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COVER IMAGE

Three visitors examine a meticulously detailed model of a traditional junk boat at the newly opened Lai Chi Vun Shipyards, a window into the city's rich maritime past. Photo by Eduardo Leal



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HISTORY

Reinterpreting the art of bamboo scaffolding

Bamboo has long been used in Macao's construction industry, primarily as scaffolding. But as this eco-friendly material gradually gets replaced by steel, there are people fighting for its inclusion in a wider range of building activities.

Text Vivianna Cheong

Ancient and modern mix in the bamboo scaffolding used in Macao today

M acao's architectural landscape is a special hodgepodge. Skyscrapers gaze down over modest shophouses and Portuguese-style heritage mansions. Chinese temples rub shoulders with Catholic cathedrals. And no matter their genesis, the vast majority of Macao's buildings were constructed with the aid of bamboo scaffolding. In some cases - as with open-air bamboo theatres, swimming sheds and more recent artistic ventures - a bamboo structure alone has been the end result.

Bamboo scaffolding remains a common sight today. You'll see new buildings as well as those undergoing maintenance enveloped in an intricate latticework of poles, forming platforms for builders. Veteran scaffolder Chio Seng Wai says use of this laudably lightweight, strong and low-cost material is declining in the mainland – that it's gradually being replaced by steel. Macao is one of the last bastions of the practice, so is Hong Kong.

There are several good reasons to expect the practice is here to stay, however. One is that bamboo scaffolding has been inscribed on the government's list of intangible cultural heritage, along with Cantonese opera and the brewing of herbal tea. Which means it is protected by law. Bamboo also has ardent fans in the city, eager to showcase this giant relative of grass's impressive adaptability. These architects use it in large-scale art installations and incorporate bamboo into permanent structures.





In China, bamboo scaffolding dates back millenia. It can even be spotted in one of the country's most treasured artworks, Along the River During the Qingming Festival by Song dynasty painter Zhang Zeduan (1085-1145). As for its historical use in Macao, the material has been well documented in works by travellers from Europe. The Italian writer Giovanni Francesco Gemelli Careri, for instance, wrote about a performance held in a bamboo theatre - a form of open-air structure used as an entertainment venue - in his 1699 book, Giro Del Mondo. In the mid-1880s, the German artist Eduard Hildebrandt created a detailed woodcut showing the inside of such a theatre; it included people clambering up the scaffolding for a better glimpse of the show.

As well as theatres, there used to be bamboo 'swimming sheds' along Macao's coast. These little huts where bathers could get changed were usually coupled with a bamboo pier, stretching out over the rocky shoreline. Swimming sheds were a common sight between the 1940s and 1980s.

As a scaffolding material, bamboo has always been favoured for its resilience and flexibility. It is also incredibly lightweight, making it easy to transport and quick to erect. In addition to these qualities, it is the fastest growing plant on the planet – with some subspecies sprouting more

than a metre each day. This makes it a renewable resource, and far better for the environment than steel production.

Most of Macao's bamboo is imported from the Guangxi autonomous region in southern China. The poles used for scaffolding fall into two types: thick, load-bearing *mao jue* and the more slender *kao jue*, used for bracing and horizontal support. Up until the late 1970s, these poles arrived on rafts that were themselves made of bamboo, says Chio, who is 68. They were towed by ships along waterways. These days, they tend to travel in trucks.

Chio says that steel scaffolding was introduced to Macao in the early 2000s, courtesy of Western property developers. "Westerners [investing in construction] here preferred steel, but local Chinese favoured bamboo scaffolding – so, we started to combine them," he says. The steel-bamboo hybrid model has remained popular and Chio says he can't see steel taking over any time soon.

A more recent change in the industry has been that less local people are interested in pursuing careers as scaffolders. According to Chio, there were about 150 scaffolders in the city when he started – and a 50/50 split between locals and migrant workers. Today, there are about 200 migrants working as scaffolders and only around 30 locals.



"It's difficult to engage the young people with what we do," Chio explains. "I've provided some training sessions teaching young people scaffolding skills, but in the end, only two trainees stayed behind. Then both left [the industry] after working for around nine months because they found the work too challenging."

Another veteran scaffolder, Leung Wo, echoed Chio's sentiment. "As we get older, we have to rely more and more on migrant workers."

A SCAFFOLDER'S STORY

Chio himself joined the industry in 1979, the same year he moved to Macao. The Zhuhai-born 22-year-old learned how to erect bamboo scaffolding – which is a trade in itself, separate from building – from his highly experienced father and uncle. Chio's uncle, Chio Tak Siu, was a particularly effective teacher and Chio says many of Macao's bamboo scaffolders owe their skills to his patience. According to him, it takes at least three years of training and practice to become a decent scaffolder.

When Chio began working with bamboo, strands of the plant's fibres (called splints) were used to tie the poles together. They were rough, and the ragged fibres hurt his hands. "Bamboo splints must be soaked in water in advance to be soft and resilient enough," Chio explains. "But on winter days, they tend to get crispy ... they are a lot of work to handle." In the early 1980s, nylon ties became the norm.

Chio Seng Wai, who started as a scaffolder at 22, now owns his own bamboo scaffolding business in Macao

(Centre) Bamboo is the fastest growing plant on Earth, with the largest varieties reaching more than 40 metres tall (Opposite page) Impromptu Projects incorporates bamboo into many of their works, both at home and abroad

(Bottom) Promenade Urbaine, at the bottom of Taipa Hill, forms a subtle barrier between the footpath and road



Bamboo scaffolders work largely by intuition, according to Chio. They measure distances and poles with their eyes, then create their towering, layered lattices based on an image in their minds. In his early days, Chio remembers scaling to dizzying heights, rain or shine, without a safety harness, helmet, gloves or even shoes. These days, scaffolders are fully decked out in safety equipment.

In 1997, after almost 20 years in the industry, Chio established his own bamboo company – Seng Kei. The company currently employs 13 locals and around 80 migrants, who come from all over the mainland. Most of their current projects use both bamboo and steel scaffolding, together. Notable buildings that have relied on Seng Kei's skills have included integrated resorts on the Cotai Strip.

BAMBOO'S FUTURE IN MACAO

Another line of work Seng Kei specialises in is the building of bamboo theatres, using the same principles as scaffolding for construction projects. One of these, at the A-Ma Temple, caught architects João Ó and Rita Machado's eye back in 2013. The

Portuguese pair – who established their Macao-based architecture firm, Impromptu Projects, that same year – have gone on to produce art installations, ephemeral structures, and permanent work using bamboo in Macao and abroad.

During the A-Ma theatre's construction, Ó and Machado visited the site daily, marvelling at how quickly and deftly the bamboo scaffolders worked. They wanted to document the process, but the intricacy of the theatre's layers were too difficult to capture in photographs. Instead, they put pencil to paper, noting down the thickness of poles and various other measurements.

After that experience, 46-year-old Ó and 41-year-old Machado wanted to learn everything they could about bamboo scaffolding. Fortunately, they found Chio and his colleagues more than willing to share their knowledge. "Mr Chio was very nice and he talked about everything, there were no secrets," says Ó, who grew up in Macao and speaks fluent Cantonese.

"We came to understand they have a master's vision, knowledge passed down through generations – and they feel the need to share it," Machado adds. She moved to Macao in 2006, to write her thesis on urban development.

Ó and Machado have collaborated with Chio and his colleagues ever since. Before they start building whatever is they're working on, they create a 3D model of the structure and seek feedback from the scaffolding masters. Ó says, "We speak the same spatial language We both look at forms in space."

The architects have also attended bamboo workshops and conferences around the world, learning different techniques for working with the material – and broadening their understanding of the types of projects it can be applied to.

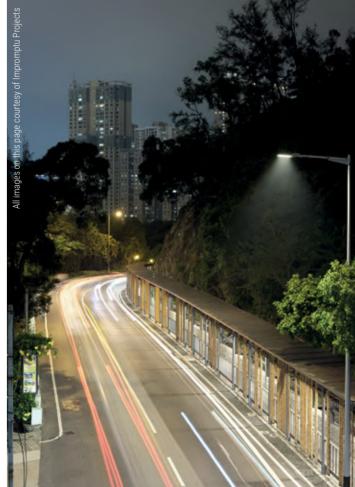
"In Southeast Asia, the techniques are quite similar to what you find in Macao and Hong Kong, but in Colombia, for example, they build permanent houses and structures with bamboo," says Machado. "It needs to be treated, to prevent it from being affected by moisture and fungus – and needs to be protected from both sun and rain."

To date, most of the duo's bamboo projects have been temporary art installations. For example: they erected 'Chasing Sounds', a maze-like arrangement of bamboo fences that varied in height, in Hong Kong's botanical garden in 2021. "The idea of a [temporary installation] is about impact, community and gathering. It's about creating content in a public space," says Machado. "The advantage of using bamboo is it's cheap and easy to set up and dismantle."

But Machado and Ó incorporate bamboo into architectural projects intended to last a long time, too. For example, in their fit-out of the Grand Prix Museum's new coffee shop. They have also built one permanent bamboo structure, called 'Promenade Urbaine,' at the bottom of Taipa Hill. Promenade Urbaine is a barrier between a footpath and road – an 800-metre semi-archway of bamboo poles that pedestrians walk through. Ó says it was designed to maximise people's exposure to nature.

The architects say they see huge potential in bamboo, and will continue reinterpreting it as a mainstream building material with uses beyond scaffolding. It is afterall, part of the city's intangible heritage. •







FOOD AND DRINK

Surviving and thriving as an old-school eatery

Ching Kei is a Cantonese restaurant in Macao's old town that's barely changed since the 1960s. It's earned its place in the government's Distinctive Shops Programme – proof, in a way, of the role it plays in maintaining the city's heritage.

Text **Vivianna Cheong**Photos **Lei Heong Ieong**

Ao Chi Keong learned to cook as a teen working under his uncle, Mr Yip, the original owner of Ching Kei ormal noodles with fish balls". This refreshingly straightforward dish description is typical at Ching Kei, one of Macao's longest-running eateries. It's also reflective of its wry owner, Ao Chi Keong – a restaurateur who shies away from all things over-the-top.

For Ao, the proof is in the pudding: "It either tastes good or it doesn't," the 60-year-old says. When it tastes good, in his experience, people come back. And customers have been returning for this mouth-watering Cantonese fare for generations.

The no-frills eatery's official name is Estabelecimento de Comidas Ching Kei (estabelecimento de comidas is Portuguese for 'food establishment'), but it also goes by Fung Shing Ching Kei – 'Fung Shing' being a subtle culinary credential known well by connoisseurs of Cantonese cuisine. The words translate to 'phoenix town,' referencing a famous street in Foshan, Guangdong Province, that's celebrated for its excellent eats.

Ao's uncle, a man known to all as 'Mr Yip,' founded Ching Kei in the 1960s. The restaurant is located in the Rua de Cinco de Outubro district, part of Macao's historic centre. Under Mr Yip (who named the place after his sister), the eatery became known for three signature dishes: wontons, dumplings and fish dumplings (using wrappers made with minced fish). Ao took over in the 1990s (he can't remember the exact year) and while he has zhuzhed up the menu a little, time-travellers from back in Mr Yip's day would still feel perfectly at home.

A GOOD, OLD-FASHIONED EATERY

Ao was one of very few restaurateurs who didn't go down the food delivery path during the Covid-19 pandemic. While food delivery platforms were lifelines for many local eateries during city-wide lockdowns, when residents faced barriers to buying fresh food and hot meals in person, this old-school restaurateur sees them as blasphemy.



Ao's Japanese-inspired green noodles are one of Ching Kei's most popular dishes

(Opposite page) Customers from decades ago would still feel at home in the no-frills eatery "I know food delivery will help expand my business, but I have standards to meet," he explains. "After I cook wontons and dumplings, I serve them immediately. If they are left aside for even half an hour, I'll throw them away. [With food delivery platforms] it takes almost an hour from the time I finish cooking, to when the dish is finally delivered to customers – do you really consider that food as still edible?"

This focus on quality over quantity is also why Ao refuses to become a large-scale food supplier. "It would indeed bring in a lot of business," he acknowledges. "But if we make a single mistake, our reputation will be ruined. Then, I would lose my business."

Ao's exacting attitude – as well as the fact he's spent so long perfecting his craft – has earned Ching Kei a place in the Macao Government Tourism Office's Distinctive Shops Programme. This initiative aims to preserve the city's indelible heritage through promoting small businesses that, in turn, contribute to Macao's unique culture. The programme plays a crucial role in safeguarding Macao's identity by ensuring the continuity of traditional trades and craftsmanship.

So, while Ao baulks at promoting his eatery, the programme does it for him. Ao did agree to concoct a special dish for the government's promotional campaign on social media, combining wontons, dumplings, and fish skin dumplings – and admits customers often order it after seeing the dish advertised.

Dishes aside, the restaurant hasn't changed much over the decades. Ao even uses the same noodle making machine his uncle had when he first opened. Ching Kei did move a few shops down Rua das Estalagens in 1995, but Ao says you wouldn't know based on the eatery's interior. The only real difference is its ten small tables. They were marble-topped at the original location; now they are stone-topped.

You could say that Rua das Estalagens has changed more than Ching Kei. The Rua de Cinco de Outubro District was Macao's major commercial centre up until the 1970s, and when Ao started helping his uncle out back in the early 1980s - while still at school - it was still a bustling area. He remembers mandarin sellers, small grocery stores, and other businesses selling their wares. It quietened down in the 1990s. "Many shops have closed since then," Ao reminisces. "There was a record shop and an herbal tea shop nearby. They are all gone."

BUILDING ON MR YIP'S LEGACY

As a teen, Ao spent his free time getting to grips with the eatery's kitchen. "My uncle had a cook to marinate and mix the meat filling inside the dumplings, wontons, and handmade noodles, so I learned by helping him," Ao explains.

It was hectic work, but gratifying. "Our hands didn't stop," Ao remembers. In those days, very little was frozen. Masses of shrimps would arrive fresh, all at once, and Ao was charged with cleaning them as quickly as possible before storing them in the fridge. Those crustaceans were destined for Ching Kei's incredibly popular pork and shrimp wontons; demand for them also kept Ao busy.

As he grew more adept at culinary tasks, from sourcing the freshest raw ingredients to making noodles by hand, Ao developed a taste for innovation. By the time he took the business over from Mr Yip, he knew he wanted to be known for

more interesting dishes than the wontons Hong Kong tourists used to buy from his uncle by the kilo. "I didn't want to run my business like that," Ao says. "I wanted to create more sophisticated wontons, like dim sum ... and I spent time learning more skills to elevate my food's taste."

A family trip to Japan in the early 1990s inspired Ao to invent one of his most popular dishes: green noodles, dyed with vegetable juice. He got the idea while eating *kusa mochi*, a Japanese sweet coloured by *yomogi* leaves. "I explored different things when I returned [to Macao] and ended up using chives to create my green noodles," he says.

Later in the 1990s, Ao spent four years at night school – taking a cooking course at the Macao Institute for Tourism Studies. "I've learned so much there, ranging from dim sum, siu mei [Cantonesestyle roasted meat], poon choi [a traditional Cantonese festival meal] and Western pastries," he says. Skills gleaned during that formal training allowed him to develop personal takes on traditional dishes using his own secret recipes.

Ao notes that Japanese chefs' attentiveness to small details – and their emphasis on bringing authentic flavours to everything they cook – has strongly influenced his own food philosophy.



Every dish served at Ching Kei is made from scratch in the restaurant's own kitchen. Ao starts each day's food prep at 11 am, before the eatery opens at noon. After the lunchtime rush, he scours local markets for the freshest ingredients, then heads back to the kitchen. Alongside Ching Kei's signature dishes and green noodles, Ao has added beef brisket, curry chicken wings, chive dumplings and dace fish balls to the eatery's menu. His work day ends hours after the doors close at 9 pm – usually after midnight, sometimes as late as 3 am.

Ao's younger brother helps out with noodle making, but Ao himself handles the bulk of Ching Kei's food prep and cooking. The eatery's loyal customers have come to expect this level of dedication to their food, he says. Ao currently employs six parttime and full-time staff members who serve customers, clean up, help wrap dumplings, and man stoves when Ao is busy with other tasks.





Q&A

One voice for Europe

As president of the Macau European Chamber of Commerce, Rui Pedro Cunha is a busy man. He also fits in a day job, philanthropy work and salsa dancing.

Text **Craig Sauers**Photos **Lei Heong Ieong**

R ui Pedro Cunha has a long history in Macao. The Portuguese native spent much of his youth in the city, during the 1980s, when his lawyer father was helping transform its gaming industry.

Cunha went back to Portugal to study engineering, then spent almost two decades working there in telecommunications. He returned to Macao six years ago.

Today, Cunha is the general manager and director at his father's law firm, C&C Lawyers, and president of the Macau European Chamber of Commerce (MECC). In 2012, the senior Cunha – Rui José –with his son and daughter founded the Rui Cunha Foundation, a non-profit dedicated to developing Macao's legal system and arts and culture scene. Today, his son also serves as its vice president. Through these three roles, Cunha is making his own mark on Macao.

This interview has been edited for brevity.

What is your connection to Macao?

I grew up in Macao. My family moved here in 1981, and I stayed from the end of primary school through high school. My father was legal counsel for Stanley Ho's company, STDM (Sociedade de Turismo e Diversões de Macau), and helped negotiate the gambling concession.

I've always thought it was a privilege to grow up in Macao. You get to meet people from a lot of different places and cultures. It really broadens your horizon.

[After high school], I moved to Portugal, to continue my education. I studied telecom engineering in Lisbon. When I finished, it was the boom time for telecoms in Portugal – a very exciting time for the industry. I worked there for many years, picking up a couple of post-graduate degrees in management along the way. But even while I was living in Lisbon, I'd come back to Macao often, at least every year, to visit my father.

After 18 years, I realised I wasn't doing engineering work anymore – I was doing management. That's when I decided to move back to Macao to spend more time with my father and get involved in the business.

How did you get involved with the MECC?

The previous president, Henry Brockman, was moving outside of Macao and searching for his replacement. He talked with the British Chamber of Commerce board, which had originally nominated him, and they came up with my name. I was involved with the local Luso-Chinese chamber of commerce for a few years, and I'm also a regular member of the French and British chambers of commerce.

[Brockman] spoke with the other board members of the MECC, and it turned out I already had a personal or working relationship with almost every one of them. That's a consequence of living in Macao – you get to know people. They were happy for me to step in, and I've been in the role since July 2022.

The MECC represents several nations. How does it work?

The MECC is a hybrid model, which means we have both individual and corporate members. Today, eight European chambers are part of the MECC: France, Germany, Ireland, Portugal, Romania, Italy, the United Kingdom and Austria. Members of those chambers are de facto members of the MECC, so they enjoy all our benefits and discounts. We also have 16 corporate members.

The MECC was created almost 10 years ago by six of the local European chambers. Each by itself could not really move the mountains they wanted to move. They felt the need for a united voice. The MECC now acts like an umbrella organisation that makes it easier to connect with certain entities, such as government departments. Most of the work we do is behind the scenes – passing on messages, making connections, trying to get people to cooperate with each other for the benefit of both European businesses and the Macao economy.

What are some of the unique challenges of this umbrella role?

One is getting recognition, but I think we've been quite lucky that the government authorities – especially the Chinese Ministry of Foreign Affairs – have been very open to us. I think they see value in what we are trying to do.

Almost all the European chambers in Macao are led by Macao people, or those who have lived here a long time. They're committed to Macao and have its best interests in mind. I think that makes it much easier to have open conversations with the government about what our concerns are, and to offer our suggestions for the future.

The challenges our members face are often the same. For example, getting manpower – importing labour – is an issue for everyone. Having similar challenges makes it easier to have a united voice.

Tell us about your annual events.

The annual gala dinner is our main fundraising event. That's how we get the money to function throughout the year. It's also an opportunity to get business and government leaders together for a nice, elegant evening where we exchange ideas.

We also have our Anniversary Cocktail. This year, in late November, that event will celebrate the MECC's 10th anniversary and it will be a bit bigger than what we usually do. It's an unpaid event. All the members of our various chambers are invited, and usually government officials, representatives from European offices in Hong Kong and Macao, and consul generals attend, too.

How are calls to diversify the economy and develop the Greater Bay Area affecting business?

Macao has been talking about diversifying the economy since the late '80s, early '90s. But now there's clearly a will to take the necessary steps to do it. Diversification doesn't happen because of a decree, however. It happens when the private sector finds suitable conditions to open new businesses that are not related to gaming.

Now, Macao is taking steps to facilitate the hiring of non-resident workers to make it easier for them to work here. And there's deep cooperation between Macao and the mainland happening around the development of Hengqin, for example – to get it ready for foreign businesses to enter. Lately, we've been working with the executive committee of Hengqin. They've been very welcoming.

Cooperating with Hengqin is a very intelligent way to integrate Macao into the Greater Bay Area. One of the best things Hengqin offers is space. Macao doesn't have space to build factories or large office buildings.



European businesses are starting to explore what benefits are available to those that set up shop in both Macao and Hengqin, especially those in the sectors highlighted in the "1+4" [economic diversification strategy].

Tell us about the Rui Cunha Foundation.

The foundation has two missions. The first is to support the legal sector. When Macao's handover from Portuguese to Chinese administration took place, laws had to be developed and adapted to the new environment, and not too many people had experience doing that. Therefore we put together seminars and conferences and launched books related to law. We have quite a big library of Portuguese law books that cover what legislation was in place before the handover. That's useful to understand the concept behind Macao's laws and to enable better quality laws to be developed.

The second mission is to support culture, especially young artists which were being left behind in the economic boom that was taking place. The foundation has been very active since it was founded 11 years ago. We've hosted more than 1,500 events. We have exhibition openings almost every two weeks, so that local artists have more opportunities to display their work

downtown. We also host seminars on different subjects that are relevant to the community. And we are always open to new ideas. If someone would like to talk about a certain subject, we help organise the discussion at the foundation headquarters.

My father created the foundation to give back to Macao for the prosperity that his work in the SAR gave him, and me and my sister, as co-founders, supported him all the way.

When you aren't working, what do you do to unwind?

One thing I love to do is dance. I've been dancing salsa for more than 20 years. When I moved here, I couldn't find a place to dance, so I was going over to Hong Kong at least once a month to do it. Eventually, I got tired of going to Hong Kong, so I started teaching in Macao. We had quite a following before the pandemic. There were about 30 people joining the parties, some of them professional dancers from the resorts. But many left during the pandemic, so now we have to start from scratch. With all the responsibilities I have right now, I'm not sure I have time to lead two classes every Saturday afternoon [like I did before the pandemic], but I would love to see that community grow again.

BUSINES

Partnering with the heavyweights

Macao's tech training centre has partnered with two industry giants – Huawei and Alibaba Cloud – to upskill its local technology professionals. The programmes are being hailed as an important step towards becoming a 'smart city'.



Text **Gilbert Humphrey** Photos courtesy of **CPTTM**

Partnerships with industry giants like Huawei help keep Macao's IT workers competitive in an ever-evolving industry acau's Productivity and Technology Transfer Centre (CPTTM) has always made a point of partnering with the world's top tech companies. Cisco, the digital communications conglomerate, for example, and major software multinationals like Oracle and Autodesk. These partnerships provide training opportunities for Macao's IT professionals.

While the global tech industry has historically been dominated by Western firms (Cisco, Oracle, and Autodesk were all founded in the US), Chinese tech companies like Huawei, the Alibaba Group and its affiliates, Tencent Holdings (owner of WeChat) and ByteDance (TikTok's parent company) are taking up an increasing amount of space. The CPTTM has responded to this shift by launching two new training partnerships with home-grown tech giants: Huawei, in 2021, and Alibaba Cloud in 2022.

The CPTTM is a non-profit, jointly established by Macao's government and the private sector, to do exactly what its name implies: make the city's businesses more competitive through exposing them to technological innovation and ensuring they're up to speed with

the latest in IT developments. Given that increasing numbers of local companies are turning to Huawei and Alibaba Cloud's respective software solutions – having staff with in-depth understanding of how they work is vital, explains CPTTM's Alan Au Chi Vai. Au manages the organisation's Department of Information System and Technology.

"In recent years, we have been shifting towards working more with Chinese IT vendors because we believe that vendors from across China will get more and more market shares in the Macao IT industry," he says. "The people we have trained are not only able to work in Macao but, if they'd like to, they can also go to one of the other Greater Bay Area cities and have their careers there."

Shenzhen-headquartered Huawei was founded back in 1987. It's mostly known for its mobile phones, smart devices, and other consumer electronic products. Alibaba Cloud, also known as Aliyun, is a subsidiary of Alibaba Group. Launched in 2009, it has become China's largest cloud computing company – and also supplies cloud infrastructure to other parts of Asia, Europe, North America, and the Pacific.



Alan Au Chi Vai believes the CPTTM training partnership will open doors for IT professionals in Macao – and in the GBA

(Opposite page) CPTTM cemented their partnerships with Huawei (top) and Alibaba Cloud in 2021 and 2022, respectively

'IT WORKERS NEED TO CONSTANTLY UPGRADE THEMSELVES'

In late 2021, the CPTTM signed a memorandum of understanding with Huawei to deliver the latter's computer networking training course to IT personnel in Macao. "We collected feedback from students in our other IT courses and from different local enterprises, companies and government departments," says Au. "They all expressed the need to have a Huawei training programme," he says.

Computer networking, incidentally, is the practice of enabling multiple devices to share resources, exchange data, and communicate with each other – whether in the same room, or on opposite sides of the world.

Between December 2021 and
December 2022, 58 students earned
their Huawei HCIA-Datacom
certification through the CPTTM.
The pilot programme was considered
successful enough to make CPTTM
Macao's only Huawei-authorised
learning centre. Under this system,
Huawei has trained one local instructor
to conduct its HCIA-Datacom course –
and plans to train more down the line.

Alibaba Cloud, meanwhile, signed a cooperation agreement with the Macao government in 2017. The plan was to increase the use of cloud computing in the city, and to build a system that could process 'big data' – a necessity in Macao's journey towards becoming a so-called 'smart city'. Smart cities use data-driven solutions to address urban challenges and efficiently deliver public services.

This agreement contained a training provision; the CPTTM would facilitate a handful of classes for local government staffers and IT professionals, teaching them technical essentials regarding use of Alibaba's cloud computing software. Noting growing demand for Alibaba Cloud training, the CPTTM entered into an official partnership in May last year. It now offers the ACA Cloud Computing Certification programme to locals. In it, students learn how to configure cloud computing platforms like Google Drive and Dropbox, as well as troubleshooting and optimisation techniques.







More and more companies nowadays depend on and make use of different IT systems to provide their IT-based services, which means there is going to be a huge demand for such IT professionals in the next several years.

- Alan Au Chi Vai

"IT majors at university mainly learn about theory and basic skills," says Au. "But our programmes teach more practical skills, particularly in relation to Alibaba Cloud and Huawei networking."

According to Au, these skills are in high demand in Macao – including at the city's integrated resorts and hotels. Each big hospitality establishment needs a professional IT team with expertise in cybersecurity, computer networking and programming,

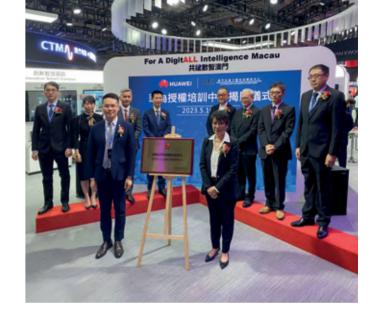


among other things. Au predicts the hospitality sector will only get 'smarter' with time, as it utilises new digital technology to smooth guests' experiences. Macao is also continuously developing e-services for residents, things like MPay and the Macao One Account mobile app, he notes.

"IT workers need to constantly upgrade themselves, especially moving forward into the future," says Au. "More and more companies nowadays depend on and make use of different IT systems to provide their IT-based services, which means there is going to be a huge demand for such IT professionals in the next several years – Yet, we are currently still lacking some IT expertise."

'THERE IS NO END TO STUDYING NEW TECHNOLOGIES'

Like most of the CPTTM's
IT courses, the Huawei and
Alibaba programmes are held
at its Cyber Lab in Nam Van,
on the Macao Peninsula. Each
class, taught in Chinese only,
is limited to about 20 students.
They're run during weekends, to
let participants continue their
day jobs uninterrupted. Each
programme takes between four
to seven days to complete, and
each day is about seven hours
long. Students who successfully
complete a programme can opt



to sit an exam, for an additional fee. Those that pass the exam will receive an internationally-recognised certificate issued by Huawei or Alibaba Cloud, depending on their programme – though each student that finishes their programme earns a certificate of completion.

Ken Ng is a local IT technician who earned his HCIA-Datacom Certificate through CPTTM at the end of last year. The 28-year-old says he signed up after noticing Huawei's technology becoming more and more ubiquitous across the GBA. "As an IT industry worker, I believe there is no end to studying new technologies," he told *Macao* magazine.

Huawei promoted their smart city capabilities at Macao's BEYOND Expo 2023

(Opposite page)
CPTTM is the only
Huawei-authorised
learning centre in
the city

These courses have significantly expanded my skill set and prepared me for a variety of IT challenges.

- Lo Chi In

Twenty-nine-year-old Lo Chi In, a technical support specialist, joined CPTTM's Alibaba's ACA Cloud Computing Certification programme in March this year. "The Alibaba course I did was challenging but rewarding," he says. "I learned how to use Alibaba Cloud services, manage cloud resources, and understand best practices for cloud security and cost management. These courses have significantly expanded my skill set and prepared me for a variety of IT challenges."

Au says that while Macao's digital infrastructure is in good shape, the city could use more expertise in artificial intelligence, machine learning, big data and cyber security. "So that's the direction we want to take," he says.

In September, the CPTTM ran its first one-day ACA Alibaba Cloud Big Data Architecture Certification course, in cooperation with the Labour Affairs Bureau (DSAL), Alibaba Cloud and the State Power Investment Corporation. Seventeen students – mainly Macao IT workers – took part, learning about data integration, development, quality





control, security, management and governance. This course was held in Hengqin, part of the Guangdong-Macao Intensive Cooperation Zone.

DSAL Director Wong Chi Hong said the course let participants "obtain recognised certificates for their skills to improve the local IT industry's standards and – at the same time – helped promote Macao residents' integration into the Guangdong-Hong Kong-Macao Greater Bay Area."

The certifications offered by CPTTM serve IT professionals – and the Macao businesses who rely on their skills





Text Erico Dias Photos Xinhua News Agency

Members of the delegation of China's Macao march during the opening ceremony of the 31st FISU Summer World University Games in Chengdu Por student-athletes, the FISU World University Games could be considered the Olympics. In fact, until quite recently, the biennial event was known as the Universiade – a portmanteau of the words 'university' and 'olympiad'. Macao first sent representatives to the Universiade in 1995. To date, the Special Administrative Region has brought home nine medals, including three gold.

The Games have taken place in various iterations since the early 20th century, though the concept of mass international student gatherings involving sports was first floated a few decades earlier, at a Universal Peace Congress in Rome. The official precursor to the modern World University Games was known as the International Universities Championships. That was held in Paris, France, in 1923 (and organised by the Frenchman Jean Petitjean). World War II put a stop to the event, though it re-emerged in 1947 as part of the World Festival of Youth and Students – organised by the Czechoslovakia-headquartered International Union of Students (IUS).

FISU (the Fédération Internationale du Sport Universitaire or, the International University Sports Federation in English) entered the scene in 1949 and organised its first take on the Games in Merano, Italy. That event was dubbed Summer International University Sports Week. FISU renamed its Games 'Universiade' in 1959, when the event took place in Turin, Italy.

That was the year the IUS and FISU stopped hosting separate events and decided to fully cooperate. More than 1,400 student-athletes, from 43 countries, gathered in Turin and the inaugural Universiade was hailed as a huge success. In more recent years, participant numbers tend to hover around the 8,000 to 9,000 mark and can hail from more than 150 different nations.



Fireworks are seen during the closing ceremony of the 31st FISU Summer World University Games in Chengdu

(Opposite page) Ryo Lou is the Macau Universitarian Sports Association's president The Universiade was officially rebranded as the FISU World University Games in 2020, but the first time the new moniker was used was in 2023, in Chengdu, China. Chengdu had been scheduled to host the 2021 World University Games, but these were postponed due to the Covid-19 pandemic.

Macao first entered the fray at the 1995 Universiade in Fukuoka, Japan. This was considered a noteworthy year for the event, due to the war that was raging in Yugoslavia. The Universiade presented itself as an example of how sports can help bring about world peace, as athletes from all sides of the conflict lived and competed harmoniously in Fukuoka – alongside 11 competitors from Macao (and six from Hong Kong). That year, though Macao athletes took part in running, relay, long jump, javelin, and shot put events, they didn't win any medals.

THE MACAU UNIVERSITARIAN SPORTS ASSOCIATION IS BORN

A year later, a Portuguese official formed the Associação do Desporto Universitário de Macau (ADUM), or the Macau Universitarian Sports Association in English. With funding from a government subsidy, ADUM and Macao student-athletes have taken part in the FISU World University Games ever since. ADUM is responsible for organising local sporting fixtures for Macao's university students, as well as smoothing the way for them to participate in regional and international competitions.

Ryo Lou is the association's current president and a former physical education teacher for a local primary school. He's always been a sports enthusiast. Lou played table tennis as a kid, then discovered talents in high jump, short-distance running, and

basketball (the sport in which he represented Macao). "I love all kinds of sports, whether I play them or not," Lou says.

He joined ADUM in 2005 while studying at the Macao Polytechnic University (MPU). While many of the association's members leave after graduating – they find it difficult to juggle their sporting commitments with having a day job – Lou's boss at the school was very supportive of his work with studentathletes. But he quit teaching in 2017, after the birth of his first child. He'd decided it was time to launch his own events company, called StarMac – which he runs at the same time as heading ADUM.

WUSHU - MACAO'S SPECIALITY

The FISU World University
Games have been held in China
every ten years, since their 2001
iteration in Beijing. Shenzhen
followed in 2021, and Chengdu was
slated for 2021 – though pushed
out to 2023 due to the pandemic.
Many of China's biggest names in
sports have competed in the games,
including diver Guo Jingjing, track
and field athlete Liu Xiang, and
swimmer Sun Yang.

"We hope that whenever the Games take place in China, we will have the home advantage," says Lou. "Whether it's the China or Macao team, when we march into the arena at the opening ceremony or during the matches, the audience's shouts of acclamation will be louder."











(Left to right) Athletes from Macao Wong Sam In, Wong Weng Ian, Cheung loi Chit and Lei Cheok leong make the city proud at the World University Games in Chengdu

At the 2023 Games, China topped the winners list with 178 medals. Macao ranked an impressive 25th overall (out of 53 competing territories) and brought home a record haul of medals - seven in total, including one gold. All were for various wushu events. Wong Sam In earned a gold medal in the women's 'nanguan' category and a bronze in 'nandao'. Wong Weng Ian got two silver, one in the women's 'jianshu' and the other in 'qiangshu'. Cheung Ioi Chit and Lei Cheok Ieong won silver and bronze medals respectively in the men's 'nangun' and 'gunshu,' while Cai Feilong earned a bronze medal in the men's sanda tournament. The city's other 52 representatives competed in swimming, judo, fencing, taekwondo, athletics, table tennis, and badminton.

Wushu's addition to the 2017 Universiade in Taipei, Taiwan, was a gamechanger for Macao. That year, Macao-born wushu athlete Li Yi (李禕) won the city's first two medals – in men's 'jianshu' and 'qiangshu'. Both were gold.

This year's gold medalist, Wong Sam In, had badly injured her anterior cruciate ligament about a year before the games – making the 21-year-old computer science student's performance all the more impressive.

"It was unreal and unexpected," she says. "My coach and I thought it would be great if I could just find a way of participating since it was my first big competition in about three years."

Wong, who goes by 'Angela', first encountered wushu as a small child in 2010, after watching a Chinese New Year performance at the Macao East Asian Games Dome. She was immediately drawn to the sport, but was already involved in several extracurricular activities at the time. Wong's mum made her wait a year before she began her wushu training at age 8. She was good enough to join Macao's wushu team in 2013.

Today, Wong has 85 medals to her name. She has won gold in tournaments around the world, including in Bulgaria, Korea, Brazil and Brunei. Her latest win in Chengdu was her 8th international gold medal. Wong now has her sights set on the World Wushu Championship, which she plans to enter in the next few years.

"That is the highest level that wushu athletes can get to," she says.
"So I hope to challenge myself in those competitions and show the world that there is a Macao athlete called Angela Wong, and she plays wushu really well."

PROMOTING SPORTS IN THE CITY

Lou, meanwhile, has sporting ambitions for Macao. He hopes it will develop a reputation as a destination for major sports fixtures on a smaller scale. He himself arranged for government approval for the city to host the second Asian University 3x3 Basketball Championship, in 2016, the 2018 World University Wushu Championships, and the 2019 Asian University Karate Championship in 2019.

"I really hope to show people that Macao may be very small, but we can still host some high-quality international sports events or games," says Lou. "We've also organised the 2023 Macau Snooker Masters at Wynn and the upcoming Galaxy's Macao International Marathon in December."

The World University Games remain an important part of ADUM's remit, however. "Seeing all the athletes' spirit of going all out and fighting hard certainly moves me to keep working hard in this area and inspires me to continue promoting the development of university sports," says Lou.

HISTORY

Heritage ambassadors: Sharing Macao's indelible spirit with the world

For almost two decades, the Macao Heritage Ambassadors Association has been convincing visitors that there's more to this city than integrated resorts. The group also reminds locals that what is here is precious.



Text Vivianna Cheong

The Ruins of St Paul's, one of Macao's most iconic landmarks, are also a favourite of heritage ambassador Matias Lao S teeped in history and a myriad of cultures, Macao is a city for heritage lovers. From Portuguesestyle cobblestone streets and Catholic cathedrals, to centuries-old Chinese temples – it's no wonder UNESCO describes it as "unique testimony to the meeting of aesthetic, cultural, architectural and technological influences from East and West."

All this explains why tour guides are everywhere. In fact, many of them were trained by the Macao Heritage Ambassadors Association (MHAA), an organisation established in the lead-up to the city's historic inscription as a World Heritage site.

UNESCO wanted Macao to create a community dedicated to cultural and heritage-related events, explains the current MHAA president, Matias Lao. To do that, the Cultural Affairs Bureau (IC) and Junior Chamber International Macao joined forces to train up the city's first batch of heritage ambassadors. It was they who went on to form the MHAA, back in 2004.

"That [initial] training aimed to strengthen young people's sense of belonging to the city," says 32-year-old Lao. "And afterwards, those original graduates wanted to pass on the spirit of promoting Macao's culture and history. To maintain the training, they established the association."

In its almost 20 years of operation, the MHAA has trained more than 500 people to be heritage ambassadors.

HOW TO BECOME A HERITAGE AMBASSADOR

The MHAA's two-month training sessions are in hot demand. More than 100 people apply for most intakes, and those applicants get whittled down to a class of just 35. To get in, you must be a polite person between the ages of 16 and 35, and have at least a basic understanding of Macao's history and heritage, says Lao. Extra points if you're a news junkie, and enjoy working in a team.

Applicants tend to be a mix of high school students, university students, and working professionals. Once accepted, prospective ambassadors are tutored in various aspects of Macao's history, culture, and architecture – as well as the fundamentals of heritage conservation. Training sessions also offer tips on the art of tour guiding. For example, guides become adept at connecting what their groups are seeing with everyday life today. They also learn interactive games designed to engage children with history.

To qualify as an ambassador, each prospect must pass a series of tests: written, oral, and leading a tour out in the field.

One of the MHAA's classic tours is its free-to-the-public Heritage Night Stroll, which takes place after dusk. The route varies each year, aligning with the association's annual theme. This year it's "Maritime Silk Road".







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(Left to right) MHAA volunteers Harry Kwah, Matias Lao and Lorna Ng

Over two hours, the audience learns about Macao's long-held role as a trade hub between China and the West - via sites including the archeological pit on Rua de D Belchior Carneiro (where artefacts dating back to the late Ming dynasty were found in the early 2010s), the Ruins of St Paul's cathedral, the Pátio do Espinho walled village, and a typical 19th-century shophouse.

The association also offers tours to schools, businesses, and community groups. Guides get paid by the hour.

Training to become a heritage ambassador can be life changing, according to Lao. There are people who switch their university majors (usually to history) after completing the programme, and school students who find their calling during it. "Some of them consider studying archaeology, history or architecture," says Lao. "Our role is to inspire them to go deeper into their interests."

APPRECIATING MACAO'S RICH CITYSCAPE

Lao, who volunteers for the MHAA while working a full-time day job, became a heritage ambassador in 2018. He grew up in Macao but studied urbanism at a university in Australia. "I tend to look at Macao from an architectural perspective," he says, acknowledging a fondness for the Special Administrative Region's "rich cityscape".

Becoming a heritage ambassador inspired Lao to get involved in heritage conservation – the act of protecting unique architecture. He says he finds the legal side of it interesting, as well as community engagement. "[The course] broadened my concept of heritage conservation and its operation," he says.

For Lao, and most trainees, the hardest part of the MHAA's course is leading a tour for the first time. "I had to practise a lot," he admits. "Before the test, I went through the routes and memorised all the details by heart. Then, I learned to notice the audience's responses and find ways to engage them."

Asked about his favourite heritage site, Lao says he never tires of the Ruins of St Paul's. This 17th-century cathedral, almost entirely destroyed by a fire in 1835, is one of Macao's most iconic landmarks. Lao enjoys watching his tour groups respond to the ruins, and their wonder at the details he's able to point out – such as Chinese text on the Jesuit building's remaining façade.

"[Seeing their reactions make me] feel happy that I've fulfilled our mission of promoting the city's heritage," he says.

PROMOTING HERITAGE THROUGH RESEARCH AND PUBLISHING

The MHAA has a sister association focussed on the research and publishing side of promoting Macao's heritage. The Macao Cultural Heritage Reinventing Studies Association (MCHRSA), as it's called, was established in 2014 and is currently led by Harry Kwah, who graduated as a heritage ambassador in 2019.

As a law student at the University of Macau, Kwah found himself veering more towards the subject of history – especially that of his own hometown. "We didn't study Macao history at school, so I did not know it at all," the 30-year-old admits.

Becoming a heritage ambassador involves turning what you learn in the classroom into engaging educational tours







Becoming a heritage ambassador improves knowledge of the city's history – and public speaking skills

(Opposite page) The fortress, lighthouse and chapel atop Guia Hill are a must-see for anyone interested in Macao's history "At first, I felt like I was learning everything from scratch. As I got more involved in the MHAA with a group of friends, we got more and more interested in the city's history and urban planning. Now we are working to improve the city and promote the dissemination of Macao culture and history."

Kwah and the MCHRSA are responsible for much of the research that goes into books about Macao's heritage, including textbooks used by trainee heritage ambassadors. They also create heritage-themed souvenirs, advise the government on its urban planning projects, and run monthlong training courses for people interested in urban planning and cultural heritage management.

LEARNING THROUGH DOING

Twenty-three-year-old Lorna Ng is the MHAA's director, a role she performs alongside her studies at the Macao Institute of Tourism Studies – where she's majoring in culinary arts.

Ng grew up listening to stories about Macao's colourful past, as retold by older members of her family. She remembers always being fascinated by history and was glad when a relative brought the MHAA's training programme to her attention.

A self-described introvert, Ng says the training helped her open up – especially the tour guide aspect of it. "At first, I was very shy to speak in front of a group of people, but I worked to conquer it," she says.

These days, Ng draws immense satisfaction from showing people around Macao's hidden gems. Like Lao, she enjoys the surprise people feel when learning unexpected facts about Macao's historic buildings. "Many people find it surprising to

learn that the Dom Pedro V Theatre was the first Western-style theatre in China," she shares.

Social media has become a crucial tool for spreading awareness of what the MHAA offers, according to Ng. She believes teaching locals about Macao's cultural heritage helps foster a sense of community, through "strengthening one's sense of belonging to the city and understanding of one's self."

"We want to emphasise that the cultural relics we try to protect are for the benefits of future generations [of Macao people], not just to entertain tourists or to conform to government regulations," she says.

CELEBRATING 20 YEARS OF THE MHAA

Next year is the MHAA's 20th anniversary, and its management team is eager to mark this milestone by launching a new offering. "We hope to create an exchange platform," Lao says.

"We'll work with more groups, such as historical and education organisations. We will also proactively seek cooperation with groups in the Greater Bay Area and the mainland. As Macao is small, we hope to enhance its influence through its rich heritage. I hope to encourage more people to visit the city and discover its history."







CULTURE

Revitalising Macao's abandoned shipyards

In a city once famed for its handcrafted wooden ships, the Lai Chi Vun shipyards are testament to a bygone era. After years of decay, they've been brought back to life as a living museum.

Text Gilbert Humphrey
Photos courtesy of
Cultural Affairs Bureau

In addition to the more manageable models, Lai Chi Vun shows off its history of craftmanship with full-scale boats F or the past two decades, Macao's economy has been propelled by visitors. They flock to the integrated resorts. They come for the UNESCO-recognised architecture. They also enjoy Macanese cuisine. But few of these tourists (who numbered more than 11 million in the first half of the year alone) are aware of what drove Macao's economy prior to its 1999 handover back to China.

One of the most established drivers was shipbuilding, much of which took place around Coloane's Lai Chi Vun village. This was the last great manufacturing industry to disappear as Macao transformed itself from sleepy fishing village to glitzy entertainment destination and emerging tourism hotspot.

Since June this year, having undergone a major facelift, Lai Chi Vun's once-tumbledown shipyards are now a vibrant cultural hub merging Macao's past with its present.

MACAO'S GOLDEN AGE AS A SHIPBUILDING HUB

A Chinese fishing region that became a Portuguese trading base in China in the 1500s, Macao has a rich maritime history. The territory even developed its own idiosyncratic sailing boat – the *lorcha* – characterised by a European hull and Chinese-style sails. By the mid-1800s, Macao craftsmen were building large wooden fishing vessels for local fishermen. Their junks, shrimp boats and sampans later caught on in Hong Kong. The shipbuilding industry boomed, and generations of Macao's children grew up to become shipwrights.

Lai Chi Vun village (previously known as Lai Chi Van) began positioning itself as Macao's shipbuilding centre in the 1950s. The area used to be known for its lychee trees. These are, in fact, the village's namesake: Lai Chi Vun means 'lychee bowl' in Chinese. The bowl part comes from the shape of the bay. More than a dozen shipyards emerged there over the next few decades, usurping the orchards and employing thousands of people. Shipyards were built out of wood and metal, in parallel rows that extended out over the water; these pier-like structures were where boats were both built and repaired. Vessels hailing from Lai Chi Vun were soughtafter by Hong Kong buyers for their high-quality wood (often teak) and expert craftsmanship, according to the president of the Shipyards Workers Association of Macao, Tam Kam Kwong.

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Lai Chi Vun reminds the city of its economic history and why diversification is so important

(Right) Full-size machinery alongside model ships drive home the size of Lai Chi Vun's larger boats

"Almost everyone in Macao wanted to be part of the shipbuilding industry back then," Tam said. Like the gaming industry of today, shipbuilding was the engine of Macao's economy - and supported many smaller sectors in the city.

In its heyday, Lai Chi Vun bustled with shipwrights. Sixty-eight-yearold Leong Kam Hon was one of them, until a serious workplace injury in the late 1980s forced him to leave the industry. Shipbuilding was dangerous and tough; wrights spent their days wielding heavy materials and sharp tools. Leong was injured when an electric saw almost severed his arm.

But he has fond memories of those days, too. The teamwork

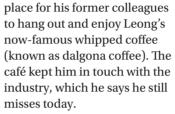
required - when hoisting massive logs, for instance - fostered a sense of hearty camaraderie. "One person would be in charge of giving encouragement," says Leong, with a grin. "He'd shout, 'One, two, three! If it can be moved, we move it! We move it together!" Leong describes the shared sense of achievement a particularly heavy tree trunk as "such happy moments."

at noon upon hearing the lunch bell. After Leong stopped working in the shipyards, he set up the Hon Kee Café very nearby (which is still very popular today). It became a

shipbuilders felt when they moved Each shipyard had its own kitchen, where employees flocked

> "Trends keep on changing and shipbuilding was not the only local industry that disappeared," Leong says. "There's nothing much we can do but to accept the changes and just go with the flow."

The last boat to be built in Macao left Lai Chi Vun in 2005. After that, the shipyards were abandoned and left to rot. About 100 Macao-made vessels are still being used in the waters around the territory, or are berthed at the Inner Harbour. Most are fishing boats, according to Leong.



Come the mid-1990s, Leong witnessed shipbuilding's decline. Making wooden vessels by hand, as had always been the way in Macao, took time. And the high-quality results were expensive. Eventually, more efficient production techniques used by shipyards on the mainland drove local shipbuilders out of business. The wooden-hulled boats of Lai Chi Vun have been gradually replaced by steelhulled ones built elsewhere.







A SITE OF CULTURAL SIGNIFICANCE

In 2018, Macao's government made the call to classify the Lai Chi Vun shipyards as a cultural heritage site. While several 'yards' had collapsed or been demolished by then, 12 ramshackle shipyards were deemed worthy of preservation. A MOP 40 million restoration project began in 2020, paying homage to the city's shipbuilders.

All together, the shipyards cover about 40,000 square metres (almost half of the area is water). The restoration project is being carried out in phases, with phase one – which opened to the public in June – covering a 3,000-square-metre area. While some structures were stable enough to preserve in situ, the more dilapidated wooden components of the shipyards have been replaced with durable metal. The original dimensions have been maintained.

Parts of the site are for viewing only, but most of it is open day and night.

Macao's Cultural Affairs Bureau (IC) is in charge of the restoration project, which a spokesperson said was designed to give both residents and tourists a better understanding of how wooden ships were made – as well as the now-defunct industry's impact on modern Macao. But it's also making a name for itself as a hub for contemporary culture, with spaces dedicated to exhibitions, performances, and creative activities.





The Lai Chi Vun shipyards have become a place where old meets new; where heritage and modern life collide. There are exhibitions explaining the site's history, through photography and artefacts from the shipbuilding era (guided tours are available). But the shipyards are also a place where local musicians perform, and the likes of puppet shows take place. There's a dedicated art zone for children, which supplies paints and pencils that kids can use to create their own masterpieces.

There's also a Coloane-themed market held at the shipyards every Friday, Saturday and Sunday. Stallholders sell souvenirs, including handcrafted replicas of ships and sketches by local artists, as well as traditional foods and drinks. As the site is further developed, the IC says that more recreational activities will be on offer.

Even the youngest children can find something fun at Lai Chi Vun

(Bottom) Flora Liu relaxes on the waterfront with her daughters – the perfect break from a busy day of sight-seeing

(Opposite page) Lai Chi Vun has found new life bringing together the community it helped build in decades past





66

The city is much richer than many people realise, in terms of heritage.

- Flora Liu

'IT SHOWS A DIFFERENT SIDE OF MACAO'

The revitalised shipyards have found a fan in 58-year-old Flora Liu, who discovered them on a recent visit from Shanghai with her twin daughters. "It shows a different side of Macao, the deeply-rooted culture of shipbuilding, and it's definitely something for people to remember aside from the gambling and integrated resorts," she says.

Liu, a former engineer, has a history in shipbuilding herself – she used to help design oil tankers. More recently, she spent several years living in Macao. While here, Liu says she was only vaguely aware of shipbuilding's significance to the city.

"Macao should be proud of this identity and honour the people who used to work in this industry," she told *Macao* magazine. "Even though the industry is gone, it's a part of Macao's identity that should not be forgotten."

One of Liu's daughters, Sandra, says she found the shipyards "very educational" and that she enjoyed learning about the tools people had used to make wooden ships. The 11-year-old also praised the site's relaxing vibe and view of the Shisanmen Waterway, which separates the mainland and Macao's Coloane, Cotai and Taipa districts.

Liu is looking forward to seeing how the area evolves as more shipyards are restored. "The city is much richer than many people realise, in terms of heritage," she says. "And shipbuilding is just one part of it."

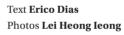


HISTORY

Macao's Maritime Museum: An ode to seafaring

From simple Chinese fishing vessels to the grand galleons sailed by Portuguese traders, Macao's waters once brimmed with boats. Now,





The Maritime Museum echoes classic ship elements in a decidedly modern way

(Opposite page) São Gabriel captures a pivotal moment in history: Vasco da Gama's discovery of the Europe-India maritime route in 1497

acao's first recorded human inhabitants were fishermen, who arrived via the Pearl River Delta from Guangdong in the 14th century. It was they who built the A-Ma temple, which still stands today, and dedicated it to the Chinese goddess of seafarers.

Then came the Portuguese, who traversed oceans in galleons, caravels and carracks - seeking new lands and riches during the Age of Exploration. Macao happened to sit astride one of the world's busiest trade routes and soon, its harbour filled with ships laden with lacquerware from Japan, Chinese silks and porcelain destined for Lisbon, and spices from Portugal's colonies in Africa and India.

Later, Macao became known for its talented shipbuilders. That industry went on to fuel the small territory's economy until the turn of the 21st century.

Given all the seafaring that's gone on here over the centuries, it's no wonder Macao is home to a nautically themed museum. The ship-shaped Maritime Museum on Largo do Pagode da Barra was not its first iteration, however. The museum started out in the 1910s, as a simple display of replica boats in what was then known as the Marine Department (now the Moorish Barracks).

An antique dragon boat honours a festival so embedded in Macao's culture that it's still celebrated today

(Opposite page) Lei Chin Kio, senior technical advisor for the museum, remembers the dragon boat from its former home at Tam Kung Temple Those original models were relocated to the Macau Naval Aviation Centre in 1937. Tragically, just a few years later, they were destroyed when the US Navy bombed the building. It was during World War II, and the US had become suspicious that Macao – a neutral Portuguese-administered territory at the time – was selling aeroplane fuel to Japan (a member of the axis alliance alongside Germany). The US ended up paying Portugal US\$20.3 million for what turned out to be an ill-informed raid.

As a result of the attack, Macao was without a Maritime Museum for the next 50-odd years. That changed in 1987, thanks to the city's harbour master, Commander António Martins Soares. He campaigned for the museum's re-establishment. It found a home in the so-called Green Building, in São Lourenço, which had previously housed naval officers and their families.

The Green Building was quickly deemed too small, however, and a

purpose-built Maritime Museum opened in 1990. The museum's exterior walls resemble white sails, while its windows are shaped like giant portholes. A moat encircling the distinctive structure represents the sea. Macao's then governor, the late Carlos Montez Melancia, presided over the new Maritime Museum's inauguration. Today, its three storeys are packed with model ships, nautical history, and information about the aquatic environment.

INSIDE THE MUSEUM

Visitors entering the museum are met by an enormous sculpture of seafarers aboard a ship; far from the last boat they'll see. There are, in total, 163 different vessels in the museum collection but not all are on display. One of the oldest is an antique dragon boat carved out of a single piece of whalebone and manned by a crew of miniature wooden sailors. Coloane's Tam Kung

Temple had two whalebones, one which was donated to the museum in 1990 and is more than a century old. Lei Chin Kio, the museum's senior technical advisor, remembers running her hand along the bone which is currently at the temple during a childhood trip. "They'd say touching the boat gives you luck," she recalls.

Lei began working at the Maritime Museum in 2019 and is an expert on the *Lorcha Macau*, a 26.5-metre sailing ship that was built in Macao in the 1980s. The ship was named for a distinctive type of fast-moving vessel developed in Macao around the mid-19th century. *Lorchas* married Chinese-style sails with Europe-style hulls, and were used up until the early 20th century.

"The purpose of [the 1980s-era Lorcha Macau's] construction was not only to bring a locally made vessel back to life, that reflected the achievements of Chinese and Western cultural and technological exchanges, but also to serve as a training ship for students who joined the courses of [Macao's] Maritime Training School," Lei explains.







Lorcha Macau recalls a more recent past, having sailed around Asia in the 1990s

(Opposite page) Tou Wai Lam began working on models for the museum back in 1987

(Bottom) Now 60 years old, Tou continues to painstakingly handcraft model ships The ship sailed extensively around Asia during the 1990s, and was in Portugal at the end of that decade – for Macao's handover to China. She ended up being scrapped after falling into disrepair in Portugal. Today parts of *Lorcha Macau* can be found in several Portuguese museums. There's a model of the ship at Macao's Maritime Museum.

According to Lei, the most impressive model on display is a 1:30 scale replica of a carrack (nau in Portuguese). "It was a large and important ship that sailed extensively between the 16th and 17th centuries," Lei says. "[Carracks] were used to transport the cargo of silver, silk, and spices and travelled between Goa, Malacca, Macao and Japan."

According to Lei, carracks were dubbed 'giant sea monsters' due to the

vast quantities of goods they could carry – up to 2,000 tonnes. Portugal's most famous explorer, Vasco Da Gama, sailed aboard the carrack *São Gabriel* on his first voyage to India, in 1497.

Model caravels and galleons
- other types of ships favoured by
the Portuguese during the Age of
Exploration - are also on display at
Macao's Maritime Museum.

The museum pays homage to more contemporary boats too, like the *Red Star* passenger ship that used to ferry people between Macao and Guangzhou. This 10-hour journey along the Xi River was popular from the 1960s to 1980s; during the 1990s, as roads in the region improved, vehicles replaced vessels as the preferred means of transport.

THE MAN BEHIND THE BOATS

Just two model makers work at the Maritime Museum these days, and one is 60-year-old Tou Wai Lam. He learned the craft after graduating from high school, in the late 1970s, through attending workshops in Guangdong Province.

In 1987, Tou noticed a newspaper advertisement seeking a model maker in Macao; someone to help stock the city's new Maritime Museum with replica vessels of historical importance. Tou was already in Macao at the time and went for the interview with the harbour master, and was handed a drawing of a lifeboat. The harbour master asked him to construct a replica based on the picture, then and there. "When they saw me building that lifeboat, they knew that I knew what I was doing," he says. "You got the job."

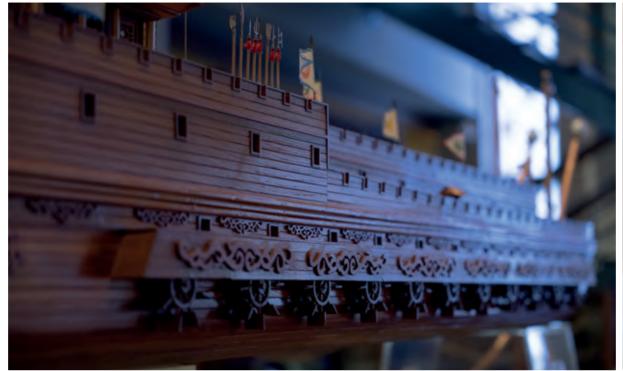
Since then, he's built dozens of replica ships for the museum. His favourite has been a 1:40 scale model of Sagres, a traditionally rigged tall ship that was built in Germany in the 1930s - and later owned by the Portuguese Navy. Tou had actually seen Sagres in person, when she sailed into Macao in 1994. He remembers waking up very early one morning to show the ship to his young son, and take photographs. Those snaps came in handy a short while later, when Tou's boss asked him to recreate Sagres, from drawings that didn't even show its colour scheme.





Over the past few years, Tou and his fellow model maker have watched their colleagues retire. Tou himself is reaching retirement age, and he hopes the Maritime Museum will be able to find a replacement for him. Model making is an exacting craft and, according to him, few people these days have the patience for it – let alone the training.

If the museum does find someone before he leaves the job, Tou says he's keen to share his knowledge and experience. "If the newcomer is interested and devotes himself to learning, he should be able to get good [by the time I retire]," he says.







Parallel to recruiting the next generation of model makers, the Maritime Museum is working to attract a new generation of visitors. It has started offering more interactive activities, like nautical knot tying and shell painting, to appeal to a younger audience. Kids can even learn how to build simple model ships, which they can take home and keep (perhaps becoming inspired to become professional model makers in the process).

"In the past, our exhibitions were still," Lei says. "Now we have different activities and colleagues who are good at storytelling which attracts visitors."

Testament to staff's efforts, between January (when Macao's borders reopened) and June this year, the museum welcomed about 46,000 visitors. Based on those numbers, it's on track to surpass 2019's 58,500 tally – a sign that the city's maritime heritage is in safe hands.

A cross section gives visitors a peek inside a vessel

(Centre) From tiny scrollwork to a rack of weapons, such detail makes these tiny ship feel more real

(Opposite page) As Tou nears retirement, he hopes to share his experience and know-how with his successor



HISTORY

Meet the man who owns four tonnes of Ming-era porcelain

Ben Rongen was there when a crew of marine archeologists recovered a massive haul of 17th-century 'kraak ware' from the bottom of the South China Sea. He's been upcycling this imperfect treasure ever since – crafting jewellery out of shipwrecked ceramics.





Text Amanda Saxton
Photos Patricia Imbarus

Ben Rongen was hooked from the moment he saw the long-lost porcelain strewn across the sea floor Thirty years ago, it seemed unlikely that an Australian health worker named Ben Rongen would find himself in possession of four tonnes of 17th-century Chinese porcelain. But a serendipitous series of decisions made it happen.

In 1994, in his late thirties, Rongen moved from Sydney to Malaysia. He changed his career and found work as a videographer – shooting ads for big corporations. "But after a few years I got bored with all the Brylcreem and cat food commercials," Rongen tells

Macao magazine. "I wanted to do something substantial... I wanted to make a documentary."

That's when he heard about the veteran marine archeologist Sten Sjostrand, a Swede scouring the South China Sea for shipwrecks. It wasn't such a far-fetched mission: trade routes have traversed this part of the planet for millennia, providing ample opportunity for storms, skirmishes, and skullduggerous pirates to down ships. Unlucky vessels might hail from China,
Portugal, Japan and elsewhere,
sinking along with their often
very valuable cargo – the likes of
solid gold ingots, spices and silks,
tea and ceramics. Some of these
goods fare better underwater
than others, obviously, China's
fine porcelain being an example.
That is what Sjostrand specifically
hoped to find, and he wanted a
videographer to help document his
efforts. When Rongen was offered
this opportunity, he seized it.

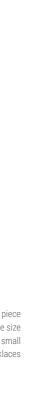
Sjostrand had excavated nine
Chinese shipwrecks by the time
Rongen joined his crew in 2002, but
none had carried his holy grail. A
Malaysian fisherman had recently
tipped him off about an eighth,
however, having noticed some broken
pieces of blue and white ceramics
caught up in his nets. As Rongen puts
it, "Word had gotten out long ago that
when that sort of thing happens, you
call up this Swedish guy and he'll pay
good money for any information he
can use to locate a wreck."

'That sort of thing,' Rongen explains, indicates a trawler has dragged its weighted net over a ship's salty grave – shaving what can be centuries-old debris off the seabed along the way. The unusual nature of *this* debris implied that the ship was most likely a Portuguese merchant vessel, downed in the course of transporting Chinese porcelain from Macao to Europe during the 16th or 17th century.

Macao, of course, was Portugal's East-Asian trading post in China between the 16th and 20th centuries; it's where Chinese exports were loaded into the empire's ships bound for Europe. In those days, porcelain reached Macao via rivers. It is almost certain, Rongen says, that any Portuguese ship laden with this high-quality ceramic had spent time in Macao's famous shipyards before setting sail for Lisbon, likely via Portuguese Malacca and India.

THE WANLI SHIPWRECK

According to the fisherman's report, the ship in question hadn't made it very far from Macao – it appeared to have sunk about 10 kilometres off the east coast of today's Malaysia. To find it, Sjostrand's team slowly criss-crossed an area of ocean using a side-scan sonar device to pick up anomalies on the seafloor. They then donned scuba gear to investigate the anomalies in person.





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Seeing it all for the first time was just a totally incredible feeling.

- Ben Rongen

What they sought was not what you might imagine. Unlike the steel-hulled Titanic, ships built back then were wooden. Their timber rots underwater. Ocean currents (and trawlers) eventually erase all traces of what were once stately, multi-masted vessels; what's left is a pile of inorganic objects that may be completely buried in sand.

Fortunately, in this case, a sizable haul of blue and white plates and bowls were visibly scattered across the seafloor. Rongen learned how to dive down to 40 metres in order to film them lying there, just as they had for hundreds of years. "Seeing it all for the first time was just a totally incredible feeling," the 67-year-old says. "I was hooked."

Carbon dating and thermoluminescent analysis has since shown that the ship sank in 1625. It also identified the ship's cargo as 'kraak ware' from the town of Jingdezhen, in northern Jiangxi Province. Kraak ware is a type of blue and white porcelain produced specifically for export; the word 'kraak' is likely derived from 'carrack' (the merchant vessels favoured by Portuguese sailors at the time). While this particular carrack's original name is not known, she was posthumously re-christened the Wanli – after the Ming dynasty emperor.

PORCELAIN: A SUPERIOR SECRET

Europe's love affair with porcelain began a few decades before the Wanli sank. Locally made pottery could not hold a candle to how fine and yet how durable this Chinese innovation was. Its glass-like finish, stark colours, and oriental motifs were all sources of fascination. Consequently, kraak ware was both a highly prized status symbol for Europeans and a lucrative export for China (though the country was known to keep the best quality stuff for itself). A German alchemist finally figured out how to make porcelain in the

1700s (it gets fired at very, very high temperatures). Until then, Europe relied on Asia for its supply.

The Dutch were especially fond of kraak ware, says Rongen. You can even spy kraak ware bowls and vases in still lifes by 17th-century Dutch masters. The Dutch East India Company had a habit of capturing Portuguese vessels as they headed home from Macao – seizing any blue and white porcelain for themselves. The Wanli, however, appears to have been caught up in a different altercation between the two empires: their drawn-out fight over Malacca, which also saw the Dutch unsuccessfully attempt to

take Macao. It seems that the Dutch attacked the ship as it made its way past Malacca, then a Portuguese territory, sending her and her precious cargo to the bottom of the South China Sea.

According to Rongen, records indicate Portugal lost 180 ships during the decades it was at war with Holland. "So far, we've only found one of those wrecks," Rongen says. "There's 179 more lying out there somewhere."

But it's incredibly difficult to locate old shipwrecks. For any chance at success, Rongen says you need huge amounts of oceanic knowledge, perseverance, and

money. Sjostrand happened to have all three in spades, along with a passion for Asian ceramics. And so, aptly armed, he founded and financed Nanhai Marine Archeology – a company dedicated to finding and excavating historical shipwrecks in the South China Sea.

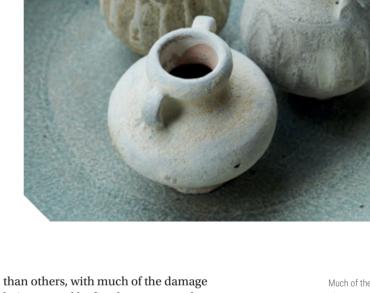
EXCAVATING THE WANLI

Excavating the wreck took 12 months in total, spread across three years. Professional scuba divers carried it out, square metre by square metre. They meticulously unearthed the ship's keel – preserved beneath sandy mud – along with the tonnes of kraak ware buried with it. The divers loaded every scrap of porcelain into baskets to be hauled up to the so-called recovery boat, anchored above the excavation site.

That's where Rongen was poised with his camera. "To sit on that ship and wait for the baskets to be hoisted up, that was the really exciting bit," he recalls. "I've got Sten sitting there next to me, going, 'Oh my God, look at this! Oh my God, we've never seen this before!' He became my teacher."

There was solemnity to the recovery, too. Rongen says he and the crew were keenly aware they were working on a grave site. Many people would have drowned when the *Wanli* sank, and the divers excavated human bones as well as porcelain.

All in all, more than nine tonnes of kraak ware was brought up to the recovery boat. That included about 7,000 pieces now officially registered with the National Museum of Malaysia as artefacts (these were more than 50 percent intact). Of those, fewer than 2,000 pieces were fully intact. The bulk of the haul was broken or fragmented pieces of porcelain, known as shards. Porcelain survives remarkably well under water and even better when buried in sand, due to its density. But some pieces were in better condition



than others, with much of the damage being caused by fire that consumed the ship during the Dutch attack. Other registrable artefacts hauled up included brass candle holders, a few small cannons, and an earthenware crucifix.

"All those one-off [non-kraak ware] pieces are in Malaysia's National Museum," says Rongen. The museum actually owns 30 percent of anything brought up from wrecks Nanhai Marine Archaeology finds in Malaysian waters, a deal Sjostrand – who passed away two years ago – did to secure salvage rights. As a result, Rongen says, the country has a lot of kraak ware in storage.

Most of the remaining artefacts have since returned to their country of origin, snapped up by Chinese institutions such as Guangdong's Maritime Silk Road Museum. "Sten was very happy with that outcome," Rongen says. "One, the stuff was going into museums to be treasured and loved and appreciated. Two, of course, he received top dollar."

Much of the pottery that was recovered went to museums, including those still miraculously intact

(Opposite page) Being buried in dense sand helped preserve the already remarkably durable porcelain

WHAT TO DO WITH FOUR TONNES OF SMASHED CERAMICS?

While artefacts from the Wanli were in hot demand, the shards of blue and white porcelain were not. "Proper treasure hunters wouldn't even have brought that stuff up," says Rongen. "But on Sten's insistence, we took everything. That's the archeologist in him."

To Rongen's eyes, however, the shards were exquisite. "It was all just so beautiful, painted with immortals and dragons with pearls in their mouths, phoenixes and all sorts of interesting things," he describes. The filmmaker ended up buying four tonnes of shard from Nanhai Marine Archaeology as a bulk lot. Rongen also bought, separately, a fair few intact bases of broken plates – where the edges had broken away but the

central 'medallion' remained in all its glory. These could be 35 centimetres across; "just like beautiful, 400-year-old paintings," he says.

People thought he was crazy to spend money on what was, essentially, a mountain of smashed ceramics. But while Rongen won't name figures, he says he's "well and truly recouped" his costs. Over the years, Chinese universities and museums have bought up most of the mountain. They use the fragments for research as well as display purposes, according to Rongen. He also started turning attractive pieces of the blue and white porcelain - shards painted with an intact chrysanthemum or deer, for example into pendants, earrings, brooches and rings. These are now sold under his label, Kraak Creations.

Rongen taught himself how to make jewellery in 2007, grinding down

Rongen carefully separtes

the shards into individual

scenes (left) that can be

(Opposite page) Rongen

his wife and business

partner, in Malaysia

does his work at the home

he shares with Joan Cheong,

turned into jewelry



the rough ceramic edges and working with a silversmith. "I started making bits of jewellery and people liked it, then I sold a few, and all of a sudden it's 17 years' later," he says. Rongen's grinding wheel is located out the back of his garden, at the home he shares with his wife, Joan, in Penang. The novelty of working with kraak ware has not worn off. "It's that feeling of history it conveys," Rongen enthuses. "The fact human hands in China were painting this very piece of pottery with cobalt blue at exactly the same time Rembrandt was sitting in Holland, painting the Night Watch."

Kraak Creations sells its wares via a number of consignment stores, as well as from its own little shop in Penang – shared with a craftsman using traditional methods to make joss sticks. This tickles Rongen, who enjoys peddling his porcelain next to a product that was also made during the Ming period. Portuguese carracks carrying kraak ware surely crossed paths with Chinese ships laden with the aromatic sandalwood used to make incense, he says. It's not unlikely they met in Macao.

While the Nanhai Marine
Archaeology team (which Rongen
remains a part of) hasn't recovered
any wrecks since the *Wanli*, Rongen
holds hope that will change. "Sten's
passion was to build a chronology of
shipwrecks, showing maritime trade
over a thousand years," he says. "The
aim is to continue his legacy, to search
for and salvage more shipwrecks."

Rongen also plans to get remaining *Wanli* artefacts into more museums around the world, including in Portugal and Macao – places indelibly connected to the carrack and its kraak ware's fate.



GREATER BAY AREA Macao's crucial role in defining the Greater Bay Area (1700-1842) The Guangdong-Hong Kong-Macao Greater Bay Area had an earlier iteration, 'the Great Bay of Canton' - mapped out by 18th-century cartographers and described by dictionaries of world geography and trade. Macao was its commercial heart and gateway to the world.

Text Ivo Carneiro de Sousa,

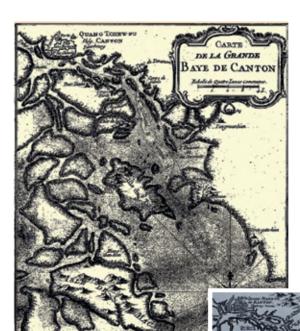
Historian, Professor at the Centre for Portuguese Studies at Macao Polytechnic University

(Opposite page) Tea Buyers, 18th-century In 1708, a private French trade vessel, *Saint Anthoine*, arrived in Macao, commanded by an almost unknown captain named Pierre Moirie. The ship did not have any French authorisations, having sailed from Peru – where Moirie had obtained some silver with which he wanted to buy silk and tea in Canton. He also carried a small haul of French crystals and mirrors, items in great demand in southern China.

Moirie arrived in Macao in the middle of the War of the Spanish Succession, six years after Portugal had changed sides - the empire had decided to back England and the Dutch against France. As such, the boat was ordered to leave Macao. Moirie and his crew fled into the Pearl River Delta, then sailed for almost two months in an unsuccessful attempt to reach Canton (Guangzhou). Instead, Saint Anthoine ended up being captured by Chinese war junks and sent back to Macao. Pierre Moirie, meanwhile, only escaped jail through entrusting Macao merchants with his crystalline cargo.

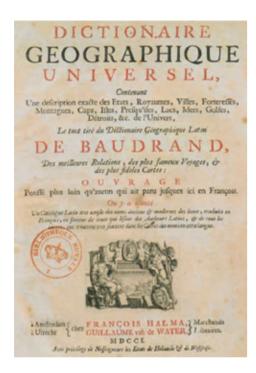
He went on to spend almost a year adventuring between Macao and Canton, which he recorded in his ship's logbook and - more importantly - on a map. Moirie's map was, in fact, a rare example of a portolan. This type of nautical chart was an essential tool used by sailors during the Age of Exploration, and featured detailed depictions of coastlines along with helpful annotations. Rather than the lines of latitude and longitude used in modern maps, portolans relied on visual and symbolic elements as well as compass roses to aid in navigation.

Moirie titled his portolan "The Great Bay of Canton" (in French, "La Grand Bahie de Canton"). It inspired many counterfeits, including the works by the famous 18th-century map maker Jacques Nicolas Bellin – official hydrographer for the king of France.



Carte de La Grande Baye de Canton / J.N. Bellin [counterfeit] (c 1748-1752)

(Inset) Cartee de l'entreé de la Baye de Canton / J.N. Bellin [counterfeit]



However, Moirie was not the first to use the term 'Great Bay of Canton'. It had appeared as early as 1701, in the South of China section in Michel Antoine Baudrand's Dictionary of *Universal Geography* – which was edited in Amsterdam and Utrecht by the geographer Charles Maty. This work was also counterfeited dozens of times during the 18th century, circulating in translations in Spanish and Italian. The notion of a 'great bay' was believed to have been established in the 18th century, in several other geographies that sought to be thought of as universal and increasingly commercial.

What these titles all have in common is that they were published in French, by Dutch printing presses

- mainly in Amsterdam. Their authors were almost all Protestants and Huguenots, the descendants of French refugees in Holland (sometimes naturalised Dutch), who arrived after the 1581 creation of the United Provinces. Many of these works had the purpose of fueling Dutch maritime and commercial expansion in Asia after the 1602 founding of the Dutch East India Company (the famous VOC) and the opening of the world's first stock market, in Amsterdam.

These 'Great Bay of Canton' texts and maps were widely disseminated through the large ports of Europe. They all paint a picture of a fundamental commercial space for the world economy between the 17th century and the first decades of the 19th century – that navigators, traders, books, and authors refer to as the 'Great Bay'.

The Canton system - a trade policy implemented by Imperial China - was in play during this period. It included a commercial monopoly of licensed Chinese merchants, known as the Cohong, who acted as intermediaries between foreign traders and the Chinese authorities. Portuguese sources, including documentation produced in Macao, have referred to the 'Canton fairs' since the start of the 17th century. These marked the seasonal opening in the great southern city of negotiations between privileged Chinese merchants - the Hong - with foreign merchants and vessels, originally coming from Southeast Asia, but to which Portuguese and Macanese merchant ships were later added.

The Canton system formed a regional world economy with unique trade languages, services, social aspects, and legal resources that relied on the functional relations between Macao and Guangzhou.

The phrase 'Great Bay of Canton' was also used by the Royal Company of the Philippines (Real Compañía de Filipinas, in Spanish), which was founded in 1785 under the mandate of Charles III of Spain. The company's first foreman, the Basque Manuel Gabriel de Agote, was an educated man, a good draughtsman and cartographer, and an ardent supporter of the mercantilist ideas of the Spanish Enlightenment. He was based in Macao - in a large house at the beginning of Rua de Santo António - between 1787 and 1796. Agote left 20 handwritten volumes of his Eastern travels, including the first scientific maps of the Macao and the Great Bay (that he himself had surveyed in detail).

In his business correspondence, Agote wrote this summary, both enlightening and important: "One enters this Great Bay in Macao, where you need to reside most of the year, have many good friends to obtain permits and commercial tariffs, and also a pilot and boats to go up the river to Whampoa, [where you] hire a buyer (a so-called comprador), an interpreter and many servants; everything is very expensive and last year has reached to more than 1200 'piece of eights."

Referenced to the famous piece of eight - a silver coin also known as real de ocho and the Spanish dollar - began to dominate commercial transactions between Macao and Guangzhou in the late 1700s. Today, Agote's tally of costs corresponds to well over MOP 200,000. Foreign trade in Canton was expensive, demanding, and closely monitored. Foreign companies and traders had to recruit a pilot in Macao, obtain licence plates, and pay fees and permits. Getting everything in order depended on the various companies, offices, and commercial warehouses located in the city.

(Opposite page) M. A. Baudran Dictionary Geographique Universel – 1701

Hong and foreign factories in Canton, c 1722



Compradores, 19th-century Photo by Lai Afong



COMPRADORES AND COMMERCIAL SPECIALISATIONS

Agote was absolutely correct in his summary. The commercial connections of foreign companies in Guangzhou's trade relied heavily on the specialised intermediation of enterprises referred to by the Portuguese term 'comprador' (in Chinese, *mai-pan*). These agents were authorised to supply foreign vessels with everything they needed and served as intermediaries in purchase and sale negotiations with Cohong merchants.

Since the beginning of the 18th century, compradores facilitated Chinese agents, Eurasian Macanese, and even some Portuguese merchants to bring together their junks and *lorchas* through a river trade route to Canton that traversed seven different commercial and customs checkpoints. They mobilised maritime and commercial personnel, interpreters, porters, and many domestic employees. In the final decades of the 18th century, compradores offered trilingual services combining Chinese, Portuguese, and commercial English. The 1842 Treaty of Nanking obliged China to open more ports to British trade, and the comprador concept spread to Shanghai, Xiamen, Fuzhou, Ningbo and, naturally, Hong Kong.

The profitability of all this trade throughout the 18th century and the first decades of the 19th century was rooted in an impressive collection of specialisations and commercial skillsets present in Macao at the time. For example, Macao accumulated a wide range of offices and commercial warehouses that handled labelling and packaging of imported and exported goods.

Inventories of the vessels belonging to the European companies and private traders that arrived in Macao to prepare for commercial adventures in Guangzhou never featured less than 40 different products - and often reached more than 100. These included textiles and types of rice, as well as the skins of mink, seal, sea lion, and other animals from as far away as from Canada. Shipments purchased in Guangzhou, meanwhile, contained dozens of different Chinese teas, lacquers, porcelain, and other rare goods.

Labels used for this diverse array of products were often trilingual, communicating weights, measurements, and prices in Chinese, Portuguese and English. In the early 19th century, some of the Macao-based labelling companies established their own printing houses in the city. After the Treaty of Nanking, their highly specialised staff were quickly requisitioned by companies establishing themselves in Hong Kong, Shanghai, and the other Chinese ports that had opened to British and international trade.

LEGAL INTERVENTIONS

Macao was also a base for legal mediators in the Greater Bay - those working to resolve the often thorny commercial conflicts arising between foreign companies, private traders, the Cohong, and Guangzhou's imperial authorities. Litigation increased in the mid-18th century, when the English East India Company began bringing opium and quantities of impressively manufactured textiles from its Industrial Revolution into the region. Neither product was allowed to be sold on the Chinese market, yet the English forced the Cohong to illegally accept payments in both opium and textiles - making it harder for them to pay other foreign companies' contracts. This caused some of the Cohong's most powerful merchants to go bankrupt in the final decades of the 18th century.

The opium ships at Lintin, China,1824 by William John Huggins



In one instance, Guangzhou's authorities sent the bankrupt Pan Zhencheng - better known as Puankhequa - to Macao for a legal trial that dragged on for more than a year. It ended, in 1784, with Guangzhou accepting the Macao trade court's solution of reimbursing foreign companies in Chinese products for the following trade season. Another formerly wealthy Cohong merchant, Shy Kinqua (Sekenkua), was depicted by Agote in chains. Sekenkua owed silver to almost all the foreign companies, and Agote wrote in detail about his trail praising the Macao legal workers involved. The end result was financial intervention from the Viceroy of Guangzhou himself, who provided silver and credit compensations to minimise the foreign companies' losses.

As a hub for 18th and 19th century international commerce – the place where negotiations took place and deals were done – many foreigners settled in Macao. These were European company representatives, private traders and diplomats, along with their staff and families. They rented the best houses in the city, and brought along their own tastes, entertainment, and games.

Macao morphed into a decidedly cosmopolitan society, boasting libraries, piano concerts, snooker tournaments and the region's first newspapers. House

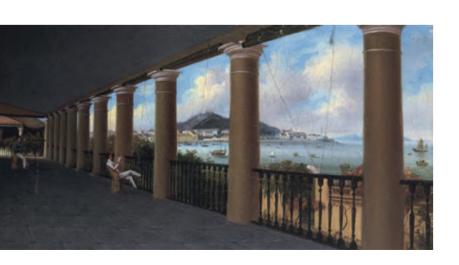
and the region's first newspapers. Horse-drawn carriages even replaced the old human-carried palanquins that used to be common in parts of Asia. Depictions of all this can be found in travel literature, memoires, and art of the era – including a painting by the Chinese painter Lam Qua (1801-1860), which portrays the wealthy American trader Nathaniel Kinsman's luxurious Praia Grande mansion.

The social aspects of life in Macao during this period surely contributed richly to the establishment of commercial alliances and exchange of ideas that brought mercantilist dreams and the first industrial capitalism thought through into the Great Bay.

While what's now the Guangdong-Hong Kong-Macao Greater Bay Area has changed significantly since back when it was known as the Great Bay of Canton, it's important to acknowledge Macao's indispensable role in its development – at least up until the Treaty of Nanking was signed in 1842.



Painting of Nathaniel Kinsman's luxurious Praia Grande mansion by Lam Qua





PORTUGUESE-SPEAKING COUNTRIES

A South American Silicon Valley

The Chinese electric vehicle manufacturer BYD is poised to change the fortunes of a small Brazilian city – promising jobs, new technology and a greener future.





Text **Fei Pou Lo**Photos courtesy of **BYD**

Camaçari actively sought investors after Ford pulled out of the Brazilian city

(Opposite page) The Song (left) and Dolphin are set to be the first BYD models produced at the new Camaçari factory In 2021, the Brazilian city of Camaçari was hit by possibly the greatest shock in its history: news that the local Ford factory was shutting down. In Brazil's relatively impoverished northeast, what could replace the thousands of jobs that would vanish? Livelihoods were on the line. Tax revenues would plummet. Indeed, official data shows that Bahia state's auto part production fell by more than 90 percent when the American automaker pulled out of Brazil.

Camaçari's baianos, as the local people of Bahia are called, did not take this hit lying down. The state's authorities sought a suitable investor to take Ford's place. Their search led them to BYD, China's Shenzhenbased electric vehicle manufacturer – whose name is an acronym for 'Build Your Dreams'.

Brazil's president, Luiz Inacio Lula da Silva, also got involved. He met with BYD executives during his trip to China in April this year. Three months later, in July, BYD agreed to invest R\$3 billion (US\$620 million) into a new industrial complex on land that had been occupied by Ford. The agreement confirmed that the company is set to build three manufacturing units in Camaçari: one for hybrid and electric vehicles (EVs), one for electric bus and truck chassis, and one for processing locally sourced lithium and iron phosphate – used to make batteries for BYD's global market. Together, the factories are expected to generate more than 5,000 jobs.

BYD's president for the Americas, Stella Li, has promised that the company would transform Bahia into an innovation centre; a South American Silicon Valley bringing "jobs to men and women of the next generation." Brazilian officials have hailed the positive impact BYD's electric vehicle technology will have on the environment. Jusmari Oliveira, Bahia's secretary of urban development, summed up the state's feelings at an inauguration ceremony in July with these words: "Today is a very happy day for all of us baianos."

With production set to begin in 2024, local universities and startups are reportedly lining up to be part of BYD's project.



Founder and CEO of BYD, Wang Chuanfu, introduces the Yangwang U8 – the latest iteration of BYD's off-road SUV

(Opposite page) Stella Li, BYD president for the Americas, sees Brazil as a promising market

(Bottom) Wang Chuanfu and Stella Li receive a warm welcome to Camaçari

A GREENER FUTURE

Camaçari is not BYD's first foray into Brazil; the company has had a presence there since 2015. Initially, it made batteries for EVs (manufactured elsewhere) in the South American giant's northwest. Then it started producing electric buses and photovoltaic panels in the country's southeast. It also has monorail projects in two cities, São Paulo and Salvador (Bahia's state capital). But Camaçari will be the first place BYD makes EVs outside of Asia.

BYD's hybrid vehicles currently run on gasoline (when not using their batteries), which is one of the reasons the company is drawn to Brazil. Vehicles in the South American giant are largely fuelled by ethanol, a cheap petrol alternative that's derived from sugarcane. It is considered cleaner and better for the environment than traditional fuels. While burning ethanol does release carbon dioxide, emissions are offset by the carbon dioxide absorbed by its sugarcane source before harvest. It therefore has a very low carbon footprint.

In a bid to reduce reliance on fossil fuels – which account for the bulk of greenhouse gases – the Chinese auto manufacturer aims to develop a flexfuel engine for its hybrid vehicles that is capable of running on both gasoline and ethanol. Combining Shenzhen's famously innovative tech culture with Brazil's clean-fuel know-how is an exciting prospect that can only have a



positive impact on a world at risk from climate change, according to those involved in the project.

Almost 15 percent of BYD's 600,000 employees worldwide are either researchers or engineers involved in the development of innovative technologies. The company has presented 40,000 patents to date – 28,000 of which have already been granted worldwide. In this vein, BYD has announced plans to open a new research and development (R&D) centre in Salvador, about 52 km from Camaçari, where it will explore the potential of green technologies.

CHINESE COMPANIES ARE BEHIND BRAZIL'S INCREASING USE OF EVS

In terms of sales volume, BYD says it has overtaken the US's Tesla as the world's biggest supplier of EVs (most of BYD's cars are sold in China, a market making up 60 percent of global EV sales in 2022). This 'buy local' mentality aside, BYD CEO and founder Wang Chuanfu attributes the company's growth to its habit of heavily investing into R&D. "We are now powerful

enough to lead the [electrification] transition of the global auto industry," he said recently.

To date, Brazil has been far slower than China in the transition to electric vehicles. EVs accounted for a mere 2.5 percent of the country's traffic last year, according to local lobby group Anfavea. But that means there's plenty of room for growth - and sales are accelerating quickly. Forecasts show EVs alone could make up 7 percent of Brazil's light vehicle sales by 2030 (still significantly lower than the global expectation of 37 percent). BYD's own, more bullish calculations predict EVs and hybrid vehicles together making up 30 percent of the Brazilian market by 2030.

"We are in a very good moment to start to really expand technologies in Brazil ... and with time Brazil will be able to develop its own [EV and hybrid vehicle] industry," Li said last year. She cited the country's enormous population, stocks of lithium, and increasing government support as reasons for optimism. BYD is also investing in extensive marketing campaigns.





BYD opened their photovoltaic manufacturing facility in Brazil's southeast back in 2017 The first two models that will roll out of Camaçari's factory in 2024 are the Dolphin EV – a hatchback – and the Song, a hybrid SUV that rivals Tesla's popular Model 3. They're set to be priced around the R\$150,000 (US\$34,000) and R\$200,000 to R\$267,000 (US\$41,000 to 55,000], respectively. A preliminary total production target of 150,000 vehicles per year has been set, though that could double as exports to nearby South American countries ramp up.

Notably, BYD is not the only Chinese vehicle manufacturer opening new factories in Brazil next year. Great Wall Motors (GWM) has purchased a former Daimler factory in Iracemápolis, São Paulo, and expects to have it up and running by May. This plant will also produce EVs and hybrid vehicles, including SUVs and pick-up trucks. Like BYD, GWM plans to develop flex-fuel engines that can run on ethanol for its hybrids.

GWM has also announced plans to build 100 charging stations for electric and hybrid vehicles around the state of São Paulo, which will eventually be powered primarily through photovoltaic panels. The charging stations will be free and available for electrified vehicles for any model or manufacturer.

FUELLING SINO-BRAZILIAN RELATIONS

While Lula was visiting Chinese President Xi Jinping in Beijing earlier this year, the two leaders issued a joint statement pledging cooperation in technological innovation as well as in the global race to combat climate change. As EVs and hybrid vehicles tick both of these boxes, BYD's Camaçari factory is set to become an important link between the countries – both members of the BRICS group of major emerging economies (along with Russia, India, and South Africa).

"Brazil is a country we trust and this is a government we trust," said Li in a recent interview with Bloomberg. "I see a China-Brazil win-win position to build up a top level, very friendly relationship."

VISITING BYD'S SHENZHEN HEADQUARTERS

While there, a delegation of Macao journalists witnessed a 'nail penetration test' – demonstrating that BYD batteries are considerably less prone to catching fire than others on the market.



TEXT Gilbert Humphrey

In early May, a delegation of about two dozen Macao journalists paid a visit to BYD's headquarters in Shenzhen as part of a four-day tour – arranged by the Office of the Commissioner of the Ministry of Foreign Affairs of the People's Republic of China in the Macao Special Administrative Region.

At BYD's complex, which is located in Pingshan District, the delegates learned about the range of hybrid and fully electric vehicles (EVs) BYD has produced since 2008. In the mainland, where most of BYD's sales take place, EVs are known as 'new energy vehicles' (NEVs).

The journalists were also briefed on the BYD SkyShuttle, the company's driverless, state-of-the-art electric monorail system.

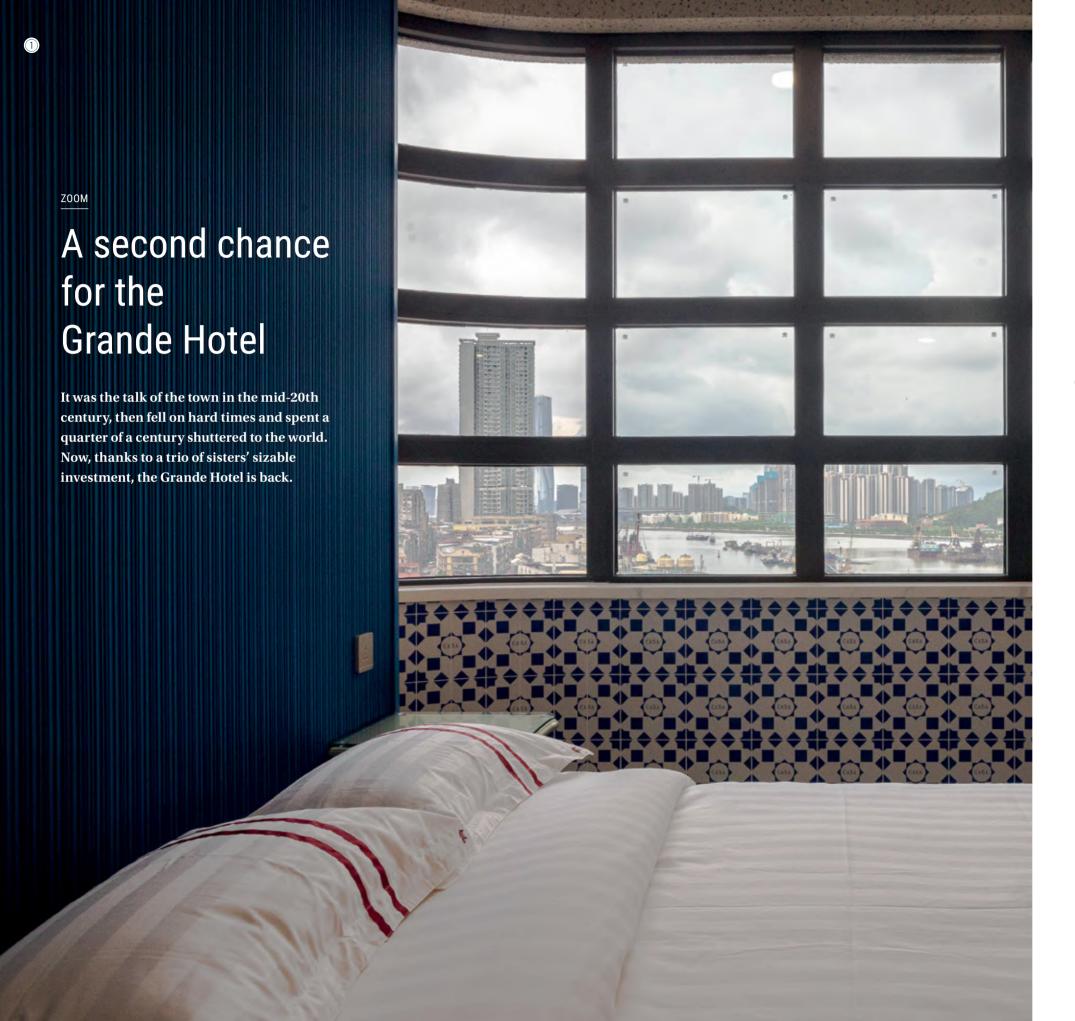
To demonstrate the safety superiority of BYD's EV batteries over competing brands, the company put on a demonstration. In it, a long nail was pushed through both an ordinary lithium battery and one of BYD's 'blade

batteries' to illustrate what would happen if the battery was pierced during a crash. The lithium battery exploded immediately; BYD's didn't even emit smoke.

Developed in 2020, blade batteries have been used in all BYD's EVs from 2021.

As of June 2023, BYD has sold more than 4.6 million EVs (including cars, buses and trucks), according to figures provided by the company. There are two BYD models currently available in Macao: the Atto 3 and the Dolphin. More options are expected to come onto the market in the future.





Text Aidyn Fitzpatrick
Photos Eduardo Leal

 When it opened in 1941, accommodation at the Grande Hotel was a byword for luxury. These days, the bedrooms are spartan – but continue to look out over the Inner Harbour hat was once the best address in Macao, the haunt of tycoons and celebrities, is now a humble, two-star hotel. The Grande Hotel – as it is still called – has been reinvented, offering clean, comfortable beds in spartan surroundings that won't break the bank. This is its point of difference today, in a city where accommodation prices can seem exorbitant.

When the Grande Hotel first opened on the Avenida de Almeida Ribeiro in 1941, its Art Deco design (the work of local civil engineer João Canavarro Nolasco) was an instant hit. Its location, close to what was then the landing point of the steamers from Hong Kong, was perfect. In the post-war years, it even appeared in a number of Hong Kong movies.

The Grande's star began to fade in the late 1960s and it was eventually eclipsed by the glitzier Hotel Lisboa, which opened its doors in 1970. The hotel managed to stay open until 1996, when its owners admitted defeat. They squabbled over what to do with the building, which fell into serious disrepair as it spent decades waiting for an outcome.

A quarter of a century later, three hotelier sisters – Vivian, Jessica, and Veronica Lu – purchased the place and invested MOP 500 million into bringing it back to life. The Grande reopened on 18 August, with 96 budget rooms, still-decent views (with far more skyscrapers these days), and no in-house restaurant.

Photographer Eduardo Leal's camera documents the reincarnation of a Macao icon.





- ② A staff member services a guest bedroom at the recently renovated Grande Hotel
- ③ Accommodation options configured with a double bed and a single bed hint at the Grande's new market: families and groups of cost-conscious travellers, happy to share a room
- Rooms with a view. The characteristic curvature of some of the Grande Hotel's windows may not have changed since the 1940s, but the skyline is dramatically different
- (5) A receptionist sits beneath a sign proclaiming the date that construction began on the Grande Hotel











- (6) After being mothballed for more than 25 years, the Grande Hotel's signage welcomes guests once more
- A new generation of guests is discovering the Grande Hotel's charm
- (8) There are hopes that the relaunch of the property will generate greater foot traffic and help revitalise the Inner Harbour area



- (9) A standard twin room at the Grande Hotel, which is hoping to capitalise on demand for budget accommodation in Macao
- (1) Pondering the past. A guest enjoys a reflective moment at the door of the Grande Hotel





- (1) Jia, the Chinese character for both 'home' and 'family,' is embroidered on the hotel's bedsheets
- (2) A guest contemplates the soaring skyscrapers of Zhuhai from a room at the Grande Hotel





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