

## Chapter 9

### Conclusion

#### 9.1 Introduction

The findings of this research in this chapter will be shown through the contribution to the body of knowledge, which is the clarification of Simon Stevin's ideas about the construction of towns in the Netherlands, the implementation of these ideas on Dutch settlements outside the Netherlands and specifically in the settlement of Melaka, the development of Dutch architecture and the implementation on Dutch buildings in Melaka and the analysis of Dutch shop houses in Melaka. It will be shown through the limitation of research: the study is limited to 9 public buildings, the fort and specifically 37 shop houses in Melaka which have Dutch architectural influences and a front *facade* with Dutch elements. It will also give a recommendation for future research.

#### 9.2 Contribution to the body of knowledge

I *Clarification of Simon Stevin's ideas about the construction of forts and towns and the implementation of these ideas on Dutch settlements outside the Netherlands*

Simon Stevin wrote principles (treatises) on the construction of fortresses, on cities and on army camps.

In the treatise *De Stercktenbouwing* (The Building of Fortifications) of 1594 Stevin wrote about fortifications. Stevin had a preference for fortresses which were constructed of brick walls but he thought the walls were quite heavy and unpractical for the wet and swampy.

In 1605-1608 Simon Stevin published the treatise *Wisconstighe Ghedachtenissen* (Thoughts on Mathematics). A part of this treatise was named *Huysbou* (House

Building). *Huysbou* contains all kinds of information on the selection of the site where to build a city and on the lay-out of cities. Stevin also wrote in this treatise about the lay-out of churches and prisons. About galleries in front of the house on both sides of the street and the mirror-sided expansion of the town. One of the chapters which was originally intended for *Huysbou* was titled: *Materiae Politica* (Political Subjects). In this chapter Stevin wrote that all administrative power of a city had to be located in one single building: the palace or *Vorstelyck Huys* (Regal House).

The treatise *Castrametatio: Dat is Legermeting* (Camp Measurement) was published in 1617. It contained a description in which way temporary army camps should be designed for sieges. Army camps could be constructed anywhere with ease because of the design and order. All shelters were set up in squares with streets running parallel to them.

After the death of Simon Stevin his Ideal Plan for a City, published in *Onderscheyt van de oirdening der steden and Byvough der stedenoirdening, vande oirdening der deelen eens hvis Met 't gheene daer ancleeft* (Designing Cities), was published in 1649. 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 Dutch build there settlements mostly in swampy areas which gave them 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.

Although settlements could be different in lay-out and design the ideas of Simon Stevin were most probably implemented in one way or the other. The towns build by the VOC through Asia were organized according to the architectural ideas of Simon Stevin. Like the distribution of buildings and public spaces, accessibility through functional use of

space and maximum distribution of space capacity in the settlement. Houses should be built in groups rather than separate ones according to Stevin. Therefore, the whole would look like a palace. Stevin referred to street widths and arcades not for ornamental use but out of practical reasons.

## II *The implementation of the Dutch treatise principles on the fort and settlement of Melaka.*

The influence of the treatise principles could be detected in the symmetry of forts and settlements in Asia and in the symmetry and exactitude of the buildings inside these settlements as can be seen in the public buildings in Melaka.

The settlement had to have a rectangular plan, and show symmetry in the design. 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 running through the settlement for transport. 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. To the two axis typical Dutch features as a water filled moat around, and canals that ran through, the town were added.

After the conquest of Melaka by the Dutch the intention was to reconstruct the fort according to a geometrical system, which meant exactitude and symmetry. Exactitude was shown in the design of the fort by straightening out the walls and removing any irregularities which disharmonize 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: the perfect shape for a fort was a rectangular pentagon according to the military design of around 1640.

Dutch architecture in Melaka, in the public buildings, shows an exactitude and symmetry in design. Most of the buildings are rectangular in design. The form of the buildings shows a balance in size and measurements. The side *facades* of the houses are facing the street. The bays in the *facades* of the buildings are similar in size and design, the doors are similar in size and design and the windows are similar in size and design. These are placed at regular intervals from each other.

### III *The influence of Dutch Architecture and the implementation on Dutch buildings in Melaka*

In the Middle Ages the houses were build of wood and due to the fact that slowly the houses are built of brick more floors could be added. Especially the brick houses with more floors develop in the 18<sup>th</sup> century.

Slowly a change begins to take form in the wooden structure of the house about the middle of the 16<sup>th</sup> century. Sometimes houses were built with the side *facade* to the street as to safe space at the back. Then they had the corridor at the back of the house. This type of house was build till deep into the 17<sup>th</sup> century. The type of house with only one floor stayed more popular than the houses with more floors. The last ones there for developed more slowly.

The houses developed through the centuries from the Prehistoric Hall house. The Two Alley house with middle pole, the Three Alley house, the Hall house, the Three Alley Hall house, the Three Alley Hall house with anchor beam construction, the Two Alley house and the One Alley House.

Dutch architecture has had an influence on the building style in Melaka through regulations with regard to the size of the front of the buildings. Through the typology of the houses. Through the roof type. Through the types of windows. Through elements

like water ledges, pilasters and elements on the rooftops. Through materials like bricks and roof tiles.

Some houses in Malacca have been highlighted to show the features of the Dutch architecture overseas. It appears that the 17<sup>th</sup> houses have been established according to the Dutch building traditions. Plastering of the walls, the ridge turning parallel to the street and the addition of galleries in that period were the main changes. First in the eighteenth century, the houses were influenced by local features, with Malacca, as in the former Ceylon, a Portuguese influence could be observed. The gable endings and the arched openings of the galleries of the 18<sup>th</sup> century houses were its most obvious examples. As for the *facade* architecture Malacca was located, both geographically and architecturally, in between Jakarta/*Batavia*, Java (East Indies), Ceylon (Sri Lanka) and South Africa.

Dutch architecture in Melaka, in the public buildings, show an exactitude and symmetry in design. These buildings are in Jalan Geraja (The *Stadthuys*, Christ Church and Two Former Warehouses (*Heeren*-house), Jalan Kota (Architecture Museum, Department of Museums and Antiquities and the Stamp Museum), Jalan Hang Jebat (VOC Building and the Former Warehouse/Shipyard), Lorong Hang Jebat (the Guardhouse). They have bays and windows symmetrically placed.

Elements, among others, are the iron hinges on the doors and windows. These hinges are Dutch in design and allow the windows to open inward or outward. In some buildings, like the *Stadthuys* and the VOC building, over the door or windows, in the outside wall, rectangular or semi-circular vents are placed. The VOC building has *festoons* or *guirlandes*: plaster forms which were applied on the *facades* of the houses in the Netherlands. The Former Warehouse/Shipyard, the VOC building, the Architecture Museum, Department of Museum & Antiquities and the Stamp Museum

have pilasters on the *facade*. Sometimes the buildings have iron wall-anchors in the outside walls of the houses. These were put there to secure the beams which were in the walls on the inside of the house. The doors and windows have heavy hardwood framing. The sloping roofs are covered with tiles. These were, sometimes taken as ballast on the ships which came from the Netherlands or they were locally made.

#### IV *The Analysis of Dutch shop houses in Melaka.*

The *facade* analysis of 37 Dutch shop houses in Melaka will concentrate on Dutch architectural and other influences. It will give a comparative analysis of contents of existing inventories: by area and by streets. A comparative analysis will be made of the *facade* of shop houses in Southern China with those in Melaka. It discusses on the Dutch and Chinese general characteristics, placement of doors and windows, other elements and other influences in Melaka.

The case studies (shop houses) are to be found mostly in the Core Zone of Melaka: Jalan Tun Tan Cheng Lock, Jalan Hang Jebat, Jalan Hang Kasturi and Jalan Kubu with the exception of those in Jalan Tengkeru and Jalan Bukit Cina.

There are three types of shop houses, A, B and C, which are divided in subtypes. A in 7 subtypes (A1, A2, A3, A4, A5, A6 and A7), B in 3 subtypes (B1, B2 and B3) and C in one subtype (C1). These types are split up according to the placement of doors and windows in the *facade* of the house.

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.

#### Dutch characteristics

All are one story high, all have a covered walkway or front porch, all are between 3.64 and 6.09 meters and between 6.00 and 8.00 meters high. The shop houses have architectural and other elements. The Dutch elements are: doors and windows in two halves. Other elements are: hardwood framing, louvered windows, air vents, hinges, wall-anchors, roof tiles, terra cotta floor tiles and bricks. Other influences are the plastering of the walls and the turning of the ridge parallel to the street so the *facades* are at the side of the house and the addition of galleries.

#### Chinese characteristics.

Shop houses have a simple form and functional form. They have narrow frontages and are deep. Up to 3 to 4 times their width, built side by side with common walls and identical *facades*. At the front is an open walkway. Chinese elements of shop houses are: a fire wall in the form of a cat crawling and square ventilation holes. Other influences are the pitched roofs and gable walls which also form part of the shop house typology.

### **9.3 Limitation of research**

This study is limited to 9 public buildings and 37 shop houses in Melaka. The study is limited to the front *facade* of these buildings. The fort of Melaka is also included in the study. The shop houses have Dutch elements like doors and windows in two halves. It is also limited to architectural and other elements which are off Dutch origin. The elements are: the decorated gable walls, curvilinear *espadanas* (arcaded belfries), heavy hardwood framing, beam work, roof tiles, castellated walls,

balconies, louvered windows and Palladian ornamentation such as balustrades, festoons and elegant wainscoted interiors. The small rectangular air vents over the doors or windows in the outside wall. The iron hinges on the doors and windows. These are of the rail and stile type and allow the windows to open inward or outward and wall-anchors on the outside of the shop house secure the beams on the inside.

Architectural elements are the gables of the house which are not facing the street but that are at the side of the house. Otherwise the ridge of the house is parallel to the street and would have caused problems for the gutters with heavy rainfall. In front of the house is a covered walkway which has the same width as the *facade*.

The sloping (shallow) roofs are covered with tiles. These have an S-shape and a U-shape. The U-shape tiles are the most commonly used in Melaka. Part of the Dutch characteristics of the shop house are the terra cotta tiles. The houses were build of yellow coloured bricks which could have been baked locally. These were Dutch in design: rectangular in size, quite light and not very thick. In Melaka known locally as *Batu Belanda*.

#### **9.4 Relationship to Objectives**

**Objective 1.** To study and clarify Dutch architectural principles in establishing new towns (settlements) outside the Netherlands. Specifically in East Indies, Sri Lanka, India and Malaya (Melaka)

The Dutch architectural principles to establish new towns (settlements) outside the Netherlands have been studied through a study on Dutch Global Expansion which provides the historical background to the thesis. The theoretical background to the thesis is based on a study of the principles (treatises) of Simon Stevin (1548-1620). The practical use to this thesis is provided through a study of the development and



implementation of these treaties in settlements in Asia (East Indies, Sri Lanka, India) and specifically in Malaya (Melaka).

**Objective 2.** To study the implementation of the Dutch treatise principles on the fort and settlement of Melaka.

Implementation of Dutch treatise principles with regard to the settlement of Melaka was done through an exactitude and symmetry. Strict rules were introduced from Holland and applied for building and planning or for the form and materials to use. Like the building lines, the use of bricks and tiles and the design, form and size of doors and windows.

**Objective 3.** To analyse whether the Dutch principles were applied on the architecture of Dutch buildings in Melaka, in particular on the design of the front *facade*.

Dutch architecture in Melaka, in the public buildings and shop houses, shows an exactitude and symmetry in design. As can be seen, in the public buildings in the symmetrically placed bays and windows and as can be seen in the symmetrically placed doors and windows in the shop houses.

In this study the Dutch characteristics of the 37 shop houses are established through:

- A. General characteristics
- B. Placement of doors and windows in the *facade*
- C. Elements
- D. Other influences

A. General characteristics: All are one story high; all have a covered walkway or front porch all are between 3.64 - 6.09 meters and between 6.00 and 8.00 meters high. They have a narrow front due to the tax levied on the width of the *facade* by the Dutch gover-

nment of Melaka.

B. The placement of the doors and windows in the *facade* which leads to three types:

(A, B and C).

Table 9.1: Types of shop houses.

Type A: Door in two halves or in one part on the right hand-side in the <i>facade</i> of the house. A rectangular window in two halves or in one part on the left-hand side of the door. One window on the first floor.
Type B: Door in two halves or in one part on the left-hand side in the front of the house. A rectangular window in two halves or in part on the right-hand side of the door. One window on the first floor.
Type C: Door, in two halves, in the middle of the <i>facade</i> of the house. Two windows on each side of the door and two windows on the first floor.

C. Elements: hardwood framing, louvered windows, air vents, hinges, wall-anchors, roof tiles, terra cotta floor tiles, bricks.



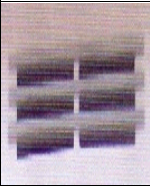
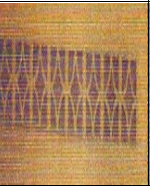



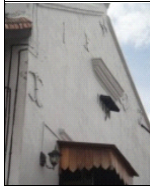




Heavy Hard wood Framing	Louvered Windows	Air vents	Air vents	Air vents	Hinges	Hinges
						
Wall-Anchors	Wall-Anchors	Tile Roofing	Terra cotta tiles	Bricks		
						

Figure 9.1: Dutch elements.

D. Other influences: are the plastering of the walls and the turning of the ridge parallel to the street so the *facades* are at the side of the house and the addition of galleries.

In this study the Chinese characteristics of the 37 shop houses are established through:

A. General characteristics

B. Elements

C. Other influences.

A. General Characteristics: shop houses have a simple form and functional form. They have narrow frontages and are long. Up to 3 to 4 times their width, built side by side with common walls and identical *facades*. At the front is an open walkway.

B. Elements

Chinese elements of shop houses are: a fire wall in the form of a cat crawling and square ventilation holes.

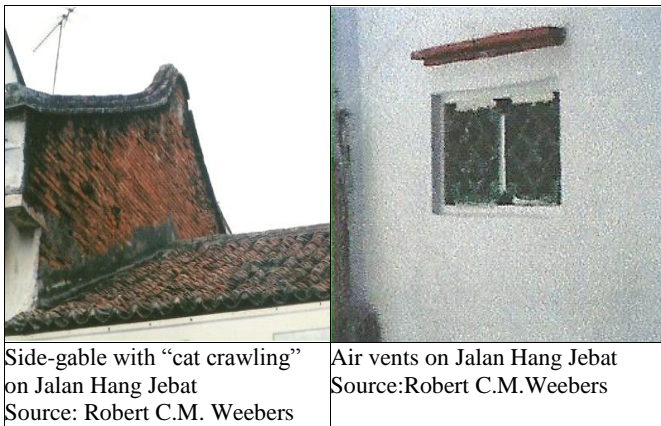


Figure 9.2: Chinese elements.

C. Other Influences

Pitched roofs and gable walls also form part of the shop house typology. It can be argued therefore that shop houses in Melaka are influenced by Dutch or Chinese architecture but differ in decorative elements.

**9.5 Concluding Summary**

The 3 objectives as mentioned in chapter 1, page 19 are achieved. These are:

The principles (treatises) of Simon Stevin to build settlements outside the Netherlands. Specifically in East Indies, Sri Lanka, India and Malaya (Melaka) have been studied and clarified through the information provided by several authors like Bos (2003), Oers (2000) and Temminck Groll (2002).

Although settlements could be different in lay-out and design the ideas of Simon Stevin were most probably implemented in one way or the other. The towns build by the VOC through Asia were organized according to the architectural ideas of Simon Stevin. Like the distribution of buildings and public spaces, accessibility through functional use of space and maximum distribution of space capacity in the settlement. Houses should be built in groups rather than separate ones according to Stevin. Therefore, the whole would look like a palace. Stevin referred to street widths and arcades not for ornamental use but out of practical reasons.

The implementation of the Dutch treatise principles on the fort and settlement of Melaka has been studied through the principles (treatises) of Simon Stevin. There was a considerable influence of Simon Stevin's treatises on design and planning of settlements. 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 and Dutch engineering and fortification works from the sixteenth and seventeenth centuries.

To analyse whether Dutch principles were applied on the architecture of Dutch buildings in Melaka, in particular on the design of the front facade. Dutch principles were applied on the architecture of 9 Dutch public buildings in Melaka. Dutch architecture in Melaka, in the public buildings, shows an exactitude and symmetry in design. Most of the buildings are rectangular in design. The form of the buildings shows a balance in size and measurements. The side facades of the house are facing the street. The bays in the facades of the buildings are similar in size and design. The doors are similar in size and design as are the windows. These are placed at regular intervals from each other. Dutch principles were also applied on the architecture of 37 shop houses according to the symmetrically placement of doors and windows in the facade of the shop houses.

## **9.6 Further research**

Further research can be done:

- On the lay-out and interior of public buildings and shop houses in Melaka.
- On the condition of these buildings and plans can be made for the conservation of these buildings.
- On the historical usage of these buildings, inhabitants and living conditions.
- A comparison to similar architecture in the Netherlands and architecture in Asia.