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Chapter 1  Dutch\(^1\) Expansion in Asia

The Expansion of the Dutch Trade Empire

The Dutch were quite late in participating in trading in Asia\(^2\). The Spaniards, the Portuguese and even the English and the French had started trading a century before the Dutch even attempted to sail for Asia.

There were several reasons the Dutch set foot relatively late in Asia: one of these was the seizure of goods which Spain, and Portugal as of 1580, of the North Netherlands shipping in the Iberian harbours in 1585, 1595 and 1598. There for there was a need for new markets\(^3\).

In the sixteenth century the Dutch operated, mainly, in the Baltic, England, France and Spain. Since the merchant houses in Antwerp had good connections in Lisbon and Seville\(^4\) there was no need to set sail for Asia to buy sugar, spices and other tropical goods.

In 1568 the Eighty Years’ War\(^5\), in that period the Netherlands were ruled by Spain, broke out. To rise against Spain was the last resort of the Dutch to show discontent with all worsening economic and social conditions of which the imposition of a heavy level of taxation the population was required to pay was the most impopular one. Another reason was because Spain maintained a policy of strict religious uniformity within the Roman Catholic Church enforced by the Inquisition. In the Netherlands a number of Protestant religious groups got many followers. This led to the

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\(^1\) The inhabitants of the Netherlands are referred to as the Dutch.


\(^5\) The Eighty Years' War, or Dutch War of Independence (1568-1648).
Beeldenstorm, or Iconoclastic Fury, in 1566, where in hundreds of churches statues and other religious decoration was destroyed. This was the start of the revolt against Spain.

Remarkable for the Eighty Years War was the manner which both sides kept going with resources provided by trading with the enemy. Trade and smuggling of illegal goods feature to a greater or lesser degree in all wars, but in the years 1572-1648 they were carried by both sides to unparalleled lengths. The authorities in the Dutch Republic many of whom were ship-owners and merchants involved in trade with the Iberian peninsula and with lands dominated by the Spanish and Portuguese allowed, save for short intervals, this trade to continue on payment of special port-charges by those concerned. The receipts from this “convoy and license money”, as it was called, formed the chief source of income for the five provincial admiralties or navy boards (Rotterdam, Zeeland, Amsterdam, North-Quarter and Friesland) which maintained the Dutch warships most of which were hired or converted merchantmen.

The Spaniards and the Portuguese found they could not do without grain and naval stores which Dutch ships brought from the Baltic and Northern Europe. The seizure of goods which the Iberian authorizes periodically undertook of Dutch shipping was disadvantageous to the Spanish and could never be maintained for long. One reason for the growth of Dutch foreign trade was the geographical position of the country by the North Sea. With easy access to Germany, France and England. The main reason, however,

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7 Naval stores are all products derived from pine sap, which are used to manufacture soap, paint, varnish, shoe polish, lubricants, linoleum, and roofing materials.
was the Dutch were more hardworking and offered lower freight rates\(^9\).

The Dutch were so successful in commercial activities because they found and got ways, means and opportunities to surpass their competitors.

A characteristic feature of trade over the seas, where many people were involved in the Northern Netherlands, was known as the *redereij*. This was a highly flexible type of business enterprise by which a group of people would join to buy, own, build, charter, or freight a ship and its cargo. In the second half of the 17\(^{th}\) century the skipper or master of a vessel was very often the part-owner or directly interested in the sale of the cargo. The individual ship-owners would contribute capital in varying amounts. The contributions came from wealthy merchants or from crew members as well\(^10\).

Due to the network, of Flemish and Walloon\(^11\) merchants in Iberian and Mediterranean ports, the Dutch were able to expand their already successful business of transportation of goods over the seas to unprecedented heights in the last decade of the 16\(^{th}\) century\(^12\).

Five successive years of bad harvests in Southern Europe (1586-90) gave them the chance to seize and keep new markets behind the Straits of Gibraltar. Before 1585 Dutch ships had been occasional visitors to Mediterranean and Levant\(^13\) ports but twenty years later their trade in that area was second only in importance to that with the Baltic with which, in-

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\(^10\) Ibid., p. 6.

\(^11\) Walloons are a French-speaking people who live in Belgium, principally in Wallonia.


\(^13\) The Levant includes most of modern Lebanon, Syria, Israel, the Palestinian territories, and sometimes part of Turkey and Iraq, and corresponds roughly to the historic area of Greater Syria.
cidentally, the *Antwerpers* had also been closely connected before the fall of their city.\textsuperscript{14}

The evolution of a cheaper and more efficient cargo-ship, the *fluit*, was also a factor in the increased expansion of Dutch trade over the seas in the 1590s. This flute or fly-boat, as the English call it, was manned by comparatively few crew, carried a huge cargo, mounted few or no guns, and could be built cheaply and in large numbers.\textsuperscript{15}

Due to the decline of Antwerp as a port where merchandise was imported, stored or traded and the explosive growth of Amsterdam specific factors contributed to the extension of Dutch maritime enterprise to more distant regions than the Mediterranean and the Levant.\textsuperscript{16} The arrival of wealthy entrepreneurs and skilled workers into the north from the south, the resulting increase of industrial protection, the need for new markets, the seizure of goods, undertaken by Spain and Portugal from 1580, on the North Netherlands shipping in the Iberian harbours in 1585, 1595 and 1598 and the help and guidance which *Hollanders* and *Zeelanders* could often count on receiving from Flemish, Walloon, and Marrano merchants overseas. As a consequence trade with Brazil, which had not been important before 1585 increased at first in co-operation with Portuguese Crypto-Jews or New Christians.\textsuperscript{17/18}

An opportunity was given to and taken by a Dutch skipper on his way to

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\textsuperscript{15} Ibid., p. 20.

\textsuperscript{16} Ibid., p. 20.

\textsuperscript{17} Ibid., p. 21.

\textsuperscript{18} Crypto-Judaism is the secret adherence to Judaism while publicly professing to be of another faith; practitioners are referred to as ‘Crypto-Jews’ (origin from Greek *kryptos* - κρυπτός, 'hidden').
Brazil who was captured by the Portuguese from Sao Tome Island where he gathered much information about their trade with the Gold Coast. On his return he made a successful pioneer voyage returning in 1594 with a valuable cargo of gold and ivory. The energy and tenacity with which the Dutch exploited new markets saw to it that by 1621 they had secured between half and two thirds of the commercially transported goods market between Brazil and Europe, while virtually the whole of the United Provinces gold coinage was minted with gold brought from New Guinea. Most of the energy of the Dutch was directed towards to the spice-trade to East Indies.19

In many respects the Treaty of Munster, where the Netherlands became independent from Spain, formed the pinnacle of the United Provinces golden age. By 1648 the Dutch were uncontestable the greatest trading nation in the world, with commercial settlements and fortified factories from Archangel to Recife and from Amsterdam to Nagasaki.20

The Dutch achievements were impressive:

“They had managed to capture something like three quarters of the traffic in Baltic grain, between half and three-quarters of the traffic in timber, and between a third and a half of that in Swedish metals. Three quarters of the salt from France and Portugal that went to the Baltic was carried in Dutch bottoms. More than half the cloth imported to the Baltic area was made or finished in Holland.”21

20 Ibid., p. 27.
All this in addition to the fact that they were the largest importers and distributors of varied colonial wares as spices, sugar, porcelain and trade wind beads\textsuperscript{22}. This unprecedented achievement was due to the dynamic energy and enterprise created in the seaports of Holland and Zeeland, which bore the financial impact of the war against Spain and made the driving force of colonial expansion, thanks to the resources derived from their shipping and overseas trade. It was therefore logical that the leading merchants and ship owners of these provincial towns secured in effect the control of the new republic and that they used their dominance of the town councils and of the Provincial States to forward their own interests\textsuperscript{23}.

The Dutch as of 1648 avoided war with a major power whenever they possibly could. It was however a very different story with weaker or supposedly weaker states. With Portugal, Denmark, Makassar and Ternate the Dutch did not hesitate to enforce the strict observance of treaties and contracts by the other party concerned even where these agreements were negotiated under pressure as was often the case\textsuperscript{24}.

The contracts and treaties which the VOC/Dutch\textsuperscript{25} made with the minor East Indien princes during a period of nearly two hundred years followed much the same pattern. The contracts were drawn up by the Dutch and the local ruler just had to sign. This gave the Dutch the exclusive trading rights in the region with the exclusion of other foreign merchants whether European or Asian. The rulers allowed for the establishment of Dutch forts

\textsuperscript{22} Trade wind beads (glass beads). These beads ranged in colour and length.

\textsuperscript{23} Boxer, C.R. (1965). The Dutch Seaborne Empire, 1600-1800, p. 27.

\textsuperscript{24} Ibid., p. 102/103.

\textsuperscript{25} The VOC (Vereenigde Oost-Indische Compagnie/Dutch East Indies Company) had its main office in Amsterdam, The Netherlands. The company was established as a chartered company in 1602.
and garrisons where necessary and often recognized the right of the VOC representative to intervene as arbitrator or mediator in local disputes. The Dutch nearly always kept jurisdiction over their own nationals who were accused of criminal offences and had the right to try natives involved in disputes with them\textsuperscript{26}.

The areal expansion of the VOC was limited to Ceylon, South Africa and Java. Elsewhere, in Sumatra and Celebes, the Dutch were content to secure a dominant commercial position by making treaties or contracts with the coastal sultans. Many of whom became their dependencies or vassals but whose authority did not extend from the inland. The Dutch intervened in 1638 in Ceylon to assist Rajasinha II\textsuperscript{27}, also known as Rajasingha II, against the Portuguese and to conquer all or part of the cinnamon-growing districts in that island. By the time the struggle ended with the expulsion of the Portuguese in 1658. The VOC had became the controlling power in the coastal districts and Kandy\textsuperscript{28} was eventually deprived of an harbour at the sea\textsuperscript{29}.

The conquest of Java started with the hestitant intervention of Governor-Ge-

\textsuperscript{26} Boxer, C.R. (1965). \textit{The Dutch Seaborne Empire, 1600-1800}, p. 103.
\textsuperscript{27} Rajasinha II. Reigned 1629-87. Third king of the kingdom of Kandy in Sri Lanka
\textsuperscript{28} The last capital of the ancient kings' era of Ceylon (543 BC-1815).
general Maetsuyker in a succession dispute in the empire of Mataram, on behalf of the legitimate but disposed Susuhanan, in 1677 and it reached a climax in the establishment of Dutch supremacy over the island a century later.

By the end of the 18th century the VOC were bankrupt due to private trade and the abuse of power. Critics gave another meaning to the initials of the VOC: Vergaan Onder Corruptie (Collapsed Through Corruption). It may very well have been one of the reasons but other reasons were displacements in the requirements of the European markets, changed conditions in Asia and an increasing number of competing foreign companies.

Private trade flourished because of the absolute insufficient monthly pay, the uncertainty of life in the tropics and the temptingly easy opportunities to enrich oneself quickly by dishonest methods and the general conviction that “there were no Ten Commandments South of the Equator”. The directors of both companies (VOC and WIC) decreed elaborate rules against private trade and threatened offenders with heavy penalties. These sanctions however were ineffective in Asia as in South-America. Those officers who were there to enforce the regulations were the ones who were easily bribed.

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30 Joan Maetsuycker (1606-78). Governor of Dutch Ceylon from 1646 to 1650 and Governor-General of the Dutch East Indies from 1653-78.
31 The Sultanate of Mataram was the last major independent Javanese kingdom on Java before the island was colonized by the Dutch. It was the dominant political force radiating from the interior Central Java from the late 16th century until the beginning of the 18th century.
32 Susuhanan (“he to whom homage is paid”). The title conferred a sacred status on the holder.
34 Ibid., p. 205.
35 West-Indische Compagnie or Dutch West Indies Company.
The VOC and the WIC

The Dutch rapidly expanded trade in the Mediterranean, the Levant and the South Atlantic during the early 1590s. It was hardly surprising that they tried to extend it to the Indian Ocean about the same time. Dutchmen who sailed there in the Portuguese service had returned to their homeland with information to indicate that the Portuguese claimed to be “lords of the conquest, navigation and commerce of Ethiopia, India, Arabia and Persia”. The claim was not as effective as was implied by this pompous title assumed by King Manuel I in 1501. Memories of the Iberian embargo of 1585, and anticipation of the one to come in 1595-6, made the Dutch realize that their use of Lisbon as a spice market was becoming increasingly uncertain. In March 1594 nine North Netherland merchants found sufficient motivation and funds to organize a “Company of Far Lands” at Amsterdam, with the object of sending two fleets to East Indies for spices. The first fleet had no obvious leadership, the voyage was badly mismanaged and only three ships and eighty-nine men, out of four ships and 249 men which had left the anchorage two years earlier, returned to Texel in August 1597. But the modest cargo they brought back from Bantam more then covered the cost of the expedition.

This first exploration voyage showed that even a badly led fleet could reach East Indies, no fewer then twenty two ships fitted out by different, and largely rival, trading companies left Dutch ports for East Indies in 1598.

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37 Manuel I (1469-1521). “The Fortunate”. King of Portugal and the Algarves. His name is associated with a period of Portuguese civilization distinguished by significant achievements both in political affairs and the arts. In spite of its small size and population in comparison to the great land powers of Europe Portugal, during Manuel’s reign, was able to acquire an overseas empire of vast proportions, and for the first time in World history, with a global dimension.

One commanded by, the seafaring innkeeper, Oliver van Noort\textsuperscript{39} took the South American and Pacific route to make the first Dutch voyage around the world; but the most encouraging result was achieved by the second fleet of the Amsterdam “Far Lands Company”, led by Jacob van Neck\textsuperscript{40}. Four of the vessels in his fleet returned in July 1599 after a fifteen month absence and with a costly cargo of spices\textsuperscript{41}.

“So long Holland has been Holland” an anonymous participant observed, “such rich laden ships have never been seen”\textsuperscript{42}.

Commercial companies for trading with East Indies now sprung up like mushrooms. These companies were organized on a regional or municipal basis and rivalry between those of Holland and Zeeland was particularly acute. As early as January 1598 the States-General suggested that the various companies should merge or cooperate amicably instead of engaging in cut-throat competition\textsuperscript{43}.

Long and difficult negotiations led eventually to the formation of one company: the Dutch East Indies Company or VOC with a capital surmounting near to 6\(1/2\) million florins. The new chamber was subdivided into six regional boards or chambers (kamers) which were established in the former seats of the pioneer companies in Amsterdam. These were Amsterdam, Middelburg, Delft, Rotterdam, Hoorn and Enkhuizen. Under the charter awarded by the States-General to the VOC in 1602, the Company was given a monopoly of Dutch trade and navigation east of the-

\textsuperscript{39} Olivier van Noort (1558-1627). The first Dutchman to sail around the world.
\textsuperscript{40} Jacob Corneliszoon van Neck (1564-1638). A Dutch naval officer and explorer who led the second Dutch expedition to Indonesia from 1598 to 1599.
\textsuperscript{42} Ibid., p. 22.
\textsuperscript{43} Ibid., p. 23.
Cape of Good Hope and west of the straits of Magellan for an initial period of twenty one years. The governing body or court of 17 directors was authorized to conclude treaties of peace and union, to wage defensive war and to build "fortresses and strongholds" in that region. The directors could enlist civilian, naval, and military personnel who would take an oath of loyalty to the Company and to the States-General.

The organization of the WIC received its charter from the States-General on the 3rd of June 1621, was modelled in many ways on that of the VOC although the offensive role of the Western company in the war against the Iberian Atlantic empire is stressed from the start. The WIC which was given a monopoly of all Dutch trade and navigation with America and West Africa was authorized to make war and peace with the local powers, to maintain naval and military forces and to exercise judicial and administrative powers in those regions. It was composed of five regional chambers: Amsterdam, Zeeland (Middelburg), The Maas (Rotterdam), North-Quarter and Groningen with Friesland. The WIC counterpart to the Heeren XVII was the central board or governing body of the Heeren XIX. The WIC took much longer to raise its working capital than the VOC had done, two years as against one month, but the sum finally subscribed is substantially larger, being over seven million florins. The formation of a Dutch West Indies Company was suggested much earlier in the 17th century but was delayed by the conclusion of the twelve year truth between Spain and the United Provinces in 1609.

Although Spain was the hereditary enemy in the neighbouring Spanish Ne-

46 Ibid., p. 24/25.
therlands the Dutch attack on the Iberian colonial world was far more directed against the Portuguese than against Spain. As of the moment when the men of the VOC pass to the offensive with the capture of Amboina in 1605 they concentrated on Portuguese strongholds and settlements in the tropics whether in the Moluccas, Malaya, Ceylon or India. When they did venture to attack the Spaniards in the Philippines they were unsuccessful.

The persistent and rewarding Dutch blockades of Malacca (1635-40) and Goa (1638-44) contrast strongly with the humiliating fiascos of their expeditions to the Philippines in 1610, 1617 and 1747-48. The Dutch could not drive the Spaniards from their positions on Ternate and Tidore where the latter remained for over a decade after the treaty of Munster, and whence they only withdrew when Manila was threatened with invasion by Coxinga, the Chinese conqueror of Dutch Formosa in 1661-62.

On the other side of the world the WIC founded largely with interest in Spanish America and the silver of Mexico and Peru actually concentrated on the sugar of Portuguese Brazil and on the gold, ivory and slaves of Portuguese West Africa.

The WIC did not have too many successes against the Spaniards. They had more success against the Portuguese in the South Atlantic. The majority of losses were inflicted on the possessions and shipping of Portugal in the years 1636-48. The attacks against Spanish-America were less significant, save for Brouwer’s expedition against Chile which proved unsuccessful.

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48 Coxinga is the honorific title of Zheng Chenggong (1624-62). Chinese military leader who was born in Hirado, Japan and who died on Formosa (now called Taiwan).
51 Hendrik Brouwer (1581-1643). Dutch explorer, admiral, and colonial administrator both in Japan and the Dutch East Indies.
At one time the Dutch had deprived Portugal of half of Brazil and Angola, to say nothing of the Gold coast and Cape Verde, but their only noteworthy conquest was the capture of Curacao in 1634. In comparison with the great efforts it put forth in the South Atlantic the West India Company’s attempts to found a New Netherlands on Manhattan Island and on the banks of the Hudson River was not a success.52

The Conquest and Influences of the Portuguese empire

Jan Pieterszoon Coen53 and his contemporaries aimed at conquering the Portuguese empire through diminishing the Portuguese strength: mastery of the seas.54 As early as 1614 Coen had outlined a plan to oust the Spaniards from the Philippines and conquer Macau and Malacca to secure the trade from India to the China Sea. Coen was also the founder of the Dutch intra-Asian trade system one of the pillars of the VOC’s formidable success in the 17th century. When the Dutch conquered the Portuguese empire they took over a complete Asian trade network, which they extended by interlinking various parts of Asia. The Company used the Portuguese cartaz system by distributing passes which allowed non Dutch traders to sail on specific routes and which gave access to certain ports.55

At this point reference has to be made to the dispute between Grotius.56

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53 Jan Pieterszoon Coen (1587-1629). An officer of the Dutch East Indies Company (VOC) in the early 17th century had two terms as Governor-General of the Dutch East Indies from 1618-23 and 1627-29.
55 The cartaz system was a naval trade license or pass issued by the Portuguese in the Indian Ocean during the 16th century (circa 1502-1750) under the rule of the Portuguese empire.
56 Hugo Grotius (1583-1645). A lawyer in the Dutch Republic. With others he laid the foundation for international law, based on natural law. He was also a philosopher, theologian, Christian apologist, playwright and poet.
and Freitas\textsuperscript{57} on the control of the seas. Contrary to his Portuguese counterpart, Grotius maintained that the Dutch could not be barred from sailing the Asian seas. The importance of their debate, which was often seen as an important step towards the development of international law, did not become truly apparent until the 19\textsuperscript{th} century\textsuperscript{58}.

The majority of Dutch trading posts were former Portuguese establishments and the Dutch inherited Portuguese governmental institutions and tax systems as well as religious organizations. Initially they did have to rely on information from Portuguese archives as could be seen in Ambon and Ceylon\textsuperscript{59}.

In the Moluccas, the Portuguese learned from local sultans how to navigate the \textit{hongi}, a fleet of rowing boats, called \textit{kora kora}, and introduced it to Ambon. After the Dutch conquered the island, it was arranged that the population transferred its obligations to the Company, including the duty of each village, or group of hamlets, to crew one \textit{kora kora} for a specified number of days per year. Many village headmen who rowed in these boats had Portuguese names, such as Coelho, Thomas de Sousa, or Duarte de Silva. Another Dutch institution of possible Portuguese origin is the \textit{Landraad}, a local judicial council, whose members were called \textit{orang kaya kamara}\textsuperscript{60}. In 1631, all members of the \textit{Landraad} had Portuguese names\textsuperscript{61}.

Various customs were exchanged as part of the process of adopting the cultural traits or social patterns of another group. Certain Asian groups

\textsuperscript{57} Franciscus Serphahim de Freitas, 17\textsuperscript{th} century. Professor of Law at the University of Valldid in Spain.

\textsuperscript{58} Goor, J. van. (1994). \textit{De Nederlandse koloniën}, p. 58.

\textsuperscript{59} Ibid., p. 59.

\textsuperscript{60} Rich men who were members of the \textit{Landraad}.

fully adopted European dress whereas others mix it with their traditional style of clothing. Many Sinhalese took Portuguese names at baptism. Under Dutch rule titles like Don continued to be honoured and were even acknowledged and conferred by the Company. The Portuguese influence was the strongest among those village chiefs and people upon whom the Portuguese depended to implement their policy. In an attempt to reduce their dependence on Portuguese speaking, Catholic, chiefs the Dutch tried to find a different local group to work with. In the end they were obliged to seek their contact people among the very group that had undergone the most profound Portuguese influence and which had converted to Catholicism\textsuperscript{62}.

In Ceylon the Portuguese cultural and administrative influence was even stronger because these had been the first Europeans to come into contact with the local population on a significant scale. In order to exercise their authority the Dutch, like the Portuguese before them, left the existing power structure intact and brought about changes mainly in the field of personnel. The administration's structure was build up like a pyramid, with the local people forming its base; the next layer was formed by the majoraals or village elders; the colonizers form the top; between the latter and the majoraals came a group of higher chiefs who acted as middlemen, and who were all appointed by the disave, the head of a disavany or province. After 1621, the Portuguese gradually replaced these Sinhalese functionaries. The Dutch left the Portuguese organization intact but added another administrative layer above the disavancies through the institution of the commandment\textsuperscript{63}.

\textsuperscript{63} Ibid., p. 59.
Once the Dutch had discovered that Portuguese power on the Asian seas was not absolute they studied the Portuguese positions intently as was demonstrated by two discourses on the Dutch state in Asia written by two prominent Company men, Cornelis Matelief⁶⁴ and Jan Pieterszoon Coen, in 1608 and 1614 respectively. After summing up the Netherlands' enemies and competitors, Matelief debated what would be the best location for a Dutch control centre in Asia. He pointed out that "the town of Malacca, apart from the difficulty in conquering it, is situated rather inconveniently, because it cannot easily be reached all year round, especially by large and bulky ships that are in poor condition and do not sail well after a long voyage." He therefore proposed Jayakarta (Batavia) remarking that arrangements should be made with the town's ruler just as the Portuguese did in Cochin. As many Dutchmen as possible should be brought in from the Netherlands and offered the opportunity of earning a living as artisans or small traders⁶⁵.

The example of the Portuguese, who in the beginning had used forced exiles to populate the countries they conquered, which they later made voluntary, even handing out premiums as encouragement, should be considered carefully. Coen stressed the need to populate the Dutch settlements. "Owing to their colonies in India, the Portuguese have maintained themselves against the great force of mighty enemies, thus setting a good example for us⁶⁶."

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⁶⁴ Cornelis Matelief (de Jonge) (1569-1632). A Dutch admiral who was active in establishing Dutch power in Southeast Asia during the beginning of the 17th century.


⁶⁶ Ibid., p. 57.
In his later career, the idea of populating overseas possessions\textsuperscript{67} remained a cornerstone of Coen's great plans for a Dutch Asia. During his second term of office as Governor General (1627-29), he tried in vain to introduce a scheme to populate the colony, but the Dutch system of marriage never flourished due to opposition of the Gentlemen XVII\textsuperscript{68} at home\textsuperscript{69}.

The Directors preference for a Company of unmarried professionals had an impact on the organization of social life in the Dutch communities, and left little room for civil institutions such as the camara (city council) or the misericordia (charity) With the exception of Jayakarta (Batavia), which Coen founded with the intention of promoting a vigorous civilian society, not a single Company settlement or factory in Asia had a city council or town hall. After Coen’s death, the Batavia council was never taken very seriously. Under the Dutch, relief for the poor is administered, partly by deacons of the Dutch reformed Church, and partly by the Company who paid a small allowance to retired members with insufficient means\textsuperscript{70}.

**Trade in Dutch East Indies, Dutch India and Dutch Ceylon**

The Portuguese introduced fortified trading posts and fortified towns for the greater security of their persons and their merchandise in an actual or hostile environment\textsuperscript{71}.

The unfortified trading post in Asia was not a novelty or an innovation in

\textsuperscript{67} Goor, J. van. (1994). *De Nederlandse koloniën*, p. 58.

\textsuperscript{68} Gentlemen 17 or Heeren XVII was the name for the board of directors of the Dutch East Indies Company (VOC), founded in 1602. It had six constituent chambers, located in cities where previously separate “pre-companies” had been established Amsterdam, Middelburg (Zeeland), and Rotterdam, Delft, Hoorn and Enkhuizen.

\textsuperscript{69} Goor, J. van. (1994). *De Nederlandse koloniën*, p. 57/58.

\textsuperscript{70} Ibid., p. 58.

\textsuperscript{71} Boxer, C.R. (1965). *The Dutch Seaborne Empire, 1600-1800*, p. 188.
so far as Asian rulers and potentates were concerned\(^{72}\).

The Dutch followed the Portuguese precedents and for the same reasons. Not only were they apt to feel insecure in an Asian environment which they did not understand and amongst peoples whose languages few of them could speak and whose religions they regarded with horror or contempt but they needed ports where their persons and their goods would not be liable to arbitrary seizure and where they can provision and repair their ships in complete security. From 1605 on they were determined to enforce a spice-monopoly in the Moluccas and later a pepper monopoly elsewhere. For this naval and military bases were needed. Furthermore they felt the need for a general port where their homeward- and outward bound ships could load and unload their cargoes and where goods from the interport trade for Asia could be collected, stored or transshipped. The forts which they took from the Portuguese were inconveniently located and they realized that such a general port would have to be located in the area of the Straits of Malacca or the Straits of Sunda where the trade routes and the monsoon-winds came together. One of the convenient locations was Malacca which the Dutch almost conquered in 1606 but instead they took Jayakarta (Batavia) on the 30 May 1619\(^{73}\).

The Dutch were soon involved in Javanese local politics at a time where the kingdom of Mataram was not only trying to impose itself on Java but on the whole of the Malay Archipelago. The *Heeren XVII* gave only reluctant approval to do so when they gave it all. The respective Governor-Generals did so anyway. Java was essentially an agrarian country\(^{74}\).

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\(^{73}\) Ibid., p. 188/189.

\(^{74}\) Ibid., p. 190.
Java was important to the VOC for the supply of rice. The Susuhunan or Sultan (Amangkurat I) was not interested in trade and commerce nor in the economic welfare of his subjects. But only in keeping his own position at home and in other regions on the Malay Archipelago. The farmers lived on the products of the soil. The aristocracy on the taxes levied and on forced labour by their subjects.

The policies of intimidation by Amangkurat I eventually alienated the nobility and government officials from him. A rebellion led by the Madurese Prince Trunajaya led to the flight of the Susuhunan. He was forced to flee from his palace and died on his flight after appealing to the VOC for support in 1677. The late Susuhunan’s was restored by the Dutch to the throne of Mataram and in return there was more demand for territory and commercial privileges. From there on the relations between the Dutch and Mataram was on a different footing. The Susuhunan addressed the Governor-General as protector, father or even grandfather but as before envoys were sent with costly presents to the court of the Susuhunan.

The weakened central authority in the 18th century eventually led to a renewal of the succession disputes which lead to the creation of two separate states Surakarta and Jogyakarta in 1755. By this time the VOC imposed its authority over the whole island and reduced all the Javanese sultanates to the position of client or vassal states.

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76 Amangkurat I (1619-77), Sultan of Mataram from 1646-77.
78 Prince Trunajaya (1649-80). A prince and warlord from Arosbaya, Bangkalan, Madura. In 1674 he led a revolt against Amangkurat I and Amangkurat II of Mataram.
80 Ibid., p. 194.
The VOC became a territorial power in Java, Ceylon and the Moluccas but never really integrated in the Asiatic society. This was even more so the case in countries like China and Japan, where the VOC had simple trading agencies and even in southern India where they had at one time exercised jurisdiction over districts and inhabitants close to the forts and factories. Asian society whether East Indien, Chinese, Japanese, Indian, Persian or Malay did not wish to be changed into a European lifestyle but wanted to keep its traditional and static forms. The basic social economic and religious factors which determined the structure of Asian society remained unchanged until the 19th and even into 20th century81.

Through discoveries and innovations the VOC established a trade monopoly as in the spice-trade in the Moluccas. But outside the East Indien waters they were not able to do so. They tried to bring pressure upon Indian rulers with whom they had trade disputes by seizing their shipping or otherwise interfering with their seaborne trade. These measures had no strong effect since the VOC had no strong base in India82.

Dutch forts on the coast of Malabar and Coromandel were liable to the risks of reprisals by Indian rulers whose inland capitals were not threatened by the ships of the VOC as were those of the coastal sultanates in Dutch East Indies. In Ceylon their policy of blockading the coast did work since here they could cut off the kingdom of Kandy from the sea83.

The capital brought into the country by the VOC for the purchase of textiles which were exported to Dutch East Indies led to the participation of the richer Indian merchants to take part in the overseas trade which by the

82 Ibid., p. 196.
83 Ibid., p. 196/197.
year 1600 were confined to the Bay of Bengal and the Malay Peninsula. The trade had extended by the end of the 17th century to Java, Borneo, Celebes and the Philippines. The plans of the VOC to monopolize the pepper-trade led to nothing since the English East Indies Company imported in 1713 as much pepper into London as the VOC was receiving from the entire Indo-Malayan archipelago.

The VOC was found primarily to trade in pepper and spices. These two products were for the first half of the 17th century the most valuable part of the homeward bound cargoes. By 1700 the demand for Indian textiles and cotton-piece goods as well as for Chinese, Bengal and Persian silks and silk-stuffs led to these goods taken over priority. In the 18th century the trade in tea and coffee became even more important than the growth of the trade in textiles. Large scale cultivation of coffee and sugar in Java became increasingly important during the 18th century. In 1791, 90% of the coffee imported into the Europe by the VOC came from Mocha and only 19% from Java, but five years later it was the direct opposite.

In addition to pepper, spices, textiles, tea, coffee and porcelain other commodities were traded via the VOC. Indigo and saltpeter from India; lacquered goods from Japan; elephants from Ceylon and slaves from Arakan, Buton and Bali.

**Exercise of Crafts in Dutch East Indies, Dutch India and Dutch Ceylon**

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85 Ibid., p. 198.
86 Ibid., p. 199.
87 Ibid., p. 201.
A specific group of workers, skilled craftsmen and manual workers\textsuperscript{88} lived in Asia. These were ship’s-carpenters, caulkers, riggers and dockyard-mateys. Almost every industrial craft was represented in the craftsmen’s quarter (\textit{Ambachtswartier}) in Jayakarta (\textit{Batavia}) from 1682 onward. Carpenters, woodworkers, furniture-makers, blacksmiths, locksmiths, armourers, gunsmiths, gun-founders, type-founders and cutters, masons, bricklayers, glaziers, cobblers, tailors, dyers and jewelers. Each craft lived worked and socialized under its own foreman of overseer who supervised the European workmen and the Company’s slaves who were trained by them and lived alongside them\textsuperscript{89}.

Several of the larger Dutch settlements, particularly the factories in Coromandel and Ceylon, also had their own \textit{Ambachtswartier}, where European and Asian craftsmen worked together under the supervision of European supervisors. There were also European craftsmen and artisans in the forts of the Dutch West Indies Companies but they were never as numerous as they were in the East and the range of their skill was not nearly so wide\textsuperscript{90}.

Chinese artisans were active, especially, in Jayakarta (\textit{Batavia}) where, they had good reputation as cabinet-makers. The best work in this respect was by Sinhalese and Tamil craftsmen from Ceylon and on the Coromandel Coast, where the finely carved Indo-Dutch baroque furniture was produced\textsuperscript{91}.

\textbf{The Conquest of Malacca}

\textsuperscript{89} Ibid., p. 213.
\textsuperscript{90} Ibid., p. 213.
\textsuperscript{91} Ibid., p. 214.
In 1640 the VOC decided to take Malacca from the Portuguese who had taken the port in 1511. Malacca was situated on the Straits of Malacca and had become an important route by the second century AD after the land route has been disrupted by warfare. Malacca had a strategic position at the Straits and would be an addition to the Trade Empire of the VOC. It would deal the Portuguese a heavy blow and threaten their trade in the Malay Peninsula and East Asia. The Portuguese who were already trading in Asia as from 1498 and as from the beginning of the 16th century the Portuguese could be found on all the important Asian coasts. The capture of Malacca would give the VOC an important trading post where goods would be brought in from the Malay Peninsula, Bengal, Coromandel and countries in the West. However Jayakarta (Batavia) was more important and its position was guarded with great care. The VOC settled at the south shore of the Malacca river in the castle which the Portuguese left. The castle was strengthened and a moat was made around.

**Trade in Malacca**

The Straits provided a safe route between China and India. The passage through the Straits was not swift but it was certain. The monsoon winds could be relied upon for both the outward and the homeward leg of the voyage to the east or the west alternate in half’s of the year.\(^92\)

Over the centuries harbours emerged along the Straits and some acquired great wealth. This wealth was used to develop increasingly sophisticated societies and forge extensive political connections. Thus the port city becomes the basic structure of the Malay world. The main assets of such a city are its position, its population and its ruler. The most important is the

ruler: he has to retain and attract followers\textsuperscript{93}. The town of Malacca became the site of an entrepôt and a trading station, which provided a shelter and provisions for ships, assembled goods for exchange and offered navigational facilities for trade further east.

Shipping came from Siam (Thailand), Indo-China, Japan and the Philippines: foodstuffs\textsuperscript{94}, jungle products and a variety of other items. Within the Peninsula, from the Straits, notably from Siak and Kedah, foodstuffs, jungle products and poor quality gold. From the coast of Northern Sumatra, especially the towns of Pasai and Pedir, tin, gold products and pepper in return for cloth, opium and foodstuffs\textsuperscript{95}.

The Dutch became increasingly involved in the area monopolized all trade and undermined the delicate relationships that had developed in the region between the various states and their proper trade positions\textsuperscript{96}. The Dutch considered themselves the inheritors, of all the rights of sovereignty of the Malacca Sultanate and acted likewise\textsuperscript{97}. For a century Malacca was the most important trading center of the world. Merchandise was traded from Arabia, Persia, India, China, Portugal and Japan and even goods from Portugal and Japan were traded here.

The VOC tried to impose its authority by concluding treaties with its neighbours and the states it had commercial dealings with. However the local rulers accepted those but did not think them permanently binding. Treaties were unknown in the traditional Malay world. They were more considered as guidelines.

\textsuperscript{94} Any material, substance that can be used as food.
\textsuperscript{96} Ibid., p. 1.
The VOC thought they would be able to cover the costs which were inexplicitly connected to the functions of Malacca as a fort by optimizing the commercial activities of the town. On the one hand to make use of Malacca as a storage market. The Dutch therefore put taxes on the local trade. These were export-and import duties, anchorage duties or weigh duties. The VOC-officials also hoped to encourage the local trade by implying special rules and regulations for the indigenous traders. On the other hand they hoped to develop more activities to make more income out of their own trade business. This meant they were going to participate in the tin trade.98

The dual approach of the trade in the region was, not going to be a great success. If Malacca had been a flourishing market the VOC would have taken in much money on all the levies they imposed. On the other hand if the local trade was doing very well the VOC could not develop their own trade. In the local tin trade results could only be achieved if the competition was to be curtailed. And then Malacca, again, would not make a lot of money on imposed levies. It took about a half a century for the VOC to solve the problem with this dual approach99.

Huge profits could be made in Malacca. The Boom farm or customs house, levied 15 Spanish dollars per chest on opium, 1.25 Spanish dollars per picul100 on tin and 1.25 Spanish dollars per picul on pepper. It was given power to collect taxes for all piece goods (clothes) that entered Malacca either from the east or the west. Raw silk was levied at 7 per cent of its va-

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99 Ibid., p. 154/155.
100 The picul (spelt pikul) is a traditional Asian unit of weight. A major problem with traditional measurement units is regional variance in definition.
hue at the time of import\textsuperscript{101}.

Tax also applied to opium, betel leaf (sirih), pork, arak\textsuperscript{102}, gaming houses and fish markets. Goods, both imported and exported, that were not listed as taxable products were not taxed. Goods not displayed for sale but loaded on ships for export were required to have a certificate attached to them from the customs house, declaring that they were for re-export and not for sale in Malacca. If goods were offered for disposal, then the usual duties on imports are charged\textsuperscript{103}.

**The Tin trade in Malacca**

Important to the Dutch was the extension of the tin trade. Tin-goods had an important place in European and Asian households. Together with a certain percentage of copper or lead, tin was the very material to make all kinds of objects for the daily use: eat-; drink;- and kitchenware, chandeliers, mirrors, urinals, soap trays but also toys like dolls houses or soldiers. Iron pots and copper pots and kettles, of which the inside had a layer of tin, were safe to use for the preparation of food, because tin was resistant to certain acids and does not affect the taste of certain dishes\textsuperscript{104}.

The Dutch participated (in the 17\textsuperscript{th} century) in the tin trade to cover the costs of keeping Malacca up as a depôt. Officials got the directive to keep

\begin{thebibliography}{9}
\bibitem{102} Arak or Araq is a highly alcoholic spirit (50\%-63\% Alc. Vol.). It is a clear, colourless, un-sweetened anise-flavoured distilled alcoholic drink (also labelled as an Aperitif). It is the traditional alcoholic beverage of Lebanon and Syria, and is also produced and consumed in many Eastern Mediterranean and North African countries.
\end{thebibliography}
away from any conflicts. Military operations would make the upkeep of Malacca higher. As such the tin trade differentiated from the pepper or spices trade for which the VOC was prepared to do anything. The tin trade was therefore not a great success. The native rulers had nothing to fear and could deal with whomever they wished and made the best price for their tin. The company was not allowed to put any military pressure upon the local rulers to have them follow the treaties. On the other hand the VOC could not raise the price of tin to outdo the local traders that made the VOC very much dependent on the developments in the region\textsuperscript{105}.

**Social Life in the Dutch territories**

A feature of life in the East and West Indies, was the excessive preoccupation of the senior employees with official rank and status. Class-consciousness was highly developed among the Dutch in their home country. Until recent times a married woman was addressed as Mevrouw, Juffrouw or Vrouw according to the status of her husband. In the overseas possessions and in *Batavia* in particular, class distinction and social graduations were carried to grotesque lengths more especially during the second half of the 18\textsuperscript{th} century\textsuperscript{106}.

The Dutch East Indies Company official hierarchy, was as strictly regulated as in the Roman Catholic Church. Rank and precedence was the breath of life of the European citizens of Jayakarta (*Batavia*). The dress of the Company’s servants, the number of coaches or vehicles which they could have and the degree of decoration they were allowed. These and a hundred other personal matters were all regulated in the greatest detail. As was the


lengthy toast list at official and private parties. The order of precedence at receptions, dinners and funerals were laid down with the minutest detail. Giving rise to bitter quarrels and lawsuits whenever some real or fancied breach of the regulations occurred. It was the ladies who insisted upon each and every prerogative attached to the rank of their respective husbands. They were generally not of any really social mentionable background.\textsuperscript{107}

Another feature of life in Jayakarta (\textit{Batavia}), for that matter in all the principal European settlements in the tropics to a greater or lesser degree, was the importance attached to a display of pomp and circumstance largely with the idea of impressing the indigenous population with the White Man’s wealth and power.\textsuperscript{108}

This kind of life was, restricted to a few hundred merchants and officials of the company. It was not shared by servants as junior clerks, soldiers and sailors. Life for soldiers was a harsh one and some travellers comment that life for them was equally harsh as it was for Negro slaves.\textsuperscript{109}

\textsuperscript{108} Ibid., p. 211.
\textsuperscript{109} Ibid., p. 212.
Chapter 2  Simon Stevin and his Principles

Simon Stevin

Simon Stevin (1548-1620) was a Flemish mathematician and military engineer. He was active in many areas of science and engineering both in theory and in practice. He translated various mathematical terms into Dutch making it one of the few European languages in which the word for mathematics, *wiskunde* (‘the art of what is certain’), was not derived from Greek via Latin. Stevin was born in Brugge, Flanders (now Belgium) around the year 1548, to unmarried parents, Anthonis (Anton) Stevin and Cathelyne vander Poort. While in his twenties, between 1571 and 1577 Stevin left his native town of Brugge. After having extensively travelled through Europe, in his thirties, in 1581, he moved to Leiden. In 1583, at the age of 35, Stevin entered the University of Leiden. In 1592 Stevin was put in charge of the Waterstaet (waterways) in Delft. In January 1593, upon the recommendation of *stadhouder* (governor) Maurits van Nassau, he was appointed by the States-General *castrametator* (quartermaster general) of the Dutch armies, a position which he held until the time of his death.

Stevin’s character has been described by different authors. “A charitable, sober and humane man”. “A refreshing way of tackling problems”, “Hard working and clear thinking” and “A good-natured and funny guy”, “Quite opportunistic, cold-rationalistic and with pragmatic rationalism” and “A

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very utilitarian view”\textsuperscript{3}.

Stevin is a “vernufteling” which means he had a sense of ingenuity\textsuperscript{4}. Hooft\textsuperscript{5} invented this term that refers to representatives of the "practical, outside of the universities operating engineering sciences”, as a translation of "engineer" a familiar concept at the time. Stevin also distinguishes himself from the humanist scholar who is characterized by universality, who gained knowledge through the study of antique books and refined existing knowledge\textsuperscript{6}.

Stevin was characterized as one of the new generation of scientists. Stevin was a pragmatist who did not surrender to philosophical speculations. Stevin hardly referred to ancient philosophers\textsuperscript{7}.

In 1580 Stevin published a series of texts first with the publishing firm of Christopher Plantin than later in Leiden (again through Plantin). These texts were didactic works on mathematics: arithmetic geometry as mechanics (especially statistic), astronomy, hydrostatics, locks, perspective, the organization of the camp and fortifications. Another work was the Thiende the decimal notation system introduced for fractures. Stevin also published on accounting, public affairs, logic, bourgeois life and set a twelve-tone music system. Moreover he published a defense of the special position of Dutch as a scientific language\textsuperscript{8}.

His ideas were written down, as with other architects and mathematicians,

\textsuperscript{3} Mare, H. de. (2003). Het huis en de regels van het denken, p. 23/24.
\textsuperscript{4} Ibid., p. 24.
\textsuperscript{5} Pieter Corneliszoon Hooft (1581-1647). Knight in the Order of Saint Michael was a Dutch historian, poet and playwright from the period known as the Dutch Golden Age.
\textsuperscript{6} Mare, H. de. Het huis en de regels van het denken, p. 24.
\textsuperscript{7} Ibid., p. 24.
\textsuperscript{8} Ibid., p. 22.
in principles (treatises) and had an influence on the construction (design and planning) of forts in the Netherlands and forts and settlements of the VOC in Asia. Stevin developed a city design in which he had been influenced by ideas of an ideal town according to the principles of the Italian Renaissance\(^9\): the application of arithmetic units and strict symmetry and Dutch engineering and fortification works from the 16\(^{th}\) and 17\(^{th}\) centuries. Stevin mentioned in his Ideal Plan for a City, how he would design a city: the most suitable form would be a rectangular with a division in rectangular blocks of plots, houses, courts and markets. All these had to be in a symmetrical order. There should be a clear positioning of functions and their positioning in the plan. All places should be easily accessible especially by water or by a network of perpendicular streets. The military buildings were constructed like forts with fortification walls, canals, locks, dikes and bridges. Stevin’s plan for a town had a central river or canal which formed the primary axis of the ground plan which ran from one side to the other: from the sea to the land behind through the settlement. One side of the settlement (the short side) was parallel to the coastline. On both sides of the town were gates and on the seaside the quays of the inner harbour. On the second axis, which ran at a right angle to the first one, are the most important social and public buildings, including the centre of government, situated. Both axes represented the organizational side of the town. The first one running through the settlement for transport while the other one for its social and public functions.

**Stevin’s views on theory and practice**

Some authors claim that Stevin thought that a practice without theory is im-

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\(^9\) Renaissance: The humanistic revival of classical art, architecture, literature and learning that originated in Italy in the 14\(^{th}\) century and later spread throughout Europe.
possible while a practice with theory can exist. \textit{“Stevin preferred a theory which is fit for practical use”}\footnote{Mare, H. de. (2003). \textit{Het huis en de regels van het denken}, p. 23.}. Practice or in his terminology \textit{de daet} was guiding for the theory \textit{de spiegeling}. Stevin emphasized that the usefulness of his theories on military art and architecture were optimized by listening to the opinion of people from the military and building practice\footnote{Ibid., p. 23.}.

His work lacks philosophical speculations, and \textit{“barely refers to classical philosophers”}\footnote{Heuvel, Ch. van den. (1995B). \textit{“De Huysbou, de Crychconst en de Wysentijt”}, p. 63.} Stevin does not develop any naturphilosophy of his own as Galileo\footnote{Mare, H. de. (2003). \textit{Het huis en de regels van het denken}, p. 24/Kox, A.J. (1980) \textit{“Simon Stevin (1548-1620)”}, p. 8/9.} and Descartes\footnote{Galileo Galilei (1564-1642). Italian astronomer, physicist, engineer, philosopher and mathematician who played a major role in the scientific revolution of the 17th century.}\footnote{René Descartes (1596-1650). French philosopher, mathematician, and scientist. The father of modern western philosophy.}. He was characterized as one of the new generation of scientists. Stevin was a pragmatic who did not surrender to philosophical speculations.

\textbf{Designing Cities, De Stercktenbouwing, Wisconstighe Ghe-dachtenissen, Castrametatio and Ideal Plan for a City}

Three issues were related to Stevin's architectural principle (treatise): \textit{On-derscheyt vande ordeningh der steden Byvough der stedenoirdening, vande oirdening der deelen eens hvis Met `t gheene daer ancleeft}. (Designing Cities). One of the issues was the ideal city in relation to practice. The city map was a rectangle with sets of squares, which were separated by a triple channel scheme. Most authors emphasized the simplicity, clarity and the convenience for the tailored shape of the city in the Dutch swampy lands. It also pointed out the basic shape of the square which served as a module in
the plan. In the four corners and the centre were a number of localized features, such as markets, churches, a trade fair and a city hall, a school and a prison. On the one hand there was the opinion that Stevin in his drawing retook the old pattern of the chessboard that was already practiced by the Greeks and Romans. There are reminiscences of Dürer’s\textsuperscript{16} town and other rectangular cities of that time.

On the other hand, authors frequently emphasized that Stevin's design anticipated the later 20\textsuperscript{th} century town planning, given its formal and planned settlement functions, accessibility and traffic\textsuperscript{17}.

The planning and construction of settlements (forts and towns), in the Netherlands were influenced by Simon Stevin\textsuperscript{18}. The treatises of Simon Stevin had an influence on the construction of settlements in Asia. In 1594 Stevin published a paper on how to build fortresses: \textit{De Stercktenbouwing} (The Art of Fortification). The treatise \textit{Wisconstighe Ghedachtenissen} (Thoughts on Mathematics) was published in 1605-08 by Simon Stevin. A part of this treatise was named \textit{Huysbou} (House Building). One of the chapters which was originally intended for \textit{Huysbou} was titled: \textit{Materiae}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{stevin_city_planning.png}
\caption{Stevin’s City Planning. Royal Library, The Hague, The Netherlands. 5191954, p. 85.}
\end{figure}

\begin{itemize}
\item \textsuperscript{16} Albrecht Dürer (1471-1528). A German painter, printmaker, engraver, mathematician and theorist from Nuremberg in Germany.
\item \textsuperscript{17} Mare, H. de. (2003). \textit{Het huis en de regels van het denken}, p. 25.
\item \textsuperscript{18} Oers, R. van. (2000). \textit{Dutch Town Planning Overseas during VOC and WIC rules (1600-1800)}, p. 78.
\end{itemize}
Politicae (Political Subjects). In 1617 the treatise Castrametatio: Dat is Legermeting (Camp Measurement) was published. In 1649 after his death his Ideal Plan for a City was published in Onderscheyt vande oirdening der steden and Byvough der stedenoirdening, vande oirdening der deelen eens hvis Met `t gheene daer ancleeft. (Designing Cities).

De Stercktenbouwing

Stevin published in 1594 De Stercktenbouwing an architectural theory on fortifications that combines both Italian and Dutch designs. In the treatise military fortifications are redesigned, with a geometric basis, to be adapted to the projectile orbits of the new firearms instead of the old crossbow.

Stevin gave in De Stercktenbouwing guidelines on the construction of fortresses. There were according to Stevin two kinds of fortifications: fixed fortifications and temporary fortifications in the open field. According to Stevin the fortresses were to be constructed of brick walls although this was unpractical in the wet and swampy Dutch landscape. Walls of earth were easier to build, lighter and cheaper. These were more resistant to the impact of bullets. In the practice of the Dutch fortifications a system developed that was much more focused on the landscape of the Netherlands. In this paper Stevin also gave much attention to the use of water as a defensive system.¹⁹

A faculty was established in 1600 at the University of Leiden, in the Netherlands, to make engineers more acquainted with fortifications in the open field. The faculty was named Duytsche Mathematique (German Mathematics). The commission to establish such a faculty was given by

Prince Maurits\textsuperscript{20}. The students were taught in geodesy\textsuperscript{21} and building of fortifications. After the students were familiar with the elementary principles of arithmetic’s\textsuperscript{22} and practical geometry\textsuperscript{23} they had to measure and draw regular and irregular polygon (multi corners) figures. They were then sent on fieldtrips to practice and to learn how to place the polygon figures with the help of beacons in the open field. When they had acquired enough knowledge of land-measurement, they had to make models of wood or clay of bastions and entrenchments in miniature size\textsuperscript{24}.

Wisconstighe Ghedachtenissen

The treatise *Wisconstighe Ghedachtenissen* (Thoughts on Mathematics), published in 1605-08 by Simon Stevin. A part of this treatise was named *Huysbou* (House Building). The principle (treatise) the *Huysbou* is about architecture and urbanism. In this work Stevin presents a number of plans

\begin{center}
\includegraphics[width=\textwidth]{image.png}
\end{center}

Figure 2.3a and 2.3b: Marking out fortifications in the field using surveyors’ poles, Ropes and vanes to produce circles (2a) and pentagons (2b). Royal Library, The Hague, The Netherlands. 5191954. p. 74.

\textsuperscript{20} Maurits of Orange (1567-1625). Prince of Orange and Count of Nassau. Governor and military commander of the Dutch Republic.

\textsuperscript{21} Scientific discipline that deals with the measurement and representation of the Earth

\textsuperscript{22} The most elementary and oldest branch of mathematics.

\textsuperscript{23} Is a part of mathematics concerned with questions of size, shape, relative position of figures and the properties of space.

of houses and cities. In his designs of houses he maintains an equilateral\textsuperscript{25} symmetry. Stevin places functionality over decoration. The designs for cities, which Stevin describes in this work, are rectangular and surrounded by fortress walls. They are primarily focused on civil functions. The military requirements in the work are of subordinate importance. This is in contrast to his designs in \textit{De Stercktenbouwing}\textsuperscript{26}.

One of the chapters which was originally intended for \textit{Huysbou} was titled: \textit{Materiae Politicae} (Political Subjects). Stevin expressed, his ideas in this chapter on locating all administrative power of a city in one single building. He added that all the governing bodies of the city had to be housed in a palace or \textit{Vorstelyck Huys} (Regal House). Stevin gave several reasons, why he wanted this stately house to lodge all the officers with their wives and children\textsuperscript{27}. One of those reasons to Stevin, was to reduce travel time as well as to save money\textsuperscript{28}.

The paper \textit{Huysbou} contained all kinds of information: it was about the selection of the site where to build a city and on the lay-out of cities. It was about the lay-out of churches and prisons as well as of the galleries in front of the house on both sides of the street and the mirror-sided expansion of the town\textsuperscript{29}. It contained information how to keep water fresh, about locks, harbours, water breakers, how to keep smelling canals fresh and how to make diked lands higher in order to prevent the flooding of towns and villages while ensuring that they stayed fertile\textsuperscript{30}.

\textbf{Castrametatio}

\textsuperscript{25} All sides are equal.
\textsuperscript{26} Heuvel, Ch. van den. (2005). \textit{Reconstructing Stevin’s Huysbou}, p. 149.
\textsuperscript{27} Ibid., p. 185.
\textsuperscript{28} Ibid., p. 185.
\textsuperscript{29} Ibid., p. 200.
\textsuperscript{30} Ibid., p. 200/201.
The treatise *Castrametatio: Dat is Legermeting* (Camp Measurement) of Simon Stevin, which was published in 1617, was about composition of an army camp\(^{31}\). Principally concerned with the lay-out of an army camp on site. It also contained a description in which way temporary army camps should be designed for sieges. Stevin combined the theoretical examples of the Classical Antiquity, with the experiences of the Eighty Years War\(^{32}\). From these experiences, Prince Maurits developed a camp model which was modern for its time. First the Prince had designs made of the lay-out of the camps in the fashion of the Romans but after many complaints from his officers for the too small housing he decided to redesign his camps according to the rectangles of Polybius and other authors of the rectangles of Polybius\(^{33}\) and other authors of the antique Greek and Roman periods.

The model was empirical\(^{34}\) in its approach and flexible in design which made it possible for an encampment to be constructed anywhere. All required shelters were set up in squares with a total length of three hundred Dutch feet\(^{35}\). Next the width was adjusted to the requirements of the commanding officer or army encampment. The squares were then drawn on scale and moved around on a drawn roster within lines which ran parallel to each other. In between these lines there was space for streets which had a width of fifty Dutch feet. When it was deemed necessary the squares could be made wider or narrower. It was especially the detail for logistics and

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\(^{33}\) Greek statesman and historian (c 200-c 118 BC). Polybius wrote 40 volumes on the rise of Rome of which only 5 remain in their entity. In some volumes Polybius wrote about wars which were fought by Rome and how they were fought.

\(^{34}\) Empirical means information gained by means of observation and experiment.

\(^{35}\) A foot is called a voet in the Dutch language. The most commonly used was the Rijnlandse voet. Which is 0.098596 m\(^2\) or 1.0163 sq.f.
order which were so characteristic for the designs of Simon Stevin. The longer the army stayed the bigger the camp got and could even grow to become a city\textsuperscript{36}. After the army entered the camp it was enclosed by, water filled, moats and bastions at regular intervals. The bastions were placed at each corner of the camp. They extended slightly outside the line of fortifications so there was a better view of the surrounding countryside and along the length of the wall. \textit{Castrametatio} (Camp Measurement) contained lists of everything, up till the last nail, what should be in an army camp. It contained instructions to keep order in the camp, about hygiene, the sale of beer, gambling and the distribution of places where salespersons should sell their goods. The Polish architect Adam Freitag\textsuperscript{37} the author of the \textit{Architectura Militaris or Fortification} of 1630 made a difference between temporary camps for one or a couple of nights, camps for sieges and camps which grew into a city. His book was inspired by \textit{Castrametatio} (Camp Measurement) by Simon Stevin. This design most likely had an influence on the design of the first VOC settlements overseas\textsuperscript{38}.

**Ideal Plan for a City**

In his Ideal Plan for a City published, in \textit{Onderscheyt van de oirdening der steden} and \textit{Byvough der stedenoirdening, vande oirdening der deelen eens hvis Met `t gheene daer ancleef} (Designing Cities), in 1649 after his death. In his Ideal Plan for a City Stevin had developed a city design in which he was influenced by ideas of an ideal town according to the principles of the Italian Renaissance: the application of arithmetic units and strict symmetry. As well as by Dutch engineering and fortification works from the 16\textsuperscript{th} and 17\textsuperscript{th} centuries.

\textsuperscript{36} Heuvel, Ch. van den. (2004). “De legertent als bibliotheek”, p. 42.
\textsuperscript{37} Adam Freitag (1608-50).
\textsuperscript{38} Heuvel, Ch. van den. (2004). “De legertent als bibliotheek”, p. 43.
Stevin mentions that the choice of a specific site to build a settlement depended on certain aspects: It should be able to defend properly, the soil had to be fertile and it should be located at the estuary of a large navigable river which was essential for trade purposes.

The English Translation of 1604 of De Stercktenbouwing

The English translation of 1604 in manuscript form of the Art of Fortification (Stercktenbouwing), of 1594 in James Catalogue at Trinity College Library, Cambridge, United Kingdom has never been printed. This rare 06-page document, most of which in old writing, has been found not to be serviceable for the interpretation of Stevin’s original text for the non-Dutchmen. This book has been translated not only into English but also in French and German.

The French translation of 1634 by Albert Girard occurring in the Oeuvres Mathematique (Mathematical Works) (Work XIII) is, presumably the only one. It is in any case the best known. It was used by Mallet, for the extract in his Traveaux de Mars of 1671 (Works of Mars) and was translated back into Dutch again by Smallegange, as in Den arbeid van Mars 1672, afterwards also by Brialmont.

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40 With the exception of the title page, the tabulated classification of the contents, the notes in the margin and the captions and legends of most of the figures, the entire manuscript has been written in the old Gothic script.
41 Albert Girard (1595-1632). French mathematician and musician.
44 Mattheus Smallegange, (1624-1710). Dutch historian, genealogist and translator.
45 Henri Alexis Brialmont (1821-1903). Dutch–born Belgian military engineer. One of the leading fortifications engineers in the 19th century.
Wauwermans\textsuperscript{47}, however, has consulted the original Dutch text. The German translator anticipated the French: as early as 1608 the first edition by Gothard Arthus of Dantzig\textsuperscript{48} was published at Frankfort-on-the Main; an improved but probably identical reprint, also as regards the dedication appeared in 1623. Perhaps this early translation can be regarded as a result of the respect for Speckle\textsuperscript{49}, who for Stevin was such an important predecessor and example. The French, it must be admitted, were not so much in need of Stevin’s book: since 1594 or 1600 they possessed Errard’s \textit{Fortification}.

The question why an English translation was so soon made, is not difficult to answer\textsuperscript{51}. For in 1604, the year which the manuscript bears, there were still a fair number of English troops in the service of the Republic; the siege of Ostend, in which also commanders and engineers were involved, had just come to an end and until 1609 Britain was to keep the fortresses of Flushing and Brielle occupied. Likewise, it may appear from the History of the Royal Engineers that in those years and even earlier, the English themselves must have been acquainted with the art of fortification in the style of the Italians and their followers Stevin and Speckle.

This is proven by the old town of Berwick, possibly the only town in England which has kept its bastioned fortifications, but also the above mentioned history, which in addition to important data on the construction of these fortresses in the years 1559 to 1563 contained the names of English engineers who were contemporaries of Stevin. Among them was

\begin{itemize}
\item \textbf{Lieutenant-General Henri Emmanuel Wauwermans.} (1825-1902). Belgian writer. \textit{Etude sur la bibliographie de l’Architecture Militaire Flamande}.
\item \textbf{Gothard Arthus of Dantzig} (Dantzig (1570-1630?). German historian.
\item \textbf{Daniel Specklin} (1536-89). German fortressbuilder, engineer and cartographer.
\item \textbf{Jean Errard} (1454-1610). French engineer.
\end{itemize}
Captain John Paperill, who served as an engineer in the siege of Ostend in 1601-3 and in that of Juliers in 1610. In addition to this engineer, his compatriot Raeff Dexter was especially known, and was praised by the authors of the former siege as “the best and most daring of all among the engineers” 52. Could not either of these two, after returning home, influenced by what they had experienced in the besieged fortress have taken an initiative for the translation which had all the features of having made by an expert.

Not only has this engineer translated the Dutch text, which was clear to him into English, but apart from minor licences in style and choice of words which, naturally, he could permit himself – he also made improvements among other things by curtailing Stevin’s argumentation53. The principal of these is no doubt, the extra picture of Stevin’s bastion included as 9th figure, “Added by the Translator for the better expressinge of the authors meaninge” (added by the translator for the better expression of his meaning). It would seem to us that there was reason for this; in any case, it made for easier reading of the book54.

The translation of 1604 does not, include the aforementioned dedication of the book to Hendrick van Brienen55, the end note of chapter 1, on folios 6 and 7, and the “conclusion” on folio 9156.

The reason that the ideas of Simon Stevin were not implemented in full was that they were too expensive for the limited financial means of the re-

53 Ibid., p. 35/36.
54 Ibid., p. 36.
55 Hendrick van Brienen (1540-1620). Burgomaster of Harderwijk. Member of the nobility of the Veluwe. Councillor of the Court of Gelderland and for many years deputy for Gelderland in the States General and in the Council of State.
public. The ideas of Samuel Marolois and Adam Freitag were implemented. The financial means of the Republic were only just sufficient to apply this very inferior system for the many fortresses they had to build or improved in those years. Prince Maurits will certainly have realized that the design according to Stevin’s system with its double walls, revetments, very large bastions and three fold-flanks, would have made financially impossible demands. Only a century later this system, though of course in a somewhat modified form, was to find application, as appears from the fortresses built under the supervision of Vauban and Coehorn and their contemporaries.

**Treatises about Architecture from the Italian Early and High Renaissance**

In the Italian Early (1400-1479) and High (1490-1520) Renaissance Italian architects wrote treatises about their views of the ideal city. These treatises influenced Dutch engineers and architects. The following architects wrote some of these treatises:

**Leonardo Bruni**

Leonardo Bruni in his *Laudatio Florentiae urbis* (Praise of the City of

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57 Samuel Marolois (1572-1627). Engineer.
58 In military engineering they are structures, again sloped, formed to secure an area from artillery, bombing, or stored explosives.
59 To protect the flank.
60 Menno, Baron van Coehorn (1641-1704). Dutch soldier and military engineer. He made a number of influential weaponry innovations in siege warfare and fortifications techniques.
61 Sebastien Le Prestre, Seigneur de Vauban and later Marquis de Vauban (1630-1707), commonly referred to as Vauban, was a Marshal of France and the foremost military engineer of his age, famed for his skill in both designing fortifications and breaking them.
63 Leonardo Bruni (1370-1444). Italian humanist, historian and chancellor of Florence. Bruni is supposed to have been the first modern historian.
Florence, 1407) was the first to describe a city as an objective space. Bruni viewed Florence as the perfect city since it represented the city-state which was, in his eyes the ideal form of government. The city surpassed all others in splendour, ornament and cleanliness.

Leon Battista Alberti

Leon Battista Alberti, in his De Re Aedificatoria (On the Art of Building), written in 1452 and published in 1485, stated that without order there can be nothing commodious, graceful and noble. Alberti explained the types of buildings that suited various functions within society, as well as their positioning and visual ploys that expressed social hierarchy. Alberti dealt with various aspects of the town made a complete ordered listing of buildings, the property for the principal citizens, the middle groups and the common people. Taking Vitruvius work as its point of departure, but elaborating upon it, a set off utilitarian and aesthetic principles were established which formed the basis of the ideal order. Although Alberti mingled medieval and Renaissance ideas about civic design in his inclusion of both winding and straight streets. Alberti offered detailed advice and guidelines on how to achieve fine building in keeping with the canons of his period. Explaining that “the principal ornament to any city lies in the siting, lay-out, composition and arrangement of its roads, squares and individual works; each must be properly planned and distributed according to use, importance and convenience. For without order there can be nothing

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65 Leon Battista Alberti (1406-72). Italian architect, philosopher, painter, musician and sculptor
68 Pollo Vitruvius (c. 80C-70 BC-after c. 15 BC). Roman architect.
commodious, graceful and noble”. Still continuing medieval traditions, as, Alberti is mainly to be remembered as a predecessor of modern functional tastes thus forming a link between the Middle Ages and the contemporary scene. His desire for naturalism in painting and his emphasis on simplicity and moderation, and what he owned to the Vetruvian tradition are characteristics of his age.

Antonio di Pietro Averlino (Filarete)

Antonio di Pietro Averlino, proposed the first complete ideal city to be built in the Renaissance in his Trattato d’Architettura (Treatise on Architecture) written during the period 1457-1464. Filarete did not redesign an existing city he designed a new one. Its radial lay-out was created by the superimposition of two squares within a circle and sixteen radial routes. This is the first known example of the use of the radial plan at this time, and the cluster of squares at the heart of the design is not very satisfactory form a visual point of view. A single building would have worked better and, in fact, Filarete had announced his intention to place a tower in this spot originally (which reminds us of that occupying the central position in certain illuminations of St Augustine’s cities). Central observation towers were later to be projected in a number of military schemes during the sixteenth century (for example by Maggi and Castriotti) and we find the echo into the design of the Panopticon at the

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70 Rosenau, H. (1959). The Ideal City in its architectural Evolution, p. 36.
73 Annibale Maggi Da Bassano (d. 1509). Italian architect of the Renaissance period. He designed and help build the loggia del Consiglio in Padua in 1493 and was the architect of the house of San Giovanni degli Specchi.
end of the 18\textsuperscript{th} century. For Filarete this would have resolved the aesthetic issue but would not have represented the power structure, and the ambitions of his patron, in a suitable manner, which might be the reason for his abandonment. He thus placed three important squares in the centre of the city: one contained the cathedral and the prince’s palace, representing religious and secular power, while the other two were devoted to the market and the merchants. Filarete was also concerned by the provision of water and replaced every secondary road by a waterway in this thorough programme which included a mint, banks, baths, schools, prisons, a ten-storey house of ‘Vice and Virtue’ complete with lecture rooms and brothel, a hospital and cottages for artisans. While very practical in many ways, his design becomes more fanciful at times: his suggestion of a labyrinth to surround the entire city definitely borders on the dystopian\textsuperscript{76}.

Francesco di Giorgio Martini\textsuperscript{77}

Francesco di Giorgio Martini, completed his \textit{Trattato di Architectura} in 1495\textsuperscript{78}. The fifth book contains his theories about the modernization of medieval systems of fortification and a proliferation of plans for fortified cities. It opens the path for the increasingly military approach of the ideal-city designers during the next century. Despite its functional aspect, the

\begin{flushleft}
\textsuperscript{75} The Panopticon is a type of institutional building designed by English philosopher and social theorist Jeremy Bentham (1748-1832) in the late 18\textsuperscript{th} century. The concept of the design is to allow a watchman to observe (-opticon) all (pan-) inmates of an institution without their being able to tell whether or not they are being watched.

\textsuperscript{76} Is the idea of a society, generally of a speculative future, characterized by negative, anti-utopian elements, varying from environmental to political and social issues.

\textsuperscript{77} Francesco di Giorgio Martini (1439-1502). Italian painter of the Sienese School and a sculptor and a visionary architectural theorist. As a military engineer he executed architectural designs and sculptural projects and built almost seventy fortifications for Federico da Montefeltro, Count (later Duke) of Urbino, for whom he was working in the 1460s, building city walls as at Iesi and early examples of star-shaped fortifications.

\textsuperscript{78} Eaton, R. (2002). \textit{Ideal Cities Utopianism and the (Un) Built Environment}, p. 53.
\end{flushleft}
Sienese author has a highly anthropomorphict agreement vision of his ideal: the fortress is identified with the head, the temple with the heart, the central tower with the stomach or navel, the defensive towers with the superior and inferior extremities and the crescent-shaped gateway with the phallus.

Leonardo da Vinci80

Leonardo da Vinci, made several proposals concerning city design in the late fifteenth and early sixteenth centuries. His concern was primarily technical and functional although at least one scheme leaves room for speculation about his social considerations. Working at a period when plague decimated the populations of the Italian peninsula (Milan lost one third of its inhabitants in the epidemic of 1484-85). He experienced a profound disgust regarding the promiscuity and lack of sanitation in the medieval city which he perceived as anarchic and chaotic. The connection of filth with chaos and hygiene with order is a recurrent theme in utopian thinking and will be echoed over the centuries.

The designers of ideal cities invented them, in the conviction that they belonged to an elite capable of understanding the nature of these original patterns and hence more aware of a city as closely as possible to their perfect harmony. Hence the noun: ‘ideal’ describes that which is presented as the absolute model, a standard of perfection, whereas the adjective ‘ideal’ whose source is the Latin idealis, defines that which is conceived and represented in the spirit, the implied meaning being: that

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79 Described or thought of as having a human form or human attributes.
82 Ibid., p. 11.
which achieves all the perfection that can be imagined or hoped for, that which cannot be improved upon.

It has been attempted to show, mentions how the *Early Renaissance*[^3] freed the concept of town-planning from the medieval, chiefly religious and symbolic interpretation. This was even further challenged during the *High Renaissance*[^4], when, however the concept of unity of the town tended to disappear; the emphasis was then on the individual contribution, based on clarity and accuracy of observation and formal considerations and symmetry[^5].

**Dutch Architecture and Town Planning according to the ideas of Simon Stevin**

There was a great influence of Simon Stevin’s treatises on design and planning of settlements. In his Ideal Plan for a City, published in *Onder-scheyt van Oirdeningh der steden* and *Byvough der stedenoirdening, vande oirdening der deelen eens hvis Met ’t gheene daer ancleef* (Designing Cities) in 1649 after his death, Stevin had developed a city design in which he was influenced by ideas of an ideal town according to the principles of the Italian *High Renaissance*: the application of arithmetic units and strict symmetry and Dutch engineering and fortification works from the sixteenth and 17th centuries.

Stevin’s design had an orthogonal (rectangular) street pattern, with buildings for military and civil use. Military buildings were constructed such as forts with fortification walls, canals, locks, dikes and bridges[^6].

[^3]: Early Renaissance in Italy (1400-79).
[^4]: High Renaissance in Italy (1475-1525).
[^6]: Oers, R. van. (2000). *Dutch Town Planning Overseas during VOC and WIC rules* (1600-
Stevin mentions, in his Ideal Plan for a City, how he would have designed a city: the most suitable form would be rectangular with a division in rectangular blocks of plots, houses, courts and markets. All these had to be in a symmetrical order. There should be a clear positioning of functions and their positioning in the plan. All places should be easily accessible especially by water or by a network of perpendicular streets.

Stevin’s plan for a town had a central river or canal which formed the primary axis of the ground plan which ran from one side to the other: from the sea to the land behind through the settlement. One side of the settlement (the short side) was parallel to the coastline. On both sides of the town were gates and on the seaside the quays of the inner harbour. On the second axis, which ran at a right angle to the first one, were the most important social and public buildings, including the centre of government, situated. Both axes represented the organizational side of the town. The first one running through the settlement for transport while the other one for its social and public functions.

**Characteristics of VOC settlements**

The choice of a specific site to build a settlement depended on certain aspects: it should be able to defend properly, the soil had to be fertile and it should be located at the estuary of a large navigable river which was essential for trade purposes. Because there were mostly swampy areas this also gave the Dutch an advantage over other nations because of their engineering skills. Other nations had to build their settlements on higher grounds but the Dutch could build their cities right at the seaside.\(^{87}\)

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A settlement had two distinct axes at right angles of each other: a dominant axis, a canal or river, along which the direction of the development of the entire settlement took place and a secondary one along which the important buildings, spaces and elements were build.

In Roman times these axes were running precisely north-south and east-west and had gates at each end. To this were added the typical Dutch features as a water filled moat around, and canals that run through, the town.

Goods with a destination inland and from overseas had to be transported over the water, through the port, and over the river of the town. The trade of crops and handicrafts was there for prosperous. Money was generated from tolls and assessments. The canals and rivers served more than one purpose other than to pass goods over: it gave a possibility, to earn a living: fishing $^{88}$. Another aspect, was the storage and circulation of water $^{89}$. Underneath the pavement of the streets there was an elaborate system of sewerage canals for the discharge of refuse and sewage from the houses above.

Canals divided the settlement into four principal identical bands or strips. Every band had a principal lay-out of twenty identical building blocks. Blocks themselves were subdivided into two times ten identical plots, with their backs to each other. A pattern of streets and building blocks or housing plots, was part of the urban structure $^{90}$.

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$^{88}$ Ibid., p. 81.
$^{89}$ Ibid., p. 164.
Special elements like churches, colleges, poor houses and markets subdivided the bands or strips in symmetrical parts. All buildings were placed symmetrically in the settlement: so is the important Hoogschool (High School) on the main canal with on the other side the Stadthuijs (Town hall) with the Armhuijs (House for the Poor) situated behind it. To make a social distinction between the central part of the settlement and the rest of the city there was a double row of houses built for the labourers at the edge of the town. The streets were sixty feet wide including a separate lane, in front of the houses so people could easily enter their houses if they were not on horseback or in their carriages, of 10 feet wide on each side of the street. There remained therefore a street of forty feet wide for traffic to pass through. For the housing blocks squares of three hundred and sixty feet were chosen with the two housing plots to be built on these squares back to back.

There were two squares in the centre, of the town. One was called de Grote Marct (Big Market) and the other one was for de Beurze (Exchange). On the Big Market, which was close to the centre of town, daily fresh goods were sold like: fish, poultry, dairy products, vegetables and fruit. Next to the Big Market, in the two middle bands, other markets were placed: Coorn Oers, R. van. (2000). Dutch Town Planning Overseas during VOC and WIC rules (1600-1800), p. 82.
beestemarct, houtmarct en steenmarct. These were the markets for wheat, animals, wood and bricks. The important factor in the lay-out of the city was that it was all related to the principle of trade. Keeping that in mind the Vorstelijck huijs or Hof (Royal Palace) was placed at the side of the town. In other, less democratic, countries the royal or the noble court would be placed centrally in the settlement. An important part of a VOC settlement was the social, public and trade aspect.

The social aspect was represented in buildings like the Hoogeschool (College) and Armhuijs (Poorhouse), Vangenis (Prison) and Tuchthuijs (Reformatory School). The public aspect was to found in buildings like the Groote Kerck (Main Church) and the Stadthuijs (Town hall). These buildings were all centrally located around and aside the Beurze (Exchange). The buildings, which represented the trade aspect of the settlement, as the Vishuijs (Fish House) and the Vleeshuijs (Meat House) were located aside the Big Market. An important part of the social network and design of the Dutch town was that there should be no sick, begging or needy people be seen in the streets.

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Regulations could have been issued on the form and size of the new town, even what the buildings should look like. To this date, however no such regulations have been found in any papers of the States-General or VOC. It is not such an unconceivable idea however since everything in Dutch Society was meticulously planned\textsuperscript{93}.

The VOC granted other religions a relative freedom in their settlements. In the towns of the VOC plots were reserved for churches of other religions next to the centrally located, protestant, church. Religious houses were built for the Jews, Lutherans, Anglicans and Catholics. Regulations stated that houses of worship should not be built in a pompous style so as not to attract overly attention. The whole idea behind this personal and religious freedom in the settlements overseas was really to attract other nationalities who wished to settle because there was a distinctive lack of manpower\textsuperscript{94}.

VOC Settlements had a rectangular street pattern intersected by canals and surrounded by fortification walls and a water-filled moat. The sense of proportion was well balanced in the width and accessibility of the streets and the building blocks at the side of the streets. All elements in the town were fixed with a specific social and public aspect.

Secondly there was the architectural side of the city: with a fixed system of measurement of \textit{facades}, building height and style. There was a central market, which was placed in the centre of town and there were local markets which were at the side of the centre. There was a main church, in the centre of town, and secondary churches, which were again more out of


\textsuperscript{94} Ibid., p. 84.
the centre of town. A settlement was there for logical and symmetrical in design.

Thirdly the city could be easily expanded, if necessary, on all sites as with the army camps in the Netherlands. Another fortification wall could be erected and another water filled moat could be dug. In the newly open space houses and public buildings could be built. There for a settlement designed by Simon Stevin was like a do-it-yourself kit and could be constructed anywhere. A VOC settlement in Southeast Asia there for would be and will be immediately, recognizable and identifiable.
Chapter 3  Dutch Settlements in Asia: Historical Background, Planning and Implementation

Settlements in Dutch East Indies

In Asia, in particular, the VOC established a policy to segregate and divide in order to provide for the necessary overview and safety. Maps of the period showed a clear division between different areas in town designed for the different cultural groups. Only these boundaries might be clear on a map in practice it was something else again. For people in their day-to-day life did not keep to these boundaries (in the case of building lines) or to the social lines so meticulously set out for them\(^1\).

A very good example of this was to be found, in the city of Makassar (nowadays Ujung Pandang) on Celebes (nowadays Sulawesi). It was taken in 1667, by Cornelis Speelman\(^2\), from the Makaresse kingdom of Gowa to get to the monopoly of the spice trade on these islands. The town had a large kasteel (castle) fort Rotterdam with the settlement Vlaardingen beside it and the garden of the VOC behind it. The native village the Kampung Baru was situated to the right of the castle and the Kampung Melayu to the left of it. In Vlaardingen lived the Dutch Burgher and the Chinese merchants. In Kampung Melayu the Malay population and in Kampung Baru a mix of natives (freed slaves as well) and Burghers. The idea was therefore a town with specific areas for specific cultural groups\(^3\).

There were neighbourhoods for the Europeans, Chinese, Malays, Indians,

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2 Cornelis Speelman (1628-84).
Buginese and Makassarese. Speelman laid down his ideas about townplanning in his *Memorandum* that was written in the period 1669-1670. Each of these areas had its own design. The castle had large stone walls, bastions and gates. *Vlaardingen* was surrounded by a more modest stockade and the two *Kampungs’s* had simple bamboo fences.

“In the context the walls, stockades and bamboo fences marking the boundaries between castle, kampung and compounds faded because of the interaction of the company garrison and the East Indies port. A close look at the social reality of Makassar and, in particular its patterns of residence indeed showed that the theory of ethnic segregation, as expressed in Speelman’s precepts, was far from being realized. The castle, as a military base, was tightly controlled. The day-to day problem was to keep its inhabitants inside, rather than trying to keep others out – the soldiers tended to abandon their posts for nights of drinking, whoring and gambling, while other higher officials sought the comfort of their houses and society in the settlements. Outside the castle walls, however, boundaries became vaguer, and inhabitants more variegated. While Vlaardingen was essentially a Chinese and European settlement, the presence of East Indiens (particularly at night) pursued the government to establish more security. Despite regulations and placards, it was easy to arrange nightly visits, a stockade was pierced by the back door of houses close to the walls, and many residents had personal or business ties with Indonesians”⁴.

**Jayakarta (Batavia)** was meant to be the seat of the overseas government

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the mouth of a fresh water river *Tjiliwoeng* (Ciliwung) with a secure of the VOC and central meeting point for VOC ships in Asia. The site was ideal according to VOC officials: on the northern shore of the island Java at harbour behind the many islands in front of the Javanese coast with extensive agricultural lands behind. It was a total design of a *kasteel* (castle) with a city and villages for Asian peoples (Javanese and Chinese).

The city had a rectangular plan with large rectangular building locks on both sides of the canalized river that ran through the city. Its total size was 1.4 by 1 km at the end of the 17th century\(^5\).

Initially the city was built on the east side of the river Ciliwung. Around 1629 the city was extended on the right bank of the river. To build a new part of the city further inland is considered too dangerous at this time. The primary axis ran from the *kasteel* at the seaside to the land behind. Along this line the city was extended in the 18th and 19th centuries. The secondary axis ran horizontally to the first one. Along this axis the important social buildings were erected like the town hall and main church. The side on the left bank of the river *Ciliwung* was exactly symmetrically to the one on the right hand bank. The secondary axis however ran through both and ends at

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a bastion which marks at the same time the city limits of 17th century Batavia.

The defensive systems of the city were extensive: an inner canal, a wall with bastions and an outer canal surrounded the entire settlement. Inside the city there was a network of canals. On the coast and entirely surrounded by water with on the town side an open field (a field which could be flooded) was the gigantic castle Batavia. The canals in regular building plots divided the city. The major streets and canals ended on a bastion in the city wall. Outside the city wall there were plantations and gardens with simple wooden constructions for the Javanese farmers.

The main street was called the Prinsenstraat (Prince’s Street) now Jalan Cengkeh, which did not follow the custom of naming the main street Heerenstraat (Gentlemen’s Street). The most important streets and canals ran parallel to the primary axis. On the west side the most important street was called, indeed, Heerenstraat (Gentlemen’s Street). The Heerenstraat was later split in two: the northern part gets the name Theewaterstraat (Teawater Street) and the southern part the Binnennieuwpoortstraat (the Insidenewgate Street) today these are called Jalan The and Jalan Pintu Besar Utara/Selatan (Great Gate Street).

The Ciliwung river was canalized in 1632 and given the name Kali Besar of Great River⁶. Although it had the appearance of a great canal it remained a river that could cause considerable problems. The canalized river became the city’s new axis: building blocks were constructed on the west bank with the main canals running north south. As early as 1650 there was a

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settlement on the west side. On the three outer edges the quarter was surrounded by a narrow canal, a city wall and in between these two was a strip with rich vegetation. All this surrounded by an outer moat. On the north side was the kasteel with access through De Amsterdamsche Poort. The kasteel protects the city from attacks from the sea while on the landside there was a ring of five strongholds at a distance of 2 to 4 km from the centre. Another part of the city was to the south and was not surrounded by a wall but it was more or less protected because it was in the bend of the Ciliwung river. There the Chinese quarter Chinese Kamp developed. Kamp was the name for a settlement where a certain ethnic group lives. It was actually closer to Kampong then to the Dutch Kamp. Vegetation, gardens, and country houses surrounded the entire settlement.

In Jayakarta (Batavia) the, large, kasteel was constructed as a square with four corners or bastions: Diamant (Diamant), Robijn (Ruby), Saphier (Saphire) and Parel (Pearl). It had auxiliary buildings along the walls of the inner courtyard. In the middle of the square there was an administrative building, located east west, with two storeys. The building had steep roofs and cross-bar window frames. There were also a couple of small inner
courtyards in the building and a passage through the ground floor along the axis from the southern \textit{Landspoort} Gate to the northern \textit{Water Gate}. In the southern part of the \textit{kasteel}, the government was housed. This part had a monumental staircase and a small turret. In the northern part of the \textit{kasteel} the council chamber was situated. There a modest octagonal church stood in the south-west corner of the square and the ‘playhouse’ is located outside in the moat on the west side. At least until a few decades ago there was a building called the \textit{dispens} or storage/warehouse standing on the erstwhile forecourt of the \textit{kasteel}. It was a spacious two storey building within inner court surrounded by a gallery and arches.

A large fort (in a five star form, with five corners or bastions) was constructed at the mouth, a little inland, of the river \textit{Semarang}, Java in 1708 to secure the trade in indigo and rice. Later a town was designed with an irregular street pattern where the main characteristics were the avenue with bridge and gate in a right angle to the river and a central square with a church. Walls and canals surrounded the city and fort. By the end of the 18th century the size of Semarang is 0.4 by 0.8 km\textsuperscript{7}.

\textbf{Surabaya} was already an existing town in north-east Java, on the left bank of the river \textit{Kali Mas}, when the VOC took it in 1743. The Dutch built a

\begin{footnote}
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\end{footnote}
fort: *Fort Belvedere* and a new town directly opposite the existing indigenous one where Javanese, Arabs and Chinese lived. The new town was designed close to the river mouth with a main tree-lined road in a right angle to the river. The fort had the form of a square with four corners or bastions. The town had a regular street pattern. The whole was surrounded by walls and canals. The size of the city by the end of the 18th century was, 0.4 by 0.8 km$^8$.

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The small town of **Amboina** in the Moluccas became a city of regional importance through some changes were brought to the town by the VOC. The fortifications of Amboina were for the greater part reconstructed and the marshy lands in the surrounding countryside were drained. Canals were dug and the town got a regular lay-out. Also due to its location there was potential for this town: it was at the seashore of the island Ambon, fresh water flowed down the mountains behind the town and it had one of the most beautiful and sheltered harbours in East Indies. It was taken from the Portuguese in 1605 because it was a major trading post for cloves, nutmeg and mace. It consisted of a fort: *Fort Victoria* (which was a square with four corners or bastions, a town and a village for the indigenous population. The size of Amboina was minimal: only 0.4km by 1 km, the second half of the 17\textsuperscript{th} century. Walls and canals all around the city protected it\textsuperscript{9}.

![Figure 3.6a. Amboina, Ambon. Plan of the kasteel Victoria, the town and surroundings, 17\textsuperscript{th} century. National Archives, The Hague, The Netherlands. 4. VEL, 1328, P.A. Leupe. Public Domain.](image1)


**Settlements in Dutch India**

The settlement of **Pondicherry** was situated on the Coromandel Coast of India where two rivers converge. When the city was captured from the

French the planning and design for a whole new town and city wall was laid out. In the six years (1693-1699) that the VOC occupied the city the plans could not be completed. The French, after they recaptured the town, finished the project as planned by the VOC. There was Fort d’Orléans: a square with four corners or bastions and the city in a rectangular form with large, rectangular building blocks. Its size was 1.3 by 1.8 km, by the end of the 17th century\(^{10}\).

**Cochin** had the fort *Vesting Cochin* and city within the same walls. There was no separation of the *kasteel* and the town. When the VOC took Cochin in 1663 they reconstructed the whole settlement: fortifications and the city.

The fort was a *citadel* and the city had a regular street pattern. Within the city there was a central square lined with trees. Cochin was located at the sea shore with behind in the inland lakes and rivers. It was the centre for trade, storage and shipping of pepper. By the end of the 17th century, its size was 1.5 by 0.8 km.

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Settlements in Dutch Ceylon

The same situation also occurred for the city of Colombo as with Makassar: the construction of the fort with the old city and native villages behind them to the north. A governmental decree was issued on March 13, 1684. It stated that it was forbidden to sell houses inside Colombo Castle to natives. Even a century later it was not allowed for natives to buy houses within the castle. A police regulation of that period states: “Binnen deze Kasteel zullen gene zwarten of vrijgegeevene slaaven moogen woonen dan’s Kompagniesdienaaren, hunne weduwen an kinderen” (Within this castle no black man or free slave is allowed to live other than Company servants, their widows and children). Except for these only other Europeans were allowed to live within the castle. The city was taken in 1640 from the Portuguese to secure the monopoly on the cinnamon trade.

The town of Colombo was divided, in three parts: the kasteel or fort, an intermediate zone (the Buffalo field or Buffel’s veld) where military exercises could be held, which field could be flooded in times of danger, and the city for the Burghers to the east. By the end of the 17th century the city had a total size of 1.4 by 0.7 km. There were two axes: one from north
to south, through the fort, from the harbour in the direction of Galle and the
cinnamon plantations, and one from west to east through the buffalo field
and the town of the Burghers. There was much water in and around the
city, which was incorporated in the design on purpose in view of the
defense of the city: the fort had a water-filled moat on the landside, the fort
and the city were separated from each other by the buffalo field, which was
partially filled with water. A canal and marshes from the native villages
behind it separated the city. Finally yet importantly, an ocean to the north
and marshy plains to the south and east surrounded the whole ensemble of
fort or castle, buffalo field and city.\footnote{Oers, R. van. (2000). Dutch Town Planning Overseas during VOC and WIC rules (1600-1800), p. 97.}

The *kasteel* or castle had the form of an octagonal shape, with eight bastions
with a water filled moat on the landside. Only one building inside the castle
was known from records: the *Nederduitse* (Dutch Reformed) Church.\footnote{Ibid., p. 96.}

The *Kasteel* of Colombo, as designed by Adriaen de Leeuw\footnote{Adriaen de Leeuw, active from 1667 to 1681, worked as military engineer and land surveyor Ceylon. After 1667 he worked in Jayakarta (*Batavia*) where he was responsible for public works and VOC buildings.}, was not
according to the ideal design, for this kind of city, as Vasari\footnote{Georgio Vasari (1511-74). Painter, architect and writer. In 1550 his book on the Lives of the Most Eminent Architects, Painters and Sculptors was published.} had in mind. This was due to the re-use by the Dutch of the remaining Portuguese bastions. The eight bastions were located at strategic points, with one side
of a street ran directly to a bastion. Therefore the main streets could be
easily defended but also the surrounding land and waters. Only the two
central (axis) streets end there for on a bastion. In the design of De Leeuw
there was no central square due to the fact that there were two rocky hills
inside the *kasteel*. Instead, two squares, one at each end of the main axis going through the town, were designed to provide the town with the necessary space for military exercise. Later the hills were removed to get more building space inside the *kasteel*. Thus providing a widening view when approaching one of the squares. However, there remained an elevation in the middle of the avenue because the rocks were situated here once. This road ran from the bastion *Amsterdam* at the harbour to the bastion *Middelburg* inland. At the square next to bastion *Amsterdam* the church and the seat of the government were located where the administrative centre of the region was located.

Because of the form of the citadel with its polygonal shape the street plan on the inside had this form too. These kinds of designs could also be found in sixteenth century designs for ideal cities as in the plan of Giorgio Vasari from 1570. His plan showed a radial plan and grid pattern. This plan was a combination between a formal urban plan with a central square, monumental vistas and a set of outer squares and military control of the bastions. With an overview from the central square with the necessary connections to the bastions. This led to a complex network of streets and squares in the city.

The design of the city next to the castle did not suffice for the needs of the Dutch. The former Portuguese town was positioned at the coast and a part followed the coastline and then turns inland. The winding city wall was there for straightened out. Due to the Dutch architects who redesigned the city it became rectangular.

The city had a clear and orderly lay-out with a grid pattern and fortifications around it. It has a regular plan where streets are at right angles to each other and with different sized building blocks between them. There
were five horizontally and five vertically running streets in the city that are not parallel to each other. The horizontally running streets had names like: Zeestraat (Sea Street), Koning’s straat (Kings Street), Keyserstraat (Emperor Street) and Prinsenstraat (Prince’s street). Through the Koningsstraat and Keyserstraat cannons could be fired from the bastion Hoorn at the west side of the city. The centre of town was formed by the Keyserstraat running towards the bastion Constantia at the east side of the city. On the street, there were open spaces that were projected for a Town hall and a graveyard (which is created in 1668). Although around 1697 the centre of town shifted to the Koningstraat when engineer J.C. Toorzee\textsuperscript{15} designed a plan to connect the Koningsstraat with the new eastern gate of Colombo Castle by a road over the Buffalo field.

The harbour was the same as previously used by the Portuguese with a water fort, warehouses, a sawmill and an iron shop on top of the piece of land which was stretched out into the sea. The warehouses were to store trading goods like wine and arrack.

The city was certainly pleasant to dwell in, the building blocks were open and painted white. The streets were lined with trees, all the buildings were lined with a single row of trees to provide shade in the unmerciful sun and the two squares in town with a double row of trees. While one half, of Buffalo field was planted with trees and the other half filled with water. Decrees were issued for the protection of these trees. Some citizens apparently needed wood for their fireplaces or their kitchens and then cut the trees simply down. Life in Ceylon in the cities was an orderly one, there were decrees for almost everything: there was one for garbage disposal,

\textsuperscript{15} Jan Christiaensz. Toorzee (---- - 1709). Engineer.
one for the thatched roofs that had to be replaced by tiled ones, one that or
dered the inhabitants to work on the fortifications and even a decree on
street lanterns in Galle. Life in the city was organized and clean. So too
create safe and healthy surroundings for the well-being of the inhabitants.

Galle consisted of a fort and a town that were both placed on a rocky cliff
overlooking the Bay of Galle. Its size by the end of the 17th century, was
0.8 by 0.7 km the fort, with the bastions, and town were the citadel type
that meant that the entire settlement was fortified.

After the takeover from the Portuguese the settlement was totally
reconstructed and the fortifications strengthened. Galle was taken because
it was at a strategic meeting point for the fleet of VOC ships returning from
Asia to the Netherlands. The town had a regular street pattern, which
means streets are at right angles to each other but with different sized
building blocks between them, with a drainage system due to the sloping
terrain.

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17. Ibid., p. 46.
18. Ibid., p. 46.
The city of **Negombo** is taken in 1644 and reconstructed. The fortifications strengthened and the town newly designed. The town was situated on a point of land that was pointing out into the sea there for it was able to control the sea traffic and at the same time controlling the cinnamon fields in the land behind. The city was surrounded by water and there for this was an the town with a rectangular street plan: which means that the streets were at excellent system of defence. There were two parts of the settlement: the fort: an irregular square form with four corners or bastions (polygonal) and right angles to each other but also the building blocks were of the same sizes. In other words a strictly geometrical plan. Walls and canals surrounded the settlement\(^{19}\). The total size of the city, by the middle of the 17\(^{th}\) century was 0.5 by 0.8 km\(^{20}\).

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Forts and Buildings (Watch Towers, Town halls, Churches, Houses and Warehouses) in the Settlements

Forts

Dutch East Indies

In the 18th century the large fort Vredeburg was constructed in Yogyakarta. Such forts, were to visually express the Dutch political power, built from stones and a protection against indigenous enemies who had no weapons; therefore the structures were not as strongly fortified as in Europe.

Dutch Ceylon
Fort Jaffna on the North-Eastern tip of Ceylon shows an interesting parallel to the Naarden fortifications that were constructed east of Amsterdam. Jaffna was constructed between 1675 and 1685 with the help of the architect Adriaan Dorsman\textsuperscript{21}. Both forts had the same design. Both had heavy earthen walls covered with a layer of masonry facing outwards and enclosed by wide moats. The fort of Jaffna was completed in the 18\textsuperscript{th} century.

The hexagonal Redoubt Van Eck was constructed at Matara in the 18\textsuperscript{th} century.

\textbf{Watch Towers}

Dutch East Indies

In the area close to the harbour in Jayakarta (Batavia), there stood a watch tower De Uitkijk that was constructed on the place of a bastion which got the name Cuylenburch after a little town (Culemborg) in the province of Gelderland in the Netherlands. It stood on a rectangular ground plan.

In East Indies, there was no specific development of a specific form lan-

\textsuperscript{21} ca. 1637-82.
guage for houses and official buildings. Here the *Classicism*\(^{22}\) architecture was introduced. Houses had spacious galleries or porticoes.

**Town halls**

Dutch East Indies

In almost all countries overseas, the dome with the rectangular, decorated, entrance block, was to be found back as was to be seen in the Royal Palace in Amsterdam\(^{23}\). This could be seen in the Town Hall in *Jayakarta (Batavia)* built in the beginning in 1707 century. The building fits in perfectly in the style of the 1650’s. Only there were no sash windows but casement windows that originated in France.

The *Stadhuis*, Town Hall, in Jayakarta (*Batavia*) was built under the Governors-General J. van Hoorn\(^{24}\) and A. van Riebeeck\(^{25}\). The plan was drawn by the head of the VOC's craftsmen, W. J van de Velde and executed, over a period of three years (1707-10), by J.F Kemmer, a German building contractor. On this site first was a provisional building from 1620-27 and a

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\(^{22}\) Classical architecture is a mode of architecture employing vocabulary derived in part from the Greek and Roman architecture of classical antiquity.


\(^{24}\) Joan van Hoorn (1653-1711). Governor-General of the Dutch East Indies (1704-09).

\(^{25}\) Abraham van Riebeeck (1653-1713). Governor-General of the Dutch East Indies (1709-13).

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building from 1627-1707. The main block measures 65x16 metres with two storeys (6 and 6.5 meters high) on a fundament with continuous roof. A domed tower stood in the middle at the front of the roof over the entrance. This dome was about 27 meters over the ground. Underneath the dome were the central staircase and two lateral staircases since the early 19th century. Originally, there was a peripheral staircase here. In the fronton, in the midsection, there was placed, in a niche, a statue of Justinian\textsuperscript{26} flanked by the emblems of the VOC and the town. This statue was removed during the Japanese occupation. The midsection originally had four Doric columns\textsuperscript{27} with arches in between. The upper storey had a broad arched window with a cross-bar window\textsuperscript{28} on either side. With the alteration of the midsection, in the 19th century, six Doric columns were placed on the ground level. Four on the extreme end and two between these. The upper storey four cross-bar windows were divided by Ionic pilasters\textsuperscript{29}. With on the outside of the lower windows shutters. The main facade had on either side of the midsection two rows of five cross-bar windows. At both sides of the main facade there were wings each with two storeys. The one on the left was five windows wide and the one on the right had three windows. They extended to the back so a backyard was created. The interior was sober and had a monumental gently sloping staircase in the central hall parallel to the front facade.

The great castle of Batavia was built in the second decade of the 17th century, basically the designs of Simon Stevin were followed. The first buil-

\textsuperscript{26} Justinian I (c. 482-565). Known as Justinian the Great and also Saint Justinian the Great in the Eastern Orthodox Church, was a Byzantine (East Roman) emperor from 527 to 565.

\textsuperscript{27} Heavy fluted with plain saucer shaped capitals and no base.

\textsuperscript{28} Window divided by ledges with glass in the panes.

\textsuperscript{29} Ionic pilasters have fluted shafts but the top and bottom have two ornate symmetrical spirals.
buildings inside the castle consisted of warehouses and simple accommodations for the staff of the company. Military engineers probably designed the buildings and they left their mark of austerity and solidity on the buildings. There were some decorative elements on some buildings like the gates, the church and the residence of the Governor-General.

The Governor’s house in Jayakarta (Batavia) dates from around 1625\(^3\) On the so-called ‘painting of Coen’ (1629) it was shown with the building facades cross-bar windows and a protruding element at the back of the building. A small staircase provided access to a large room of about 9.5 x 14.5 meter. At the left-side of the building were the quarters of the Governor-General, probably consisted of a dining room, an antechamber and a bedroom. At the right were the quarters of the secretariat. Within a few years, the house was expanded with a gallery on two floors at the back. Up till the height of the first floor the gallery was in stone (arcades). The gallery on the second was made of wood. There was also an overhanging gable roof at the expense of the stepped gables. The angular shape of the gable apparently did not suffice, and is soon replaced by straight or undulating bands. Because of the overhanging roof, the walls were

protected from the abundant rain and direct sunlight, allowing the interior spaces to be considerably cooler. Thick walls, high ceilings and large finished tile floors provided the interior spaces with a relative coolness. However, most people probably lingered in the shady arcades, where the transition from the inside to the outside caused a pleasant atmosphere. These galleries were soon a normal part of the Dutch house in the tropics. For the larger urban house gradually emerged a general plan, which was copied in many provinces. Closely related with the Stadhuis was for example the house Great-Constantia in South Africa, build around 1690 by order of Governor Simon van der Stel. Instead of a gallery, there was a sidewalk, complete with brick sidewalk banks. Also in Ceylon, some examples exist, as can be seen in the Dutch Period Museum in Colombo, which also has the U-shaped plan with gallery.

**Churches**

Dutch East Indies

In 1634 the first church The Kruyskerk was built at the Stadhuisplein (Town hall square), now Taman Fatahillah, in Jayakarta (Batavia). It had a cruciform shape. The church was replaced by The Nieuwe Hollandse Kerk which had a beautiful dome. This church unfortunately had to be demolished in the 19th century due to flaws in the foundations.

The Portugese Buitenkerk (Geraja Sion) on the Jalan Pangeran Jayakarta/Dr. Suratmoto Street, in Jayakarta (Batavia), outside of town, this in con-

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31 Simon van der Stel (1639-1712). Last Commander (1679-91) and first Governor (1691-99) of the Dutch settlement of the Cape Colony in South Africa.
trast with the Portuguese Binnenkerk that once stood in the inner city was a rectangular block built in a style that fits in the period of the middle of the 17th century measuring 27x34 meters. It has five windows by three and was divided (on the inside) into three aisles by two times three columns. It had relatively thin brick walls that measure 45 cm. These were plastered white. Originally three narrow saddle back roofs covered the church. In the 1920-21 restoration it was replaced by one continuous roof.

It has a very sober exterior but beautiful carving on the inside that was partly Javanese and Dutch: at the organ gallery, the benches and the pulpit. It still had a sash window in the extended vestry. There also was a simple wooden belfry with a bell cast from 1675.

It was founded for the benefit of the Protestant East Indien people also known as Mardijkers or Freed men. Mardijkers came from the Indonesian word Merdeka that means freedom. The Portuguese did bring in East Indien people from the islands as slaves and gave them their freedom if they converted to the Roman Catholicism faith.

The Dutch followed this practice but instead the Mardijkers had to convert to Protestantism. The building was closely related to the Lutheran Church
in Groningen (Netherlands) but its furnishings had been decorated in the Javanese Style. Churches in Asia had the same kind of characteristic interiors as the churches in the Netherlands with their chairs, benches and pulpit.

Semarang, Java has a domed church that was built in the 18th century as were the smaller churches in the Moluccas. The dome has an internal diameter of 15.5 meters and, on the outside with attached buildings it measures diameter over 21 meters.\(^{32}\)

Dutch Ceylon

The protestant church Wolfendael in Colombo, still operational to this this day, Greek cross with walls nearly five feet thick over which the gables have been raised. The dome was originally arched and made out of brick. A

brass lion was placed on top. The lion had a crown on its head, bearing a sword in one hand and seven arrows in the other, representing the seven united provinces of the Dutch Republic. In 1856, the lion was destroyed by a bolt of lightning and it seriously damaged the dome. The roof was later replaced with an iron covering.

![Image of a building](image)

**Figure 3.18:** Colombo. Wolvendael Church, 1749-57. Rijksdienst voor het Cultureel Erfgoed, The Netherlands. TGGR-270.

**Houses**

Dutch East Indies

The clear proportions between the facades and the windows characterized the houses in the overseas settlements.

In Jayakarta (Batavia) there was a narrow parcelling of the land. The houses were quite deep with inner courts. It was customary to construct the gables at the side of the house. The decoration remained quite simple but the woodcarving was more elaborate than elsewhere as could be seen in the fanlights over the windows and doors.

The smaller houses, with two storeys, in Batavia had their side facades to

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the street not the gables\textsuperscript{34}. The reason that the gables were not at the street side was that a gutter between the houses could not handle the rainwater and with a gable at the street side it was not possible to use the protruding roof as a water ledge. These houses had a door and a window on the ground floor with a firehouse and a cooking area at the back that was at the same time the yard. A steep staircase in the corner would lead to the first floor that had one or two rooms and one or two windows.

There were bigger houses like the double house build by Gustaaf Willem Baron van Imhoff in 1730 on \textit{Kali Besar} West. It was also known as the \textit{Toko Merah} or the red shop due to the red colour of the interior. It measured 27x49.5 meters and had two storeys. It had very carefully laid brickwork. The \textit{facade} had, on the ground floor, two doors and four sash windows filled with glass panes. On the first floor there were six sash windows filled with glass panes. Over the doors were elaborately carved fanlights. Due to its depth the interior had courtyards for light and air. Its rooms were decorated with plasterwork. A Dutch tiled, saddle back roof, with an overhanging part to prevent the rain from touching the outer walls, covered the whole building.

The only remaining country house in Jayakarta\textit{(Batavia)}: the \textit{Reynier de Klerk} House, build in 1760, at the \textit{Molenvliet, Jalan Gajah Mada}, and nowadays the \textit{Arsip} National Museum is a good example of a typical Dutch country house on a larger scale as it could be found at the \textit{Vecht} river in the Netherlands. The stuccowork of the inside and outside remained very simple but the decoration on the woodwork was rather elaborate due to Javanese artisanship. The interiors had steep staircases but were sober and

\textsuperscript{34} Temminck Groll, C.L. (2002). \textit{The Dutch Overseas, Architectural survey, mutual heritage of four centuries in three continents}, p. 137.
the furniture was often varied and very attractive. There were fanlights over the doors for constant ventilation. The house was a rectangular building with two storeys and an inner court. The roof stuck out over the wall so the wall is covered in shadow when the sun is at its peak during the day. The gable ends of the building were not at the front of the building but at the side.

![Figure 3.19: Jayakarta (Batavia), Java. The Reynier de Klerk house, 1760. Rijksdienst voor het Cultureel Erfgoed.](image)

In contrast to the Netherlands in the Antilles and South Africa the gable-architecture was highly developed, it was not very highly developed in the facade architecture in the East Indien archipelago. The overhanging roof with cutter dominated the facade architecture. One of the exceptions in the former Batavia, were the out-buildings of the house of Reynier de Klerk (1755), which had bell-shaped end walls. From prints were also the tilted walls of the house Weltevreden from the same period\(^{35}\).

Dutch Ceylon

The Governor’s house in Colombo was one of the most important buildings in architectural terms build by the VOC in Asia\(^{36}\). Built around 1647\(^{37}\). It had attached buildings and a big sunken garden. The entrance was in the


\(^{37}\) Ibid., p. 248.
north wall facing the sea with a front extension 11 bays long and about 47.5 meters wide, one storey high and covered by a saddle back roof with gables at each end. A grand portico and two two-storey corner pavilions that have since vanished replaced the front extension. In 1687 there was an extension on the west side which was used as a dining hall. Adjoining the dining hall there is a block oriented north south with a saddle back roof with on each end a Dutch gable. This was the Governor’s office. On the east site was the *tuynhuys* or garden house. The main block, the actual house had two storeys and was 13 bays wide; these bays were slightly smaller than those at the front. The house was crowned by a continuous balustrade and a saddle back roof between two tops with bay windows above the nine central bays. The garden *facade* was divided by two pilaster orders: a squat Corinthian order above an Ionic one. It stood upon a substructure because the attractively styled garden lay considerably deeper and was accessible via an extended pavilion with a staircase. The lower pilaster order was continued on the garden *facade* on the dining hall. Arched openings were visible across the entire width, while cross-bar windows were applied elsewhere. On the garden side, the symmetrical interior contained an impressive gallery along the whole width, behind there are three halls, with two staircases at the extremities. The service areas were located in narrow extended wings to the rear with a roof of under-and over tiles and roof slopes of 30-35%. The decoration was simple with a nice woodcarving but -

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less abundant as on Java. On Ceylon most houses had one storey with a gallery along the street side.

Dutch India

In India the *facades* of the houses were plastered with tiles on the roof that were laid in the Portuguese fashion of over-and under tiles.

**Warehouses**

Dutch East Indies

![Figure 3.21: Jayakarta (Batavia), Java. Westzijdse Pakhuizen, 1652. Rijksdienst voor het Cultureel Erfgoed, The Netherlands. TG72-13-005 en TG72-13-008.](image)

In the area west to the *kasteel* in **Jayakarta (Batavia)** stood the so-called *Westzijdse pakhuizen* or storage buildings. These were elongated buildings of two storeys high. These were plastered brick buildings with heavy wooden supports for the upper floor beams. They had steep steps between the triangular end gables. Behind these stood the *Oostzijdse pakhuizen*, dated 17th century, heavy, well-ventilated, wooden warehouses.

Dutch India

A former warehouse, about 40 km, south of **Madras** consisted of four wings around an inner courtyard and had striking brick barrel vaulting.\(^{38}\)

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Decoration

The decoration in Louis XV and Louis XVI styles were introduced in the houses in Asia. The Louis XV style was characterized through convex and concave lines that would flow into each other. Components of the decoration were often asymmetrical. A well-known feature of this style was the shell or rocaille. The Louis XVI style was much more austere and follows the classical form language. Therefore these decorations were much more symmetrical and linear.

Materials

Dutch bricks, were generally, used for the construction of the houses in Asia. These were used as ballast for the ships that sailed to Asia. The small yellow IJsselklinkertjes (3.5 to 4 x8x16 cm) were very suitable for use in the tropics. The bricks came from the clay from the IJssel River that ran through the province of South-Holland. The Vechtsteen, a slightly, softer red brick, which was baked from the clay from the river Vecht in the province of Utrecht was also exported to Asia.

The Dutch used locally available late rite, as a building material and ini-

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39 Ibid., p. 71.
40 Rosli Haij Nor. (1996). “A Brief History of Malacca and the influence of European Archi-
tiated, like the Portuguese, the manufacture of roofing tiles in Malacca. Under Dutch rule, the authorities granted a monopoly to a group of Dutch businessmen for the manufacture of bricks. Portuguese and Chinese roofing tiles, and square terra cotta tiles.

In Dutch East Indies bricks were made from the clay found in the country itself and the walls were generally coated with plaster. Natural stone came from India. Wood of a good quality was readily available. Galleries were not very much to be seen in the houses. The roofs were covered with tiles made locally after Dutch design.

Many of the bricks for the construction of the new castle and the town (in Batavia), which was to be built behind it were brought as ballast in the holds of the Dutch East Indiamen. Even the arches of the city gates were prefabricated in Europe. Evidence of which had been provided by the recently retrieved cargo of the Batavia, a VOC ship which was recently shipwrecked on the Albanos Reefs of the west coast of Australia in 1629.\textsuperscript{41}

On Ceylon the walls were not build of brick but of a local material: cabook. These were blocks cut of the ground and dried in the sun. The walls were therefore thick and plastered and protected well from the heat of the sun. Most houses had galleries. The areas for the servants and kitchen were placed in narrow wings at the back of the house. Roofs were done in the Portuguese way with tiles that were lying over each other. The roofs had generally a slope of 30 to 35 degrees. Most houses had one story.

In India houses were builds with bricks and the outside walls plastered. The tiles on the roof were covering each other in the Portuguese way.

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\textsuperscript{41} Blussé, L. (2009). “On the waterfront, life and labour around the Batavian roadstead”, p. 120.
Chapter 4  The Dutch Settlement of Malacca

The Portuguese and Dutch Settlement

The Portuguese Settlement

In the first report (1641), after the take over, by Joost Schouten, commissioner in the service of the VOC to Governor-General Antonio van Diemen in Batavia it was mentioned that the city was at the base of the mountain and constructed in the Portuguese way. A very tight knit built settlement with wooden and stone houses developed. On top of the summit was the St. Paul’s church, one of four churches in the city. There were also constructed some monasteries and the bishop's house. About the Portuguese hall, Schouten said: "The civil hall is small, but fairly commoditive built into the sides of the hill. It belonged to the Jesuits and leased to the city civil regents or magistrates where they had their council meetings”.

Inside the fort, churches, convents and houses were built. Few however were built of stone, their walls were constructed of wood and the roofs were covered with palm leaves according to local traditions. The streets, squares and buildings were constructed and built in the Portuguese fashion: on and around the steep sides of the hill a tangle of streets developed. The main street, the Rua Diretta (Straight Street), ran from the main square where the governor’s house stood in a straight line across the river. On top of the hill, in 1521, a small chapel was build by the Portuguese merchant Duarte Coelho in thanksgiving for his survival during an attack of the coast of China. It was consecrated to Nossa Senhora da Graca (Our Lady of Grace). In 1549 the chapel was handed over to the Jesuits who build a church on the same spot in 1567. It was consecrated Anunciada
(Annunciation). Other religious orders came to Malacca in time: the Dominicans in 1554, the Franciscans in 1581 and the Augustinians in 1587. By the end of the 16th century Malacca had become, like Goa and Macau, a centre of the Christian faith. It also had become a major trade centre in the region.

The Dutch Settlement

Malacca was already an existing (Portuguese) settlement when the Dutch conquered her in 1641. The churches and convents, were destroyed or used for other purposes. The Jesuit College retained its function as a school1.

On the main square on the place where the Portuguese governor’s house stood a town hall (Stadhuys) was built in 1645 and on the same square the Dutch Reformed Church was completed in 1753. The church on top of the hill was renamed St. Paul’s and used for religious purposes. The main square in front of the town hall and Christ Church was used as a marketplace. Markets established themselves along the quays at the riverside were the merchandise is delivered by boat.

The network of streets remained untouched but new roads were laid out as the city grew. The city had a regular street pattern with horizontal and vertical streets. It had to be adapted to the coast and the swampy land behind. The Rua Diretta (Straight Street) ran from the governor’s house across the river through the settlement, it was renamed Heerenstraat (Gentlemen’s Street). Next to the Heerenstraat was a street which was renamed Jonkerstraat (Prince’s Street).

On *Heerenstraat* the wealthy businessmen lived and on *Jonkerstraat* lived the government officers and the employees of the businessmen of *Heerenstraat*\(^2\).

In almost all settlements oversees under VOC rule a *Heerengracht* or *Heerenstraat* (*Gentlemen’s Canal or Street*) exists\(^3\). When Amsterdam was extended with a concentric circle of canals the most important canals were the *Heerengracht* followed by the *Keizersgracht* (*Emperor’s Canal*) and then the *Prinsengracht* (*Prince’s Canal*). There was a proverb: "First the Lord than the Princes". So in the design of settlements in Asia the *Heeren* (Lord) came first followed by the *Prinsen* (Prince).

Jayakarta (*Batavia*) had a *Heerenstraat* (*Gentlemen’s Street*), to the east of the *Kali Besar* now called *Jalan Pintu Besar*. The gate at the utmost south of the street still lived on in that name. This street once connected the castle with the town hall. The *Heerenstraat* formed the east west axis in Semarang\(^4\). In Surabaya the *Herenstraat* formed the east west axis\(^5\). The *Pettah* residential neighbourhood in Colombo on Ceylon still has a *Keizerstraat* (*Emperor’s Street*) now renamed *Keyser* Street and also a Prince Street at the east of the fort\(^6\).

**Application of the ideas of Simon Stevin (Commercial Zone)**

The settlement of Malacca met with the three requirements as stated by Si-

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\(^4\) Ibid., p. 167.

\(^5\) Ibid., p. 176.

\(^6\) Ibid., p. 247.
mon Stevin in his Ideal Plan for a City which are: it should be able to defend properly, the soil had to be fertile and it should be located at the estuary of a large navigable river which was essential for trade purposes. This was all the case with Malacca: it had a fort so it can defend itself, the soil was fertile and it was located at a large navigable river.

The river was the primary, dominant axis, which divided the settlement in two parts, the town and the fort. According to the ideas of Simon Stevin along the river the development of the settlement took place. The river was the transportation route for goods for the settlement of Malacca or the hinterland.

The settlement was not rectangular in design, which according to Simon Stevin, was the most suitable form as discussed in his treatise *Vande Oirdeningh der Steden* of 1599. It did not have a division in rectangular blocks of plots, houses, courts and markets, which should all be in a symmetrical order. It did not have any arithmetic units and strict symmetry. There was no clear positioning of functions and their positioning in the plan. Though all places were easily accessible by water but not by a network of perpendicular streets. The settlement was surrounded for the greater part by water: the sea and the river.

**The Fort**
The Malay Fort

The fort was reportedly constructed by the indigenous Malay at the bottom of the hill that was the most prominent feature of Malacca. It was built on the left or southern bank of the Malacca river close to the estuary along the edge of the sea shore on the south-east side of the river mouth. The fort was made of a system of earthworks surrounded by wooden stockades and, by the 16th century, had big guns.

The Portuguese Fort

When the Portuguese took over Malacca in 1511 the construction of a wooden fort was initiated because the Malay one was greatly damaged. It was built on the same site and many elements, of this Malay fort, were conserved. It was only a make-shift to protect the Portuguese at this point from any attacks from the indigenous enemies.

The fort was surrounded by thick trees and had much artillery. Work on the fort began in August 1511 and was completed within a month. Any possible attacks from local enemies were not really to be taken seriously because they did not have any weapons to speak of which could cause great damage.  

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The Stone Fort

Work, however, was started on a stone and mortar fort, to replace the wooden one, in September 1511. The stone fort had to be built to be able to fend off any attacks from European enemies whose weapons were much more advanced than those of the Malay. Without any inhibitions the fort was built on the ruins of the Great Mosque and stones from the hill where the Malay sultans were buried were used. It was called *A Famosa*, which means the famous. The first fort became the *Fortaleza Velha* or the Old Fort. By extending *A Famosa* right to the seashore the Fort could be supplied by ships that anchor alongside the walls. The Portuguese inhabitants of Malacca designed the fort without the help of any architect. The building material which was used is late rite, coarse-grained, reddish brown rust coloured, clay, which got hard in the open air\(^8\).

The height of the wall was 22-32 Rhineland feet\(^9\), 6.90-10.04 meters, where the walls on the landward side were the highest. The soldiers did the hard manual labour with the help of slaves. At the same time they had to defend the city against any attacks from enemies\(^10\).

The fort was finished, in January of the year 1512. It did take 5 months to build\(^11\). The new *A Famosa* was, square in plan with walls eight feet thick (2.43 meters)\(^12\)\(^13\). Erédia\(^14\) reported that on the east side of the fort there

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\(^9\) A Rhineland foot is 0,3140 meter.


was a circle of walls with a well in the middle. At its north-west corner a tall *donjon* or keep, known to the Portuguese as the *torre de menajem* or tower of homage, was build. Erédia, mentioned the tower is 40 fathoms high and had four storeys. Taken that each fathom is equal to 6 feet. That meant a height of the tower of 240 feet (73.15 meters) with 60 feet (18.28 meters) per storey. Erédia also stated that the top of the tower was level with the summit of St Paul’s Hill. An eye witness who seemed to contradict Erédia’s findings, is the Dutchman Balthasar Bort. He stated in his report of 1678, that the tower before the takeover by the Dutch did measure 120 feet (36.57 meters) in height. This meant the height of the tower in Erédia’s account did not match the height of the tower in Bort’s report.

### The Architecture of the Fort

By the end of the 15th century high towers and high stone walls were not a common feature of forts in Europe any more. This was because of improvements in the science of artillery: metal cannon balls and better possibilities in the aiming of guns. Instead lower and more extensive fortifications were build which could take the impact of cannon balls and behind that the defenders own artillery could be better employed. These ideas were introduced by Afonso d’Albuquerque for the fort of Malacca was therefore old fashioned. Very modern was the angling of the walls and

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13 A foot is 30.48 cm.
17 Ibid., p. 23.
18 Governor of Malacca 1665-1678.
20 Afonso d’Albuquerque (1453-1515). Portuguese nobleman and naval general officer who through military and administrative activities conquered and establishes the Portuguese colonial empire in the Indian Ocean.
the placement of the bastions\textsuperscript{21} where the Fortress of Verona (Italy) was the example for the fort of Malacca. Ideas which were developed in the third decade of the 16\textsuperscript{th} century\textsuperscript{22}.

A bastion was really a big platform to shoot a gun from. It stuck out from the main fortress and was so designed that there was no space outside the fort which could be overlooked. It had no roof so smoke would blow away so as not to cloud the view of the defenders. A ditch was dug below and in front of the bastions and the linking walls. The earth thus required was used to build a rampart\textsuperscript{23} within the walls. A rampart usually would be 14 feet deep or more, wide enough for the artillery to operate on and for the men to circulate. However, in the case of the fort of Malacca it appeared that never any such full-scale rampart was built. A reason could be that the soil was too wet. Possibly a rampart was built on the inside at the North side of the fort to be able to fend off attacks from the landside\textsuperscript{24}.

Descriptions of Malacca Fort

In the literature many descriptions have been given of the fort in Malacca. In this part 3 will be mentioned. Two concerning the fortification walls and a more general one. Erédia reported in 1613 that ramparts were build all around the fort. One of stone and mortar that ran along the shore northwards for a distance of (130 fathoms) 780 feet to the corner of the river mouth and the bastion of S. Pedro. A stone rampart was constructed running for (150 fathoms) 900 feet, past the gate of the Custom Terrace

\textsuperscript{21} A part of the wall that sticks out in order to protect it.
\textsuperscript{22} Irwin, G. (1962). “Malacca Fort”, p. 23.
\textsuperscript{23} The Fortification walls. A defensive mound of earth or a wall with a broad top and usually a stone parapet; a wall-like ridge of earth, stones or debris; an embankment for defensive purposes.
House, alongside the river in north-eastern direction for a distance of (100 fathoms) 600 feet to the bastion of S. Domingos. An earth rampart ran from this last bastion in south-eastern direction for a distance of (100 fathoms) 600 feet to the bastion of Madre de Deus. Another earth rampart ran from the gate of S. Antonio for a distance of 600 feet in south-eastern direction past the bastion of S. Virgens to the bastion of Santiago. Lastly a stone and mortar rampart ran westward from the bastion of Santiago for a distance of (75 fathoms) 450 feet to the angle where it meets with the rampart which ran from the Bastion of S. Pedro. If the conversion of 6 from fathom to feet is taken into account than the total length of the walls is 555 fathoms or 3.330 feet\(^{25}\).

In his article about the Malacca fort, according to his findings, that from the tower earth walls were going around the dwellings of the Malay population that was located around the hill. At the seaward and riversides, a strong new wall was build. In the centre of this wall, projected towards the sea was the bastion S. Pedro close to the river mouth also known as couraça or “breastwork”. At the northern extremity of the wall was the bastion S. Domingos and at the southern end Santiago. These two last bastions were connected with a wooden wall which ran south and east of S. Paul’s hill and together with the stone wall that ran to the north and west formed a circle with a total length of 1.310 yards which equals 3.930 feet\(^{27}\). In the centre of the southern wall a 4\(^{th}\) bastion was build: As Virgens or Onze Mil Virgens which means Eleven Thousand Virgens. There were 4 gateways, one on each side of the fort. Of these only two were in use, the Porta da

\(^{25}\) In the translation of Erédia by Mills (1997:18) it states that the total length of the ramparts amount to 655 fathoms. If one fathom is equal to 6 feet then 655 fathoms would be equal to 3930 feet.


\(^{27}\) One yard equals 3 feet.
Alfandega, which gave access to the bridge over the Malacca river and the Porta de S. Antonio, on the landside, which was situated to the east of the bastion S. Virgens.

Pedro Barretto de Resende, a Portuguese traveller, wrote in 1646 about the fort at Malacca. Although his ‘Account of Malacca’ referred to the state of the fort in 1638. According to his measurements it averaged 20 feet high in total and 9 feet at the base. Barretto de Resende describes the lay-out of the fort in detail: the angle not used at the east corner was transformed in a bastion known as Madre de Deus. The total of bastions therefore came to six: S. Domingos, Madre de Deus, As Virgens, Santiago, Hospital dos Probes and S. Pedro. The long unbroken wall between S. Domingos and S. Pedro had by 1640 been stepped back to provide half-angles.

These were raised positions from which guns could fire in the south-west direction. The names given to these half-angles are Mora and Hospital Real. On the north-west and south-east ditches were dug and slopes on the outside of the moats (counterscrapes) constructed and some of the ramparts within the fort had been widened to at least 24 feet. On land the provisions

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29 Ibid, p. 28/29.
30 Ibid, p. 29.
31 From the French where it is written as contrescarp.
made to defend the city were even more extensive. To protect the town on its northern side two lines of trenches were dug. One near the shore and the other along the embankment guarding the suburb of Upeh. At both sides artillery and musketeers were stationed. The *tranqueira*, an earth backed palisade enclosing Upeh on the landward side, gave some additional protection but since it was constructed primarily to fend off attacks on the town by marauding Malays it was not constructed in such a way to be used as any obstacle to an enemy coming from the sea or land.

Another defence system was provided by a *pagar* or wooden fence around the bottom of the trench\(^32\). On the north side this had been built in a double line. The open ground behind the *pagar* had many caltrops (*ranjau*)\(^33\) and mines were set up ready to explode in the line of the enemy’s approach. All these measures were taken after the attack of 1606 on Malacca by the Dutch which made the Portuguese conscious of the situation with regard to a European enemy who wanted to take Malacca.

Upgrading of the Fort

By 1580 it was most probable that the defence systems of Malacca had to be upgraded, to be able to withstand attacks from any European enemies even better\(^34\). Since in 1580 a union was declared between Spain and Portugal. An attack could be expected from The United Provinces of the Netherlands\(^35\) who were at that time the mortal enemy of Spain. In 1583 the Italian military engineer Giovanni Battista Cairati, or known under his Portuguese name a João Batista\(^36\) was appointed architect-in-chief for the

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33 Or mantrap. Used to mutilate the cavalry horses.
35 The Dutch.
36 (…..Milan…..).
Portuguese empire overseas. It also took him to Malacca in 1588. His instructions were “to inspect work that is already in progress” and secondly “to inspect the works that were already carried out in the fortress there and to arrange for such further strengthening of its defences as might be thought necessary”.

The great weakness of the fort were the wooden walls on the southern and eastern sides and the presence of only one bastion on the eastern side: *As Virgens*. To solve this problem a plan was designed where there would be four spade shaped bastions joined by short walls extending in a half moon from *S. Domingos* around St Paul’s hill to Santiago. This was quite an innovative design. In the 1580’s the spade shaped bastion was designed to provide better cover for the gunners working on the bastion while they could fire away\(^\text{37}\).

Buildings inside the Fort

Within the fort, the space was entirely taken up, during Portuguese times, by buildings in which the administration of the city was housed and by churches, convents, hospitals and government buildings. These were the following buildings: the Castle, the Governor’s Palace, the Bishop’s Palace, the Hall of the Brotherhood of Mercy, the Church of our Lady of Assumption, the Cathedral, the Church of our Lady of Visitation and Mercy, the Church of our Lady of Assumption, the Church of St. Dominic\(^\text{38}\).

The Fort taken by the Dutch

On the 3\(^{\text{rd}}\) of August 1640 the Dutch, once again, open an assault on Ma-


lacca. The initial landing met hardly with any resistance. By the evening of
the first day, the Dutch had overrun the defenders outworks and had guns
in position to fire directly into the fort. From there on for some reasons
things go wrong and the result was a long siege that the Dutch never have
envisaged. On the 5th of September the commander of the attacking forces
wrote to the High Command in Batavia: “If the enemy were to have
reinforcements at this stage, which God forbid, we would have to
withdraw.” Various reasons were given for this lacks siege. The first two
were that the Dutch could not keep a proper watch on the southern side of
the fort, either due to lack of men, who were mostly sick, and a lack of
ammunition. A third reason was that the soil around the fort is so swampy
that the men could not dig in and a fourth reason was that frequent sorties
of the defenders see to it that the attackers had to be vigilant all the time.
The Portuguese townspeople too passed easily through the blockade. They
went in and out to collect wood for their fires and to cut coconut logs to
repair the walls of their houses. Only in December 1640 did the Dutch
fortify St John’s hill to keep all people in the town. Then on the last day of
the year an opportunity arose: a number of small Portuguese ships escaped
into the open sea. This convinced the Dutch that they should attack the fort
without any further delay. In the night of the 13th of January 1641 a bridge
was constructed over the river. On the 14th of January the bastions of S.
Domingos and S. Pedro were stormed. Heavy hand-to-hand fighting broke
out but all opposition was overcome by the attackers and Malacca had
changed hands. However, a total of 7000 people, townsfolk and soldiers,
had perished in the siege from hunger, disease or fire39.

The fort and town of Malacca were severely damaged by the attack of the

Dutch and had to be repaired and restored\(^{40}\). The top floors of the *Fortaleza Velha* had been entirely shot away. The lower floors were in imminent danger of collapsing because large cracks had formed through which rainwater seeped. The bastions on the river and seaward sides: *S. Domingos*, *S. Pedro* and the *Hospital dos Probes* had been flattened. Therefore the Dutch took the opportunity to rebuild the fort, for the time being, according to the needs of the new Government. The bastions, all named after Portuguese Saints, were renamed\(^{41}\). Earth banks were put up, held in place by wooden stakes, also extensive stockades and water-filled ditches made. The fort was used for government purposes, slave quarters, prison, storage and guard house\(^{42}\).

Reconstruction

The plans for a reconstruction plan of the fort would have to go according to a geometrical system, which meant exactitude and symmetry. According to the military design of around 1640 the perfect shape for a fort was a rectangular pentagon\(^{43}\). A fort of this shape presented a precisely similar front in all directions and had no weak ‘spots’ to an attacker. Its guns gave mutually supporting flanking fire at the best possible killing angles\(^{44}\).


\(^{41}\) All bastions, angles and half angles, apart from Victoria and Amsterdam, were named after members of the House of Orange (The Dutch Royal Family) Bastions: Sao Domingos became Victoria, Madre de Deus: Emilia (after Amalia van Solms, wife of Stadholder (Governor) Prince Hendrik, Onze Mil Virgens: Henrica Louise (after the daughter of Prince Hendrik), Santiago: Wilhelmus (after William the Silent. Hospital dos Probes: Maurits (after Stadholder Prince Maurits) and Sao Pedro: Prince Hendrik. Half-angles: Mora became Ernestus (after Ernst Casimir, Count of Nassau) and Hospital Real: Amsterdam.


\(^{43}\) A rectangular pentagon is a five sided polygon (all lines are equal in measure and all sides have the same length).

\(^{44}\) Irwin, G. (1962). “Malacca Fort”. p. 34.
In September 1641, the first comprehensive report, for an improvement of the fort, was drawn up by Joost Schouten a commissioner appointed for this purpose by the High Government in Jayakarta (Batavia). As far as the fort was concerned the Dutch wanted to strengthen, improve and adapt it for the time being. The Fortaleza Velha had to be repaired and made into a strong redoubt at least to the height of the first storey. A wall had to be build connecting it with the bastion Prins Henrik. St Paul’s church with its high towers situated on top of the hill should be turned into a stronghold. It could serve as a watch tower over the harbour and paddy fields in the surrounding area and as a final refuge. The walls between Prins Henrik and Ernestus should be raised and doubled. This was because it is the oldest, weakest section of the circle and the lowest. At the river side, the walls were 24 feet high, elsewhere approximately thirty-two. Increased defense was to be obtained by completing the fort on the Ilha da Nãos, which was renamed ‘Red Island’, and by the construction of strongholds on St. John’s hill and Bukit China. Lastly the construction of three smaller redoubts respectively north and south of the city and a short distance up the river was planned, in order to give better protection from an attack by land.

What was done?

45 A small, often hidden, building in which soldiers could hide themselves while they were fighting.
In 1660 Governor Jan Thyssen Payart\textsuperscript{46} build a small oblong bastion, Middelburg, at the western corner of the wall next to the river mouth. The government did approve of the construction of this bastion that brings the total number to 9\textsuperscript{47}. These bastions were: Victoria, Emilia, Henrica Louisa, Wilhelmus, Maurits, Prins Henrik and Middelburg. It could be assumed that the half-angles Ernestus and Amsterdam must have been reconstructed as bastions. During the time of governor Balthasar Bort the Fort of Malacca reached its final form. Bort enlarged bastion Victoria, which was situated to the north-east, to balance bastion Middelburg on the west. He also had a passageway constructed along the top of the wall between Victoria and Emilia. All walls of the fort were now of equal width and sentries and gunners could get around the whole fort under cover.

![Figure 4.5: Malacca. Plan of the City, 1635-44. J.W Heydt del. et sculp. Copper plate printing. Leiden University (KITLV). The Netherlands.](image)

In 1669 Bort had new gates installed at the Porta da Alfandega and the Porta da Santiago consisting of “great double doors with a wicket”\textsuperscript{48}.

The one on the river side was known as the Water Gate and the one on the landside as the Land Gate. The latter survived to this day and is known under its Portuguese name of Porta da Santiago. During Bort’s time the

\textsuperscript{46} Governor of Malacca 1646-62.
\textsuperscript{48} Ibid., p. 39.
fort was further improved which also affects the amenities of the garrison. Stone steps were built to access ramparts and the bastions were equipped with better cook-houses and guardhouses. However, it was outside the fort that Bort left his greatest mark. He ordered that a ditch had to be dug at some distance from the walls of the fort so soldiers equipped with muskets and light guns could aim at an enemy attempting to cross the ditch. It started at the bastion *Victoria* to protect the northern tip of the fort and then continued in a straight line towards *Emilia*. It was later extended past *Henrica Louisa* to *Wilhelmus* enclosing the fort completely on the landside. Another accomplishment of Bort was to have a moat dug from the river to the sea around the eastern part of the fort. The completion of this moat turned the fort into an island. It was between 2 to 4 rods\(^49\) wide and some twelve feet deep. At each end it had a stone lock so a constant water level could be maintained and the water in the moat remained fresh because of the twice-daily tide. Bort also had two drawbridges constructed that gave access to the fort over the river to the north and over the moat to the south.

![Figure 4.6: Plan of Malacca Fort, end of the 18th century, Reimer, C.F. National Archives, The Hague, The Netherlands. 4. VEL, 1112, P.A. Leupe. Public Domain.](image)

**Application of the ideas of Simon Stevin**

In his treatise *Stercktenbouwing* of 1594 Stevin elaborated in chapter 2, 3

\(^{49}\) A rod is about 5.5. yards or 5.0292 meters long. It was used by medieval English ploughmen and was equal to the standardized length of the ox goad. (goad means to drive cattle).
and 4 on the explanation of the construction and building, in theory and practice, of regular fortresses, with the bastioned hexagon as the easiest example and subsequently of other regular polygons, i.e. the 5-, 7-, 8-, 9- and 10- angle. The fort in Malacca was a rectangular pentagon (five sided) although the sides did not have the same length. Malacca was a fixed fortification.\(^{50}\)

The fort was built close to the sea due to the engineering skills of the Dutch. It was also build at the estuary of a large navigable river. The sea was, according to the ideas of Simon Stevin, a defence against any enemies. The fort had earthen walls which were not so heavy in the swampy area, brick walls and wooden stockades. It had seven bastions and two half-angels.

A ditch surrounded part of the fort to protect the northern tip of the fort. It was later extended to enclose the fort completely on the landside. It also had a moat from the river to the sea around the eastern part of the fort. The completion of this moat turned the fort into an island.

After the conquest of Malacca by the Dutch the intention was to reconstruct the fort according to a geometrical system, which meant exactitude\(^{51}\) and symmetry.\(^{52}\) Exactitude was shown in the design of the fort by straightening out the walls and removing any irregularities which dishar-


\(^{51}\) Exactitude: The quality of an instance of being exact.

\(^{52}\) Symmetry: from the Greek: "συμμετρεύω" = to measure together), generally conveys two primary meanings. The first is an imprecise sense of harmonious or aesthetically pleasing proportionality and balance such that it reflects beauty or perfection. The second meaning is a precise and well-defined concept of balance or "patterned self-similarity" that can be demonstrated or proved according to the rules of a formal system: by geometry, through physics or otherwise.
monize so as to achieve a balance. It was also shown in the fact that the bastions were almost exactly the same.

Symmetry showed in the design of the fort that the perfect shape for a fort was a rectangular pentagon according to the military design of around 1640. A fort of this shape presented a precisely similar front in all directions and had no weak “spots” to an attacker. The fort of Malacca was a five sided rectangular pentagon and the preferred design of Simon Stevin.

54 Ibid, p. 36.
55 Ibid, p. 34.
Chapter 5  Dutch Public Buildings in Malacca

The Development of the house

Next to the wooden house and the house of clay, the town house, made of bricks is an early type. The brick house had many advantages: among those the protection from fire. The brick house though was more expensive and there for not affordable for everyone due to the high price of bricks\(^1\).

Types of houses

Town houses

Terraced housing consists, of rows of narrow, deep homes two to three stories tall. Each building in the terrace represents an individual housing unit. The interiors often feature a split-level design that is well suited to deep structures\(^2\). The name terrace houses, originates from Britain\(^3\). These are named row houses in North America. The advantage of terrace housing that it can be built to remarkable densities\(^4\). Terrace houses come in a wide range from expensive town houses to small artisans cottages\(^5\).

The most ideal types of houses in town were the narrow one alley house and the wide hall house (just as wide as the three alley house). The one alley house was narrow and did not to take too much space in cities where there is

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\(^1\) Zantkuilj, H.J. (1975). *Bouwen in Amsterdam, Het woonhuis in de stad, Deel 1*, p. 33.


\(^4\) Ibid, p. 10.

an intensive allotment. There where there was not an intensive allotment the wide hall house would be built. Zantkuijl uses the term ‘Zaalhuis’ for the one alley house and the wide hall house\(^6\)/\(^7\).

Hall houses

**The prototype of the hall house**, had one floor and a furnace (Zaalhuis). The room with the furnace would become increasingly important. The remaining space next to the room with the furnace would slowly turn into a corridor to the back of the house. This corridor would even become more important in time. The remaining space of the hall which was still in connection with the street was called the hall house (*het voorhuis*). If the total surface of the house was too small there was only one room at the front. The hall house was not heated since it was considered as part of the street. The upper part of the door and shutters of the front room were often open. It was a meeting place and a place to trade. It was used to live, work and play in. Privacy slowly invaded the house but a small room in the hall house with a fireplace was build so one could keep in touch with the street in the winter. In this room the office was often located.

The room behind the entrance door at the front in the hall house was less and less used because the entrances change to the sides and back. The room was only used for special occasions. It got the name ‘dead room’ and the door ‘dead door’.

In the early hall house it was necessary to have a high ceiling (about 3.75 me-

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\(^7\) Ibid., p. 82.
ters) in the room with the furnace so the smoke could rise to the ceiling since there was no chimney. When the fireplace, with a chimney, was built in the house the ceiling did not have to be so high (about 2 meters). A row of beams was made on that height with a light floor on top. This meant that there was space left over of about 1.75 meters. This space was commonly used as sleeping quarters. For the small town house this was an immense gain of space. The room with chimney could be made bigger by moving up the ceiling, by leaving out the floor above or by lowering the chimney of the fireplace. This room was from there on used as a kitchen.

The floor over the kitchen was used as a living area. The kitchen was still to close to the hall house as not to have any privacy. The living area, now, had the most privacy since it was the furthest away from the hall house.

The hall house developed in time and different types emerge. The hall house had an influence in construction and design on the development of public buildings in Melaka. Dutch architecture in Melaka, in the public buildings, showed an exactitude and symmetry in design. The buildings had bays and windows which were symmetrically placed. It appeared that the 17th century

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houses had been established according to Dutch building traditions. Plastering of the walls, the ridge turning to the street and the addition of galleries in that period were the main changes.

Some types are:

One of the characteristics of the **hall house with extra space and one floor** was that there is an extra space added which makes the house more livable and the fireplace was constructed on a lower level. To enter the room with fireplace from the hall house one has to descend.

With the **wide hall houses** more space was created by supporting the beams in the middle by poles (**stijlen**) or a brick wall. When the house was one room only the solution of poles were chosen for. When it was turned into two rooms a brick wall was erected. The house had to have a minimum of 24 feet (**voet**) (6.79 meters) to give it the required width of 11 to 12 feet (**voet**) (3.11 to 3.39 meters). The meters) to give it the required width of 11 to 12 feet (**voet**) (3.11 to 3.39 meters). The hall house was in the left part. This type could have taken the place of the three alley houses in places were there was no in-

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9 The Amsterdam foot is 0.2831 meter.
tensive use of the parcels of land\textsuperscript{10}.

At the right hand-side there was the hall room. The room with the fireplace was at the back on the right hand side with the kitchen on the left hand side. Over the kitchen was the extra space\textsuperscript{11}. This type of house was next to the one alley house, the most ideal type of house for town\textsuperscript{12}. It had no side aisles which lets in more light. Zantkuijl also used the term *Zaalhuis* for the wide hall house.

\begin{figure}[h]
\centering
\includegraphics[width=0.4\textwidth]{figure5.3.png}
\caption{The Wide Hall house.}
\end{figure}

\textit{Zantkuijl, H.J. (1975). Bouwen in Amsterdam, Het woonhuis in de stad, Deel I, p. 87.}

**Characteristics of houses through the centuries**

The houses of the 14\textsuperscript{th} century were of the type of the three alley hall house. The middle part could reach a width of 4.50 meters. The alleys at the sides of the houses took up the remainder of the measured 8.50 meters except for a narrow passageway at the side which led to the area behind the house. The wooden supports of these houses were simply put directly in the ground. Next to this type there was the two alley house which was better suited to live in

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\textsuperscript{11} Ibid., p. 19.
\textsuperscript{12} Ibid, p. 19.
because of the better measurements\textsuperscript{13}.

The 14\textsuperscript{th} century houses in the city of Amsterdam were built on wide parcels of land of about 8.50 meters width or 30 feet. When Amsterdam was not more than an agricultural community this meant that these parcels of land were used to build farms on. During the development of the city the parcels of land got narrower due to the taxes which were imposed on the width of the facade of a house. This was also the case in Malacca where due to the high taxes the facades of the houses were quite narrow\textsuperscript{14}.

In the period from the 15\textsuperscript{th} till the 18\textsuperscript{th} century the houses were build of wood and due to the fact that in time the houses were build of brick more floors could be added. Especially in the 18\textsuperscript{th} century the brick houses with more floors developed

Slowly a change began to take form in the wooden structure of the house about the middle of the 16\textsuperscript{th} century. Next to the elementary use of pilasters\textsuperscript{15} the cornice\textsuperscript{16} started to play an important role in the decoration of the house. Although initially used as a water drip. This decorative element soon started to play a role for itself.

Till the 16\textsuperscript{th} century roof tiles, were under and upper tiles, better known as the

\begin{itemize}
  \item \textsuperscript{13} Zantkuijl, H.J. (1975). \textit{Bouwen in Amsterdam, Het woonhuis in de stad, Deel 1}, p. 18/19.
  \item \textsuperscript{14} Ibid., p. 18.
  \item \textsuperscript{15} A pilaster is a slightly-projecting column built into or applied to the face of a wall. Most commonly flattened or rectangular in form, pilasters can also take a half-round form or the shape of any type of column.
  \item \textsuperscript{16} A cornice is horizontal molded projection that completes a building or wall; or the upper slanting part of an entablature located above the frieze. The term cornice comes from Italian cornice, meaning ledge.
\end{itemize}
roman roof tile or as ‘monks and nuns’\textsuperscript{17}. As of the 16\textsuperscript{th} century the corrugated (ribbed) roof tile was more common. These roof tiles originated from Flanders.

**Construction and development of the houses**

Beams were incorporated in the walls of the houses which would lead to problems of rotting beam heads therefore with beam constructions derived from the wooden house the total of beams was limited to a minimum. The application of oak wood diminished the danger of rot. When the wooden construction was introduced in the brick house the child beams\textsuperscript{18} and nut beams construction were introduced. Slowly the construction of the wooden house could not be recognized anymore from the construction of the brick house. There were however differences. If a wooden structure was applied in the brick house the poles were not placed on the foundation wall but on stones. The walls of the main floor always keep their initial thickness of half-a stone. Wooden structures were to be found on the main floor and ground floor\textsuperscript{19}.

In Malacca the rooms in the houses had wooden floors which were supported by wooden beams which were anchored in the walls.

From a trunk a square beam was chopped. Since a trunk was wider at the bottom then at the top. To have the least loss of wood the beam was wider at one

\textsuperscript{17} Zantkuijl, H.J. (1975). *Bouwen in Amsterdam, Het woonhuis in de stad, Deel 1*, p. 30.

\textsuperscript{18} Child beams or scantlings: are smaller beams which lie perpendicular to the girder (a support beam used in construction).

\textsuperscript{19} Zantkuijl, H.J. (1975). *Bouwen in Amsterdam, Het woonhuis in de stad, Deel 1*, p. 34.
side. The beam was placed horizontally in the room which meant at the bottom the beam would not have a straight line. The beam would be cut straight to the corbel. To cover up, visually, the widening of the beam, after the corbels a piece of wood was put on the bottom of the beam which made it look as it were straight. This piece is called: key pieces and these were connected to the beam with long, iron, nails. When straight beams were used the key pieces are still placed on the beam for decoration purposes only. But then only in rooms which were used for living purposes\textsuperscript{20}.

After the second part of the 17\textsuperscript{th} century wooden supports were not used anymore and the beams were placed in thin brick walls wall.

The child beams were the small beams which support the floor of the rooms. There were two types of constructions in the nut beams. It was very labour intensive to hack in into the beam.

Another way was to have them supported by the beam. Then there would be openings which would be filled up with bricks. The filled up area was plastered and painted in the same colour as the beams. A more refined finishing of the openings was achieved by small planks between the child beams which were hardly discernible from the beams. The child beams mostly had the length of two openings between the beams and were fastened with nails to the nut beams.

The floor parts were nailed onto the child beams in the opposite direction as the small beams. A better solution was to nail the floor parts to the child

\textsuperscript{20} Zantkuijl, H.J. (1975). Bouwen in Amsterdam, Het woonhuis in de stad, Deel I, p. 35.
beams in the same direction. The distance between the small beams then had
to be the same as the width of one plank. This covered the openings between
the planks better. For the floor parts oak wood was mostly preferred but since
this was quite expensive pine wood was used as well. To give this the
impression of oak wood from below a thin layer of oak wood, of some
millimeters thick, was placed underneath the pine wood. The pine wood was
then nailed on top of the oak wood in the opposite direction.

Another reason was that oak wood was not easy available anymore, in the
Netherlands, due to the Eighty Years War between the United Provinces of
Holland and Spain. Also the growing trade with the Eastern European
countries made pinewood more accessible.

Pine wood had not the same quality and was very rarely used. After he 16th
century pine wood was more in use for roof constructions before that oak was
more popular.

In Malacca tropical wood was used for different purposes in public buildings
and shop houses. The kind of wood used for colonial buildings was Keruing
(Dipterocarpus spp)\textsuperscript{21}. The beams of the ceiling of Christ Church in Malacca
had been cut out of a tree of 15 meters high of local wood\textsuperscript{22}. The doors and
windows of the shop houses in, Malacca were made of yellow wood\textsuperscript{23}. Chengal was used for constructive purposes in the shop house\textsuperscript{24}.

\textsuperscript{22} Franssen, B. (1996). “Melaka is zuinig op haar stadhuys”, p. 23.
Melaka, p. 52.
Slowly the town house got higher because floors were added. Some parts were built in brick others stayed of wood. An example were the *facades* at the front and back. Glass was put in the windows. One of the most domineering aspects of the *facades* in wood was the protruding part called the projection. It stuck a little forward from the front over the street. It was meant so the rain could not fall on the wooden planks of the front. The wooden shutters and doors were not especially water resistant and often stood open. In time when the *facades* came to be of brick water ledges were made to restrict the rain touching the front. On top of glass windows and in the top of the wooden front a little hatch was made which could be opened when it was raining. Due to the influence of the brick *facades* the water ledge became smaller. A regulation in Amsterdam ordered that a ledge of wooden or brick fronts could be no more than one *Leidse* brick (7 thumb (*duim*) = 17.5 cm)\(^{25}\). A ledge was often supported by consoles\(^{26}\).

By fitting the house as an entity of a whole street the *facade* became the ‘face’ of the house. The traditional design forms were concentrated on displaying that ‘face’. To give the house more status the *facade* was made higher than the house itself. Sometimes there were pinnacles on top or other ornaments which could have the most fantastic forms. Like squares placed on one corner, round ones with fish grate motives.

In Malacca this kind of decoration, could be found on the side walls of the Architecture Museum which were crowned with stucco pironnen (copper

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\(^{25}\) Amsterdam thumb (*duim*) is 2.57393636 cm.

\(^{26}\) Zantkuijl, H.J. (1975). *Bouwen in Amsterdam, Het woonhuis in de stad, Deel 1*, p. 61.
balls with a base of zinc), a typical feature of Dutch houses\textsuperscript{27}.

To reduce the rain on the walls ledges were made on these walls which were called water ledges. These edges divided the wall in horizontal spaces and so rainwater was better divided. They were constructed in such a ways that the water would fall from the farthest point to the soil below. The bricks would absorb the rainwater till they got saturated and would not hold water any longer. The ledges were mostly part of the upper or lower side of the windows.

On the VOC building in Malacca a broad, hollow and round, profile had been placed between the ground floor and the first floor. These profiles were placed there to have a dark and light effect. They were also placed on the wall to divert the rain from touching the wall.

When the central furnace was changed, into a fireplace against the wall with a smoke channel into the roof the attic would get more significance. The triangular front gave more walking space in the attic and became all important in the streets. It replaced the triangular slanting roof with thatch on top. These

were small houses which would dominate the streets till far into the 17\textsuperscript{th} century. It had a wooden front and an estate agent, (makelaar) and thatch on the roof. On the ground floor there were leaded glass windows (glas-in lood ramen)\textsuperscript{28}.

The result of a fireplace against one of the walls with a smoke channel was there was no longer any smoke in the house. When the house became more and more of brick the brick walls would be plastered, the woodwork painted and fine textiles were hung in the interior of the house. The disadvantage however was that problems of draft were now ensuing. The furniture was adapted in such a way without noticing any problems of draft. This meant chairs with high backs or couches with movable backs to sit with ones back to the fire. Another option was to construct the fireplace in a small room. This meant that the house turned away from the street and more privacy was created. When the house had only a furnace here was where the cooking was done. Now with the addition of space in the town house the cooking was done in a separate room at the back of the house where also could be found the storehouse, stables and toilet.

The same lay-out can be found in in Malacca in the house on Jalan Tun Tan Cheng Lock 8, build in the Dutch style, in the mid-late 1700s, where the kitchen was at the back of the house. In the building which now houses the Architecture Museum on Jalan Kota in the shallow buildings on either side of the courtyard was the kitchen and the lodgings for the servants. In the Stamp Museum, on Jalan Kota, which was a residential building, the rear gallery was

\textsuperscript{28} Zantkuijl, H.J. (1975). Bouwen in Amsterdam, Het woonhuis in de stad, Deel 1, p. 38.
continuous along the kitchen buildings. In the VOC building, in Jalan Hang Jebat, at the back of the courtyard there was a well with either stables behind it or the kitchen. On the right hand-side there was also a utilities area.

**Change in the construction of the houses**

In the beginning of the 16th century not much changed in the turning of the wooden house into the brick one: still the house had a wooden construction with thin brick walls at the sides. The front-and back *facades* stayed of wood for a long time to come. The reason that things changed so slowly was that traditional training was done orally. Though the information by example books from abroad the educational system could be freed from local and regional habits.

This would lead to a total change of the design of the houses. This period in the beginning of the 16th century was called the *Renaissance*\(^{29}\) which meant a total revival of the Greek and Roman antiquity. The research into the antique world of the Romans and Greeks which meant the study of the measurements and harmony from that period led to a diversion from the world the Middle Ages. Through painting and drawing the antique world was opened up for artists outside Italy. For architects it required a solid knowledge of the measurements and design of the Roman and Greek antique world. In the *Renaissance* a building was seen as an aesthetic unity consisting of parts which were in their own right units with their own measurements. It was an addition sum to the great entity. In this a building will always keep it human

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\(^{29}\) The humanistic revival of classical art, architecture, literature, and learning that originated in Italy in the 14th century and later spread throughout Europe.
perspectives and its own beauty. In a building of the Renaissance a strict symmetry in all parts of the building was used.

The Netherlands were are not at that time divided into a Northern and Southern part. The first influences of the Renaissance were in the Southern part of the Netherlands imported from France\(^{30}\).

A clear Renaissance language did emerge around 1530. First there is a mix of the gothic and the antique. Elements from the antiquity are introduced like pilasters, half pilasters, cornices, friezes\(^{31}\) and aediculae\(^{32}\) next to the gothic cross-bar windows and flower decorations on the volutes\(^{33}\). The straight horizontal lines as in the buildings of the Renaissance were not being seen yet but a straight verticalisme was still being used. All the measurements were not yet quite right and sometimes elements were used which did not derive from the Roman or Greek antiquity but from other cultures. Around 1590 a period in the Netherlands started which was called the Dutch Renaissance\(^{34}\) and which will last till about 1630. About 1556 the first prints of Hans Vredeman de Vries from the series Architectura appear in prints which were meant as examples for painters and decorators\(^{35}\). Before that there were

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\(^{31}\) In architecture the frieze is the wide central section part of an entablature (the upper part of a classical building supported by columns or a colonnade, comprising the architrave, frieze, and cornice) and may be plain in the Ionic Doric order, or decorated with bas-reliefs (is a type of sculpture that has less depth to the faces and figures than they actually have, when measured proportionately (to scale). This technique retains the natural contours of the figures, and allows the work to be viewed from many angles without distortion of the figures themselves).

\(^{32}\) A type of decorative architectural frame, usually found around a niche, door, or window. An aedicula consists of pediment and entablature supported by columns, pilasters, or piers.

\(^{33}\) An element on top of a Ionic column with two scrolls on each side.

\(^{34}\) The Renaissance in the Netherlands is a cultural period during the 16\(^{th}\) century.

\(^{35}\) Hans Vredeman de Vries (1527-after 1604). Dutch painter and architect. Designer of architectu-
already prints published by Coecke van Aelst and Cornelis Floris\textsuperscript{36} which showed the more playful elements of the \textit{Maniërisme}\textsuperscript{37}.

Still elements from the antiquity were used like the pilasters, pediments and \textit{cornices}. The \textit{cornice} replaced the water ledge, the pilasters (often two because of the wide wall dams) took over the function of the window niche while the \textit{frontons}\textsuperscript{38} were there to keep the water from touching the wall. It was not in a typical classical way. But not so with the ornaments: all kinds of \textit{band and-rolwork}\textsuperscript{39}, \textit{volutes}, \textit{obelisks}\textsuperscript{40}, vases, arm shields and masks were used in an orderly fashion. It was precisely for this use of orderly fashion that was so characteristic for this period. This period was called the \textit{Dutch Classicism}\textsuperscript{41}. It started in the first quarter of the 17\textsuperscript{th} century and was known for a stricter use of classical forms and harmonious proportions. Access was gotten (through example books) to the work of Roman and Italian architects like Vitruvius, Serlio, Vignola, Palladio and Scamozzi who made use of classical proportions in their designs for buildings\textsuperscript{42}. These designs were the

\begin{itemize}
\item Coecke van Aelst (1502-50). Flemish painter, sculptor, designer of tapestries and stained glass and writer. Cornelis Floris (1514-75). Flemish architect and sculptor.
\item A style in architecture between 1530 and 1590. It exaggerated or obtrusive cultivation of the superficial tricks of any style.
\item A fronton (also called frontis) is an architectonic element of classic origin that consists of a triangular section or gablete stipulated on the entablamento, that it rests on the columns.
\item Characteristic is the band and scrollwork, a system of partially curled decorative metal bands in geometric patterns, interspersed with human figures, maskerons, fruit or fantastic animals.
\item Is a tall four-sided narrow tapering monument which ends in a pyramid-like shape at the top.
\item A very simple style in architecture with elements taken from Greek Antiquity.
\item Pollo Vitruvius (c. 80-70 BC-after c. 15 BC), Roman architect, wrote \textit{Di Architectura} in 27 BC. Sebastiano Serlio (1475-1564), published the first of his books of the treatise: \textit{The Entire works of Architecture and Perspective} in Italian architect, 1537. Giacoma Barozzi Da Vignola (1507-73) published a treatise in 1562/3 on the classical (pilaster) orders: \textit{Regola delli cinque Oridini d’Architettura}. Andrea Palladio (1508-80) published in 1580 \textit{I Quattro
example for the architects in the Netherlands.

Like the three alley house, the two alley house and one alley house had an influence on the public buildings in Malacca. The hall house played a major role, in the development of the house in the city\textsuperscript{43}. As had the three alley house, the two alley house and one alley house.

According to the regulations of the city it was allowed to cover the roof with slabs. When baked material became available there were two types: the roof tile and the roof pan. The roof tile had a simple square form and was hammered to the roof with nails. One tile overlapped the other and according to regulations this had to be one third of the tile. Deviations were punished with a severe fine. Till the 16\textsuperscript{th} century roof pans were to be separated in upper pans and lower pans. Also called roman pans or monks and nuns. In the 16\textsuperscript{th} century the waved roof pan became more popular. Originating from Flanders\textsuperscript{44}. Like the Portuguese the Dutch also initiated the manufacture of roofing tiles in Malacca and the use of locally available late rite as a building material. Under Dutch rule, the authorities granted a monopoly to a group of Dutch businessmen for the manufacture of bricks. Portuguese and Chinese roofing tiles, and square terra cotta tiles\textsuperscript{45}.

The brick industry grew gradually in the second half of the 12\textsuperscript{th} century. The quality of the bricks was not very high. A thick and compact brick was produ-

\textsuperscript{43} Zantkuijl, H.J. (1975). \textit{Bouwen in Amsterdam, Het woonhuis in de stad, Deel 1}, p. 18.
\textsuperscript{44} The part of present day Belgium where Dutch is spoken. This in contrast to the part of Belgium (Wallonie) where French is spoken.
ced. It consisted of clay mixed with quartz, iron, lime and vegetable mould. The product was red in colour (if it had more or less iron) or it is yellow (with more or less lime) in colour. With a low quantity of quartz the brick is described as “meager” while when it had a high quantity of lime it was “fat”. The finer the granularity the better the brick. However in the northern parts of Europe only very compact bricks could be produced. The small ovens only would have permitted to make small bricks. Despite these technical difficulties big bricks were produced like the convent-or giant bricks (klooster-or reuzenmoppen). These were seen as replacements for the big slabs of stones which were used to build houses. Walls which were entirely built of slabs were now alternately built of bricks. Slowly the bricks took over from the slabs until slabs were only to be seen on corners and under roof tops for pure decorative reasons. Until the 17th century this kind of construction was common. As soon as the slab replaced the brick the reason for same sized bricks and slabs was unfunctional. So smaller bricks were being produced from there on. It had its advantages: the clay was better suited to make small bricks and the bricks were easier to be held in place.

In Amsterdam small bricks were used relatively early: in the 14th century bricks had the size of 22 x 10 x 5 cm. In the 17th century a big size brick had the size of 21 x 10 x 3.8 cm. It was more used and is baked from clay of the Vecht, a river let in the province of Utrecht. As of the middle of the 16th century a stone: the ‘triplets’ is being used. A small stone of 19 x 9 x 3.5 cm. A yellow stone, a strong brick, replaced the sandstone in time originating from the Dutch river the IJssel in the province of Overijssel. It was also called the Goudse stone.
In the brick industry colour had always been important. The ideal was to produce a material of one colour. This was not achieved and the bricks, when a building is ready, were then painted in a red colour. The multicoloured stones so became one colour and the small size of the bricks became subject to the whole architectural form. Bricks were painted in a brick colour and sandstone in a sandstone colour to mask all the differences in colour. When sandstone was not painted in the climate of the Northern countries it turned black after some years and the contrast between bricks and sandstone got lost.

**Dutch Public Buildings**

Figure 5.5: Map Public Buildings.

Pelan Tindakan (Action Plan) MPMBB (Malacca City Council) Figure 5.1.

Jalan Kota

Architecture Museum
Close to the *Stadhuys* there still stands an 18th century diagonal house on an elevated base\(^\text{46}\). The city wall was only 11 meters away from the *facade*. The elevated position took full advantage of the evening rising sea breezes.

The integrated open front porch on the ground floor has five arched openings, while the first floor has rod windows. Remarkable is that the upper windows are placed behind the rear windows. The rain impact on these windows is reduced through the overhanging roof. On the *facade* of the ground floor and the first there are pilasters with a top.

Behind the entrance hall two small rooms are located within a gallery. Whitewashed walls, red tiles and the symmetrical lay-out determine the sober interior. In the shallow buildings on either side of the courtyard there is usually the kitchen and the lodgings for the servants. The side walls are crowned with stucco *pironnen* (copper balls with a base of zinc), a typical feature of Dutch houses.

Department of Museum & Antiquities of the Southern Region Malaysia

Another house, built before 1700, on Jalan Kota is the house that currently

houses the Department of Museum & Antiquities of the Southern Region of Malaysia. The structure has architectural similarities to other Dutch colonial buildings in the tropics\textsuperscript{47}. The buildings in the tropics have the same symmetry and exactitude as the buildings in Malacca.

The Department of Museum & Antiquities of the Southern Region of Malaysia house has an open porch with 4 arches. On the first floor it has 4 symmetrically placed windows with louvre shutters. On the ground floor and first floor it has five pilasters with a profile on top.

**Stamp Museum**

The house in which the Stamp Museum is located has been built in the late 18\textsuperscript{th} century. The house is a combination of different architectural styles: Malay, Chinese, Dutch and Portuguese. The house is five bays wide with a front and rear side gallery. The arched openings at the front are probably the result of a later renovation\textsuperscript{48}. On the *facade* of the ground floor and the first floor there are pilasters with a profile on top.

The ground floor is divided into several small rooms on the left, a deep cen-


tral hall and on the right the barn with the coach house. The rear gallery is continuous along the kitchen buildings. On the first floor the front porch has been added to the rooms and therefore only the flat roof of the entrance is if left as an outside space. There are bars placed in the windows as to keep intruders out without glass. In the Netherlands bars are placed in the windows of the warehouses. These could have been the example for the windows in the houses to be seen in Malacca. To close the windows there are shutters or louvres which turn outward while opening. On the verandah or gallery there are green tiles which are of Chinese origin. The arched entrance to the house is taken from Portuguese architectural examples. The lay-out of the house allows for a lot of space. The front facade is not narrow but wide. As if the side of the house is facing the street instead of the front.

At the ground level there is a gallery along the whole front of the house. There are separate entrances to the coach house and to house itself. On the ground level of the house is a large room with smaller ones at the side and back. At the back are the kitchen, the comfort room and the slave quarters. At the right-hand side, at the back of the large main room, is the steep staircase. On the first floor are the living room and the bedrooms. At the front, of the

Figure 5.8: Stamp Museum, late 18th century. Jalan Kota, Malacca. R.C.M. Weebers, 2012.
house, as at the back are galleries. Also at the front there is a big balcony which had a view of the Malacca river and the sea.

The ceilings are supported by beams which are taken from tropical trees found locally. The beams of the ceiling of Christ Church, in Malacca have been cut out of a tree of 15 meters high of local wood\textsuperscript{49}. The kind of wood used for colonial buildings, is \textit{Keruing} (Dipterocarpus spp)\textsuperscript{50}. The roof holds the typical Dutch tiles which are laid one over the other. The walls on the inside as on the outside are whitewashed.

Jalan Geraja

\textit{Stadhuys}/Town hall

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{Stadhuys_Town_hall.jpg}
\caption{Stadhuys/Town hall, 1641-56. Jalan Geraja, Malacca. R.C.M Weebers, 2012.}
\end{figure}

The \textit{Stadhuys}/Town hall was built, between 1641-56 at the northern side of the walled in part of Malacca\textsuperscript{51}. The \textit{Stadhuys} has two storeys. At the front there is a big balcony with a staircase on each side. In the \textit{facade} there are two rows of six cross-bar windows. Over the lower ones there are originally arches with small stone blocks which gave the \textit{facade} a Dutch appearance.

The main section and the gallery zone each have a saddle back roof with gables at each end. At the rear the main storey has an exterior gallery between two extended wings which enclose the sloping inner court yard. On the left-hand side there is a wing, about 80 meters long, with two storeys on the street side which is probably used for storage purposes. There are hardly any windows in this building. The roof is steeper than on the main building. At the left hand side is the house of the Deputy-Governor with storage buildings. At that time when it was build it had only one floor. On the right hand side is the slave house (Misericordia) with some warehouses and the outlook tower\textsuperscript{52}.

In Malacca there was not too much arcadetoparchitecture. The termination of the side walls of the Stadthuys was reminiscent of Cape facades. Both the side walls of the Town hall as those of the wings are similar in design. The bottom half, set between pilasters, follows the gentle slope of the roof, and the top of the roof ends with a segment arch and is crowned by a metal broker. Probably the facades were made in the 18\textsuperscript{th} century. The cap is more original and for a 17\textsuperscript{th} century the slope of the roof is much too faint. Furthermore, the roof pitch is different from those of the adjacent warehouses\textsuperscript{53}.

At the site of the destroyed City Hall, soon was started with the construction of a new governor's mansion. The construction of the building was probably supervised by the fabriek (artisan) David Walraven and was carried out by masons and penalized Javanese Chinese. The map of Malacca in 1656 shows


the governor's mansion drawn lines and indicates it as a rectangular building, without that the various building components are shown. In 1663 it is described as the ‘office of the secretary and the Governor’ and until 1982 the building would serve as City Hall till today the building is known as the Stadthuys54.

The two-story building rests on a foundation of existing cellars which are originally almost entirely hidden behind the main stairs. In the 30 meter wide facade dominates the heavy teak cross frames. An iron window with rays over the door frame, moulded keystones of the window arches on the first floor and to this day a hardly to be perceived lions head in the shaft just below the cutter are the only decorative additions to the facade. Later introduced plaster layers have almost erased the original plaster detailing. Also in the plan the symmetry is highly implemented55.

At the front of the house the three main rooms are situated, consisting of the large prayer hall in the centre, at the left the dining room of the Governor and on the right the secretariat. A gallery across the full width of the house is behind it and is connected to a courtyard, which is enclosed by two wings of galleries over two floors. At the mountain side is a double staircase, which once constituted the beginning of a path to the governor's garden on top of the mountain. In the centre a well which has been recovered during previous excavations. In the wings are the guests and service rooms. Next to the house of the governor's house stands the house of the chief merchant, the second in rank within the city. From the square it was accessible via a separate staircase,

55 Ibid., p. 119/120.
which came out on the back porch. His house consists of two rooms and cabinet with a door which is connected to the dining room of the governor. In the backyard is the kitchen, which is still in its original condition, with two tall chimneys. To the left of the house are warehouses, the large rooms on the first floor of the courthouse housed during the English times the Supreme Court.

Under the influence of the climate the need arises to build in a different way than in it was done in the Netherlands. On their way to the Far East the Dutchmen come into contact with many other cultures, and here they find sufficient examples to adjust their construction in parts. Gradually an overseas architecture comes into existence in part based on Dutch architecture, but in each region it develops in its own way. For the Far East, this development goes through Batavia, seat of the Governor-General of the VOC where the regions are governed in a very centralist way. The governor's mansion in the Castle of Batavia may therefore be considered as a predecessor to the *Stadthuys* in Malacca\textsuperscript{56}.

The Dutch Reformed Church

The Dutch Reformed Church stands on the east side of the square and is built in 1753. It is a rectangular building measuring 14x37 meters. The *facade* has a semicircular top of which the belfry is a 20\textsuperscript{th} century edition. The building consists of three aisles divided by two rows of pilasters.

The *end facades* of the Protestant Church built in 1753 are carried out with an

arched finishing, on which a bell tower is placed. The long-vanished house beside the church possesses a graceful curved front. When the still present Portuguese community gets permission in 1710 to build a Catholic church outside the city. The church is given a front with a whimsical bent termination most exurban in the Dutch style, but the mutual influence is unmistakable\textsuperscript{57}.

Originally, after it is completed, in 1753, the Church has white washed walls as has the Stadhuys after its completion in about 1656. The church has an open porch with arches (which was added during the English period) and pilasters on the facade with a profile on top.

Jalan Tun Tan Cheng Lock

Two Former Warehouses/Heeren-house

Two warehouses on Jalan Tun Tan Cheng Lock\textit{/Heeren Street} were combined to make a hotel with the name \textit{Heeren}-house\textsuperscript{58}. On the ground floor the house has a rectangular window on the left-hand side and a large door on the right-


hand side. It has three windows on the first floor with shutters. It has all the characteristics of a shop house with Dutch decorative elements. Not much is known about the architectural history of this building only that it used to be two warehouses.

Figure 5.11: Two Former Warehouses/Heeren-house, Jalan Tun Tan Cheng Lock, Malacca. R.C.M. Weebers, 2012.

Jalan Hang Jebat

VOC Building

At Jalan Hang Jebat/Jonker Street 18 there is the VOC building completed in 1673. It was built to house a tobacco factory. It may also have been used to house VOC servants. It has also been used as an office to collect the harbour taxes. This could not be the case as the office for the harbour taxes was located next to the harbour which was situated in the former Co-op Building on Lorong Hang Jebat. The building was in use in the 17th century century as a tax office. The map of Heijdt of 1746 shows a building at the mouth of the river that bears the name De Boom. In the beginning of the 20th century the building was purchased by the Atlas Ice Company and there for referred

to as the Atlas Ice Building. It was also referred to as the ‘1673 building’ because of the date anchored on the front facade of the house.

At about 1783 and 1812 the house was in use as a residence with some annexes. It was among others occupied by the Baumgarten and the Wind family. It was restored because in 1910 it looked entirely different from what it looks today.

The house has an entrance which was used for coaches (or other vehicles) which used to be an arch and an entrance door to the house itself. A wide alley leads up to the back of the house. At the end of the alley there is a well with either stables behind it or the kitchen. On the right-hand side there is an open space which was used as a utilities area. On the left-hand side there are two structures with no first floor and large doors on the ground floor. These were probably the quarters for the slaves and servants. On the remainder of the buildings on the left hand-side a third floor has been added by later generations. It still has the original windows on the ground floor and some on the first floor.

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Both the door for the entrance of the coach and the one to the house are made of local tropical wood. The kind of wood used is yellow wood\textsuperscript{64}. On the inside of building is a long gallery. At the end of this gallery is a staircase to the first floor. Behind the gallery is an air well and two smaller rooms. All the floors on the ground floor have the reddish Malacca tiles.

On the first floor, at the front of the house, is a large room. The beams in this room are painted light green. At the front of the house there is on the right-hand side an open gallery. There is an open balcony that looks out on the alley at the back of the house. This balcony is also connected with the gallery at the side. At the back of the balcony are two more rooms. All the floors on the first floor have wooden floors. The ceilings of the ground floor are made of wooden beams.

Elements of this building are: semi round fanlights (over the doors and windows, divided in seven panels, filled with glass). Pilasters in the \textit{facade} of the house on the ground floor on the right hand-side of the alley. Pilasters

alongside the windows on the first floor. These are a typical element of the Dutch Classicism of the 17th century. The pilasters have a profile at the bottom and at the top. These are the pilasters of the Toscan order of Scamozzi\textsuperscript{65}.

This is lowest order for pilasters, used by this Italian architect\textsuperscript{66}. There were three important orders for pilasters used in the architecture of the 17th century. They were taken from the architecture of Greek antiquity, which were to be found in Italy and the published writings of Vetruvius from the first century AD after which Scamozzi developed his orders. In Greek antiquity there were the Doric, the Ionic and the Corinthian\textsuperscript{67} orders.

The lowest order was the Doric order: Doric columns have no bases but rise straight from the pavement. It seems the architect has seen the side facade of the Town hall of Deventer (The Netherlands) at which the same order of the pilasters have been used.

Between the pilasters profiles have been placed. Half round plaster forms have been placed over the windows. Over all the doors straight plaster decorations have been placed. This is taken from the houses in the Netherlands although in another form. These plaster forms remind of houses that were build in wood. The profiles over the windows in the VOC building have been adapted to the period in which the house was build. This kind of decor-

\textsuperscript{67} One of the three principal classical orders of ancient Greek and Roman architecture. It is the most ornate of the orders, characterized by slender fluted columns and elaborate capitals decorated with acanthus leaves and scrolls.
tion was applied till far in the 17th century. Under the windows plaster sills are to be seen. A little stepping, granite, stone is placed at the bottom of the door. The windows and doors are typically Dutch in design. The doors all have two panels hung on hinges of Dutch design. In the alley on the walls of the house at the right-hand side at the level of the first floor six festoons/guirlandes, directly under the window sills, have been placed. Then, five, columns have been placed at regular intervals at the outside of the house at the right-hand side the alley.

At each side of the door glass panels have been placed as well. Some windows have louvre shutters and also a half round fanlight with glass-pane-

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68 From the French feston, Italian festone, from a Late Latin festo, originally a festal garland, Latin festum, feast), a wreath or garland, and so in architecture a conventional arrangement of flowers, foliage or fruit bound together and suspended by ribbons, either from a decorated knot, or held in the mouths of lions, or suspended across the back of bulls’ heads as in the Temple of Vesta at Tivoli. The motif is sometimes known as a swag when depicting fabric or linen.

69 A shutter with horizontal slats that are angled to admit light and air, but to keep out rain, direct sunshine, and noise. The angle of the slats may be adjustable, usually in blinds and windows, or fixed.

70 A window, semicircular or semi-elliptical in shape, with glazing bars or tracery sets radiating out like an open fan. It is placed over another window or a doorway, and is sometimes hinged to
ling over-head. Like those on the first floor which are also full length. An example for this type of windows can be found in the architecture during the reign of Charles II\textsuperscript{71}. At the left-hand side is a building which is part of the original building since the windows on the first floor are identical to the windows of the restored part of the house on the right. These windows, are Malay additions\textsuperscript{72}.

The shutters for the windows were placed on the windows to keep the sun out. In the Netherlands shutters were common with these kinds of windows. There is no glass in the windows but iron bars have been placed there. The windows themselves are not full length and constructed in two parts. The lower part is in one piece and the upper part is in two pieces. The upper part resembles cross window frames, which can be seen in the houses in Holland at the end of the 17\textsuperscript{th} century\textsuperscript{73}.

In this facade at the right-hand side of the house, in the windows, iron cross-
bars have been placed. This is rather typical of the houses built by the Dutch. A decorative wooden paneling (Carved Fascia board) has been made at the front of the building. This most probably is a modern addition to the house. Since in the period this house was built no overhanging roofs were made at the front of the house. It was at that time a straight facade.

All the decorations and window sills are, and were, painted gray. The walls of the house are now painted in a yellowish colour but were originally whitewashed. In the 17th century facades were painted red, in Holland, because the bricks used were all of a different colour. This was the reason for the English in the beginning of this century to paint the buildings red after that custom. In the Netherlands this was done to make a unity of colour in the facades of the houses.

These decorations and usage of colour are really the answer of the builders to the refinement of living on the inside of the house. Like the elaborate carvings on furniture which was used in the rooms of the house.

Lorong Hang Jebat

Former Warehouse/Shipyard

At Lorong Hang Jebat 42a&44a is a building which was used as a warehouse or shipyard. The building has an open porch with six arches on the ground floor. The first floor has one big window on the left, a smaller window in the middle and two bigger ones at the right. It has an overhanging roof which re-

duces the rain impact. On the walls of the building are (on the ground floor and first floor) five pilasters with a profile on top. The windows on the first floor are cross-bar windows.

Guardhouse at the Porta Trenquara

This rather modest building, is located beside the Malacca river was used by the VOC as the boom office (tax office) for Malacca. It was used as the office of the havenmeester or syahbandar (harbourmaster) and the boomwagter (guard at the custom’s office). This building served as the centre for the haven gelden (harbour taxes) in Malacca. Until recently, the building functioned as the co-operative office for police personnel.76


Materials

In Malacca the bricks used were imported or made locally. The Dutch initiated the manufacture of roofing tiles in Malacca and the use of locally available late rite as a building material as the Portuguese did. Under Dutch rule, the authorities granted a monopoly to a group of Dutch businessmen for the manufacture of bricks and Portuguese and Chinese roofing tiles and square terra cotta tiles

The imported bricks were yellowish of colour, not so high, and quite long. The bricks locally made are darker in colour. All walls of the houses were plastered. The outside walls, however, of the Stadhuys (Town Hall) were not plastered but left bare. The woods were found locally and of good quality. The houses are built in the same way as in Jayakarta/Batavia with the gables at the side of the house not facing the street. The stuccowork is rather simple on the outside. The woodcarving is however more elaborate. Over the doors and windows are fanlights for easy ventilation purposes.

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Chapter 6  Dutch Shop houses in Malacca

The Alley house

The three alley house was constructed in rural areas because of the usage for persons and cattle. The three alley house with its narrow aisles\(^1\) on the side would prove not to be a functional town house. The price of land was increasing which results in a gradual re-subdivision, from 30 feet (\textit{voet}) (8.49 meters) wide into narrower parcels. From the steward's account of 1458-1459 land was re-used: the same quantity of land was divided to build more houses on. The houses on these plots of land were not named homestead anymore but were named house\(^2\).

The three alley house was dark on the inside due to the narrow and low aisles. There was no space for windows in the aisles. Only at the side entrance the roof was a bit higher to allow for doors and fanlights. If the roof ended at the front of the house than the front ended triangular which was later so important for the houses in town\(^3\).

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\(^1\) The side of a house separated by poles from the main body of the house.


\(^3\) Ibid., p. 4.
The two alley house was constructed in towns and rural areas. One alley was left out as to get more daylight through the sidewall in the houses. The normal two alley house needed, as the three alley house, more space, for the facade, and there for was not built anymore.

The most ideal types of houses in town, were the narrow one alley house (just as wide as the three alley house) and the wide hall house. The last one had the same width as the three alley house.

The one alley house was the ideal type for a townhouse. It had no side aisles through which more light came into the house. It is narrower than the three alley house. The term Zaalhuis, was used for the one alley house. This was the term used for the townhouse. It had all the constructive particularities of the three alley house: anchor bar, spatial lay-out, fireplace with bed wall but no narrow aisles on the side. The middle part could reach a width of 4.50 meters. The wooden supports were put directly in the ground. This kind of

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4 Zantkuijl, H.J. (1975). Bouwen in Amsterdam, Het woonhuis in de stad, Deel 1, p. 5.
5 Ibid., p. 19-23.
6 Ibid., p. 19.
7 Ibid., p. 19.
8 Ibid., p. 4.
house was used as an example for the shop houses in Malacca. The shop houses in Malacca had a narrow front as had the three alley house. The wide hall house was next to the one alley house, the most ideal type for in town.

![Figure 6.3: One Alley House.](image)

Selected Shop houses

The selected shop houses will be shown in the map below. Most of these are situated in four of the streets in the Core and Buffer Zones: Jalan Tun Tan Cheng Lock (*Heeren Street*), Jalan Hang Kasturi, Jalan Hang Jebat (*Jonker Street*) and Jalan Kubu. While the other two are outside of these areas: Jalan Tengkera and Jalan Bukit Cina.

The Core Zone includes St Paul’s Civic zone. Here are the fortress/town, government buildings, museums, churches, the urban square from the Portuguese and Dutch periods. As well as the Historic Residential and Commercial Zone. The Commercial Zone includes around 600 shop houses, commercial and residential buildings. It has four around four main streets: Jalan Tun Tan Cheng Lock (*Heeren Street*), Jalan Hang Jebat (*Jonker Street*), Jalan Tokong/Tukang Emas/Tukang Besi and Jalan Kampung Besi.

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The Core zone is surrounded by 134.03 hectares of Buffer Zone. The border is formed by Jalan Kota Laksamana, Jalan Ong Kim Wee, Jalan Tan Chay Yan, Jalan Munshi Abdullah, backlots of Kampong Banda Kaba, Jalan Chan Koon Cheng and Jalan Merdeka. Buildings located in the conservation area are mainly used for residential, commercial and religious purposes. Most of these buildings are privately owned.

Summary of Existing Inventories by Area

<table>
<thead>
<tr>
<th>Dutch Shop houses</th>
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</thead>
<tbody>
<tr>
<td>Jalan Bukit Cina</td>
</tr>
<tr>
<td>Jalan Hang Jebat</td>
</tr>
<tr>
<td>Jalan Hang Kasturi</td>
</tr>
<tr>
<td>Jalan Kubu</td>
</tr>
<tr>
<td>Jalan Tun Tan Cheng Lock</td>
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<tr>
<td>Jalan Tengkera</td>
</tr>
</tbody>
</table>

Figure 6.4: Location of the Shop houses and Town houses in Malacca.

Pelan Tindakan (Action Plan) MPMBB (Malacca City Council) Figure 5.1.

Table 6.1: Core and Buffer Zones in Malacca.


<table>
<thead>
<tr>
<th>Core Zone</th>
<th>St Paul Civic Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stadhuys</td>
<td>A Famosa, Christ Church, St Francis Xavier Church, St Paul Church, The Stadhuys</td>
</tr>
<tr>
<td>Historic Residential and Commercial Zone</td>
<td></td>
</tr>
<tr>
<td>Jalan Tun Tan Cheng Lock (Heeren Street), Jalan Hang Jebat (Jonker Street), Jalan Tokong/Tukang Emas/Tukang Besi and Jalan Kampung Pantai as well as four perpendicular streets of Lorong Hang Jebat, Jalan Hang Kasturi, Jalan Hang Lekiu and Jalan Hang Lekir</td>
<td></td>
</tr>
<tr>
<td>Buffer Zone</td>
<td>Jalan Kota Laksamana, Jalan Ong Kim Wee, Jalan Tan Chay Yan, Jalan Munshi, Abdullah, back lots of Kampong Banda Kaba, Jalan Chan Koon Cheng and Jalan Merdeka</td>
</tr>
</tbody>
</table>

The purpose of this summary is to show that there are other studies on shop houses which discuss some of the shop houses as in this study but with another approach. These are the following studies:


Raja Nafida approached her study through an analysis of case studies and gave a classification according to centuries from pre 1700 to 1980. In her study there is no classification for the period 1800 to 1911. The shop houses which Raja Nafida named early shop houses were the ones which were according to her study Dutch because of the narrow *facade* at the front because of tax reasons, square windows, big doors with big hinges and terra cotta tiles.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Early Shophouses</strong></td>
</tr>
<tr>
<td>Pre 1700</td>
</tr>
<tr>
<td><strong>Transition Shophouses</strong></td>
</tr>
<tr>
<td>1751 - 1800</td>
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<tr>
<td><strong>Straits Eclectic Shophouses</strong></td>
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<tr>
<td>1800 - 1931</td>
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<tr>
<td><strong>Art Deco Shophouses</strong></td>
</tr>
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<td>1931 - 1980</td>
</tr>
<tr>
<td>1911 - 1930 and 1931 - 1950</td>
</tr>
<tr>
<td><strong>Modern Shophouses</strong></td>
</tr>
<tr>
<td>1971 - 1980</td>
</tr>
</tbody>
</table>

2. **NUS/UM. (2005).** *Inventory of Cultural Heritage, Descriptive Approach, Façade styles Shop-houses (Bufferzone 1-9) and (Corezone 10-15), Straits, Townhouse, Eclectic, Art Deco.*

The Inventory of Cultural Heritage determined the *facade* styles of the shop houses through specific, detailed, specifications with among others the

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11 A typological study of early shophouse architecture of the Dutch era in Melaka: contribution towards conservation in Malaysia.

personal details, types, design, use, structure, completion, contractor, present owner, current owner of the shop houses. The area of the study is the Core and Buffer zone. In Table 6.5 are mentioned the streets and house numbers which are dealt with in the Inventory of Cultural Heritage\textsuperscript{13}.

Table 6.3: Determination of Facade styles.

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Building no/Nombor Bangunan</td>
</tr>
<tr>
<td>b) Name(present)/Nama (sekarang)</td>
</tr>
<tr>
<td>c) Name (past)/Nama (dulu)</td>
</tr>
<tr>
<td>d) Address(Alamat)</td>
</tr>
<tr>
<td>e) Building type (Jenis Bangunan): Shophouse, Residence, Commercial Facility, Public Office, Private Office, Religious Facility, Public Facility, Factory, Others</td>
</tr>
<tr>
<td>f) Size (Ukuran), Stories (Tingkat) Others (Lain-lain)</td>
</tr>
<tr>
<td>g) Types: Straits, 2. Townhouse, 3. Eclectic, 4. Art Deco</td>
</tr>
<tr>
<td>i) Structure (Struktur), Wood (Kayu), Brick (Batu Bata), RC/Beton (Bertulang), Others (Lain-lain)</td>
</tr>
<tr>
<td>j) Finished Material: Siding (Papan), Stucco/Pleister, Stone (Batu), Others</td>
</tr>
<tr>
<td>k) Completion Year (Tahun Selesainya Pembangunan)</td>
</tr>
<tr>
<td>l) Renovation Year (Renovasi)</td>
</tr>
<tr>
<td>m) Designer (Perancang)</td>
</tr>
<tr>
<td>n) Contractor (Kontraktor)</td>
</tr>
<tr>
<td>o) Special features(Ciri Khas Bangunan) (appearance), style(etc)(penampilan, gaya dan sebagainya)</td>
</tr>
<tr>
<td>p) Name (Nama), Resident, Owner</td>
</tr>
<tr>
<td>q) Religion (Agama)), Islam, Christianity(Kristen), Hinduism(Hindu), Buddhism(Buda), Taoism, Others (Lain-lain)</td>
</tr>
<tr>
<td>s) Facade treatments: 1. color 2. signage 3. objects in good condition and usage</td>
</tr>
</tbody>
</table>

Table 6.4: Workscope.

<table>
<thead>
<tr>
<th>Workscope</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Bufferzone (Survey Area 1-4)</td>
</tr>
<tr>
<td>II Bufferzone (Survey Area 5)</td>
</tr>
<tr>
<td>III Bufferzone (Survey Area 6-9)</td>
</tr>
<tr>
<td>IV Core zone (Survey Area 10-11)</td>
</tr>
<tr>
<td>V Core Zone (Survey Area 12-13)</td>
</tr>
<tr>
<td>VI Core Zone (Survey Area 14-15)</td>
</tr>
<tr>
<td>VII Reference Maps</td>
</tr>
</tbody>
</table>

\textsuperscript{13} NUS/UM. (2005). “Inventory of Cultural Heritage”.

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Table 6.5: Streets.

<table>
<thead>
<tr>
<th>Streets</th>
<th>Numbers</th>
<th>Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jalan Bukit Cina</td>
<td>75,95</td>
<td>Unknown</td>
</tr>
<tr>
<td>Jalan Hang Jebat</td>
<td>29c</td>
<td>Unknown</td>
</tr>
<tr>
<td>Jalan Hang Kasturi</td>
<td>2, 6, 10,16</td>
<td>Straits, Town house, Straits</td>
</tr>
<tr>
<td>Jalan Kubu</td>
<td>8,12,16c</td>
<td>Town house</td>
</tr>
<tr>
<td>Jalan Tun Tan Cheng Lock</td>
<td>Even 6,8, 24,26,34,46,54,56,66,68,120, Uneven 7, 61, 63,183</td>
<td>Town house, Straits</td>
</tr>
<tr>
<td>Jalan Tengkera</td>
<td>83,177,217,219, 251, 257,259, 263</td>
<td>Unknown, Shop house Style, Unknown, Shop house Style</td>
</tr>
</tbody>
</table>


In the Inventory of buildings in the Heritage Zone of Melaka (MBMB) the same streets and most of the house numbers, as in my study, were discussed. The periodical description is different. In this inventory of buildings in the Heritage zone of Melaka the period covered is from 1801 till 1930. In the Inventory of my study the period covered is from 1641 till 1895\(^{15}\).

Table 6.6: MBMB. (2006). Inventory of Buildings in the Heritage Zone of Melaka.

<table>
<thead>
<tr>
<th>Streets</th>
<th>Nrs</th>
<th>Period</th>
<th>Building Period</th>
<th>Streets</th>
<th>Nrs</th>
<th>Period</th>
<th>Building Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jalan Bukit Cina</td>
<td>75</td>
<td>Transitional</td>
<td>1801-1870</td>
<td>Jalan Tengkera</td>
<td>75</td>
<td>Transitional</td>
<td>1801-1870</td>
</tr>
<tr>
<td></td>
<td>95</td>
<td>Early Period</td>
<td>1750-1910</td>
<td></td>
<td>83</td>
<td>Transitional</td>
<td>1851-1870</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>142</td>
<td>Transitional</td>
<td>1801-1851</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>177</td>
<td>Transitional</td>
<td>1871-1890</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>217</td>
<td>Early Period</td>
<td>Unknown</td>
</tr>
<tr>
<td>Jalan Hang Jebat</td>
<td>29c</td>
<td></td>
<td></td>
<td></td>
<td>219</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Jalan Hang Kasturi</td>
<td>Even 2</td>
<td>Early Period</td>
<td>1851-1870</td>
<td></td>
<td>257</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>259</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>263</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

\(^{14}\) Malacca City Council.

\(^{15}\) MBMB. (2006). “Inventory of Buildings in the Heritage Zone of Melaka”.
<table>
<thead>
<tr>
<th>Street</th>
<th>Period</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jalan Kubu Even</td>
<td>Early Period</td>
<td>1751-1750</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td>8 Stratas</td>
<td></td>
<td>1911-1930</td>
</tr>
<tr>
<td>12 Eclectic</td>
<td></td>
<td>1911-1930</td>
</tr>
<tr>
<td>16c Eclectic</td>
<td></td>
<td>1911-1930</td>
</tr>
<tr>
<td>Jalan Tun Tan Cheng Lock Even</td>
<td>Early Period</td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1751-1800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1851-1870</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1871-1890</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1871-1890</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1851-1870</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1750-1910</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1751-1800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1801-1850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1750-1910</td>
</tr>
</tbody>
</table>

Table 6.7: Areas belonging to the Unesco World Heritage Site. MBMB. (2006). Inventory of Buildings in the Heritage Zone of Melaka.

<table>
<thead>
<tr>
<th>Areas belonging to the Unesco World Heritage Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civic Zone</td>
</tr>
<tr>
<td>Porte da Santiago, St Paul’s Hill, Stadiums, Christ Church</td>
</tr>
<tr>
<td>Colonial buildings on Jalan Kota</td>
</tr>
<tr>
<td>Residential and Commercial Zone</td>
</tr>
<tr>
<td>Jalan Tun Tan Cheng Lock, Jalan Hang Jebat, Jalan Taking, Jalan Taking Emas, Jalan Taking Bessie, Jalan Hang Kasturi, Jalan Hang Likir</td>
</tr>
</tbody>
</table>

Summary of Existing Inventories by Street

The purpose of this summary is to show that there are other studies on shop houses which deal with some of the shop houses as in my study but with another approach. These are the following studies:

The lay-out of the shop houses is, according to the researchers of this inventory, based on the traditional Chinese style of a rectangular courtyard surrounded by walls, buildings or rooms. These houses have front pitched facade roofs rather than the western style gable facade. They make a distinction in three types:


<table>
<thead>
<tr>
<th>First Type: Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second Type: Mutations</td>
</tr>
<tr>
<td>Third Type: Transformation + Mutation</td>
</tr>
</tbody>
</table>

a. First Type – Transformation

The front sections of the shop houses went through a diverse transformation process during the Portuguese, Dutch and English era in Malacca. The Chinese-style front pitched facade roofs gave way to the gable facade as seen in church buildings during the Renaissance. In front of the shop houses a covered passageway of ca. 5 feet was constructed in the British area, which was subsequently named ‘the five foot way’, in front of the shop houses. The inhabitants of the houses had the upper floors extended over the walkway or by blocking the entire walkway to create more private space.

b. Second Type Mutation

In the shop houses courtyards were constructed for natural lighting and air circulation. The courtyard also has a water well to provide water for the kitchen, bathroom and laundry. These days the courtyard, in some cases, has been covered with a roof or is used as garden, dining or working area.

a. Third Type – Transformation + Mutation

The backside of the shop houses used to border on the sea and therefore the shop houses were easily accessible from the sea. During British times, a
program of land reclamation was implanted and the backsides of the houses no longer bordered on the sea. These days these areas are covered with a tent or canopy, being neglected or used as a warehouse.


In this inventory a few historical buildings were determined in *Jonker Street* according to certain criteria: Age and style, Architectural Value and originality, Current function and history.

Table 6.9: Work scope.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Art and style, Architectural Value and originality, Current function, History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings</td>
<td>No 31, Royal Press, No 11 Kedai Antik You Seen</td>
</tr>
<tr>
<td></td>
<td>Front elevation of a row of shophouses at the South West side</td>
</tr>
<tr>
<td></td>
<td>Front elevation of a row of shophouses at the North East side</td>
</tr>
</tbody>
</table>

There are certain Architectural styles in this Inventory:

1. Typical Chinese Shop house was an early style. A style simple in form and highly functional. There was no intricate joinery and detailing, this style represented the simpler living of a very hardworking class of people. The use of three basic building materials was evident: timber, mortar and terra cotta along with the odd nails and the use of simple forms of joints in the wood could be seen in the walls, doors, windows and the roof.

2. The Chinese Baroque style was greatly influenced by Chinese architecture from the mainland with intricate plaster carvings and details in many colours with depictions of Chinese mythology and legends. The materials used were

---

of high quality and expensive. The wood used was especially imported from China.

3. The Straits-Eclectic Style was a mix of Local Chinese, High Victorian\textsuperscript{17} and Baroque\textsuperscript{18} styles. The handmade ornamentation was even more elaborate as with the houses built in the Baroque Style. These were built to express the family’s wealth and influence. Materials used were: Italian marble, polished granite, patterned and coloured glass, teak, blackwood, rosewood, rich paints and lacquer.

4. The Art Deco style was probably from a later, more recent period. The features of these houses were the straight lines, geometrical shapes and patterns used. The materials used were more durable like concrete and steel. The walls were of smooth plaster rather than adorned and textured ones and colour is kept to a minimum\textsuperscript{19}.

Table 6.10: Architectural styles of Jonkerstraat.

<table>
<thead>
<tr>
<th>Architectural Styles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The Typical Chinese Shophouse style</td>
</tr>
<tr>
<td>2. The Chinese Baroque style</td>
</tr>
<tr>
<td>3. The Straits-Eclectic Style</td>
</tr>
<tr>
<td>4. The Art Deco style.</td>
</tr>
</tbody>
</table>

Typical Chinese shop houses are simple in form and very functional. This can be seen for example in the joints in the wood. There are no ornate trimmings, intricate joinery and elaborate details. For these type of houses the materials

\textsuperscript{17} A style popular ca. 1865-1900. Features of Gothic Revival, Italianate, Romanesque, or Second Empire were often combined, resulting in picturesque facades.

\textsuperscript{18} The Baroque is often thought of as a period of artistic style that used exaggerated motion and clear, easily interpreted detail to produce drama, tension and exuberance. The style began around 1600 in Rome, Italy, and spread to most of Europe.

used are: timber, mortar and terra cotta\(^\text{20}\).

**Comparative Lists of inventories Shop houses and Town houses**

In previous researches the shop houses mentioned in this table were categorized accordingly:

Table 6.11: Comparative list by inventory. R.C.M. Weebers.

<table>
<thead>
<tr>
<th>By Area</th>
<th>Streets</th>
<th>No’s</th>
<th>Raja Nafida Historical and Descriptive Approach Typology</th>
<th>Inventory of Cultural Heritage Typology</th>
<th>Inventory MBMB Typology</th>
<th>Researcher Typology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jalan Bukit Cina</td>
<td>75</td>
<td>95</td>
<td>Transitional Period</td>
<td>Early Period</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td>Jalan Tun Tan Cheng Lock</td>
<td>Even No’s</td>
<td>6</td>
<td>Early Shop house</td>
<td>Town house</td>
<td>Early Period</td>
<td>Dutch</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>26</td>
<td>Early Shop house</td>
<td>Straits</td>
<td>Early Period</td>
<td>Dutch</td>
</tr>
<tr>
<td></td>
<td>34</td>
<td>38</td>
<td>Early Shop house</td>
<td>Straits</td>
<td>Early Period</td>
<td>Dutch</td>
</tr>
<tr>
<td></td>
<td>46</td>
<td>54</td>
<td>Early Shop house</td>
<td>Straits</td>
<td>Early Period</td>
<td>Dutch</td>
</tr>
<tr>
<td></td>
<td>56</td>
<td>Early Shop house</td>
<td>Straits</td>
<td>Early Period</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>66</td>
<td>Early Shop house</td>
<td>Straits</td>
<td>Early Period</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>68</td>
<td>Early Shop house</td>
<td>Straits</td>
<td>Early Period</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>72</td>
<td>120</td>
<td>Early Shop house</td>
<td>Straits</td>
<td>Early Period</td>
<td>Dutch</td>
</tr>
<tr>
<td>Uneven No’s</td>
<td>7</td>
<td>Early Shop house</td>
<td>Straits</td>
<td>Early Period</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>61</td>
<td>Early Shop house</td>
<td>Straits</td>
<td>Early Period</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>63</td>
<td>Early Shop house</td>
<td>Straits</td>
<td>Early Period</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>163</td>
<td>183</td>
<td>Early Shop house</td>
<td>Straits</td>
<td>Early Period</td>
<td>Dutch</td>
</tr>
<tr>
<td>Jalan Hang Jebat</td>
<td>29c</td>
<td></td>
<td></td>
<td></td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td>Jalan Hang Kasturi</td>
<td>2</td>
<td>6</td>
<td>Straits</td>
<td>Town house</td>
<td>Early Period</td>
<td>Dutch</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
<td>Straits</td>
<td>Town house</td>
<td>Early Period</td>
<td>Dutch</td>
</tr>
<tr>
<td></td>
<td>16c</td>
<td></td>
<td>Straits</td>
<td>Town house</td>
<td>Early Period</td>
<td>Dutch</td>
</tr>
<tr>
<td>Jalan Kubu</td>
<td>8</td>
<td>12</td>
<td>Town house</td>
<td>Straits Eclectic</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>16c</td>
<td>Town house</td>
<td>Eclectic</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td>Jalan Tengkera</td>
<td>83</td>
<td>142</td>
<td>Shop house Style</td>
<td>Transitional Period</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>177</td>
<td>251</td>
<td>Shop house Style</td>
<td>Transitional Period</td>
<td>Dutch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>263</td>
<td></td>
<td>Shop house Style</td>
<td>Early Period</td>
<td>Dutch</td>
<td></td>
</tr>
</tbody>
</table>

Early Shop house, Town house, Early Period, Straits, Shop House Style and Transitional Period. To make a distinction with these researches I named the shop houses in this study Dutch because of the decorative elements of specific Dutch origin.

I will elaborate further on the Dutch influences in the heading Typos in this chapter on page 158.

Table 6.12: Building Year. R.C.M. Weebers.

<table>
<thead>
<tr>
<th>Building Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early shop houses</td>
</tr>
</tbody>
</table>

Table 6.13: Types. R.C.M. Weebers

<table>
<thead>
<tr>
<th>Main Type</th>
<th>Sub- types</th>
<th>Streets</th>
<th>Numbers</th>
<th>Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A1</td>
<td>Jalan Hang Kasturi</td>
<td>10,16</td>
<td>Appendix D</td>
</tr>
<tr>
<td>Shop House Number</td>
<td>Street Name(s)</td>
<td>Details</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>----------------</td>
<td>---------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A2</td>
<td>Jalan Tun Tan Cheng Lock</td>
<td>Ground floor with a door in two halves on the right-hand side, window in two halves on the first floor on the left-hand side and one window on the first floor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A3</td>
<td>Jalan Tengkera</td>
<td>Ground floor with a door on the right-hand side, window in two halves on the left-hand side and one window on the first floor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A4</td>
<td>Jalan Bukit Cina, Jalan Tun Tan Cheng Lock, Jalan Hang Kasturi, Jalan Kubu, Jalan Tengkera</td>
<td>Ground floor with a door on the right-hand side, window on the left-hand side and one window on the first floor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A5</td>
<td>Jalan Bukit Cina, Jalan Tengkera</td>
<td>Ground floor with a door on the right-hand side, window on the left-hand side and two windows on the first floor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A6</td>
<td>Jalan Tun Tan Cheng Lock</td>
<td>Ground floor with a door on the right-hand side, window on the left-hand side and one window with on each side a smaller one on the first floor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A7</td>
<td>Jalan Tun Tan Cheng Lock, Jalan Tengkera</td>
<td>Ground floor with a door on the right-hand side, window on the left-hand-side and on the first floor, which is made entirely out of wood, one window.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>Jalan Tun Tan Cheng Lock</td>
<td>Ground floor with a door in two halves on the left-hand side, window in two halves on the right-hand side and one window on the first floor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>Jalan Tengkera, Jalan Tun Tan Cheng Lock</td>
<td>Ground floor with a door on the left-hand side, window on the right-hand side and one window on the first floor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>Jalan Kubu, Jalan Hang Jebat</td>
<td>Ground floor with a door on the left-hand side, window on the right-hand side and a very big window on the first floor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>Jalan Tengkera</td>
<td>Ground floor with a door in two halves, window on each side of the door and two windows on the first floor.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The case studies (shop houses) included in the preceding table are to be found mostly in the Core Zone of Malacca: Jalan Tun Tan Cheng Lock,
There are three types of shop houses, A, B and C, which are divided in subtypes. A in 7 subtypes, B in 3 subtypes and C in one subtype. These types are split up according to the placement of doors and windows in the *facade* of the house. Type A1 has a door in two halves on the ground floor on the right-hand side, a window in two halves on the left-hand side and one window on the first floor. Type A2 has a door in two halves on the ground floor on the right-hand side, a window on the left-hand side and one window on the first floor. Type A3 has a door on the ground floor on the right-hand side, a window in two halves on the left-hand side and one window on the first floor. Type A4 has a door on the ground floor on the right-hand side, a window on the left-hand side and one window on the first floor. Type A5 has a door on the ground floor on the right-hand side, a window on the left-hand side and two windows on the first floor. Type A6 has a door on the ground floor on the right-hand side, a window on the left-hand side and one window with on each side a smaller one on the first floor. Type A7 has a door on the ground floor on the right-handside, a window on the left-hand side and on the first floor, which is made entirely out of wood, one window. Type B1 has a door on the ground floor in two halves on the left-hand side, a window in two halves on the right-hand side and one window on the first floor. Type B2 has a door on the ground floor on the left-hand side, a window in two halves on the right-hand side and one window on the first floor. Type B3 has a door on ground floor on the left-hand side, a window on the right-hand side and a very big window.
on tile first floor and Type C I has a door on the ground floor in two halves, a window on each side of the door and two windows on the first floor. The types differ in the quantity of windows on the first floor. Type A1, A2, Type A3, Type A4, Type B1 and Type B2 have one window on the first floor. Type A5 has two windows on the first floor. Type A6 has three windows on the first floor: a big window with on either side a smaller one. Type A7 has a window made entirely made of wood on the first floor. Type B3 has a very big window on the first floor and Type C1 has two windows on the first floor. The types differ in the quantity of windows on the first floor. Type A1, A2, A3, A4, B1 and B2 have one window on the first floor. Type A5 has two windows on the first floor. Type A6 has three windows on the first floor: A big window with on either side a smaller one. Type A7 has an window entirely made out of wood on the first floor. Type B3 has a very big window on the first floor and Type C1 has two windows on the first floor.

Table 6.14: Graphics of Types. R.C.M. Weebers.

<table>
<thead>
<tr>
<th>Type A</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>A6</th>
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<tr>
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<td>Jalan Tun Tan Cheng Lock 61</td>
<td>Jalan Tengkera 83</td>
<td>Jalan Bukit Cina 95</td>
<td>Jalan Tengkera 217</td>
<td>Jalan Tun Tan Cheng Lock 163</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A7</th>
<th>Type B</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>Type C</th>
<th>C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jalan Tun Tan Cheng Lock 183</td>
<td>Jalan Tun Tan Cheng Lock 54</td>
<td>Jalan Tengkera 263</td>
<td>Jalan Kubu 12</td>
<td>Jalan Tengkera 255</td>
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<td></td>
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</tbody>
</table>
All shop houses have general characteristics: a single storey between 6.00 and 8.00 meters in height. The Dutch shop house has a facade that is between 3.64 and 6.09 meters wide but are very deep. A narrow front between 3.64 and 6.09 meters high. A covered walkway or front porch between 3.64 and 6.09 meters, floor tiles and roof tiles.

Elements in the shop houses are the door and rectangular window on the ground floor in two halves and the window on the first floor of which the frames are made of hardwood. In the window foldable, downward and upward turning shutters, are placed were merchandise could be exhibited for sale. On the first floor there are, outward turning, shutters in the windows, which are made of timber.

### Typos

Table 6.15: Typos. R.C.M. Weebers.

<table>
<thead>
<tr>
<th>All single storey</th>
<th>Height</th>
<th>Between 6.00 - 8.00 meters</th>
</tr>
</thead>
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<tr>
<td>Narrow Front</td>
<td></td>
<td>Between 6.00 - 8.00 meters</td>
</tr>
<tr>
<td>All covered walkway or front porch</td>
<td></td>
<td>Between 3.64 - 6.09 meters</td>
</tr>
<tr>
<td>Materials</td>
<td></td>
<td>Front porch: Tiles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roof: Roof tiles</td>
</tr>
</tbody>
</table>

1. **Typical Shop House style**

Analyzing a structure to its floor plan and general building type was also an aid in studying the architectural environment. Another form of categorization of architectural forms could be based upon ornamentation, which reflected both cultural influences and historical time periods²¹.

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Chinese temple roofs, for instance, represented either the Minnan style of cut-and-paste mosaic ornamentation from the province of Fukien, or the Shekwan glazed terra cotta figurine style of the Canton region. Shop houses represented a continuum in their facade ornamentation, from the earliest permanent structures build in a style influenced by Chinese architecture from the treaty ports cities of China, through a transitional phase to a fully Palladian\textsuperscript{22}/\textsuperscript{23} facade.

These earliest shop houses were one-and-a-half storey high. The inside was about 6 feet high. The windows and doors were of timber. The hinges were influenced by Dutch examples and are of the rail and stile type\textsuperscript{24}/\textsuperscript{25}. Fanlights were rectangular and semi-circular in shape\textsuperscript{26}. Over the door and windows small rectangular of semi-circular vents were placed. On the ground floor there were foldable shutters where goods could be exhibited for sale\textsuperscript{27}.

Another method was that the windows, as shown in the same were boarded up with removable boards. The shopkeeper would remove those boards in the morning so that the goods on the inside would be visible.

The ornamentation was minimal at most, occurring in the form of cornices. The reason could be the owners or construction workers could not afford ela-

\textsuperscript{22} Palladian architecture is a European style of architecture derived from and inspired by the designs of the Venetian architect Andrea Palladio (1508-80). Palladio's work was based on the symmetry, perspective and values of the formal classical temple architecture of the Ancient Greeks and Romans.

\textsuperscript{23} Neo-Classical architecture.

\textsuperscript{24} Windows swing on hinges.


\textsuperscript{26} Ibid., p. 28.

\textsuperscript{27} Ibid., p. 29.
borate ornamentation\textsuperscript{28}.

2. Dutch Influences

The Dutch shop house and town house in Malacca had a narrow front due to the tax levied on the width of the \textit{facade} by the Dutch government of Malacca\textsuperscript{29/30}. This was a Dutch feature because houses in the Netherlands also have narrow \textit{facades} for tax reasons.

On the ground floor of the \textit{facade} the Dutch shop houses have a door in two halves. This was also a feature in houses in the Netherlands. During cold weather, this door would be completely closed. With warmer weather it would be open and everyone could walk in or out from the street or from the house into the street. The effect of this was that the street became an extension of the house.

Next to the door is a rectangular window. In some shop houses this window has two out-ward (downward and upward) turning wooden shutters. The bot tom part would be used to place merchandise on. In front of the window a rat tan screen was placed. This made it possible to look into the street without - being seen. There are more openings on the first floor: one or two windows with or without shutters.

The Dutch features of buildings in Malacca were the decorated gable walls, curvilinear espadanas\(^{31}\) (arcaded belfries), heavy hardwood framing, beam work, roof tiles, castellated walls\(^{32}\), balconies, windows\(^{33}\) and Palladian ornamentation such as balustrades, festoons and elegant wainscoted interiors\(^{34}\).

The gables of the house were not facing the street but were at the side of the house. The reason was that the ridge of the house was parallel to the street and that would have caused problems for the gutters with heavy rainfall. In front

\(^{31}\) A long open area along a curved line.

\(^{32}\) Walls furnished with turrets and battlements in the style of a castle.

\(^{33}\) Windows with louvre shutters.

of the house was a covered walkway which had the same width as the facade\textsuperscript{35}.

Part of the Dutch characteristics were the small rectangular air vents over the doors or windows\textsuperscript{36}. The iron hinges on the doors and windows were of Dutch design and influenced by Dutch examples\textsuperscript{37}. These were of the rail and stile type and allowed the windows to open inward or outward. Wall-anchors on the outside of the shop house secured the beams on the inside. The anchor connected the brick wall to the timber frame and to structural members\textsuperscript{38}. The sloping (shallow) roofs were covered with tiles. These were thin pieces of tile made from clay in S-shape and U-shapes. The U-shape tiles were the most commonly used in Malacca\textsuperscript{39}. As well as terra cotta tiles\textsuperscript{40}.

Houses were build of yellow coloured bricks which were baked locally. These were Dutch in design: rectangular in size, quite light and not very thick. The Dutch bricks were about 10 to 12 inches in length, 5 inches in width and 1 to 1.5 cm in thickness\textsuperscript{41}. The Dutch introduced bricks in Malacca known locally as \textit{Batu Belanda} as was the use for tile work\textsuperscript{42}.

\textsuperscript{39} Ibid., p. 147.
\textsuperscript{41} Iesnordin Hj. Malan. Former curator of the Architecture Museum in Malacca (Conversation, 2007).
\textsuperscript{42} Rosli Haij Nor. (1996). \textit{A Brief History of Malacca and the influence of European Architecture in The Historic City of Malacca}, p. 31.
It is possible to date the houses by the materials used: bricks used in the 17th and 18th centuries are laid with lime mixed with sand. Bricks laid in the 20th century would have cement. The walls are one brick deep.

There was no decoration of any kind on the outside of the shop house and the walls were plastered white on the outside. The occupants of the shop houses could have been workmen, carpenters, blacksmiths and small merchants of the VOC. Strict rules were introduced from the Netherlands and applied for building and planning or for the form and materials to use: the building lines, the use of bricks, tiles and the design, form and size of doors and windows.

<table>
<thead>
<tr>
<th>Hardwood Framing</th>
<th>Louvered window</th>
<th>Air vents</th>
<th>Air vents</th>
<th>Air vents</th>
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Wall-anchors Wall-anchors Roof tiles Terra cotta tiles Bricks

Figure: 6.10: Elements. R.C.M. Weebers.

3. Chinese influences

The Chinese characteristics are a firewall in the form of cat crawling and square ventilation holes.

The floor plan of the Dutch shop houses and town houses was of Chinese ori-

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gin since this house pattern was common in China. From the floor plan the basic elements of Chinese merchants home can be recognized.

In the room at the front of the house guests were received and a partition separated the room from the rest of the house. This part of the house was meant for the ladies of the houses and their guests. This partition sometimes had eye-level slits cuts in them for the ladies to spy on their visitors without being seen. The rest of the house was arranged according to a long central axis where spaces for ancestral worship, courtyards, air wells, bedrooms and food preparation could be found. It is important that the front part of the house is wider than the back portion. This is part of the Chinese symbolism: so good things would not diminish. Bedrooms were upstairs. Because the houses were so narrow you had to pass through every room to come from the front till the back.

“Ordinary Chinese in Melaka lived in small row houses made of brick. The house had one courtyard with a well used jointly by the neighbouring house. The front of the house was a two storey building used mainly as a shop, living spaces, and storage; the back building was used as a service area. Some units formed a block of row houses where each independent unit was separated by party walls from its neighbouring units. The front terrace was an indispensable part of each dwelling unit, and was not open to its adjacent units. The cooking, bathing and toilet functions were located at the courtyard area. This early typology of dwelling could be found everywhere within the

46 Ibid., p. 25.
old core of coastal settlements all over Southeast Asia” ⁴⁸.

Chinese architecture emphasizes the roof, in the design of the building, largely steeply inclined surfaces covered with overlapping *pentiles*⁴⁹ laid in the ridge-and-furrow patterns⁵⁰. Structures are mostly of brick walls supporting the wooden rafters and purlins⁵¹ of the roofing system. Occasionally, columns and bracketed capitals⁵² support the roof structure in more elaborate religious structures. Gable roofs are by far the most commonly found type in Malaysia, although examples of hipped and half-hipped examples are also to be found. Exposure of structural elements is common in Chinese architecture, revealing pillars, bracketing systems, beams, and rafters. Colour and ornamentation are integral, including painted or carved pillars and beams, pierced walls, tiled floors, gilding and surfaces covered with diaper patterns. Orientation around a court-yard or light well is nearly universal⁵³.

Shops are open in the front, with granite, or finely polished wooden counter for the display of goods. Behind the counter in some shops shelves are placed for the display of additional wares⁵⁴. An accountant’s room is situated at the back of the room and screened off with an openwork wooden partition carved

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⁴⁹ A tile used to cover the sloping part of a roof.
⁵⁰ A tile for covering the sloping part of a roof. Ridge and furrow is an archaeological pattern of ridges and troughs created by a system of ploughing used in Europe during the Middle Ages.
⁵¹ A type of beam, which supports the roof of a building.
⁵² A projection from a vertical surface providing structural or visual support under cornices, balconies, or any other overhanging member.
in climbing plants motifs of intricate diaper patterns\textsuperscript{55}. Openness and flexibility of the shop house to the street was enhanced through the double leaf doors and panels\textsuperscript{56}.

Shop houses originated in Southern China build by the Chinese immigrants build in Malacca\textsuperscript{57}. Chinese immigrants from the coastal parts of Guandong and Fujian brought with them the architecture from their respective provinces. These houses have typical terraces to withstand the tropical heat and the downpour of rain. A shop house consists of shop and a house. The term shop house is a direct translation from \textit{Tiam Chu} from the Hokkien dialect which means shop house\textsuperscript{58}. The shop houses are uniform in design with shared walls. The walls are load-bearing and support the beams and purlins\textsuperscript{59}. According to the length of the local timber that is used for beams and purlins determines the width of the \textit{facade}\textsuperscript{60}. The shop houses are closely packed together and open directly to the street\textsuperscript{61}.

Pitched roofs and gable walls also form part of the shop house typology which is about the same as in Southern China\textsuperscript{62}. The roofs of the shop houses were usually composed of two to three gable roofs running along the central axis from the front to the back. The gable walls were typical of its counter-

\textsuperscript{56} Ibid., p. 33.
\textsuperscript{57} Ibid., p. 24.
\textsuperscript{58} Ibid., p. 24.
\textsuperscript{59} A purlin (or purline) is a horizontal structural member in a roof. Purlins support the loads from the roof deck or sheathing and are supported by the principal rafters and/or the building walls, steel beams etc.
\textsuperscript{61} Ibid., p. 25.
\textsuperscript{62} Ibid., p. 26.
parts in Southern China\textsuperscript{63}. 

The shift of development and the transformation of the roof feature in the shop house typology have gone from the decorative and stylistic manner to a more plainer and simpler form. The street was an essential part of everyday life of the Chinese community. The shops opened directly to the street and so the shop became an essential part of the street\textsuperscript{64}. 

**Town house**

In the shop houses that serve for residential purposes the front part would be the guest area. The cooking and bathing facilities were normally located at the rear end at the ground floor, normally after the courtyard and the air well. The living room area would normally occupy the courtyard area where there is more light. The upper floors would normally be the private residential area. The lay-out and design is the same as with the shop house. Only there is a difference in usage as shown above\textsuperscript{65}. 

**Materials**

The materials used in the shop houses built were brick, wood, tiles and plaster. In Malacca the bricks used could be imported or made locally. Imported bricks are yellowish of colour, not so high, and quite long. Bricks locally made are darker in colour. The woods are most probably found locally and of good quality. Portuguese and Chinese roofing tiles and square terra cotta tiles

\textsuperscript{64} Ibid., p. 30/31. 
\textsuperscript{65} Ibid., p. 37.
were made locally. The houses were whitewashed on the outside to keep the heat from the sun entering the house. The walls were also whitewashed on the inside.
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Chapter 4


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