in alignment with Castle Peak, it was thought to ward off evil spirits from the north and prevent flooding. The pagoda is the only existing ancient pagoda in Hong Kong.[40] According to the genealogy of the Tang clan in Ping Shan, the pagoda originally had seven storeys, but only three storeys remain owing to typhoon damage.



Tsui Sing Lau Pagoda in Sheung Cheung Wai, Ping Shan, Yuen Long, 1980.
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2.7 Modern Village Schools

With the abolition of the imperial examinations in the Qing dynasty in 1905, traditional Chinese private schools began to teach modern courses. By the 1920s, under the wave of modern education, they changed their education system again to connect with the Mainland's "6-3-3" education system.[41] To fulfil the requirements for school registration by the Hong Kong government, these traditional private schools were formally named "schools",[42] but most of them still remained in their original premises, such as study halls, ancestral halls or temples. For instance, King Law Ka Shuk was transformed into Kai Chi School in the mid-1930s, but only in 1954 was it moved to an independent school building, officially becoming a modern village school. Tat Tak Public School, which originated from Yu Kiu Ancestral Hall, was founded in 1931 and was moved into a new school building in 1974.[43] Liu Man Shek Tong Ancestral Hall's school was changed to Fung Kai Public School in 1932, but it was moved to a new school site only in 1974. There are many other examples, such as Tun Yu School, which originated in Tun Yu Hall of the Man clan, Shan Tsui Public School, which was originally Fuk Tak Study Hall of Hip Tin Temple, and Wing On School, which originated in the Tin Hau Temple "Under the Big Tree" in Shap Pat Heung, Yuen Long.

The rear hall of Liu Man Shek Tong Ancestral Hall, 1982. The decoration of Fung Kai Public School was retained even after the school was moved.
© Antiquities and Monuments Office

Yu Kiu Ancestral Hall is the ancestral hall of the Tang clan in Ping Shan, Yuen Long, and the original site of Tat Tak Public School, 1957.
© The University of Hong Kong Libraries

Opening ceremony of Tung Yik School in 1921.
© Hong Kong Museum of History

Modern village schools founded in the new era took on a new look. Instead of being in an ancestral hall or temple, the school buildings were newly built single-storey or double-storey pitch-roofed bungalow-style independent buildings. For instance, **Tung Yik School** (Grade 2), in Pat Heung, Yuen Long, was built in 1921 with boarding facilities. It was the first subsidized school in the New Territories with modern school buildings. The then Governor Sir Reginald Edward Stubbs (in office from 1919 to 1925) presided over the opening ceremony.[44] **Kai Choi School in Kuk Po** (Grade 3), Luk Keng, was built in 1931; its construction was subsidized by the government. A classroom on the ground floor was turned into a Hip Tin Temple.[45] At this point, education in the New Territories had gradually evolved from traditional Chinese schools to a modern education system.

3) Western Education

3.1 Early Missionary Schools

Before the mid-nineteenth century, the government of the Qing dynasty prohibited foreign churches from preaching in the Mainland.[46] Thus, missionaries had no choice but to stay in Macao or Malacca and other places to undertake religious activities. In 1841, Hong Kong came under British governance. Whether it was Catholicism or Protestantism, Hong Kong was chosen as a springboard to develop missionary activities in the Mainland, given its convenient location adjacent to the Mainland. With the support of churches, many missionaries came to Hong Kong and launched schools to train Chinese missionaries and accelerate religious propagation. Since these schools aimed to recruit local Chinese for religious work, most of them laid equal stress on Chinese and English. Only a few of them set up English schools specifically catering for European-American school children.[47]

In the early days, the Hong Kong Government did not intervene in educational affairs but it encouraged various churches to run schools by granting land. With the government's blessing, most of the early missionary schools were built in key areas of the City of Victoria, such as Mid-Levels in Central and Western district, and Sai Ying Pun.[48] In addition to being spacious, the school buildings were built specifically for education purposes and thus had a better design with separate classrooms, auditoriums, libraries and dormitories. The overall environment was better than that of the traditional Chinese private schools.

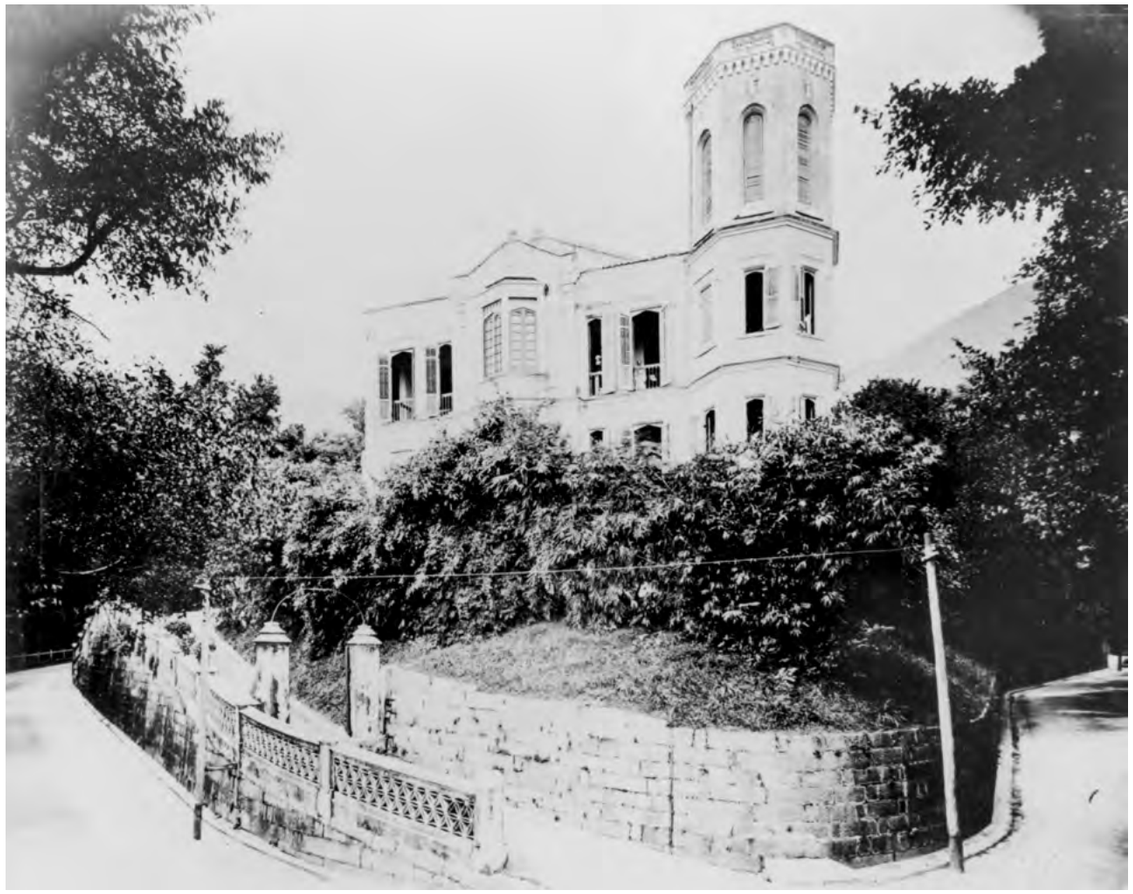
Many early missionary schools were originally orphanages set up by charities, or girls' schools,[49] whose aim was to cultivate young people as preachers or to organise church families to support future missionary work. The development of Catholic schools in Hong Kong was slower than that of Protestant schools[50] and was inextricably related to the Portuguese population in Hong Kong.[51] Because Hong Kong is adjacent to Macao, many Portuguese came to Hong Kong early in the mid-nineteenth century and became the largest foreign ethnic group in Hong Kong. However, owing to their lower social status and Catholic faith, Portuguese children were not allowed to study in schools for European students.[52] This generated special educational needs for Portuguese children.

Since foreign churches had limited funds to run schools in Hong Kong in the early years, and local Chinese had yet to accept Western education, many missionary schools in the early years had difficulty and ended in failure. Only a few of them remain to the present. Some of them have managed to preserve school buildings constructed in the early years.

St. Paul's College

The history of St. Paul's College dates back to 1843 when the Church Missionary Society appointed the first Colonial Chaplain, who set up a school in Hong Kong.[53] In 1848, the school premises of St. Paul's College were built at Glenealy (Tit Kong), in Central. In addition to teaching, it served as the residence of the first appointed Bishop.[54] The school was originally designed to train local priests,[55] but it later developed into an ordinary Anglo-Chinese school. **St. Paul's Church** (Grade 1) and the **Church Guest House** (also known as Martin House) (Grade 1) were adjacent to the college and completed in 1911 and 1919 respectively. They once served as the college's classrooms and hostel, respectively.[56]

After the Second World War, St. Paul's College was amalgamated with St. Paul's Girls School to form St. Paul's Co-educational College. In 1950, St. Paul's College was reopened and relocated to Bonham Road. The old school building was altered to become **Bishop's House** (Grade 1), which is the residence and office of the Anglican Archbishop of Hong Kong. At present, this former building of St. Paul's College is the third oldest Western-style building in Hong Kong.[57] The stone plaque inscribed with Chinese characters for "St. Paul's College" is still visible near its main entrance. The southern wing of the college was built in 1851 and was adopted as the school building of **S.K.H. Kei Yan Primary School** (Grade 2) after the Second World War. It was subsequently occupied by S.K.H. Ming Hua Theological College and is now known as the Kong Kit Building.[58]



Former school building of St. Paul's College, on Lower Albert Road, Mid-levels, 1880.
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The Church Guest House was once used as the hostel of St. Paul's College, 1953.
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Kindergarten Block, Ying Wa Girls' School

Ying Wa Girls' School was the earliest girls' school in Hong Kong, and was a sister school of Ying Wa College.[59] Ying Wa College was founded in 1818 in Malacca, which witnessed the eastward spread of Western learning in the early years. In 1843, it was moved to Hong Kong and taught only boys. Three years later, the London Missionary Society founded Ying Wa Girls' School.

Ying Wa Girls' School was suspended for some time in the mid-nineteenth century. The school building did not come into existence until 1900, and the school established the first kindergarten for Chinese children in Hong Kong in 1911.[60] At present, the **kindergarten block** (proposed Grade 3), which was built in 1926, remains intact on the school campus on Robinson Road, Mid-Levels. It is the oldest surviving building in the school.[61]

Diocesan Boys' School

Originating from the Diocesan Home and Orphanage, Diocesan Boys' School (DBS) was founded by the Church Missionary Society in 1869. It accepted male and female students of different nationalities. It was originally situated in the present premises of **Bonham Road Government Primary School** (a declared monument).[62] In 1892, the site was expanded, and it became a boys' school, renamed Diocesan School and Orphanage; the female students were transferred to the neighbouring Fairlea Girls' School. Dr. Sun Yat-sen was a DBS student in 1883 and transferred to Central School in the following year. In 1926, the school was moved to the present premises on Argyle Street, Mong Kok. Its **main building** (Grade 2), which was built in 1929,[63] will witness its one hundredth anniversary in the near future.

The main building of Diocesan Boys' School under construction on Argyle Street, 1926.
© Public Records Office, Government Records Service

St. Joseph's College

St Saviour's College, the forerunner of St. Joseph's College, was opened in 1864 and was originally intended only for Portuguese boys. In 1875, the school was taken over by six La Salle Brothers and became an Anglo-Chinese school, referred to as the "Roman School".[64] It was one of the earliest Catholic schools in Hong Kong. St. Joseph's College is now situated on Kennedy Road, Central. The **north and west blocks** (declared monuments) were opened in 1920 and 1925 respectively. They are the only two pre-war buildings on the school premises.

St. Joseph's College on Kennedy Road, Central, 2005.
© Antiquities and Monuments Office

Canossa Orphanage and Boarding School (now Caritas Ling Yuet Sin Kindergarten)

The Sisters of Canossian Daughters of Charity came from Italy to Hong Kong in 1860. Collectively referred to as "Italian Convent Schools", many Catholic schools were developed using the land donated by Portuguese church members.[65] **Caritas Ling Yuet Sin Kindergarten** (Grade 3) was originally an orphanage and boarding school intended for European boys in West Point (now Pokfulam and the surrounding area), founded by the Canossian Sisters in 1893.[66] Li Po-chun (1887-1963), a businessman, rebuilt it into the current building in 1949 and set up an infant's home with medical facilities in the name of his mother Ling Yuet Sin. It was once merged with Sacred Heart Canossian Kindergarten, and Caritas subsequently took over the site, which it operates to this day.[67]

3.2 Government Schools

The government's participation in local education started in 1847 when it began to subsidize highly qualified traditional Chinese private schools on Hong Kong Island. In 1854, the government decided to directly administer these private schools, which became known as "government schools", the earliest official schools in Hong Kong. In 1862, the Government merged some government schools into the Central School (now Queen's College) to facilitate teaching by dividing classes and improving teaching standards. Instead of training preachers, as the church did, the government's education policy aimed to cultivate English-speaking interpreters and agents to handle daily administration and Chinese trade affairs in response to the rising needs of business and government.

Central School was the first official school directly established by the government, which offered modern Western-style courses without emphasizing religious doctrine. It was, therefore, the forerunner of secular education in Hong Kong. The government founded more Anglo-Chinese government schools in the following years, and the number of vernacular government schools gradually declined.[68] Government schools and missionary schools gradually developed into two systems. Although they developed along separate tracks, there was no significant difference in effect.[69]

Six pre-war government schools still exist, four of which were British schools (expounded in the section on "Schools for Foreign Children"). The remaining two were King's College and Cheung Chau Government Secondary School.

Central School

Central School was the largest college in Hong Kong in the early years. It had a large number of students and was reputed to be a "Grand College" and a "Grand Study Hall".[70] The school was originally located in Gough Street, Central. It was renamed Victoria College in 1889 (later Queen's College) and relocated to a new building at the junction of Aberdeen Street and Hollywood Road. This school building was later demolished and redeveloped as the **Hollywood Road Married Police Quarters** (Grade 3). Although the site was renovated for adaptive use, the foundation, granite steps and rubble retaining wall of Central School have been well preserved at the site.

Central School students were mainly Chinese, but it had students of Eurasian descent as well. The class schedule comprised half Chinese and half English courses. For years, Central School nurtured a large number of bilingual elite equipped with modern knowledge and Chinese and Western cultural vision, including distinguished figures in modern history such as Sun Yat-sen, Ho Kai, Ho Tung, Chow Shou-son, Woo Lai-woon, Tse Tsan-tai and Wang Chung-hui. The extraordinary status of Central School is, therefore, self-explanatory.

The rubble wall at the main entrance of Central School was preserved in the revitalized Police Married Quarters (PMQ), 2008.
© Antiquities and Monuments Office

The main entrance of Central School on Aberdeen Street, Sheung Wan, at the beginning of the twentieth century.
© Hong Kong Museum of History

King's College, 2022.
© Antiquities and Monuments Office

King's College

King's College (a declared monument) was formerly known as Saiyingpun Anglo-Chinese School, established in 1879. The school was moved to the present premises on Bonham Road in 1926, and the name King's College was adopted. It was known as "New College" to distinguish it from "Grand College", which was Queen's College.[71] The school building was described in the government's administrative report as "one of the finest and most modern of school buildings". King's College is now the oldest surviving pre-war government school building that still serves its original purpose.[72]

Teachers and students at a free summer school, launched by King's College, 1940.
© Hong Kong Museum of History

Cheung Chau Government Secondary School

Cheung Chau Government Secondary School (whose **Old Block and Caretaker's Residence** are Grade 2 historic buildings) was derived from Cheung Chau Anglo-Chinese School, founded in 1908, which was one of the district schools set up by the government for Chinese children. It offered primary education and was called "English School" by local people to distinguish it from the traditional Chinese private schools on the island.[73] There was no permanent schoolhouse in the beginning;[74] the current school building was completed in 1928. It was changed to a secondary school after the Second World War.

3.3 Missionary Schools Established in the Twentieth Century

Alongside the efforts to develop government schools, the government introduced the "grant-in-aid" scheme in 1873 to improve the backward condition of local basic education. The scheme was later revised several times, and government aid was extended to schools established by missionaries on the condition that they had to provide secular education, although religious education could be retained. The scheme effectively encouraged churches to establish more schools, so the government needed to provide only limited subsidies to expand education. After a long period of Western-style education, a large number of students were capable of serving as a communication bridge between Chinese and Western society in business and government, making achievements in various fields.

As this was a time when the Qing court carried out the "Self-Strengthening Movement" (1861-1895), there was a need for a significant number of people with a good grasp of English and knowledge of modern technology. Some of the students who received a Western education in Hong Kong travelled between Hong Kong and the Mainland and were even employed by the Qing government, getting involved in the process of modernization in China and eventually becoming outstanding figures in modern history. For instance, Yung Wing, who advocated the Qing court to send young children to study abroad in the United States, had been a student at Morrison Memorial School[75] in Hong Kong. He dedicated himself to the Governor's Office of Zeng Guofan after graduating from Yale University, in the United States. A total of 120 children in four batches were educated in the United States. Some of them who studied in Hong Kong at one time became influential figures in history. For instance, Tong Shao-yi, the first Prime Minister of the Republic of China, who had studied in Central School, was the representative of the Qing government who negotiated peace with Ng Ting-fang, a former student of St. Paul's College and the revolutionary representative, after the outbreak of the 1911 Revolution.[76]

In 1905, the Qing government abolished the imperial examinations and enacted the establishment of modern schools, so in Hong Kong, the missionary schools practicing modern Western education developed further. At that time, some leaders in the emerging comprador class of Hong Kong were Christian and believed that China suffered from Western oppression because of the former's backward education. They, therefore, took the lead to establish Western Anglo-Chinese schools, which catered specifically for wealthy, upper-class Chinese children.

When the New Territories was leased to Britain in 1898, the undeveloped Kowloon Peninsula began to urbanize,[77] and people gradually moved there from Hong Kong Island. Many churches that originally ran schools on Hong Kong Island began to expand in Kowloon, either founding new schools, setting up branches, or relocating the existing schools on Hong Kong Island to Kowloon for expansion. People who moved to Kowloon were mostly middle-class European families. These new missionary schools were concentrated in affluent residential areas, such as Tsim Sha Tsui, Kowloon Tong and Ho Man Tin.[78] Among foreign residents in Hong Kong, the Portuguese were the first to move from Hong Kong Island to Kowloon.[79] The Catholic schools linked to them followed suit and immediately developed schools in Kowloon. There were still new missionary schools being developed on Hong Kong Island, which have now become schools with a history of over a hundred years.

St. Stephen's College

With the help of a number of Chinese leaders, such as Sir Ho Kai (1859-1914) and Dr. Tso Seen-wan (1865-1953), St. Stephen's College (whose **School House** is a declared monument, and **11 other school buildings** are graded historic buildings)[80] was founded in Sai Ying Pun in 1903. It was operated by the Church Missionary Society to provide affluent Chinese boys with Western education. As the school attracted students from Southeast Asia since its establishment, it was relocated to a bigger campus in Stanley in 1930. It is now the oldest surviving school building still providing boarding services in Hong Kong.[81]

School House of St. Stephen's College, 1995.
© Antiquities and Monuments Office

St. Stephen's Girls College

Also initiated by Sir Ho Kai and Dr. Tso Seen-wan, St. Stephen's Girls College (whose **Main Building** is a declared monument) was founded by the Church Missionary Society in 1906 to educate Chinese girls. The school building once became the first girls' dormitory of The University of Hong Kong (HKU), and some of the school's students were the first female graduates of the university. The college was previously located on Caine Road. After several relocations, it was eventually moved to its present premises on Lyttelton Road, Mid-Levels, in 1923.[82]

Teachers and students of St. Stephen's Girls College on Lyttelton Road, 1923 to 1924.
© Hong Kong Museum of History

St. Stephen's Girls College, 2013.
© Antiquities and Monuments Office

St. Paul's Co-educational College

St. Paul's Co-educational College (Grade 2) was the successor of St. Paul's Girl's College, which was founded in 1915. Originally situated on Caine Road, the college was relocated to the current location on MacDonnell Road in 1927. Before the Second World War, teenage boys and girls studied seperately in different secondary schools.[83] The college became Hong Kong's first co-educational school in 1945 and was renamed St. Paul's Co-educational College in 1950.[84]

Maryknoll Convent School, 2015.
© Antiquities and Monuments Office

Maryknoll Convent School

Maryknoll Convent School was founded by the Maryknoll Sisters of St. Dominic in 1925. It was originally a Catholic kindergarten intended for Portuguese children, operated in a convent on Austin Road in Tsim Sha Tsui. Later, students of other nationalities were accepted. The school management felt that the developing district of Kowloon Tong was an ideal place for a convent school, so the school was relocated to the present premises in 1936 to provide education from kindergarten to college entrance. After the Second World War, the secondary section of the school was moved to new premises, and the primary section remained in the original premises.[85] **Maryknoll Convent School (Primary Section), including the convent**, was declared a monument in 2008. During a structural inspection in 2020, the hidden attic in the convent was uncovered, containing a range of valuable historic relics and archival materials related to a sewing workshop set up by the Maryknoll Sisters in the convent.

St. Michael Building (front) and the Main Building (back) of St. Mary's Canossian College, 1995.
© Antiquities and Monuments Office

St. Mary's Canossian College

St. Mary's Canossian College (Grade 1) was founded by the Sisters of the Canossian Daughters of Charity in 1900; the sisters first came from Italy to Hong Kong in about 1860. Located in Tsim Sha Tsui, the college was the first Catholic school in Kowloon. At first, it was intended for Portuguese girls, but later it accepted Chinese students as well. The Old Building, also known as St. Michael Building, facing Chatham Road South, was built in 1925, and the Main Building, facing Austin Road, was built in 1930.[86]

Heep Yunn School

Heep Yunn School (the **Main Building** and **Chapel of St. Clare of Assisi** are Grade 3 historic buildings), located in Ho Man Tin, was founded in 1937. It dates back to two schools founded by the Church Missionary Society – Fairlea Girls' School, set up in 1886 and intended for Chinese Christian girls, and the Victoria Home and Orphanage, set up in 1887.[87] The two schools were originally located on Pok Fu Lam Road and were relocated to Kowloon in different periods. They amalgamated in 1936 to become the present Heep Yunn School, whose school name means "cooperation between two schools in witness of the grace of God".[88]

4) Free Schools

Compulsory education was not introduced in Hong Kong until the post-war period. Most schools, including traditional Chinese private schools, missionary schools and government schools, imposed tuition fees. Since most Chinese people generally earned very little, and the number of school places was very limited, many children did not go to school. Therefore, many charities developed free schools for poor children. In 1935, there were 84 free schools in Hong Kong. The number of school children receiving free education accounted for about one tenth of all students in Hong Kong.[89] Therefore, free education played an important role and mission before the advent of universal education.

Many early free schools were related to temples, such as the **Man Mo Temple in Sheung Wan** (a declared monument). Chung Wah College originally set up beside it, served as a private school.[90] In 1880, it became a free school using income from the temple to operate under the management of Tung Wah Hospital and became a pioneer in the provision of free education in Hong Kong.[91] The **Tin Hau Temple in Yau Ma Tei** (a declared monument) also ran a free school and was the forerunner of Tung Wah Hospitals Kowloon No.1 Free Primary School.[92] The "*shu yuen*" (college) at the side of the temple was built in 1897 and was later renovated to become the Shing Wong (City God) Temple. Another "*shu yuen*" at the south end of the temple compound was built in 1920 and was turned into an exhibition centre in recent years.[93] There was also a free school in the "*shu yuen*" at the side of the **Kwun Yam Temple in Hung Hom** (Grade 1).[94]

The Man Mo Temple in Sheung Wan is at the centre of this photo, and the free school is on the left side of it. Slab above the entrance was inscribed with the Chinese characters "*shu yuen*" (college), about 1900.
© The Hong Kong Museum of History

Po Kok Free School was situated on the left side of Tung Lin Kok Yuen, 1950s to 1960s.
© The University of Hong Kong Libraries

The tablets inside the Tai Hang Fire Dragon Heritage Centre mention the history of Confucius Free School, 2022.
© CHAU Hing Wah

There were also free schools funded by donations from enthusiastic community members. The **Tai Hang Fire Dragon Heritage Centre on School Street** (Grade 3), which was recently revitalised, was built on the historic site of the Confucius Free School (Hung Shing Yi Hok), founded in the late Qing dynasty. The school was funded by donations from local residents and superintended by Lau Chu-pak (1867-1922), an eminent leader of the community and founder of the Hong Kong Confucian Society. The transmission of Confucianism in Hong Kong was related to the political reform advocated by Kang Youwei in the late Qing period, which aimed to save traditional Chinese culture, in which Confucianism was of central importance. Chinese merchants also intended to make use of Confucianism to unite the Chinese elite, striving for greater influence and higher social standing. With the full support of local businessmen, the Hong Kong Confucian Society was founded in 1909. School Street, where Confucius Free School was situated, was named after the school. After the Second World War, the school was rebuilt on the same site as the present building. Throughout its history, the building has always been used for educational purposes.

St. Joseph's Church in Yim Tin Tsai, 2010.
© Antiquities and Monuments Office

Tung Lin Kok Yuen (a declared monument), a Buddhist temple founded by Lady Clara Ho Tung (1875-1938), housed Po Kok Free School upon its completion in 1935. Originally situated on Percival Street, the school was dedicated to female education.[95] Cheung Chau Public Free School was also funded by donations from local gentry with a partial subsidy from the government. Founded in 1921, the school was situated in the communal hall at **No. 18 Tai San Street** (Grade 2).[96] In 1952, a new school building was completed. The school was renamed **Cheung Chau Public School** (pending grading assessment) in the same year.[97]

There were also free schools in Catholic and Protestant villages attached to churches. For instance, **Yim Tin Tsai, in Sai Kung**, was the earliest Catholic village in Hong Kong.[98] Since there was no temple or ancestral hall in the village, **St. Joseph's Church** (Grade 2) was used for education.[99] In **Ma On Shan Tsuen**, free schools were founded by churches as a kind of material benefit for the inhabitants who settled there after the Second World War to make a living from the mines. Free schools were established and affiliated with the Catholic **St. Joseph's Church** (Grade 2) and the Protestant **Lutheran Yan Kwong Church** (Grade 3) in the village.[100]

5) Tertiary Education

After the abolition of the imperial examinations in 1905, local Chinese were very eager to acquire Western knowledge. However, since Central School was the only higher educational institute in Hong Kong at the time,[101] students had to study abroad or in an institute set up by foreign powers in the concession areas of China. To consolidate Britain's influence in China and increase the understanding and good relations between the two countries, the then Governor Lord Frederick Lugard (in office from 1907 to 1912) proposed setting up a local university. The establishment of The Hong Kong University (HKU), however, was supported not by public funds but by donations from the leading British firms in Hong Kong, local elites, and even the Qing government of Guangdong province. Zhang Renjun (1846-1927), the Viceroy of Guangdong and Guangxi, was one of the donors. This reflected the general belief among the ruling class in the Qing court that the establishment of HKU could nurture talent to contribute to the modernization of the nation.[102]

HKU's Main Building, 1930s.
© Wong Cho Tong HKU Collection

HKU suffered serious damage during the Second World War, 1946 to 1947.
© Harvard-Yenching Library, Harvard University

HKU's Union Building (later the Hung Hing Ying Building), 1930s.
© Wong Cho Tong HKU Collection

HKU's University Hall, 1950s.
© Wong Cho Tong HKU Collection

HKU was officially opened in 1912, making it the oldest institute of higher learning in Hong Kong. It evolved from the Hong Kong College of Medicine and the Hong Kong Technical Institute. For this reason, only the Faculty of Medicine and Faculty of Engineering were set up in the initial stage. The Faculty of Arts was set up only in the second year, offering Chinese as an elective to attract local support for the university's construction.[103] Many of the early buildings still remain on the centennial campus of the university. The **Main Building** (exterior declared a monument) housed the classrooms and laboratories of the Faculty of Medicine and the Faculty of Engineering in the past, **Eliot Hall** and **May Hall** (exteriors declared as monuments) were used as student residential halls, the **Hung Hing Ying Building** (exterior declared a monument) housed the student union, the **Tang Chi Ngong Building** and the **Fung Ping Shan Building** (exteriors declared as monuments), housed the later-established Chinese Department (also known as the School of Chinese Studies, now the School of Chinese) and library for the Chinese book collections, respectively. **University Hall** (a declared monument) was originally the headquarters and residence of a Scottish businessman, but was acquired by the university for use as a hostel in the post-war period. The aforementioned are all pre-war buildings. The existing **University Lodge** (Grade 1) was completed in 1950 and is now the residence of the Vice-Chancellor.

HKU's May Hall, 1990.
© Antiquities and Monuments Office

Chung Chi College, on the CUHK campus in Ma Liu Shui, Shatin, 1963.
© Hong Kong Museum of History

After the Second World War, a large number of intellectuals came from the Mainland to Hong Kong, thus leading to Chinese studies flourishing. However, HKU emphasized the use of English, which was obviously contrary to the social trend. At that time, students of Chinese middle schools found it difficult to get into HKU. To prolong their pursuit of knowledge and promote Chinese culture, private Chinese colleges were set up, including New Asia College, Chung Chi College and United College. However, as the government did not recognize the degrees awarded by these colleges, the development of higher education in Chinese was seriously hampered. It was not until 1963 that The Chinese University of Hong Kong (CUHK) was established as a federation of the above three colleges, breaking the monopoly of HKU in tertiary education in Hong Kong. Today, historical traces of the three colleges remain. **New Asia Middle School in Ho Man Tin** (pending grading assessment) was previously the school building of New Asia College; United College used the school building of the former Northcote College of Education in Bonham Road for many years before it was moved to the Shatin campus in 1971. The school building is now **Bonham Road Government Primary School** (a declared monument); the present **campus of Chung Chi College** (pending grading assessment) in CUHK, Shatin, still retains many of the early buildings. They all bear witness to the momentous years of the establishment of CUHK.

The school building of New Asia College on Farm Road, 1963. After the college was moved to the campus of CUHK in Ma Liu Shui of Shatin in 1973, the building became the site of New Asia Middle School.
© Public Records Office, Government Records Service

6) Modern Vernacular Education

At the beginning of the twentieth century, owing to the political turmoil in the Mainland, a large number of intellectuals came from the Mainland to Hong Kong. Whether they were traditional or liberal scholars, they developed schools in Hong Kong using Chinese as the medium of instruction. Therefore, local vernacular education began to flourish. After the founding of the Republic of China and the New Culture Movement (1915-1919), in particular, national sentiment mounted and more people advocated vernacular education. Sir Cecil Clementi (in office from 1925 to 1930), the then Governor of Hong Kong, a sinologist and China expert, was one of the people who campaigned for vernacular education. After the Canton-Hong Kong Strike in 1925, Clementi believed that promoting vernacular education would not only ease anti-British sentiment in society, but also substitute traditional Chinese thought for extremism. In 1926, he established the Government Vernacular Senior Middle School (later Clementi Secondary School). It was the first government-run middle school with Chinese as the medium of instruction. In addition to daily teaching, it provided vernacular normal classes to improve the popularity of vernacular education. From 1946 to 1961, the school premises were at **No. 26 Kennedy Road, Central** (Grade 1) which was originally a primary school for Japanese in Hong Kong. After the Second World War, it was used by a number of schools in succession. Now it has been incorporated into the adjacent St. Joseph's College, but still bears Japanese and other foreign architectural features.[104] The building witnessed the establishment of the formal status of vernacular education in Hong Kong.

No. 26 Kennedy Road in Central used to be a Japanese school, 2005. A Japanese emblem can still be seen on the building.
© Antiquities and Monuments Office

HKU's Tang Chi Ngong Chinese Department Building, 1930s.
© Wong Cho Tong HKU Collection

HKU's Fung Ping Shan Library Building, 1930s.
© Wong Cho Tong HKU Collection

In addition, driven by Clementi, a Chinese Department was founded at HKU in 1927. After the establishment of the university, Chinese was only a subsidiary subject. But when the Chinese Department was established, it hired a large number of prominent scholars as teaching staff to study Chinese history and classics and promote the teaching of Chinese language and literature. As a result, the Chinese Department of HKU became a major avenue for students interested in China studies to pursue higher learning. It is now the oldest Chinese department among local universities. At the beginning of its establishment, it was located in the **Tang Chi Ngong Building** (exterior declared a monument) on the HKU campus, and the **Fung Ping Shan Building** (exterior declared a monument) was the Chinese library at the time. At that point, the path of vernacular education from middle school to university was formally established.

Guangzhou Pui Ching Branch School in Ho Man Tin (now Pui Ching Primary School), 1930s.
© Hong Kong Museum of History

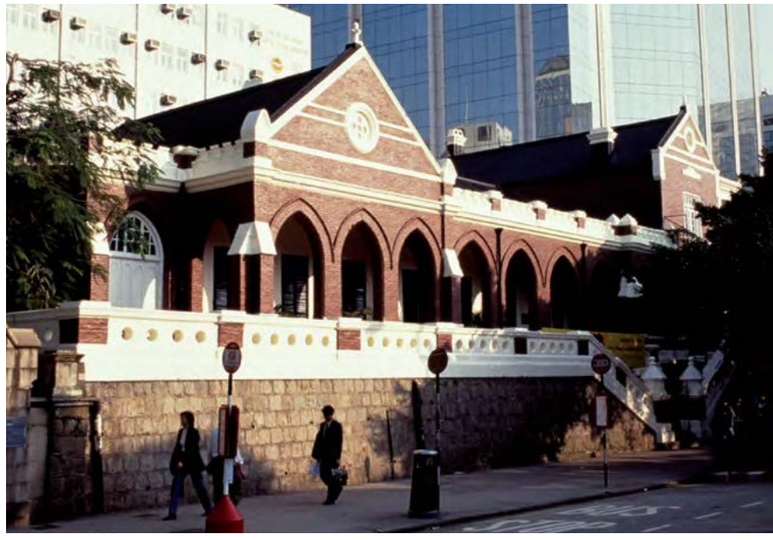
In the early 1930s, Japan stepped up its aggression against China, and the domestic situation became turbulent, resulting in the number of people moving to Hong Kong increasing greatly. To expand education for overseas Chinese, many well-known and well-established missionary schools in Guangzhou set up schools in Hong Kong and Macao, and the modern vernacular schools in Hong Kong accordingly flourished. These schools were registered in Guangzhou and Hong Kong at the same time, and implemented the Mainland's "6-3-3" education system, which was parallel with the eight-year English school system.[105] Most of them established both primary and secondary schools, so that students could choose to advance to a secondary school or university in the Mainland after completing their studies in Hong Kong. Over the years, these schools developed separately in China, Hong Kong and Macao, and evolved into schools with longstanding histories. They include True Light, Pui Ying, Pui Ching, Pooi To, Wa Ying, Heep Woh, Lingnan and Sam Yuk. **Pui Ching Primary School**, in Ho Man Tin, originated in Guangzhou, and was founded in Hong Kong in 1933. The existing **gateway** (Grade 3) was built in the 1950s with a mixed Chinese and Western architectural style.[106] The **Hong Kong Adventist College and Sam Yuk Middle School compound in Sai Kung** (Grade 2)[107] also originated in Guangzhou, and was moved to Hong Kong after the outbreak of the War of Resistance Against Japanese Aggression. Completed in 1939, the campus still retains some of its original buildings.[108]

7) Schools for Foreign Children

Over the years, as a prosperous trading and commercial centre in the Far East, Hong Kong attracted a large number of traders and professionals, along with civil servants and military personnel, to settle here and seek opportunities. However, early demographic statistics show that the mobility of European people in Hong Kong was high and that most of them were adult men. When foreign children were born in Hong Kong, most were sent back home for education when they reached a certain age.[109] Since the local British schools could hardly achieve economy of scale in their operations, there were only a few British schools in Hong Kong in the early days,[110] so most British children took lessons together with local Chinese or Eurasian children in the same classes in government or missionary Anglo-Chinese schools.

Only at the end of the nineteenth century did the number of British permanent residents in Hong Kong increase. At the request of the local British community, the government started to segregate different nationalities and set up schools that catered solely for British children.[111] These British schools had their own system independent from that of other local schools.[112] Thanks to a donation from Ho Tung (later Sir Robert Ho Tung) (1862-1956), the **former Kowloon British School in Tsim Sha Tsui** (a declared monument) was opened in 1902 to provide primary education. It is now the oldest surviving school building constructed for the children of foreign residents in Hong Kong. The original school building currently houses the Antiquities and Monuments Office.[113] The school was renamed Central British School in 1923 and became a secondary school. It was relocated to the present site in Ho Man Tin in 1936 and renamed **King George V School** (Grade 2) in 1948. The school, which is still in operation, became the only existing school in Hong Kong that provided secondary education for British residents.[114] The **former Peak School** (Grade 2), established in 1915, was the first British school set up by the government in the Peak area of Hong Kong Island, where the European community was concentrated. The former school building is now a fire station.[115] The **former Quarry Bay School** (Grade 3) was also a British school, founded by the government at the beginning of the twentieth century. It was relocated to the premises on King's Road in 1926 and was moved to new premises in 1980.[116]

Central British School (now King George V School) in Ho Man Tin, 1930s.
© Hong Kong Museum of History



After restoration, the former Kowloon British School houses the Antiquities and Monuments Office, 1995.
© Antiquities and Monuments Office

As mentioned above, since Hong Kong is close to Macao, many Portuguese resided in Hong Kong for a long time and were proactive in establishing schools since the early years of British rule. For this reason, the history of some renowned Catholic subsidized schools nowadays is related to the Portuguese. Schools that catered specifically for Portuguese students were established or special classes were set up for them. These schools included St. Joseph's College, St. Mary's Canossian College and Maryknoll Convent School. The **old Portuguese Community School (Escola Camões)** on Cox's Road, in Tsim Sha Tsui (Grade 2), was a private residence constructed at the beginning of the twentieth century. After the Second World War, it was turned into a Portuguese school under the advocacy of the Portuguese Consul General in Hong Kong.[117]

At the beginning of the twentieth century, the number of Japanese who came to Hong Kong for business continued to increase. They were involved in a wide range of trades, and there was a need to offer education to their children.[118] The Japanese Primary School was founded in 1917 and was relocated to a building at **No. 26 Kennedy Road in Central** (Grade 1), constructed by donations from Japanese firms in 1935. After the Second World War, it served as the premises of many schools in succession, and has now been incorporated into the adjacent St. Joseph's College.[119]

8) Teacher Training

Teacher training in Hong Kong was started by Central School. At first, it involved only small-scale training of student teachers by choosing excellent students to stay in school for training as teachers. In the twentieth century, the government initiated refresher courses for in-service teachers. Normal schools were also established to cultivate local teachers.[120] However, these schools could only use the buildings of existing schools to conduct classes; there were no permanent school premises.

Principal and teachers of the Rural Training College on the school campus of Fanling Lodge, late 1940s.
© The Hong Kong Museum of Education
Credit: Rural Training College Past Students Association

Since the New Territories was not easily accessible at that time, the government established the Taipo Vernacular Normal School in 1926 to supply qualified teachers to schools in the New Territories, aiming to replace the existing teachers in traditional Chinese private schools.[121] Soon after the Second World War, the government established a rural normal school again, namely the Rural Training College. Neither Taipo Vernacular Normal School nor the Rural Training College had permanent school premises. To deal with the soaring need for qualified teachers in the New Territories owing to the significant increase in the post-war birth rate, the then Governor Sir Mark Aitchison Young (in office from September to December 1941 and from 1946 to 1947) offered **Fanling Lodge** (Grade 1), the Governor's retreat, as a temporary campus for the Rural Training College. Even the garage once served as a classroom.[122] The **Pang Ancestral Hall in Fanling Wai** (Grade 1) was also adopted as an affiliated experimental primary school, and student teachers took turns giving lessons there.[123] These two historic buildings thus accidentally built ties with local normal education owing to the Rural Training College.

Northcote Training College, located on Bonham Road, 1950.
© Public Records Office, Government Records Service

Founded in 1939, Northcote Training College was the first full-time teacher training college in Hong Kong.[124] Originally, it did not have permanent school premises, just like the other normal schools at that date. In 1941, it was finally relocated to new, purpose-built premises, where the **Bonham Road Government Primary School** (a declared monument) is now situated. In 1994, the Northcote Training College was amalgamated with the three post-war teacher training colleges and a language institute in education to form The Hong Kong Institute of Education (now The Education University of Hong Kong).[125] Northcote Training College was situated on Bonham Road for a long time. After it was moved to Sassoon Road in 1962, the Bonham Road campus was used by CUHK's United College. In 1973, it was returned to Northcote Training College to serve as a sub-campus. Starting in 2000, the premises were home to Northcote Training College Primary School, the predecessor of the current Bonham Road Government Primary School.[126] It can be seen that the school building had a deep-rooted relationship with Northcote Training College.

9) Technical Education

Hong Kong industry was already developed before the Second World War. About a quarter of the people were engaged in the manufacturing industry, so there was a need for technical education. The existing school buildings of the early technical schools were all at secondary level, and were the predecessors of the later vocational schools. Their goal was to offer technical training to young people, so that they could advance to a college that offered engineering subjects at the post-secondary level.[127] Although these secondary technical schools have long been mainstreamed offering similar courses to those of the secondary grammar schools, the existing school buildings still witnessed the development of vocational education in Hong Kong.

St. Louis School (Grade 2) was formerly known as the St. Louis Industrial Institute. Its predecessor was the West Point Reformatory, which was founded by Catholic priests in 1863. The reformatory was actually a polytechnic school, where young people were taught vocational skills, such as woodworking and shoe making, to guide them to be good citizens.[128] The school was taken over by the Society of St. Francis of Sales in 1927, and a new school building was constructed in Sai Ying Pun in 1936.[129] **Aberdeen Technical School** (Grade 3), formerly known as the Aberdeen Industrial Institute, was situated on the original site of Tai Shing Paper Manufacturing Co. The school buildings were constructed in 1935 by donations from Fung Ping-shan (1860-1931) and Sir Robert Ho Tung. As with the St. Louis Industrial Institute, the school was managed by the Salesians.[130] Founded in 1953, **Tang King Po School** (Grade 3) was funded by a donation from industrialist Tang King-po (1879-1956) who wished to nurture talent for industry and technology. The school was also managed by the Salesians.[131]

The predecessor of St. Louis School was the West Point Reformatory, 1995.
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The school buildings of Aberdeen Technical School were built in 1935. Photo in 1995.
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10) General Education in a Free Society

With its unique geographical location, Hong Kong has been one of the most prestigious free ports in the world. As there were no border controls before the Second World War, the mobility of people was high. The government wanted a de-politicized city, so it did not maintain any evident cultural or religious policy. As a consequence, Hong Kong has always been a cultural melting pot with a wide range of ideologies.

After the downfall of the Qing court, a large number of Confucian scholars moved to and settled in Hong Kong, making Hong Kong an important place for preserving and developing traditional Chinese studies. Before the establishment of the Chinese Department in HKU in 1927, Dr. Lai Tsi-hsi (1865-1937), from the former Hanlin Academy (Imperial Academic Institution), and other scholars founded the Hok Hoi Library and invited outstanding Confucians to lecture on Chinese classics. The library also collected numerous ancient books across disciplines and had a reading room for public consultation. When the Chinese Department was established, Dr. Lai Tsi-hsi was appointed Reader and became the Head of the Department. Other Hanlin scholars, like Ou Dadian, Zhu Ruzhen and Wen Su, were also among the teaching staff. From the 1920s, in response to the rise of vernacular education in Hong Kong, which had gradually become recognised in society, Chinese businessmen made generous donations for its further development. In 1931, Tang Chi-ngong (1872-1932) contributed a building in HKU as a place for teaching Chinese studies and other arts subjects. It was known as the **Tang Chi Ngong Building** (exterior declared a monument). In 1932, Fung Ping-shan contributed another building in HKU, known as the **Fung Ping Shan Building** (exterior declared a monument), as a library for Chinese book collections. During the Japanese invasion of Hong Kong in 1941, part of the collections in the Hok Hoi Library were moved to the Fung Ping Shan Library for preservation. They were subsequently moved to the library in **Hong Kong City Hall** (a declared monument), and are now part of the collections of the Hong Kong Central Library.

Traditional intellectuals assigned great importance to Confucianism, which had developed rapidly in Hong Kong during the late Qing dynasty.[132] Chinese merchants also accepted Confucianism to strengthen their solidarity and enhance their social status. **Confucius Hall, in Causeway Bay** (Grade 1), was founded by several members of the local elite, such as Kan Hung-chiu, Tsang Foo, Sir Shouson Chow, Sir Robert Kotewall, Tso Seen-wan and Chau Tsun-nin, as well as notable scholars, such as Dr. Lai Tsi-hsi and Zhu Ruzhen. The land lot where the hall was situated was donated by Kan Hung-chiu in 1929. The hall was completed in 1935 and has become the oldest place in Hong Kong for promoting Confucianism. During the mid-1930s, Japanese aggression against China increased. In the face of the imminent fall of the nation, Confucius Hall continued to advocate Confucianism and engaged in cultural activities promoting other thoughts[133] in the hope of better revealing the truth through debates. Before the inauguration of **Hong Kong City Hall** (a declared monument) in 1962, Confucius Hall was a significant community hall in Hong Kong for the spread of knowledge.[134]

Confucius Hall, 2022.
© Antiquities and Monuments Office

The main building of the former Ta Teh Institute is now the Morrison Building in the Hoh Fuk Tong Centre, 2015.
© Antiquities and Monuments Office

Since the political developments in the Mainland became highly unpredictable after the Second World War, many intellectuals moved south to Hong Kong. Under the directive of Zhou Enlai, the leader of the Chinese Communist Party (CCP), the **Ta Teh Institute** was established in Hong Kong in 1946. The school site was previously a villa in Tuen Mun, which was generously offered by Cai Tingkai (1892-1968), a famous general who fought against the Japanese. The Ta Teh Institute advocated the co-running of the institute by teachers and students. Students came from the anti-Japanese guerrillas, overseas Chinese from Nanyang (Southeast Asia), and local society in Hong Kong. The institute was closed at the beginning of 1949. Despite a history of only three years, many eminent Chinese academics at the time lectured at the institute, such as Qiao Guanhua, Head of Xinhua News Agency, Guo Moruo, a notable scholar in Chinese studies, and outstanding cultural figures, such as Mao Dun, He Xiangning, Cao Yu, Hou Wailu and Qian Jiaju.[135] Teachers and students of the institute enjoyed free academic discussion, which was an unprecedented phenomenon in Chinese history. It had a total of about 1,000 students in its three school years. Some of them subsequently served as high officials in the local and central governments after the establishment of the People's Republic of China. The old site of the institute is now the **Hoh Fuk Tong Centre** for religious retreat. The **Morrison Building** (a declared monument) was once the offices and classrooms of the Ta Teh Institute, and the **Hoh Fuk Tong Centre** (Grade 3) was the girls' dormitory, commonly known as "Red House". There was also a **pavilion** (Grade 3) outside the main building of the institute. These buildings bore witness to the footprints of important figures in Hong Kong, as well as an important chapter in the history of modern China.

11) Conclusion

This paper uses the abundant resources of built heritage in Hong Kong and give an account of about 70 declared monuments and historic buildings to expound on the development of early education in Hong Kong, as well as the traces of Chinese tradition and Western education represented in these heritage buildings.

The development of education in Hong Kong is inseparable from that of the Mainland and Chinese traditions. When the War of Resistance Against Japanese Aggression broke out and the Mainland was in political turmoil, many famous private schools in Guangzhou chose to move to Hong Kong and Macao. When Japan occupied Hong Kong, these schools relocated to Macao or northern Guangdong. Some of the schools in northern Guangdong joined hands to organize joint schools to gain mutual support. After the war, some of them stayed in Hong Kong and Macao, while those schools that returned to Guangzhou have continued to develop there until today.

The small chapter in history mentioned above describes how the educational history in the GBA has close bonds, with flesh-and-blood links. At present, many heritage trails in the GBA have been developed by the cultural tourism department of the Mainland, covering a variety of themes. We hope that this paper will serve as starting point to organize and connect the built heritage related to education in Hong Kong and develop it into a heritage trail. We will make a concerted effort to coordinate its development with other relevant trails in Guangdong and Macao. This will better illustrate our shared history in education to elaborate on the common origin of the people in the GBA.

[1] Wang Gengwu 王賡武 : *New edition for the history of Hong Kong (Part I and II)*《香港史新編（上冊及下冊）》(Hong Kong: Joint Publishing (Hong Kong) Company Limited, 1997), pp. 43, 55, 419.

[2] Lik Ying Study Hall was the earliest traditional private school known in Hong Kong. It was located in Kam Tin (formerly known as Sham Tin), Kai Kung Leng (formerly Kwai Kok Hill), Kam Tin, in the New Territories. It was built by Tang Fu-hip, a *jinshi* (imperial scholar) in the 8th year of the Xining reign of the Song dynasty (1075). According to the *San On (Xin'an) Gazetteer*, written by Wang Chongxi in the Jiaqing reign of the Qing dynasty (1796-1820), "Kwai Kok Hill is located 40 miles southeast of the county town. It is abundant in cassia trees. It has two hills, and another named Ngou Tam Hill. It rains whenever there are clouds. It has a rock that looks like a fairy dresser. Tang Fu-hip established Lik Ying Study Hall in the Song dynasty and conducted lectures there. The foundation of the building exists to this day." Lik Ying Study Hall was founded more than 100 years earlier than the famous Yushan Academy and Panshan Academy in Guangzhou. See Lau Chi-pang, Liu Shuyong 劉智鵬、劉蜀永 : *Ancient Hong Kong in local gazetteers: Selected historical materials of Hong Kong in Xin'an Gazetteer*《方志中的古代香港：《新安縣志》香港史料選》(Hong Kong: Hong Kong Joint Publishing (Hong Kong) Company Limited, 1997), p. xix.

[3] "Report on the Census of the Colony for 1911", in *Papers Laid Before the Legislative Council by Command of His Excellency the Governor, 23 November 1911*, https://sunzi.lib.hku.hk/hkgro/view/s1911/2077.pdf, p. 46. Date of access: 29 August 2022.

[4] Lo Wai Yin 羅慧燕: *Trees under the blue sky: Rural schools of the New Territories*《藍天樹下：新界鄉村學校》(Hong Kong: Hong Kong Joint Publishing (Hong Kong) Company Limited, 2015), p. 30.

[5] Wen Yifeng 文一峰: "The sociological meaning of Chen Clan Ancestral Hall in Guangzhou"〈廣州陳家祠的社會學意義〉, Website for Research in Cantonese Culture 廣府文化研究網 (Oct 2015). http://gzgfwh.gzhu.edu.cn/info/1112/1230.htm. Date of access: 6 April 2022.

[6] Wang Gengwu explained that fishermen were the dominant group on Hong Kong Island and Kowloon Peninsula, whilst agricultural activities were undertaken mainly by tenant farmers. Thus, there were no renowned clans that had the economic power comparable to those in the New Territories.

[7] Chu K. L. Christina 朱錦鸞 : "Plaques and couplets in traditional buildings and the culture of early Hong Kong"〈香港古建築中的匾額和對聯與香港早期文化初探〉. To be published.

[8] Antiquities Advisory Board, "Historic Building Appraisal Chou Wong Yi Kung Study Hall, Kam Tin, Yuen Long", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/223_Appraisal_En.pdf. Date of access: 6 April 2022. See also Iu Kow-choy: *Name of places and local history of Hong Kong (Part II) - New Territories*《香港的地名與地方歷史（下冊）－新界》(Hong Kong: Cosmos Books Ltd., 2012), p. 13.

[9] Wong Chai-lok 王齊樂: *The history of Chinese education in Hong Kong*《香港中文教育發展史》(Hong Kong: Bowen Publishing House, 1983), p. 42.

[10] Wong Chai-lok 王齊樂: *The history of Chinese education in Hong Kong*《香港中文教育發展史》(Hong Kong: Bowen Publishing House, 1983), p. 50.

[11] Kam Tin Rural Committee 錦田鄉事委員會 : *Kam Tin Heung*《錦田鄉》(Hong Kong: Kam Tin Rural Committee, 2017), p. 55.

[12] Wang Gengwu 王賡武 : *New edition for the history of Hong Kong (Part I)*《香港史新編（上冊）》(Hong Kong: Joint Publishing (Hong Kong) Company Limited, 1997), pp. 43, 55, 419. See also So Man-hing 蘇萬興: *Collection of words of Tang clan in Kam Tin*《坐言集之錦田鄧族》(Hong Kong: Easy Publishing Co. Ltd., 2008), p. 120.

[13] Antiquities Advisory Board, "Historic Building Appraisal Kun Ting Study Hall Hang Mei Tsuen, Ping Shan, Yuen Long", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/12_Appraisal_En.pdf. Date of access: 6 April 2022. See also Antiquities and Monuments Office: "Ping Shan Heritage Trail", https://www.amo.gov.hk/filemanager/amo/common/download-area/pamphlet/PSHT_Pamphlet.pdf. Date of access: 6 April 2022.

[14] Wuchuan Municipal Government 吳川市人民政府: "The museum cum former residence of Lin Zhaotang, a *zhuangyuan* (principal graduate) in the late Qing dynasty"〈清末狀元林召棠故居紀念館、狀元坊〉(7 December 2009), https://web.archive.org/web/20100129073904/http://www.gdwc.gov.cn/file/news/2009/12/07/1251.shtml. Date of access: 25 July 2022.

[15] So Man-hing 蘇萬興 : *Collection of words of Tang clan in Ping Shan*《坐言集之屏山鄧族》(Hong Kong: Easy Publishing Co. Ltd., 2008), p. 62.

[16] Antiquities Advisory Board, "Memorandum for Members of the Antiquities Advisory Board – King Law Ka Shuk At Tai Po Tau Tsuen, Tai Po" (Board Paper AAB/37/96)(Date of Meeting: 7 June 1990).

[17] Antiquities Advisory Board, "Historic Building Appraisal Liu Ying Lung Study Hall Po Sheung Tsuen, Sheung Shui Wai, Sheung Shui", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/169_Appraisal_En.pdf. Date of access: 6 April 2022.

[18] Antiquities Advisory Board, "Memorandum for Members of the Antiquities Advisory Board – Kang Yung Shu Uk At Sha Tau Kok" (Board Paper AAB/16/90)(Date of Meeting: 19 December 1996).

[19] The anecdote *You Yang Za Zu*《酉陽雜俎》, written by Duan Chengshi (803-863) during the Tang dynasty, reveals that Li Guyan, the would-be prime minister, once failed in the imperial examinations when he was young. Then he met an old woman, who foretold under a hibiscus-shaped mirror (*furong jin*) that he would succeed in the examinations the following year. Li Guyan was ranked first in the following year's examination, in which the candidates were asked to write on a topic about a "hibiscus-shaped mirror". "*Ren jin fu rong*" then became an idiom, meaning to wish success in examinations.

[20] Antiquities Advisory Board, "Historic Building Appraisal Cheung Chun Yuen No. 82 Shui Tau Tsuen, Kam Tin, Yuen Long", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/125_Appraisal_En.pdf. Date of access: 6 April 2022.

[21] So Man-hing 蘇萬興 : *Collection of words of Tang clan in Kam Tin*《坐言集之錦田鄧族》(Hong Kong: Easy Publishing Co. Ltd., 2008), pp. 113-114.

[22] Antiquities Advisory Board, "Memorandum for Members of the Antiquities Advisory Board – Yan Dun Kong Study Hall, Ping Shan, Yuen Long, New Territories" (Board Paper AAB/28/2001-02)(Date of Meeting: 27 November 2001).

[23] Antiquities Advisory Board, "Historic Building Appraisal Shin Shut Study Hall No. 20 San Uk Tsuen, Lung Yeuk Tau, Fanling", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/163_Appraisal_En.pdf. Date of access: 16 April 2022. See also Wong Chai-lok 王齊樂 : *The history of Chinese education in Hong Kong*《香港中文教育發展史》(Hong Kong: Bowen Publishing House, 1983), p. 63.

[24] Antiquities and Monuments Office, "Liu Man Shek Tong Ancestral Hall", https://www.amo.gov.hk/filemanager/amo/common/download-area/pamphlet/liu_man_shek_tong.pdf. Date of Access: 16 April 2022. See also Wong Chai-lok 王齊樂 : *The history of Chinese education in Hong Kong*《香港中文教育發展史》(Hong Kong: Bowen Publishing House, 1983), p. 54.

[25] Antiquities Advisory Board, "Historic Building Appraisal Man Ancestral Hall Fan Tin Tsuen, San Tin, Yuen Long", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/75_Appraisal_En.pdf. Date of access: 16 April 2022. See also Wong Chai-lok 王齊樂 : *The history of Chinese education in Hong Kong*《香港中文教育發展史》(Hong Kong: Bowen Publishing House, 1983), p. 61.

[26] Tang Wai-lun, also known as Kai Rui, was the 23rd ancestor of the Tang clan in Ha Tsuen and an outstanding calligrapher. He became a *xiucai* (graduate of the preliminary examinations) in the 5th year of the Xianfeng reign (1855) and a *juren* (graduate of the provincial examinations) in the 11th year of the Xianfeng reign (1861). He and his three sons, all of whom were *linsheng* (stipendiaries, meaning best performers in the preliminary examination), were called the "four *anshou* (first at the desk, meaning the top *xiucai*) of the father and sons".

[27] Antiquities and Monuments Office, "Tang Ancestral Hall", https://www.amo.gov.hk/tc/historic-buildings/monuments/new-territories/monuments_83/index.html. Date of access: 18 April 2022.

[28] "Report on the New Territory During the First Year of British Administration", in *Papers Laid Before the Legislative Council of Hongkong 1900*, https://sunzi.lib.hku.hk/hkgro/view/s1900/1667.pdf, p. 251. Date of Access: 17 April 2022.

[29] Lo Wai Yin 羅慧燕 : *Trees under the blue sky: Rural schools of the New Territories*《藍天樹下：新界鄉村學校》(Hong Kong: Hong Kong Joint Publishing (Hong Kong) Company Limited, 2015), p. 56.

[30] Yuen Yau 阮柔 : *Hong Kong Education: A study on the history of the education system in Hong Kong*《香港教育 — 香港教育制度之史的研究》(Hong Kong: Progressive Education Press, 1948), p. 84.

[31] Yau Chi-on 游子安 : "Belief and worship of Kwan Tai in Hong Kong: Taking Shan Tsui Tsuen of Sha Tau Kok as an example"〈香港關帝信仰與崇拜 — 以山嘴協天宮為例〉, in Siu Kwok-kin and Yau Chi-onn 蕭國健、游子安 (eds.): *The furnace ancient and modern: Hong Kong history proceedings, 2013*《鑪峰古今：香港歷史文化論集2013》(Hong Kong: Centre for Hong Kong History and Culture Studies, Chu Hai College of Higher Education, 2014), p. 97. See also Wang Gengwu 王賡武 : *New edition for the history of Hong Kong (Part II)*《香港史新編（下冊）》(Hong Kong: Joint Publishing (Hong Kong) Company Limited, 1997), p 419.

[32] Antiquities Advisory Board, "Historic Building Appraisal Tin Hau Temple, Leung Shuen Wan, Sai Kung", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/617_Appraisal_En.pdf. Date of Access: 17 April 2022.

[33] Yau Chi-on 游子安 : "Belief and worship of Kwan Tai in Hong Kong: Taking Shan Tsui Tsuen of Sha Tau Kok as an example"〈香港關帝信仰與崇拜 — 以山嘴協天宮為例〉, in Siu Kwok-kin and Yau Chi-on 蕭國健、游子安 (eds.): *The furnace ancient and modern: Hong Kong history proceedings, 2013*《鑪峰古今：香港歷史文化論集2013》(Hong Kong: Centre for Hong Kong History and Culture Studies, Chu Hai College of Higher Education, 2014), p. 101.

[34] Antiquities Advisory Board, "Historic Building Appraisal Tin Hau Temple, Nga Yiu Tau, Shap Pat Heung, Yuen Long", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/668_Appraisal_En.pdf. Date of Access: 17 April 2022.

[35] Lo Wai Yin 羅慧燕 : *Trees under the blue sky: Rural schools of the New Territories*《藍天樹下：新界鄉村學校》(Hong Kong: Hong Kong Joint Publishing (Hong Kong) Company Limited, 2015), p. 85. See also Antiquities Advisory Board, "Historic Building Appraisal Kwan Ah School (formerly Pan Lam Study Hall), Sheung Tam Shui Hang, Sha Tau Kok", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/873_Appraisal_En.pdf. Date of Access: 17 April 2022.

[36] Antiquities Advisory Board, "Historic Building Appraisal Yan Wah Lo, Kwu Tung, Sheung Shui, N.T", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/884_Appraisal_En.pdf. Date of Access: 17 April 2022.

[37] Antiquities Advisory Board, "Historic Building Appraisal Shun Tak Kui, No. 171 Shung Ching San Tsuen, Shap Pat Heung, Yuen Long", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/205_Appraisal_En.pdf. Date of Access: 17 April 2022.

[38] Antiquities Advisory Board, "Historic Building Appraisal Pak Mong Watchtower, Pak Mong, Lantau Island", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/577_Appraisal_En.pdf. Date of access: 29 August 2022.

[39] Antiquities and Monuments Office, "Ping Shan Heritage Trail", https://www.amo.gov.hk/filemanager/amo/common/download-area/pamphlet/PSHT_Pamphlet.pdf. Date of access: 19 April 2022. See also Siu Kwok-kin: *Tracing the Ancient Roots: A search for Hong Kong's history and historic sites* (Hong Kong: Joint Publishing (Hong Kong) Company Limited, 2021), p. 89.

[40] Antiquities Advisory Board, "Memorandum for Members of the Antiquities Advisory Board - Tsui Shing Lau, Ping Shan Pagoda" (Board Paper AAB/14/77)(Date of Meeting: 17 August 1977).

[41] In 1921, the government of the Republic of China followed the example of the United States, implementing the "6-3-3" education system, namely six years of elementary school, three years of junior high school and three years of senior high school. In order to help students study in the Mainland, the Chinese schools in Hong Kong adopted the same education system.

[42] In 1921, the government stipulated that all traditional Chinese private schools must be registered. Since schools had to have a name for registration purposes, many traditional schools were given a formal school name. See Lo Wai Yin 羅慧燕: *Trees under the blue sky: Rural schools of the New Territories*《藍天樹下：新界鄉村學校》(Hong Kong: Hong Kong Joint Publishing (Hong Kong) Company Limited, 2015), pp. 97, 218.

[43] Tat Tak Public School was named after the couplets on the door of Yu Kiu Ancestral Hall.

[44] Antiquities Advisory Board, "Historic Building Appraisal Tung Yik School Lin Fa Tei, Pat Heung, Yuen Long", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/519_Appraisal_En.pdf. Date of access: 19 April 2022. See also Wong Chai-lok 王齊樂 : *The history of Chinese education in Hong Kong*《香港中文教育發展史》(Hong Kong: Bowen Publishing House, 1983), p. 341.

[45] Antiquities Advisory Board, "Historic Building Appraisal Kai Choi School and Hip Tin Temple Kuk Po, Luk Keng", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/1105_Appraisal_En.pdf. Date of access: 19 April 2022.

[46] Before the signing of the Treaty of Tianjin in 1858, Western priests could not conduct missionary work in China freely, and their activities were restricted.

[47] Wong Chai-lok 王齊樂 : *The history of Chinese education in Hong Kong*《香港中文教育發展史》(Hong Kong: Bowen Publishing House, 1983), p. 94.

[48] Wong Tai-choi, Lau Leung-kwok and Hong Kong Museum of Education of the Education University of Hong Kong 黃棣才、劉亮國、香港教育大學香港教育博物館 : *The land of the cradle: Past and present education in Central and Western Districts*《搖籃地：中西區教育今昔》(Hong Kong: Chung Hwa Book Co., 2020), p. 20.

[49] Luk Hung-Kay 陸鴻基 : *From the Banyan tree to the PC: The story of education in Hong Kong*《從榕樹下到電腦前：香港教育的故事》(Hong Kong : Step Forward Multi Media Co. Limited, 2003), p. 47.

[50] Wong Chai-lok 王齊樂 : *The history of Chinese education in Hong Kong*《香港中文教育發展史》(Hong Kong: Bowen Publishing House, 1983), p. 108.

[51] Ting Sun-pao, Lo Shuk Ying 丁新豹、盧淑櫻 : *Non-Chinese ethnicity: Foreign ethnic groups in Hong Kong before the war*《非我族裔：戰前香港的外籍族群》(Hong Kong: Joint Publishing (Hong Kong) Company Limited, 2014), p. 52.

[52] Yuen Yau 阮柔 : *Hong Kong Education: A study on the history of the education system in Hong Kong*《香港教育 — 香港教育制度之史的研究》(Hong Kong: Progressive Education Press, 1948), pp. 71-72.

[53] St. Paul's College, "About Us", http://www.spc.edu.hk/content.php?id=166&mid=1-15. Date of access: 25 April 2022.

[54] Antiquities Advisory Board, "Historic Building Appraisal Bishop's House, No. 1, Lower Albert Road, Central, Hong Kong", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/9_Appraisal_En.pdf. Date of access: 25 April 2022.

[55] Wong Chai-lok 王齊樂 : *The history of Chinese education in Hong Kong*《香港中文教育發展史》(Hong Kong: Bowen Publishing House, 1983), p. 107.

[56] Antiquities Advisory Board, "Historic Building Appraisal St. Paul's Church, No. 76 Glenealy Road, Central, H.K.", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/49_Appraisal_En.pdf. Also Antiquities Advisory Board, "Historic Building Appraisal Church Guest House, No. 1 Upper Albert Road, Central, H.K.", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/194_Appraisal_En.pdf. Date of access: 25 April 2022.

[57] The first- and second-oldest surviving Western-style heritage buildings in Hong Kong are the Hong Kong Cemetery Chapel in Happy Valley and Flagstaff House.

[58] Antiquities Advisory Board, "Historic Building Appraisal Old S.K.H. Kei Yan Primary School (alias, Kong Kit Building), Glenealy Road, Central, H.K.", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/710_Appraisal_En.pdf. Date of access: 25 April 2022.

[59] Wong Chai-lok 王齊樂 : *The history of Chinese education in Hong Kong*《香港中文教育發展史》(Hong Kong: Bowen Publishing House, 1983), p. 10.

[60] Wong Tai-choi, Lau Leung-kwok and Hong Kong Museum of Education of the Education University of Hong Kong 黃棣才、劉亮國、香港教育大學香港教育博物館 : *The land of the cradle: Past and present education in Central and Western Districts*《搖籃地：中西區教育今昔》(Hong Kong: Chung Hwa Book Co., 2020), p. 92.

[61] Antiquities Advisory Board, "Historic Building Appraisal Ying Wa Girls' School, Kindergarten Block, No. 76 Robinson Road, Mid-Levels, H.K", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/N41_Appraisal_En.pdf. Date of access: 25 April 2022.

[62] The premises were once adopted as the school building for Northcote College of Education and subsequently by United College.

[63] Antiquities Advisory Board, "Historic Building Appraisal Main Building, Diocesan Boys' School No. 131 Argyle Street, Mong Kok, Kowloon", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/410_Appraisal_En.pdf. Date of access: 27 April 2022.

[64] Yuen Yau 阮柔 : *Hong Kong Education: A study on the history of the education system in Hong Kong*《香港教育 — 香港教育制度之史的研究》(Hong Kong: Progressive Education Press, 1948), p. 93.

[65] Wong Tai-choi, Lau Leung-kwok and Hong Kong Museum of Education of the Education University of Hong Kong 黃棣才、劉亮國、香港教育大學香港教育博物館 : *The land of the cradle: Past and present education in Central and Western Districts*《搖籃地：中西區教育今昔》(Hong Kong: Chung Hwa Book Co., 2020), p. 102.

[66] The boarding school was closed in 1907, but the orphanage was expanded and continued to operate. See Sala, I. (1997), *History of Our Canossian Missions, Hong Kong 1860-1910*, (Hong Kong: Daughters of Charity of Canossa), pp. 333-334.

[67] Antiquities Advisory Board, "Historic Building Appraisal Caritas Ling Yuet Sin Kindergarten No. 54 Pok Fu Lam Road, Hong Kong", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/798_Appraisal_En.pdf. Date of access: 27 April 2022.

[68] Wong Chai-lok 王齊樂 : *The history of Chinese education in Hong Kong*《香港中文教育發展史》(Hong Kong: Bowen Publishing House, 1983), pp. 187-188.

[69] According to the Report of the Inspector of Schools for 1907, there were 14 government schools that year. See "Report of the Inspector of Schools for the Year 1907", in *Papers Laid Before the Legislative Council by Command of His Excellency the Governor, 23 July, 1908*, https://sunzi.lib.hku.hk/hkgro/view/s1908/2025.pdf, pp.316-389. Date of access: 30 April 2022.

[70] Lee Chee-kong 李志剛 : *Christianity and the early society of Hong Kong*《基督教與香港早期社會》(Hong Kong: Joint Publishing (Hong Kong) Company Limited, 2012), p. 75.

[71] Wong Tai-choi, Lau Leung-kwok and the Hong Kong Museum of Education of The Education University of Hong Kong 黃棣才、劉亮國、香港教育大學香港教育博物館 : *The land of the cradle: Past and present education in Central and Western Districts*《搖籃地：中西區教育今昔》(Hong Kong: Chung Hwa Book Co., 2020), p. 57.

[72] Antiquities Advisory Board, "Heritage Appraisal of King's College No. 63A Bonham Road, Hong Kong" (Board Paper AAB/15/2011-12) (Date of meeting: 15 June 2011), https://www.aab.gov.hk/filemanager/aab/common/154meeting/AAB154-15-Annex-A.pdf. Date of access: 1 May 2022.

[73] Antiquities Advisory Board, "Historic Building Appraisal Cheung Chau Government Secondary School - Old Block & Caretaker's Residence No. 5B School Road, Cheung Chau", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/536_Appraisal_En.pdf. Date of access: 1 May 2022.

[74] Cheung Chau Government Secondary School: "Time flies: A glance at the school history for 100 years", http://class.ccgss.edu.hk/doc/ccghis.pdf. Date of access: 1 May 2022.

[75] Morrison School was established in Macao in 1839 and was the first Christian school in China. In 1842, it was moved to Hong Kong. The present Morrison Hill, in Wanchai, where the school was situated, was named after this school.

[76] Luk Hung-Kay 陸鴻基 : *From the Banyan tree to the PC: The story of education in Hong Kong*《從榕樹下到電腦前：香港教育的故事》(Hong Kong : Step Forward Multi Media Co. Limited, 2003), p. 65.

[77] Wong Tai-choi, Lau Leung-kwok and the Hong Kong Museum of Education of The Education University of Hong Kong 黃棣才、劉亮國、香港教育大學香港教育博物館 : *The land of the cradle: Past and present education in Central and Western Districts*《搖籃地：中西區教育今昔》(Hong Kong: Chung Hwa Book Co., 2020), p. 20.

[78] Lee Chi-kin, Lau Ying, Chan Chi-tak, Cheng Po-ying, Tang Wing-yu and the Hong Kong Museum of Education of The Education University of Hong Kong 李子建、劉瑩、陳智德、鄭保瑛、鄧穎瑜、香港教育大學香港教育博物館 : *A city's educational heritage: Stories of schools in Kowloon*《承教•城傳：九龍學校的故事》(Chung Hwa Book Co., 2021), pp. 7-17.

[79] Ting Sun-pao, Lo Shuk Ying 丁新豹、盧淑櫻 : *Non-Chinese ethnicity: Foreign ethnic groups in Hong Kong before the war*《非我族裔：戰前香港的外籍族群》(Hong Kong: Joint Publishing (Hong Kong) Company Limited, 2014), p. 44.

[80] The School House of St. Stephen's College is a declared monument. The Martin Hostel, the Old Laboratory, and Bungalows Nos.1-5 are Grade 2 historic buildings. St. Stephen's Church, Block A of the Preparatory School, the Main Building and Ng Wah Hall are Grade 3 historic buildings.

[81] Antiquities Advisory Board, "Heritage Appraisal School House, St. Stephen's College No. 22 Tung Tau Wan Road, Stanley, Hong Kong" (Board Paper AAB/14/2011-12) (Date of meeting: 15 June 2011), https://www.aab.gov.hk/filemanager/aab/common/154meeting/AAB154-14-Annex-A.pdf. Date of access: 2 May 2022.

[82] Antiquities and Monuments Office, "St. Stephen's Girls' College", https://www.amo.gov.hk/en/historic-buildings/monuments/hong-kong-island/monuments_46/index.html. Date of access: 2 May 2022. See also Lee Chi-kin, Lau Ying, Chan Chi-tak, Cheng Po-ying, Tang Wing-yu and the Hong Kong Museum of Education of The Education University of Hong Kong 李子建、劉瑩、陳智德、鄭保瑛、鄧穎瑜、香港教育大學香港教育博物館 : *A city's educational heritage: Stories of schools in Kowloon*《承教•城傳：九龍學校的故事》(Chung Hwa Book Co., 2021), p. 86.

[83] Yuen Yau 阮柔 : H*ong Kong Education: A study on the history of the education system in Hong Kong*《香港教育 — 香港教育制度之史的研究》(Hong Kong: Progressive Education Press, 1948), p. 71.

[84] Antiquities Advisory Board, "Historic Building Appraisal School building of 1927, St Paul's Co-educational College No. 33 MacDonnell Road, Hong Kong", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/408_Appraisal_En.pdf. Date of access: 2 May 2022.

[85] Antiquities and Monuments Office, "Maryknoll Convent School", https://www.amo.gov.hk/en/historic-buildings/monuments/kowloon/monuments_84/index.html. Date of access: 2 May 2022. See also Lee Chi-kin, Lau Ying, Chan Chi-tak, Cheng Po-ying, Tang Wing-yu and the Hong Kong Museum of Education of The Education University of Hong Kong 李子建、劉瑩、陳智德、鄭保瑛、鄧穎瑜、香港教育大學香港教育博物館 : *A city's educational heritage: Stories of schools in Kowloon*《承教•城傳：九龍學校的故事》(Chung Hwa Book Co., 2021), p. 21.

[86] Antiquities Advisory Board, "Historic Building Appraisal St. Mary's Canossian College, No. 162 Austin Road, Tsim Sha Tsui, Kowloon", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/490_Appraisal_En.pdf. Date of access: 2 May 2022.

[87] Antiquities Advisory Board, "Historic Building Appraisal Heep Yunn School – Main Building and Chapel of St. Clare of Assisi No. 1 Farm Road, Kowloon", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/609_Appraisal_En.pdf. Date of access: 2 May 2022.

[88] Wong Tai-choi, Lau Leung-kwok and the Hong Kong Museum of Education of The Education University of Hong Kong 黃棣才、劉亮國、香港教育大學香港教育博物館 : *The land of the cradle: Past and present education in Central and Western Districts*《搖籃地：中西區教育今昔》(Hong Kong: Chung Hwa Book Co., 2020), pp. 81-82.

[89] Luk Hung-Kay 陸鴻基 : *From the Banyan tree to the PC: The story of education in Hong Kong*《從榕樹下到電腦前：香港教育的故事》(Hong Kong : Step Forward Multi Media Co. Limited, 2003), p. 98.

[90] Editorial Board of One Hundred Years of the Tung Wah Group of Hospitals (TWGHs) 東華三院百年史略編纂委員會 : *One Hundred Years of TWGHs, Part 1*《東華三院百年史略（上冊）》(Hong Kong: Board of Directors of TWGHs, 1970), pp. 139-140.

[91] Antiquities Advisory Board, "Heritage Appraisal of Man Mo Temple Compound 124-126, 128 and 130 Hollywood Road, Sheung Wan" (Board Paper AAB/47/2009-10)(Date of meeting: 24 June 2010), https://www.aab.gov.hk/filemanager/aab/common/147meeting/AAB-47_Annex_B.pdf. Date of access: 6 May 2022. See also Fong Mei-yin 方美賢 : *History of early education development in Hong Kong*《香港早期教育發展史》(Hong Kong: The Chinese Society, 1975), p. 159.

[92] Editorial Board of One Hundred Years of the Tung Wah Group of Hospitals (TWGHs) 東華三院百年史略編纂委員會 : *One Hundred Years of TWGHs, Part 1*《東華三院百年史略（上冊）》(Hong Kong: Board of Directors of TWGHs, 1970), pp. 139-160.

[93] Antiquities Advisory Board, "Heritage Appraisal of Tin Hau Temple and the adjoining buildings, Yau Ma Tei, Kowloon" (Board Paper AAB/17/2019-20)(Date of meeting: 11 June 2020), https://www.aab.gov.hk/filemanager/aab/common/189meeting/aab_17_2019-20-c-en.pdf. Date of access: 6 May 2022.

[94] Antiquities Advisory Board, "Historic Building Appraisal Kwun Yam Temple Station Lane, Hung Hom, Kowloon", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/122_Appraisal_En.pdf. Date of access: 5 May 2022.

[95] Antiquities Advisory Board, "Heritage Appraisal of Tung Lin Kok Yuen No. 15 Shan Kwong Road, Happy Valley, Hong Kong" (Board Paper AAB/9/2017-18)(Date of meeting: 8 June 2017), https://www.aab.gov.hk/filemanager/aab/common/178meeting/aab-9-annex-a.pdf. Date of access: 8 June 2022.

[96] Antiquities Advisory Board, "Historic Building Appraisal No. 18 Tai San Street Cheung Chau", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/506_Appraisal_En.pdf. Date of access: 21 May 2022.

[97] Lo Wai Yin 羅慧燕 : *Trees under the blue sky: Rural schools of the New Territories*《藍天樹下：新界鄉村學校》(Hong Kong: Hong Kong Joint Publishing (Hong Kong) Company Limited, 2015), pp. 76-79.

[98] The villagers in Yim Tin Tsai were baptized collectively on Christmas Day, 1866. They did not welcome non-Catholic to live there. See Ha Keloon 夏其龍, *History of Catholic Missionary in Hong Kong, 1841-1894*《香港天主教傳教史，1841-1894》(Hong Kong: Joint Publishing (Hong Kong) Company Limited, 2014), p. 111, 261.

[99] Antiquities Advisory Board, "Historic Building Appraisal St. Joseph's Chapel, Yim Tim Tsai, Sai Kung, New Territories", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/368_Appraisal_En.pdf. Date of Access: 17 April 2022.

[100] Antiquities Advisory Board, "Historic Building Appraisal St. Joseph's Church, Ma On Shan Tsuen Road, Sha Tin, N.T", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/N103_Appraisal_En.pdf. Also Antiquities Advisory Board, "Historic Building Appraisal Lutheran Yan Kwong Church, Ma On Shan Tsuen Road, Sha Tin, N.T.", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/N102_Appraisal_En.pdf. Date of Access: 17 April 2022.

[101] Chau Ching-wai 周正偉, "Reform in the late Qing dynasty and the development of higher education in Hong Kong"〈晚清改革與香港高等教育的發展〉, in Siu Kwok-kin and Yau Chi-on 蕭國健、游子安 (eds.): *The furnace ancient and modern: Hong Kong history proceedings, 2013*《鑪峰古今：香港歷史文化論集2013》(Hong Kong: Centre for Hong Kong History and Culture Studies, Chu Hai College of Higher Education, 2014), p. 107.

[102] Ng Lun, N. H. (1984), *Interactions of East and West: Development of Public Education in Early Hong Kong*, Hong Kong: Chinese University of Hong Kong Press, p. 128.

[103] Endacott, G. (1962), "The Beginnings", in Harrison, B. (ed.) *University of Hong Kong: The First 50 Year, 1911-1961*, Hong Kong: Hong Kong University Press, p.29.

[104] Antiquities Advisory Board, "Historic Building Appraisal No. 26 Kennedy Road, Central, Hong Kong", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/72_Appraisal_En.pdf. Date of access: 14 April 2022.

[105] English schools started in Class VIII (the lowest level) and was completed at Class II for secondary school graduation. Class I was a preparatory course for the entrance examination for HKU. Before entering Class VIII, students had usually received four years of education in elementary school, or had studied in a traditional Chinese private school for a certain period of time, so they had a basic academic foundation.

[106] Antiquities Advisory Board, "Historic Building Appraisal Pui Ching Primary School, Gateway No. 80 Waterloo Road, Kowloon", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/1003_Appraisal_En.pdf. Date of access: 21 May 2022.

[107] The Staff and Teaching Building, the College and Administrative Building, the Boys' Dormitory, the One-Unit Staff Quarters, and the Five-Unit Staff Quarters of Hong Kong Adventist College and Sam Yuk Middle School have Grade 2 status.

[108] Antiquities Advisory Board, "Historic Building Appraisal Hong Kong Adventist College & Sam Yuk Middle School Staff and Teaching Building of Sam Yuk Middle School No. 1111 Clear Water Bay Road, Sheung Yeung, Sai Kung, New Territories", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/392_Appraisal_En.pdf. Date of access: 21 May 2022.

[109] Ting Sun-pao, Lo Shuk Ying 丁新豹、盧淑櫻 : *Non-Chinese ethnicity: Foreign ethnic groups in Hong Kong before the war*《非我族裔：戰前香港的外籍族群》(Hong Kong: Joint Publishing (Hong Kong) Company Limited, 2014), pp. 4-5.

[110] Antiquities Advisory Board, "Historic Building Appraisal Former Quarry Bay School No. 986 King's Road, Quarry Bay, Hong Kong", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/829_Appraisal_En.pdf. Date of access: 1 May 2022.

[111] Luk Hung-Kay 陸鴻基 : *From the Banyan tree to the PC: The story of education in Hong Kong*《從榕樹下到電腦前：香港教育的故事》(Hong Kong : Step Forward Multi Media Co. Limited, 2003), p. 78.

[112] Yuen Yau 阮柔 : *Hong Kong Education: A study on the history of the education system in Hong Kong*《香港教育 — 香港教育制度之史的研究》(Hong Kong: Progressive Education Press, 1948), p. 75.

[113] Antiquities Advisory Board, "Memorandum for Members of the Antiquities Advisory Board – Former Kowloon British School at Nathan Road, Tsim Sha Tsui" (Board Paper AAB/6/90)(Date of Meeting: 8 March 1990).

[114] Antiquities Advisory Board, "Historic Building Appraisal King George V School No. 2 Tin Kwong Road, Ho Man Tin, Kowloon", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/414_Appraisal_En.pdf. Date of access: 1 May 2022.

[115] Antiquities Advisory Board, "Historic Building Appraisal Former Peak School (Victoria Peak Fire Station) No. 7 Gough Hill Path, The Peak, Hong Kong", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/489_Appraisal_En.pdf. Date of access: 8 April 2022.

[116] Antiquities Advisory Board, "Historic Building Appraisal Former Quarry Bay School, No. 986 King's Road, Quarry Bay, Hong Kong", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/829_Appraisal_En.pdf. Date of access: 8 April 2022.

[117] Antiquities Advisory Board, "Historic Building Appraisal Ex-Portuguese Community School (Escola Camões) No. 7 Cox's Road, Tsim Sha Tsui, Kowloon", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/N206_Appraisal_En.pdf. Date of access: 30 April 2022.

[118] Ting Sun-pao, Lo Shuk Ying 丁新豹、盧淑櫻 : *Non-Chinese ethnicity: Foreign ethnic groups in Hong Kong before the war*《非我族裔：戰前香港的外籍族群》(Hong Kong: Joint Publishing (Hong Kong) Company Limited, 2014), pp. 79-80.

[119] Antiquities Advisory Board, "Historic Building Appraisal No. 26 Kennedy Road, Central, Hong Kong", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/72_Appraisal_En.pdf. Date of access: 30 April 2022.

[120] In 1914, the government set up evening courses for vernacular teacher training in the Hong Kong Technical Institute. In 1920, the government established the Vernacular Normal School for Men on the top floor of Chung Wah College, affiliated with Man Mo Temple on Hollywood Road, to train male teachers. The Vernacular Normal School for Women was also established in parallel by the government in Belilios Public School; both offered day class courses. In 1926, when the government founded the first vernacular middle school, classes for vernacular teacher training were also included.

[121] Lo Wai Yin 羅慧燕 : *Trees under the blue sky: Rural schools of the New Territories*《藍天樹下：新界鄉村學校》(Hong Kong: Hong Kong Joint Publishing (Hong Kong) Company Limited, 2015), p. 44.

[122] Kwong Kai-to, Rural Training College Past Students Association 鄺啟濤、香港官立鄉村師範專科學校同學會: *Deep affection for the countryside: The history of the Rural Training College (1946-54) and her concerning activities*《鄉村情懷：香港官立鄉村師範專科學校校史(1946-54)及活動》(Hong Kong: Hong Kong Rural Training College Alumni Association Limited, 2004), p. 10.

[123] Kwong Kai-to, Rural Training College Past Students Association 鄺啟濤、香港官立鄉村師範專科學校同學會 : *Deep affection for the countryside: The history of the Rural Training College (1946-54) and her concerning activities*《鄉村情懷：香港官立鄉村師範專科學校校史(1946-54)及活動》(Hong Kong: Hong Kong Rural Training College Alumni Association Limited, 2004), p. 16.

[124] At that time, the college was named Hong Kong Teachers' Training School. Only after it was moved to new premises in 1941 was its name changed to Northcote Training College.

[125] Namely Grantham College of Education (1951), Sir Robert Black College of Education (1960), Hong Kong Technical Teacher's College (1974) and the Institute of Language in Education (1982).

[126] Antiquities Advisory Board, "Heritage Appraisal of Bonham Road Government Primary School, No. 9A Bonham Road, Sai Ying Pun, Hong Kong" (Board Paper AAB/3/2021-22) (Date of meeting: 11 March 2021), https://www.aab.gov.hk/filemanager/aab/common/192meeting/aab_3_2021-22-a-en.pdf. Date of access: 23 April 2022.

[127] The government established the Government Trade School in 1937 on Wood Road in Wan Chai, which was the predecessor of The Hong Kong Polytechnic University.

[128] Wong Tai-choi, Lau Leung-kwok and Hong Kong Museum of Education of the Education University of Hong Kong 黃棣才、劉亮國、香港教育大學香港教育博物館 : *The land of the cradle: Past and present education in Central and Western Districts*《搖籃地：中西區教育今昔》(Hong Kong: Chung Hwa Book Co., 2020), pp. 28, 106.

[129] Antiquities Advisory Board, "Historic Building Appraisal East Wing, St. Louis School No. 179 Third Street, Sai Ying Pun, Hong Kong", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/528_Appraisal_En.pdf. Date of access: 7 May 2022.

[130] Antiquities Advisory Board, "Historic Building Appraisal Aberdeen Technical School, No. 1 Wong Chuk Hang School, Aberdeen, Hong Kong", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/740_Appraisal_En.pdf. Date of access: 7 May 2022.

[131] Antiquities Advisory Board, "Historic Building Appraisal Tang King Po School No. 16 Tin Kwong Road, Kowloon", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/598_Appraisal_En.pdf. Date of access: 7 May 2022.

[132] Chiu Yu-lok 趙雨樂 : *The impression of Hong Kong and national consciousness of intellectuals from the Mainland during the modern era*《近代南來文人的香港印象與國族意識》(Hong Kong: Joint Publishing (Hong Kong) Company Limited, 2016), p. 140.

[133] Ngai Ting-ming 危丁明, "Traditional religion of Chinese in Hong Kong during the War of Resistance Against Japanese Aggression"〈抗戰烽火中的香港華人傳統宗教〉, in Siu Kwok-kin and Yau Chi-on 蕭國健、游子安 (eds.): *The furnace ancient and modern: Hong Kong history proceedings, 2013*《鑪峰古今 : 香港歷史文化論集2013》(Hong Kong: Centre for Hong Kong History and Culture Studies, Chu Hai College of Higher Education, 2014), pp. 65-66.

[134] Antiquities Advisory Board, "Historic Building Appraisal Confucius Hall No. 77 Caroline Hill Road, Causeway Bay, H.K", https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/N349_Appraisal_En.pdf. Date of access: 6 May 2022.

[135] Antiquities Advisory Board, "Memorandum for Members of the Antiquities Advisory Board – Hoh Fuk Tong Centre, Tuen Mun" (Board Paper AAB/18/2003-04)(Date of meeting: 9 September 2003).

3

Application of New Technology in Built Heritage Conservation and Education

Technological Protection of Built Heritage

—— The Chen Clan Ancestral Hall in Guangzhou as an Example

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SHI Haobin

Abstract

This paper uses the dynamic monitoring system of the Chen Clan Ancestral Hall of Guangzhou, a major historic site protected at the national level, as an example to illustrate the reasons for installing the Beidou Monitoring System, and termite activity and other multiple background data monitoring systems, as well as their technical features and related data analysis. By examining successful cases of monitoring practices, this paper shows the important role of dynamic monitoring systems in conserving traditional architecture, and their effectiveness in detecting potential damage to built heritage and extending the life span of these valuable cultural relics.

The Chen Clan Ancestral Hall ("the Ancestral Hall"), which has a horizontal board at the entrance inscribed with the name "Chen Clan Academy", is located on Zhongshan seventh Road, Guangzhou. Construction began in the fourteenth year of the Guangxu reign of the Qing dynasty (1888) and was completed in the nineteenth year of the Guangxu reign of the Qing dynasty (1893). It was originally a multi-clan ancestral hall, a joint venture by the Chen family in 72 counties of Guangdong province. It is a traditional ancestral hall in the Lingnan style, and it is among the largest, most beautifully decorated and best-preserved in Guangdong. In 1988, the State Council designated it as a Major Historical and Cultural Site Protected at the National Level. The Ancestral Hall cooupies an area of 15,000 m^2, and the area of its main building is 6,400 m^2. It comprises 19 individual buildings, separated by *Qingyun* alleys and connected with long corridors. It is praised as the "The Pearl of Lingnan Architectural Art" (Figure 1).

The Chen Clan Ancestral Hall is now the site of the Guangdong Folk Arts Museum (the Museum), which was founded in 1959 and declared a national first-grade museum in 2017. Since its establishment more than 60 years ago, the Museum has been tasked with the protection, management, and rational utilization of the Ancestral Hall, and has engaged extensively in the exploration of how to protect and utilize it. In 2016, we installed a dynamic monitoring system, which offers a scientific and technological means of protection. In the following, we review its implementation and discuss the results of the system.

Figure 1 Overview of the Chen Clan Ancestral Hall

I. Protection and Condition of the Ancestral Hall before Implementation of the System

The top priority of the Museum has always been the scientific and effective protection of the Ancestral Hall. Since its establishment in 1959, the Ancestral Hall has undergone 22 preservation and restoration projects, including comprehensive, periodic and targeted repairs. Consequently, the original layout and features of the Ancestral Hall have been well protected and restored. However, unavoidable challenges arose owing to the development of the city and the historical changes in the surrounding environment, as follows:

1. From its former position outside Guangzhou in the Qing dynasty, the Ancestral Hall is now in the centre of Guangzhou. One of the main arteries of the city, Zhongshan Road, runs directly in front of the Ancestral Hall. The surrounding area is full of high-rise buildings, with a high-density population and heavy traffic (Figure 2).

2. Owing to the higher surrounding terrain, the front hall of the Ancestral Hall is 1.08m lower than Zhongshan 7th Road. Since the groundwater level is very high in the area, it has a severe drainage problem.

3. The Ancestral Hall is also exposed to various types of environmental pollution, such as air and soil pollution, which has a long-term effect on the structure.

4. The Guangzhou Metro Line 1, which started operation in 1999, passes through Zhongshan 7th Road underground and in front of the ancient building. In 2015, the construction of the north extension line of Guangzhou Metro Line 8 started in an enclosed area on the east side

Figure 2　Bird's Eye View of the Current Situation around the Chen Clan Ancestral Hall

of the Ancestral Hall to create a transition space with Metro Line 1, with a cutting depth of 25 metres, for the preparation of the metro track. The foundation pit was located only 13 metres from the nearest part (the east wall) of the Ancestral Hall. With the operation of Metro Line 8, two subway lines pass underground near the Ancestral Hall, which requires long-term monitoring and impact evaluation of the structural safety of the hall.

5. Intensification of termite damage. The Ancestral Hall is a large-scale masonry-timber structure, built with Pontianak wood, teak and cedar. There are a large number of plants in the courtyard, making the Ancestral Hall very vulnerable to termite damage. From 2013 to 2017, 22 cases of termite damage were found in the Museum, ten of which were found in the ancient wood structure, five in the wooden showcases, five in sundries, and two in green plants. The survey of the wood sections of the Ancestral Hall was strengthened to enhance the prevention and treatment of termites. However, it is often difficult to discover and prevent the formation of termite nests and eliminate the termites scattered around since the nests are often located deep underground. Termite damage still occurs from time to time, and it is difficult to effectively control the damage to the ancient building and surrounding plants.

Because of the regulations on the conservation, security and fire safety of ancient buildings, in the past only conventional manual surveying and inspections were conducted to monitor the conditions of the Ancestral Hall. Without a scientific system and preventive monitoring of the wall structure, masonry-timber components, and so forth, it is difficult to have a good understanding of the structural condition and trend of the ancient building.

II.　Establishing a Dynamic Monitoring System

During the process of protection and adaptive reuse of the Ancestral Hall in recent years, scientific and technological conservation methods were introduced to ensure its immediate and preventive protection to achieve the goal of "protection and development in parallel".

From 2016 to 2021, we targeted the specific problems of the Ancestral Hall and adopted the "3D Scanning, Detection and Monitoring System of Ancient Buildings", "Building Vibration Monitoring System", and "Monitoring System for Termite Infestation" to protect it. The dynamic monitoring of the ancient building was implemented in accordance with an agreed schedule.

(1)　3D Scanning, Detection and Monitoring System of Ancient Building

In 2016, to ensure the safety of the Ancestral Hall, "3D Scanning, Detection and Monitoring Project (Phase 1)" was introduced and executed in some of the halls, and 3D scanning was applied. Cracks, temperature and humidity, strain and subsidence were also monitored by means of wire transmission. However, wire transmission required a lot of cabling in the ancient building, which involved practical issues, such as long duration for concrete outcomes and implementation and maintenance difficulties. For these reasons, it was hard to carry out these measures in all parts of the Museum.

Thanks to substantial support from the Government, the development of the Beidou Navigation Satellite System ("BDS") has progressed rapidly for civilian use, and the related technology has become very mature. As the *Application Guide on BDS Precise Service* points out:

> With the precise positioning service of Beidou, many monitoring stations were set up in the vicinity of the historic and heritage buildings to establish a deforming monitoring network. Integrating the use of laser distance metres … gave us accurate information about the positioning of the building walls, allowing real-time deforming monitoring of the buildings and overall monitoring of ground settlement in the surroundings.[1]

In other words, without damaging the appearance or overall structure of the heritage buildings, the advanced BDS positioning and monitoring technology is applied to the overall monitoring of the potential safety hazards of heritage buildings, including deformation and settlement.

After thorough investigation and repeated verification in the initial stage, in 2017, we initiated the "3D Scanning, Detection and Monitoring Project (Phase 2)" to introduce BDS as the basis of the safety monitoring system, complemented by devices allowing wireless signal transmission, which avoids the problem of cabling. This system was tailor-made for the Ancestral Hall, as it allows real-time monitoring and avoids possible damage to the building appearance and structure. The system is composed of the following:

A. Beidou Monitoring Stations

The Beidou Monitoring Station (Figure 3) comprises a GNSS monitor and a receiver to provide longitude, latitude and altitude data that is accurate to the millimetre. Through background calculations, a deforming monitoring network is formed, meeting the need for precise displacement and settlement data.

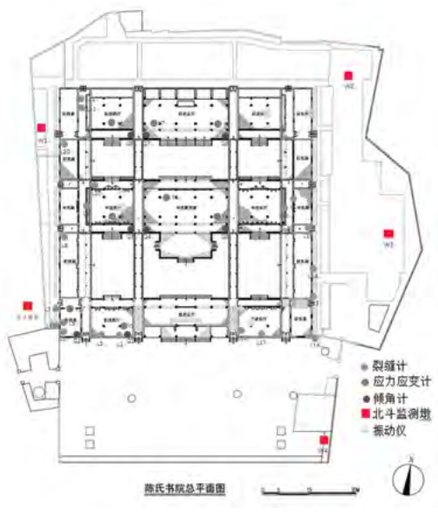

Figure 3 Beidou Monitoring Station and Distribution

B. Crack Gauge

The current cracks are monitored with a crack gauge (Figure 4) to detect instantaneous changes in the cracks in real time (accurate to 0.1 millimetre).

Figure 4 Crack Monitoring Point and Distribution

C. Gradiometer

The inclination of the gable walls is monitored by gradiometres (Figure 5) to detect inclination changes in real time.

Figure 5 Inclination Monitoring Point and Distribution

D. Stress-Strain Gauge

The stress variation on the beam mounts is monitored with a stress-strain gauge (Figure 6).

Figure 6 Stress-Strain Monitoring Point and Distribution

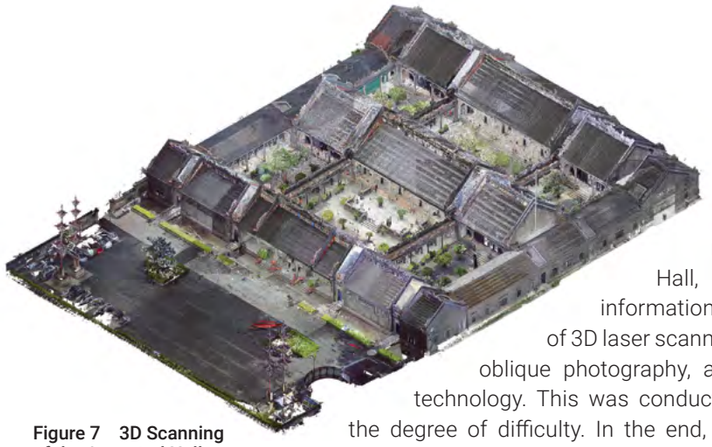

Figure 7 3D Scanning of the Ancestral Hall

E. 3D Scanning

For precise surveying and mapping of the Ancestral Hall, three-dimensional digitized information was collected with the help of 3D laser scanning, unmanned aerial vehicle oblique photography, and image-based modelling technology. This was conducted in phases according to the degree of difficulty. In the end, the point-cloud 3D models and vectorized orthophoto images showing the current condition of the Ancestral Hall were completed, creating CAD drawings of the plane and vertical sections of each space (Figure 7).

(2) Building Vibration Monitoring System

In 2018, according to the stipulations and requirements of the GB/T 50452-2008 *Technical Specifications for the Protection of Historic Buildings against Man-Made Vibration,* a building vibration monitoring system was introduced in part of the area of the Ancestral Hall to determine the frequency of external vibration. Vibration data generated from the surrounding environment and metro operation was analyzed to form a dynamic monitoring system providing vibration monitoring and security warnings. It laid a scientific foundation for expanding the vibration monitoring system to cover the whole Ancestral Hall, improved the protective measures for the cultural relics, and provided figures for formulating other anti-vibration measures in the future.

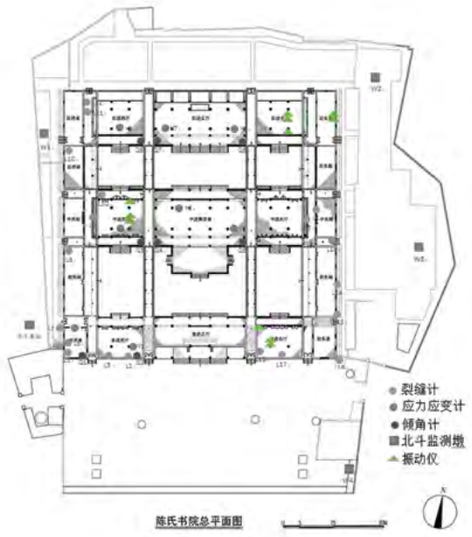

Figure 8 Vibration Monitoring Point and Distribution

The system was used at the front east hall, rear east hall, rear east chamber and middle west hall (Figure 8). The system allows us to evaluate the anti-vibration performance of the Ancestral Hall and acquire data relating to potential damage caused by the surrounding construction, underground railway, and other sources of vibration. These will provide a reliable basis for the formulation of repair proposals, vibration reduction methods, and conservation and maintenance measures at a later stage.

To preserve cultural relics, casual wiring, nailing and hole-drilling are not allowed for the installation and fixation of devices in masonry-timber ancient buildings. For wired and wireless transmission, the apparatus should be installed and fixed after testing reversible means, like glue and fastening with bent thin copper sheets. A high-quality battery should be in place to ensure 24/7 power supply to guarantee the safety of the Ancestral Hall.

(3) The Integration of Systems

In 2018, we engaged professional agencies to integrate the above-mentioned monitoring systems into a unified platform (Figure 9). Using BDS as the basis, we incorporated the data collected from a total of 52 crack monitoring, inclination monitoring, stress and strain monitoring, and vibration monitoring devices inside and outside the building via wireless transmission to create a unified backstage platform to build a dynamic monitoring system for the Ancestral Hall (Figures 9 and 10).

Figure 9 Distribution of Monitoring Points

Figure 10 The Behind-the-Scenes Monitoring System after Integration

The operation interface of the dynamic monitoring system was integrated with a three-dimensional view of the ancient building to show the data from all monitoring points and inspection records in real time. In accordance with the related technical specifications (like the *Technical Specifications for the Protection of Historic Buildings against Man-Made Vibration* GBT 50452-2008), an alarm threshold was set to determine the level for triggering system alerts. The interface allows records of all monitoring points to be checked at any time, which provides better management and comparisons of changes and trends, and identifies problems within specific zones.

(4) Monitoring System for Termite Infestation

In 2017, a monitoring system for termite infestation was introduced. In 2020, the system was upgraded, and the number of monitoring points was increased from 122 to 160. The system comprises termite monitoring devices, network monitoring stations, and a monitoring data management platform. It replaces traditional manual termite monitoring and inspections. The 24-hour automatic monitoring regularly uploads the results with over 95% accuracy.

A. Termite Monitoring Device

The termite monitoring device (Figure 11) is composed of a plastic case, electronic parts and pieces of wood. The termites around the device are attracted to the wood, and their action is transferred through the information collection module in the device and transmitted wirelessly to the network monitoring station. There are 160 termite monitoring devices (Figure 12) in the Ancestral Hall and in the surrounding areas with green plants, spaced one to three metres apart.

Figure 11 Termite Monitoring Device

Figure 12 Distribution of the Termite Monitoring Points (2020)

B. Network Monitoring Station

The network monitoring station (Figure 13) functions as a hub to gather the signals transmitted by termite monitoring devices within 3,000 meters. Termite threats can be accurately and immediately detected for upload to the monitoring data management platform.

Figure 13
Network Monitoring Station

C. Monitoring the data-management platform

To monitor the data-management platform (Figure 14), staff can check the location plan of all monitoring devices, the previous monitoring data, and the running status of the monitoring devices. The information can be viewed on a website using a PC, cell phone app or WeChat.

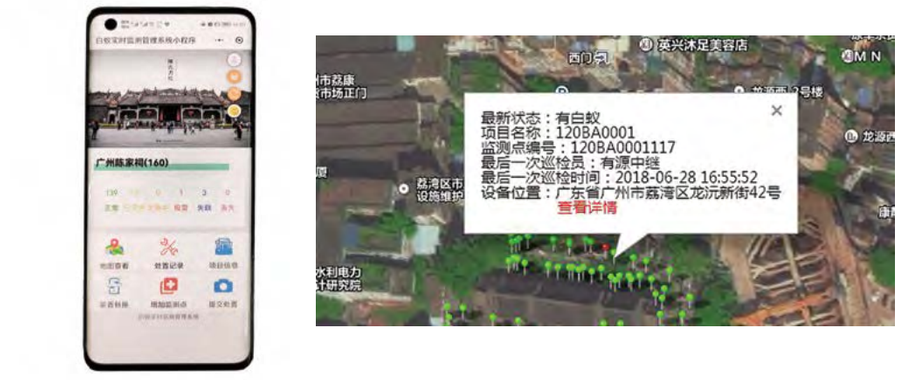

Figure 14 Monitoring Data Management Platform

When termites are found, staff check the number assigned to the monitoring device shown on the location plan of the platform, open and inspect the device using a special tool, and determine the number of living termites. If there are at least several hundred termites, the electronic components are removed, and the termites inside the wood are sprayed with an insecticide. When the termites take it back to their nest, the rest of the colony is killed within one to two weeks.

When the termites are killed, the original monitoring electronic components and the new outer shell and wood are reassembled. A new pit of about 20 cm deep is excavated 0.5 metres from the original location. The monitoring device is reinstalled and real-time supervision resumes.

III. Results of the Dynamic Monitoring System

The dynamic monitoring system in the Ancestral Hall has been in operation since October 2017. The results are as follows:

(1) Dynamic Monitoring System

Since the installation of the dynamic monitoring system, there have been 36 monthly reports, three annual reports, and one overall report. The results of all the monitoring evaluations are as follows:

Inclination Monitoring: The data remained stable, and no obvious change was recorded at the eight monitoring points. The variation range of the monitored values was ±0.06° (approximately to the accuracy of the sensor), which did not affect the safety of the monitored structures.

Strain Monitoring: The building structure was affected by weather during the monitoring period. The structural stress changed constantly, with a variable quantity of ±60με, but this did not affect the safety of the monitored structure.

Crack monitoring: During the monitoring period, there were some regular uniform changes in the cracks at the monitoring points, with a variable quantity of ±4 millimetres and an average value of -2.4 millimetres. The cracks had a closing trend, and the monitoring results indicated that the structure was safe.

Vibration monitoring: There were no obvious issues concerning the structural safety of the ancient buildings. Judging from the monitoring data, the structure of the front east hall, middle west hall, rear east hall and rear east chamber remained stable.

(2) Monitoring System for Termite Infestation

As Figure 15 shows, there were 41 termite alerts from the introduction of the termite monitoring system in 2017 to the end of 2020. This was a 310% increase over the previous system from 2015 to 2017. There was an increase of 22 times for the termite monitoring points in areas with green plants. In contrast, the number of termites discovered in the Ancestral Hall was reduced to only 30% of the previous figure. The total number of termite-infestation cases increased in 2018, the first year after the implementation of the monitoring system, but quickly decreased in 2019, and there were only three cases in 2020.

The monitoring data showed that the system was successful in reducing the termite population and problem. Termite damage changed from inside the ancient building to the surrounding green area. The termites were successfully eradicated. The monitoring system proved to be effective in providing a protective shield for the Ancestral Hall.

According to the monitoring results, the distribution and trend of termite damage were clearly examined, the locations of three underground termite nests were identified, and measures were taken to exterminate them. The level of potential termite hazard was differentiated and plotted by zone, as shown in Figure 16, in accordance with the termite distribution. The extermination and control measures were implemented according to the assessed risk level.

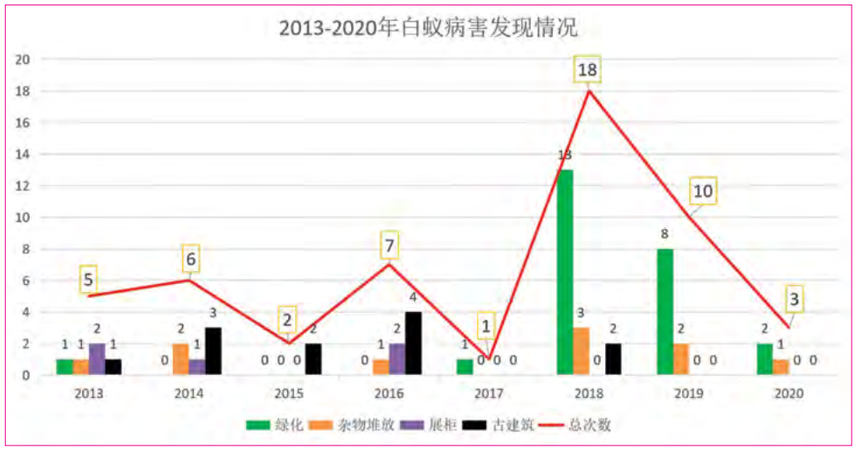

Figure 15 Termite Damage Discovery from 2013 to 2020

The termite monitoring system was upgraded in October 2020 in accordance with the zoning plan for potential termite damage (Figure 17). The distribution of monitoring points was adjusted to increase the number of monitoring devices in high-risk regions to ensure the termite damage was comprehensively resolved through source control.

The practical use of the monitoring system proved its effectiveness in providing real-time information, facilitating information inquiry and archiving information. The problems caused by abnormal information and deferred notification were resolved, and the potential hazards caused by termites were eliminated and alleviated. The application of real-time monitoring and the alarm system mitigated termite damage in the Ancestral Hall.

Figure 16 Location Plan of Estimated Termite Nests

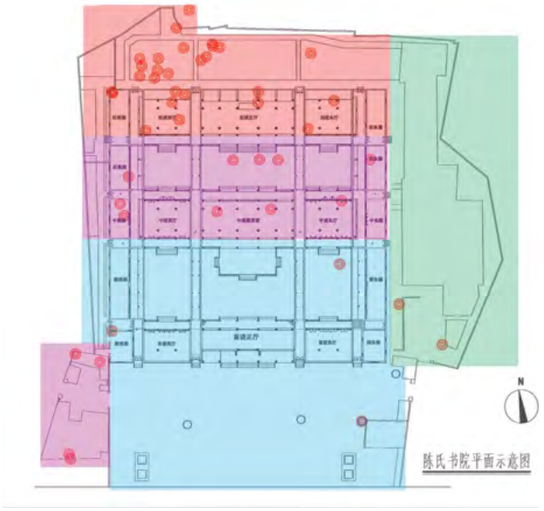

Figure 17 Zoning Plan for Potential Termite Damage

To sum up, the establishment and operation of the dynamic monitoring system for the Ancestral Hall provides rich, real-time data about the changing situation of the building, and the alarm was triggered many times to alert Museum staff about abnormal conditions, such as strains, cracks or termite discovery. This has allowed timely monitoring of a variety

Figure 18 Diagram Showing the Monitoring Points in 2017 and 2020 before and after the Adjustments

of situations in and around the ancient building, so that we can coordinate with the relevant parties on methods of construction works nearby and minimize their harmful impact on the building. The monitoring parameters, such as crack changes and termite monitoring data, help us discover potential hazards at an early stage, and planning an appropriate conservation scheme has made it possible to extend the life span of the precious cultural relics. This method of preventive conservation has achieved positive results and laid a solid foundation for the scientific protection of the Ancestral Hall.

[1] National Administration of Surveying, Mapping and Geoinformation (2017): *The Application Guide on BDS Precise Service System* (2017 edition), p. 43.

Traditional Methods for a Sustainable Future

—— The New Approach in Conservation Education

IP Kin Hong, obtained the PhD degree in Heritage Conservation at the Faculty of Science, University of Technology, Sydney (UTS). Kin has been working as the principal conservator and heritage scientist at the Macao's Cultural Affairs Bureau, responsible for the conservation of the heritage architecture at the UNESCO listed Historic Centre. She is currently an assistant professor at the Macau University of Science and Technology, supervising postgraduate students in the field of Heritage Architecture Conservation and Adaptive Reuse.

Prof IP Kin Hong

Abstract

"Climate Change" is a complicated and challenging crisis the modern world is facing today. The extent of its damage is incalculable, and it continues to devastate the environment and human lives in a rapid fashion. While government officials and policy makers are working hard to contain its growing destruction, professionals from different areas of expertise are also participating in the rescue process. Recent research indicated that large amount of carbon emission came from the building industries as well as the continuing operations of these modern constructions. The finding accelerated experts' focus on revisiting the traditional building materials and techniques, which have created a more sustainable environment and healthier lifestyles for our ancestors. The current paper describes the unique characteristics of some commonly used local materials in the conservation of heritage architecture in Macao, while elaborates on a new approach of incorporating traditional methods and techniques into education curriculums to prepare for a sustainable and carbon neutral future.

Figure 1 Macao Old Map showing defence wall (red) and the urban buildings
Source: Bocarro, António (1992) O livro das plantas de todas as fortalezas, cidades e povoações do Estado da India Oriental. Lisboa : Imprensa Nacional-Casa da Moeda.

Introduction

History

Macao is a UNESCO listed Historic Centre which was inscribed in 2005 as the 31st World Heritage site in China. The city has always been well known as an important platform for cultural exchange between the East and the West since the Portuguese settlement almost 500 years ago. Large scale constructions including military fortification system – bunkers, fortresses, lighthouses, together with hundreds of kilometres of connecting defence walls were underway (Figure 1). Churches, residential mansions, public buildings and facilities were also erected soon after the arrival of the first fleet of foreign seamen. The first image of Macao being the intercultural city was shaped during this time, with the subsequent colonization of the peninsula further transforming the once tranquil fishing village into a vivid and colourful city. Many of its mixed cultural elements can be observed throughout the city today, whether they are the architecture typologies, festival celebrations, culinary arts, or even its official languages. Macao is a unique city known for its harmonious environment, cultural tolerance and creative freedom.

Traditional Passive Building Designs

Geographically, Macao is located at the Canton province of the Lingnan region in South China. Local climate is typically subtropical with short mild winters, but long, hot and humid summers, where tropical monsoons and typhoons are relatively frequent.[1] To combat such muggy and suffocating atmosphere in summer, our ancestors purposely incorporated various passive systems in building designs and constructions, which is demonstrated effectively in the traditional Lingnan architectural typology, as well as many historic buildings in Macao today. The passive ventilation and lighting systems of courtyards, patios, lightwells, cold

Figure 2 Lightwell, oyster-shell windowpanes and opposing windows in the Mandarin's House
Source: Photo taken by Chan Hin Io

alleys, oyster-shell windowpanes, opposing windows and doors were utilized to maximise natural elements to provide living comfort to its residents. In addition, traditional building materials such as the timber framework, Chinese grey bricks, slaked-lime mortar, limewash and earthen materials were also widely used for its permeability and reusable nature. The specific characteristics of such materials is essential to maintain the ruggedness and the structural integrity in traditional buildings within such sultry environment of Macao (Figure 2).

Current Situation

Land reclamation from the region's vigorous urbanization has seen Macao reshaping its land size and transforming its identity from a 10 km^2 farmland into the 33 km^2 of commercial city hub in the past 100 years.[2] Being one of the two Chinese Special Administrative Regions, Macao has established itself as the world Centre of Tourism and Leisure with the region's unique culture, heritage and identity being the main attraction to the tourists from around the world. Despite significant improvement in its economic status, international reputation and living standards, the rapid development in the city has resulted in many unexpected negative impacts. For example, the raised street levels to accommodate the modern facilities such as phonelines and water pipes resulted in the "burying" of the historic architecture below ground levels. The installation of the impervious concrete surfaces in fact destructed the natural water soaking mechanisms of the traditional granite cobblestone streets once connecting the entire city (Figure 3). The drastic change in construction materials over the past decades has also shown negative impacts on the robustness of the city's historic buildings. The use of impermeable cement render, polymer coatings, concrete footings and high-density composites etc. for the restoration of heritage architecture have been proven detrimental and irreversible on the already fragile structures. On the other hand, the current adopted design strategies for the adaptive reuse of traditional buildings mainly focus on the visitors' comfort and the aesthetic appeal of the structures. Courtyards and lightwells are enclosed by glass panels to allow the operation of the air-conditioning. Modern windows and doors are installed for better security and to block the exchange of air. As a result, phenomena such as rising salt damp, humidity condensation and biological growth were observed to be worsening in recent years.

Data from the Macao's Bureau of Meteorology showed a continuous climb in average temperature in the past 100 years (0.71°C / 100 years), although the magnitude of such increase is less significant compared to many countries around the world.[3] The current global climate crisis has shown noticeable negative impacts, where the severity and frequencies of tropical typhoons, torrential rainfalls and seawater intrusion in recent years have increased dramatically with Typhoon Hato and Typhoon Mangkhut in 2017 and 2018 resulted in severe property damages and human casualties (Figure 4). Furthermore, historical architecture was amongst the most vulnerable due to their low-lying locations, lack of building foundations and incorrect use of restoration materials in the past.

Aim of Project

Modern construction industries accounted for the biggest global energy consumption and carbon emission in present day.[4] Many countries particularly in Europe have reduced or even abolished the production of cement due to its large carbon emission upon production.[5] World leaders have legislated to forbid large scale demolition and opt for adaptive reuse of existing constructions. As a result, adaptive reuse of old buildings has become one of the recognized solutions to achieve the global target of carbon neutrality and to protect our environment for a more sustainable future. Architects and building professionals have been looking at ways to add "green" elements into the modern buildings, while conservation scientists and researchers focus on the re-introduction of the passive design concepts as well as the traditional building materials with low-carbon footprint back into the restoration and construction sectors. The achievement of a sustainable construction/restoration not only requires thorough scientific investigation into the characteristics and reaction properties of various building materials, but most importantly, such traditional knowledge and skills must be passed down to the future generations. The sustainability of the traditional material restoration methods, building techniques and craftsmanship are equally important as the sustainability of the tangible and intangible heritage which were continuously emphasized throughout the decades. The current paper would be divided into two sections: Part I would explore briefly on two previous restoration projects conducted in the Historic Centre of Macao which emphasize the importance of solving local conservation problems through local knowledge. Part II would describe the new approach in the conservation education program which is specifically designed to nurture future conservation professionals.

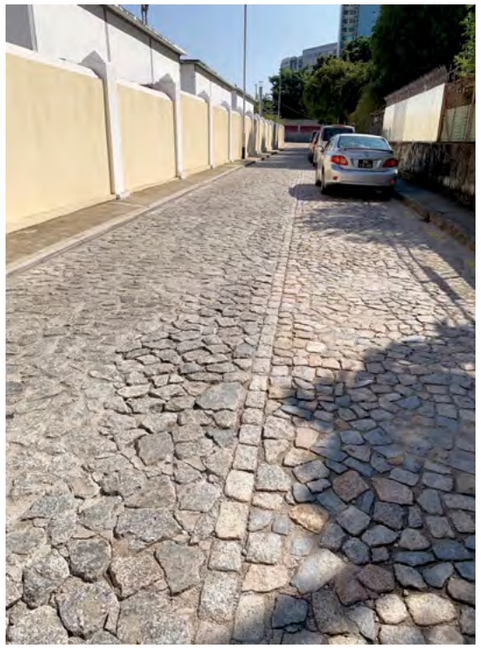

Figure 3 Original Cobble Stone Roads in Macao
Photo taken by author

Figure 4 Flooding and seawater intrusion impacted in Macao during Typhoon Hato
Source: Photo taken by Chan Hin Io

Part I

Case Study 1 – The Preparation of Traditional Limewash – Patane Library

Conservation Background:

Located at No. 69-81 Rua da Ribeira do Patane, Macao, the Patane Library is the most popular gathering space for residents of any age from the inner harbour community and its surrounding districts. The original reinforced concrete construction consisted of seven 2-storey terrace-style shophouses, which was built in the early twentieth century.[6] The restoration commenced in 2011 by the Macao Cultural Bureau and was officially opened to the public at the end of 2016 (Figure 5).[7]

The main challenge for conservators in this adaptive reuse project is its proximity to the inner harbour, where building structures are often damaged by sea spray and humid saline atmosphere. Flooding from seawater intrusion is very common during monsoon and typhoon seasons each year. Subsequently, structural cracks were observed throughout each shophouse, as the original steel reinforced concrete was severely corroded by the effect of long-term rising salt damp. In addition, previous impermeable restoration materials such as modern polymer waterproof emulsion, acrylic paints and enamel coatings were seen peeling and detached from the original lime mortar due to the increased pressure from the crystallization of soluble salts within the walls, where salt crystals were also detected scattering on both the exterior and interior wall surfaces.[8] As a result, half of the shophouses have collapsed with only the building façade and its balconies remained due to structural instability.

Heritage conservation researchers around the world have indicated the importance of maintaining breathability of all traditional heritage architecture, to ensure the long-term survival of the historical fabrics. While various government authorities are working together to find an effective method to resolve saltwater intrusion, the immediate aim of the conservation strategies for the Patane Library mainly focused on the restored structure's immunity to its saline environment. Therefore, the re-utilization of its original building materials to maximise permeability was necessary to allow the movement of moisture within walls structures. Traditional lime mortar and limewash were specifically formulated to allow proper "breathing" through wall surfaces, hence, eliminating the build-up of internal pressure. The external limewash was tinted with mineral pigments to match the existing colour, however, the internal colour was achieved by using mineral ink.

Figure 5 The Façade of the Patane Library
Photo taken by author

Conservation Methods:

The conservation strategy involved the utilization of traditional slaked lime products after the removal of impermeable materials and residual salts from all wall surfaces. Restoration materials were prepared by the conservation team following traditional lime-slaking methods, where quarried limestone pieces were slaked based on the general lime cycle reactions. Additives such as rice straw or mineral pigments were added according to the final functions of the materials. These include two types of lime products:

1. Slaked rice-straw lime mortar – Chinese traditional lime mortar reinforced with rice straw fibres.

2. Coloured limewash – White slaked-lime surface coating tinted with mineral pigments.
Slaked lime is a high alkaline mortar which, on one hand, allows maximum breathability, and, on the other hand, retards active corrosion of the steel reinforcement within the concrete wall. The addition of rice straws not only increase the surface area and porosity of the mortar for better permeability, but also reduce the formation of fine cracks during the curing process of the lime mortar. Furthermore, limewash prepared from slaked lime enables its effective adhesion on the compatible lime mortar. The colour of the original limewash was matched with the addition of mineral pigments without jeopardizing its pervious characteristics (Figure 6). As a result, the walls of the Patane Library have retained the structural integrity and robustness until today, even though seawater intrusion is recurring several times each year.

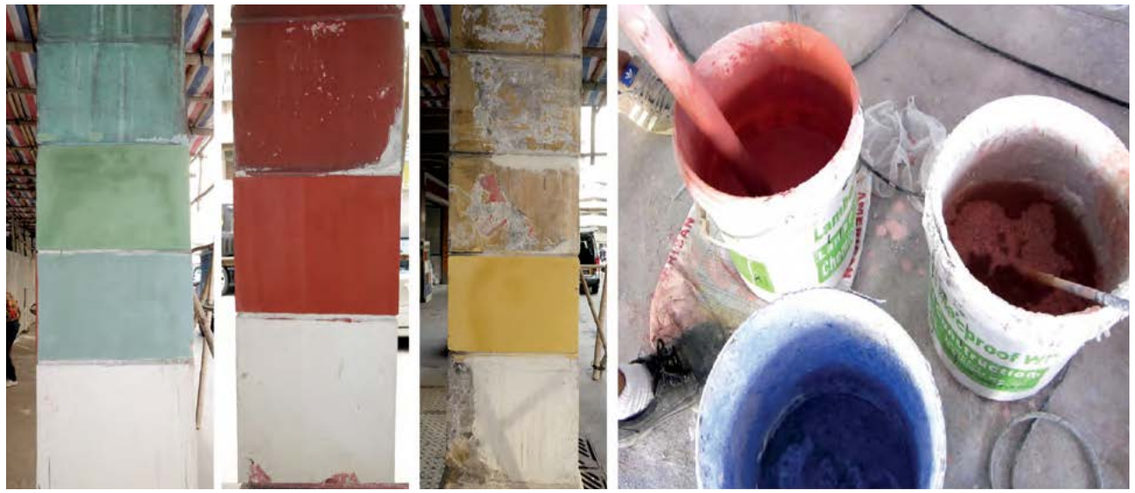

Figure 6 Limewash tinted with mineral pigments
Photo taken by author

Case Study 2 – The Damp Proof Course Injection – Former Chong Sai Pharmacy

Conservation Background:

Located at No. 80, Rua das Estalagens in Macao peninsula, the Former Chong Sai Pharmacy, established by Dr Sun Yat-sen in 1893 to provide medical treatments and to supply Western medication to the residents of Macao (Figure 7).[9] The original building was a typical Chinese grey brick shophouse built with many decorative features from the Lingnan architecture typology. However, Western elements such as stained glass, ceiling roses and timber faux ceiling have also been incorporated into the design.

The original condition of the building was very poor at the time of the acquisition by the Macao Cultural Affairs Bureau. The slope roof of the main building had caved in with wrecked floorboards in every level. The self-standing annex building in the back collapsed completely with its bricks and tiles remained onsite. Several original decorative features in the main building such as Chinese stucco reliefs (including its previous lime plaster shop sign), fresco wall paintings, mother-of-pearl shell windows and wooden staircases were still intact. Various degrees of structural cracks were observed throughout the entire building with particularly larger cracks located between walls jointing the front and back façades.

The neighbouring building at No. 78 was being demolished at the time to make way for the construction of a modern building. Hundreds of grey bricks were salvaged from the demolition and reused in the restoration project of Former Chong Sai Pharmacy. On the other hand, foundation footing was partially missing at the lateral wall shared with Building No. 82, where grey bricks were in direct contact with the sub-soil in the ground. Sections of the neighbouring new wall were found embedded into the original double-brick wall when No. 82 was converted into a 4-storey apartment over 30 years ago. Severe falling damp and rising salt damp have exerted irreversible damages in the grey bricks and the leaching of soluble salts from the adjacent building had further exacerbated the damages. Furthermore, archaeological remains were discovered beneath floor level where ground water is abundant, and flooding is common.

Figure 7 The Façade of the former Chong Sai Pharmacy
Source: Photo taken by Chan Hin Io

Conservation Methods:

The adaptive reuse of the former Chong Sai Pharmacy involved the rebuilding of the posterior annex building to accommodate modern facilities such as the staircase, elevator, bathrooms, breastfeeding room and storage space. The connections between the new and the old structures required careful planning in adaptive design, material compatibility and specific craftsmanship. Part of the restoration strategies coincided with the structural reinforcement of the building was to stabilize the footings of the walls to prevent further cracking. Small granite blocks were re-inserted into the footing where it was omitted. Silicate based damp-proof-course was installed due to the lack of wall foundation, excessive ground water and inaccessibility to the shared wall which resulted in severe rising salt damp each year. Solution was gravity fed into the footing of each wall to prevent further capillary action, followed by the removal of internal harmful salts using paper pulp salt scavengers (Figure 8). All damaged grey bricks were repaired with soot-tinted lime mortar mixed with brick dust or replaced with the salvaged grey bricks on site. The archaeology site was protected with water permeable rammed earth side walls and an automatic water pump was installed to drain out excess ground water. Old brittle cement caulk of the roofing joints was replaced with the more flexible rice-straw mortar to accommodate the minor movement of the ground.

Figure 8 Damp-proof-course injection through gravity dripping
Photo taken by the author

Stucco reliefs, wall paintings as well as surface plasters were restored using traditional rice-straw slaked lime, paper pulp lime and limewash to maximise permeability to accommodate Macao's subtropical climate and to secure the compatibility with the masonry walls. The existing courtyard and lightwell were remained open to allow sufficient ventilation, with the penetration of natural light through the restored mother-of-pearl shell windowpanes. Such building arrangement and the adoption of the passive design not only render harmonious relationship between human and the environment, but are also viewed as responsible building methods especially in the current situation of global climate crisis.

Challenges

Heritage conservation is one of the most cross-disciplined area of studies among all professions and it is highly regional dependent. Various professionals from diverse background are required to work together in order to accomplish comprehensive results. Experts from traditional academic disciplines such as engineering, architecture, history, computing, management, physics, chemistry, material science and other related professionals have made great contributions to the field for many years. However, heritage conservation is still not recognized as an independent discipline in many countries, which is the biggest obstacle for nurturing the next generation of heritage professionals. The conservation industry has expressed concerns over the shortage of local knowledge and skills, which are facing severe succession problems in recent years. Much of the knowledge was lost due to the disappearing of the traditional teaching system of apprenticeship, where skills and techniques were passed down through generations of craftsmen.

Facing the devastating threats from climate change, world leading climate scientists and professionals are calling all sectors to look into ways of reducing carbon emission and green house gases. Heritage organizations UNESCO and ICOMOS have recently joined up with the Intergovernmental Panel on Climate Change (IPCC) to explore possible connections between culture heritage and climate sciences. The objective was to advance heritage and culture-based actions for climate change adaptation and carbon mitigation. The result of such meetings almost always indicated the need for the revitalization of local knowledge and traditional building materials and techniques to ease the burden of climate crisis. Therefore, conservation educators and researchers in Macao are working tirelessly to implement traditional crafts and skill classes in the hope of re-linking the lost connection between the experienced and the younger generations. It is believed that the sustainability of the local cultural heritage and the easing of the worldwide climate crisis can be initiated by the reintroduction of traditional building knowledge into the related disciplines.

Part II

Architectural heritage reflects the history, skills and the cultural evolution of the region and its people. Architectural heritage conservation, including both tangible and intangible heritage, is the undeniable responsibilities of future generations. Hence, interdisciplinary theories and methods must be incorporated into the education system of the built heritage conservation and its related fields of studies. Conservation is a dynamic branch of science based on memories, identities, lifestyles, and the relationships between people and places.[10] Therefore, the conservation of cultural heritage is not only a technical issue, or just preserve the buildings that are on the verge of damage. It requires long-term technical inheritance, including the establishment of a series of strategies, methods, and the education of practitioners in various professions.

In Part II of this paper, current international built heritage education strategies and requirement would be summarised, followed by the examination and evaluation of the training approaches in Macao.

Heritage Conservation Education around the World

From the beginning of the twentieth century, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Council on Monuments and Sites (ICOMOS) and the Council of Europe (CoE) have published more than 30 documents and recommendations for the protection and management of cultural heritage.[11] Many of these

publications have concerns over the related education for the younger generations. The *Amsterdam Declaration* (1975), issued by the Council of Europe for the Congress on the European Architectural Heritage, repeatedly stressed the importance of better training programs, exchange of knowledge, experience and techniques. The declaration further encouraged the promotion of interest in conservation among young people and the necessity of conservation education programs for the public. In addition, the congress pointed out that: "*The architectural heritage will survive only if it is appreciated by the public and in particular by the younger generation. Educational programs for all ages should, therefore, give increased attention to this subject.*"[12]

In 1993, ICOMOS adopted Guidelines on Education and Training in the Conservation of Monuments, Ensembles and Sites, giving a general outline for the contents of educational and training programs. The document states: "*There is a need to develop a holistic approach to our heritage on the basis of cultural pluralism and diversity, respected by professionals, crafts persons and administrators. Conservation requires the ability to observe, analyse and synthesize. The conservationist should have a flexible, yet pragmatic approach based on cultural consciousness which should penetrate all practical work, proper education and training, sound judgement and a sense of proportion with an understanding of the community's needs.*"[13]

In 2003, the UNESCO conference on "Linking Universal and Local Values" in Amsterdam concluded that "*the values in a World Heritage site are necessarily of local importance as well as being internationally recognized. It is not viable to manage universal value without acknowledging value of place to the local people.*"[14] Conservation educators have since acknowledged the need to carry out training programs locally, nationally and internationally to nurture the next generation of high-quality conservation professionals with sensitive problem-solving ethics, critical thinking and good communication skills through interdisciplinary approaches. Many countries have since implemented such education methodologies in practice.

Heritage Conservation Education in Macao

Macao has always been an intercultural platform for the East and the West, which allowed it to integrate regional knowledge and international expertise into the training of future generations of conservation professionals. Most of the city's heritage architecture displays the marriage of traditional Chinese and colonial Portuguese craftsmanship, which required specific local skills and techniques to ensure the safeguarding of its authenticity. Conservation professionals, as well as other project stakeholders, including architects, engineers, contractors, specialists and practitioners, etc., should familiarize themselves with traditional knowledge and skills to better understand the conservation process and properly safeguard our valuable cultural heritage. On the other hand, it is also important to share local knowledge and skills with the public to promote heritage conservation, help with the conservation of their own cultural heritage, and nurture future conservation professionals. Specific conservation programs, developed by government departments and higher education organizations, have shown effective results and continuous success. Such training programs have been adopted recently by many other education providers, local government as well as community groups to ensure proper inheritance of the traditional knowledge, to build intergenerational relationships, to deepen the confirmation of the cultural identities and to warrant a sustainable future.

The Commencement of the Heritage Guards Program

The "Heritage Guards Program" was designed specifically to target socially and academically disadvantaged youth in Macao. The training program, led by the Cultural Affairs Bureau, was a collaboration between three government departments: the Cultural Affairs Bureau, the Social Welfare Department and the Justice Department. A total of approximately 30 trainees, all from the Christian Youth Drug Rehabilitation Centre – The Youth Challenge Centre, went through the "Heritage Guards Program" from 2013 to 2017. The program aimed to help youngster with deviant behaviour to find a purpose of life by teaching them specific skills and providing them with social responsibilities. Trainees were provided with on-the-job mentoring by volunteered public servants from various professions which include heritage architecture restoration, archaeology, paper restoration, photography, stage setting, lighting design etc. The traditional apprenticeship system was adopted where more experienced trainees were responsible for the initial skill preparation of the newcomers. Conservation heritage guards have participated in most of the restoration and adaptive reuse projects conducted by the Cultural Affairs Bureau (Figures 9a & 9b). Armed with the acquired knowledge in traditional building materials and the skills, many graduates are still working in the related fields today. The program was proven to be a success with 100% rehabilitation rate compared to less than 5% prior to the start of the program, with one third of the total trainees graduated in the field of Heritage Architecture Conservation. The success of such program also helps families to regain healthy relationship with the children, drug trafficking and drug related crime can also be reduced. Unfortunately, the program was terminated in 2017 due to the change of government policies.

Figure 9a Heritage Guard Program - Lime stucco restoration in the St. Dominique Church
Photo taken by author

Figure 9b Heritage Guard Program - Rammed earth construction in the 15th Venice Biennial Architecture Exhibition
Photo taken by author

Higher Education Conservation Programs - Post Graduates, Architecture Graduates

Educational structures of traditional disciplines often restrict the opportunities for students to gain additional knowledge beyond the core subjects. However, modern teaching methods encourage both teachers and students to explore the possibilities of cross-disciplinal and interdisciplinary learning exchange. The Macau University of Science and Technology has recently offered postgraduation courses in the Department of Architecture. The Master of Architecture, in particular, provides students with two majors of studies: 1. Waterfront Urban Architecture and Design; 2. Architectural Heritage Conservation. Apart from conservation principles and theories, etc., students studying Architectural Heritage Conservation receive practical training on traditional building techniques, including rammed earth construction

and Chinese grey brick wall construction (Figures 10a & 10b). The practical element not only equips students with building conservation knowledge and skills, but also allows them to experience the actual conservation process. Such experience facilitates conservators' communication with workers or craftsman, as well as the monitoring/management process in building conservation projects.

Figure 10a Postgraduate Conservation Training - Chinese grey brick wall construction workshop
Source: Photo taken by Chan Hin Io

Figure 10b Postgraduate Conservation Training – rammed earth workshop
Source: Photo taken by Chan Hin Io

Vocational Training for Professionals – Local Building Craftsmen, Contractors and Educators

Conservation seminars, workshops, short courses and experience camps were organized throughout the year by government departments, universities, professional associations and community groups. The annual recurring courses aim to introduce and strengthen the traditional building skills of the building workforce, especially targeting local residents, craftsmen and building contractors. Training courses such as the "Vocational Training Program for the Cultural Heritage Building Restoration" and the "Technical Workshop Series - the Traditional Lingnan Roof Tiling Techniques" were co-organized by the Cultural Affairs Bureau, the Labour Department and the Macao Institute of Engineers (Figures 11a & 11b). Admitted participants must be in the field of building restoration, construction and education, whose career would benefit from such professional training. Seminars with selected topics in relation to traditional materials, building techniques, restoration methods and ancient crafts etc. are also held to provide specific in-depth training for interested craftsmen and residents. Conservation contractors and craftsmen have welcomed and supported the training initiatives which encouraged more building workers to join the training programs.

Figure 11a Vocational Training Program for the Cultural Heritage Building Restoration
Source: Photo taken by Kong Ka Ian

Figure 11b The traditional Lingnan roof tiling program
Source: Photo taken by Chou Hoi Wan

Foundation Programs – Students, Families and the General Public

A series of activities in the forms of site-visits, games and hands-on workshops have been held each year by the Macao government in the Heritage Protection Law Promotion Carnival. The event aims to promote public awareness, particularly to increase the interest and knowledge of youngsters in various heritage protection disciplines (Figure 12). Similar activities are also hosted by the Department of Education, the Science Centre and many other youth associations during summer and winter holidays for young people to learn about the region's traditional industries which includes fishing, building construction, firework making, shipbuilding, seafood processing etc. Positive results has been achieved as the heritage protection awareness of Macau residents has continuously deepened each year. The general knowledge of Macao's history and cultural heritage shown in the activities have led to the increased interest of students aiming for heritage-related future careers.

Figure 12 Families participated in the Heritage Protection Law Promotion Carnival 2021
Source: 澳門文化遺產網 **(1 November 2021)** 文化局辦《文化遺產保護法》推廣嘉年華周六日在瘋堂舉行
https://www.culturalheritage.mo/cn/detail/2982

Conservation Exhibitions - General Public

Part of the Damp Proof Course Injection setup was kept for the in-situ display of the conservation treatment process after the conservation of Former Chong Sai Pharmacy (Please see Part I Case Study 2), which reveals the "secret" of conservation to the public (Figure 13). The display is complemented by an interpretation, explaining rising damp and salt efflorescence, as well as the injection process of the damp proof course by the gravity-drip injection system, innovatively visualizing the conservation process and helping the public to understand how it works. The display system successfully arouses public interest on conservation.

Figure 13 The Damp Proof Course Injection – Former Chong Sai Pharmacy
Source: Photo taken by Kong Ka Ian

Conclusion

The conservation and restoration of cultural heritage involves the participation and collaboration of professionals from various disciplines. The lack of interest of the younger generations in the traditional skills and local knowledge has resulted in destructive conservation methods particularly in the current crisis of climate change. World leaders, climate scientists and professional educators have worked together to reintroduce traditional building knowledge and implement workable methods with local characteristics in the hope to reignite passions and interest in the minds of the youngsters while tackling climate change with wisdom of our ancestors. Preliminary success has been achieved in Macao and many countries around the world, although much more resources and stronger cooperation between public and private sectors are still needed to accomplish an effective training system. However, the global efforts led by many international organisations have shown great determination and promising forecast for a more sustainable future.

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The Application of Innovative Technologies to the Characterisation, Dating and Conservation of Hong Kong's Upland Historic Landscapes

McCord Centre for Landscape,
Newcastle University, UK

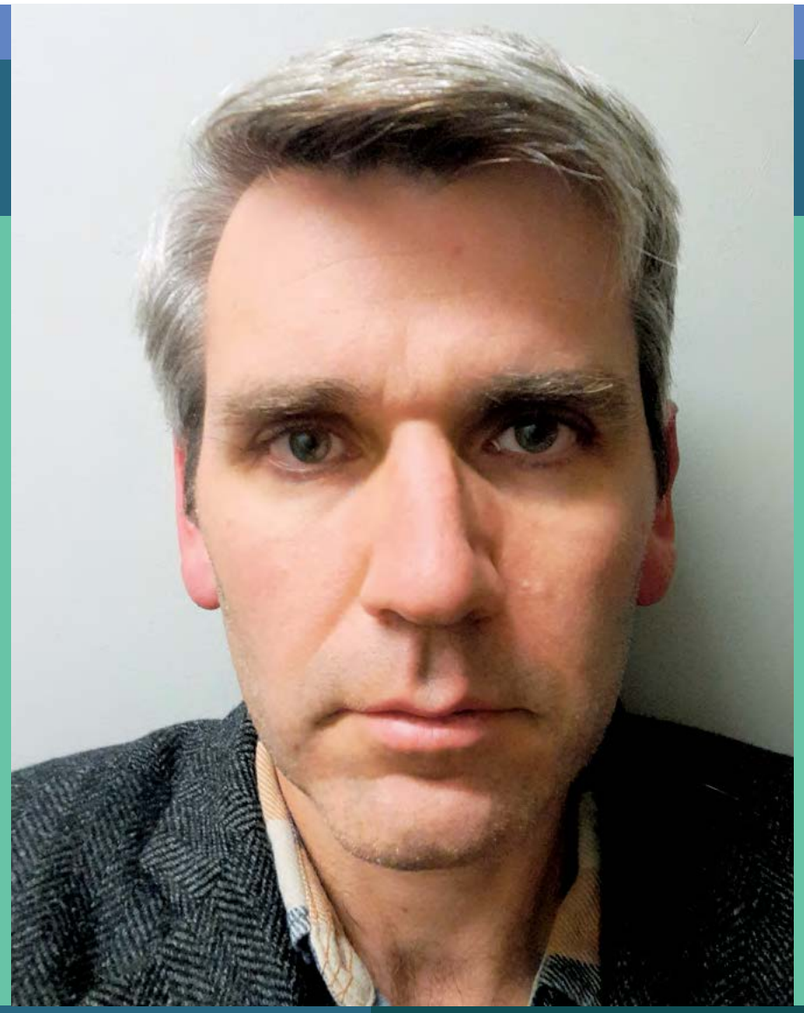
My archaeological interests concern the ways that past people, when faced with particular socio-historical circumstances, engaged with the world around them and inscribed the physical environment with layers of social meaning, thereby creating the historic features and landscapes we encounter today.

Drawing upon an in-depth knowledge of Hong Kong's human past, my current project applies innovative remote sensing and dating technologies to record, characterise, and date Hong Kong's upland historic landscapes.

Dr Mick ATHA

My research interests focus on historic landscapes (rural, urban, maritime, including planning and management) and on the archaeology of the Middle Ages. Current and recent work includes projects in Belgium, Brazil, Britain, China, France, Greece, Ireland, Italy, Oman, Spain and Turkey with collaborators in each of those countries.

In Newcastle University's Centre for Landscape I lead a team of around 30 postdoctoral and PhD researchers. Our specialisms include GIS, remote sensing, geoarchaeology, geochronology, as well as digital survey of historic buildings.



Prof Sam TURNER

Abstract

In East and Southeast Asia, traditional settlement and land-use practices have created highly distinctive historic landscapes, which today are facing ever-increasing pressure from development and processes of neglect due to socio-economic and demographic change. In Hong Kong, a regional heritage management focus on sites, monuments, and building in the more intensively developed lowlands, combined with the very limited application of landscape archaeology and GIS-based research, has meant that important upland cultural heritage has been barely studied by archaeologists and, consequently, is relatively poorly understood and potentially at risk. However, the availability of high-resolution airborne remote sensing data is beginning to reveal the true extent and character of past human activity in Hong Kong's uplands. Perhaps the most enigmatic features identifiable by this means are relict cultivation terraces, which are conventionally associated with a former tea industry, high on the flanks of some of the territory's highest mountains.

The European Commission-funded "CaDHoKUHL" project (**C**haracterising and **D**ating **H**ong **K**ong's **U**pland **H**istoric **L**andscapes) is aimed at addressing this gap in research and knowledge by using an innovative GIS-based interdisciplinary approach combining landscape archaeology, geosciences, historical research, remote sensing, scientific dating, and digital geospatial analysis to elucidate the character of pre-colonial settlement and land use in the upland zone (>300m), while also providing a means of modelling and explaining landscape change through time. The project will also serve as a pilot study, demonstrating an approach applicable to historic landscapes across the wider East and Southeast Asia region.

We begin by placing the project in its regional historical, archaeological, and conservation management context. Next, the GIS-based methodology used for mapping and spatial analysis of features is introduced, together with the technique of historic landscape characterisation (HLC), and the use of OSL-PD (optically stimulated luminescence profiling and dating) to create a chronological framework for upland land use. Lastly, two comparative studies involving the application of this project's results — a Hong Kong-based collaboration with geotechnical engineers, and an interregional study of upland terraces — are very briefly outlined. We then round of with some concluding remarks.

Introduction

For many, the name Hong Kong evokes images of the quintessential East-meets-West, high rise commercial metropolis. But the main urbanised areas of Hong Kong Island and Kowloon, which border the southern and northern sides of the spectacular harbour, account for just 14% of the territory's 1,106 km^2 area. The bulk is known as the New Territories (NT), which was added to the colony in 1898, and includes the area north of Kowloon and south of the border with mainland China following the Sham Chun River, as well as over 200 islands, including the largest, Lantau Island. In parallel with the colony's development, and for many centuries before it, the rice farming communities of the lowland NT shaped and sustainably managed a strikingly different landscape from that of the nearby city (Atha 2012, 129-130).

Hong Kong's dramatic physical geography, with its deep, sheltered harbour, many islands, narrow coastal plains, abundance of streams but limited availability of good quality irrigable land, and steep mountainous hinterlands characterises it as a drowned landscape (Fyfe et al., 2000, 29). That basic structure has strongly influenced the patterning of settlement and land use. The two largest islands — Hong Kong and Lantau — both have limited flat land for agriculture and are dominated by central mountains, the highest on each island being respectively Victoria Peak (552m) and Lantau Peak (934m). Hemmed in by mountains, the harbourfront, like many other coastal areas, has been intensively reclaimed to provide land for residential, commercial, and infrastructural development, and these areas today define the modern urban character of the city's seaward face (see maps in Empson 1992). Beyond the urbanised coast are the former rice farming heartlands of the western and northern NT, overlooked by the central upland massif surrounding the territory's highest mountain Tai Mo Shan (957m).

Archaeological investigations conducted during the last half century of relentless urban development have permitted the construction of a quite detailed 6,500-year sequence of human activity around the coast (Atha and Yip 2016, 5). In inland valleys and plains, former rice farming settlements established in the Song, Ming, and Qing dynasties still exist surrounded by their former rice fields and both villages and field systems are recorded on modern large-scale mapping. In contrast, the mountainous uplands, which are protected within Country Parks and conventionally viewed as 'natural' rather than 'cultural' landscapes, have seen little modern development requiring impact assessment, and therefore remain poorly understood by archaeologists[2].

The research outlined in this paper uses an innovative GIS-based interdisciplinary approach combining landscape archaeology, geosciences, historical research, remote sensing, scientific dating, and digital geospatial analysis to address the gap in knowledge surrounding Hong Kong's historic landscape. The project aims to elucidate the character of settlement and land use in the upland zone (>300m), while also validating and augmenting the existing mapping of the lowland historic landscape and providing a means of modelling and explaining landscape change through time. The resulting territory-wide historic landscape characterisation (HLC) will also serve as a pilot study, demonstrating an approach applicable to historic landscapes across the East and Southeast Asian region.

The next part of the paper discusses the basis for our current understanding of Hong Kong's historic landscape in the lowlands and uplands beyond the urbanised coast, and then sets out the research methodology used in the project, with emphasis placed on the overall importance of HLC and key contribution of OSL-PD.

Hong Kong's Rural Landscape History

Our understanding of past rural land use, settlement and economy in Hong Kong derives from a wide range of sources, including old photos (see Fig.2), colonial-era official documents, Chinese and British historical maps (Empson 1992), clan genealogies, Chinese land deeds (Hase 2013), Qing government gazetteers from 1688 to 1819 (Ng 1983), and occasional references to the region in pre-Qing Chinese sources. There is also a rich body of literature produced by social historians and anthropologists recording the traditional lifeway in the former rice farming heartland of the NT via participant observation and interviews with village elders in the 1950s to 1980s, some of whom had first-hand experience of late Qing rural life (e.g. Johnson 2000; Hayes 2006; Hase 2013).

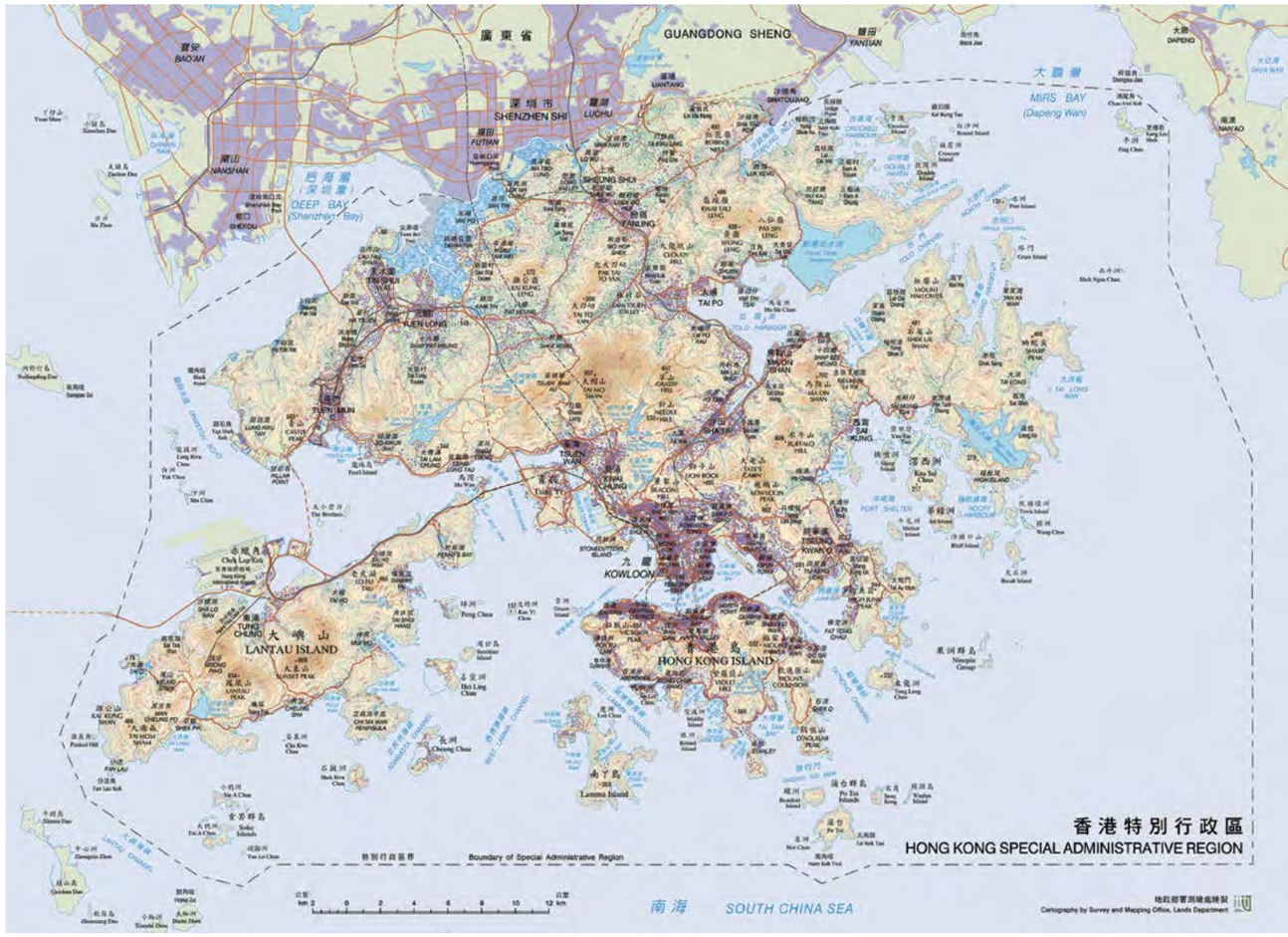


Fig.1 Hong Kong study area[1]
© Government of the Hong Kong Special Administrative Region

As late as the 1960s, the well-watered alluvial flatlands of the western and northern NT were an unbroken patchwork of paddy fields punctuated by the large, nucleated settlements of powerful Punti lineages, such as the Tang clan of Kam Tin and the Hau clan of Ho Sheung Heung, which both trace their ancestries back to the Song dynasty (Baker 1966, 26). During the Song and Ming dynasties, large blocks of the NT were granted by the imperial authorities to prominent men such as the founding ancestors of the Tang and Hau clans. Such grants are significant events in terms of landscape history as they imply that the imperial authorities previously considered the land uncultivated waste. As such, the grants transformed the local pattern of land ownership and initiated a period of dramatic landscape change (Palmer 1987, Hase 2013, 31). These major landowners came to dominate the socio-economic and political life of the NT, and when large numbers of Hakka rice farmers migrated into the region during seventeenth and eighteenth centuries, they were forced to settle more marginal land at the upland periphery and in smaller valleys in the mountainous north-eastern and south-eastern NT, usually as their tenants. Scattered across the plains and around the coast were several market towns where farmers could convert surplus agricultural produce into cash to buy groceries, building materials, and manufactured goods. Linking the major rice farming areas to one another and to those local markets was a network of trackways, which were

recorded on a British map of 1902 as "Chinese roads about 4' wide and mostly paved" (ERM 2013, 8). By the late nineteenth century, what Hase (2017) termed "land hunger" resulted in every available scrap of irrigable lower hillside land being terraced for rice. The need to extensify also meant that areas of accessible dry land were also terraced for other crops and provided with tanks to collect rainwater for manual watering. Certain areas of hillsides, often determined by geomancy, were also used by farming communities for burial. On the higher mountainsides (>300m), areas of woodland, scrub, and grassland were used for fuel gathering (Hase 2011), as well as the seasonal collection of wild tea and medicinal herbs (Hase et al. 1984).

The NT's rural historic landscape still reflects the centuries-long impact of subsistence rice farming, albeit increasingly obscured by post-agricultural regeneration of woodland and scrub, and/or modern urban sprawl, open container storage, and light industry — often built over rubble/subsoil-filled former fields. Moreover, modern large-scale topographic maps still accurately depict the surviving components of the lowland agricultural landscape: including

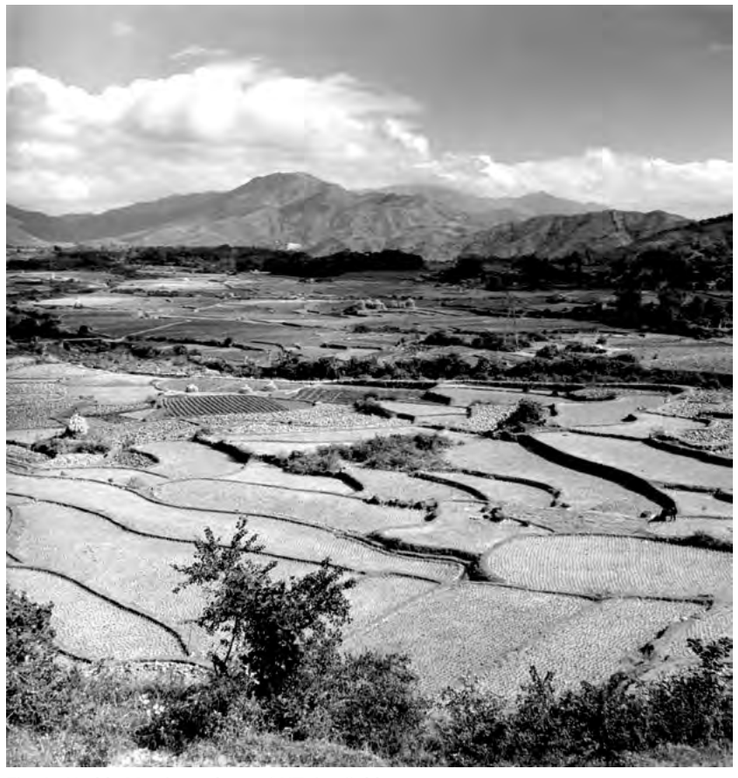


Fig. 2 Hedda Morrison photo of NT rice fields
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old blocks of village houses and their rice-drying grounds, ancestral-study halls and temples, earth god shrines, *fungshui* woodlands (although probably not identified as such), ponds (some dug for geomantic (*fungshui*) reasons, others for fish or ducks), valley floor paddy fields and water management features, lower hillslope terraced fields, and hillside graves. The accurate mapping of what are now mostly relict[3] field systems (see Rippon 2004, 29-33) can be traced back to the lease of the NT in 1898, when the British carried out the so-called Block Crown Lease (CBL) survey (1899-1904), which recorded every house, outbuilding, and field then in use for the assessment of annual Crown Rent (Hayes 2006, 32-33). A sample CBL survey map for Ha Wo Hang is shown in Fig. 3, together with the modern satellite image, 1963 aerial photo, and LiDAR digital terrain model).

Given the Hong Kong government's long-term commitment to full and accurate mapping of natural topography and artificial features, which is clearly demonstrated in the lowlands, there are relatively few artificial features recorded in the upland zone (>300m). One explanation for this is the high value placed on developable land in Hong Kong, especially in the lowland NT, where its ownership, sale or resumption, and conversion to other uses has always been carefully recorded. The uplands, on the other hand, are almost entirely government land with little recent history of private ownership or development. A category of upland features that is recorded on topographic maps is the extensive network of catchwaters, conduits, and dams, which provided fresh water as the colony grew and expanded first to Kowloon and then beyond into the NT (WSD nd.). Also, sections of the Chinese roads mapped in 1902 can still be correlated with upland footpaths shown on modern maps (ERM 2013). In addition, former mining sites, such as the Ma On Shan Iron Mine, are also at least partially mapped, and industrial heritage research is further enhancing our understanding of such landscapes (Yeung and Ng 2020). A growing popular interest in World War II heritage sites has recently prompted greater official recognition by the government and some are now mapped, albeit as unidentified ruins, but many others are not. However, the central focus of this project is a category of artificial features that has never appeared on maps or been investigated by archaeologists — upland cultivation terraces — such as those visible in grassland on the northern slopes of Hong Kong's highest mountain, Tai Mo Shan (see Fig. 4).

The most likely reason for their omission from maps is that their construction, period of use, and abandonment all occurred long before the colonial era and the detailed mapping it brought. The terraces are conventionally thought to reflect a once thriving tea industry, and tea growing is mentioned on Tai Mo Shan in the Qing government's 1688 edition of the *San On County Gazetteer* (Hase et al. 1984, 271), while the 1819 edition also mentions tea growing on Tai Mo Shan, together with Tsing Shan, and Fung Wong Shan. Moreover, the government's 1906 *Report on the Botanical and Forestry Department* stated that tea was cultivated by villagers in upland areas of the NT such as Shing Mun, Tai Lo Shan, and Shui Ngau Shan, where the "bushes are grown in lines on narrow steps or terraces cut into the rich soil of recently felled woods or along the dividing banks of sheltered vegetable fields, in either case only in fairly elevated situations" (HKGov 1907, 221). In Hase et al.'s study of tea growing in the NT, the picking of wild tea was still occasionally practised in the 1980s, but the villagers then involved "state[d] that their ancestors … had no interest in [the relict upland terraces], and no-one claims any ownership of them today" (1984, 271).

The above quoted text of the 1907 report seems to record the survival in Hong Kong of a potentially very ancient practice used by slash-and-burn (swidden) cultivators in the area. That is particularly interesting in light of earlier historical accounts dating from the Song-Yuan period (c.1200-1400 CE), which strongly suggest that in parallel with the Han Chinese rice-farming clans, there was also an indigenous population, often referred to as Yao or Yue people, which was engaged in salt-making, fishing, hunting, and slash-and-burn cultivation, and was regularly in conflict with the authorities (Hase 2017, 103-105). Some Hong Kong historians have suggested that the upland terraces could relate to these indigenous peoples, who may have retreated into the mountains in response to the arrival of Han Chinese rice farmers (SHKH 2011, 23). But this hypothesis, like the question of a former upland tea industry, remains to be tested archaeologically.

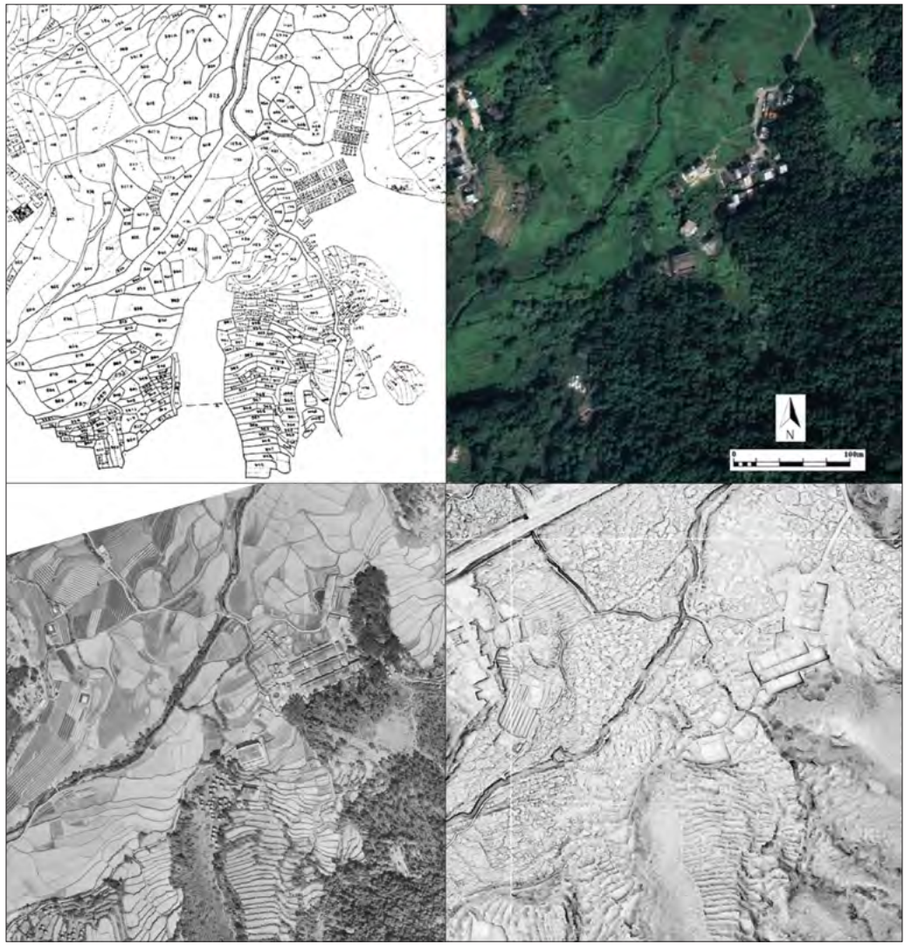

Fig. 3 Ha Wo Hang montage of CBL survey map, 1963 DOP, 2020 LiDAR visualisation, 2022 Google Earth satellite image

Project Methodology

To date, attempts to gain a more complete understanding of the character and trajectory of past settlement and land use across the entire territory of Hong Kong have been constrained by three main factors: firstly, the outdated heritage legislation (HKSARG[4] 1976; Sun 2011), which prioritises individual sites, buildings, and monuments, not setting or landscape (Du Cros et al. 2007, 41); secondly, the degree to which development, rather than research agendas, has determined where archaeological work and research has occurred; and thirdly, the limited adoption of interdisciplinary approaches to the human past, which are so characteristic of landscape archaeology. As a result, the heritage authority's inventory of historic remains is geographically biased and incomplete, with limited understanding of historic landscape in general, and a particularly poor grasp of past land use in the uplands. Some attempts have already been made to promote more interdisciplinary and holistic approaches to Hong Kong's human past and historic landscape (Atha 2012; Atha and Yip 2016 & 2018; Atha nd.). This project is both a logical development and expansion of that earlier work, but its focus on upland land use resulted from an interdisciplinary dialogue with members of Hong Kong's geotechnical engineering community.

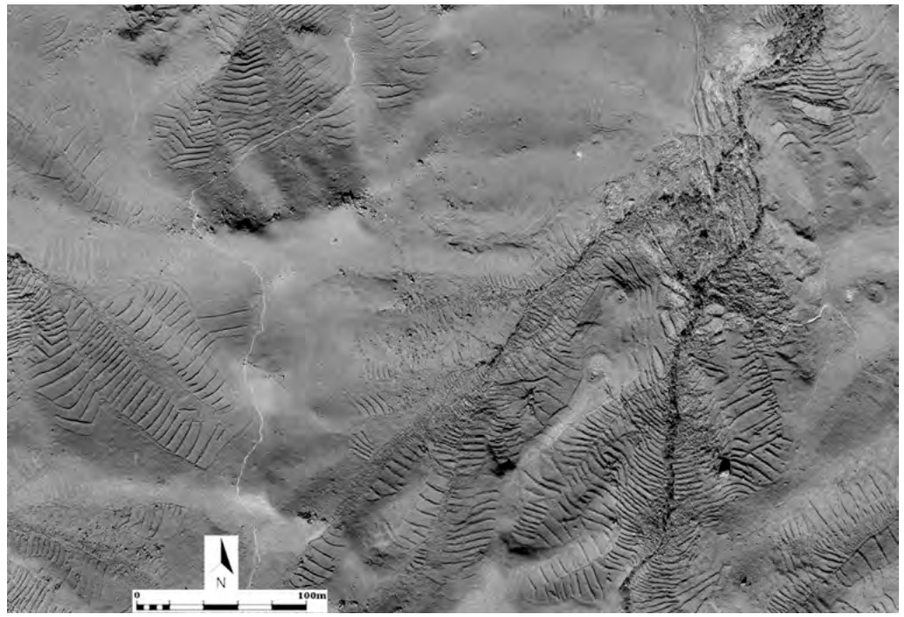

Fig. 4 1963 DOP of Tai Mo Shan cultivation terraces

Around a decade ago a group of geologists and geotechnical engineers using the 1963 high-resolution digital orthophotos (DOPs) for slope-risk assessment[5] noted the existence of relict cultivation terraces and other artificial features high up on mountainsides, for example on the northern flank of Tai Mo Shan, and around Fung Wong Shan, the Ngong Ping plateau, and Tai Tung Shan on Lantau Island (Wong et al., 2006; Sas et al. 2012, Fig. 7c; Styles and Law 2012, Fig. 6; Ho and Roberts 2016)[6]. In places such as Tai Mo Shan, where upland terraces are in grassland, they are also visible in modern satellite imagery such as Google Earth, and to hikers on nearby trails, but artificial features on many other mountainsides are obscured by denser vegetation. Here, airborne laser scanning (LiDAR)[7] can provide complementary data of immense value to archaeologists, as the technology can penetrate the tree and scrub canopy to reveal the humanly modified land surface underneath. When combined in a GIS, these different remote sensing data sets are invaluable for archaeologists seeking to systematically record, analyse, and characterise Hong Kong's historic landscape.

In terms of the project's implementation, the work is divided into two main stages. Based on a sound understanding of the historical context, state-of-the-art remote sensing tools (digital orthophotos, LiDAR and satellite imagery) are deployed in ArcGIS to undertake a detailed archaeological survey and mapping of all historic landscape features in the uplands (>300 m elevation), while also validating and, if necessary, augmenting the records of previously mapped features in the lowlands. The newly mapped upland and validated lowland historic feature data is then used as the basis for Hong Kong's first ever territory-wide historic landscape characterisation (HLC). The HLC will be further enhanced by integrating geochronological analysis, based on OSL-PD field sampling of four terraces identified by GIS, to elucidate long-term landscape change in the uplands.

In the next three sections, we provide some further explanation of HLC, its use in mapping historic character and role in the sustainable management of landscape change, then outline the role of OSL-PD in providing a chronological framework for upland land use, and, finally, introduce two comparative studies that will be undertaken towards the end of the project.

Historic Landscape Characterisation (HLC)

Although not previously used in East or Southeast Asia, HLC has been successfully employed to map landscape character in the UK, Spain, and the Mediterranean (Bolòs 2010; Turner and Crow 2010; Štular 2013; Turner et al. 2018), where it has also supported the sustainable conservation and management of landscapes (Herring 1998; Turner 2006). Currently, Hong Kong's traditional archaeological inventory of sites, monuments, and buildings is stored in a database and linked to a GIS, which presents the remains of past human activity as a series points, lines, and polygons with associated descriptive information, but each site is disarticulated both from its neighbours and the surrounding historic landscape of which they are all part (Turner and Crow 2010, 219). In contrast, HLC uses a qualitative but formalised method for mapping the chronological development and spatial complexity of *entire historic landscapes*. The use of GIS facilitates spatial comparison of the often enormous and diverse datasets used in HLC work, such as digital maps, aerial photos, airborne laser scanning, and satellite imagery. Essentially, HLC is holistic in its approach, in that it considers everything of historic interest within a particular study area, including not only the "special" features listed in traditional heritage inventories, but also the more commonplace elements such as fields, terraces, woodlands, and village houses. Therefore, unlike a traditional dot distribution map of archaeological sites, such as that showing Hong Kong's Sites of Archaeological Interest (AMO, nd.), a map of historic character has no gaps between the interlocking polygons containing features reflecting a particular history of human activity and development. A working HLC map for Ha Wo Hang in Hong Kong is shown in Fig. 5.

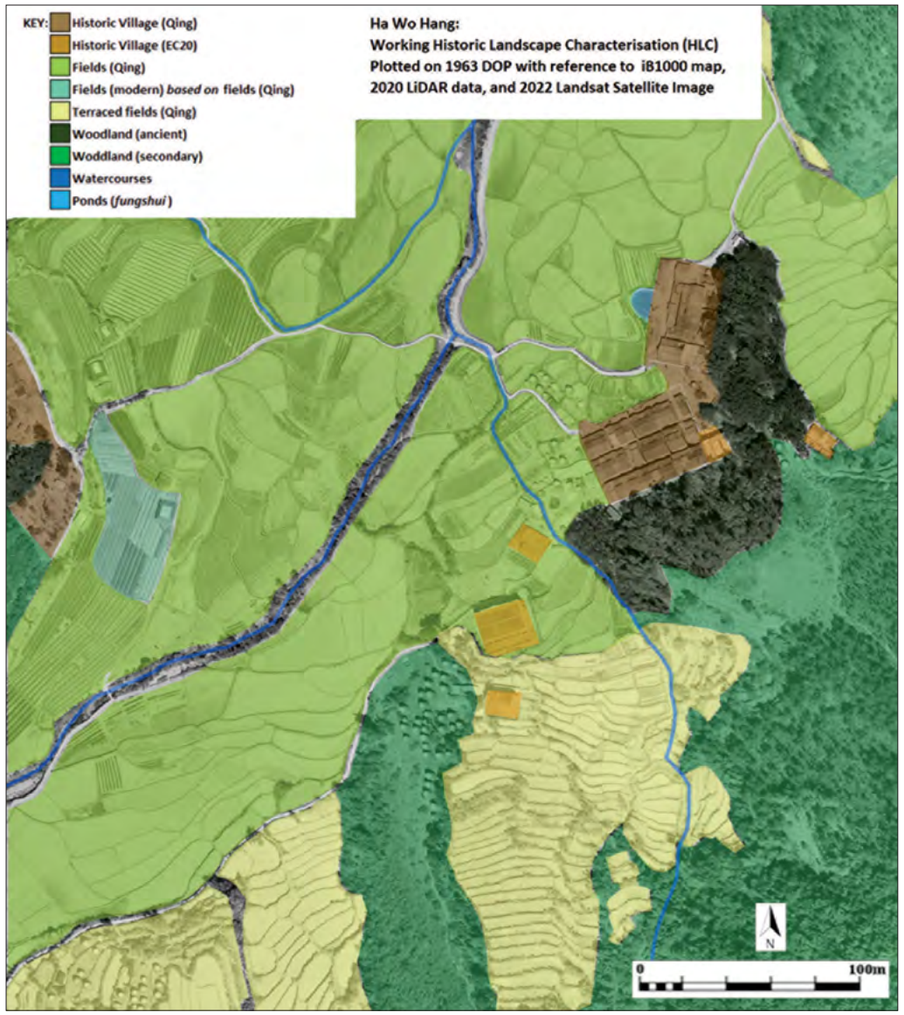

Fig. 5 Ha Wo Hang HLC map

According to one of its pioneers, HLC closely examines the physical landscape to identify "particular patterns and groupings of components which recur throughout … [a study area and] … can be seen to have been determined by similar histories" (Herring 1998, 11). A historic landscape can thus be mapped, described, and characterised using a fixed and pre-decided set of HLC character types (Ibid.). A draft list of Hong Kong historic character types, which is subject to refinement as the research progresses, is shown in Table 1.

Table 1: Hong Kong HLC Types

Lowland Fields	Rough Ground [8]
• Fields (modern) based on fields (Qing**) • Fields (Qing) • Coaxial Fields (modern) *based on* fields (Qing) • Coaxial Fields (Qing) • Terraced Fields (modern) *based on* fields (Qing) • Terraced Fields (Qing)	• Rough Ground (Natural Terrain) • Rough Ground *with* Step Terraces (Straight) • Rough Ground *with* Step Terraces (Contour) • Rough Ground *with* Curvilinear or Enclosure-like Features
Water Bodies	**Woodland**
• Ponds (Q/CP) • Reservoirs & Associated Features (colonial era) • Coastal Gei Wai (Qing-colonial era)	• Ancient (*fungshui*) • Secondary Woodland • Plantation
Settlement	**Industrial**
• Historic Villages/Markets (EC20/Qing/Ming/Song) • Squatter Settlements (modern) • Urban Areas (C19/EC20/LC20-EC21) • Urban Reclamations (C19/EC20/LC20-EC21) • Religious Communities	• Mines (EC20/LC20) • Quarries (Q/C20-21) • Salt-fields (Q/C20) • Rural Industries (LC20) – Intensive livestock rearing/Open container storage/Light industry • HK Dairy Farm (C19-20) • Landfill (C20-21)
Military	**Recreation**
• Barracks • Airfields • Defensive Installations (EC20) • Civil Defence (EC20)	• Parks • Botanical Gardens • Sports Grounds • Camp Sites

**NB: The periods used are broad for character types such as 'Fields', as the first time they were surveyed and mapped accurately was between 1899-1904 – hence any recorded in that British land lot survey are labelled "Qing", as they were owned and in use by local rice farmers when the NT became part of Hong Kong. But depending on a community's age, some fields could have been laid out in the Ming or Song dynasty, especially in the environs of the earliest village blocks. This question of date is addressed in the textual description of each block of fields of a given character type in the GIS-linked project database.

In our Hong Kong work, as in previous HLC studies, cartographic sources and remote sensing data are spatially compared in the GIS to identify and map "historic landscape character types" with distinctive characteristics resulting from known historical processes. The process of creating our HLC will be supported by data from two cutting-edge scientific methods — LiDAR and OSL-PD, which respectively enhance the identification of features previously noted in the 1963 DOPs while also revealing others, especially in heavily vegetated areas, and for the first time allow accurate dating of upland terraces. In parallel with the GIS-based mapping of groups of features by type — for example lower hillslope terraced fields — the attributes of each discrete block of such fields, or HLC "unit", are also recorded in a linked database. This allows users of the data to visualise and understand the landscape's historical development more easily (Turner and Crow 2010, 220).

However, when applying a UK-developed characterisation method in China, the interpretive process clearly requires specialised knowledge of the Chinese cultural and historical context, and the natural-environmental philosophies and value systems at work (Zhao et al. 2020). Fortunately, one of the authors spent 14 years in Hong Kong actively addressing such cross-cultural questions while researching, teaching, and writing about archaeology and landscape, and is thus well-placed to ensure that the HLC methodology is appropriately adapted to local needs and thus meaningfully applied. As well as characterising upland landscapes, we need to understand their historical development, and this is where OSL-PD offers a solution.

Optically Stimulated Luminescence Profiling and Dating (OSL-PD)

The life history of agricultural terraces is notoriously difficult to establish and most remain poorly understood by archaeologists. In this project, when suitable terraces have been identified during the GIS-based HLC procedure, precise sampling locations will then be selected by "ground-truthing" in the field, typically at points along terraces where partial collapse or erosion has already occurred, and the archaeological sampling will therefore have the least impact. In each sampling location, a narrow trench — typically c.0.75m wide — will then be excavated through the terrace, ensuring that a clean face is achieved behind the deepest facing stones, packing material, or loose sediment. Optically stimulated luminescence profiling and dating (OSL-PD), which is an innovation developed by SUERC[9] at Glasgow University in Scotland (Sanderson and Murphy 2010), will then be applied. It involves on-site sediment sampling using portable optically stimulated luminescence (OSL) equipment to "contextualise soil sediment 'luminescence stratigraphies' on-site and in real-time, directly relating the sediment sequences with the archaeological contexts" (Kinnaird et al. 2017)[10]. Based on the field results of that initial "OSL profiling" (see Fig. 6), a series of hypotheses are raised regarding points in the sediment sequence thought to reflect, for example, the construction, use, and repair of the terrace. Those points are then sampled to test the hypotheses back in the lab via OSL screening and characterisation, followed by OSL dating (Turner et al. 2021, Fig.2). The use of OSL-PD thus allows the entire formation process of terraces to be reconstructed, creating the possibility to understand changes to upland land use through time. Further insights are also possible if OSL-PD is combined, for example, with soil micromorphology and plant microfossil research Ibid., 787).

In order to exploit the interdisciplinary and interregional impact of the project, the findings of the main mapping, HLC, and OSL-PD stage of the project will be used in two comparative studies, as detailed below.

Fig. 6 Field application of OSL-PD in Granada, Spain

Hong Kong Interdisciplinary and Interregional Research

To further emphasise the benefits of landscape-focused archaeological research, this project will also involve two comparative studies; one being interregional in scope, while the other is Hong Kong based and interdisciplinary in nature.

The first study compares and contrasts this project's archaeological findings with those from two studies examining upland terraces in China and Southeast Asia. Work on the Ifugao rice terraces in the Philippines has synthesised a diversity of datasets from excavation, ground-based and aerial survey, OSL/C14 dating, and spatial analysis, to challenge existing narratives and propose a later inception date for terraces and wet-rice agriculture, linked to the Spanish colonisation (Acabado et al., 2019). At Jiuzhaigou in Sichuan, China, survey, excavation, and OSL/C14 dating, supported by ethnographic research, revealed that a land use regime of slash-and-burn agriculture followed by pastoralism had created locally distinctive "terracette" features, whose abandonment led to localised erosion and landslides (Henck et al., 2010). Comparison with these two studies will allow our results to be more fully contextualised and help identify potential opportunities for future research.

The second comparative study involves a collaboration with the HKSARG's Geotechnical Engineering Office (GEO), which generously shared its slope-risk database and incident records[11] for GIS-based comparison and spatial analysis with relict upland terraces. This work will permit potential relationships between Hong Kong's long-abandoned, upland terraces and past, present, and future landslide risk to be assessed, while the time-depth provided by archaeology will also allow an examination of how perceptions of opportunity and risk concerning the use and sustainable management of the territory's mountainous landscapes have changed through time.

Discussion and Conclusions

In East and Southeast Asia, terraced agricultural systems for rice and other crops still dominate traditional settlement and land use patterns (UNESCO 1995) and their contribution to the geomorphology and historic character of upland landscapes is often profound. However, upland cultivation terraces require continual monitoring and maintenance, and their sustainability in the face of socio-economic and environmental change is an ongoing cause for concern, both for local people and regional/global heritage organisations (Gullino et al., 2015). Moreover, terraces are critical to long-term soil conservation and geomorphological stability in dynamic tropical environments, and if abandoned can accelerate soil erosion, although this may be reduced if scrub/woodland regeneration occurs (Xiong et al., 2019), as seems to have been the case in Hong Kong.

Given the regional importance of terraced agricultural systems, the history of settlement and land use in upland areas remains quite poorly understood by archaeologists, and especially so for the last two millennia. This is largely due to two factors: a research focus on prehistory, urbanism, major buildings and monuments, and high-status mortuary behaviour, and the persistence of discrete disciplinary "silos" in academia, which has hindered the interdisciplinarity essential to the development of landscape archaeology (Zhang 2010, 16; Storozum et al., 2019). The CaDHoKUHL project is designed to break down such barriers by employing a territory-wide, GIS-based interdisciplinary landscape assessment, which for the first time will create a consistent and comprehensive understanding of the character and chronological development of Hong Kong's historic landscape.

Faced with ever-increasing pressure from development and the effects of climate change, curators of the historic environment in Hong Kong — as in East and Southeast Asia more generally — need new methods to better understand the landscape heritage and ensure its effective and sustainable future management. This project will contribute significantly to archaeological knowledge and provide a powerful new tool for use in the sustainable and holistic management of natural and cultural landscape change by archaeologists, heritage managers, landscape planners, and geotechnical engineers, both in Hong Kong and across the wider region.

Acknowledgements

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[1] 1:200,000 map of Hong Kong (© Government of the Hong Kong Special Administrative Region)

[2] This past research bias is reflected in the distribution of Hong Kong's 208 Sites of Archaeological Interest (SAI) (AMO nd.), which reveals an abundance of sites in lowland areas, especially around the coast, but records just three sites in the NT's upland zone (two boulder-paved trackways and a flat boulder inscribed with a 'game-board', all undated).

[3] Not to be confused with 'relic', used to refer to any ancient feature or object; in historic landscape usage, 'relict' refers to surviving ancient features no longer in use, but which still contribute to, and often define, an area's historic landscape character.

[4] Government of the Hong Kong Special Administrative Region.

[5] Effective slope-risk (landslide) management is critically important in a densely populated, mountainous, territory subjected to torrential monsoon rains and typhoons such as Hong Kong.

[6] The two reports published in 2012 alerted Mick Atha to the archaeological potential of these upland areas and resulted in this project. The hillsides were stripped of trees and scrub for fuel during the Japanese Occupation and continued to be used for fuel gathering after the war. In 1963 they had still not revegetated.

[7] The Geotechnical Engineering Office (GEO) of the Hong Kong government's Civil Engineering Development Department (CEDD) is responsible for the LiDAR surveys and data management, and they kindly provided the data used in this research.

[8] 'Rough ground' is a commonly used term in HLC studies for unimproved hill land but is often called "Natural Terrain" in the Hong Kong geotechnical engineering literature. We would argue that applying the label "natural" to what in many cases are in fact "cultural" landscapes, with clear evidence of human modification, is perhaps misleading and risk perpetuating the existing mistaken notion that the uplands are largely "Nature" unaltered by people.

[9] Scottish Universities Environment Research Centre

[10] In order to ensure that the sediment's accumulated luminescence signal is not 'bleached' during sample collection by exposure to light, the trench is covered with a black light-proof sheet and samples are collected using red light.

[11] Enhanced Natural Terrain Landslide Inventory (ENTLI), large boulder locations, and landslide incident records.

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KONG Wing Man Fanny

Restoration of the Duddell Street Steps and Gas Lamps

In 2016, Ms Kong joined the Antiquities and Monuments Office, where she is responsible for assisting in approving and monitoring the revitalisation and renovation works of declared monuments. She has participated in significant projects, including the Central Police Station Compound (Tai Kwun) revitalisation project, the renovation of the Former French Mission Building, and the restoration of the Duddell Street Steps and Gas Lamps.

Abstract

During the onslaught of super typhoon Mangkhut on Hong Kong in September 2018, a stone wall tree fell across the Duddell Street Steps and Gas Lamps, causing severe damage to this century-old declared monument. The restoration team was determined to adhere strictly to the principle of using traditional craftsmanship and original materials, supplemented by advanced 3D scanning technology, printing and cast-iron technologies, and faithfully restored the monument to its pre-typhoon state.

This paper introduces the serious damage to the century-old monuments after the natural disaster, how the restoration team formulated the conservation proposal, the challenges it encountered in the restoration project, how it used original craftsmanship and advanced technology to restore the monument, and how this successful restoration experience can be shared with different stakeholders through various channels.

Introduction

The Duddell Street Steps and Gas Lamps (the "Monument") in Central, Hong Kong, form a historic passageway with street lighting that has outstanding heritage value. They were gazetted as a monument under the *Antiquities and Monuments Ordinance* (Cap. 5) (the "*A&M Ordinance*") in 1979, giving it statutory protection.

The Monument suffered severe damage from the collapse of large tree growing on an adjacent stone wall (Fig. 1) when Super Typhoon Mangkhut hit Hong Kong on 16 September 2018. Antiquities and Monuments Office ("AMO"), Highways Department ("HyD") and Hong Kong and China Gas Company Limited ("Towngas") set up a restoration team right after the incident to restore this valuable cultural asset of Hong Kong. Given its monument status, the project team was determined to restore the Monument faithfully in strict compliance with international principles and standards for heritage conservation. The salvaged fragments of the Monument were reused as far as possible using traditional craftsmanship. 3D scanning and printing technologies were adopted in the restoration process and played a crucial role in restoring the Monument efficiently and accurately. This was the first time that a badly damaged monument was successfully restored with the aid of 3D scanning and printing technologies, along with traditional craftsmanship and materials. After more than a year of restoration work, the Monument was returned to its original state on 23 December 2019.

This paper gives an overview of the damage to the Monument, how the conservation approach for the restoration works was formulated, the challenges encountered by the project team, and how the challenges were overcome. The author elaborates how the project team upheld heritage conservation principles during the restoration process and highlights how 3D scanning and printing technologies greatly facilitated the restoration works. Finally, the paper briefly introduces the project team's efforts in sharing the experience it gained during the restoration with the general public and professionals to achieve knowledge sustainability.

Fig. 1 The Duddell Street Steps and Gas Lamps were seriously damaged when Super Typhoon Mangkhut hit Hong Kong in September 2018.

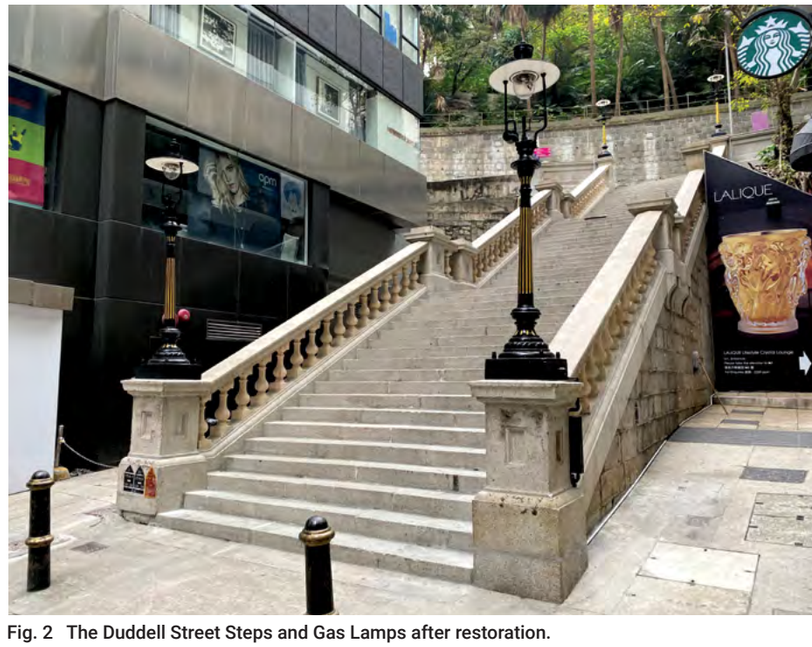

Fig. 2 The Duddell Street Steps and Gas Lamps after restoration.

Heritage significance of The Duddell Street Steps and Gas Lamps

Although the Monument occupies only about 80 square metres, it has outstanding heritage value. It was originally built as a thoroughfare equipped with street lighting but embodies a perfect blend of local craftsmanship in the form of granite stonemasonry and advanced Western technology at the time in the form of gas-fuelled street lighting.

According to historic government records, the construction of the granite steps and balustrades leading from Duddell Street to Ice House Lane (Ice House Street nowadays) was commissioned by the then Public Works Department to a contractor named "Tsang King" in 1882. The construction work was completed on 27 August 1883 at a cost of HK$1,750 (Figs. 3 and 4).

The steps and balustrades are one of the few intact examples of local historic street structures constructed mainly of granite with an elaborate architectural design. The two balustrades comprise 12 newels and granite top and bottom rails with carved mouldings. A total of 101 balusters were installed between the rails. The newels at each end of the steps were designed to accommodate four gas lamps.

The four historic gas lamps, known as two-light Rochester models, were manufactured by William Sugg and Co., Limited ("William Sugg") in the United Kingdom ("UK"). The four gas lamps are believed to have been installed on-site in the early 20th century. According to Towngas records, the gas lamps survived the Second World War and were relit on 29 February 1948. Unlike other gas lamps erected on the ground, the four gas lamps were custom-made for mounting on the newels of the steps, so the columns of the gas lamps were shorter than usual.

GOVERNMENT NOTIFICATION.—No. 424.

Tenders will be received at this Office until noon of Wednesday, the 8th November, 1882, for constructing Granite Steps and Balustrade Fence leading from Duddell Street to Ice House Lane.

For form of tender, specification, and further particulars apply at the Surveyor General's Office.

No tender will be received unless the person tendering produces a receipt to the effect that he has deposited in the Colonial Treasury the sum of $100 as a pledge of the *bona fides* of his offer, which sum shall be forfeited to the Crown if such person refuses to carry out his tender, should the tender be accepted.

The Government does not bind itself to accept the lowest or any tender.

By Command,

FREDERICK STEWART,
Acting Colonial Secretary.

Colonial Secretary's Office,
Hongkong, 26th October, 1882.

憲報第四百二十四號

一千八百八十二年 十月 二十六日示

署輔政使司史

諭知招投承接事照得現要招人投接建造花崗欄河石級自都爹利街起至雪厥街止所有票投均在本署收截限期收至十一月初八日即禮拜三正午止如欲取投票格式觀看章程及另欲詳知者赴工務司署請示可也凡投票之人必要有貯庫作按銀一百圓之收單呈驗方准落票倘該票經蒙批准其人不肯承造則將其貯庫作按銀入官各票價列低昂任由國家棄取或總棄而不取爲此特示

Fig. 3 Government Notification (GN) No. 424, dated 26 October 1882, inviting tenders for the construction of granite steps and a balustrade fence leading from Duddell Street to Ice House Lane (*Hong Kong Government Gazette*).

TABULATED PARTICULARS OF PUBLIC WORKS CONTRACTS IN 1882.—*Continued.*

Date of Contract.	Description of Works.	Names of the Tenderers for the Contract.	Amount of Tender.	Name of the Contractor selected.	Contract Amount.	Contract Date of Completion.	Remarks.
1882.			$		$		
1st November,	Repairing 325 feet lineal of Queen's Road, between West Street and Holly-wood Road.	Liu Yau, ...	240.00	Tsang Pat,.....	190.00	14th November, 1882.	
		Ching Lai-ki,.....	195.00				
		Tsang Pat, ...	190.00				
1st November,	Repairing the temporary Small Pox Hospital.	Ü Lun, ...	130.00	Ü Lun, ...	130.00	14th November, 1882.	
		Sun Shing,.....	150.00				
		Yam Ping, ...	140.00				
1st November,	Repairing, &c., the Govern-ment Civil Hospital.	Ü Lun, ...	360.00	Sun Shing,.....	325.00	11th December, 1882.	
		Sun Shing,.....	325.00				
		Yam Ping,.....	341.00				
1st November,	Repairing the Western end of First Street between Centre Street and Western Street.	No name, ...	1,050.00	Ching Lai-ki,.....	914.00	11th December, 1882.	
		Hu Shui, ...	1,130.00				
		Ching Lai-ki,.....	914.00				
		Liu Yau, ...	985.00				
22nd November,	Constructing culvert, and reforming, &c., 130 feet lineal of Road at the North end of the village of Shau-ki Wan.	.....	.....	Liu Yau, ...	310.00	1st January, 1883.	C.S.O. containing the names of the tenderers mislaid in the Colonial Secretary's Office.
25th November,	Building retaining Walls, and reforming the lower end of the Road to the Civil and Lock Hospitals.	Hu Shui, ...	2,300.00	Tsang Pat,.....	1,700.00	16th February, 1883.	
		Liu Yau, ...	2,220.00				
		Ching Lai-ki,.....	2,350.00				
		Tsang Pat,.....	1,779.00				
25th November,	Constructing stone steps, and balustrade fence, lead-ing from Duddell Street to Ice House Lane.	.....	.....	Tsang King, ...	1,760.00	27th August, 1883.	Do.
28th November,	Constructing entrance Lodge to Civil & Lock Hospitals.	Sun Shing,.....	1,240.00	Ü Hing,.....	1,080.00	6th February, 1883.	
		Ü Lun, ...	1,380.00				
		Tsang Pat,.....	1,249.00				
		Tsang-King, ...	1,150.00				
		Ü Hing,.....	1,080.00				
		Wong Tse-leung, ...	1,640.00				
8th December,	For transport of Machinery to Wong-nai Chung and Tai-tam.	.....	.....	A-shang, ...	{ 450.00 675.00 }	19th December, 1882.	

(262)

Fig. 4 This document, titled "Tabulated Particulars of Public Works Contracts in 1882", recorded the name of the contractor and the cost of construction of the stone steps and balustrade fence leading from Duddell Street to Ice House Lane.

In the early years, "lamp-lighters" were responsible for lighting the lamps before sunset and switching off the lamps at dawn using a bamboo ladder to press a switch on the gas lamps (Fig. 5). Later, the gas lamps were fitted with clockwork time controllers, which automatically switched the lamps on and off.

Over time, electricity gradually supplanted gas as the main power source for lighting, both in households and in street lights. The four historic gas lamps on Duddell Street have been the only surviving working gas lamps in Hong Kong since 1967 and have been lighting the Duddell Street Steps for a century.

The Monument is an important part of the collective memories of the local people, and it has long been a popular filming site. Several locally produced movies and countless television programmes were filmed at the Monument, including He's a Woman, She's a Man in 1994, starring Leslie Cheung; *King of Comedy* in 1999, starring Stephen Chow and Cecilia Cheung; music videos *Meng Ban* (夢伴), sung by Anita Mui; and *You Shui Gong Ming* (有誰共鳴), sung by Leslie Cheung. The frequent filming at the site has given it an irreplaceable place in the hearts of local people, and it is well-recognised by overseas visitors as well. Over time, the site has become one of the most representative Hong Kong landmarks among both locals and visitors. It is included in the Central and Western Heritage Trail set up by AMO. The site still serves its original function as convenient access from Central to Mid-levels and is used by many pedestrians every day.

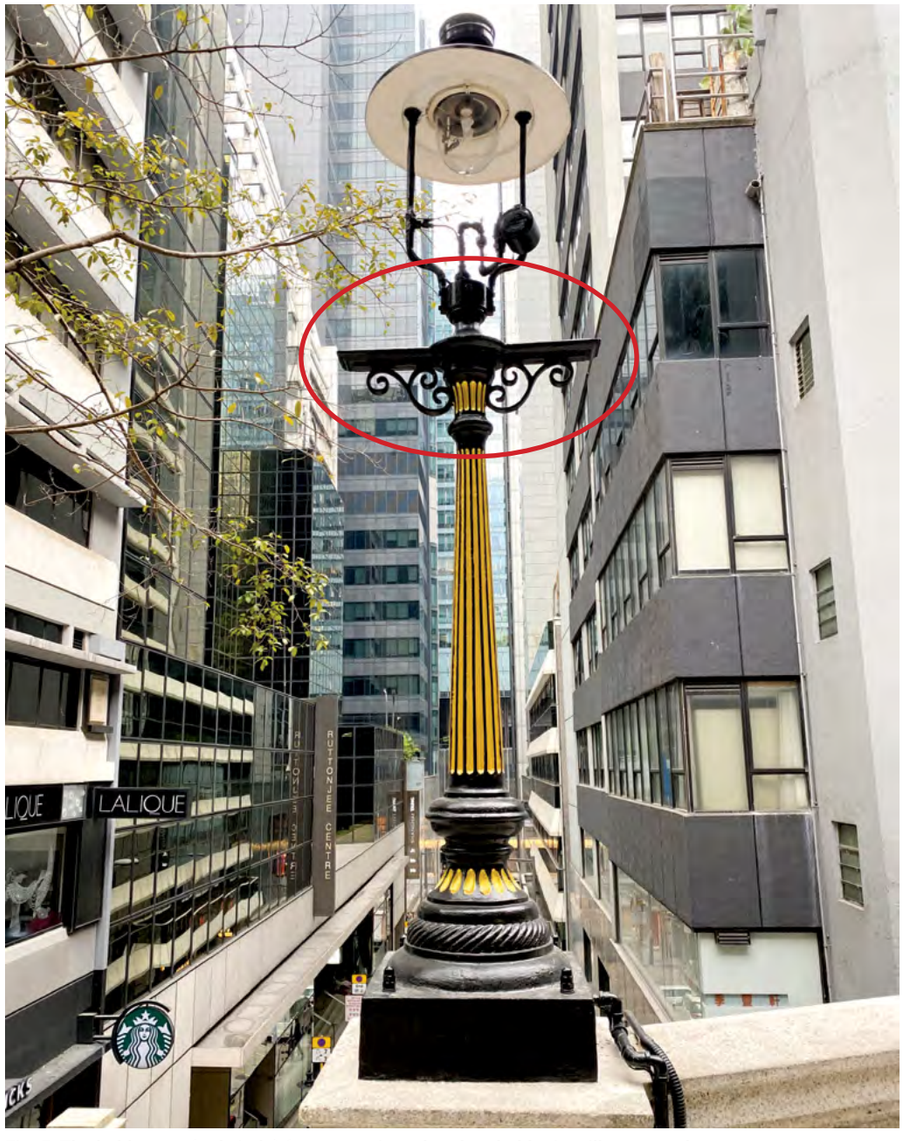

Fig. 5 The ladder rest (red circle) for supporting a bamboo ladder is still preserved.

Following the enactment of the A&M Ordinance in 1976, the Duddell Street Steps and Gas Lamps were declared a monument in 1979 in view of their outstanding heritage significance and were the earliest historic structure in Central with statutory protection.

Damage to the Monument in 2018

During super typhoon Mangkhut's onslaught on Hong Kong on 16 September 2018, the record-breaking wind blew down a large tree that had been growing on the stone wall adjacent to the Monument. The trunk and branches fell onto the Monument causing significant damage (Fig. 6). On the following day, despite the extremely chaotic traffic situation caused by thousands of fallen trees, AMO staff members arrived on-site within two hours after typhoon signal No. 8 was lowered to conduct a preliminary inspection of the damaged Monument. We were all stunned and saddened by what we saw.

The Monument was so seriously damaged that the granite handrail and cement balusters on one side of the steps were almost completely destroyed. The cement balusters were broken into multiple fragments. Three out of the four gas lamps had collapsed, and their lanterns were severely damaged and deformed. Even worse, one of the cast-iron columns was broken into six pieces (Fig. 6).




Fig. 6 The Monument was seriously damaged by the collapse of a large tree. The gas lanterns were deformed, and the cast iron column was broken into pieces.

A restoration team formed by staff members of AMO, HyD and Towngas arrived at the site immediately after the incident to salvage and document the broken pieces of the Monument, which were scattered across the site (Fig. 7). Regardless of size, every single fragment of the Monument was carefully recorded and collected for future restoration. In total, 280 damaged parts were salvaged, sorted and recorded: 204 from the cement balusters, 42 from the granite balustrades, and 34 from the gas lamps. The broken pieces were temporarily stored in a storage area provided by the HyD and Towngas for safekeeping, pending detailed inspection and future restoration (Fig. 8).



Fig. 7 AMO, HyD and Towngas staff members salvaged and documented the broken pieces on-site immediately after the incident.

After site clearance, HyD immediately conducted an assessment to confirm the structural integrity of the steps with the aim of reopening the steps for pedestrian use as soon as possible. The steps were confirmed to be structurally sound. After erecting temporary protective fencing at the damaged balustrades by HyD, the steps were partially reopened on 23 October 2018.

Fig. 8 The salvaged fragments were temporarily placed in storage areas provided by the HyD and Towngas.

Restoration of the Monument

The ultimate goal of the restoration works was to restore the Monument to its pre-typhoon state as far as possible. The project team set the following guiding principles for the restoration works:

1. ensuring the faithful restoration of the Monument in compliance with international heritage conservation standards;

2. integrating traditional craftsmanship, original materials and advanced technology;

3. conducting detailed research on the Monument as the basis for the restoration works;

4. making a detailed record of the Monument and every process of the restoration works;

5. ensuring public safety during the restoration works and the structural safety of the Monument after the restoration works;

6. shortening the duration of the on-site work to minimise the disturbance caused to users of the Monument; and

7. sharing the restoration experience with the general public and stakeholders.

Challenges Encountered

Although the Monument occupies only a small area, the challenges experienced by the project team were enormous.

First, the Monument was seriously damaged by the collapsed tree and was shattered into 280 pieces. It was generally thought that the Monument could not be repaired.

Second, the restoration of the steps and the gas lamps required completely different techniques, skills, craftsmanship and materials, and the skills and expertise required to repair the damaged gas lanterns and the cast iron column were unavailable in Hong Kong. This required extensive research and preparatory work.

Third, the Monument is located in a busy, prime location in Hong Kong. The project team encountered various restrictions during the implementation of the restoration works, which had a significant impact on the works progress.

Finally, the project team was frequently criticised by concern groups and politicians for being too slow in carrying out the restoration works. Some people even suggested using a replica instead of repairing the broken parts. The pressure the project team experienced was indescribable.

Despite these challenges, the project team was determined to adhere to the guiding principles and the highest standards of professionalism in heritage conservation in carrying out the restoration works. We never compromised on quality for the sake of speed.

Leading Conservation Principles

In view of its monument status, throughout the restoration process, the project team diligently adhered to the conservation practices stipulated in the international charters and principles, including *International Charter for the Conservation and Restoration of Monuments and Sites* ("*Venice Charter*" 1964), *Burra Charter*, the *Principles for the Conservation of Heritage Sites in China* ("*China Principles*"), and the *ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites* ("*Ename Charter*"). The leading conservation principles adopted in the restoration works included the following:

a) Multi-disciplinary input in the restoration works

Article 4 of *Burra Charter* advocates the use of multi-disciplinary input for heritage conservation.[1] The project team was composed of about 40 members, including architects, historians, conservationists, a maintenance surveyor, a land surveyor, engineers, artisans and photographers. Their experience, knowledge and expertise made complementary contributions to the restoration work.

b) Emphasis on research in every aspect of the restoration

Article 5 of *China Principles* and Article 19 of *Burra Charter* emphasise that research is fundamental to every aspect of conservation and that sufficient evidence of an earlier state of the fabric should be available before carrying out any restoration works.[2] In view of these principles, the project team paid particular attention to research and preparatory work by searching the historical records, old photos, maps, and maintenance records related to the Monument. In parallel, material compositional analysis of various components of the Monument, including the granite pointing and balusters, was conducted to serve as reference in the restoration work.

c) Using traditional craftsmanship and materials

Both Article 4 of *Burra Charter* and Article 14 of *China Principles* advocate the use of traditional craftsmanship and materials for the conservation of significant fabrics. In some circumstances, it may be appropriate to use modern techniques and materials that offer substantial conservation benefits.[3] The project team adhered diligently to these principles, thus guaranteeing the faithful restoration of the Monument. For instance, all the broken pieces of the granite railings were successfully salvaged and used for restoration purposes, and the gas lamps were repaired by the original UK supplier using traditional technology and components. 3D scanning and printing technologies were adopted to facilitate the restoration works.

d) New parts should be distinguishable from the originals but should blend harmoniously with the whole

Articles 9 and 12 of *Venice Charter* emphasise that any extra work that is indispensable must be distinct from the original but blend harmoniously with its surroundings.[4] How the project team followed this principle is discussed in detail in the following section.

e) Emphasis on the importance of documentation and interpretation

Article 32 of *Burra Charter* and Principle 5 of *Ename Charter* acknowledge the importance of record-taking and interpretation.[5] In order to achieve the knowledge sustainability of the project, the whole restoration process was recorded by various means, including 3D scanning, documentation, photography, video recording and written records. These records are now included in the archives of AMO. On-site and off-site interpretation programmes were conducted to share the documented records, knowledge and experience gained from this restoration project with relevant stakeholders.

Restoration of the Stone Steps and Balustrade

The project's objective was to restore the Monument to its original condition before the damage caused by the super typhoon. To accomplish this goal, the original materials were salvaged, and traditional craftsmanship was used to repair the steps as authentically as possible. The granite rails were restored to their original state by reusing all the damaged granite components.

AMO worked closely with HyD in the restoration of the steps and balustrades and offered professional advice from the heritage conservation perspective on the planning and process of the restoration in addition to conducting work supervision and recording the whole restoration process. HyD engaged an experienced heritage consultant and a specialist contractor with ample experience in repairing historic buildings to carry out the restoration works to ensure that the restoration was implemented with the highest quality of workmanship and in compliance with the best conservation practices.

Implementation of 3D Scanning and Printing Technology

Given the significant number of broken pieces and bulky size of the granite fragments involved, the project team decided to make use of 3D scanning and printing technologies in the restoration works. The 3D Laser Scanning Survey Sub-unit ("3DSU") of AMO, which was set up in 2016 with the objective of accurately measuring and recording declared monuments, has been using the latest technologies to establish a repository of 3D as-built survey records of historic buildings in Hong Kong.

In early 2018, Duddell Street Steps and Gas Lamps were one of the monuments selected as a pioneer site to be laser scanned. Comprehensive as-built survey data of the site was obtained to facilitate monitoring, maintenance and restoration of the Monument in the future and for educational purposes.

Two types of scanners, a terrestrial laser scanner and a portable 3D scanner, were used to scan the Monument. The terrestrial laser scanner is a medium-range, phase-shift-based scanner, which emits laser beams towards a physical object and receives its reflections. It is suitable for recording the built environment, allowing comprehensive survey records to be obtained. The acquired survey data are recorded in "point clouds", which are clusters of measurement points.

The portable 3D scanner is suitable for recording small objects or architectural components, as it can survey fine details. Reflective targets are attached to the object and/or its surroundings. The scanner shines a laser dot on the object's surface and uses a camera to look for it. The object's surface can be digitally constructed on the fly in the form of triangular meshes or point clouds during the scanning process.

Scanning using these two types of scanners was carried out in January and February 2018, allowing an accurate dataset of the state of the Monument before it was damaged to be collected. The project team could refer to this set of 3D survey data to ensure the faithful restoration of the Monument.

After the incident, the 3DSU scanned the damaged Monument on-site using a terrestrial laser scanner to capture the surviving condition of the Monument when the site was cleared. Another on-site 3D scanning was conducted using a portable 3D scanner to record the remaining structures of the balustrades (Fig. 9).

Fig. 9 The 3DSU of AMO conducted 3D scanning on-site using a terrestrial laser scanner (left) and a portable 3D scanner (right).

All the major granite fragments temporarily relocated and stored in HyD's store were also scanned using a portable 3D scanner to get accurate data about their shapes and dimensions, especially those with a broken surface (Fig. 10). To reduce the set-up time and speed up the scanning process, the reflective targets were stuck on portable frames instead of onto the granite fragments so that the frames could be placed directly over each granite fragment and then moved quickly to others.

After the incident scene and the granite fragments had been digitally captured in registered point clouds and triangular meshes, the data were further processed on computer using various modelling software programs, such as CloudCompare, Geomagic and 3DReshaper (Fig. 11).

Based on the 3D digital model constructed on the computer, miniature 3D-printed replicas of the granite fragments were produced and given numbers identical to those assigned to their granite originals (Fig. 12). These replicas were used for desk-top investigation and were reassembled to reconstruct the scene in the office, which facilitated the fragments' reassembly on-site (Figs. 13 and 14). The artisan could refer to the model and reassemble

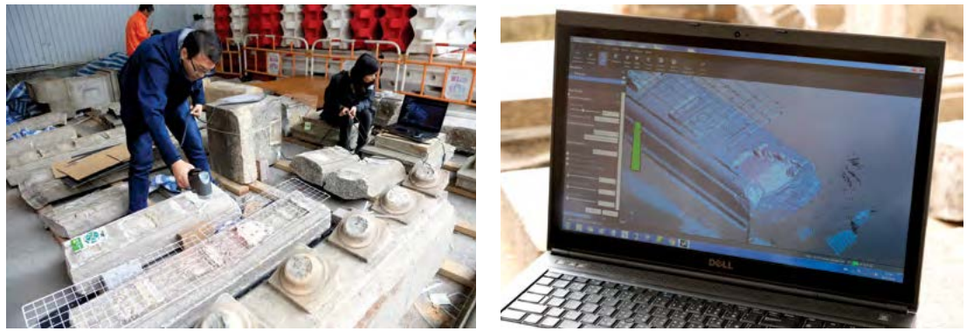

Fig. 10 The broken granite fragments were scanned to get accurate data about their shapes and dimensions.

Fig. 11 A point cloud of the steps after the damage to them.

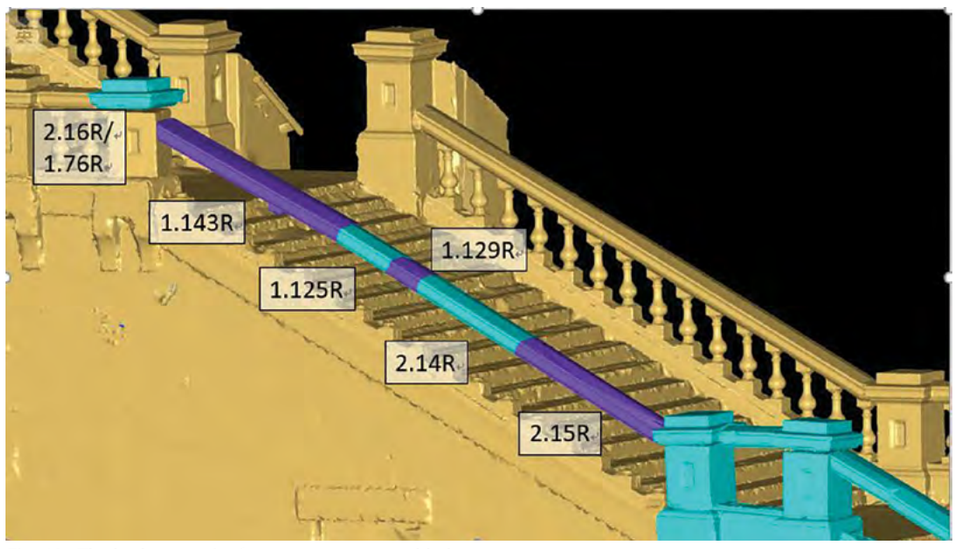

Fig. 12 The broken granite fragments are assembled on computer.

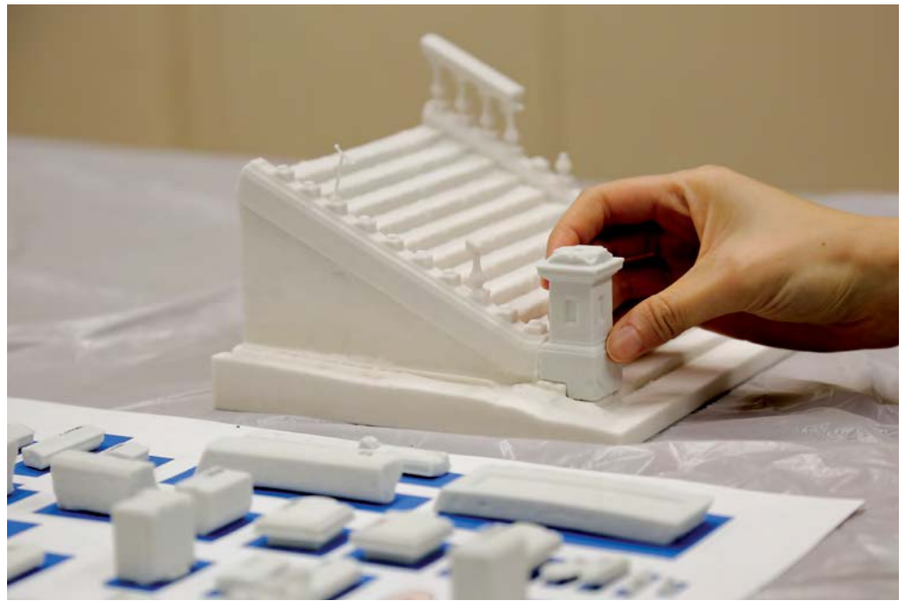

Fig. 13 3D-printed miniature replicas of the numbered granite fragments are reassembled in AMO.

Fig. 14. A model of the reassembled Monument, using the 3D-printed miniature replicas of the numbered granite fragments.

the fragments in the order prepared by the project team in the office to reassemble the full-size granite originals on-site, thus allowing the restoration work to be done accurately and efficiently. This significantly reduced the time and cost of the on-site restoration work. It also left the steps open for pedestrian use during the on-site restoration works, thus significantly reducing the inconvenience to pedestrians using the stair.

Restoration of the balusters

47 of the 101 cement balusters had been badly damaged. Thanks to the tremendous efforts of the project team, 34 balusters were successfully reassembled and reinstalled on-site. The remaining 13 were either beyond repair or were considered to be structurally unsound after the reassembling works, so they were replaced by newly cast balusters.

After several casting trials under the supervision of the project team members, the contractor fabricated new cement balusters that matched the originals in terms of appearance, materials, colour, texture and craftsmanship, based on proven research and material analysis (Fig. 15).

Fig. 15 The project team inspects and supervises the fabrication of newly-cast cement balusters to ensure they match the originals in terms of appearance, materials, colour, texture and craftsmanship.

Fig. 16 The production year "2019" is stamped on the newly cast cement balusters in an inconspicuous place.

To distinguish the newly cast cement balusters from the existing ones, each new baluster was stamped with the production year "2019" in an inconspicuous place (Fig. 16). This approach ensured that the restored cement balusters would blend harmoniously with the whole while still being distinguishable from the originals, thus complying with international conservation standards.

To enhance the structural stability of the balusters, stainless steel rods were inserted into the balusters to fix them to the underside of the balustrades to strengthen them (Fig. 17).

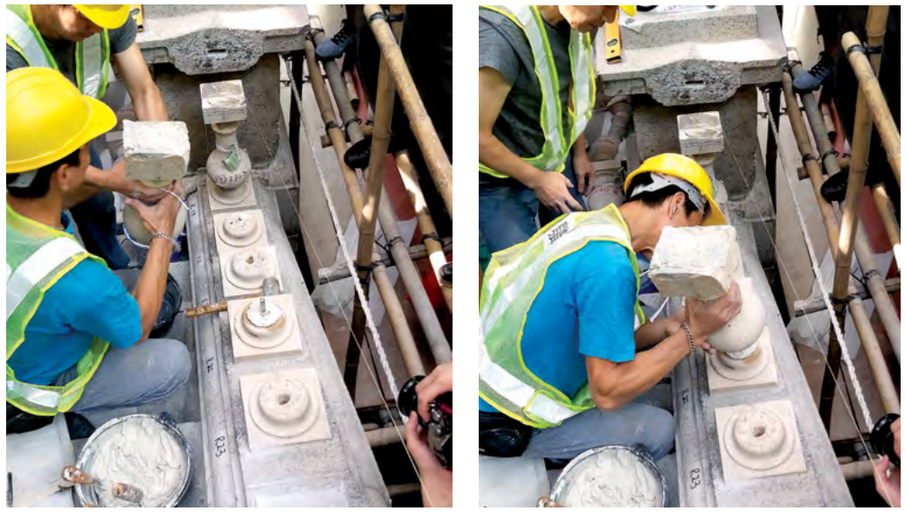

Fig. 17 Stainless steel rods are inserted into the balusters to strengthen them.

After the installation of the balusters, the large granite components were carefully reassembled following the sequence in the 3D model using chain hoists and hand tools (Fig. 18).

Fig. 18 Artisans use chain hoists and hand tools during the reinstallation works.

To meet the present structural safety requirements, U-shaped stainless-steel plates were installed on the top of the newly-cast cement balusters to reconnect and reinforce the broken granite handrails (Fig. 19). These U-shape plates were hidden from view to avoid having an adverse visual impact on the Monument. This reinforcement method was referenced to the previous method adopted at the Monument.

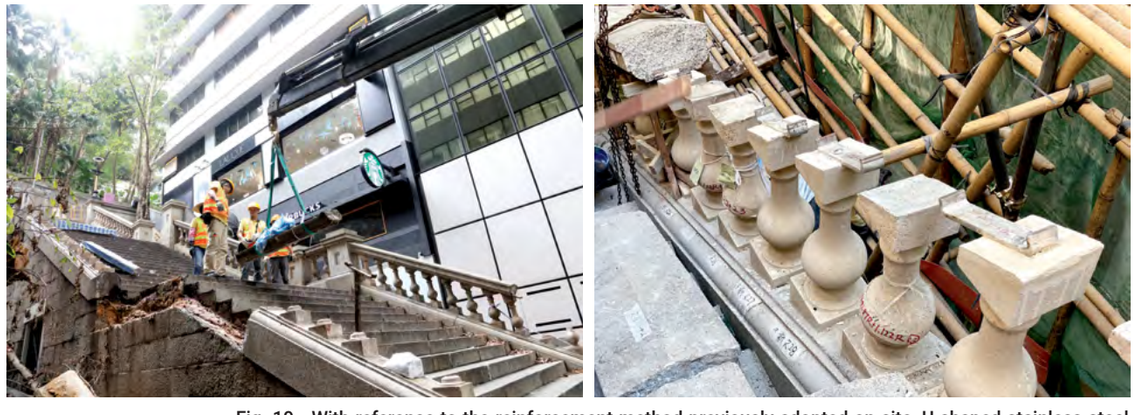

Fig. 19 With reference to the reinforcement method previously adopted on-site, U-shaped stainless-steel plates were installed on the newly cast cement balusters to reconnect and reinforce the broken granite handrails.

Restoration of the Gas Lamps

The restoration of the Gas Lamps was much more difficult than that of the steps and balustrades. The project team soon realised that the skills, craftsmanship and experience needed to restore the badly damaged gas lamps did not exist in Hong Kong. After our repeated efforts, the project team finally contacted the original gas lamp supplier, William Sugg, in the UK. The company agreed to send over an expert to inspect the three damaged gas lamps and discuss the restoration proposal for the damaged gas lanterns and shattered cast-iron column, adopting the principle of using the original craftsmanship and materials.

After conducting a detailed inspection, British expert Mr Mark Jones from William Sugg advised that the three gas lanterns and one broken cast-iron column could be restored (Fig. 20). For the remaining two fallen cast-iron columns, Towngas engaged a specialist contractor to conduct a non-destructive test to ascertain whether there was any damage to the columns (Fig. 21). Fortunately, the test revealed that no damage was found. In September 2019, the damaged parts of the gas lanterns and the broken cast-iron column were delivered to the original supplier's workshop in the UK for restoration.

Following the same principles as the project team, the original supplier's experts tried their best to achieve the faithful restoration of the historic gas lamps by repairing the original parts as far as possible. Sketches and plans of the "Rochester" model gas lanterns, which were of the same type as the ones in Hong Kong, were retrieved from the company's archives as a reference for repairing the Duddell Street gas lanterns (Fig. 22).

Fig. 20 Mr Mark Jones, an expert from William Sugg, came to Hong Kong to meet with AMO, HyD and Towngas and conducted a detailed inspection of the damaged gas lamps.

Fig. 21 A specialist contractor conducts a non-destructive test on the two cast-iron columns at the Towngas store.

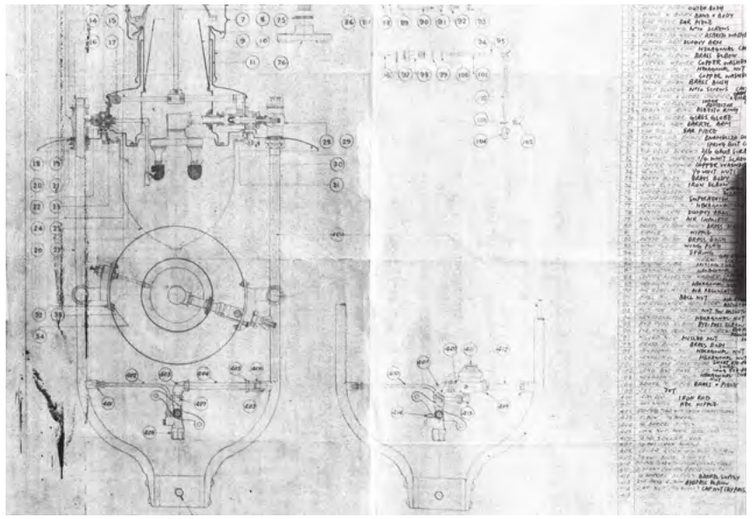

Fig. 22 Plan of the "Rochester Lamp" from the archives of the original supplier of gas lamps.

Fig. 23 Experts and engineers repair the damaged gas lanterns in their UK workshop.

AMO colleagues went to the UK three times to inspect and record the progress of the repairs, gather historical information about the gas lamps, and exchange views with William Sugg experts and engineers (Fig. 23). Our AMO colleagues were fortunate to have a chance to meet Mr Christopher Sugg, the great-great-grandson of the company's founder, who shared ample information about the historic gas lamps on Duddell Street and other relevant models. The restoration process was recorded to enable the sustainable transfer of knowledge back to Hong Kong. The project team was able to derive an in-depth understanding of the craftsmanship used in the manufacture, repair and maintenance of the historic gas lamps in their visits to the UK. This enhanced understanding of the historical development and construction of gas lamps was invaluable for the future repair and maintenance of the four unique gas lamps in Hong Kong.

Restoration of the Cast-Iron Column

Repairing broken cast-iron components is usually considered to be impossible. However, a welding specialist with experience in repairing historic cast-iron architectural features in the UK was commissioned to repair the broken cast-iron column. The broken pieces were carefully pieced together and reconnected using a "secret" fusion-welding procedure (Fig. 24). This was followed by grinding all the welds to match the existing shape, blasting, and finally applying a coating of red oxide primer and a black top coating. The repaired column is guaranteed to be structurally stronger than the originals. This experience broadened our horizons and offered an alternative means of repairing cast-iron items in other conservation projects in Hong Kong.

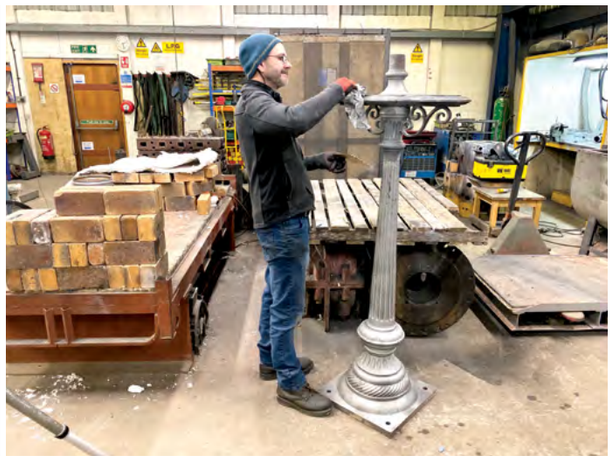

Fig. 24 The shattered cast-iron column is repaired in the UK workshop of a welding specialist.

The restored gas lanterns and cast-iron column were returned to Hong Kong in November 2019. Towngas contributed enormously to the pre-installation checking, including gas leakage tests, and to the on-site installation of the repaired gas lamps. On 23 December 2019, the four gas lamps were relit, once again illuminating the granite steps built over a century ago (Fig. 25).

Fig. 25 The steps were fully reopened and the gas lamps relit on 23 December 2019.

Documentation and Sustainability of Knowledge

Acknowledging the importance of documentation and the sustainable transfer of knowledge in heritage conservation to the general public and other stakeholders, including professional bodies, heritage conservation practitioners, and organisations that maintain Monuments, the project team paid particular attention to the research and documentation of the entire restoration process, using the combined benefits of 3D scanning, photography and video recording.

Various interpretation and presentation programmes were formulated to facilitate wider access to the knowledge and experience gained from the restoration project.

Exhibitions on the restoration project were launched at the Hong Kong Heritage Discovery Centre in September 2020 (Fig. 26) and at The Mills in November 2020 (Fig. 27). They drew a significant amount of attention from the public, thus broadening community awareness of the conservation work done by the AMO and enhancing public awareness of heritage conservation.

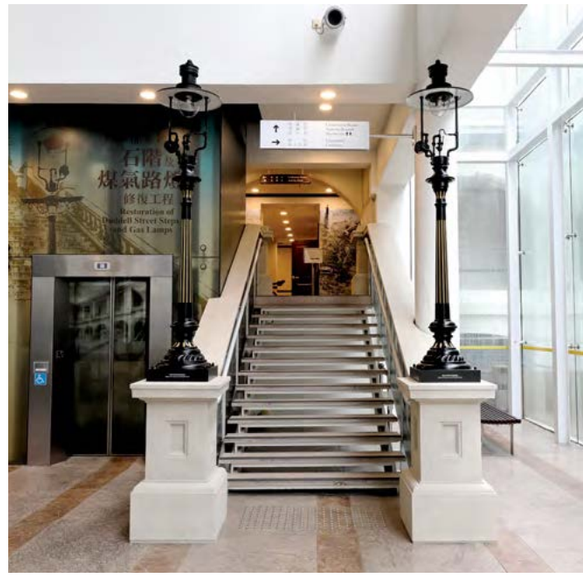

Fig. 26 The "Restoration of Duddell Street Steps and Gas Lamps" exhibition was launched at the Hong Kong Heritage Discovery Centre in 2020.

Fig. 27 The award-winning projects of the 2019/20 HKIA Annual Awards, including the restoration of the Duddell Street Steps and Gas Lamps, were staged at The Mills.

A three-minute video featuring the restoration works was produced and uploaded to the AMO website. The monument plaque and different parts of the Monument were equipped with QR codes linked to this video (Fig. 28).

Fig. 28 QR codes were positioned on the Monument plaque and at various parts of the Monument.

The restoration experience was also disseminated to the public through various offline and online media, such as television and radio programmes, YouTube, and the blog of Secretary for Development.

The project team members spared no effort in sharing their restoration experience with others through talks and seminars (Figs. 29 to 32). A presentation titled "Application of 3D scanning technology in the restoration of a heritage site damaged by natural disaster" was given at the International Committee for Architectural Photogrammetry ("CIPA") 2021 symposium. The symposium audience included local and international conservation professionals and practitioners, as well as museum curators and conservation architects. The presentation paper was also published in international journals,[6] thus further sharing and disseminating the experience gained to local and overseas groups.

Fig. 29 AMO representatives attend a public lecture titled "Tai Kwun Conversations" to share their restoration experience with the public.

Fig. 30 Sharing session is hosted by AMO representatives for Towngas staff.

Fig. 31 Sharing session is hosted by AMO representatives for curatorial grade colleagues of the Leisure and Cultural Services Department.

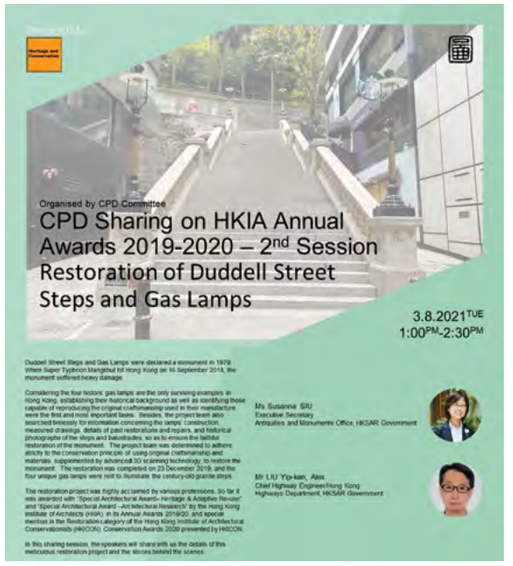

Fig. 32 AMO and HyD representatives deliver an online sharing session for HKIA members.

Fig. 33 The restoration project has won four awards so far.

The project team also participated in heritage conservation awards organised by professional organisations to disseminate best practices in heritage conservation and the spirit of inter-department and public-private section cooperation. The restoration project has been highly acclaimed by various professional bodies and has won four awards so far (Fig. 33).[7]

Conclusion

Thanks to the concerted efforts and hard work of the project team, the Monument was effectively "reborn" on 23 December 2019 after fifteen months of painstaking restoration works. Despite the unprecedented challenges, the project team was persistent in upholding professionalism in heritage conservation and never compromising on quality for the sake of speed. Although a "quick fix" could have been achieved by replacing the damaged balusters, gas lanterns and cast-iron column with modern replicas, this would have completely compromised the team's conservation principles and desire for authenticity and was not considered at all.

Before the advent of 3D scanning and information technologies, the repair and maintenance of built heritage relied upon traditional measurement and visual inspection methods, which are very time-consuming and not particularly accurate. The introduction of 3D scanning and printing technologies provides accurate and detailed measurements of the monuments, which form the basis for monitoring and restoration works. In the case of the restoration of the Duddell Street Steps and Gas Lamps, these 3D scanning and printing technologies played an indispensable role in that the restoration works could be carried out successfully and in compliance with international conservation standards. The precious experience gained in utilising these two technologies in this restoration project provides a benchmark for the future restoration of heritage sites in Hong Kong.

In addition, the tireless research, the documentation of the entire restoration process by various means, and the post-restoration interpretation strategies all contributed to the enrichment of both the tangible and the intangible aspects of the Monument, enabling them to be passed on to future generations in a truly sustainable manner.

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1 ***Burra Charter*, Article 4**: "Conservation should make use of all the knowledge, skills and disciplines which can contribute to the study and care of the place."

2 ***China Principles*, Article 5**: "Research is fundamental to every aspect of conservation. Each step in the conservation process should be based on results of research."; ***Burra Charter*, Article 19**: "Restoration is appropriate only if there is sufficient evidence of an earlier state of the fabric."

3 ***Burra Charter*, Article 4**: "Traditional techniques and materials are preferred for the conservation of significant fabric. In some circumstances modern techniques and materials which offer substantial conservation benefits may be appropriate."; ***China Principles*, Article 14**: "… Traditional craftsmanship that contributes to the site's long-term preservation should be maintained. New materials and techniques may only be used after they have been tested and proven effective, and should not be detrimental or cause long-term damage…"

4 ***Venice Charter*, Article 9**:"… any extra work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp. The restoration in any case must be preceded and followed by an archaeological and historical study of the monument."; **Article 12**: "Replacements of missing parts must integrate harmoniously with the whole, but at the same time must be distinguishable from the original so that restoration does not falsify the artistic or historic evidence."

5 ***Burra Charter*, Article 32**: "The records associated with the conservation of a place should be placed in a permanent archive and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate."; ***Ename Charter*, Principle 5**: "Interpretation and presentation should be an integral part of the conservation process, enhancing the public's awareness of specific conservation problems encountered at the site and explaining the efforts being taken to protect the site's physical integrity and authenticity".

6 The essay was published in *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XLVI-M-1-2021: 28th CIPA Symposium "Great Learning & Digital Emotion"*, 28 August–1 September 2021, Beijing, China.

7 The project won two "Special Architectural Awards" at the Hong Kong Institute of Architects (HKIA) Annual Awards 2019/20: "Heritage & Adaptive Re-use" and "Architectural Research". The project also won a special mention in the "Restoration" category of the Hong Kong Institute of Architectural Conservationists (HKICON) Conservation Awards 2020, presented by HKICON, and a Merit in the "Maintenance and Rehabilitation" category of the Building Surveyor Awards 2021, presented by The Hong Kong Institute of Surveyors.

4

Cross-boundary Collaborations

CHANG Chi Ho Ivanhoe

Cross-Regional Cooperation on Built Heritage in the Greater Bay Area

Mr Ivanhoe Chang received his Bachelor of Engineering degree from the Chinese University of Hong Kong, and joined the Government as an Administrative Officer in 1995. He spent his initial career on matters related to the establishment of the Hong Kong Special Administrative Region (SAR). In 1998, he went on an overseas posting to the Hong Kong Economic and Trade Office in Brussels as Assistant Representative to the European Union.

Returning to Hong Kong in 2002, Mr Chang joined the Financial Services and Treasury Bureau working on revenue and taxation policy. In 2007, he returned to the Constitutional and Mainland Affairs Bureau, overseeing electoral policy and legislation. He subsequently served as the Administrative Assistant to the Secretary for Constitutional and Mainland Affairs and worked on the constitutional development of Hong Kong.

Between 2012 and 2016, he was Principal Assistant Secretary at the Commerce and Economic Development Bureau responsible for telecommunications policy. He was also heavily involved in promoting the development of creative industries.

As Director of the Hong Kong Economic and Trade Office in San Francisco from 2016 to 2020, Mr Chang represented the Hong Kong SAR Government in fostering economic ties between Hong Kong and 19 states in the western part of the United States.

He assumed the post of Commissioner for Heritage in the Development Bureau in November 2020.

Abstract

From the enactment of the *Antiquities and Monuments Ordinance* in 1976 to the establishment of the Commissioner for Heritage's Office in 2008 and subsequent policy initiatives, Hong Kong's efforts in conservation of built heritage has been going from strength to strength. With the release of the *Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area* in 2019 and the promulgation of the *Culture and Tourism Development Plan for Guangdong-Hong Kong-Macao Greater Bay Area* in 2020, Hong Kong is able to make use of its international perspective and unique East-meets-West historic background to become the bridge between the Greater Bay Area (GBA) and overseas.

Through the cooperation and interflow within the GBA, the cities can complement each other to generate synergy in the conservation of built heritage, and also to propagate Chinese culture and enhance the sense of belonging for people in Hong Kong as well as the GBA.

Introduction

Hong Kong has been working to conserve built heritage for more than 40 years. The enabling legislation for heritage conservation – the *Antiquities and Monuments Ordinance* (Cap. 53) – came into force in 1976, even earlier than *The Law of the People's Republic of China on Protection of Cultural Relics*, which was adopted by the Mainland in 1982. The Antiquities Advisory Board (AAB), established under the *Antiquities and Monuments Ordinance*, the Antiquities and Monuments Office (AMO) (also the secretariat of AAB), the Antiquities Authority (now the Secretary for Development), and the Commissioner for Heritage's Office are dedicated to the protection and preservation of the archaeological and built heritage of Hong Kong by means of research and publicity to enhance the public's awareness of, and interest in, cultural heritage.

The Development Bureau was founded by the Government of the Hong Kong SAR in 2007, and heritage conservation was transferred from the Home Affairs Bureau to the Development Bureau. The Commissioner for Heritage's Office was established in 2008 to review and promote the policy of heritage conservation to balance the requirements of conservation and development. By November 2022, in accordance with the *Antiquities and Monuments Ordinance*, 132 built heritage or archaeological sites were listed as Declared Monuments for permanent protection. With the professional assistance of AMO, the AAB has now confirmed the grading of 1,534 historic buildings and protected 208 sites with archaeological research value.

It is important to preserve historic buildings. However, a vital preservation topic is how to breathe new life into historic buildings that have lost their original functions, through revitalisation and adaptive reuse. Under the *Revitalising Historic Buildings Through Partnership Scheme*, led by the Commissioner for Heritage's Office, 26 historic building revitalisation projects have been approved since 2008. Many of the projects have become tourism hotspots in Hong Kong, such as the Tai O Heritage Hotel; the School of Chinese Medicine of Hong Kong Baptist University – Lui Seng Chun (Fig. 1); the YHA Mei Ho House Youth Hostel (Fig. 2); and the Green Hub (Fig. 3). Among the revitalisation projects, 5 of them won the UNESCO Asia-Pacific Award for Cultural Heritage Conservation, and the Blue House Cluster received the Award of Excellence, an impressive achievement.

Hong Kong may be tiny, but it is very rich in cultural heritage. Within its total land area of some 1,100 square kilometres, there are 132 declared monuments, 1,534 graded historic buildings, 208 protected archaeological sites, and over 1.5 million unearthed archaeological artefacts. In our database, there are over 600,000 photographs, slides and films, 3D scanning data of 40 declared monuments and historic buildings, more than 5,800 books and nearly 2,400 periodicals on the protection of archaeological and built heritage, and over 3,350 data files of historic buildings. Furthermore, we have nearly 2,100 and 520 "Friends of Heritage" and "Young Friends of Heritage" respectively.

In February 2019, the State Council issued the *Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area* (the *Outline*). The policy includes the promotion of the economy, improvement of people's livelihood, development and innovation. One of the main focuses is "Jointly Developing a Cultured Bay Area", which emphasises development at the spiritual level through cultural relics, monuments and world cultural heritage to enhance the cultural charm and boost the identity and cultural accomplishments of the people in the GBA, and to promote vibrant cultural development. After the issuance of the *Outline*, in December 2020, the Guangdong Provincial Government and several ministries and commissions launched the *Culture and Tourism Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area* (the *Plan*) to consolidate their jointly inherited Chinese culture and to speed up cooperation in cultural construction in the GBA. As an international city, Hong Kong has a unique East-meets-West cultural background and should shoulder the responsibility of promoting Chinese culture within this wider cultural context.

Fig. 1 School of Chinese Medicine of Hong Kong Baptist University – Lui Seng Chun

Fig. 2 YHA Mei Ho House Youth Hostel

Fig. 3 Green Hub

Cross-Regional Cooperation in the GBA

The GBA includes Guangzhou, Shenzhen, Zhuhai, Foshan, Huizhou, Dongguan, Zhongshan, Jiangmen and Zhaoqing, of Guangdong province, as well as the Special Administrative Regions of Hong Kong and Macao. Their history, tradition and culture are of the same lineage, they have common ancestry, and they form a cultural conglomerate. However, with the development of modern history, a unique scene has been formed in the cultural heritage in Guangdong, Hong Kong and Macao, each with its own characteristics and worthy of in-depth study and promotion as a whole. The *Outline* and *Plan* affirmed Hong Kong's position as the most international city in the GBA. It has a unique international perspective and East-meets-West charm, which allows it to act as a bridge between the GBA and overseas areas to promote Chinese culture and tradition. Other cities in the GBA can supplement Hong Kong's shortcomings. As such, the people's identity in both Hong Kong and the rest of the GBA can be enhanced.

The promotion of cross-regional cooperation and exchange in the GBA helps the different regions complement each other and achieve win-win results through the unique identities, mutual cooperation and synergy of the 11 cities. As far as cultural conservation is concerned, exchange within the GBA is beneficial for the planning, research, conservation and utilisation of cultural heritage, reinforces the sense of belonging and cultural identity of people in the GBA, and preserves regional cultural characteristics. It can also help promote cultural tourism and economic development, so that the GBA can be "a quality living circle for living, working and travelling", thus improving the quality of life of the people in the GBA.

Suggestions for Cross-Regional Cooperation

Heritage conservation and cooperation in the GBA can be developed in the following ways:

(1) Professional Training

With regard to professional training, Guangdong, Hong Kong and Macao have nurtured a large number of professionals in the repair, restoration, maintenance, revitalisation and management of built heritage. Because of the distinctive nature of architecture and different historical and cultural development of these places in modern times, the working experience of these professionals varies significantly. We, therefore, propose to enhance the exchange of professional knowledge and experience through field trips, conferences and workshops.

Besides, according to the *Plan*, the promotion of characteristic tourism has been repeatedly highlighted, including the development of cultural tourism routes. To meet the demand for human resources, training of professionals (such as practitioners in cultural conservation, tourism and related service industries) can be enhanced to form cooperative partnerships. The trained cultural tourism professionals could introduce the history and culture of the GBA in their local areas and conduct on-site guided tours simultaneously every year in the 11 GBA cities on the International Day of Monuments and Sites, showcasing the shared history and culture of the GBA.

As for the exchange and training for young people, many opportunities for young people aged 18 to 35 have been offered by the "Guangdong-Hong Kong-Macao Youth Cultural Exchange Tour", jointly organised since 2009 by the Department of Culture and Tourism of Guangdong Province, the Higher Education Bureau of the Macao SAR, and the Home Affairs Bureau of the Hong Kong SAR. Through the programme, the participants deepen their understanding of the three regions through exchanges, visits and symposiums. More than a thousand young people in Hong Kong have participated in the programme so far, and it is one of the projects highlighted in the *Plan*. We suggest that arrangements be made for "Friends of Heritage" and "Young Friends of Heritage" of the AMO to join field trips and exchange programmes with heritage volunteers in the GBA to facilitate mutual understanding and cooperation. The trained heritage volunteers could cooperate with each other on "multi-destination tourism" routes for cultural heritage and serve as docents for interpretation in their areas of expertise. They could introduce the history of built heritage in different cities and the relationship between the architecture of different cities.

(2) Research and Publications

The GBA is backed by the Lingnan region and faces the South China Sea, making it a confluence of inland and maritime cultures. In the Neolithic period, the ancestors of the people of Lingnan and those of the Lingbei Yangtze River Basin communicated with each other, and their association became more frequent in the Bronze Age. The Lingnan Yue

people were deeply influenced by the Lingbei Chu Culture. With the unification by the First Emperor of Qin, cultures of Lingnan and the Central Plain started to integrate. With a history of more than 10,000 years of intercommunication among various nationalities at the rim of the South China Sea, maritime culture is also considered a suitable research axis. Topics such as islands, coastal defence, maritime trade, trade porcelain excavated along the Shatin to Central Link in Hong Kong, underwater archaeology, and even religions, institutions, architecture, and goods imported from the West in modern times all form a crucial part of the history and culture of the GBA.

In the past two decades, professionals involved in the protection of the cultural heritage in Hong Kong joined hands with those in Guangdong and Macao on various research projects. For instance, in 2001, an excavation team comprising archaeologists from Hong Kong and the Mainland recovered a large batch of artefacts during a rescue excavation at the Sai Kung Sha Ha Site, with finds from the Neolithic period to the Ming dynasty. Then a cross-regional academic team explored the changes in the prehistoric environment and the social life of our ancestors based on different methodologies. This has allowed us to understand the diversity of prehistoric society relating to gathering, fishing and hunting, which is beneficial for the examination of the relationship between the agricultural societies in the Yellow River and Yangtze River regions and the surrounding areas in prehistoric China. In 2013, Guangdong, Hong Kong and Macao jointly organised a roving exhibition, entitled "Historical Imprints of Lingnan: Major Archaeological Discoveries of Guangdong, Hong Kong and Macao" to showcase the latest archaeological research results of the three places to the people in the GBA.

We recommend that experts, scholars and professionals in heritage conservation in the GBA strengthen cooperation in research to tackle the key problems together, and to draw up a series of study frameworks and topics related to cross-regional cooperation, such as the study of excavated artefacts, the science and technology applied to heritage conservation and archaeological excavations, the revitalisation of historic sites, creative education, and methods of public participation. Furthermore, regular academic conferences should be conducted to exchange research findings, and the research results should be collated and published as soon as possible. Readers of various ages and backgrounds should be considered to enhance the research level of cities within the GBA, which would help lay a good foundation for "Jointly Developing a Cultured Bay Area".

(3) Collaboration in Education and Publicity

To enhance the common identity of the people in the GBA, diversified education and extension strategies should be put in place to enhance their comprehension and experience of the "same roots and same origins", such as the following:

(i) Roving heritage exhibitions on a cross-regional circuit to showcase key artefacts, major historic buildings, and the significant cultural heritage in the GBA;

(ii) Online exhibitions to vividly demonstrate research achievements and to increase the people's understanding of Chinese culture in a prompt manner;

(iii) Establishing cross-regional heritage trails in the GBA on different themes, such as education, overseas Chinese and industrial development, to illustrate the evolution of Lingnan history and culture. Online platforms should be used to provide up-to-date information of the heritage trails, such as the historic and cultural sites along the trail, sub-sectional paths, guided tours, and information on transportation and accommodation, so that visitors can freely choose the heritage trails they are interested in, or even design their own tour routes to dig deeply into changes in the history and culture of the Lingnan region;

(iv) Using advanced technologies to showcase historic buildings and archaeological artefacts to provide the public with plenty of opportunities to learn about the cultural heritage of the region and have a feel of their unique charisma;

(v) Co-producing television programmes, launching media columns, planning a wide range of competitions related to cultural heritage and historic sites (such as short films, cartoons, essays, photography, logo design, quizzes, and calligraphy of inscriptions at historic sites), workshops and heritage study trips for teenagers during school holidays, and activities and educational visits for low-income groups and ethnic minorities can all help promote cross-regional cooperation within the GBA.

(4) Information Exchange

With today's well-developed communication network, cross-regional message exchange has become part of our daily life. We can consider creating a shared WeChat account for the "Cultural Heritage of the Greater Bay Area" to keep messages up to date regarding activities on heritage conservation in the GBA. Public engagement could also be enhanced and realised by encouraging the public to share their photos of heritage sites and buildings, highlights of their visits, and suggestions for improvement.

(5) Data Sharing of Cultural Heritage Resources

In recent years, 3D laser scanning, aerial photography and panoramic photography have been adopted to survey, draw and record the spatial information of historic buildings, including characteristic building elements and their spatial association with the surroundings. The collected data can be applied in many ways, such as virtual reality (VR) or augmented reality (AR) of historic buildings and archaeological sites to recreate the life scenes of our ancestors. Interactive platforms could also be set up using naked-eye 3D and animation to bring historic buildings "alive" on the screen without geographical restrictions.

In Hong Kong, AMO set up a 3D scanning team in 2016 to gather accurate 3D data for historic buildings and archaeological artefacts. These data are conducive to drawing precise maps, which are helpful to monitor the condition of historic buildings and repair unearthed archaeological finds. 3D-printed models can also be created for reference, research and citation in the future. The data is also used to build a 3D data archive for local historic buildings and archaeological artefacts. Since its establishment, the 3D scanning team has completed 3D scanning for 40 declared monuments and graded buildings. The data have been widely applied to monument renovation, education and publicity of local heritage. We recommend that the Hong Kong archives be connected with the heritage databases of other cities in the GBA. The one-stop data can be offered to scholars, graduate students, and people working in the industry to assist in their comprehensive study of the GBA. Although the heritage data cannot replace field visits, it can save time for information and data collection and thus support cross-regional studies in the GBA.

Knowledge sharing has inevitably been a growing trend. Especially during the longstanding COVID-19 pandemic, travel has been hindered greatly, leading to growing demand for online knowledge. In the future, the digitisation of historical and cultural resources will be accelerated in Hong Kong, so unified standards should be adopted in heritage surveys between Hong Kong and the Mainland to build a shared regional database on built heritage resources. The data can also be applied to the Geographic Information System (GIS), which

would help upgrade the current GIS from its current 2D presentations to 3D presentations. Moreover, data such as historical and aerial photographs, video clips, assessment reports on historic buildings, excavation reports, and research reports funded by the Built Heritage Conservation Fund should be stored in the database for access by the general public. The public may also be invited to provide data and participate in the establishment of the database, so that the data can indeed be a shared cultural resource for all.

(6) Heritage Creative Products

Cultural tourism is the emphasis of *The Culture and Tourism Development Plan for Guangdong-Hong Kong-Macao Greater Bay Area*. Tourists who travel to the GBA can experience local culture and customs, and purchase cultural and creative products with local cultural characteristics. Cultural heritage should be put to good use in its own region and even across regions, and be integrated into public life, instead of keeping it at the level of academic and historical research. We should develop and sell cultural and creative commodities. In addition to cultivating creative thinking and promoting heritage, this would enhance economic development and the living standards of the local people.

Pilot Schemes

(1) Signing a Memorandum of Understanding

We have signed a memorandum of understanding on heritage conservation to intensify the relations and collaboration among cities in the GBA, including areas such as studies of historic buildings and archaeology, management of artefacts, restoration and repair of monuments, heritage education and publicity, and public engagement.

(i) Raising the Level of Built Heritage Conservation

All-round talent and technical cooperation are required for the conservation and renovation of historic buildings. In the past year, the State Council announced the *Plan for the Preservation of Cultural Relics and Related Technological Innovation During the Fourteenth Five-year Plan Period* to give top priority to scientific research and technological innovation in the field of heritage conservation. The restoration projects for historic buildings in Hong Kong have reached international standards and have won honours and acclamations worldwide. The cooperation framework would speed up technical exchanges across regions, especially the exchange of skills for producing traditional building materials and their application in restoration. This would help raise the level of heritage conservation.

(ii) Reinforcing Archaeological Technology and Research

As for archaeology, Hong Kong should reinforce the research and development (R&D) of key technologies, such as the excavation of archaeological sites, collection of environmental data at archaeological sites, records on ruins and sites, and management and study of excavated artefacts, with the help of national-standard centres, such as the National Cultural Heritage Science and Technology Innovation Centre and the Nanhai Base of the National Centre for Archaeology, to increase the overall level of archaeological research in the GBA and at the same time better narrate the stories of the Lingnan region through antiquities.

(iii) Using BIM to Manage Built Heritage Resources

Regarding the management of built heritage resources, Hong Kong has focused on the R&D of Building Information Modelling (BIM) for applications in built heritage, and the relevant technology is close to maturity. The "618 Shanghai Street" project won the first international BIM award for its comprehensive application. Hong Kong can share how to utilise the BIM functions for facility management, especially by integrating it with the Internet of Things (IoT) to intellectualise the management of built heritage.

(iv) Extending Cultural Heritage Resources to the Metaverse

Based on the cooperation framework, cultural heritage resources should be adopted and extended to the Metaverse. For instance, heritage data could be used to "build" ancient buildings and archaeological sites in the virtual world. In this way, people could travel and experience the life of their Chinese ancestors.

(v) Organising the Exchange of Exhibitions

Hong Kong and the Mainland have carried out a large number of exhibitions with themes about built heritage and archaeology. The exchange of exhibitions should be enhanced in GBA cities. New interactive and immersive elements could be added in exhibition planning to promote and provide information about the built heritage and archaeological artefacts in the GBA.

(vi) Strengthening Student Exchanges in the Three Regions

On 30 November 2021, the pilot study of the "Values Education Curriculum Framework" was announced by the Standing Committee on Values Education for the Curriculum Development Council (CDC) of the Education Bureau of the Hong Kong SAR. Providing them with a thorough understanding of "Chinese Culture" is viewed as the backbone for nurturing the values of students. Mainland study tours and project-based learning are also mentioned in the *Citizenship and Social Development Curriculum and Assessment Guide (Secondary 4-6)*, issued by CDC and the Hong Kong Examinations and Assessment Authority (HKEAA) in 2021. These educational development issues are complementary to "Strengthening exchanges among the youth of Guangdong, Hong Kong and Macao" proposed in the *Outline*. One practical method is to arrange for students to visit heritage sites in the GBA, especially heritage trails with distinctive themes to stimulate mutual understanding and communication. Students and Young Friends of Heritage could also serve as docents to introduce the historical background and architectural features of the built heritage to intensify the sense of integration of the young people into local history. Competitions related to heritage could also be arranged to offer opportunities for student participation in the GBA, so that they can compare, contrast and investigate the similarities and differences of local history and culture. Study groups on cultural heritage could also be held for students during summer vacations or holidays to allow them to participate in excavations, management and research of archaeological artefacts to boost the interest and awareness of the young people in cultural heritage.

(2) Taking Turns to Organise Regular Summits for Heritage Conservation

To boost exchanges among the 11 cities in the GBA and enhance the level of research and conservation in the cities, we recommend that the cities take turns conducting regular cultural heritage summits, with discussion topics extended from historic buildings to archaeology, including heritage education, and public engagement. A platform should be built for academics, including historians, archaeologists, and others, to share their experience and research findings, which could also be a platform for public participation. During the meetings, site visits to local heritage sites could be organised to deepen understanding of the relationship between cultural tourism and the local economy. The first summit to

promote heritage conservation in the GBA held in Hong Kong received the unwavering support of the National Cultural Heritage Administration and the cities of the GBA. This will allow us to gather and exchange research achievements and conservation experience, and it is bound to contribute to the construction of a Cultured Bay Area. Periodical summits on heritage conservation organised in turn by the cities of the Greater Bay Area would encourage more scholars and practitioners to get involved in research and conservation of cultural heritage in the GBA.

(3) Establishing a Heritage Trail on Education in the GBA

The development of a Cultured Bay Area was emphasised in the *Outline* and *Plan*. This involves taking into consideration the geographical advantages of Guangdong, Hong Kong and Macao, to promote and carry forward Lingnan culture to enhance the cultural quality and identity of the people in the GBA. To integrate and utilise the cultural heritage resources scattered across the Lingnan region, two batches of cultural heritage trails in the GBA were announced by the Department of Culture and Tourism, the Department of Natural Resources, and the Housing and Urban-Rural Development Department of Guangdong Province, covering eight major themes and 44 trails. The historical and cultural resources of the GBA have been integrated with history as a bond and the trails as a "line" to demonstrate the results of the conservation of cultural heritage. This also echoes the concept of "point, line and plane" of heritage conservation in Hong Kong. Cultural heritage resources are no longer limited to a city, and different "lines" can weave the story of the development of Lingnan culture, while at the same time expressing the uniqueness of the diverse territories.

The common themes shared by Hong Kong and the Mainland should be further explored. By connecting the heritage sites and coordinating their development with the existing heritage trails in the GBA, the historical origins of Hong Kong and Guangdong can be better distinguished. For the eight themes of the GBA Heritage Trails recently announced by The Department of Culture and Tourism of Guangdong Province – (1) Sun Yat-sen, (2) the Maritime Silk Road, (3) Overseas Chinese, (4) the Ancient Post Roads, (5) Coastal Defence, (6) the Opening of Modern Commercial Ports, (7) Western Learning, and (8) Intangible Heritage (Cantonese Opera) – relevant cultural heritage can also be found in Hong Kong in abundance. The trails of these eight themes can, therefore, definitely be extended to Hong Kong.

We also recommend establishing a heritage trail on education in the GBA. Hong Kong was the first city to set up such heritage clusters at The University of Hong Kong and plans to develop trails for other educational buildings to illustrate the educational development of Hong Kong. There are other educational buildings that promote Chinese culture in Hong Kong, such as the Confucius Hall, which is the oldest Confucian building in Hong Kong, for advocating Confucianism and anti-Japanese sentiments during the Second World War. If it could be connected with other Confucian buildings in the Mainland, it would help Confucianism thrive.

According to the *Plan*, we should vigorously push forward the newly developing coastal tourism and accelerate the multi-dimensional development of "ocean-island-coast" tourism. There are particularly favourable natural conditions in Hong Kong, such as a long coastline and many offshore islands, like Lamma Island, Cheung Chau and Lantau Island. Villages, scattered like stars on the islands, have preserved their rich traditional culture, such as the famous fishing port Tai O on the west side of Lantau Island, which has a large number of stilt houses where fishermen live, as well as disused salt fields. Several renowned temples have a history of several hundred years. One of them, the Yeung Hau Temple, has been declared a monument. There is also an excellent example of a revitalised historic building – the Tai O Heritage Hotel. The fishermen's Dragon Boat Parade has been included in the representative project of the third batch of the National List of Intangible Cultural Heritage of China. The deep traditional cultural heritage of Tai O is a wonderful cultural resource, very suitable for developing a heritage trail. It is also possible to build cross-island trails connecting the cities in the GBA, so that tourists can experience traditional maritime culture and customs.

Also, Chinese and Western cultures coexist in Hong Kong, which was among the first cities in the GBA affected by changing Lingnan culture and Western lifestyle. A lot of the cultural heritage of Hong Kong showcases the characteristics and appeal of cultural communication. The Lingnan area also comprises different cultures, such as the Guangfu, Hakka and Chaoshan cultures, and it has diversified built heritage. Heritage trails with various themes could also exhibit the distinctive historical features of all the regions, so that the public can better understand the role of each city or region in the GBA.

(4) Development of Cultural Creative Products

Cultural creativity is appreciated by both Hong Kong and the Mainland, and the cultural and creative industries have developed successfully. "The Greater Bay Area (Guangdong) Cultural Creative Design Alliance" was founded in 2020 to drive the coordinated development of the cultural and creative industries in the region. To take advantage of the abundant cultural heritage resources in the area, a series of cultural and creative products for heritage trails with different themes should be created. There must be a wide range of products to suit the preferences of tourists of different ages, genders and places. Purchasing cultural creative products is an important part of the cultural tourism experience. To complement the development of heritage trails for education in the GBA, for example, we could explore the characteristics of educational buildings, align them with the themes of the different heritage sites and apply them to local cultural creative products. This would help promote the heritage trails on education and enhance the cultural and creative industries in the area. These efforts would also let people know that built heritage is not something stiff and unrelated to our daily life. The *Outline* highlights the international status of Hong Kong many times. With its full protection of intellectual property rights and rich experience in international marketing, Hong Kong can cooperate with the Mainland to achieve an industry chain of cultural and creative products at the international level in the GBA, so that Lingnan culture can be disseminated worldwide.

Conclusion

It has been three years since the declaration of the *Outline*. Different infrastructure and development projects in the GBA have been launched one after the other. This GBA Built Heritage Summit is a milestone of historical and cultural cooperation among the three places and one of the major projects for the 25th anniversary of Hong Kong's return to China. Guangdong, Hong Kong and Macao should make a more concerted effort to shape the GBA into a cultured bay area at the international level and join hands to demonstrate the outstanding traditions of Chinese culture.

LI Liusan

Asian Initiative for Cultural Heritage Conservation for Exchange and Mutual Learning about Asian Civilizations

— Case for the Practice of International Cooperation on Cultural Heritage in Asia by the China Academy of Cultural Heritage

Mr Li, who graduated from Peking University with a postgraduate degree, is currently the President of the China Academy of Cultural Heritage and the Secretary of the Party Committee. He has been involved in the preservation, adaptive reuse, research and management of cultural heritage for a long period of time, and has extensive experience in conservation policy and theory, the protective reuse of heritage, applications to the World Heritage List, monitoring heritage sites, cultural tourism and the revitalization of heritage buildings.

Abstract

In May 2019, President Xi Jinping proposed the Asian Initiative for Cultural Heritage Conservation, a major international initiative to promote the conservation of Asian cultural heritage. In October 2021, the Asian Dialogue for Cultural Heritage Conservation multilateral conference, hosted by the National Cultural Heritage Administration, injected positive momentum into the establishment of an Asian cultural heritage cooperation platform. The China Academy of Cultural Heritage actively engages in the conservation of Asian cultural heritage and formed a multi-cooperation pattern and distinctive cooperation concept in countries such as Cambodia, Uzbekistan and Nepal. This effort has been internationally recognized. In the future, the China Academy of Cultural Heritage will focus on the guiding principles of the new era of cultural heritage, and work with its domestic and foreign counterparts to raise the standards of Asian cultural heritage conservation and utilization to reflect the magnificence of Asian civilizations.

On 15 May 2019, President Xi Jinping proposed a vital international initiative in his keynote speech at the opening ceremony of the Conference on Dialogue of Asian Civilizations, stating that "China is ready to work with other countries to protect Asian cultural heritage and better preserve and sustain our civilizations". He proposed a magnificent blueprint and indicated the working direction for implementing international exchanges and cooperation on cultural heritage for China in the Asian region, accelerating exchanges and mutual learning among Asian civilizations, and creating an Asian community with a shared future.

Since 2019, emphasising Asian Initiative for Cultural Heritage Conservation, National Cultural Heritage Administration (NCHA) supported the protection of Asian cultural heritage in both scope and depth, including top-level design, mechanisms, platforms, international consensus, pragmatic cooperation, and theoretical research. Under the guidance of NCHA, China Academy of Cultural Heritage (CACH) has been actively engaged in Asian Initiative for Cultural Heritage Conservation and has undertaken many fundamental works, such as participating in domestic and international investigations and surveys, compiling the *Preliminary Domestic Research Report on the Asian Initiative for Cultural Heritage Conservation*, building a network for cooperation on Asian cultural heritage, and organizing China-Afghanistan-Pakistan Advanced Online Workshop for Conservators of Stone Objects.

From 27 to 28 October 2021, the Asian Dialogue for Cultural Heritage Conservation, which was presented by NCHA and People's Government of the Beijing Municipality and organised by CACH, Beijing Municipal Cultural Heritage Bureau, Dongcheng District People's Government of Beijing Municipality, Haidian District People's Government of Beijing Municipality, and China Cultural Heritage Promotion Association, was held in Beijing both online and offline. Many high-ranking officials, experts and scholars from various nations attended the meeting, such as high-level representatives from five international organizations, including UNESCO, 20 ministers of culture from 36 Asian countries, and 19 diplomatic envoys to China. During the conference, China and nine Asian countries jointly initiated "Asian Alliance for Cultural Heritage Conservation", the foundation of the "Asian Fund for Cultural Heritage Conservation", the initiation of "Asian Youth Ambassador Programme for Cultural Heritage Conservation", and the promulgation of the "Recommendations on the Asian Initiative for Cultural Heritage Conservation". These are pragmatic actions with international consensus for the conservation of Asian cultural heritage, which will help inherit and carry forward the glorious and brilliant civilizations of Asian nations, build a platform for mutual learning and cohesive development, accelerate the self-confidence of Asian culture, promote cooperation and mutual trust, and motivate the Asian vitality in innovation.

I. A Thorough Understanding on Asian Initiative for Cultural Heritage Conservation

To comprehend Asian Initiative for Cultural Heritage Conservation in a multi-dimensional, multi-level and comprehensive way, it is necessary for us to adopt views of the new era from different perspectives, including civilizations, Asian-specific approach, and the need for development.

Understanding Asian Initiative for Cultural Heritage Conservation from the perspective of a new era of civilization. In 2014, President Xi Jinping delivered a speech at UNESCO headquarters in Paris, proposing that civilizations have become richer and more colorful with exchanges and mutual learning. Such exchanges and mutual learning form an important drive for human progress and global peace and development. In 2022, President Xi Jinping sent a congratulatory letter for the opening ceremony of "Tota Italia: Origins of a Nation" exhibition, emphasizing that mutual respect, solidarity, and harmonious coexistence are the right path for the development of human civilization. China is willing to work with the international community to promote equality, mutual learning, dialogue, and inclusiveness between civilizations, to replace estrangement with exchange, clashes with mutual learning, superiority with coexistence, and to build a community with a shared future for mankind. The view of civilizations in the new era has surpassed the shackles of "The Clash of Civilizations", "The End of History" and other binary oppositional thinking models. Given the current situation and requirements in the world, the focus should be on the diversity and differentiation of civilizations, and emphasize equal dialogue and exchange through mutual respect and tolerance. Asia is an important cradle of human civilization. Asian countries are closely connected and share a natural bond of affinity. The multitudinous cultures across Asia have demonstrated peaceful coexistence, and exchange and mutual learning among different civilizations throughout human history. The cooperation of Asian countries in the conservation of Asian cultural heritage is a continuation of the tradition of peaceful co-existence and shared prosperity, and conforms with the development trend in the world.

Understanding Asian Initiative for Cultural Heritage Conservation from the perspective of a new era of Asian-specific approach. At present, the conservation of Asian cultural heritage faces many challenges owing to urban development, climate change, the COVID-19 pandemic and regional conflicts. According to the *World Heritage Centre's Asia-Pacific Region Periodic Report on the Second Cycle*, much of the heritage in the Asia-Pacific Region has been affected by both non-human and human factors.[1] According to the World Heritage Centre, there are five cross-border world heritage sites in the Asian region.[2] And cultural heritage that crosses Asian borders, such as the Maritime Silk Road and the Tea Road, are still in the stage of preparation for inscribing as world heritage. Considering the high requirements for professional input in the conservation and utilization of cultural heritage, various countries must come together to breach boundaries and unite the ideas, talent and efforts of people in each country to better protect and utilize the heritage resources and further explore their heritage value.

Understanding Asian Initiative for Cultural Heritage Conservation from the perspective of a new era of development needs. In addition to being the continent with the world's largest population, Asia is the fastest-developing region in the world. According to *The World Economic Situation and Prospects 2018*, published by the United Nations (UN), East and South Asia are the world's most dynamic regions.[3] Cultural heritage is a significant resource for social, cultural and economic development and has a major influence on the sustainable development of Asian civilizations. It is considered to have a significant influence on energizing the UN to achieve the goal of sustainable development stipulated in UN Agenda 2030. Against this background, Asian Initiative for Cultural Heritage Conservation is not only an obligation and mission of Asian people to jointly establish an Asian community with a shared future; it is also of immediate significance.

II. Delicate Work and Achievements in Multiple Places: The Practice of International Cooperation in the Asian Region by CACH in the Field of Cultural Heritage

To act in the service of China's overall diplomatic work, a series of projects regarding the conservation of cultural heritage have been launched by CACH since the renovation of Choijin Lama Temple and Summer Palace in Ulaanbaatar, Mongolia in the 1950s under the guidance of NCHA. Owing to a long period of delicate work, a model of cooperation has been developed, with achievements in multiple countries, including Cambodia, Uzbekistan, Nepal and other Asian countries along the "Belt and Road". While achievements have been attained and experience has been accumulated, CACH has also had a specific focus on sharing experiences on heritage conservation. It provides a more solid foundation for carrying forward Asian Initiative for Cultural Heritage Conservation in both scope and depth.

(A) Practical Cases

1. Cultural Heritage Conservation Projects in Cambodia

The conservation of the Angkor monuments is a successful example of international cooperation in the conservation of cultural heritage. In 1993, China made it clear that it would take part in the rescue of Angkor's historic sites and participate in the international action of protecting Angkor's historic sites initiated by the Cambodian government and UNESCO. In 1997, NCHA sent an expert group to Cambodia and made the Chau Say Tevoda Temple a project for China to participate in the conservation of Angkor. In the same year, China Cultural Relics Research Institute (the predecessor of CACH) formally set up the "Chinese Team for Safeguarding Angkor (Chinese Safeguarding Angkor [CSA])" and started Chinese conservation and archaeological work in Angkor.

So far, the conservation project on Cambodian cultural heritage under tCACH has been held in three phases, including five cultural heritage sites in Siem Reap province and Khaet Preah Vihear province, Cambodia.

(1) Phase I Conservation Project of Cultural Heritage: Chau Say Tevoda Temple (1998 to 2008)

The Chau Say Tevoda Temple, which consists of 11 single buildings, was seriously damaged; pedestals and other relics had different degrees of tilt and slanting. After ten years of work, CACH carried out overall maintenance of eight buildings that had undergone serious collapse and completed the protection project of Chau Say Tevoda Temple in 2008. After the repairs, CACH had completely eliminated the danger to the building and reinstalled some collapsed components. The structure and form of the individual buildings of the Chau Say Tevoda Temple were showcased, which improved the authenticity and integrity of the whole temple and revealed its original graceful appearance. (Figs. 1 & 2)

Fig. 1 Chau Say Tevoda Temple before restoration
Source: China Academy of Cultural Heritage

Fig. 2 Chau Say Tevoda Temple after restoration
Source: China Academy of Cultural Heritage

(2) Phase II Conservation Project of Cultural Heritage: Ta Keo Temple (2010 to 2018)

In 2006, when the Chau Say Tevoda Temple conservation project, the first-phase project of aiding Cambodia's Angkor was about to complete the Chinese and Cambodian governments officially confirmed that the second phase of the conservation project would be the Ta Keo Temple. From 2010 to 2018, China carried out building restoration research, disease investigation, conservation and restoration, archaeological research, and the construction of auxiliary facilities. After the restoration of the Ta Keo Temple, the danger to the cultural heritage was eliminated, and the stability of the overall structure was improved, showing the original historical features. The overall effect of the restoration was good, and the requirements of the conservation project were met. (Figs. 3 & 4)

Fig. 3 Northwest corner and corner tower of the second floor of the Ta Keo Temple before restoration
Source: China Academy of Cultural Heritage

Fig. 4 Northwest corner and corner tower of the second floor of the Ta Keo Temple after restoration
Source: China Academy of Cultural Heritage

(3) Phase III Conservation Project of Cultural Heritage: the Royal Palace Ruins, Preah Vihear Temple and Beng Mealea Temple (since 2016)

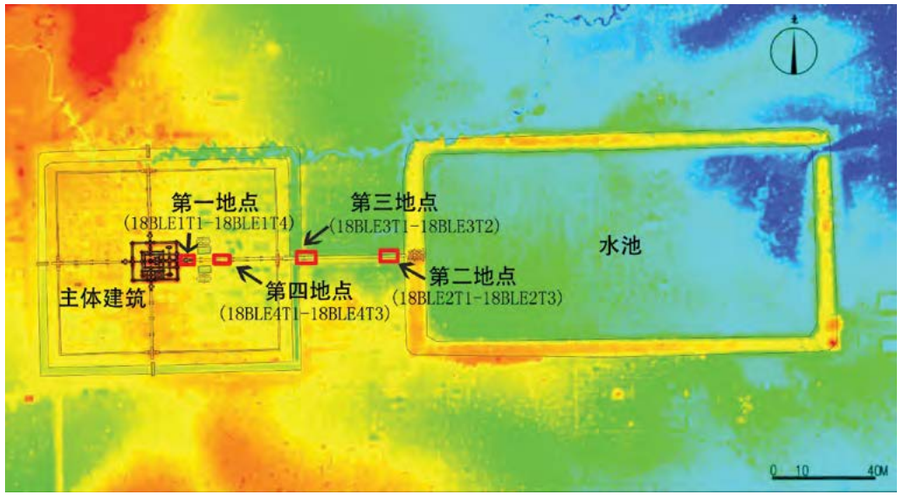


Fig. 5 Excavation map of the east road of Beng Mealea
Source: China Academy of Cultural Heritage

In the process of conserving and restoring the Chau Say Tevoda Temple and the Ta Keo Temple, CACH also carried out a series of preliminary research and archaeological work on the Royal Palace ruins, Preah Vihear Temple and Beng Mealea Temple to further strengthen international cooperation on Angkor's historic site protection and archaeology. Since 2016, CACH has conducted a preliminary survey on the Palace ruins and Preah Vihea Temple, collected relevant basic data, sorted out the historical evolution, and obtained architectural surveying data. It made a preliminary investigation and evaluation of the building structure, foundation and damaged locations, and provided information support for the follow-up protection work. It also signed a memorandum of understanding on the research and protection of Beng Mealea Temple with APSARA National Authority. China and Cambodia set up a joint archaeological working group to carry out archaeological and research work in Beng Mealea Temple. (Figs. 5 & 6)

Fig. 6 Porcelain shards unearthed from the Royal Palace Ruins
Source: China Academy of Cultural Heritage

2. Cultural Heritage Conservation Project in the Ancient City of Khiva, Uzbekistan

In 2013, during a visit of President Xi Jinping to Uzbekistan, the two countries signed a joint declaration on further developing and deepening their strategic partnership. In April 2014, the two countries decided that CACH would conserve and restore Amir Tura Madrasah College and Khasah Murad Mosque in the ancient city of Khiva, which became the first cultural relic conservation project implemented by China in Central Asia. CACH quickly set up a project team and completed a number of tasks, including on-site investigation, protection, restoration and remediation of the surrounding environment. The acceptance inspection was passed in January 2020. (Figs. 7 & 8)

Fig. 7 The Amir Tura Madrasah College in the ancient city of Khiva, Uzbekistan before restoration
Source: China Academy of Cultural Heritage

Fig. 8 The Amir Tura Madrasah College in the ancient city of Khiva, Uzbekistan after restoration
Source: China Academy of Cultural Heritage

3. Cultural Heritage Conservation Project in Nepal

In 2015, Maju Deval Temple in Durbar Square, an important part of Kathmandu Valley and part of Nepal's world cultural heritage, partially collapsed in an earthquake and was seriously damaged. Work on its restoration was included in a post-disaster reconstruction project implemented by the Chinese government to assist Nepal. This became the first large-scale foreign aid project by CACH in Nepal. CACH undertook the conservation and restoration project, which was officially started in August 2017. So far, as planned, it has completed the restoration of the sixth floor of the northeast corner tower and the seventh and eighth floors of the southwest corner tower (nine storeys), which collapsed after the earthquake. In August 2017, CACH carried out a preliminary investigation of the Nuwakot Durbar and affiliated heritage buildings in the surroundings. (Figs. 9 & 10)

Fig. 9 Northeast side of Maju Deval Temple in Durbar Square before restoration
Source: China Academy of Cultural Heritage

Fig. 10 Northeast side of Maju Deval Temple in Durbar Square after restoration
Source: China Academy of Cultural Heritage

(B) Concept and Method

With more than twenty years of experience in the conservation of Asian cultural heritage, CACH has gradually formed a unique concept and method of international cooperation.

First, striking a balance between conservation principles that are internationally recognized and those with Chinese characteristics, CACH has always followed the principles of minimum intervention, retaining historic condition, and ensuring the authenticity and integrity of cultural heritage, and has adopted various protection strategies and restoration methods according to the level of damage and architectural characteristics of different cultural heritage. For instance, to tackle the more than 4,000 sandstone components scattered around Chau Say Tevoda Temple in Cambodia, CACH emphasised "site protection, emergency rescue, reinforcement and restoration in key locations". In response to problems assembling the scattered components in Chau Say Tevoda Temple, CACH made reference to international experience and applied Chinese technology in the protection of cultural heritage to develop a methodology for assembling components that yielded good results. In another example, in view of the huge volume and dangerous situation at Ta Keo Temple, to improve the efficiency of the restoration, CACH adopted traditional construction tools, hoisting equipment and other traditional construction machinery. Protective measures such as steel structure support, anchor rods and tie rods were used according to local conditions, which helped ensure the safety of the building structure, while respecting the original construction techniques and material characteristics.

Second, CACH tries to integrate the preservation of cultural heritage in regional economic and social development of the local community. For instance, in the process of restoring Maju Deval Temple in Nepal, CACH hired local workers and studied traditional Nepalese wooden building construction and carving techniques. CACH respected local traditional practices and crafts, while keeping the historical features as much as possible, which also promoted local employment and enhanced professional capacity building. In the conservation project of Ta Keo Temple, CACH and the professors and students of Department of Archaeology of Royal University of Fine Art in Phnom Penh, Cambodia jointly carried out archaeological work, jointly studied and discussed the conservation and research of Ta Keo Temple and other related historic sites, trained a number of professionals and technical specialists to be engaged in cultural heritage protection in Cambodia, and effectively facilitated the exchange and friendship between the Chinese and Cambodian professional teams. In another example, in the conservation project of the ancient city of Khiva, Uzbekistan, CACH paid attention to improving the surrounding environment, and added infrastructure such as drainage and lighting to help improve the local people's quality of life.

Third, CACH has always persisted in both research and practice, focusing on preliminary surveying and related research in the early stages in different conservation projects. The studies have covered a great number of subjects, such as architecture, history, archaeology, geology, materials science, structural engineering, geotechnical engineering and protection science, and have laid a foundation for the evaluation of value, identification of building characteristics, study of building disease, design of conservation works, and choice of conservation technology and materials. We have also learned from the successful international experience to enhance our academic research and exchange. The academic research works include the following: *Collection of Chinese Aid Cultural Heritage Conservation Projects by CACH: 2017-2019, Proceedings of China's International Cooperation on Foreign Aid Cultural Heritage Conservation and Research, Architectural Research on Ta Keo Temple-Mountain at the Angkor Site, Research on the Conservation and Restoration of Ta Keo Temple, and Report on the Archaeological Investigation and Excavation at the Ta Keo Temple-Mountain Site of the Angkor Monuments in Cambodia.*

Fourth, CACH recognizes the importance of sharing experiences on heritage conservation. For instance, in 2017, China's Conservation Centre for Angkor Relics, constructed by CACH, was completed in Siem Reap, Cambodia. The Centre showcased the work process and results of the Chinese government's support for the conservation of Angkor historic sites, which has become a major display and exchange venue for China's cultural heritage conservation concepts and methods. CACH has also carried out technical discussions with local and international experts from UNESCO to share technological concepts, methods and experience in the conservation of cultural heritage. At the General Assembly for the International Coordinating Committee for Angkor (ICC-Angkor) and the International Coordinating Committee of Preah Vihear Temple (ICC-PV), convened by UNESCO annually, technical personnel from CACH and experts from France, Japan, the United States, Germany, Italy and other countries gather in Siem Reap, Cambodia to study and discuss the concepts, methods and experience in the conservation of cultural heritage. In 2016, the second "Kathmandu Cultural Forum", prepared by CACH, was held in Kathmandu, Nepal. In 2018, during the "International Symposium on the Technology for Heritage Conservation under the 'Belt and Road Initiative': International Exchange on the Conservation and Usage of the Ancient City of Khiva", held by CACH and Uzbekistan, experts in cultural heritage from China, Uzbekistan, Tajikistan, Kazakhstan and Turkey assembled in Tashkent, the capital of Uzbekistan, to exchange experience in conservation and research in cultural heritage.

(C) Achievements and Significance

During the process of international cooperation on heritage conservation and archaeology, CACH's concepts, technology, methods and practices have been acclaimed by local governments and the international community. According to *The Letter for Acceptance Inspection of the Conservation Project of Ta Keo Temple in Angkor*, issued by the Conservation and Development Authority of Angkor Relics in Cambodia, "the good performance of the CACH has been affirmed." The expert group of the ICC-Angkor of UNESCO acknowledged and applauded the CACH working team for its persistent practices, which show the vision of "conservation" instead of "mere restoration", signifying the maximum conservation of the historic features of heritage and taking reversible measures as soon as possible that cause minimum interference to the heritage. Azedine Beschaouch, one of the originators of the ICC mechanism and the person responsible for coordinating the members of the ICC expert group, the Secretariat, and the Cambodian government, stated, the Chinese team installed a steel structure to support the entrance of the tower. The expert group determined that the safety of tourists and the buildings has been effectively guaranteed without damaging the heritage, allowing the possibility of applying more advanced technology in the future. This method of using new materials to reinforce the structure without damaging the heritage is completely in conformity with the *Angkor Charter*, as it both effectively conserves the cultural heritage and improves the concept and method of conservation of the Angkor monument. Phoeurng Sackona, the Minister in Culture and Arts of Cambodia, told Xinhua News Agency "I highly value and thank the Chinese government for supporting Cambodia in preserving our national heritage, I can evaluate that the level of Chinese experts' ability in renovating these temples is high and internationally recognized. Chinese and Cambodian experts have worked together on these renovation projects, so it has given them an opportunity to exchange ideas and to learn from each other."

III. Keeping Up the Momentum for More Achievements: The Asian Initiative for Cultural Heritage Conservation Undertaken by the CACH

In 2022, the operational guideline for heritage in the new era was proposed at the National Conference on Cultural Relics: "Conservation first, reinforcing management, excavating values, effective utilization, and letting cultural relics live." Efforts to identify the manifold value of heritage and effective utilization should be enhanced and have a key position in the work regarding cultural heritage. This clearly indicates the working direction of cultural heritage in the new era. In the future, CACH will undertake the Asian Initiative for Cultural Heritage Conservation in five areas.

First, based on the conservation projects for cultural heritage in Cambodia, Uzbekistan and Nepal, we are planning to enhance regional cooperation in both scope and depth, following the strategy of employing multiple methods. We should aim to create an integrated full-chain international cooperation model covering various areas, such as heritage research, value exploration, conservation of immovable heritage, museum collection restoration, world heritage protection, personnel training, interpretation and utilization of cultural heritage, and exhibitions and displays. Brand promotion has driven regional tourism and the research and development of cultural and creative products, and interrelated trades have become more agglomerated, increasing the overall benefits of international cooperation in cultural heritage, and facilitating more friendly exchanges between people. Another CACH project being planned involves setting up a permanent plaque and exhibition at the restoration site of the Maju Deval Temple in Durbar Square, Kathmandu, Nepal.

Second, we should prepare the formation of a secretariat for Asian Alliance for Cultural Heritage Conservation. This is a cooperation mechanism for Asian intergovernmental professional exchanges on cultural heritage. The secretariat would carry out the operation, management, communication and coordination duties of the Alliance. At present, CACH is concentrating all its efforts on facilitating the signature of the "Joint Declaration on the Cooperative Action under Asian Initiative for Cultural Heritage Conservation" with Asian countries. A conference of the countries initiating the Alliance will be arranged at the end of 2022.

Third, the Asian Youth Ambassador Programme for Cultural Heritage Conservation will be implemented. Young people will take important role in jointly facilitating the conservation and utilization of Asian cultural heritage, and enhancing sustainable cultural conservation, economic development, culture-oriented travel and environmental conservation of the region. To build a platform for exchange and mutual learning of young people, the Programme aims to provide a platform for exchange and communication. By selecting professional ambassadors, and through joint scientific research, talent exchange and visits, and the construction of venues for cooperative projects, effective strength can be nurtured to foster cooperation among Asian nations in heritage conservation and increase publicity in the international arena.

Fourth, under the guidance of NCHA, CACH is preparing to construct the National Cultural Heritage Centre for Technology and Innovation. The Centre will be devoted for conducting innovative research on protective science and key technology of national cultural heritage, and acting as a platform for protective monitoring of national cultural heritage, for exchange and cooperation of national cultural heritage, and for transforming technological achievements in national cultural heritage protection. A platform for exchange and cooperation of the national cultural heritage will be constructed, and a wide range of laboratories with complete functions and advanced equipment will be built. According to the concept of an open institution, related colleges, universities and institutions in the Guangdong-Hong Kong-Macao Greater Bay Area will be welcomed to establish strategic collaboration relationships with CACH to work together to fully devote themselves to the vigorous development of conservation and utilization of Asian cultural heritage.

Fifth, CACH established the China Cultural Heritage Conservation Foundation (Beijing) to build a charitable platform for social elites dedicated to the conservation and utilization of cultural heritage. We sincerely invite enterprises and institutions in the Guangdong-Hong Kong-Macao Greater Bay Area to join us and support the development of the foundation.

Over the past two decades, CACH has experienced a long journey through trials and hardships in the field of international cooperation in the conservation of cultural heritage. The CACH personnel have had innumerable opportunities and challenges, and have generated many impressive results, such as the resplendent Angkor civilization in Southeast Asia, the historical and time-honoured Islamic culture in Central Asia, and the characteristic artistic style of architecture in Kathmandu, Nepal. The international exchanges and cooperation regarding the conservation of Asian cultural heritage have been driven by perseverance, which has also motivated the exchange and interaction of civilizations between China and Asian countries. In the future, CACH will continue to collaborate with its domestic and foreign peers to further improve the standards of conservation of, and research on, cultural heritage, and demonstrate the possibilities for the inheritance of cultural heritage in Asian countries to promote a concerted effort to present the splendid Asian civilizations to the world.

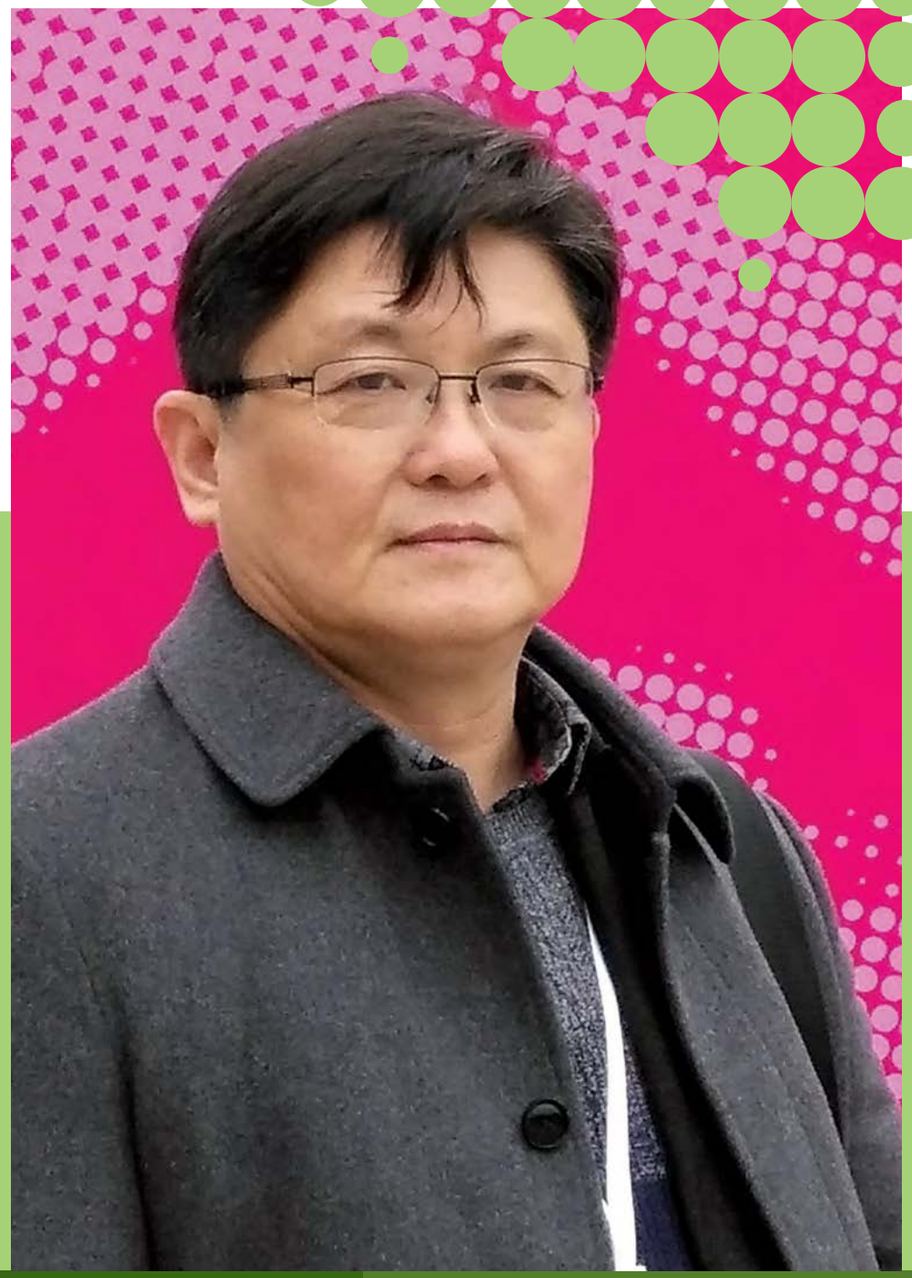
[1] UNESCO: *Periodic Reporting 2nd Cycle: Asia & Pacific*, 2012, pp. 3-4.

[2] https://whc.unesco.org/en/list/?&transboundary=1.

[3] UN: *World Economic Situation and Prospects 2018*, 2018, p. vii.

China's Maritime Silk Road Heritage and Management

Mr Shen is a former deputy chief engineer and researcher of the China Academy of Cultural Heritage. He has been engaged in the preservation of historic buildings and cultural heritage for nearly 40 years. He has presided over dozens of projects relating to the design and planning of built heritage protection, participated in a number of world cultural heritage declarations, and published dozens of academic papers.



SHEN Yang

Ms Zhao is the Director and a Research Fellow of the China's World Cultural Heritage Centre of the China Academy of Cultural Heritage. Her main research direction is world cultural heritage. Her representative achievements include planning heritage projects for the Hani Terraces, the Grand Canal, Huashan Rock Paintings, etc.

ZHAO Yun

Abstract

From the perspective of cultural exchange and mutual learning between civilizations, the Maritime Silk Road was both a cross-regional network of oceanic exchange in the ancient world and an interactive system for the integrated development of the marine and agricultural civilization of China and surrounding countries and areas. The formation, development and construction of the concept of the heritage of the Maritime Silk Road is an ever-enriching cultural process. Based on the experience and achievements in participating in the application to the World Heritage List of the "Maritime Silk Road - Chinese Section" project in recent years, this paper gives more details about China's Maritime Silk Road and reveals the problems it faces and measures needed to overcome the problems. The development of the Greater Bay Area is expected to help realize the cultivation, protection and management of the Maritime Silk Road, emphasizing the South China Sea perspective.

Since the "Belt and Road Initiative" was launched in 2013, the Maritime Silk Road has become an important research area in archaeology, history and cultural heritage in China. Along with the concepts and strategies proposed by other nations, such as "Project Mausam" by India, "The Spice Route" by Indonesia, and "Pivoting to Pacific-Asia" by the United States, the Maritime Silk Road has become an important issue in the research of global maritime civilizations and contemporary international politics and culture. Taking advantage of the well-established ancient networks for trade and cultural transmission, the core aim of the Belt and Road Initiative is to develop the infrastructure of, and commercial relations with, countries along the Belt and Road.[1] However, there is room for reinterpretation of the "Maritime Silk Road" concept, given the romanticisation of the word "silk" and the lack of an actual "route" for the maritime trade system. Therefore, it is crucial to reflect deeply on the original content of the Maritime Silk Road, which is acknowledged worldwide, to better present stories related to the Silk Road and the spread of Chinese wisdom. This paper discusses the concept, special features, construction of the heritage system, and protective management strategies of China's Maritime Silk Road in the context of "cultural heritage".

I. Maritime Silk Road Concepts

The formation, development and building of the heritage concept of the Maritime Silk Road is an ongoing process of cultural enrichment. It is generally agreed in local and international academic circles that the study of the Maritime Silk Road from the cultural heritage perspective can be traced back to "The Collaborative Project between East and West on the Blending in Cultural Values", initiated by the UNESCO in the 1950s.[2] The effort was followed by a decade-long study, titled "Integral Study of the Silk Roads: Roads of Dialogue", carried out by UNESCO from the late 1980s to the 1990s, as well as the "conceptual paper" and "thematic study" of the Silk Road relating to its application for inclusion on the World Heritage List, jointly published by UNESCO and the International Council on Monuments and Sites. These research studies made brilliant achievements. "Silk Roads: the Routes Network of Chang'an-Tianshan Corridor" was declared a World Heritage Site in 2014. The research also clearly demonstrated that the maritime routes were a vital part of the whole Silk Road network and set out the theoretical foundation for declaring the Maritime Silk Road a world heritage site. In 2016, China initiated historical research on the Maritime Silk Road and its application for inclusion on the World Heritage List. The definitions related to heritage, as well as core concepts proposed by China, like regions, spheres of active interaction, and nodes arising from the need for cultural exchange and mutual learning, have resulted in wide recognition among global academics and have become a crucial basis for discussion of the Maritime Silk Road in relation to the concept of "cultural heritage".

1. Definition of Maritime Silk Road Heritage

From the 2nd century BC to the mid-to-late nineteenth century, before sailing power was replaced by steam power, the Maritime Silk Road was a major seaway. Ancient people used traditional marine technology and took advantage of the monsoons and ocean currents to travel and communicate extensively between major oceans and coastal regions in the low and middle latitudes. This opened up an ocean network that facilitated exchange in a variety of areas.

Owing to the extensive time, space and large population involved, the network allowed a massive exchange and a huge dissemination of ideas, objects, inventions, as well as all kinds of human reactions.[3] Therefore, it was particularly valuable and influential among the various interactive networks that shaped human history.

2. Framework of Space: Regions, Nodes and Spheres of Active Interaction

The Maritime Silk Road was a compound transportation system, extending from east to west, from the Japanese Islands in East Asia to the western shores of the Mediterranean Sea. According to geographical characteristics and historical development, the regions involved can be divided into six regions: East Asia, Southeast Asia, South Asia, West Asia, East Africa and the Mediterranean.

The Maritime Silk Road appeared in the form of an ocean network, with important ports forming the base, interwoven with many sailing routes that connected various ports around the world. With important waterways and nautical infrastructure, as well as production facilities of maritime merchandise and trade and other human activities across extensive areas, these ports gave rise to "nodes" which constituted the overall layout of the Maritime Silk Road.

Within the whole network of the Maritime Silk Road, some nodes served as crucial support for the transportation of goods, technology, people and purchasing power across regions. These nodes were fairly concentrated geographically, and the regions they connected became centres for commerce, trade, culture and technical exchange along the Maritime Silk Road. They were also at the heart of the most vibrant regions, bearing witness to the material form of these exchanges, and forming spheres of active interaction that were the most important and representative bearers of the unique value of the Maritime Silk Road.

From the perspective of interaction between land and sea, the hinterland of the Maritime Silk Road also constituted an important part of the heritage network. Goods like silk cloth, chinaware, spice and tea leaves did not originate in the ocean, after all. Religious cultures also showed signs of cohesive development between ocean and land. "Cohesive development between ocean and land" is not necessarily an "innovation" in modern times. For instance, the development of land and ocean, and inland and overseas was regarded as "ordinary matters" and integrated into institutional development by the central governments of China over the years.[4] Hence, the Maritime Silk Road can be understood as an interactive system for the integrative development of marine–inland civilizations involving many coastal nations and regions, including China.

3. Spatial Framework: Four Major Periods

Before the 2nd century B.C., certain contacts originating from maritime trade had been developed within regions and between adjacent regions. However, remote trade was very risky before the Classical Age. With the massive construction of infrastructure by rulers in the Classical Age and the establishment of enormous empires that were mutually connected, the cost of remote trade was reduced.[5] In about the second century B.C., with the development of various routes and the expansion of trade, the Maritime Silk Road, connecting major regions, finally took shape.

Over a period of 2,000 years, there were four distinct periods in the development of the Maritime Silk Road. The first period (from the second century B.C. to the end of the sixth century) saw the beginning of the Maritime Silk Road. A global trade system had begun to take shape through the interconnection of various regional trade networks, which boosted the exchange of people and religions. The second period (from the beginning of the seventh century to the end of the tenth century) was the mature period of the Maritime Silk Road, when the trade and cultural exchange network continued to develop systematically. The third period (from the beginning of the eleventh century to the mid-fifteenth century) was the period when the Maritime Silk Road flourished, resulting in harmony and prosperity among different civilizations and people. The fourth period (from the mid-15th century to the mid-late nineteenth century) was a period of transformation and continuous development of the Maritime Silk Road. With the development of new routes and the increased scale of trade, there were significant changes in the content and mode of trade. However, the dependence on monsoons as the major momentum of trade remained after thousands of years, so the traditions of the Maritime Silk Road continued.[6]

In the second half of the nineteenth century, steamships replaced wooden sailing ships as the main vehicle of maritime trade, and colonial rule was established on a massive scale in most areas along the maritime trade routes, resulting in the transition in maritime trade routes from traditional to modern modes.

II. The Maritime Silk Road Heritage of China

1. China's Application for Inclusion of the Maritime Silk Road as World Heritage

It was the French sinologist Chavannes who first asserted, in 1903, that "the Silk Road consists of two routes, one by land and the other by sea". The concept of the "Maritime Silk Road" has thus only about 120 years of history. Chinese scholars started research into the concept in the 1930s. In 1934, Xiang Da gave his views in the publication *The history of transportation between China and the West*, which subsequently developed into the current concept of the "Maritime Silk Road". In the 1980s and 1990s, Jao Tsung-i and Chen Yan engaged in even more in-depth studies, resulting in wider acceptance of this concept. The protection of heritage related to the Maritime Silk Road has attracted increasing attention, and the respective authorities have engaged in related conservation efforts.

In 2016, the National Cultural Heritage Administration officially launched the "Maritime Silk Road – Chinese Section" project to apply for inclusion of the Maritime Silk Road on the World Heritage List. Studies on the content, value and protective management measures of this heritage were carried out in a total of 31 heritage sites in nine cities, including Guangzhou, Quanzhou, Ningbo and Nanjing, and research reports, documents for World Heritage site declaration, and plans for protective management were delivered.

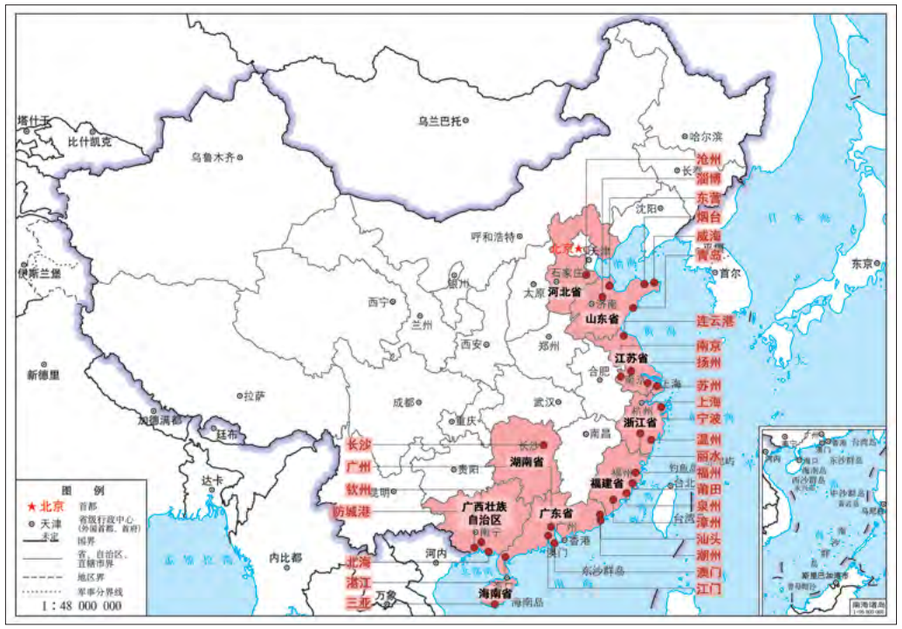
In 2017, following the negative impact brought by application for the single item of Zayton (the ancient name of Quanzhou) as a World Heritage Site, Version 2.0 of the declaration of the Maritime Silk Road was adopted. Under the arrangement of the National Cultural Heritage Administration and with the support of the relevant provinces and cities, China's World Cultural Heritage Centre of the China Academy of Cultural Heritage undertook a full-scale investigation and survey of the heritage resources related to the Maritime Silk Road. They reviewed and counter-checked the heritage content and value of over 170 sites proposed by the relevant provinces to further study the composition of the Maritime Silk Road heritage and build a heritage protection system, and a declaration strategy. They carried out collaborative research with international institutes and heritage experts to win worldwide recognition. Also, a league was formed by coastal and inland cities where heritage sites related to the Maritime Silk Road are located, like Changsha, and the Hong Kong and Macao Special Administrative Regions, totalling 28 members.

At present, this work is still under the collective arrangement of the National Cultural Heritage Administration to achieve ongoing and more comprehensive international cooperation.

2. Heritage Composition of "Maritime Silk Road – Chinese Section"

With reference to the more than a century of research on the "Silk Road", both at home and abroad, Maritime Silk Road heritage can be classified into three areas: merchandise, trade and culture. Trade activity along the Maritime Silk Road involved wharfs, beacon towers and warehouses. Maritime merchandise, for instance, involved production facilities, such as kilns, and living facilities in coastal settlements. Moreover, cultural relics associated with Buddhism, Catholicism, Islam and folk religions, as well as the cemeteries of foreigners in China, are all important evidence of cultural exchange associated with trade. These are all essential components of Maritime Silk Road heritage.

Based on these considerations, China's World Cultural Heritage Centre of the China Academy of Cultural Heritage completed the *Thematic Study Report on the Maritime Silk Road and China's System* after multiple rounds of amendments. The report presented a list under the "Maritime Silk Road – Chinese Section" project with 56 heritage sites and 14 associated sites. Among these 70 sites, 14 were directly related to shipping, such as ports, wharfs, navigation marks, shipyards and canals; eight were management facilities; six were religious facilities; 10 were kiln sites for producing export porcelain; and 32 sites were related to other overseas trade activity, including religious venues, tombs, settlements, and other items with special characteristics. Together they cover all aspects of maritime trade and cultural exchange activities in ancient China.



Map Showing the Distribution of "Maritime Silk Road – Chinese Section" Heritage Sites (number of the base map: GS(2019)1824)

3. A Route of Communications between World Civilizations

Research on the Maritime Silk Road by domestic and foreign scholars has verified that this maritime route connecting East and West for thousands of years was a route of trade, a channel for cultural exchange, and a road of friendship, which constitutes the basic concept upon which we constructed the "Maritime Silk Road – Chinese Section" heritage system.

From an economic perspective, sea transportation is a cost-effective form of freight, which has developed and grown since ancient times. Maritime traffic lines connecting global economies were established, among them the Maritime Silk Road, which further linked the world to form a global trade system. For more than 2,000 years, China has played an indispensable role in this system.

With the help of historical records, maps of ancient China, archaeological finds along the Maritime Silk Road and museum collections, it is not difficult to understand the position and function of China in global maritime trade since ancient times. A large amount of Chinese porcelain, tea, silk, lacquerware, gold and silver ware, iron ware, handicrafts, and even candies and other foods were transported eastward to Korea and Japan, and southward to South Asia, Africa, and Europe via Southeast Asia. They were not only popular commodities, but also a sign of high social status. In the opposite direction, large quantities of foreign

products, such as spices and jewellery, were imported to China through the Maritime Silk Road, substantially changing and enriching the life of the Chinese people.

The Maritime Silk Road was not only a trade-route, but also a cultural route connecting the Chinese, Indian, Persian, Arab, Egyptian and Roman civilizations. Countries and regions along the route spread their cultures and beliefs consciously or unconsciously to other places through frequent business and trade activities, resulting in places vastly distant from each other becoming connected and a tremendous increase in cultural dissemination and inter-cultural exchange. Through maritime routes, Hinduism, Buddhism, Islam and Christianity spread to the southeastern and southwestern coasts of China. In the other direction, Chinese Confucianism and the worship of Kwan Tai (the god of war) and Mazu (the sea goddess) spread to many different parts of the world. On the basis of mutual respect, communication and transportation, people from different regions, nationalities, cultures and social backgrounds had the opportunity to learn about and from each other, resulting in more cultural inclusivity and integration, and facilitating the prosperity and progress of human civilization as a whole. As a paradigm of cross-ocean exchange of ancient human values, the Maritime Silk Road was a vital part of the history of communication and exchange along sea routes during the era of voyages under sail between the civilizations of East and West, and specifically regarding the various porcelain manufactures.

Maritime trade in ancient times included not only factors directly related to ocean voyages, like shipbuilding, nautical technology, sea routes and harbour facilities, but also activities such as mercantile developments, nautical affairs, and the administration of personnel exchanges, as well as social undertakings, such as state politics and diplomacy, the spread of religious faiths, languages, communication, production and manufacturing, and living habits. In the era of voyages under sail, the maritime trade and cultural exchange routes were maintained through the spirit and courage of adventure of those who took part in them, and also the inclusiveness, solidarity and cooperation among the nations, regions and people involved. Therefore, the Maritime Silk Road not only witnessed the long history of human voyages under sail, trade and the sharing of religious beliefs, but also testified to the spirit of collaborative development, shared prosperity and reciprocity of our predecessors in different civilizations.

In the development of the Maritime Silk Road over thousands of years, historical events such as Zheng He's voyages to the western oceans and an Islamic pioneer's visits to China had a positive impact on nations, regions and even the world. A large number of important figures, such as the Monk Jianzhen, Ibn Battuta and Marco Polo, dared to explore new worlds, facilitating communication and exchange among different cultures. Some major ceremonial and festive traditions that spread among countries over the millennia continue today, contributing to peaceful exchanges among countries and regions until the present.

III. Construction of the Maritime Silk Road Heritage System

Although the list of heritage sites included in the "Maritime Silk Road – Chinese Section" was developed by going through the processes of local application, on-site review, assessment and selection, there is still a long way to go to meet the standards of World Heritage Site approval that are acknowledged locally and worldwide. Compared with heritage sites on the Overland Silk Road, those on the Maritime Silk Road are geographically scattered, small in scale, too weak to offer a grand impression, and in many cases are in poor physical condition. It is extremely important to organize them into a holistic collection with cohesive connections to build up a complete heritage system around the Maritime Silk Road.

To build up the heritage system of China's Maritime Silk Road, we should first examine the basic rules and characteristics of maritime trade in ancient times. All products traded via the Maritime Silk Road were manufactured into saleable commodities and transported by land and rivers, to areas for maritime trade and subsequently carried by vessels sailing across the ocean to Southeast Asia, South Asia, the Middle East and Europe. The Maritime Silk Road heritage includes historical sites which verify these activities. The arrangements of these activities should be recognized when organizing the associated heritage sites.

To construct the heritage system of China's Maritime Silk Road, the historical and geographical background of maritime trade activities must be analysed. Among the oceans involved, the ancient maritime trade in the Far East took place in the South China Sea, the East China Sea and the Yellow-Bohai Sea, each of which assumed different functions and provided products from different regions, performing the social functions of product exchange and fulfilling people's needs. The river systems reaching the seas were the main transportation means for merchandise produced inland. Naturally, the great rivers, like China's Yangtze River, Pearl River and Min River, became important carriers of trade on the Maritime Silk Road. In addition to the support of tributary rivers, all kinds of goods from inland areas could be delivered to ocean ports at relatively low cost and with limited manpower, which were prerequisites for the ancient maritime trade.

To construct the heritage system of China's Maritime Silk Road, we must also pay close attention to ancient historical facts and representative events, and propagate the lofty spirit of our predecessors, who were devoted to the communication and development of human civilization.

With reference to the above, we used ancient post roads and rivers as the backbone and vital sea ports as focal points to connect the scattered heritage sites, and comprehensively reviewed the original functions and inherited value of these sites to provide a holistic account of the ancient maritime trade that took place in different regions. Putting these river-bound regional heritage sites in the context of the ocean trade, we developed four "nodes" situated in the South China Sea, East China Sea, Yangtze River Basin and Yellow-Bohai Sea, from which we eventually formulated the heritage system of China's Maritime Silk Road. This system allows us to organize the heritage sites that were directly related to maritime trade in a systematic manner and incorporate sites of cultural exchange activities associated with trade as heritage content.

The heritage content of China's Maritime Silk Road became more distinct when we organized the 70 heritage sites according to the above system. Taking Fuzhou as an example, the Min River was a lifeline connecting the hilly hinterland to the sea, as we learnt from history, literature and the heritage sites already recognized. The river linked the inland heritage sites to the ocean, and studying it constituted an overview of the ancient maritime trade represented by the production, delivery, trade, transport and management of locally produced porcelain. Most distinctively, Zheng He chose Fuzhou as the starting point for his seven voyages to the western oceans, showcasing the importance of the maritime trade heritage in Fuzhou. To build knowledge about Fuzhou heritage, we must strengthen its status as Zheng's choice of Fuzhou as the starting point and organise related relics, like the Shenshou Pagoda, the Luoxing Pagoda and the dockyards. We should also further look into why Zheng He selected Fuzhou. In fact, Fuzhou's history as a shipbuilding, transportation and trade centre for thousands of years laid the foundation for it to function as a major centre for maritime trade along the southeastern coast of China. It had the fundamental resources to supply the massive fleets needed to prepare for long-distance voyages. Therefore, it is

Heritage Sites in Fuzhou under "Maritime Silk Road – Chinese Section" (number of the base map: No.46 Min S [2021])

reasonable to incorporate relics like the Huaian kiln site, the Temple of the King of Min and the Xinggang Pier to support the historical narrative relating to Zheng He's voyages. Nanjing and Taicang, which are related to Zheng He's voyages, should also be connected and given a position in the study of the Maritime Silk Road to reflect their particular value in supporting these historical events, and so to formulate more comprehensive coverage of the relevant heritage sites and organize these scattered places systematically.

Old Photograph of the Luoxing Pagoda of Fuzhou (Credit: Management Committee for the Historic and Cultural City of Fuzhou)

Luoxing Pagoda, Fuzhou (Photographer: Hou Wenxiao)

No. 1 Dock of the Fujian Shipping Bureau, Fuzhou (Photographer: Feng Liao)

IV. Application for the Maritime Silk Road for Inclusion on the World Heritage List and Heritage Management

1. Management of Maritime Silk Road Heritage

As previously mentioned, we selected the Maritime Silk Road heritage sites with great care and built a system to enhance the value of Maritime Silk Road heritage as much as possible. However, we have to confess that the current physical situation of the heritage sites is poor.

Compared with heritage sites on the Overland Silk Road, like the Jiaohe Ruins and the Giant Buddhist Temple in Zhangye, those on the Maritime Silk Road face the problem of being scattered and small in scale, of having significant damage, or having been altered over the years. Moreover, their foundation work is often weak, in terms of insufficient archaeological study, and inadequate or even incorrect understanding of their content and value. According to the requirements for management of world heritage sites, we must further assess their content and value and evaluate their authenticity and completeness through appropriate archaeological excavation, in-depth academic studies and other indispensable management methods to better demonstrate these distinct and magnificent ancient remains to the public.

After hundreds or even thousands of years of evolution, many remains are now buried or under water. Using only research in the literature, it is difficult to date these remains, determine their original form, and discover the historical impact of different activities conducted by various groups of people. These essential questions and problems can be resolved only through specific archaeological surveys or excavations.

Reinforcing management is an indispensable means for raising the quality of Maritime Silk Road heritage. According to the *Convention Concerning the Protection of the World Cultural and Natural Heritage*, for the collective protection of world heritage sites, we should establish an effective system "on a permanent basis and in accordance with modern scientific methods". In accordance with the requirements stipulated in the *Operational Guidelines for the Implementation of the World Heritage Convention*, "[p]rotection and management of World Heritage properties should ensure that their Outstanding Universal Value, including the conditions of integrity and/or authenticity at the time of inscription, are sustained or enhanced over time."[7] Specific chapters are included to illustrate the "conservation and management" of heritage, and entire chapters cover the importance of conservation and management as the centre of heritage work. Owing to the dispersed distribution and unimpressive character of Maritime Silk Road heritage to date, society has generally ignored its value, resulting in inadequate and even deficient management of these resources.

2. Good planning as a necessary tool for management

The formulation of a management plan for cultural heritage is an effective measure to strengthen the protective management of heritage in accordance with the *Convention Concerning the Protection of the World Cultural and Natural Heritage and Operational Guidelines for the Implementation of the World Heritage Convention*. Compiled under the leadership of Sir Bernard Feilden, a famous expert in heritage conservation, the Management Guidelines for World Cultural Heritage Sites emphasize the functions of a management plan, operational programme and budget control. A good management plan will allow us to organize our heritage resources better, and coordinate the activities of all parties, in particular to protect, renovate and restore heritage in historically significant regions while avoiding lowering the living standards of the residents.[8] To deal with the special features and deficiencies in Maritime Silk Road heritage, a protective management plan would also help further develop the value system of the heritage and formulate more effective steps for heritage protection to illustrate and to showcase the value of the heritage more effectively. Based on the present condition, protective measures and management requirements of the heritage, an appropriate management plan would allow all the conservation tasks to be organised systematically, to develop a healthy management mechanism, to arrange appropriate devices for its display, and to safeguard the reasonable interests of all stakeholders, so that everyone will be able to enjoy the heritage, and benefit from it. These are the core requirements for the protection of Maritime Silk Road heritage to be realized by a concrete management plan.

3. Strategies for World Heritage site Application

The application of the Maritime Silk Road for inclusion on the World Heritage List is an attractive and open topic in the international heritage sector, which has wide respect and support from the public. In recent years, there have been constant appeals for the application of the Maritime Silk Road for inclusion on the World Heritage List in a number of international academic seminars, at which constructive opinions have also been raised. Based on the efforts made by our nation to protect and study the Maritime Silk Road, we strive to deepen participation and research on the topic by more exchange and cooperation and the promotion of relevant studies at the international level. In the meantime, the possibility for regional cooperation and the establishment of a cooperation mechanism should be explored, so that the Maritime Silk Road can eventually be inscribed on the World Heritage List.

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Common Memory and Heritage — Building a Heritage Trail on Education in the Greater Bay Area

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ZHANG Yu

Abstract

During the War of Resistance against Japanese Aggression, many educational institutions in the Mainland had to move from place to place to escape from war and encountered enormous difficulties in providing education. Guangdong, Hong Kong and Macao are closely connected geographically and culturally, so during those difficult times, many educational institutions in the three places supported each other to overcome the severe challenges, resulting in shared educational memories. Building on the establishment and use of the South China Historical Trail, Guangdong province established the South China Educational History Study Stations in 2019 with in-depth research on the wartime education history in southern China. The Stations have already achieved a certain scale of development. Through conserving and restoring many wartime educational relics and integrating natural and cultural resources, the Stations developed trails on educational heritage and staged a variety of cultural and sports events, which attracted widespread attention. Guangdong, Hong Kong and Macao are now collaborating to take forward the construction of interlinked heritage trails in the Greater Bay Area by incorporating the relics of wartime education scattered across the three regions. These efforts are expected to further enrich the historical content of the existing trail network and offer a more diversified cultural experience, so that people will be joined in spirit, thus achieving the goal of a cultured Greater Bay Area.

I. Mutual Assistance among Educational Institutions in Guangdong, Hong Kong and Macao during the War of Resistance against Japanese Aggression (the "war")

On 31 August 1937, the Japanese army launched the first air raid on Guangzhou. This was followed by constant attacks on Guangdong counties, and many cultural and educational facilities were destroyed. Hong Kong and Macao are located adjacent to Guangdong and have strong economic and cultural ties with the province. Their Chinese education had long been deeply influenced by the Mainland. Although private secondary schools in Hong Kong were registered and managed in compliance with the regulations of the Hong Kong Government at the time, the Ministry of Education of the Nationalist Government and the Overseas Chinese Committee in the Mainland also put them on record. It was common for young students from Guangdong, Hong Kong and Macao to further their studies in different places. After the outbreak of the war, many Hong Kong and Macao students studying in Guangdong returned home to seek refuge, and many educational institutions in Guangdong established branch campuses in Hong Kong and Macao; or moved to Hong Kong and Macao to resume classes.

(1) Relocation of Guangdong Educational Institutions in Hong Kong and Macao

According to historical records, the following higher educational institutions moved to Hong Kong or Macao after the outbreak of the war: Lingnan University (private), Guangzhou University (private), Kwangtung Koumin University (private), and Kwong Wah Medical College in Guangdong (private). Although Sun Yat-sen University (national) remained on the Mainland, its rare ancient books, and some equipment and instruments were transferred to Kowloon, Hong Kong, to avoid being damaged by the war, and its Botanical Institute was moved to Kowloon. About 30 secondary schools moved to Hong Kong or Macao, including: Zhixin Girls' Middle School (provincial), Pui Ching Middle School (private), Pooi To Middle School (private) and True Light Middle School (private). Vocational schools that moved to Hong Kong or Macao included Guangzhou Agricultural and the Industrial Vocational School (provincial) and Zhongkai Agricultural and Industrial School (private).

At that time, Hong Kong and Macao offered a relatively stable environment for mainland institutions to provide educational services. With the increasing cultural and educational resources and a large number of scholars from the Mainland, cultural and educational activity in Hong Kong flourished. The Fung Ping Shan Library of The University of Hong Kong became a hub for cultural events, housing the "Han Dynasty Wooden Slips" Exhibition[1], the "Guangdong Cultural Relics" Exhibition and the "Ancient Chinese Calligraphy" Exhibition. Before the war, there were only two higher educational institutions in Hong Kong: the Northcote College of Education and The University of Hong Kong. The relocation of Lingnan University, Kwangtung Koumin University and Guangzhou University, and the establishment of Nanhua College (private) in Hong Kong fostered cultural and academic exchange between Guangdong and Hong Kong. As one newspaper reported, "Hong Kong's education has entered an era of prosperity."[2]

(2) Accommodation of Hong Kong and Macao Students in the Mainland after the outbreak of the Pacific War

The outbreak of Pacific War in 1941 changed the flow of students in Guangdong, Hong Kong and Macao. Between 1941 and 1942, schools were reopened one after another in the Mainland, and a huge number of students from Hong Kong and Macao embarked on an arduous journey to the Mainland on foot or by boat to pursue their studies. To assist teachers and students of the University of Hong Kong, the Ministry of Education and the Overseas Community Affairs Council under the Nationalist Government and the University of Hong Kong jointly established the Provisional Assistance Committee of The University of Hong Kong. According to a report by Hang Liwu, a member of the Standing Committee of the Provisional Assistance Committee, as of 25 December 1942, 276 returned overseas Chinese students from the University of Hong Kong were referred by the Committee to study in the Mainland. 78 of them studied at Sun Yat-sen University, and 30 studied at Lingnan University[3]. About 600 students were studying at the University of Hong Kong, about half of whom became transient students in the Mainland[4].

In 1942, the Department of Education of Guangdong province promulgated "Interim Measures for Relief to School Staff and Students Returning from Hong Kong, Macao and Overseas in Guangdong Province" to provide temporary relief to staff and students from Hong Kong, Macao and overseas schools, and to overseas Chinese students whose financial support from overseas had been cut off. In addition, 24 coastal counties and cities were instructed to do their best to provide assistance to the students by referring them to necessary services or schools nearby, or directing them to Shaoguan in northern Guangdong, with a view to reporting their cases to the provincial Education Department for school or employment referral. Schools were required to make every effort to accommodate them or to offer more classes. According to statistics from the Department of Education of Guangdong province, from July to August 1942 alone, 553 overseas Chinese students from Hong Kong registered with the Department, and in December 1942, there were 325 overseas Chinese registered students[5].

(3) A Shared Educational Memory

During the war, Guangdong, Hong Kong and Macao were closely connected and shared a common destiny. Through exchange and mutual support among cultural and educational institutions, the three regions undertook the responsibility to bring hope and a good future to young Chinese. Although, after 80 years, this part of history may seem far away and unfamiliar to many people many educational institutions in Guangdong, Hong Kong and Macao witnessed and recorded this common history of education. Under the national strategy of developing the Greater Bay Area and the vision of enriching the dimensions of culture in the area, revisiting this episode in our history will help stimulate an emotion resonance, uphold our common values and further develop nationalist sentiment.

II. South China Educational History Study Stations

Guangdong province has put a lot of effort into conserving and utilizing the South China Historical Trail through investigating, preserving, researching and revitalizing the ancient postal roads in various parts of southern China, starting in 2016, with remarkable results. Today, the South China Historical Trail is regarded as a brand name in Guangdong's cultural heritage and has given rise to many branding activities in the culture, sports and tourism sectors.

The South China Educational History Study Stations have been an integral part of the conservation and utilization of the South China Historical Trail in the past two years. During the war, a large number of educational institutions in Guangdong, Hong Kong and Macao experienced severe hardship in relocating and continuing to provide education, leading to an important chapter in the educational and war history of the Greater Bay Area, and providing valuable historical relics and stories along the ancient postal roads in southern China. The South China Educational History Study Stations, based on the history and culture of the area, use the ancient postal roads and relics of wartime education to recreate a platform to present the historical vistas and memorable history of the sites. Using both in-depth and broad-brush conservation approaches, the platform covers a wide range of relics, with progress in Shaoguan, Qingyuan, Meizhou and Yunfu, Guangdong province. Among them, the Pingshi Study Station in Lechang, Shaoguan and the Dacun Study Station in Zhenjiang, Shaoguan, which were, during the war, former sites of Sun Yat-sen University and Lingnan University, respectively, serve as good examples and inspirations for other study stations.

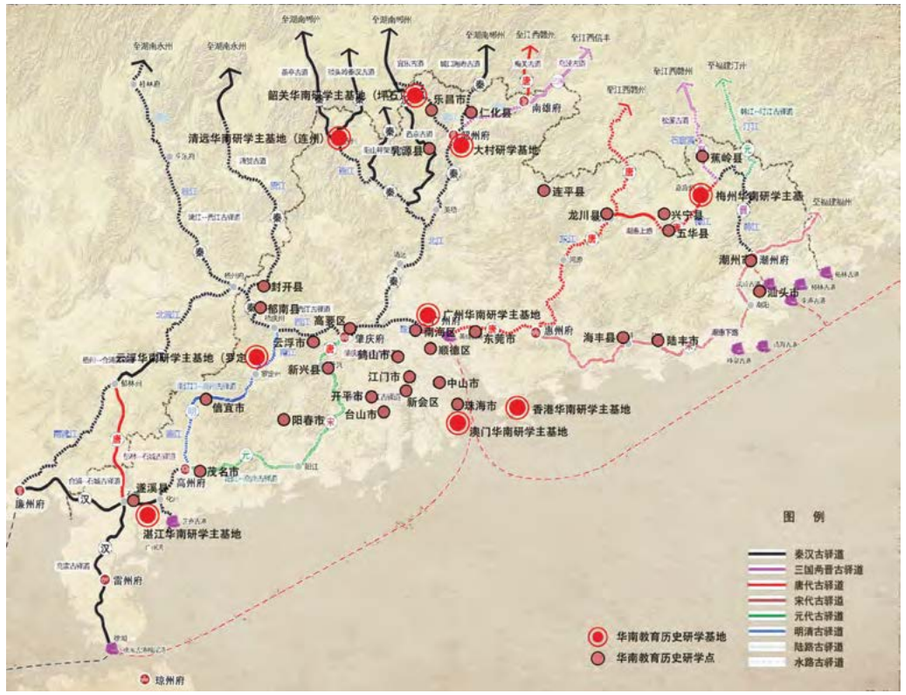

Figure 1 Distribution of South China Educational History Study Stations along the ancient postal roads.

(1) The Pingshi Study Station in Lechang, Shaoguan

Pingshi, a town in Lechang, Shaoguan, is located at the junction of Hunan and Guangdong provinces and lies along the Xijing Ancient Postal Road. In 1940, Sun Yat-sen University moved there and operated there for four years. The main campus of the university was set up on Pingshi Old Street, and its other faculties were situated in villages along the Wujiang River. Its Faculty of Arts was initially located in Qingdong, Lechang, but was subsequently moved to Tieling, near Pingshi Old Street. The small building leased by Canton-Hankow Railway to the university has been preserved. The Faculty of Law was originally located in Wuyangsi, a village near Yizhang, Hunan province, and then it was moved to Chetianbei, Lechang. The houses in which the teachers and students lived have been preserved in the two villages. The Faculty of Science was located in Tangkou village, in Pingshi, which has old buildings with an appealing architectural style. The original wartime site of the campus observatory still remains on the hill near the university. The Faculty of Engineering was situated in Sanxingping village in Pingshi, whose pier, built in the Qing dynasty, was once a vital node on the Xijing Ancient Postal Road and is still maintained. Also remaining is the former residence of Principal Xu Chongqing, ancestral halls, and dwellings once used by the Faculty of Engineering for teaching purposes. The Normal School was in Guanbu village in Pingshi, where some of the old school sites, such as Qingchuan Lane, are still preserved in-situ. As Pingshi was a transport hub on the ancient postal road, it also became a famous haven for many educational institutions during the war, such as the School of Agriculture of Lingnan University, Guangzhou Pui Ching and Pooi To Joint Middle School, Zhongkai Agricultural and Industrial School, and the National Third Overseas Chinese High School.

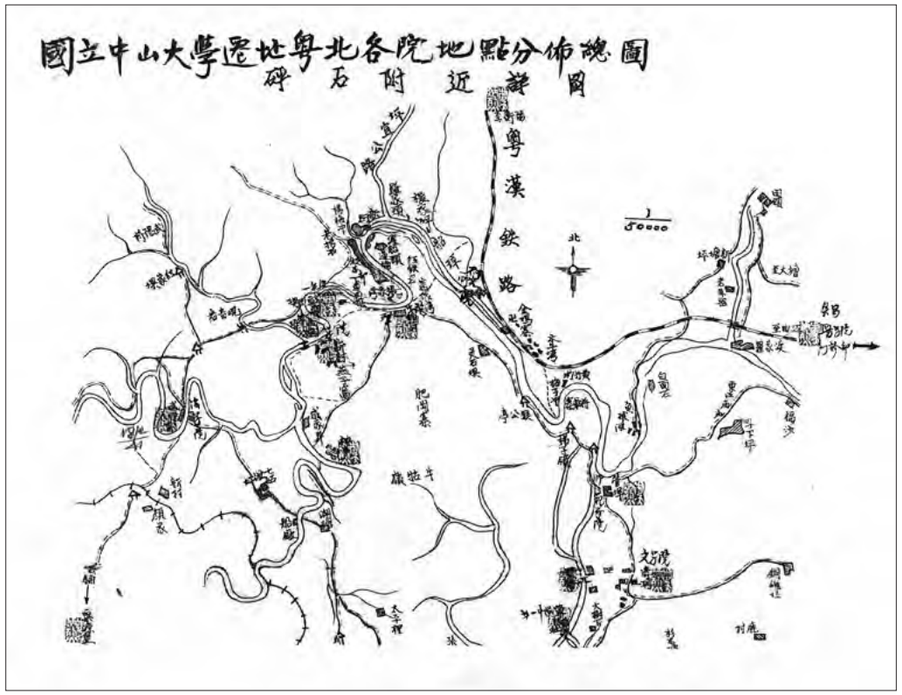

Figure 2 Hand drawn map by Yu Binglie showing the relocation of Sun Yat-sen University to the northern part of Guangdong.
The old sites of the faculties of Sun Yat-sen University formed the basic components of the Pingshi Study Station.

Researchers have spared no effort to search for relics to build the Pingshi Study Station. Through conservation, restoration and detailed planning, the station has rapidly been taking shape. After enhancing the environmental landscape and infrastructure, with effect from 2019, the public can visit the historical sites and thematic exhibitions and participate in a wide range of cultural and sports activities there.

Figure 3 Gateway of Guangzhou Pui Ching and Pooi To Joint Middle School, Pingshi Branch, during the war.

Figure 4 Present appearance of the memorial site for Changweidong Middle School in Pingshi, 2021.
The memorial site for Changweidong Middle School is the former site of Pui Ching and Pooi To Joint Middle School which moved back from Hong Kong and Macao to northern Guangdong province during the war. Today, the schools in the three regions use the same school name. In the memorial site, students of the schools from the three regions can retrace their school history.

(2) The Dacun Study Station in Zhenjiang, Shaoguan

Dacun is a village located in Lishi Town, Zhenjiang, Shaoguan. Lingnan University moved back from Hong Kong to the Mainland in 1942 and was established in Dacun. The university was a simple bamboo structure situated on a tiny hill. In order not to forget their roots, the teachers and students named the main building of the university Swasey Hall, following the name used in Kangle village, Guangzhou, where the university was originally built. The university section and its affiliated high school were positioned on the east and west side of Swasey Hall. During the war, Soochow University, in Suzhou, was also moved to Shaoguan, next to Lingnan University.

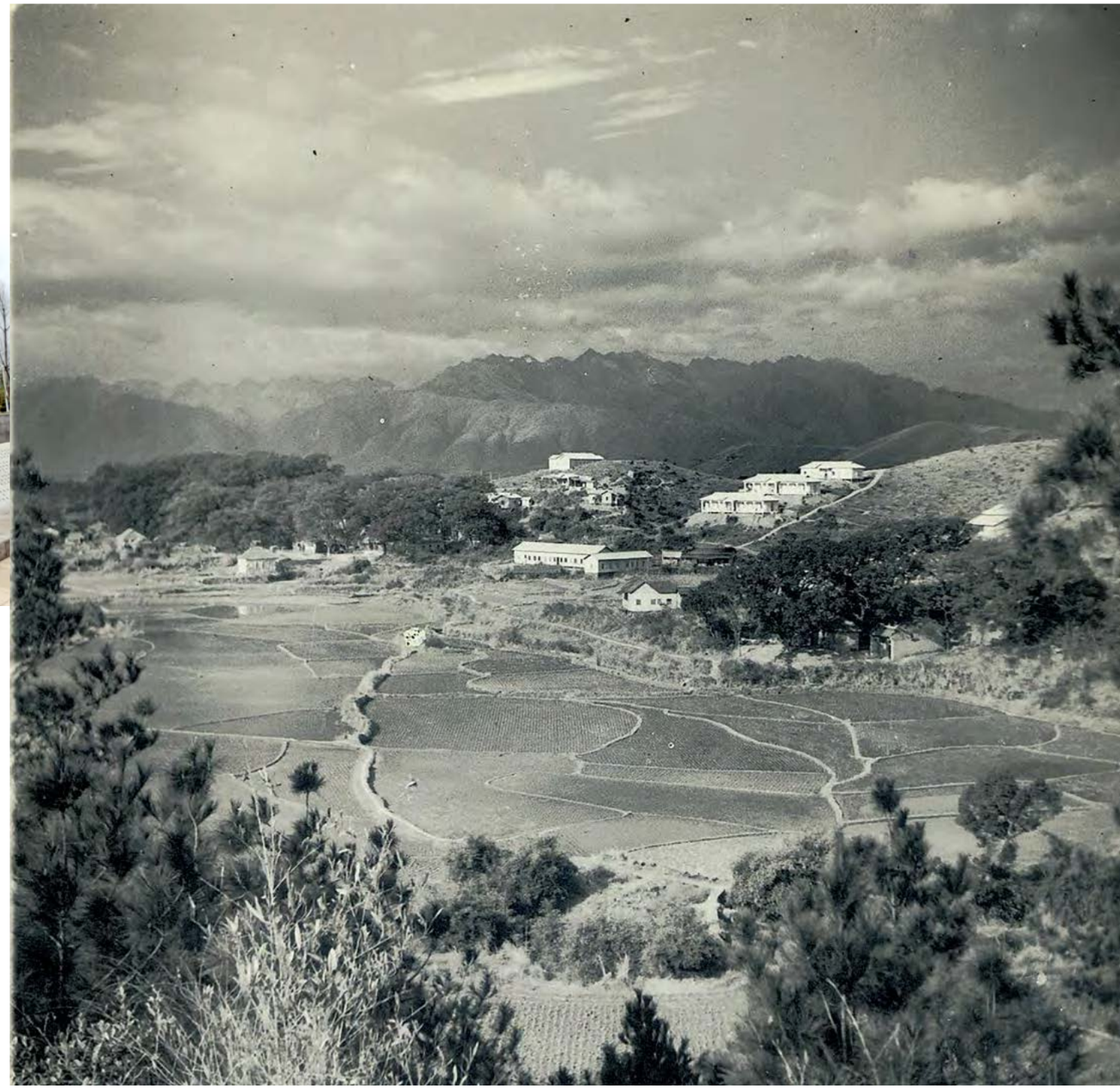

Figure 5 Lingnan University in Dacun, 1942.
Source: https://library.yale.edu/

Figure 6 Historical photo showing Swasey Hall in Dacun.
Source: https://library.yale.edu/

Figure 7 The interior of Swasey Hall after restoration; it was converted into a multi-functional hall for research and study.

The woven bamboo and plaster structures had a short lifespan, so there were no building remnants left before the construction of the Dacun Study Station. However, after careful documentary research, fieldwork and archaeological excavation, the locations of the former school buildings were successfully traced. In addition, with reference to the architectural form and materials, as recorded in historical documents, important school buildings and facilities from the old days, such as Swasey Hall and the school road, Wenshi Road, were reconstructed at their original sites. Other facilities, such as Yuqing Study Hall, Sigu Medical Centre, Dacun Small Stage and Dacun Dining Hall, were also rebuilt by renovating the old buildings for the use of villagers. The ancient wells, bridges and postal roads that are of historical value are now being repaired and restored. The aim of the improvement works is for the integration of the study station into its surrounding historical and geographical ambience to offer visitors an immersive experience.

Figure 8 Yuqing Study Hall
Xian Yuqing, “a gifted female scholar of Lingnan”, fled from Macao and taught in Dacun. According to her own story, she lived in the University library during her stay in Dacun. The study hall was converted from an old house in the village and now provides study space for the villagers.

Figure 9 Sigu Medical Centre
Sigu was a doctor stationed at Lingnan University. During the war, she provided medical consultation to teachers, students and villagers. Today, the Sigu Medical Centre still serves the villagers.

III. The Trail Network Developed by the South China Educational History Study Stations

In view of the wide distribution of relics of wartime educational history, which are varied in nature, value and content, only by bringing together all the relics can a full picture of the wartime educational history of Guangdong be displayed and the intrinsic value be revealed. To provide a complete and seamless experience for visitors and enhance the influence of the study stations, we made use of ancient postal roads, waterways and greenways to connect the cultural and educational sites. With the enhancement of infrastructure, recreational facilities and the environmental landscape, a trail network was developed, integrating natural and heritage resources.

Figure 10 Trail network developed by the South China Educational History Study Stations.

In 2021, Guangdong province announced the second batch of six heritage trails, among them the trail network developed by the South China Educational History Study Station. The network passes through cities such as Shaoguan, Qingyuan, Yunfu and Meizhou, linking major school relics from the war and displaying the history of wartime education in southern China and the close relationship between various counties and cities. The network also co-exists in harmony with the folk culture and natural environment of the area, providing a rich and diverse experience to visitors.

The Pingshi Study Station in Lechang, Shaoguan, for example, is surrounded by mountains and rivers, as well as Danxia landforms and a wide range of vegetation. The Xijing Ancient Postal Road left behind a delicate road network, and the villages have preserved the traditional local culture. Thus, the study station is endowed with unparalleled advantages, forming trails with distinct characteristics.

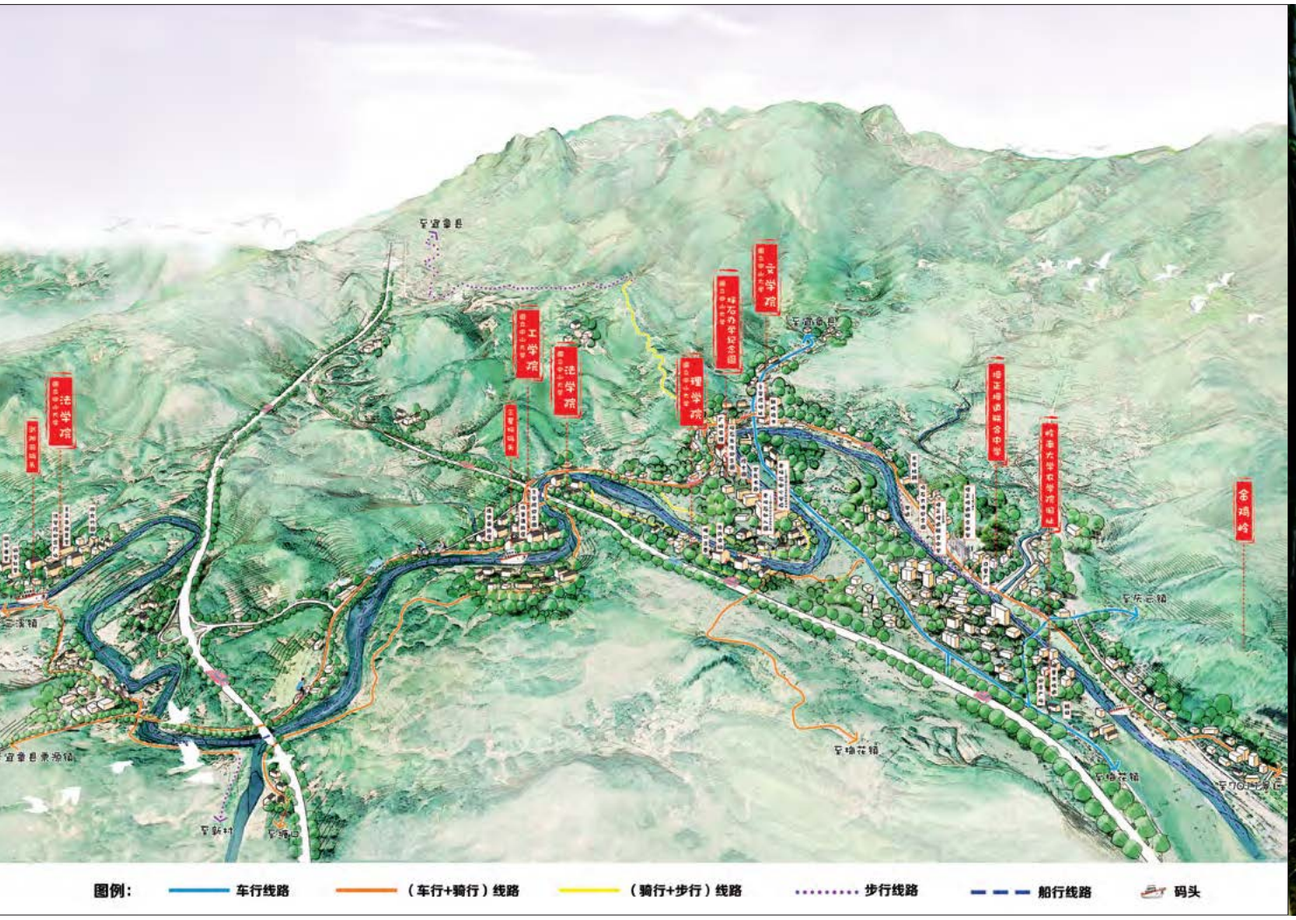

Figure 11 Trails developed by the Pingshi Study Station.
Memorial sites of former schools are linked together by the Wujiang River, ancient postal roads, villages and modern highways.

(1) The Study Path of Wuyangsi Village

The Wuyangsi village is the former educational site of the Faculty of Law of Sun Yat-sen University. It is also a place with unique characteristics along the historical trail, where the translator of the book *Das Kapital* lived and taught students during the war. The multi-storeyed defensive village houses (*diaolou*), and traditional Chinese dwellings have been properly conserved and restored. A permanent exhibition is staged at the cultural centre, and a Study Path was set up, converted from the old village road running through the village. Visitors can experience the historical ambience and life-style, walk down the pier to get close to the river, and visit various sites relating to the Faculty of Law while walking along the Study Path.

Figure 12 The Study Path of Wuyangsi beside a river and a bamboo forest.

(2) The Changgangling Ancient Trail

The Changgangling Ancient Trail is one of the branches of the Xijing Ancient Postal Road, which passes through Liyuanbao in Hunan province, Wuyangsi village, and Sanxingping village in Pingshi, Shaoguan. During the war, teachers and students of the Faculty of Agriculture, the Faculty of Law and the Faculty of Engineering of Sun Yat-sen University walked along this trail to make their way to the main campus on Pingshi Old Street. This trail was indicated in Yu Binglie's hand-drawn map, showing the distribution of faculties in Sun Yat-sen University. The Changgangling Ancient Trail was also the main battlefield where Zhu De won the battle of Pingshi, thus it also bears witness to revolutionary history. After renovation, the Changgangling Ancient Trail was turned into a four-kilometre-long heritage trail, allowing visitors to travel across slopes and waterways, walk across a stone bridge, rest at the pavilion, and retrace the daily footsteps of the teachers and students.

Figure 13 Red sandstone steps on the Changgangling Ancient Trail.

Figure 14 Students from the Department of Structural Engineering in front of the pavilion.

Figure 15 Appearance of the pavilion before restoration.

(3) Xincun Is In Sight, but the Heroes Are Gone

If you follow the westbound road along the river in Tangkou village, where the Faculty of Science of Sun Yat-sen University was formerly located, you will reach Chetianbei village – another former site of the Faculty of Law. After passing through some farmland and walking along the ancient road in the mountains, you will reach Xincun, where the Department of Structural Engineering was located. According to former students, in the old days, there was a pavilion on the hilltop, with a plaque hanging on it with the words: "Xincun is in sight, but the heroes are gone". Chen Weiping and students from the Department of Structural Engineering took a valuable group photo there. Although the roof trusses of the pavilion were in poor condition, the stone pillars were well preserved. Now, after restoration, the pavilion can be appreciated by the public. Tangkou village, situated on the other side of the ancient road, is where research and teaching in nuclear physics in China was first developed. Lu Hefu, "the father of nuclear physics in China", taught there during the war. The remains of the only wartime campus observatory in China are still preserved in Tangkou village, which silently shows us where mathematics and astronomy teachers and students observed the sky during the war. With the completion of the renovation works on the ancient road and pavilion, a historical trail connecting the two major memorial sites in Pingshi has been set up. People can now survey the stunning landscape from the hilltop while imagining the wartime hardships.

(4) Trail for Appreciating Poetry and Music

Guanbu village is where the Normal College of Sun Yat-sen University conducted classes during the war. It is well-known in academic and art circles, as a large number of famous scholars and artists, including musician Ma Sicong and poet Xu Xingzhi, taught there. In a memorial article written by Xu Xingzhi in his older years, he recalled a scene in which he and Ma Sicong wandered in the pine forest in Luojiadu, a village in Pingshi, and enjoyed their discussion of poetry, painting, music and drama while immersing themselves in the beautiful scenery. People can walk through this historical scene while reading his article. The ancient road for this trail is well preserved and in good condition, and is rich in history and culture, as it witnessed numerous significant incidents in history, including the hard times of the educational institutions during the war, left-wing activity in the literary arena, anti-Japanese activities undertaken by the literary sector, and the rescue of renowned cultural figures after the fall of Hong Kong in 1941.

Figure 16
The pavilion after restoration.

Figure 18 Watercolour painting *Red Leaves and Mountain Village*, by Xu Xingzhi, 1943.

Figure 19 A musician plays the song *Song of Nostalgia*, composed by Ma Sicong, on the trail.

Figure 17 River scenery.

IV. The Use of the South China Educational History Study Stations

The South China Educational History Study Stations follow the principle of simultaneously carrying out protection, construction and utilization. As the trails were restored, and connected all the spots one after another, they began to take shape, offering people a venue with different functions.

(1) Research and Investigation

The development of schools in Guangdong, Hong Kong and Macao during the war contributed a remarkable chapter to the regional and national history of education. Since the establishment of the South China Educational History Study Stations, many educational institutions in the Greater Bay Area have been eager to trace their roots by revisiting their school history and remembering their forerunners. Schools and social institutions in Guangdong province have proactively utilized the natural and cultural resources of the study stations to develop a curriculum combining education and entertainment to provide a wide range of programmes for students.

Figure 20 The Guangdong Provincial Institute of Cultural Relics and Archaeology has collaborated with other institutions to advance the study of the cultural heritage of Mount Danxia.

The study stations have provided favourable venues for conducting research and on-site teaching, and fostering popular science. During the war, a number of research projects in various disciplines were carried out by outstanding scholars in the northern part of Guangdong: for example, a study on Danxia landforms by Chen Guoda and Wu Shangshi, research on plant taxonomy by Jiang Ying, forestry research by Hou Guo, and anthropological studies on ethnic minorities in the northern part of Guangdong by Yang Chengzhi. Their research findings are a treasure for academics and have inspired others to continue their research. In 2020, the Guangdong Provincial Institute of Cultural Relics and Archaeology joined hands with the Danxia Mountain Authority, Guangdong University of Technology and other institutions to launch a project to study and investigate the cultural heritage of Mount Danxia. This laid the foundation for protecting and utilizing Danxia's natural and cultural heritage. Teachers and students of South China Agricultural University put a great deal of effort into recording and studying the plants along the historical trail to ensure the sustainable development of the ecological environment of the Greater Bay Area.

(2) A Venue for Cultural, Leisure and Charity Activities

The South China Historical Trail Orienteering Championship has been a popular event in recent years and has successfully attracted numerous local and overseas participants. In June 2020, the Orienteering Championship was held at the South China Educational History Study Station. Its first stop was the Guangtong Guild (*Huiguan*) on Pingshi Old Street. The athletes could enjoy the beautiful village scenery while running and taking photos at the old school sites. The study station therefore has served as a new venue for outdoor activities combining sports with history. During the opening ceremony of the Orienteering Championship, children from Guangzhou and Lechang sang the song *For a Brilliant Future* at the Sanxingping Pier. A funding scheme was announced during the ceremony to offer assistance to children left behind in the villages by their parents working in big cities. The fund subsidizes local teachers, the hiring of non-local teachers, and teachers' outbound training in Guangzhou. The Educational History Study Stations have thus become a venue for starting a campaign of poverty alleviation through education.

Figure 21 The South China Historical Trail Orienteering Championship in Pingshi, Lechang, June 2020.

Figure 22 Students sing *For a Brilliant Future* at the Sanxingping Pier.
Source: Website of the South China Historical Trail

(3) Fostering Cultural Exchange between Guangdong, Hong Kong and Macao

Young people from Hong Kong and Macao were given an opportunity to visit the Pingshi Educational History Study Station and old educational sites during the "Guangdong–Hong Kong–Macao Youth Cultural Exchange Tour 2020" and the "Discovery Journey of Lingnan and Huxiang Culture 2021". By participating in the programmes, they recognized the shared history that the three regions went through during the war and were touched by the fortitude of their ancestors. The educational history study station, comprising local heritage and the natural landscape, has provided a platform to enable young people to gain a deeper understanding of the history and culture of the motherland and strengthen their ties and sense of national belonging.

Figure 23 "Guangdong–Hong Kong–Macao Youth Cultural Exchange Tour 2020". Participants take a group photo in front of the Dingyou Library on Pingshi Old Street.

Figure 24 "Discovery Journey of Lingnan and Huxiang Culture 2021". Young people from the Mainland, Hong Kong and Macao take a group photo at the memorial site of Pui Ching and Pooi To Joint Middle School in Changweidong, Pingshi.

A large variety of cultural competitions and activities, such as cultural and creative product design contests, practical achievement competitions, and curriculum-design competitions, have been organized to tie in with the establishment of the South China Educational History Study Stations. Various promotion channels, such as newspapers, television and new media, have been used to publicize the programmes. Films and documentaries with the theme of the wartime educational history of southern China were produced to attract a wider audience. With the increasing popularity of the South China Educational History Study Stations, different sectors of society have been attracted to take part in the cultural programmes and contribute to the stations' development. There are still many villages along the ancient postal roads suffering from poverty. The South China Educational Historical Stations have linked up all the school relics dispersed in southern China to build a site for patriotic education and cultural tourism, which will help stimulate the development of the villages and boost the local economy.

V. Connecting the Educational and Cultural Heritage in the Greater Bay Area

Guangdong province has taken reference from the successful experience of Hong Kong and Macao and is committed to properly conserving and utilizing its cultural heritage and developing cultural tourism. Under the vision of coordinated development of the Greater Bay Area and co-construction of culture in the area, Guangdong province announced two batches of heritage trails in the Greater Bay Area in 2020 and 2021, with 44 trails linking up cultural relics in nine cities in the Pearl River Delta to demonstrate the uniqueness of Lingnan history and culture, and the long and lasting historical connection among the three regions. The trails cover eight main themes: (1) the Sun Yat-sen Heritage Trail, (2) the Maritime Silk Road, (3) overseas Chinese, (4) ancient postal roads, (5) coastal-defence, (6) the coming of Western ideas to China, (7) the opening of contemporary trading ports, and (8) Intangible Cultural Heritage (Cantonese opera) .

For a number of reasons, there is still vast room to further develop heritage trails in the Greater Bay Area. First, current research on cultural history is inadequate in terms of the range of themes and the connections among the various heritage resources. Broader and deeper research is needed to better demonstrate cultural diversity and improve the understanding of heritage value. This will have a defining impact on the planning and interpretation of the heritage trails. Second, the heritage trails of Guangdong, Hong Kong and Macao are related to each other from a historical perspective, but there is a lack of geographical connection. Under the development of the Greater Bay Area, a comprehensive and rapid transport network is being built to connect the Mainland with Hong Kong and Macao and to develop multi-destination tourism. This will create the conditions necessary to enhance the spatial connection among the three regions, in particular the connection of the Mainland with Hong Kong and Macau. We have to seize this golden opportunity to develop cultural heritage trails to meet the huge potential demand for travel and tourism in the post-pandemic era.

Over the past two years, the South China Educational History Study Stations embarked on a great deal of fundamental work to set out constructive directions for utilizing cultural heritage, co-operating with the community, and developing cultural tourism to revive the rural economy. The educational history of Guangdong, Hong Kong and Macao is a valuable resource. Merging the history with the educational and cultural relics of three regions and incorporating it into the heritage trail network of the Greater Bay Area will enrich that history and offer the public in the three regions a diversified cultural experience. The three regions can work together in the following areas.

First, strengthen the academic research and exchange among the three regions by sharing the historical data possessed by schools, libraries and archives. Through comprehensive exchange and co-operation, the three regions can work together to unveil history and deepen people's understanding of the educational and cultural relics in the three regions, thus facilitating the protection of relics and the planning of heritage trails, and helping scholars and institutions carry out further research.

Second, consolidate and correlate the educational and cultural relics in the three regions to prepare the set-up of interlinked trails by stages. The stories of education are interrelated across different geographical regions. Through self-exploration, people will have a more personal experience with history and therefore a better understanding of how the educational institutions in the three regions coped during difficult times. Since the three regions have distinct cultures and divergent histories in many ways, people can also experience the diversity of the regional characteristics.

Third, join hands to take forward the revitalization of the educational and cultural heritage of the three regions. Guangdong, Hong Kong and Macao should foster the exchange of knowledge and technological resources, strengthen collaboration in the planning and construction of heritage trails, and formulate a mechanism for coordinating publicity and public education. This is expected to set a model for other cultural heritage conservation projects in the Greater Bay Area and to create a platform for youth exchange and the promotion of traditional Lingnan culture. Thus, cultural heritage will ultimately serve the purpose of strengthening the spiritual bond between the people of the three regions, connecting them more closely.

[1] Grace H. L. Chu 朱陳慶蓮, *Essays in Commemoration of the Golden Jubilee of the Fung Ping Shan Library* 《馮平山圖書館金禧紀念論文集》(Hong Kong: The Fung Ping Shan Library, The University of Hong Kong, 1982).

[2] Pik Hoi 碧海, "Education in Hong Kong" 〈香港的教育〉, *Hua Shang Daily* 《華商報》(1941, Issue no. 9).

[3] Archive of the Ministry of Education of the Republic of China in the Second Historical Archives of China.

[4] Jin Yingxi 金應熙, *Jin Yingxi's collected essays: Volume of Modern and Contemporary History* 《金應熙史學論文集：近現代史卷》, (Guangzhou: Guangdong People's Press, 2006).

[5] Archive of the Ministry of Education of the Republic of China in the Second Historical Archives of China.

Building Hong Kong into a Cultural Heritage Hub in the Greater Bay Area with Pioneer Thinking

Adrian is CEO of New World Development, which spans property investment and development, infrastructure, construction, healthcare, insurance, hotels and other consumer and technology businesses. Since joining the company in 2006, he has reinvented the brand's DNA through "The Artisanal Movement", infusing craft, heritage, design and creativity into all of the company's ventures.

In 2008, Adrian established the K11 brand, the world's first "museum-retail" concept, with the intention of merging art and commerce and curating the customer journey with a focus on the next generation. In addition to its flagship K11 MUSEA, 11 SKIES and K11 Art Malls, the Group operates K11 ATELIER, K11 ARTUS and K11 Select.

Dr CHENG Chi Kong Adrian JP

Abstract

From 2019 to 2021, the state promulgated several policies to support the development of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), and the conservation and development of cultural heritage in the GBA. As a highly internationalized city in the area, Hong Kong has the conditions to become a cultural heritage hub in the GBA. This paper provides forward-looking suggestions for building Hong Kong into a cultural heritage hub in the GBA, including taking advantage of Hong Kong's geographical and cultural advantages, empowering the conservation and revitalization of Hong Kong's architectural heritage with innovative ideas, and promoting the establishment of the "9+2" inter-city cultural cooperation mechanism. The aim of this paper is to provide a development direction that can evolve into feasible policy measures in the future and draw a formable blueprint for building Hong Kong into a cultural heritage hub in the GBA.

The "Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area" was issued by the Communist Party of China (CPC) Central Committee and the State Council in February 2019. It emphasised, "to strengthen cultural confidence, jointly take forward the transmission and development of the fine traditions of Chinese culture, leverage the advantages of the geographical proximity and cultural kinship of Guangdong, Hong Kong and Macao, jointly launch cross-boundary programmes to protect key cultural heritage sites, co-organise different types of cultural heritage exhibitions and performances, protect, promote and make good use of the rich cultural relics and monuments, world cultural heritage and intangible cultural heritage of the Greater Bay Area, support the promotion of Lingnan culture as represented by Cantonese opera, dragon boat racing, martial arts, lion dance, etc., and showcase the Greater Bay Area's unique cultural appeal."[1] Later, in January 2021, the Ministry of Culture and Tourism, the Office of the Leading Group for the Development of the Guangdong-Hong Kong-Macao Greater Bay Area and the People's Government of Guangdong Province jointly announced the "Culture and Tourism Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area". The chapter "Jointly Developing a Cultured Bay Area" mentions specifically "the protection and inheritance of important cultural heritage"[2]. In March 2021, the Central People's Government announced the "Outline for the Fourteenth Five-Year Plan for Economic and Social Development and Long-Range Objectives through the Year 2035" (hereinafter referred to as "The 14th Five-Year Plan"), which states to support for Hong Kong to become a "cultural exchange hub", showing the direction for developing Hong Kong's literary and art industry at the national level. The plan opened up new growth opportunities for the preservation and transmission of cultural heritage to build a cultural exchange hub, which has laid a solid policy base for Hong Kong to become a cultural heritage hub in the Greater Bay Area.

Travel restrictions have been imposed since the outbreak of the COVID-19 pandemic to prevent the spread of the virus. COVID cases are declining as more people are getting vaccinated. Most cities in the Greater Bay Area have progressed in controlling the pandemic compared to other countries. With the gradual control of the pandemic, the cities in the Greater Bay Area can restore their functions as interconnection hubs. Hong Kong, with its unique geographical location and cultural traditions, will gradually showcase its advantage in connecting to the mainland as well as the whole world, facilitating the establishment of a "dual circulation"[3] development pattern in which domestic economic cycle plays a leading role while international economic cycle remains its extension and supplement, as "The Fourteenth Five-Year Plan" indicated.

Chapter 1. Advantages of Hong Kong as a Cultural Heritage Hub in the Greater Bay Area

1.1 Unique geographical and economic advantages

Hong Kong serves as the gateway to Southeast Asia and is a vital transportation hub and business centre, which has a superior geographical location, providing an excellent opportunity to promote the cultural heritage of the Greater Bay Area. Also, it is a strategic gateway for the Belt and Road Initiatives in the Greater Bay Area. It is situated in the main region of "the twenty-first-Century Maritime Silk Road" and is a crucial gateway for China's opening-up layout[4]. In the past 25 years, due to the "One Country, Two Systems" policy, Hong Kong has maintained its ranking as the world's third-largest financial centre, trade centre and shipping centre. Its growth momentum is still strong despite substantial global economic and political changes.

1.2 Distinctive urban humanistic charm

Hong Kong has been a part of China since ancient times, and with a long history of Chinese cultural traditions. Due to historical reasons, Hong Kong has adopted western culture and has become a place where Chinese and Western cultures co-exist. Since Hong Kong's return to China, cultural undertakings have been prospering. It has signed cultural cooperation memorandums of understanding with 20 countries[5], which has also established world-class cultural facilities and diverse spaces such as the West Kowloon Cultural District, including the Hong Kong Palace Museum, M+ (Museum of Visual Culture) and Xiqu Centre. Hong Kong also has world-renowned exhibition centres and performing arts venues, such as Hong Kong Convention and Exhibition Centre, AsiaWorld-Expo and Kowloonbay International Trade & Exhibition Centre. All of the above are favourable prerequisites for building Hong Kong into the cultural heritage hub for Greater Bay Area.

Chapter 2. Empowering the Conservation and Revitalisation of Local Historic Buildings and Cultural Heritage in Hong Kong with Creative Ideas

According to the Antiquities Advisory Board, as of June 2022, there are 132 declared monuments, 199 Grade 1 historic buildings, 396 Grade 2 historic buildings, and 600 Grade 3 historic buildings[6]. Amongst which, there are many successful projects revitalised into new uses cases. For instance, Blue House Cluster received the highest honour of UNESCO's Asia-Pacific Awards for Cultural Heritage Conservation: The Award of Excellence in 2017, and Tai Kwun: Centre for Heritage and Arts received the same award in 2019. Lui Seng Chun, now the Hong Kong Baptist University School of Chinese Medicine was successfully revitalised and listed as a declared monument in 2022. Thus, Hong Kong has rich resources of architectural heritage, and how to optimally utilise these resources has become a topic worthy of in-depth research.

In October 2020, New World Development obtained full ownership of the 70-year-old State Theatre (Figs. 1 & 2), a Grade 1 historic building located in the North Point area. Its conservation philosophy will be used as an example in this paper to discuss the revitalisation and rebirth of Hong Kong's historical architecture. State Theatre, formerly known as Empire Theatre, is located at the junction of King's Road and Tin Chong Street. It is the oldest existing post-war cinema building in Hong Kong, which was the brainchild of impresario Harry Oscar Odell in 1952. The design of the State Theatre was overseen by architects George W. Grey and S.F. Lew, adopting the aesthetics of modernist architecture. Its parabolic exoskeleton trusses at the roof is to enhance the viewing experience of the audience with a column-free indoor space. The most conspicuous part of the curved façade above the main entrance of the theatre is artwork bas-relief by Mui Yue-tin, a master of Lingnan School of modern arts. The State Theatre has a very glorious past. Many international masters and art groups performed here, Including British composer Benjamin Britten, tenor Peter Pears, violinist Isaac Stern, and singer Teresa Teng. In addition, many classic foreign films, such as *The Sound of Music, Lawrence of Arabia*, etc., were screened at the State Theatre.

Given the historical and cultural values of the State Theatre, New World Development will try its best to conserve the unique rooftop structure and the theatre, aspiring to revitalise this Grade 1 historic building back to its original glory and create a pioneer cultural landmark for Hong Kong. A team of local and international consultants with rich experience in heritage conservation has been assembled including British firms WilkinsonEyre and Purcell – who worked on the Gasholders London redevelopment scheme and the restoration of Tai Kwun, respectively – as well as Hong Kong-based AGC Design, who took part in the revitalisation of Lui Seng Chun.

We propose that the conservation and revitalisation of local historical buildings should focus on the following aspects:

2.1 Leading the revitalisation and conservation of historic buildings with innovative power

The conservation of historic buildings is not only to conserve the historic fabric but also to giving these buildings a new lease of life for the sustainable development of the city. We should explore how to create a new cultural experience for these historic buildings, by combining the trends of the MZ Generation with the aspiration of "celebrating the past for the future" to increase economic and social benefits.

2.2 Combining architectural design, conservation and revitalisation, and cultural exchange to promote community coexistence[7]

When a historic building has lost its original usage and purpose, an innovative plan can be adapted to conserve its historic fabric while revitalising it for a new, compatible use. Before the works starts, a detailed research should be conducted to understand the building and to evaluate its heritage values, which includes in historical, architectural and social values to start with. Often times the contextual and scientific values are also considered to get a full picture of a historic place's heritage values. Taking the conservation of the State Theatre as an example, New World Development has kick started an initiative to collect memorabilia and artefact related to the theatre. These items, now in hundreds, include ticket stubs, staff uniforms, old cinema seats and old residential sales brochure of the State Theatre. These are then used to present the heydays in State Theatre at a pre-construction, immersive exhibition in 2021, and provide insights to the operation and development of the historic building in the past 70 years. Due to its cultural and social significance to the performing art industry and the nearby community respectively, there is an ongoing research on the broader history on North Point, when it was once called the "Little Shanghai", around the time when State Theatre was built. The research, together with the analysis on the tangible historic fabric on site, provides a good insight for the design of the revitalised State Theatre, Meanwhile, all of these efforts must be conducted with extensive community engagement initiatives, as the local community's support is one of the key factors to the success of a heritage conservation project.

2.3 Make good use of scientific and technological means to support the conservation and development of historic buildings

The wide use of virtual reality, three-dimensional (3D) scanning and artificial intelligence technologies has advanced the cultural industry significantly in recent years. Architectural heritage can be damaged due to a various number of factors, including negligence, and natural disasters and technology can come in time to restore or even prevent damages caused by them. In the case of the conservation of the historic State Theatre, latest building technology like BIM modelling, 3D scanning and simulation has been adopted and newer technology like 3D printing for repairs is now being considered for the conservation works.

Technological innovation can definitely support the conservation of Hong Kong's architectural heritage. For example, virtual reality technology like VR (virtual reality), AR (augmented reality) and even XR (mixed reality) allows the public to enjoy and view architectural heritage freely with an immersive experience[8]. Digital archives and online exhibition platforms are particularly useful digital resources to allow curators to present thematic, temporary programmes to audience around the world, especially during the travel restriction period amid the COVID-19 pandemic.

2.4 Leverage on the advantages of "One Country, Two Systems" to promote Hong Kong's architectural heritage digitally

Many of Hong Kong's heritage sites attracted millions of visitors a year. While tourism is impacted by the COVID-19 pandemic, the government can look into building an online platform that delves deep into the cultural significance of our heritage sites, with the connotation of "tell Hong Kong's story well" and "tell China's story well", so cultural enthusiasts can learn more about the historic places regardless of whether they can travel to Hong Kong.

2.5 Optimising existing mechanisms with new policies

The government should optimise the mechanism to promote the conservation of architectural and cultural heritage in modern life and to conserve architectural and cultural heritage and guarantee sustainable development. For example, heritage revitalisation can be enhanced through research and education, establish a cultural ecosystem, and create a shared value system for society.

K11 Craft & Guild Foundation (KCG), established in 2018 by New World Development, conserves a wide variety of traditional Chinese craftsmanship. This includes *Guangcai*, the Cantonese porcelain, *Baibaoqian*, an ancient craft of inlaying engraved wooden work with semi-precious stones, *raden*, stucco relief, and wood-structure buildings, and an in-depth research of the classical Chinese novel *Dream of the Red Chamber*. KCG has collaborated with artisans all over China by organising workshops to carry on with the tradition, support published works, meticulously document the history and production process of various crafts, and build an academic library for these traditional Chinese handicrafts.

To conserve architectural and cultural heritage, New World Development has reconstructed the Former Residence of Cao Xueqin (the author of *Dream of the Red Chamber*) in Beijing, which was reopened in July 2022. KCG will create a platform for cultural exchanges and present a series of thematic exhibitions and public education initiatives to encourage the rediscovery of classic literature through an interactive environment and language innovation. It will encourage contemporary scholars, artisans and artistic communities to learn more about traditional Chinese crafts and culture and be inspired to form a modern take on these traditions. It will integrate domestic and international resources to infuse traditional culture into modern life. It will attract more Redology enthusiasts, citizens and tourists from all over the world to experience the charm of historical traditions and cultural revival[9].

By creating a mechanism to mobilise the power of the business community and cooperate with non-profit organisations[10], we can explore the profound cultural connotation behind the architectural heritage for sustainable development. It will give a new lease of life to the historic buildings through exhibitions and cultural exchanges.

Chapter 3. Promote the Establishment of the Greater Bay Area "9+2" Inter-City Cultural Cooperation Mechanism

3.1 Use "China Cultural and Natural Heritage Day" to actively carry out cultural heritage promotion

On 22 December 2005, the State Council issued the "Notice of the State Council on Strengthening Protection of Cultural Heritages" and which stipulated that starting from 2006, the second Saturday in June every year is named as "China Cultural and Natural Heritage Day"[11].

Many cities across the nation participated it in since then. For instance, 6,200 exhibitions were held on "China Natural and Cultural Heritage Day" in 2022, such as "2022 China Cultural & Natural Heritage Day Carnival" held in Macao, the "2022 'Cultural and Natural Heritage Day' Guangdong Main Venue (Zhongshan) and Shiqi Dragon Boat Culture Week" in Guangzhou, etc. Hong Kong can plan to promote Hong Kong's cultural heritage projects and attract more tourists by collaborating with other cities in the Greater Bay area. "China Cultural and Natural Heritage Day" will enhance public participation and in tandem with Hong Kong's return to the motherland.

3.2 Strengthen cultural heritage education and promote the sharing mechanism of cultural and educational resources in the Greater Bay Area

Cultural heritage-related courses should be set up in schools at all levels of education intuitions in Hong Kong. Through handcraft workshops, guided tours, experience camps and other activities, the upcoming generation can understand Hong Kong's cultural heritage and traditions at a younger age. Cultural heritage education will improve the cultural literacy of the new generation and inspire them to explore the nation's culture, which will consolidate our cultural identity. The government can also consider formulating relevant policies for cooperation between local educational institutions and the educational institutions in other cities in the Greater Bay Area in order to expand Hong Kong's influence on cultural heritage education.

3.3 Promote the establishment of the cultural heritage resource sharing mechanism in the Greater Bay Area

Eleven cities in the Greater Bay Area have their cultural heritage projects inspired by the Lingnan culture and developed a relatively unified cultural identity. Sharing cultural resources should be the first step in developing Hong Kong into a cultural heritage hub[12]. Hong Kong should promote cultural integration and industrial cooperation among cities in the Greater Bay Area. With the support of the Central Government as stated in "The Fourteenth Five-Year Plan" to "build Hong Kong into a cultural exchange centre between China and foreign countries", Hong Kong should cooperate with other cities in the Greater Bay Area to foster closer cultural ties. Hong Kong can sign cultural cooperation agreements with other cities in the Greater Bay Area. It will benefit those cities to promote their excellent cultural heritage resources in Hong Kong.

It is recommended that the government should integrate local cultural heritage resources and design a promotional package with the tourism, transport and media industries. Recently, many historic buildings have been revitalised and opened to the public, such as Tai Hang Fire Dragon Heritage Centre, The Pokfulam Farm, etc. Hong Kong can connect these buildings with newly devised tourist routes to attract more tourists. In addition, the government can fully utilise the existing international art venues in Hong Kong, such as the Hong Kong Palace Museum, Xiqu Centre, etc., to promote cultural heritage projects in the Greater Bay Area and globally.

Chapter 4. Our vision of Hong Kong in becoming a cultural heritage hub of the Greater Bay Area

Hong Kong has unique advantages in terms of its geographical location, economic environment and cultural traditions. In "The Fourteenth Five-Year Plan", the Central Government stated its support for Hong Kong to become a "cultural exchange hub". Since then, Hong Kong's cultural development has got unique advantages in geo-economics and culture as well as national policies. Coupled with various preferential policies in the Greater Bay Area, Hong Kong is fully qualified to become the cultural heritage hub of the Greater Bay Area.

In the future, Hong Kong should promote cultural cooperation between cities in the Greater Bay Area to conserve local cultural heritage. It should employ creative technologies to develop and protect cultural heritage. It should leverage on new media platforms to promote cultural heritage projects to attract tourists around the world. And most of all, it should take advantage of the "One Country, Two Systems" policy to make a contribution in building a world-class Greater Bay Area!

Fig. 1 State Theatre, 1981 (Source: Sing Tao News Corporation)

Fig.2 State Theatre, 2021 (Source: Chester Ong)

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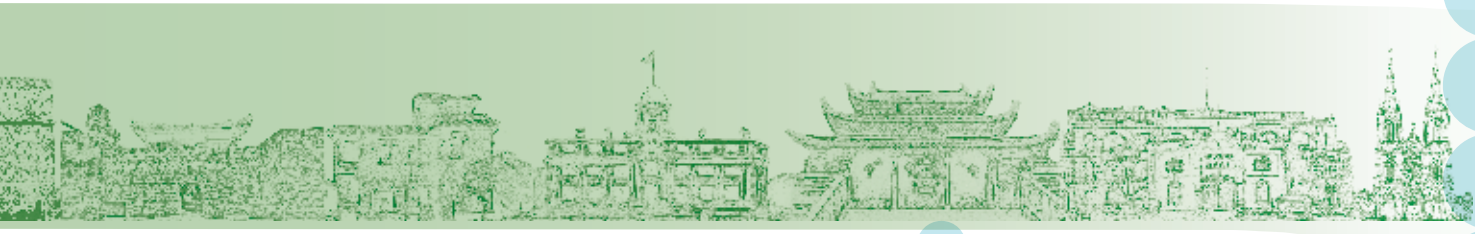

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