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## Urban Morphology of Commercial Port Cities and Shophouses in Southeast Asia

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### Abstract

Southeast Asia has been situated on the crossroads of maritime trading routes for centuries, and has been the hub of overseas trade and cultural exchange throughout recorded history. Southeast Asian civilizations and the lifestyles of Southeast Asian peoples have been influenced by trade, and the evolutionary process of urban morphology and building typology of its commercial port cities are testimony to this. This paper is a study of Southeast Asian port cities and their most predominant traditional dwellings – shophouses – that are subject to a typo-morphological analysis. The study is an examination of these trends at both a macro-urban level and a micro-building level – the development of cities, and the characteristics of shophouses, respectively. The morphological evolution of Southeast Asian port cities is described in chronological order. By selecting two cities – Malacca, and Penang – as case studies, both the specific driving factors of urban evolution and the cultural continuity that is reflected in this process are discussed. Shophouses in Southeast Asian port cities are classified into several types, including serial, partitioned, and combined types. Some sustainable strategies which are used to satisfy people's changing requirement are expounded in each type. It is shown in the study that Southeast Asian port cities have gone through the transition process from closed to open, from single to diverse and from traditional to modern.

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## 1. Introduction

Ever since the days of the ancient maritime ‘silk road’, the maritime configuration of Southeast Asia has decided both its internationality and its indispensable role in mediating trade throughout recorded history, at the beginning, between east and west Asia, and later, between China and the western countries. This region has been relatively tolerant, in that its local civilizations have absorbed foreign cultural influences and customs harmoniously and peacefully[1]. The culture of Southeast Asia has always been relatively diverse and inclusive. As a result, its peoples’ production and lifestyles have changed significantly. The rise and expansion of commercial activities has resulted in great transformation across Southeast Asia. The emergence of commercial port towns or cities is the result of trading and navigational development. The changing social structure in different historical periods is reflected in the transformation of both urban morphology and building typology in Southeast Asian port cities and their buildings. By studying the spatial features from both macro and micro levels, the underlying reasons behind changes to urban form and dwelling types can be more easily deduced. In Southeast Asian port cities, several aspects of sustainable development need to be considered, including inclusiveness and cohesion among several cultures, as well as the flexibility and adaptability of traditional dwellings.

## 2. General Rules of Morphological Evolution of Southeast Asian Port Cities

Early in the first millennium A.D., ports and service centers began to emerge in Southeast Asia at key coastal or river mouth locations[2]. Throughout the ages, some of them were transformed into important cosmopolitan cities, while others have declined and have been replaced by later, more successful cities. The whole development of these port cities can be divided into the following stages in chronological order: 1. The Emerging Period: The first cities at coastal and river locations appeared as a result of overseas trade between Western and East Asian regions. These first cities were located between the two ancient civilizations – China and India – and so these cities witnessed the distribution and exchange of commodities. Harbors, markets, warehouses, commodity workshops, and whole settlements, became hierarchically distributed, from the coastline or river inland. 2. The Early Colonial Period: Because of its key function for international trade, Southeast Asia gradually attracted European explorers and traders. The Europeans made profits from trading activities in these places, and they established their own increasing political status. 3. The Prosperous Colonial Period: During this period, Western colonists played leading roles in all aspects of people’s lives in Southeast Asian port cities. The Southeast Asian port cities “served as a microcosm of colonial society and as a political, military, economic, religious, social, and intellectual entrepot between colonizers and colonized”[3]. The colonial administrations were usually based in a fort. The whole city would be re-planned and readjusted, with markets, meeting points, temples, and living quarters for urban inhabitants, outside the fort. In many cases, various ethnic groups were segregated in different areas of the city. 4. The Modern Period / Transitional Period: This has been an era of independence and national rejuvenation, with the transformation of commercial structures. Some traditional cities in Southeast Asia have declined and have lost their former activities, while others have been transformed into the important modern metropolises.

## 3. Two Case Studies: Urban Morphology of Malacca and Penang, Two Typical Port Cities

Two typical port cities - Malacca and Penang – are chosen as case examples, and their morphological characteristics are analyzed in this paper. Malacca is located at the southern entrance of the Straits of Malacca, and has served as an important commercial port for more than 400 years. Penang, which is located at the northern end of the Straits, was a new port city that was built by British (namely English) colonists. However, these two cities share many similarities. Their historical background, urban spatial layout and usage, and block

structure and road system are described below. The morphological analysis of these two cities is focused on the prosperous colonial period: Malacca in the 18th Century (the Dutch period), and Penang in the 19th Century (the English period).

### *3.1. Urban Morphology of Malacca*

#### Historical Background

The city of Malacca was established by Parameswara in 1402. It had an advantageous geographical location, with direct trade routes to China, Indonesia and India, and so the economy of Malacca largely relied on overseas trade. In the early Chinese Ming dynasty, Zheng He visited this entrepot several times and opened relations between the Chinese empire and Parameswara's sultanate. The Portuguese occupied Malacca in 1511; they were the earliest Europeans who set foot in Southeast Asia. 130 years later, this city was taken over by the Dutch and ruled by the Dutch VOC from 1641 to 1797. During the Dutch period, the planning of Malacca was enhanced and its urban fabric was improved. In 1791, Malacca was taken over and officially controlled by the British. In the following 150 years, this city developed very slowly and its leading position as an emporium was gradually eclipsed by Penang and Singapore.

#### Urban Spatial Layout and Usage

According to the old indigenous texts and the writings of foreign travelers and observers, the morphology of early Malacca in pre-colonial period comprised an un-walled town with a separate trading area and an administrative distinct[4]. During the Dutch period, the colonists brought Western planning approaches to this city, but also preserved many local features. Morphologically, Malacca during the Dutch period was divided into two parts by the Malacca River: the European fort, and the cosmopolitan town (Figure 1). The fort, which was also known as the walled European town, provided both working and living quarters for Western officers and merchants. The spatial layout of the European part was more random and scattered. Administrative buildings, gardens, churches and residential buildings were arranged inside the wall according to the terrain. On the opposite bank, there was a highly dense, rapidly growing town with different racial groups. In the 18th Century, racial separation in Malacca had been blurred. Wealth, at this time, became the main criterion of divisions[2]. Chinese merchants dominated the busiest part in the town, which was packed with shophouses. Overall, there was a clear urban planning concept, with Chinese traditions affecting the whole layout of the Chinese quarter. Several major divisions were marked out by a grid, with a strong axis in the middle. Along the axis, different functional layers were arranged from the Malacca River to the west, inland. They were, sequentially: the old harbor, workshops, markets, the rich people's living quarters, the ordinary people's living quarters, and the temple complex. Docks and warehouses were set near the coast, and pointed in a southwest direction. The rich merchants' shophouses were built side by side along the coastline. Their advantageous location near the sea provided them easy access to commodities exchange and transport. In the northwest part of the town were vernacular kampong houses, which were inhabited by mixed racial groups including Malays, Arabs, Sumatrans, Javanese, and ordinary Chinese inhabitants[5].

#### Block Structure and Street System

During the Dutch period, all Portuguese buildings inside the fort were destroyed; meanwhile, the cosmopolitan town on the other side of the river was preserved, and its former urban fabric was improved. As shown in a map of Malacca in the 18th Century (Figure 2), there were two major street systems. One system, with streets adjacent to the river or the coast, is the waterfront pattern. Streets in this pattern were developed horizontally alongside the riverbank or coastline. The other system was the big grid pattern, in which the town was divided into several large blocks. According to Hussin[2], different ethnic communities including the Dutch Burghers, Malays, Peranakan-Chinese, Kelings and Portuguese lived in their own blocks, which were

separated out by the grid during the early Dutch period. Over time, these racial divisions became more blurred. Even so, the racial influences on the urban fabric were more visible. Shophouses that were built of bricks and roofed by tiles were arranged on both sides of the streets. These narrow buildings were extended from the main streets into interior areas by the construction of several courtyards. As a result, many interlaced alleys were formed inside each block. Trading activities in this cosmopolitan town were operated not only in open markets but also in shophouses along every main street.

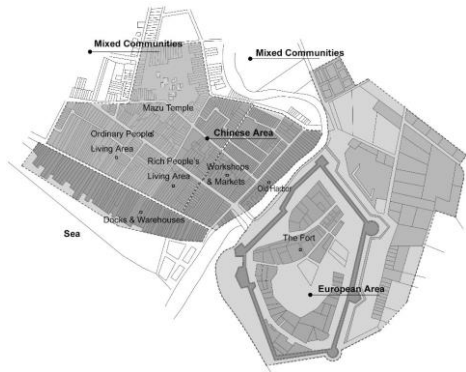


Fig. 1. Urban spatial layout and functions of Malacca in the 18th Century

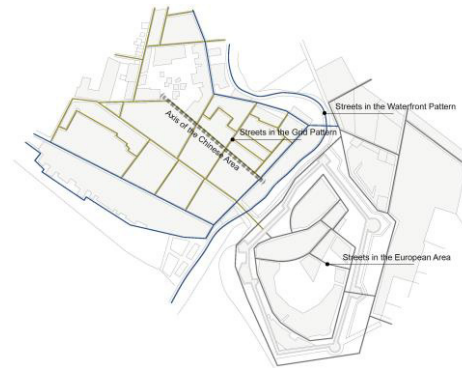


Fig. 2. Block structure and street system of Malacca in the 18th Century

### 3.2. Urban Morphology of Penang

#### Historical Background

1786, Francis Light, an English naval officer and merchant, established a settlement on the swampland of Penang Island, and declared that Penang would be operated by the British East India Company as a trading port. It therefore became the first English colonial city in Southeast Asia. Prior to the British occupation, Penang was one city in the Kedah Malay kingdom[6]. Due to Penang's liberal trading policy, this city has attracted people of different races from all over the world ever since. According to an investigation by Francis Light in 1794, settlers in the new city included Chinese, Southern Indians (Chulias), Malays, Arabs, Siamese, Burmans, Arabs, Buggesses, and Europeans[7]. Nowadays, a similar mixture of ethnic groups still exists. The city has a historic core: Georgetown still serves as the city center of the whole island, and much of the trading activities are operated from within the old shophouses.

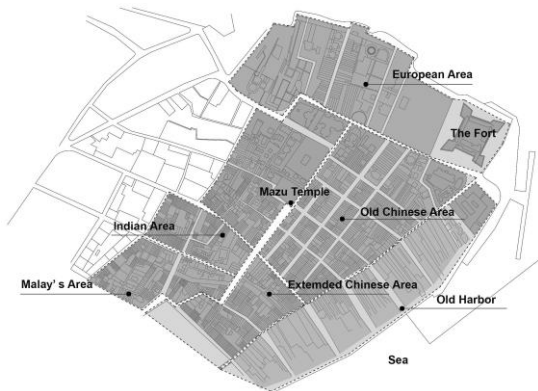
#### Urban Spatial Layout and Usage

The urban spatial layout of Penang is illustrated in Figure 3. In the 19<sup>th</sup> Century, the urban layout of Penang comprised five areas: the European area, the Chinese area, the Indian area, the Malay area, and the old harbor. A small fort was established on the northeastern part of the city. Unlike the fort in Melaka, this fort did not house living facilities or government buildings for the Europeans. Both their administrative and residential quarters were set in the northern part near the beach. Although the city was divided into regular blocks in the beginning, later urban development, especially in the Chinese quarter, was relatively freestyle because of the increasing population. The Chinese quarter, with its whole layout consisting of a grid pattern, includes two parts: the old Chinese part, and the extended Chinese part. In the old Chinese part, there was a strong axis from the Mazu temple to the old Chinese harbor, with shophouses arranged on both sides. Although the layout here

could not strictly meet the requirements of traditional Chinese urban planning, such a symmetric and grid-patterned expression in this could be found in most Chinese old cities, and this is similar to the ancient alleyway network system (Jie Xiang System) in Chinese cities. The extended Chinese part was developed along the coastline towards the south. Chinese clans built some clan temples and more shophouses. The first group of Indians arrived here early in 1790. The arrangement of buildings in the Indian district was also of a freestyle nature, without obvious grids. This district could be roughly divided into the public part and the residential part. Along with Chinese and Indians, Malays also came and settled in the city, and the Malay quarter is located in the southern part of the city. Early on, the layout of this quarter reflected the open, scattered and semi-rural character of ancient Malaysian cities. Under the influence of the Chinese and the Europeans, some blocks were gradually transformed into regular grids in more recent times.

#### Block Structure and Street System

Penang's block structure and street system are illustrated in Figure 4. According to Francis Light's plan, the earliest streets in Penang, including Pitt Street, Chulia Street, Beach Street and Light Street, formed the gridiron structure of the commercial district. However, there was a rapid increase in population, and different blocks were soon turned into informal dwellings. According to a map of Penang in the 19th Century (Figure 4), the five general areas were divided by main streets, which were relatively wide. Building groups in the European area were arranged in several rectangular blocks. Each building was an independent unit, around which there were interconnected small lanes and public spaces. In the Chinese area, the street system was developed according to the traditional grid pattern. Unlike the European buildings, the Chinese residential units were closely connected to one other and arranged in rows along streets. Inside each block, small alleys or lanes were packed inside the dense space, and these linking the backs of each narrow house. Without any large-scale open spaces, each block in the Chinese area was homogeneous. The block structure in the Indian area was more complex. The inner street organization was akin to a tree structure. Streets or lanes around the harbor area were arranged perpendicularly to the coastline, and these facilitated the transportation of goods and the movement of people.



4 Fig. 3. Urban spatial layout and functions of Penang in the 19th Century



S Fig. 4. Block structure and street system of Penang in the 19th Century

There have been great changes to commercial port cities as a result of flourishing trading activities, urban expansion, and rising populations. The original, closed patterns of production and living quarters have been abandoned. The shophouse, in which selling, manufacturing and living quarters are contained in one mixed-use structure, is a product of this transformation. As one of the most predominant forms of housing in Southeast

Asia, shophouses can be seen everywhere in the old cores of traditional port cities. Different types of shophouse have been produced in order to meet people's changing requirements. Generally, there are two basic changing patterns: horizontal changes, and vertical changes. One common method of horizontal change is the partitioning of the inner space. Some "subtraction" is usually performed along the length (or depth) of a shophouse. In this way, several small independent units can be formed by splitting the original big one. Another method is to perform "addition", whereby several adjacent units are added along the shophouse's width. Vertical changes to shophouses involve the construction of more floors. Different styles of elevations, such as southern Chinese style, eclectic style, art deco style, early modern style, can be added. The following typological discussion concerns horizontal changes to shophouses. The typology of the traditional shophouse in Southeast Asia can be classified into the following three types.

#### 4.1. The Serial Type

Due to the cultural influence of Chinese migrants, the spatial organization of this type is quite similar to that of traditional Chinese courtyard buildings. From front to back, different functional spaces are arranged serially, including a shop, guest hall, family hall, bedroom, dining room, kitchen, and storage room (Figure 5). Due to certain regulations under colonial planning, these buildings were usually designed to be narrow in width and long in depth. During the Dutch occupation of Malacca, the depth of rich Chinese merchants' shophouses could exceed 60 meters, and they contained several courtyards. By sharp contrast, their width was usually only four to five meters. The family structure in this type of dwelling was relatively complicated, and it usually accommodated three or four generations. Within this shophouse type, the space was divided vaguely into several levels by non-structural partitions or courtyards. The lower front part, which was characterized by a certain degree of openness, usually contained a shop or a family hall. The upper and back parts were used as living, service, production or storage areas, and were relatively private and closed off. Many Chinese traditions were retained by the people living in these shophouses. This "serial" type is the general typology of a shophouse in the early stages of Malacca's development.

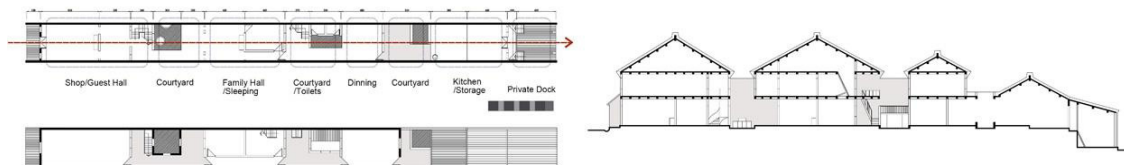


Fig. 5. Plans and section of a rich Chinese merchant's shophouse in Malacca, Malaysia [5]

#### 4.2. The Partitioned Type

The "partitioned" shophouses can be subdivided into two types. The formation of the first type was the result of domestic changes in big families. Inhabitants of growing families in these big shophouses demanded more privacy. In order to meet this requirement, some new walls were added, and public corridors and separate rooms were created. Public and private living quarters became more clearly delineated. New and different spatial organizations emerged within the old buildings. The corridors could be arranged along one side (Figure 6), in the middle, or in a crossed form (Figure 7). The second type was the result of new planning regulations by the government or the division of family property, whereby an original shophouse was usually transformed into several independent units (Figure 8). Some long shophouses that were of a long length (or depth) were divided, by courtyards, into two or three units. Other buildings of sufficient width were cut in the middle



(longitudinally). Compared to the “serial” type, the formation of “partitioned” types was driven mainly by functional requirements. The expression of the traditional spatial form is largely weakened in those types.

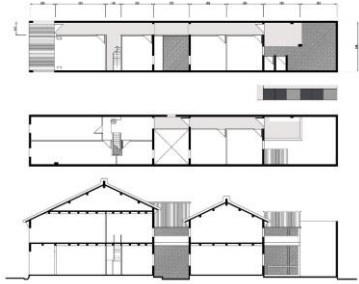


Fig. 6. The partitioned type with corridors in one side - plans and section of a shophouse in Penang, Malaysia [5]

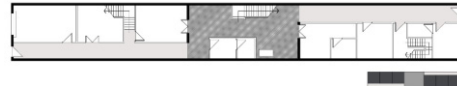


Fig. 7. The partitioned type with corridors in a crossed form - plan of a Shophouse in Hanoi, Vietnam



Fig. 8. Plan of a shophouse in Hanoi (Three Independent Units)

### 4.3. The Combined Type

Just as is the case of the “Partitioned” type of shophouse, “Combined” shophouses can also be classified into two types: In the first type of spatial configuration, several adjacent units are combined into a large house, which is used by one big family. The inner space of the new house is re-divided in order to satisfy new functional requirements. The large Baba Chinese house in Malacca, which was built in the 19th Century, is a typical example (Figure 9). Its inhabitants retained Chinese traditions and customs, and so they redeveloped this house by connecting three units into one big building that would meet the living needs of a large, rich family. The second type is a residential or commercial cluster, which includes several independent units. Unlike the first type, each unit in the cluster is independent and so the layout is not restricted by the complicated family structure. The spatial configuration of this structure is one of more flexibility and diversity. In some cases, the inner space of a shophouse cluster is slightly changed. The service spaces, including corridors, stairs and toilets, can be shared by all the units in one cluster.

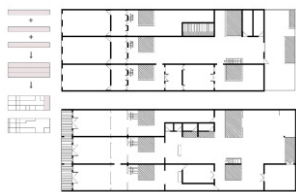


Fig. 9. Plans of the large Baba Chinese house in Malacca, Malaysia [5]

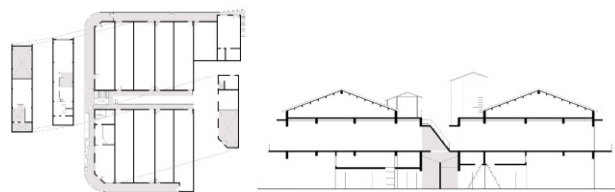


Fig. 10. Plans and Section of a Shophouse Cluster in Phnom Penh, Cambodia

typology of shophouses in this region. The following conclusions are drawn:

Due to myriad political conditions, economic patterns, religions and cultures during different historical periods, the morphological evolution of Southeast Asian port cities are quite unique and unconventional. Individually, few port cities, such as Malacca, have undergone a “natural” process in terms of emergence, development, prosperity, and recession. Most of them, on the contrary, have not experienced a successive evolution. However, to view the coastal Southeast Asia as a whole, during its evolutionary process, a new commercial port city could always inherit some characteristics of an old one, and then continued to develop

according to its own conditions. The inheriting relationship between Malacca, Penang and Singapore is a good example of this phenomenon. The morphological changes in these cities are testimony to the many cultures and races of peoples who arrived at these locations, and the peaceful merging of different cultures.

Due to the strong influence of Chinese migrants in earlier times, the spatial organization of shophouses possesses many characteristics of Chinese traditional dwellings. During the colonial period, most Southeast Asian port cities were planned and reconstructed by the Europeans, and some Western regulations and urban planning styles were introduced to these cities. The basic typology of shophouses was changed according to these restrictions. Due to changes in family structures, property rights or commercial patterns, the spatial configurations of shophouses were adjusted or transformed. In general, these shophouses retain some characteristics of traditional dwellings, but also reflect a certain degree of flexibility and adaptability.

In general, from ancient times (e.g. the maritime “silk road”), via European colonialism, and into the era of independence and national rejuvenation, under the dual effects of both local and foreign elements, Southeast Asian port cities have gone through a transition process, from closed to open, from single to diverse, from traditional to modern styles. Nowadays, with the increase of urban density and the diversification of commercial environment, exploring the development trajectory of these traditional cities and dwellings will be conducive to the further sustainable development in Southeast Asia.

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