SPATIAL CULTURE OF THE PETTAH MARKET: COMPOSITION, EVOLUTION AND RECONSTRUCTION

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Abstract

The market arises from the exchange of goods. The evolution of the market was closely linked with the mutual influence of cities, people and culture. Different groups of people have come to the Pettah market one after another, not only prospering the local merchandise trade but also transplanting vastly different architectural cultures here. This article discusses in five representations of the Pettah market: historical evolution, style building, vertical planning, functional layout, spatial scale, and so on. The author has comprehensively analyzed the influences of colonial cultures and local cultures, immigrant cultures; and has objectively focused on the degree of spatial culture superposition in the Pettah market. These are the historical values about the Pettah market; it deserves to be protected, the link between the Pettah market itself and the surrounding environment of the Pettah market is symbiotic relationship. The plan of surgical interventional therapy is based on detailed data model analysis. This stereoscopic transportation system implanted by surgery can solve the existing problems. Try to invest less and achieve the goal of protecting and developing the market.

Keywords: Port, block, Evolution, five representations, detailed data model analysis, stereoscopic transportation system

Introduction

I came to Colombo for the first time in February 2018. Pettah was a word in the schedule at that time. I found the following on Wikipedia.Pettah is a multi-ethnic region. The Moorish and Memons, Sinhalese and Tamil populations were among the main ethnic groups found in Pettah, as well as Burghers,Malay and other minorities. These populations have strong religious beliefs, including Buddhism, Hinduism, and Islam, Christianity and various other religions and faiths. These believers have built many temples and religious venues, such as religious schools.   Now I really understood its direct relationship with the castle. But its history is much longer than the

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Portuguese.in Sir BanisterFletcher's A HISTORY OF ARCHITECTURE (P1256), The Portuguese came to Colombo to fight the Arab trade. This port city on the west Coast is similar to where they had previously conquered, such as Cape Town. ThePortuguese always choose to build Fort on the west coast, which is the technology they are good at, just like sailing. The fort generally includes the inner fortification and outerenclosure; theinner fortification is near by the coast. In 1518 they used Baptista's drawings to build Colombo Fort.

Why is it called Pettah? Pettah market has been supplying inner fortification. Evennow, the enclosure has been demolished. This place name is still in use. Pettah market is located in Colombo 11. It is part of the Pettah district. The place name is not come from Portuguese or Dutch and British, is belong to the residents who have lived here for generations. Pettah is derived from the Tamil word, Pettai[1], the Sinhalese phrase, pita-kotuwa. Used to indicate a Suburb outside a fort. (Outside the fort) conveniently describes the same place. Portuguese reads p as [pê], and t as [tê]. They read the word Pettah like they read Kola-amba-thota as [koɻumbu]. They would not agree with the meaning of the word given in Arabic and Sinhalese. The pronunciation of Colombo is the same as that of Columbus[2], and the Portuguese are commemorating the voyagers. They refer to the city, to let people know that the port had become a Portuguese colony in this way. Time goes back to the Hellenistic period when Alexandria came to India, and writers of that era have described TAPRO´BANE [3], a very large island, now Ceylon.

The port had not only been famous for cinnamon in the world, but more importantly the unique geographical position.
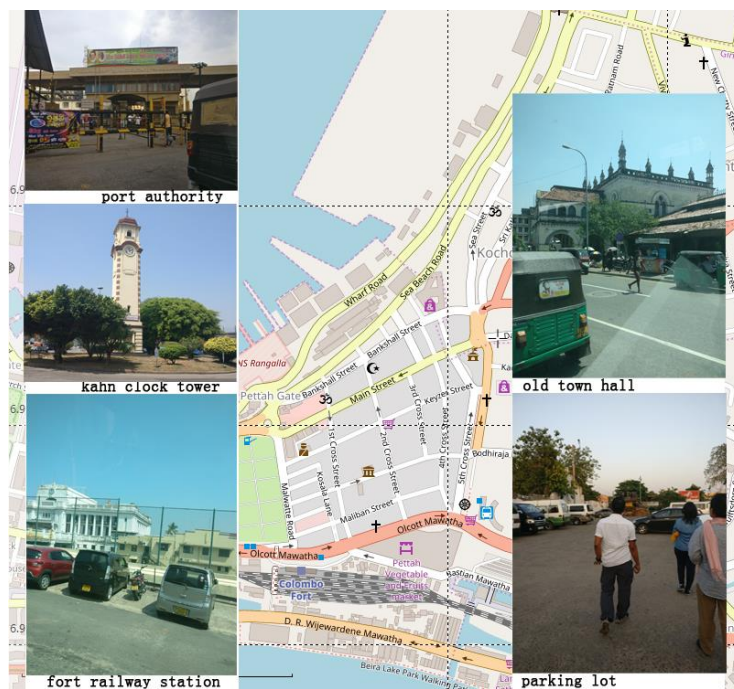

Fig. 1: Landmarks of the Pettah market.
Source: author

As shown in Fig 1. Now, the location of the Pettah gate on the GIS map
is the gate 3 of the port authority, which leads to the terminal.

This market conforms to the Hippoddam-style board layout of Miletus in the Hellenistic period. From landmarks to streets, streets and streets are intertwined, and road networks are created, forming blocks between road networks. There are 23 Portuguese alphabets and 26 Dutch alphabets. The English alphabet has 26 letters. Are these twenty-six plots divided between the Dutch and the British? This is a coincidence. But the formation of the boundaries of the market is the process from point to line to block. This is the law that Kevin Lynch summed up.

Just like Vitruvius emphasized the design pointofthe market-place is not the sole goal, must consider safe, convenient, with other public building space factor influencesin the proportion, and so on connections[4].This is a process of urban formation summarized in a book called the image of the city5. However, when introducing five elements of influence, he also mentioned:

> The image of a given physical reality may occasionally shift its type with different circumstances of viewing. Thus an expressway may be a path for the driverand edge for the pedestrian. Or a central area may be a district when a city is organized on a medium scaleand a node when the entire metropolitan area is considered. But the categories seem to have stability for a given observer when He is operating at a given level.
> None of the element types isolated above exist in isolation the real case. Districts are structured with nodesdefined in edgespenetrated by pathsand sprinkled with landmarks. Elements regularly overlap and pierce one another. If this analysis begins with the differentiation of the data into categories, it must end with their reintegration into the whole image. Our studies have furnished much information about the visual character of the element types.
>
> Kevin. Lynch, 1959: 48, 49

The five representations of the Pettah market

Based on the above reasons, I rethink about the five representations of the Pettah market: the historical evolution of the market, the causes of diversified building types, the problem of vertical planning, the problem of spatial scale, and the change of functional layout.

(i). historical evolution

A very humble class of Moormen, Malays, Singhalese, and Tamils, together with Syrian Jews and the like, a mixed and motley population, constitute the larger portion of the community in the Pettah, but there are some buildings, shops, bazaars, and residences of a better class than those we have described[6].   Judging from the above evidence, Pettah market is a society, a town that has been formed by various classes long long ago.

Through the coming and going of the merchants (in this way), when they went away, the people of (their) various countries heard how pleasant the land was, and flocked to it in numbers till it became a great nation[7]. The Chinese monk who had traveled to India for fifteen years deliberately mentioned the merchants here when describing Ceylon. They are Arabs. The Chinese monk who had traveled to India for fifteen years deliberately mentioned the merchants here when describing Ceylon. They are Arabs.

There were indications that the Arabs have a history of doing business in the harbor earlier than the Mohammed era. There were Arabs in Ceylon ages before the earliest date named in

these conjecture[8], and sought no other excitement than the pomp and ceremonial of their temples; the busy and ambitious Mahometans on the coast built their warehouses at the ports, crowded the harbors with their shipping, and collected the wealth and luxuries of the island, its precious stones, its dye-woods, its spices and ivory, to be forwarded to China and the Persian Gulf[9]. And they are also based on building houses in the market area for living and doing business.

Both the Portuguese and the Dutch once occupied this port for a total of 284 years. The British also ruled here for 151 years. The Portuguese were the first Europeans who obtained a footing in Ceylon. They occupied a considerable portion of the island from 1517 to 1658, a period of 141 years. In 1658, the Portuguese were finally expelled from Ceylon by the Dutch, in alliance with the Cingalese. In 1796 the Dutch, after having been in possession of the country 143 years, were in their turn expelled by the English, aided by the Candians, whose policy it is invariably to join the invading army[10].Kayman's Gate, at the intersection of Main and 4th Cross Streets, Colombo, Sri Lanka.This door marks the border of Colombo fort, which was extended by the Dutch[11].Colombo Dutch Museum located in95 Prince Street, its corridors were toscan orders, was the term of office of the Governor of Dutch CeylonThomas van Rheeduring in 1692 to 1697[12]. Ananda College founded by Col. Henry Steele Olcott a renowned American theosophist along with native patriots viz Ven. MigettuwatteGunanandaThero, Ven.Hikkaduwe Sri SumangalaThero and SrimathAnagarikaDharmapala in 1886 as a Buddhist English School on Maliban Street[13]. This is opposite the train station. St. Philip's Church. Baroque. It is said that because of fortheexpansion of St. Philip Neri's Church, the Ananda College was relocated[14].They have plundered a lot from here, and they have almost no expenses here. Their castles, churches, and mansions were built by locals, and their harsh rule allowed the market to exist as they wish.

(ii). the causes of diversified building types

The receptionist was very serious about explaining the history of the Red Mosque. In 1908, the Red Mosque was completed. This is red and white color pattern paint from the inside out, a typical Islamic flame coupon. The sculptures of the goddess of Gopland in the Hindu temples are impressive on the 1st cross street. The refurbished walls are also covered with embossed details.St. Philip's Church and St. Philip Neri's Church, Christianity's atmosphere ferments which from the very near two church exterior modelling, demonstrates this part of region the historical particularity.

Fig. 2: Religious architectures
Source: author

As shown in Fig2. From the parking lot opposite the 5th cross street, head towards the Pettah market. There are two stupas in the jagged roof. In the backyard of the parking lot, we saw the Buddha under the Bodhi tree. Buddhist temples surround the Pettah market, just as Buddhism embraces other religions (Islamism, Hinduism, Christianity).

The style of the buildings along the streets is diverse, and the floors are different, which constitutes the effect of montage. Because of this impression, people feel the confusion here, and if they don't rely on street signs and signboards, and landmarks, it is difficult for people to find the store they are going to. For those who are not familiar with it, they will be troubled and lost in the Pettah market.

Fig. 3: Wrong use of architecture space
Source: author

As shown in Fig3.a youngworkeris standing on the bracket, and cleaning the air conditioning casing, the bracket is very dangerous,hanging outside 3rd floor of RizwanTex, that is a textile shop, No. 126, 3rd cross street. No. 122 is two-story building, No. 118 is three-story building, No. 120 is five-story building. The part marked by the red line was built afterwards. The workers destroyed the cornices of the No. 122 and No.118.

Look closely at these buildings, especially the four-story, five-story, six-story building, as if filling the gaps in the block abruptly. There are wrong uses of architecture space.Only the facade along the street was renovated, but the gables on both sides were not painted. Air conditioning on the balcony, communication antenna on the roof. It can be seen that local businessmen have made efforts to improve the environment here.

(iii). The problems of vertical planning

On the online evaluation, many tourists complained about the rainy days in the Pettah market, where water accumulates and the roof leaks. Rainwater discharge is a big problem; we see a variety of rainwater pipes.

But what is their role? Destroyed the overall beauty of the street space and the façade along the street. The facades of the first floor have their own characteristics, while the roof is very rudimentary and leaks when it rains.

The drain on the side of the road smells bad. The street was squatting everywhere, and the original road surface had been worn out very badly.

Fig. 4: Rainwater discharge
Source: author

As shown in Fig4.There are slender water pipes that climb on the wall and there are ubiquitous wires like spider webs. Messy wires intertwined, in the air, thresholds, walls, street lights, etc. The wires are smashed, and the opposite metal rain gutter extends into the street space. When it rains, throw the rain to the middle of the street.

(iv).the problem of spatial scale

Every fifteen minutes, from 7:00 am to 7:00 pm, traffic jams occur on every road. The street was squatting everywhere, and the original road surface had been worn out very badly. Even from mawatha to street, or Lane. (Mawatha is a local saying. It is the pronunciation of Sinhalese. The width of Mawathais 22-24 meters, the street, a width of 9-12 meters, and a Lane is smaller.) That perfect the road network of the market cannot imagine the busyness of today. Adjacent to the vegetable and fruit market, many storefronts are used as warehouses, and large trucks are parked in front of the door.

Why is it so crowded? Let's take a look at the photos we took and we will find that all kinds of cars are parked on the side of the road.

Fig. 5: Wrong use of street space
Source: author

As shown in Fig5.Please look at wrong uses of street space. Small car is fit for one-way street; blue line is the narrow passage for rickshaws. Green block is the safe distance between rickshaws and cars. The doors of theshops on the sides are all shutter doors and folding doors. The utility pole occupies the roadway, and the mail box and meals also occupy the passage. Waste locomotive parts piled on the side of the road. Stacking site nearby road.

See how the British explain the rickshaw. Life takes place on foot. The 'rickshaw in Colombo is a splendid convenience. The runner's rights are as loyally protected as those of his employer, and he readily covers six miles an hour at a swinging gait. If his vehicle has rubber tires and ball-bearings the labor is not severe. The man might have a harder vocation with smaller pay[15]. Why is the rickshaw-enabled? Because of traffic jams, goods are transported to the store by rickshaws.

(v). The change of functional layout

From the signboard on the door, we can know that M.S. TRADERS is a shop located in No.97 3rd cross street. No.37 Bankshall Street is a medical equipment store. Fruit and vegetable market is located 5th Cross Street. The digital audio zone is on Keyzer Street and Front Street. Almost all the different banks are on the main street, gold ornaments are on the coastal road, and the costumes are on the 3rd cross street. In order to be in chaos, I don't think so. Looking at the shop under the dilapidated signboard is not the kind of goods. On 4th Cross Street, I saw such a shop. Why? Going in and seeing, the original clothing store became a warehouse for storing potatoes. The prosperity of the fruit and vegetable market has greatly plagued the original order of Pettah.

The detailed analysis of Spatial Culture of the Pettah Market

(i). constructing a three-dimensional model of the Pettah market

I am much honored to be able to participate in urban design workshop's training, delivered by Prof. Fabio Todeschini, and I am very grateful to my classmates for sharing the site drawings.

Fig. 6: ARCASIA URBAN DESIGN WORKSHOP TRAINING on 15th Feb -21th Feb , 2018 , Colombo, Sri Lanka
Source: author

As shown in Fig6. These photos record the precious fragments of memory. From left to right, Professor Fabio Todeschini was talking about the aspects of thecity design; Professor Fabio Todeschini guided us how to conduct on-site research in the Pettah market; Archt.HiranteWelendawa in the introduction of the Pettah market around the development program; The participants were divided into four groups to discuss the results of the study, and Dr. JanakaWijesundara was telling the results of his research about the history of Colombo.

I used Photoshop software to get the outlines of various buildings and then turned them into vector graphics with AI software. Import the vector graphics into the AutoCAD software for tracing and carefully outline the outline of each building. I spent three days to complete the work. In order to get the basic information for building the model, this should be done. 3Dmax Then I used 3dMax software to get the models of each building and distinguish them with different colors. I recalibrated the CAD drawings of each layer with the naca GPS office software and Google Earth software, and found that the previous basic data drawings were not proportional, so they were enlarged. The enlarged drawing basically conforms to the dimensions measured on the software. Then I used 3dMax software to get the models of each building and distinguish them with different colors. I spent three days to complete the work. In order to get the basic information for building the model, this should be done. At the same time, in the process, I have a certain impression on the plane of each building. The layer height of each layer in the establishment of the digital model is based on the actual store height. The height of the single-storyis only 3 meters; the height of two-story building is 6 meters, and so on. The height of the six-story building is 18 meters.

Fig. 7: Space models of Pettah market
Source: author

As shown in Fig7.Gray colors represent single-story buildings, blue colors represent two-story buildings, green colors represent 3-4-story buildings, Brown colors represent a five-story building, purple colors represent six-story building.

(ii). Data analysis based on model

Visual space model is obtained by drawing software, can be further to the overall layout of Pettah market have a certain understanding, but to do so to research its space culture is not enough. This needs to get space model for the analysis of the patient, supplemented by thinking of the existing theory and case analysis.

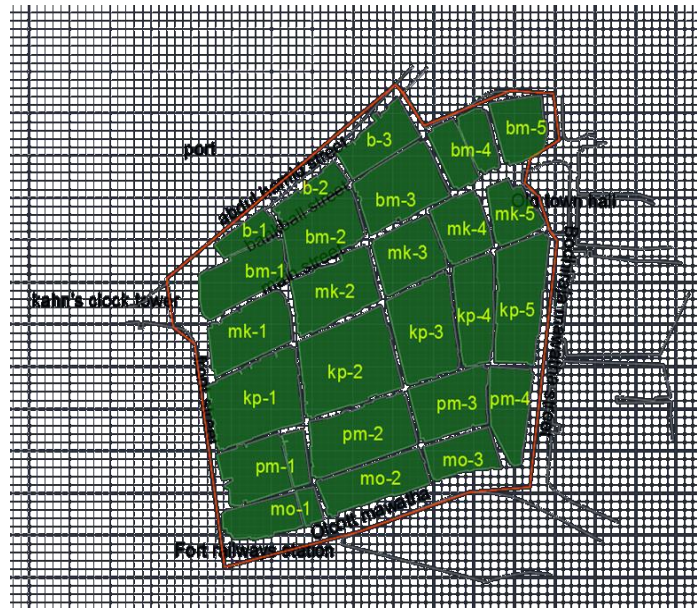I named the block based on the first letter of the name of the street on either side of the block.

Fig. 8: Study area of Pettah market
Source: author

As shown in Fig7.To the south of the ab-1 block is Bankshall Street, to the north is the historic AbdulRoad (now the beach road) and to the east is the 1st cross street. The west side of the ab-2 block is 1st cross street, and the east side is 2nd cross street. The west side of the ab-3 block is 2nd cross street, and the east side is China Street. The south and north sides of bm block are Main Street and Bankshall Street, divided into bm-1 block, bm-2 block, bm-3 block, bm-4 block, by 1st cross street、2nd cross street、 4rd cross street and 5th cross street.

The north and south sides of mk block are Main street and KeyzerStreet, which are divided into mk-1 block, mk-2 block, mk-3 block, mk-4 block by 1st cross street and 2rd cross street, 3rd cross street and 4th cross street. The north and south sides of kp block are KeyzerStreet and prince street, which are divided into five small pieces by 1st cross street and 2rd cross street, 3rd cross street and 4th cross street. The north and south sides of pm block are Prince Street and Maliban Street, which are divided into four small pieces by 1st cross street and 2rd Cross Street, 4th Cross Street. The south and north sides of

mo block are OlcottMawatha and Maliban Street, divided into three small pieces by 1st cross street and 2nd Cross Street.

As can be seen from statistical footprint of thetable1 and table 2, there are five-story buildings and only in ab-1 block. These buildings are modernist styles in the last twenty years, and the shops in the colonial period were generally two-storybuildings. Compared by the floor space of the buildings in each block, the most occupied area is kp-2 block, andsix-story buildings on kp-2 block are also the most in table1. Table2 compared by the floor space of two-storybuildings in each block. I was surprised to find that the blocks between the 4th Cross Street and 5th Cross Street was the most on the second floor, like kp-5 block, bm-5 block, mk-5 block, and so on.

Table 6: compared by the total floor space of the buildings in each block

Name of block	Quantity	The proportion
ab-1,ab-2	2	1%
mk-5	1	2%
mo-1,mo-3,ab-3,bm-1,bm-5,mk-1,mk-4	7	3%,
bm-2,bm-4,mk-3,kp-4,pm-1,pm-4	6	4%
pm-3,bm-3	2	5%
pm-2,kp-5,kp-3,kp-1	4	6%
Kp-2	1	8%

Table 2: Compared by the floor space of two-storybuildings in each block

Name of block	Quantity	The proportion
ab-1	1	0%
pm-1,mk-3	2	1%
ab-2,mk-2,kp-3,kp-4,pm-3,mo-2	6	2%,
ab-3,bm-1,kp-3,mo-1	4	3%
bm-2,pm-4,mk-1,mk-4,	4	4%
Bm-4	1	5%
mo-3,mk-5,pm-1	3	6%

bm-3,bm-5	2	7%
Kp-2	1	9%
Kp-5	1	15%

the figures in the chart are the floor areas of the building,in square meters.

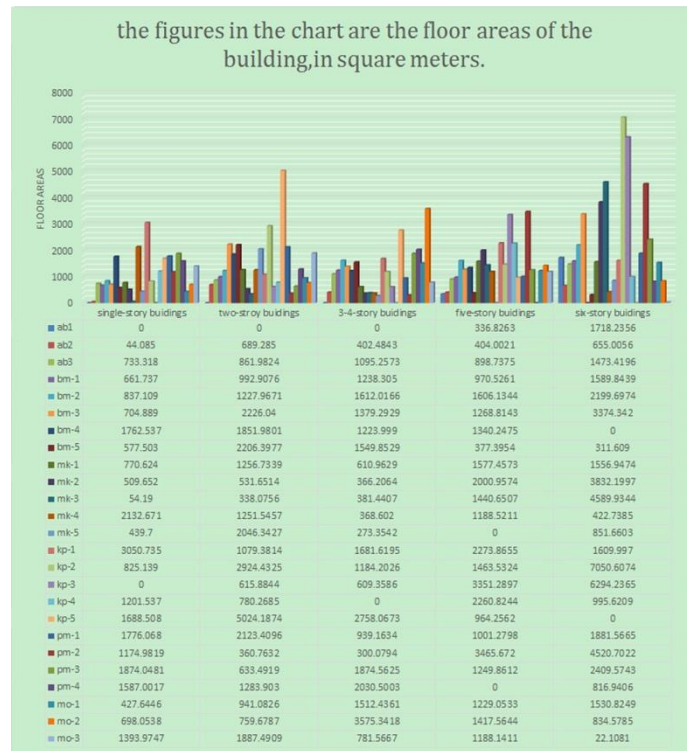|	single-story buildings	two-stroy buildings	3-4-story buidings	five-story buidings	six-story buidings
ab1	0	0	0	336.8263	1718.2356
ab2	44.085	689.285	402.4843	404.0021	655.0056
ab3	733.318	861.9824	1095.2573	898.7375	1473.4196
bm-1	661.737	992.9076	1238.305	970.5261	1589.8439
bm-2	837.109	1227.9671	1612.0166	1606.1344	2199.6974
bm-3	704.889	2226.04	1379.2929	1268.8143	3374.342
bm-4	1762.537	1851.9801	1223.999	1340.2475	0
bm-5	577.503	2206.3977	1549.8529	377.3954	311.609
mk-1	770.624	1256.7339	610.9629	1577.4573	1556.9474
mk-2	509.652	531.6514	366.2064	2000.9574	3832.1997
mk-3	54.19	338.0756	381.4407	1440.6507	4589.9344
mk-4	2132.671	1251.5457	368.602	1188.5211	422.7385
mk-5	439.7	2046.3427	273.3542	0	851.6603
kp-1	3050.735	1079.3814	1681.6195	2273.8655	1609.997
kp-2	825.139	2924.4325	1184.2026	1463.5324	7050.6074
kp-3	0	615.8844	609.3586	3351.2897	6294.2365
kp-4	1201.537	780.2685	0	2260.8244	995.6209
kp-5	1688.508	5024.1874	2758.0673	964.2562	0
pm-1	1776.068	2123.4096	939.1634	1001.2798	1881.5665
pm-2	1174.9819	360.7632	300.0794	3465.672	4520.7022
pm-3	1874.0481	633.4919	1874.5625	1249.8612	2409.5743
pm-4	1587.0017	1283.903	2030.5003	0	816.9406
mo-1	427.6446	941.0826	1512.4361	1229.0533	1530.8249
mo-2	698.0538	759.6787	3575.3418	1417.5644	834.5785
mo-3	1393.9747	1887.4909	781.5667	1188.1411	22.1081

Fig. 9: data analysis based on model of floor areas of the buildings
Source: author

As shown in Fig 9.Below this histogram is a data table of the floor space in different blocks of buildings on different floors. The horizontal axis in the chart is a building with different floors, and the vertical axis is the floor area of the building and the measurement unit is square meters. Between 0 and 8000 are divided into eight horizontal lines, different plots are expressed in different color columns.

In terms of land occupation, six-story buildingsare the most occupied, followed by two-storybuildings, 3-4-story buildings,single-story buildings.Total floor spaceof multi-story buildings on the twenty-six blocks is 170387.3 m2. The percentage of single-story buildings is 15%. The percentage of two-storybuildings is 20%. The percentage of 3-4-story buildings is 16%.the percentage of five-story buildings is 19%. The percentage of six-story buildings is 30%. How to protect such a large area of buildings?

Total surface areasof different types of multi-storey buildings on the twenty-six blocks is645593.9-673342.5m^{2,} because the three- and four-story buildings of the basic data are

classified as a class. Faced with this statistical difficulty, but I thought of a way, between the two. 3-4-story buildingsof surface areasCalculated by three times or four times of the floor space.The percentage of single-story buildings is 4%.The percentage of two-storybuildings is 10%.The percentage of 3-4-story buildings is 13-16%.The percentage of five-story buildings is 25-26%.The percentage of six-story buildings is 45-47%. In terms of building area, six-story buildingsare also the largest.

Table 3: the data of study area of Pettah market

Name of index	data
building density	56%
the ideal road area	60780-75975m^2
actual road area	77827 m^2
the area of study filed	303902m^2
total of twenty-six blocks	226075m^2

The area of patio and inner courtyard is 55687.59 m2, this number is 0.327times of Total floor spaceof multi-storey buildings on the twenty-six blocks$in table 3$. Streets cannot be parked: the storefronts of each street are connected together. The vehicle could not enter the inner courtyard.

Fig. 10: Narrow patio is used as bathroom and kitchen, restaurant
Source: author

As shown in Fig 10. The drawings show that Narrow patio is used as bathroom and kitchen, restaurant in No.108, 114 3rd cross street of Pettah market.

From the storefront through a walkway that is only one-meter-wide, about twenty or thirty meters in length, to reach a small patio. The black folding doors on either side of the walkway, like the shark's teeth, block the sun from entering the dark walkway. The pedestrians are in it, and the light is almost gone.
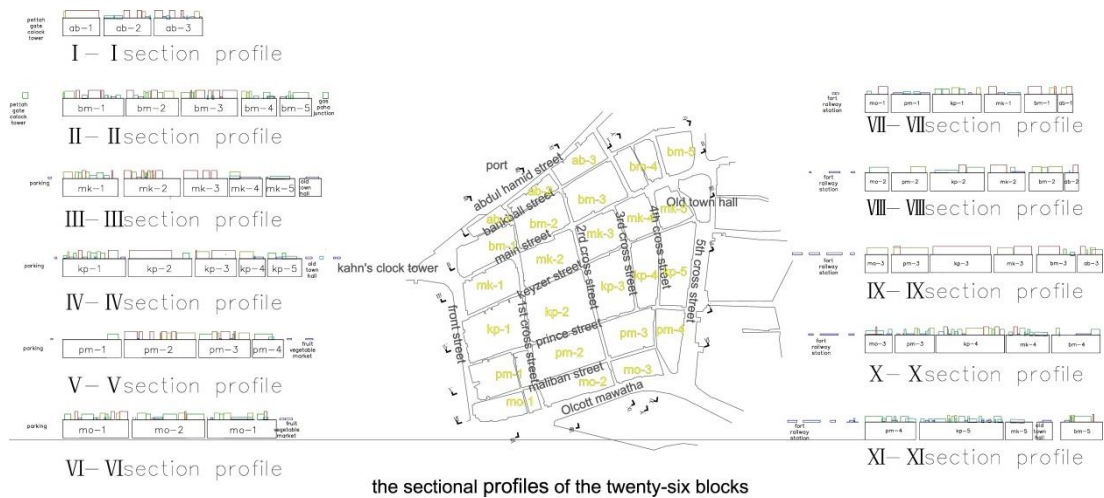
(iii). Find Sectional profile

Fig. 11: Eleven sectional profiles
Source: author

As shown in Fig 11. Parallel to the cross section of the street network, obtain the I-I profile, the II-II profile, the III-III profile, the IV-IV profile, the V-V profile, the VI-VI profile. Perpendicular to the longitudinal section of the street network, and obtain the VII-VII profile, the VIII-VIII profile the IX-IX profile the X-X profile the XI-XI profile.

We can see from the sectional views of the blocks,in order to further analyze the spatial shape inside the block, I did eleven section analyses.Once again, it was discovered that some of the blocks were filled with buildings, and some had plenty of space, but they were just patios. To combine the previous plane analysis, this analysis also prompted me to further results. If you want to improve here; you have to change it from the inside out. Otherwise, you cannot solve the problem. This is why many historical blocks have been transformed into face projects.

How to protect and improve of Spatial Culture of the Pettah Market

The purpose of our commercial space environment is to allow people to enjoy the convenience of shopping comfortably, to transform the Pettah market to have this purpose, but also to take into account the purpose of physical exercise. Vehicle traffic is a guarantee of the city rhythm,

can be loaded, can shorten the time we arrive at the destination. However, walking is not a substitute, because our body is designed for walking.

(i). The plan of surgical interventional therapy

Using the contrast between the surgery and the current twenty-six blocks, the surgical plan uses the principle of subtraction. Each block is subtracted from the bottom layer by nine meters wide and five meters high, according to the principle of fire protection. Ensure that the length and width of the newly segmented blocks are less than or equal to 71 meters. If you count from the existing road centerline, the spacing is 40 meters. The old shops have a front door facing the pedestrian street and a backyard or back door facing the new double lane motorway. Thebackyard can open up parking areas.The Colón Market, built 1914, is an Art Nouveau (Spanish: Modernismo) landmark located in the Ensanche district of Valencia, Spain. The building needed to be refurbished, revitalized as a modern market, and provided with parking facilities.[16]
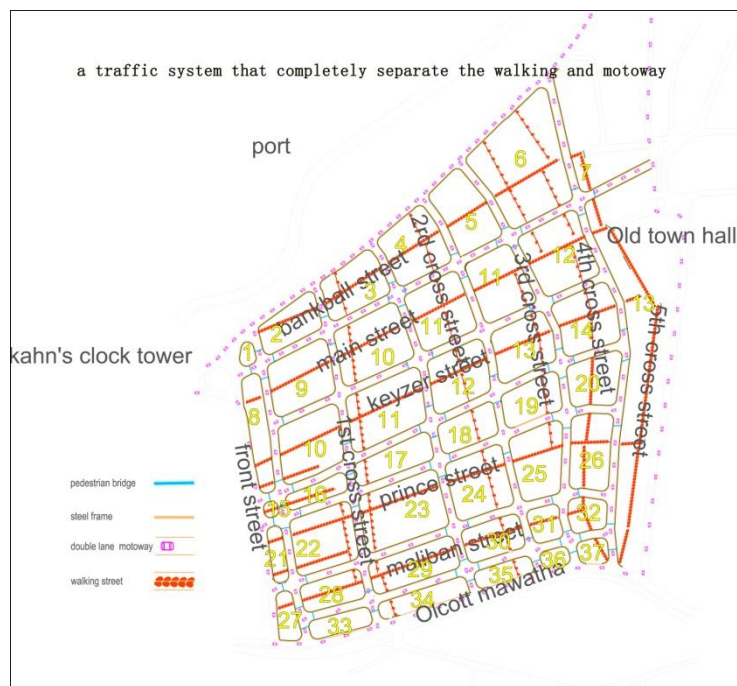

Fig. 12: A traffic system that completely separate the walking streets and motorways
Source: author

As shown in Fig 12.The sky-blue blocks indicate the location of the pedestrian overpass, the orange curve shows the steel frame, the pink vehicle blocks in both lines indicate the two lanes, and the red footprints in the two lines indicate the pedestrian street;The dark blue numeral is the chart block name which divides newly.

(ii). New comprehensive road network and Steel frame

A comprehensive road network with a speed limit of 20 km\/h will be generated from the blocks to meet the driving requirements and fire codes. The distance between the

roads is no more than 80 meters. Adding roads from the vertical and horizontal directions, the road width is 9 meters. It consists of a two-lane road in the middle of the road and a one-meter wide steel frame on both sides for installing power telecommunications lines and burying the pipe network on the bottom of the steel frames. Pipe grooves are arranged in the middle of the road, from bottom to top, in turn, drain pipes, tap water, gas pipes. The rainwater treatment system is placed separately at the lowest point on both sides of the road and at the lowest point of the intersection. And we need to design a new flood control system for the new road network.

The new road network will meet the traffic flow of the market, and all motor vehicles can only travel from here. This program fully considers the requirements of historical building protection while meeting people's growing space needs. In the blocks, the new road network can be used to tidy up the internal space of the block and form a new street façade, thus expanding new business opportunities. At the same time, the former streets can be basically completely preserved in the form of pedestrian streets.

It is different from the previous historical blocks. Of course, opening up the roadway in the blocks requires reinforcement on both sides of the road. Steel frames also have the effect.

(iii).The concept of new walking system in thirty-seven blocks

Walking street

Nor does it require much art to learn all this from that pathetic plaint about the
foot-paths. For the game of the Briton in a foreign land is ever the same.
H.C. Bunner, 1896, 110[17]

The original street became pedestrian streets except for Abdul Road and OlcottMawatha and the front street. Paving patterns of pedestrian streets can be designed according to the architectural features of each block; they are labeled and different from each other. The built-in pedestrian street space can only be used for walking, including wheelchairs and strollers. Motor vehicles, bicycles and rickshaws are not allowed in pedestrian streets.

The buildings on 5th Cross Street are very distinctive. My new plan is to use the Street as the longest pedestrian street. With the old town hall as the core, the museum street features. Awaken the vitality of these new blocks. The vegetable market is moving to the street with the parking lot. Like the recovery and conservation project for the late-19th century covered market in the historic district of Ortigia in the city of Syracuse (Sicily, Italy)[18]. One of the main objectives of the intervention was to create a tourist center in Syracuse. There will be a covered roof above Walking street of Pettah.it emphasizes the field of spatial culture here.

Pedestrian bridge

The pedestrian bridge is set at the crossroads of the roadway, connected to the steel grid, and serves to consolidate the grid between the blocks.

The 77-seater pedestrian bridges connect 37 blocks, creating a more complete pedestrian system, which makes the shopping route safe and unobstructed for consumers.

The pedestrian walkway will be designed in a variety of shapes depending on the pedestrian block being connected. From color and form to distinction, these small pedestrian bridges will go to signs and landmarks and functions. They can also be carefully decorated in accordance with a certain rhythm, the full use of modern science and technology, armed to become intelligent link structure.To become a smart pedestrian overpass, so that the market more in line with the needs of modern life.

Walking system

The pedestrian bridge links the walking systems of each block to make the walking system. Both the pedestrian street in each block can establish the space environment of their theme, but also intends to promote the pedestrian doctrine, attract more tourists to this experience walking system.

When the human frame is thus capable of being altered and renovated, it is not surprising that the art of training should be carried to a degree of perfection almost incredible; and that by certain processes, the breath, strength, and courage of man, should be so greatly improved as to enable him to perform the most laborious undertakings, according to Walter Thom proposed pedestrianism[19].

I want to design the corresponding walking training program, so that Pettah market becomes an open walking training place.

Conclusion

Pettah market that cannot be replaced, but it cannot be ignored in an increasingly bad environment. This is obvious, the locals have been working hard to change the space here. Extend store space and office space as much as possible, as well as other spaces. This is different from the newly built business district, which is the busiest area in Colombo. The shopping environment cannot be compared to the new business district. But the old store, the old patron, the trust between them is very important in life. For local residents, they are more willing to go shopping in the market. And there are many varieties of cheaper goods.

Instead, the building density is much larger. This stereoscopic transportation system implanted by surgery can solve the existing problems. Try to invest less and achieve the goal of protecting and developing the market. It also provides a basic support for future development. If one day, if a high-rise building will be coming here, we can build a foundation for the steel frame system of the road system, and build a support platform for the new building at a height of 27 meters above the outdoor level. It can achieve the new floor area ratio target and protect the historical block of Pettah as much as possible.

At present, the application of pedometer software has prompted more people to pay attention to the importance of physical exercise, simple walking training is generally very dull, the reconstruction design of Pettah market proposed the traffic system that completely separate

the Walking streets and Motorways, in the shopping at the same time to train the pedestrianism still have a lot of expansion of space, can be gradually improved in the design of the future.

The shortcoming of this paper is that there is no opportunity to do big data questionnaires. If there is an opportunity to conduct mid-term research, I hope to be able to do more preparation work. It is best to use the power of the website to combine with local curriculum teaching.

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