Epistemic Imposition: Problematising The Cross-Appropriation of Building Practice in Java, Indonesia (1901-1942)

Thesis

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Problematising The Cross-Apropriation of Building Practice in Java, Indonesia (1901-1942)

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Abstract

The enactment of the Ethical Policy in 1901 changed the nature of the relationship between the Netherlands and the Netherlands Indie (now Indonesia). One of the notable shifts that occurred was the growing demand for technology and technical skill throughout the archipelago. The proliferation of plantations and other industries increased the need to have more technicians who were able to comply with the Dutch regulations and standards. Consequently, this new gap in the workforce initiated an unprecedented migration of skills and practices to the Dutch East Indies.

This doctoral dissertation intends to investigate the scope of the interventions realized by the Dutch colonial agenda in relation to existing Javanese building practices. Two main lines of investigation underpin this research. The first is to examine the methods of dissemination of Dutch technical knowledge and skill across the archipelago. The second goal is to scrutinise the effects of this dissemination upon the formation of architectural knowledge and practice within the colony. I define the following acts of disseminating building knowledge as an epistemic imposition - an instrument of Dutch colonial power.

The dissertation will comprise of four chapters (excluding the Introduction and Conclusion). The first chapter aims to set the grounds of the thesis by elaborating a particular situation both in the Netherlands and Java that was effectively an agency for the dissemination of Dutch architectural knowledge and practice in the colony. The subsequent three chapters will specifically discuss the three agencies to Javanese building practice as part of the endeavour of establishing a new model of architectural practice in the colony. The second chapter aims to focus on the educational institution established, the third chapter will discuss the role of architects in creating architectural discourse in the colony, and the fourth chapter focuses on Dutch endeavours in establishing a sense of home in the Dutch East Indies.

Throughout this thesis, I will argue that the Dutch epistemic imposition in a form of technical knowledge and skill dissemination as not entirely successful. Lack of understanding in local building culture and climatic constraint of the archipelago had created a cross-appropriation of building practices between both parties.
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The steel construction of the Cathedral's tower in Batavia (present Jakarta). The church was designed by Antonius Dijkmans and M.J. Hulswit. The construction was completed in 1901. Source: Photographed by Paul Kadarisman.
Building is by no means a novel form of knowledge and skill for Indonesian people. All indigenous ethnic groups who reside in the region that was once known as the Malay Archipelago have been exercising their own building practices since at least the 8th century CE, or even longer. For these groups, these building practices were an integral part of their customs and traditions.

A pertinent question, however, is to ask to what extent and in which ways did this rich historical heritage of building knowledge and skills provide the foundation for modern building practices in Indonesia? Clearly, the arrival of the first traders from the Netherlands in 1596 considerably altered the picture, setting in train a pattern of colonisation that was to intensify in the 18th century through the activities of the Dutch United East India Company [Vereenigde Oost-Indische Compagnie, hereafter VOC]. In due course, the arrival of numerous Dutch engineers and architects in the late-19th century and early-20th century – especially after the enactment of the 1901 Ethical Policy – transformed existing local expertise in building practices. There were three critical strategies behind the new Ethical Policy: 1) to establish an educational system for all people in the Dutch East Indies, not only for European settlers; 2) to develop a comprehensive irrigation system that would increase agricultural yields; and 3) to create a more balanced distribution of population density in new settlements throughout the Dutch East Indies, which inevitably required significant engineering and architectural works. However, the different climatic and topographical conditions across the Malay Archipelago made the implementation of these three strategies far from smooth and easy.

The complexity of undertaking engineering and architectural works in the Dutch East Indies was not limited to geographical factors alone. Dealing with a colony whose territorial area was approximately fifty times larger than the Netherlands proved another major challenge. Vast numbers of labourers were urgently required to undertake the various infrastructural projects, let alone developments in other fields.
Figure 1.
The area (in white) of the Dutch East Indies (Top), and its comparison with that of the Netherlands. (Bottom). Source: Author.
Furthermore, consequently, expertise in engineering and architectural knowledge and skills had now to be expected from all these labourers. The only option to meet this demand for technicians and engineers was to educate and train the indigenous population about the building techniques, standards and systems used in the Netherlands. Such a task, in turn, created an unprecedented level of interaction between the Dutch settlers and the Javanese people (Fig. 1).

Hence what took place in the late-19th century and beginning of the 20th century in the Dutch East Indies was nothing short of extraordinary. Even though Dutch settlers had by this point been active in the region for three centuries, there are no documents that show any significant interactions or collaborations in building practices between the Dutch and the Javanese prior to the 1870s. Thereafter, however, interchange began to increase. By this point, the idea of the Dutch East Indies as representing the ‘second home’ for Dutch people, a state of affairs implied by the 1910 Ethical Policy, was majorly altering the social and political interplay between coloniser and colonised.

This doctoral thesis, therefore, aims to investigate the scope of the interventions arising from the Dutch colonial agenda in relation to existing Javanese building practices. Two main lines of investigation underpin this research. The first is to examine the methods of dissemination for Dutch technical knowledge and skill in the archipelago. The second goal is to scrutinise the effects of this dissemination upon the formation of architectural knowledge and practice in the colony. Throughout this thesis, I will hence be examining this act of disseminating building knowledge as an epistemic imposition – in other words, as one of the instruments of Dutch colonial power.

Accordingly, the thesis will argue for three central hypotheses that can be summed up as follows:

1. The dissemination of Dutch building practices introduced the principle of architecture as an industry to the Javanese people, thereby producing a consequent conceptual shift from building as an everyday cultural expression to building as the erection of edifices that served to reinforce colonial power;

2. By introducing a Westernised notion of architecture that led
to the conceptualisation of an entity classified as ‘Javanese Architecture’, the Dutch colonisers were forcibly reinventing Javanese building practices as a pure act of appropriation, as opposed to one of collaboration;

3. The pragmatic nature of domestic space in the archipelago made it much more open to broader influences, meaning that – in contrast to the above two aspects in which there was a significant degree of imposition from Dutch colonisers towards indigenous building practice – the new types of houses designed in the Dutch East Indies during this period can be regarded primarily as spatial and formal responses to the colony’s physical and economic context.

On an interrelated yet different level, this thesis includes a discussion about the notion of the ‘modern’ within European colonisation. As a value judgement, the term ‘modern’ tended to be measured by an entirely discriminative worldview. At the time, any society could be comprehended as not yet being ‘modern’ just because its perceived importance did not comply with the rules of measurement used by the assessor. In the case of European colonisation, such discrimination frequently became the underlying principle for every aspect of life, with the presumption being that people from the subjugated lands were less advanced in every way. As Edward Said pointed out in his 1978 book on *Orientalism,* colonizers exercised their agenda through an assumed premise of cultural superiority.

Hence the argument being made in this thesis is that the three aforementioned hypotheses were not entirely successful in establishing a new, standardised system of building practice in the Dutch East Indies. Insufficient numbers of technical schools, and a lack of understanding of the context by Dutch settlers – whether in terms of geography or culture – made the dissemination of the concept of so-called ‘Indies Architecture’ nothing more than mere discourse. The typological operations that were conducted by Dutch engineers and architects in the colony resemble the factors that Eric Hobsbawm has described in his book, *The Invention of Tradition.* However, unlike the many cases in Hobsbawm’s book that managed to reinterpret historical signs to assign new meanings, Dutch colonialism did not offer such a fertile situation. Instead, the vast
discrepancies between Dutch colonial customs and the native Javanese customs created a complicated scenario in which each group actively participated in appropriating the other’s customs to their own benefit, yet with very unpredictable degrees of success.

To start to analyse these points in more detail, this Introduction is organised into three parts. The first section outlines the historical context of Dutch ventures within the Malay Archipelago, on which the Dutch colonisation agenda of the late-19th and early-20th centuries was paved. This part covers the social-political framework of Dutch intervention from the initial conception of the Dutch East Indies by Jan Pieterzoon Coen in 1612, then the VOC era in the 18th century and the first phase of formal colonisation by the Netherlands government between 1800–70, leading up to the introduction of the reformed cultivation system after 1870. How the notion of modernity came into play, and how it formed the essence of the Dutch colonial venture in the early-20th century, is very much part of the discussion. The essay by Conrad Theodore van Deventer, ‘Een Eereschuld [A Debt of Honor]’, and the advent of the printing industry, will be mentioned as important sign of the reformulated Dutch colonisation project that was manifested through the 1901 Ethical Policy. Without recounting all of the historical details, the account in this section relies heavily upon a number of well-regarded studies in the field of Indonesian history such as M.C. Ricklefs’s *A History of Modern Indonesia* (1981), Bernard H.M.Vlekke’s *Nusantrara: A History of the East Indian Archipelago* (2008), Denys Lombard’s *Le carrefour Javanais: Essai d’histoire globale* (1990), Nicholas Tarling’s edited volumes for *The Cambridge History of Southeast Asia* (2000), and Adrian Vickers’s *A History of Modern Indonesia* (2011). Above all, the main emphasis in this first sub-section will be on the particular period from 1879 until 1901.

The second part of the Introduction focuses upon the research methodology and framework used for this thesis, with two points of departure being essential:

1. The way in which the concept of modernity in the Dutch East Indies departed from Thomas Babington Macaulay’s famous ‘Minute’ – this being text that triggered the enactment of the 1825 English Education Act as part of British colonial rule in
Part 1: The Dutch East Indies as a Colonial Idea

Before the 17th century, the Malay Archipelago was viewed as an open region where European traders could buy spices and other commodities to resell in markets back home. By that point, a variety of Portuguese, British and Spanish traders had already been roaming around in the archipelago. Dutch traders arrived a little later on, reaching the archipelago right at the end of the 16th century. Their exploits were led by Cornelis de Houtman, who, on 13th June 1596, docked at Banten only to discover that British and Portuguese traders had already established their trading posts there.¹¹

At this time, the Malay Archipelago was far from being a unified region. There were at least ten dominant kingdoms with which European traders could ply their ventures: Aceh, Malaka, Jambi Palembang, Banten, Mataram, Banjarmasin, Makasar, Ternate, and Tanimbar.¹² In this divided scenario, each of the European nations fought for monopoly in the region through their trading companies. As part of this effort, the Dutch East Indies Trading Company [Vereeniging Oost-Indisch Compagnie, hereafter VOC] was formed in March 1602 by the Dutch Parliament [Staten General], only six years after de Houtman’s landing. ¹³

As part of this process, in 1612 Jan Pieterzoon Coen sailed to the Malay Archipelago.¹⁴ He was appointed as an accountant by the Governor-General, Pieter Both, and his ambition was to monopolise and establish a unified trading system
for the region. Coen’s vision was stated in an article titled ‘Discoers aan de E. Heren Bewinthebberen Touscherende Den Nederlantsch Indischen Staat [Memorandum to the Noble Governors about the Condition of the Dutch Indies]’, in which he offered two arguments to justify the Dutch monopoly. The first argument was about the importance of Dutch entrepreneurship in the archipelago as a means to support the wealth of the Netherlands, as a strategic way to defeat Spain in the spice trade war. His second argument was to justify the monopoly rights of the VOC over the Malay Archipelago given all the agreements that Dutch traders had signed with various ports and local kingdoms: he contrasted these with the treaties that Spanish and Portuguese traders had violated in the past. To supplement his goal of a trade monopoly over the archipelago, Coen made the unprecedented proposal that the Dutch should build permanent settlements there (Fig. 2). Others criticised Coen’s vision, not least Pieter Both, Gerard Reynst and Laurens Reaal. Reaal argued that such a strategy would be dire for the Netherlands, in that it would deteriorate the relationship between the Dutch settlers and the indigenous people, and consequently reduce the effectiveness of the VOC’s ventures in the region. Nonetheless, Coen’s strategy largely prevailed, and over the years the criticisms of the policy diminished. For the next three centuries, the Netherlands more or less followed Coen’s vision - initially almost entirely through trading activity - until a new reality emerged at the start of the 19th century CE.

On 31st December 1799, the Dutch East Trading Company (VOC) was dissolved, and henceforth from 1800 all their enterprises in the Malay Archipelago were taken over by the Netherlands Government. This moment marked the beginning of the actual period of colonisation in the Dutch East Indies. In the following hundred years after the acquisition, that is up to the 1901 Ethical Policy, the policy was simply one of wealth extraction from the colony. The colonial government undertook no specific program for improving either the living conditions of the indigenous people or the quality of the archipelago’s infrastructure. Indeed, it was a period of turmoil for the Netherlands and the Javanese. During this time, four significant incidents indirectly created the foundations for the 1901 Ethical Policy: 1/ The transition period between
Java within the constellation of VOC trading route at the end of the 18th CE.

Figure 2.
Figure 3.


(Right) Thomas Stamford Raffles (detail of an oil painting by G.F. Joseph, 1817, in the National Portrait Gallery, London.) Source: Author

Figure 4.

(Top) Transportation route at the 17th – 18th CE.

(Bottom) Daendel’s Great Post Road connected all important port cities.

the VOC and the new colonial government (1808–11); 2/ The British interregnum (1811–16); 3/ The Java War (1825–30); and 4/ The establishment of the so-called ‘Cultivation System’ (1830–65).

Thus the first prominent political shift between the Netherlands and the Malay Archipelago occurred when the VOC, like the rest of the Netherlands, fell under a new French-dominated regime. In 1806, Napoleon Bonaparte chose his younger brother Louis Napoleon as the ruler of the Netherlands. Two years later, Louis Napoleon sent over Marshal Herman Willem Daendels to become the Governor-General in Batavia (1808–11), with his foremost mission being to defend Java against the British Navy operating in the Indian Ocean. Because of this mission, Daendels was soon known for an excellent piece of infrastructure, the Great Post Road [Grootepostweg], which connected the northern coast of Java from west to east. During his period of rule, Daendels also established the Government Printing Press [Landsdrukkerij]. This press published the first official weekly newspaper in the Dutch East Indies, *Bataviasche Koloniale Courant*, which also unintentionally paved the way for the birth of the Ethical Policy at the beginning of the 20th century CE (Fig. 3 & Fig. 4).

However, the second key incident, which was the British interregnum from 1812–30, only served to amplify the deteriorating relationships between European colonisers and the Javanese people. Like Daendels, the incoming British governor, Thomas Stamford Raffles of Singapore fame, refused to acknowledge the authority of the Javanese ruler over that island. Instead, both Daendels and Raffles considered the various Javanese courts simply as employees of the colonial government. Unsurprisingly, this perspective created hostile feelings between the British colonisers and the Javanese courts, culminating in a raid by British troops on the Javanese court in Yogyakarta in 1812 – a crucial incident in Java’s history as it was the only time when the armed forces of a European government ambushed a Keraton [Palace]. During this act of aggression, the Yogyakarta court was plundered: its library and archives were looted, and large sums of money were taken. Despite his intolerant policy towards the Dutch East Indies, Raffles had a keen interest in ethnography. His book, *The History of Java*, was one of the most prominent surveys of the island and discussed not only Javanese culture
but also its geography, climate, flora, fauna, and archaeology (Fig. 5).

On 13th August 1814, an agreement was made between Britain and the Netherlands to return all Dutch colonies (excluding Ceylon) to the Dutch government. Hence, on 19th August 1816, the Dutch colonial government returned to the Malay Archipelago. The newly installed Dutch administration sought to revitalise the ‘golden age’ of the VOC when significant profits flowed to the Netherlands through its trade monopoly. However, in attempting to do so, the new Governor-General, GAG Ph. Van der Capellen (1816–26) encountered one of the most significant revolts ever to spread throughout Java.

As the third significant incident, the subsequent Java War between 1825–30, as most historians call the revolt, stemmed from three related problems: 1/ There were already ‘internal’ conflicts between the two Javanese courts in Yogyakarta and Surakarta; 2/ There was an increasingly conflictual relationship between these courts and the Dutch colonisers; and 3/ The endeavours by the Dutch colonial government to extract more profits from the colony, by increasing the taxes upon Javanese people, was extremely unpopular. Following yet another Dutch intervention in 1825 into the intricacies of succession to the Javanese court succession, Dipanagara, the eldest son of Sultan Hamengkubuwana III, decided it was time to fight back. So began the rebellion. Chinese and European settlers were attacked in many places across Java by the rebels, who were using highly mobile guerrilla tactics that hugely hindered Dutch troops from anticipating their attacks.

The brutal Java War concluded in March 1830 when Dipanagara was finally arrested. He was exiled to Manado and then Makassar, where he died in 1855. The five-year war cost the Dutch colonial administration the lives of 8,000 European and 7,000 Indonesian soldiers. On the Javanese side, the figure was much worse: estimates are that the population of Yogyakarta was reduced by approximately half, and at least 200,000 Javanese citizens died during the conflict.

The end of the Java War marked a new era for the Javanese aristocracy. It represented their last stand in fighting for independent control over their territories. Henceforth, the Javanese courts receded from any political and power contestation with the Dutch colonial government.
Figure 5.

Instead, the aristocracy placed their interest in revitalising older Javanese cultures by producing and compiling remarkable works of scholarship which, according to Pigeaud and Ricklefs, launched a veritable ‘Renaissance’ of traditional Javanese literature.\(^{26}\)

Meanwhile, back in Europe, the Netherlands was defeated in their attempt in 1831–32 to reconquer the lost territory in Belgium. The Dutch-Belgian union that had been created by Congress of Vienna in 1815 was ended, and the Netherlands was forced to acknowledge Belgian independence in 1839. The expenses of their failed military operation added to the unfavourable financial conditions in the Netherlands, meaning that the Dutch government felt it urgent to rebuild its sources of wealth from its colonies. All of these proposals shared a similar dream, which in the case of the VOC meant an attempt to revive the glory days when it monopolised the trade in tropical goods from the Malay Archipelago – which of course had been Jan Pieterzoon Coen’s vision at the outset.

Thus, as the fourth crucial incident, in 1829 the King of the Netherlands accepted a proposal from Johannes van den Bosch that became the so-called ‘Cultuurstelsel’, which translates as ‘Cultivation System’. Van den Bosch’s idea was inspired by Veerhuizen, an important historic site in the Netherlands where an agricultural ‘colony’ for the criminalised poor had been created. In transferring this idea to the Dutch East Indies, it was to be Javanese landowners who rented their land from the government and to pay this charge. They would need to set aside part of their farm to grow profitable export crops such as coffee, sugar and indigo and sold it to the Dutch government for a fixed price. In his initial calculations, van den Bosch had estimated that the produce from 20 per cent of farmland in a given village would be sufficient for this colonial purpose and as a result, the Javanese farmers would earn more money (estimated at 5.50 gulden) by following his system.

Van den Bosch was not too far-fetched in the scheme he was proposing. His confidence was based on his own successful farming experiment in the Netherlands, which he described in 1818 in *Verhandeling over het mogelijkheid, de beste wijze van invoering en de belangrijke voordeelen eener Algemeene Armeninrichting in het Rijk der*
Nederlanded, door het vestigen een Landbouwende Kolonie in deszelfs Nordelijk gedeelte [Treatise on the Possibility, the Best Manner of Introduction, and the Foremost Advantages of Relieving General Poverty in the Kingdom of the Netherlands, by Establishing an Agricultural Colony in the Northern Part]. 27 He summed up the lesson as follows:

‘I am prompted to make known universally my thoughts on how to establish a colony of poor people since I have already brought a not wholly unfruitful, largely uncultivated piece of ground of several thousand morgens (1 morgen = 2.25) into cultivations; and taught a considerable number of people who formerly made terrible use of their time to labour. The successful result is that this property has doubled in value each year for eight years. Moreover, although circumstances here are certainly not the same, it appears to me that the principles and rules followed so beneficially in the one case, could also with suitable alteration be adopted as the proper foundation, in my opinion, to reach this useful purpose.’ 28

Nevertheless, what happened in practice when the ‘Cultivation System’ was introduced in the Dutch East Indies from the early-1830s was far from Bosch’s idealised vision, or at least it did not work out entirely successfully. On the one hand, the use of the ‘Cultivation System’ in the colony can be credited as helping the Netherlands to recover from the brink of natural bankruptcy after its failed Belgian invasion. However, that only happened at the expense of the life and livelihood of Javanese people.

The darker reality of the ‘Cultivation System’ was vividly conveyed in the novel written by Multatuli and titled Max Havelaar, or De Koffij-Veilingen der Nederlandsche Handel-Maatschappij [Max Havelaar, or the Coffee Auctions of the Netherlands Trading Company], published in 1860. 29 Multatuli (which is Latin for ‘I have suffered greatly’) was the pseudonym of Eduard Douwes Dekker, a former medium-ranking colonial official in the Dutch East Indies who had been born in Amsterdam in 1820 and then moved to the colony to become a civil servant in 1838. During his period of service there, he had seen at first-hand the abuses under the
‘Cultivation System’. Indeed, his criticisms of this policy forced Dekker to resign from his position. On his return to Europe, instead of going home to the Netherlands, he went to Belgium to write the book. It was only a short matter of time after being published that this semi-autobiographical novel triggered strong reactions in the Netherlands (Fig. 6).

A prominent Indonesian writer, Pramoedya Ananta Toer, has more recently called it ‘the book that killed colonialism’ in an essay for *The New York Times Magazine.* David Herbert Lawrence, better known simply as DH Lawrence described the book, in his introduction to the 1927 English edition of the novel, as parallel with the outcry that accompanied Harriet Beecher Stowe’s anti-slavery novel, *Uncle Tom’s Cabin,* after its publication in 1852. Lawrence wrote: ‘Instead of pitying the poor negro slave we have to pity the poor oppressed Javanese.’

The novel by Multatuli traced the career of Max Havelaar, a colonial official who was stationed in a region called Lebak. There he witnessed how the excesses of the ‘Cultivation System’ was triggering financial corruption and severe poverty, depicting this dire situation as follows:

> ‘The Government compels the worker to grow on his land what pleases it; it punishes him when he sells the crop so produced to anyone else but it; and it fixes the price it pays him. The cost of transport to Europe, via a privileged trading company, is high. The money given to the Chiefs to encourage them swells the purchase price further, and ... since, after all, the entire business must yield a profit, this profit can be made in no other way than by paying the Javanese just enough to keep him from starving. Famine? In rich, fertile, blessed Java? Yes, reader. Only a few years ago, whole districts died of starvation. Mothers offered their children for sale to obtain food. Mothers ate their children.’

According to Toer, the novel offered ammunition to a growing liberal movement in the Netherlands that was striving for political reformation in the Dutch East Indies. After what was nearly 250 years of colonial involvement, the early concerns of Pieter Both, Gerard Reynst, and Laurens Reaal about the toll caused by the policy of...
Figure 6.
Eduard Douwes Dekker in the cover of his book *Max Havelaar*. Source: Author
over-exploitation were resurfacing. The 19th-century ‘Cultivation System’, conceived as it was as a resurrection of Coen’s vision of using the Malay Archipelago to save the Netherlands from the dire financial conditions it was facing, therefore engendered unexpected consequences. Yes, the goal of reviving the colony as a major source of wealth was accomplished, but at the same time this created severe socio-political disruption both in the Netherlands and the Dutch East Indies. The Dutch settlements that Jan Pieterzoon Coen had so long ago envisioned as the strategic agency for Dutch enterprise in the Malay Archipelago now became the impetus towards the reformation of colonial governance instead – a situation entirely unanticipated by Coen, who after living in the colony for a long time had in fact built up a strong sense of detachment from the metropole back in the Netherlands.

By the mid-19th century, many of the Dutch settlers in the Dutch East Indies found themselves yearning to maintain the wealth of the archipelago independently from the Netherlands government. Furthermore, the proliferation of the printing industry during the 19th century corroborated this growing sense of autonomy among the Dutch colonial community. Newspapers and literary works were now making it possible for larger numbers of people in the Dutch East Indies to access news not only from various settlements in the Archipelago but also from many European countries as well (Fig. 7).

Staging Modernity

As mentioned, the founding of the Government Printing Press [Landsrukkerij] by Marshal Herman Willem Daendels in 1810, the Governor-General of Dutch East Indies, was followed by the publication of the first government newspaper, Bataviasche Koloniale Courant [Batavia Colonial Newspaper], as part of Daendels’ ambition to establish a modernised bureaucracy and administrative structure for the colony. This modernised bureaucracy needed to be efficient and able to provide governmental accountability in a public forum, and thus, in this way, the new newspaper was regarded as the most effective instrument. Hence the Bataviasche Koloniale Courant functioned as a governmental propaganda platform in which information about the finances and
Figure 7.

A Dutchman in the East; newly arrived, and thirty years later by Dutch cartoonist Menno. *Source: Herinneringen aan Java (Soerabaja: Nijland, 1915)*
revenues of the Dutch colonial administration the government was reported, and all general affairs were likewise discussed.

During the British Interregnum from 1812–30, Thomas Stamford Raffles, Lieutenant-General of Dutch East Indies continued with this endeavour of bureaucratical ‘modernisation’. The Bataviasche Kolonial Courant was stopped and replaced by the Java Government Gazette, which published its first edition on 19th February 1812. The Gazette duly provided information regarding official announcements, decrees and regulations, as well as reporting various accounts of the Napoleonic wars in Europe and their aftermath. Other newspapers opened up, such as Bataviasche Advertentieblad (1825), Nederlandsch Indisch Handelsblad (1829), and the leading official Dutch newspaper, Bataviasche Kolonial Courant, was renamed as the Javasche Courant in 1828.

After the Dutch East Indies were returned to the Netherlands in 1830, newspaper publishing escalated even more rapidly. A range of privately-owned newspapers began to circulate, such as Semarangsche Advertienblad (1835; later renamed as De Locomotief in 1863), Soerabaijasch Courant (1837), Tijdschrift voor Nederlandsch-Indie (1838), Java Bode (1852), and Oostpost (1853; renamed as Soerabaijaasch Handelsblad in 1859). Even more significantly, from the mid-1850s, some non-Dutch language newspapers were launched. Bromartani (1855) was the first newspaper in the High Javanese language (Kromo-Ingil), and many newspapers using the Malay language were published in the major cities of the Dutch East Indies. Among them were the following titles: Soerat Cahbar Betawi (1858), Biang-Lala (1867), Mataharie (1868), and Bintang Barat (1870) in Batavia; Selompret Melaijoe (1860) in Semarang; Bientang Timoor (1863) and Pertela Soedagaran (1863) in Soerabaja; Bintang Timor (1865) in Padang; and Tjahaya Siang (1868) in Tondano.

These non-Dutch newspapers played a crucial role in exposing the misconduct of the ‘Cultivation System’ and in explaining the social-political protests of indigenous people in the colony in a way that could then be translated into Dutch to inform the government back in the Netherlands. Many Dutch settlers in the colony were also becoming concerned that all of the official policies stemming from the metropole seemed only to serve their interests and not those of indigenous people.
W.R. Baron van Hoëvell\textsuperscript{38}, the editor of *Tijdschrift voor Nederlandsch-Indie*, called upon those in the metropole to fulfil their moral obligation towards the Javanese people after having extracted so much profit from the colony *for so long*.\textsuperscript{39} In 1848, he even played an active role in what is known as the Batavian Revolution.\textsuperscript{40} This reaction involved some Dutch settlers in Batavia protesting about forms of discrimination by the Dutch colonial administration work against Dutch citizens who had been born in the Indies, as well as against those from other European countries, especially in the case of those colonists who were unable to afford to send their children back to the Netherlands for education. At the time, the upper echelons of the Dutch colonial administration in the archipelago could only be filled for those who held certificates from the Royal Academy in Delft, which therefore cut out a whole section of settler society.\textsuperscript{41} Another critical figure was Pieter Brooshoof, editor of *De Locomotief*. In a book on *Memorie Over de Toestand in Nederlandsch Indië*,\textsuperscript{42} Brooshoof urged that the ‘free labour market’ and the ‘market value’ of agricultural land did not bring any benefit for the Javanese farmers, and simply worked in the best interests of the Netherlands’ economy. He argued in favour of helping Javanese farmers as the other agents crucial to the political economy in the Dutch East Indies, noting that they too were citizens of the colonial state.

Sharing similar concerns to Brooshoof, Henri van Kol in *Land en Volk van Java* [Country and People in Java] (1896) contended that the implanting of Dutch liberal capitalism in the archipelago had destroyed the hitherto Javanese social structure, transforming 8.5 million indigenous Javanese people into landless peasants, drifters and poorly paid wage-labourers.\textsuperscript{43}

Similarly, in 1899, Conrad Theodor van Deventer, a Dutch lawyer, wrote a staggeringly frank essay entitled ‘Een Eerschuld [The Debt of Honour]’ for a Dutch journal, *De Gids* [The Guide]. The main argument of van Deventer was that the Netherlands should not be so indifferent, indeed ignorant, about the unfavourable conditions in the Dutch East Indies, and therefore there needed to be significant support from the metropole if they wished to maintain their colonial enterprise there.

Van Deventer concluded that all of the unjust policies and incidents in the Dutch East Indies could be summed up by two glaring
problems: firstly, the unjust treatment of the indigenous labourers, and secondly, and the lack of funds to enable the proper development of the colony. For instance, in the late-19th century CE, there was only one medical school that Javanese people could attend, and it only accepted 100 students every year. This number was tiny in contrast to the demand for trained medical workers in Java, let alone in the Dutch East Indies, as there were around 25 million Javanese civilians on the island. If one looked at the field of town planning, the Dutch colonial government did not provide an adequate sanitation infrastructure for the towns and cities in the archipelago. Consequently, many people could not access fresh and healthy water, even in a wealthy city like Soerabaja. Hence, it was not surprising that an epidemic spread quickly through that region.

The leading cause of these problems was the inadequate and unfair financial budget set by the Netherlands government back in the metropole. The policy promise bestowed onto the Dutch East Indies that it would be allowed to determine and manage their own affairs in a financially independent manner never materialised. Van Deventer, for example, mentioned that two important projects to improve the port facilities in Soerabaja and Semarang were not approved. Additionally, there was no comprehensive state education system around 1900 in the Dutch East Indies, with most of the technical/crafts school in the colony having been established by private initiative with no or little subsidy from the colonial government.

Politics always intervened. Thus although on 19th September 1859, King William III had announced that the Netherlands’ financial condition had recovered, and was now in a healthy condition, it took a further 39 years to pass a regulation that seemed, at last, to allow the Dutch East Indies to manage its expenses independently. However, even this new regulation was simply disregarded by the Netherlands government whenever it suited the latter, with funds being withdrawn from the colony if there was any sense of a financial shortage in the metropole.

Appalled by this unjust situation, van Deventer declared that the Netherlands owed what he termed a ‘debt of honour’ to the colony. According to his calculations, by 1st January 1900, the metropole had accrued a 187-million-guilder debt to the Dutch East Indies
over the years, and the amount would be even greater if interest were included under the Indische Comptabiliteitwet [The Indies Accountability Act], first enacted in 1867.48 Responding to such criticisms, on 17th September 1901 Queen Wilhelmina pronounced before the Dutch Parliament a brand new direction for the Dutch East Indies.49 This policy was the aforementioned Ethical Policy, whereby the Dutch colonisation policies would be realigned to address three key issues in the colony; education, agricultural irrigation, and emigration incentives. Queen Wilhelmina’s pronouncement shifted the image of the Malay Archipelago from being merely an enigmatic, exotic place, primarily a destination for commercial traders, into a veritable ‘second home’ for the Dutch people. Henceforth, mobility of Dutch people to the colony increased profoundly, with women also emigrating there. The arrival of these female Dutch settlers would, in turn, reshape lifestyles and conditions in the archipelago.

Meanwhile, besides these social and political moves, there were some other extraordinary cultural events taking place in the Netherlands at the end of the 19th century. A significant winter exhibition at the Rijksmuseum in Amsterdam in 1895 described this period as being ‘the ugly Time’ concerning the past history of arts and crafts in the Netherlands. Running from 25th November 1895 to 31st March 1896, this provocative exhibition – under the title of ‘De Lelijke Tijd: Pronstukken van Nederlandse Interieurkunst 1835-1895 [The Ugly Time: Showcases of The Netherlands Interior Art 1835 - 1895]’ – addressed what it regarded as an unfortunate trend in the world of furniture design and decorative art in the Netherlands. The provocative title was intentional in seeking to attack any objects produced in the period that mimicked styles such as Gothic and Baroque without really following their principles. Simon Jervis comments that this exhibition was reminiscent of the reaction in mid-Victorian Britain at the time when the rival steams of Gothic Revival art, and Italianate Renaissance art was becoming popular.50 However, in the Netherlands, what was happening was not the promotion of the benefits of a newly revived historicist style, but rather a shameless sense of imitation and lack of any novelty, as A.F. Van Toor points out.51 Complicit in this lack of artistic ambition, and the resultant favouring of Eclecticism, were the
newly expanded middle classes in the Netherlands and also the royal family, which also utilised Dutch industry merely to satisfy their retrogressive taste in arts and crafts (Fig. 8).52

The situation was not new, but deeply ingrained in the Netherlandish culture. This same trend could be seen in the Dutch exhibition for the Great Exhibition in London’s Crystal Palace in 1851. Intended to showcase novelty in the industrial development of the nations that took part, the various items in Neo-Gothic or Neo-Renaissance styles put on display by the Netherlands were perceived as thoroughly awkward. Consequently, there were many unpleasant reviews about the participation of the Netherlands in the Great Exhibition.53 Many observers in the Netherlands called on its people to find a way to revive their sense of national pride, as well as repairing their unfortunate financial position. However, how might this be achieved? Notably, after the abolition in 1864 of the ‘Cultivation System’ in the Dutch East Indies, later that same year the Netherlands government passed a decisive new piece of legislation, the Agrarian Law. The impact of this policy shift in the colony will be discussed in the chapters that follow.

Part 2: Research Framework

I would categorize this thesis as a history thesis albeit its main aim is not to meticulously elucidate events one by one. History is employed to build a map of discourses. By having this map, a critique can be constructed.

The study begins with a proposition that architecture in the Dutch East Indies by the turn of the twentieth century had been appropriated as a branch of the Capitalist system pursued by the Netherlands government as the basis of its imperial project. Hence, the design of buildings and the framing of construction knowledge and practice needs to be understood as a vehicle to instill values such as standardisation, rationalised working environments, and the division of labour for productive processes. It parallels the situation in Britain at the time, in which, as Adrian Forty
Figure 8.

(Left) The waiting room in Paulina Bisdom van Vliet museum. The museum is a former house of Paulina Bisdom van Vlet family. The interior and decoration of the house is exactly as it was when it was inhabited. The house is considered as the excellent example of of De Lelijke Tijd style.

(Right) A bowl made of walnut (probably made around 1875-1885), mounted with blue glazed procelain from the mid-17th and early 18th century CE China.

explains, the word ‘design’ now referred to the preparation of instruction to produce manufactured goods.\textsuperscript{54}

To trace the impact of this Capitalist drive on the architecture of the Dutch East Indies, the thesis is structured thematically rather than in chronological order. Nonetheless, history offers an important narrative framework to contextualize the changes in architecture within the broader scope of Indonesian history. Nor does this thesis intends to provide a strictly comparative study between Dutch colonial and indigenous Javanese building knowledge and practices. Rather, the discussions about traditional Javanese architecture is only introduced when needed to analyse the appropriation (indeed cross-appropriation) of such ideas and forms as a vital part of the policy of Dutch colonisation.

The investigation focuses on the period between 1901 and 1942. The primary reason for this decision is historical; formally Dutch colonization began in 1901 - after the Ethical Policy had been promulgated. However, as demonstrated through the text, this periodization framing works is to stage the focus of argumentation. Some events anticipated and even paved the groundwork for the 1901 colonization to happen and these are discussed in the thesis.

Secondly, there are no extensive discussions or debates to the status of technical knowledge, building practice and culture before 1901. During the period of time under examination, the establishment of Technische Hoogeschool in Bandung (present ITB) was the landmark of technical education and architectural practice in Indonesia. In fact, the establishment of architectural schools in Indonesia was done by the graduates of the school in Bandung. In 1942 the Japanese occupation of the Dutch East Indies (Indonesia) began. That marks another phase of foreign intervention, which is beyond the scope of this thesis.

The discussion relies upon Dutch accounts which constitute the primary references, and that inevitably sets up the narrative from the coloniser’s lens. Nevertheless, the intentions is not to diminish the multifaceted realities of the Dutch East Indies at the time. In fact, by exploring conditions from the colonial perspective, the larger aim is to evoke and analyse the complexities of the involvement of each of the key agencies, whether colonising or colonised. This premise also opens up
further discussions about other forces that partook in forming the social and political dynamics in the colony.

It is precisely the introduction to Javanese manuscript which aims to display this resilience of the Javanese. Hence, it is an attempt neither to make simply a comparison between the Dutch and the Javanese building practices nor to show contestation between the Dutch building practice and Javanese building culture. These manuscripts will work as evidence of cross-appropriation between the two distinct cultures. Albeit the knowledge in these traditional text could be traced back to the 14th century CE, their transcription into printed forms were a product of the 19th and 20th century CE. These printed forms show evidence about how the new technologies were utilized for the interest of the Dutch, but also by the Javanese.

In terms of existing scholarship about architecture in the wake of the colonisation of the Dutch East Indies, various significant studies can be mentioned. Probably the earliest is by Helen Ibbitson Jessup. Her MA Thesis at the Courtauld Institute of Art in 1975 examined the work of the architect Maclaine Pont, as will be seen a critical figure in the development of Dutch colonial architecture in the archipelago. Jessup expanded upon this study in her PhD dissertation at the same institution, completed in 1988. Albeit these two texts remain unpublished, Jessup wrote many other papers and essays on the subject. Other scholars who had also produced monographs and essays about Dutch colonial buildings and architects are, to name a few, Pauline van Rosmalen, Hugh O’ Neill, Joost Cote, C.J. Van Dullemen, B.F. van Leerdam, and G. De Vries, Cor Passchier, Huib Akihary, Obbe Norbruis, and D. Segaar-Howeler. Among these scholars, Pauline K. Van Roosmalen offers the most original take on the matter. Her doctoral thesis, titled ‘Ontwerpen Aan De Stad. Stedenbouw in Nederlands-Indië en Indonesie 1905-1950 [Designing the City: Urban Design in Dutch East Indies and Indonesia 1905-1950]’, documents the birth of the field of urban planning in the Dutch East Indies by following the ideas and projects of Thomas Karsten. Given the amount of scholarly writing on the life and works of these Dutch colonial architects, a detailed analysis of their biographies and buildings is outside the purpose of this study.
Instead, this thesis focuses upon an examination of the patterns of cross-appropriation between the Dutch colonial architects and local Javanese building knowledge and practices, thereby looking into how each side influenced and even modified the other’s conceptions about architecture. These questions will be addressed by tracing the paths of three agencies - Education, Practice, and Hygiene - through which Dutch governmental officials, architects, civil engineers, and other Dutch settlers participated in the processes that Hobsbawm described as ‘adaptation’ and ‘invention’.

Before looking at the effects of these historical events, this section of the Introduction will explain the underpinning theoretical framework for this doctoral thesis. As noted, the overall objective of this study is to examine the connection between colonisation and modernity in the case of architecture in the Dutch East Indies. In general, most of the colonisations plans devised by the Netherlands governement were intended to accumulate additional wealth for the metropole from the colony. Moreover, to achieve this cause, the imposition of a capitalist economy was the colonising ‘machine’ that was pursued through various forms of projecs and industrialisation.88 Throughout this study, I will thus be examining how the notions of ‘modern’ and of ‘modernity’ were instrumentalised in the interest of the colonisers, especially in this case regarding the dissemination of architectural knowledge and practice.

The texts that I have used to devise the theoretical framework for the thesis can be divided into two groups. The first group are those writings that seek to discuss the concepts of ‘modern’ and ‘modernity’ in terms of their intellectual complexity. Frederic Jameson’s *A Singular Modernity*, Hilde Heynen’s *Architecture and Modernity*,39 and Shmuel N. Eisenstadt’s edited book on *Multiple Modernities* are thus foundational references for elucidating that particular aspect. The second group of texts are however more empirically based, choosing to scrutinise how colonisers in different location imposed their ideas of ‘modern’ and ‘modernity’ on the subjugated peoples. In this regard, Georges Teyssott’s *A Topology of Everyday Constellation*, the edited book by Eric Hobsbawm and Terence Ranger on *The Invention of Tradition*, and James C. Scott’s *Seeing Like a State* were studied in order to examine how typology, tradition and knowledge could be deployed as effective authorising
instruments for establishing new systems of building knowledge and practice. Two works, relevant to specific contexts, proved extremely useful in elucidating parallels to colonialism in the Dutch East Indies: Jiat-Hwee Chang’s *A Genealogy of Tropical Architecture* in the case of Singapore, and Arindam Dhuta’s *The Bureaucracy of Beauty* in the case of India.

Below are some key terms that play a prominent role in the discourse of the thesis;

1. **Cross-appropriation:** The term is used to denote an exchange of practices and values either in a conscious or unconscious manner, and often as consequence of conflict between two, or more distinct, cultural systems.

2. **Imposition:** Paul Weathley in *Nagara and Commandery: Origins of the Southeast Asian Urban Tradition* introduces two concepts explaining urban history in Southeast Asia. The two concepts Urban Generation and Urban Imposition elaborate on a particular process that yields a specific urban characteristic. Urban Generation is a bottom-up process emerged voluntarily through the participation of all inhabitants. On the contrary, Urban Imposition is a top-down process in which a foreign system and culture is deployed as an enforcement to (re)-structure the existing societies. The term ‘imposition’ in this dissertation shares Weathley’s understanding, yet in consideration of the completely different context. The term ‘imposition’ here implies a foreign and unintended endeavour aimed to (re)-structure and transform pre-existing conditions into a specific type condition.

3. **Ingenieur:** Ingenieur is an academic title that was bestowed to a person who had engineering proficiency. In the early 20th century CE, architecture was considered as a branch of engineering. This played a crucial role in the thesis. Architecture understood primarily as technical knowledge by the Dutch architects informed approaches and methodologies for architectural practice in the Dutch East Indies and eventually established a Dutch building system in the colony.
4. Craftsman: In this study, the term ‘craftsman’ refers to a person who is considered a master in exercising traditional building culture & practice.

5. Mētis: The term ‘Mētis’ is used to suggest a different kind of operative knowledge practiced by the Javanese. Mētis in this sense is a collective knowledge preserved as a cultural tradition through generations and teachings. The concept of Mētis will be further elaborated upon later in this chapter.

One of the objectives of the thesis is to open discussions and further studies about architectural pedagogy and education. It can provide a shared ground for teachers and architects in Indonesia to collaborate through the understanding and reflection on the broader historical context of architectural education and practice in Indonesia and hence develop more informed and inclusive pedagogies.

The Notion of the ‘Modern’ in European Colonisation

Frederic Jameson in *A Singular Modernity* observes that the term ‘modern’, taken from the Latin word ‘Modernus’, means ‘now’ or ‘the time of the now’: this understanding was how Pope Gelasius I used it in the 5th century CE to distinguish the contemporary Christian Church from its older self.\(^{67}\) It seems to suggest, therefore, that the notion of ‘modern’ will always be associated with the idea of the ‘new’. Nonetheless, as Jameson states, the terms are not, in fact, identical: ‘... everything modern is necessarily new, while everything new is not necessarily modern’.\(^{68}\) Modern is a predefined collective condition decided by whoever happens to hold the reins of power at a given time. On the other hand, the notion of the ‘new’ is the result of a subjective state of mind in appreciating an unprecedented thing or value. Hence the ‘new’ is always the outcome of personal comprehension.

Hans Robert Jauss, in an essay on ‘Modernity and Literary Tradition’,\(^{69}\) asserts that the French noun form, *la modernité*, as well as the German noun, *die Moderne*, are far more recent words. As such, they tended to coined in those languages at a time when ‘our perception of the familiar historical world is separated from a past that is no longer
accessible to us without the meditation of historical knowledge. In this sense, we can comprehend ‘modern’ as an operation, and an effect that the notion of the ‘new’ might engender. Jameson argues that this mode of operation echoes Otto Jesperson’s concept of ‘shifters’ in linguistic theory. In Jesperson’s view, shifters are empty vehicles of ‘deixis’, by which he is referring to the context of what is being enunciated through words. Hence, the meaning and content of ‘deixis’ will always vary from speaker to speaker throughout time. Some examples of ‘deixis’ are the pronouns (I, me, you), the words of place (here, there), and the words of time (now, then).

There are two modes in which these shifters operate, this being a distinction that Jameson borrows from Jauss’s essay: ‘cyclical’ and ‘typological’. What ‘cyclical’ means is that it works as a recurring drive in those generations of societies that perceive an ‘intense collective self-consciousness about the identity and uniqueness of the period in question’ – this would include, for instance, significant historical moments like the Italian Renaissance in the mid-15th century or else the cultural revolution in Western countries during the 1960s. ‘Typological’ works differently, in a predetermined manner whereby people in a given nation and period feel themselves to be fulfilling or completing a moment or initiative from the past, or from somewhere else. In the case of the Dutch East Indies, the evangelising Christian agenda pursued by many of the Dutch settlers can be seen as displaying this ‘typological’ trend.

Jameson, however, criticises Jauss’s analysis, pointing out that these two modes actually merge into one another. To have any effect, the ‘cyclical’ need to impose a specific predetermined memory or imagery. Hence, even in itself, the ‘cyclical’ instrumentalises the ‘typological’. Jameson describes this condition as ‘a kind of Gestalt alternation between two forms of perception of the same object, the same moment in historical time’. Therefore, instead of comprehending the ‘cyclical’ and the ‘typological’ as two distinct modes of operation, they are instead two sides of the same process. The ‘cyclical’ constitutes, in essence, a perceptual organisation, being an awareness of the feeling of here being a radical break in history. The ‘typological’ emphasises rather the sense of a period or place being an echo of another period or place in the past.
Hilde Heynen, in her book on Architecture and Modernity, adds another layer of complexity to the discourse of ‘modern’ and ‘modernity’. She suggests that every time the concept of the ‘modern’ is used in an operative sense, there is a discriminatory bias. Octavio Paz, as quoted by Heynen, says that the root of this bias is because of the way that the terms ‘modern’ and ‘modernity’ are based upon the way that Western societies orders the lives of their populations, particularly in regard to ideas about time. Any notion of the ‘new’, as Jameson also points out, is understood as the consequence of ‘progress’. Furthermore, in this sense, the terms ‘progress’ becomes a linear and irreversible direction of movement that parallels the manner in which time is viewed by Western societies. The flip-side of this notion of the ‘modern’ is to be discriminative about other societies that have different, or no, concepts of ‘progress’. In pointing this out, it creates complexity in identifying a so-called shifter because there can be no singular view or definition of its form and operation.

In Heynen’s analysis, the role of the shifter is manifested clearly in the concept of modernity, given that the latter term is an indicator of the process of modernisation. Heynen thus defines modernity as a specific condition that presents itself as being different from the past and which seeks to point towards the future. Hence, in her words, modernity ‘involves a rupture with tradition and has a profound impact on ways of life and daily habits.’

While Jameson’s emphasis is on the effects of how the two shifters operate, Heynen is more interested in the ontological aspect of modernity. Borrowing Marshal Berman’s idea in All That is Solid Melts into the Air: The Experience of Modernity (1982), she argues that modernity operates in two modes, the first one being what she terms ‘Programmatic and Transitory’. The programmatic conception views modernity from a fixed perspective of the new, whereas the transitory regards modernity instead as a transient condition and hence as a continuous progression towards the future. Heynen’s second mode, ‘Pastoral and Counter-Pastoral’, places emphasis on human action. Here the pastoral conception views modernity as a constant struggle to achieve ‘progress’, while, on the contrary, the Counter-Pastoral embraces
modernity as being characterised by divisions and fragmentations that are irreconcilable.

However, neither Jameson nor Heynen addresses the problem of plurality within the concept of modern and modernity. At this point, Shmuel Eisenstadt’s edited volume on *Multiple Modernities* offers a helpful view. Eisenstadt views modernity as a cultural and social project defined by a specific transformative value that develops widespread in society. This specific value is the autonomous human agency propelling a situation where institutional domination is eradicated. As Max Weber asserts, quoted by Eisenstadt, ‘the threshold of modernity may be marked precisely at the moment when the unquestioned legitimacy of a divinely preordained social order begins its decline. Modernity emerges only when what had been seen as an unchanging cosmos cease to be taken for granted.’

Such transformation occurs anywhere; not only in the west. Eisenstadt argues that societies and states merely act as the major arena where agencies played by various agents take action. In this sense, Eisenstadt implies power symmetry in all occurring agencies. To this effect, different societies have their own process and experience of modernity and, therefore, the latter has to be measured by culturally specific parameters. Modernity, thus released from a Eurocentric bias, comes to be thought of as, a spatial-cultural construct historically precise.

The 1835 Education Reform that was carried out in India by the British colonial government is a good demonstration of Jameson’s idea of a shifter and Heynen’s conception of modernity. In a famous letter to the Governor-General William Bentick on 2nd February 1835, Thomas Macaulay’s ‘Minute’ argued that encouraging the learning of the English language among Indian people would bring great benefits for them, precisely because using English would help them to access the advancement of the modern, Western world. The main motive behind Macauley’s letter was to amend the terms of the 1815 East Indies Company Act, which had stated that the trading company was also responsible for supporting the Indian educational system. Macaulay criticised the way in which this support was being handled, arguing that the current system of education which emphasised Sanskrit-based learning would never be helpful in bringing modernisation in India.
He wrote:

‘I have never found one among them who could deny that a single shelf of a good European library was worth the whole native literature of India and Arabia. ... The Intrinsic superiority of the western literature is indeed fully admitted by those members of the committee who support the oriental plan of education.’

He continued to explain his assertion as follows:

‘I believe, no exaggeration to say, that all the historical information which has been collected from all the books written in the Sanskrit language is less valuable than what may be found in that most pastry abridgements used at preparatory schools in England.’

Macaulay believed that spending money to support Sanskrit education would offer no benefits to either the Indian people or the British colonisers. He declared that Sanskrit was a language of the past, whereas English was the language of the present. Furthermore, as such, only by learning English could people enter the gateway towards modernity. This predetermined, fundamentalist viewpoint epitomised the way in which colonisation utilised the notion of modernity for its own purposes, as Frederic Jameson also notes in A Singular Modernity. Macaulay’s ‘Minute’ was hence excellent demonstration of what Jameson was explaining when he said:

‘... what is encouraged is the illusion that the West has something no one else possesses - but which they ought to desire for themselves. That mysterious something can then be baptised “modernity”’

Furthermore, Thomas Macaulay felt that proliferation in English-language proficiency in India would support other British ventures there. ‘Maintaining local knowledge had no use in the “new” system of the economy’, declared Macaulay. Furthermore, this re-education programme would create an Indian middle class that would be able to moderate between the older vernacular and modern
knowledge – which again meant that, for him, there was simply no
need to continue education in the Sanskrit language. In this manner, the
colonial government would reduce its expenses and even offer the
chance of more profit by providing more English-language educational
programs. As he rather cynically observed:

‘This is proved by the fact that we are forced to
pay our Arabic and Sanskrit students while those who learn
English are willing to pay us.’

Unlike the case of British colonisation in India, the role
and agenda of the Netherlands in the Dutch East Indies was
primarily about commercial trading. Even though there was a
similar educational clause in the VOC’s charter, it was barely exercised.
As part of the general mission to evangelise for the Protestant
religion, through the 1617 States-General Affair [Staten-Generaal] the
Governor-General and governing councils of the archipelago were
bestowed with a requirement to establish a good educational system for
the local people. Reading scripture, singing psalms, and other skills that
were seen as befitting to be a good Protestant lay behind this provision.
Nonetheless, a clear similarity between the British and the Dutch
imperial policy was the determination to portray a distinction between
the past and the present. The British promoted the English language as
the indicator that would distinguish traditional Indian life and
civilisation from the new way of life under colonialism. Similarly, for the
Dutch colonisers, a campaign of evangelical Christianity would serve as a
‘new’ present to the indigenous people of the Dutch East Indies.

However, this supposed test of ‘progress’ is clearly inapplicable
for explaining modernity in colonial locations where there were two
distinct societies with two different concepts of modernity in the same
time and place, as was the case in most areas in Asia in the late-19th and
early-20th centuries. Asia had, after all, been a major destination for
European trading companies in the era of global exploration from the
15th century CE. Often in these new frontiers, the European traders
established trading ports and lived there for generations. In these
situations, Eisendstadt’s model is useful in devising a clearer and
more critical understanding of modernity, since the inevitable
interactions between these foreign traders and local people imply
a whole new set of questions about the concept – not least in terms of the implications for the production and dissemination of architectural knowledge, which is the subject of particular interest to this thesis. What might occur if two concepts of modernity co-existed at the same place? What kinds of interaction might happen as a result? Would it create another conception of modernity, or would one of the rival concepts be subsumed by the other?

**Typology and Reinventing Tradition.**

Building projects constituted one of the anchors in the European colonisation agenda, whether for the British Empire in India or for the Netherlands in the Dutch East Indies. The monumentality of buildings symbolised power and authority in the subjugated land. However, in colonialism, building is in fact a paradoxical entity. It is the most visible sign of changes under colonialism, yet at the same time it is also one of the things most vulnerable to change itself.

As a form of human shelter, a building must be adjusted to fit with the cultural constraints and social contexts of where it stands. This requirement for adaptability is thus the primary factor that forces the creation of a new type of built structure. However, what we term as a building ‘type’ is not merely a matter of a convention in formal design and constructional methods. A building type possesses and expresses a particular political value as well, although because this value is also subject to change throughout time, the fundamental concept of type is to be understood as a representation of ‘origin.’

The idea of ‘origin’ is often used to explain, if not to justify, the primacy of a subject or a condition. The idea of origin tends to work alongside the idea of purity. The closer a subject is to its origin, then the purer a subject is perceived to be. Therefore, the idea of ‘origin’ can also provide authority in proclaiming a certain level of civilisation or social development; in other words, it could be used to argue that a particular society, condition or object bears a higher priority, and thus had authority and dominance.

Georges Teyssot asserts that, in the Western tradition, the earlier
Classical and Neoclassical notions of ‘type’ were different from the way it was understood in the 19th century. He says that, in the past, type was based upon the embodiment of ideals traced through nature and time. Hence a type is the conclusion of an accumulated process that has shaped buildings over the years, and as such is a grounded process. However, during the 19th century CE the term ‘type’ was increasingly replaced by that of ‘typology’: an intellectually formulated conception of space, construction or programme that became a means to transform a given environment so that it complied with the predetermined definition.  

In this sense, typology was used as a common instrument in European colonisation. The coloniser in effect attempted to recreate a similar, if not even identical, built environment to that in their home country in the metropole. New buildings in the colonies were constructed in a similar style and similar materials, and European building practices were employed in making them. However, in the process of using the ready-made typology, it would also be somehow transformed. Different contexts and constraints might mean it was impossible to replicate a typology, such as because of the unavailability of materials, lack of compliant labour, or climatic and topographical conditions. This complex process of transformation would result in new types of building. Hence, typology existed in many forms, ranging from standardised design systems through to the influence of the practices of everyday life. It is useful, therefore to look further into the role that typology played in terms of the political dynamics and how it was appropriated by architects, builders and other designers.

While the origin of the idea of ‘type’ can be traced back to French writers like Julien-David Leroy and Antoine Chrysostome Quartremere de Quincy – who used it as an approach that allowed the introduction of Platonic ideals into architectural theory – the origin of ‘typology’ is to be found in 19th-century ethnography and criminology. What it meant then was that discussions about the origin of architecture globally were often intertwined with debates over civilisation and race, and indeed the discourse about the ‘Aryan’ contribution to the founding of architecture is one of the famous examples.

Teysott in his essay argues that the ‘Aryan’ legacy was seen then as not only in terms of their culture and civilisation, but also their racial
traits, which were supposed to be responsible for that race’s intellectual and biological characteristics. In such a racialised way of thinking, the belief of the origin of the archetype was extremely important – and as such, profoundly contributed to the idea of typology within the field of architecture. In his book on *Histoire de l’habitation humaine* [*History of Human Habitation*] (1875), Eugène-Emmanuel Viollet-le Duc argued that the very first houses were those of the ‘Aryans’ who had built walls and roofs, initially with logs and then stone.

In the mid-18th century CE, Abraham Hyacinthe Anquetil-Duperron, a French traveller, and William Jones, an English poet and jurist, were able to reveal affinities between the languages of Parsi (Farsi) and Sanskrit and Greek and Latin, which slowly helped to create a new genealogy for European nations. The work of Duperron and Jones enabled a 19th-century historian like Henri Martin to build an argument based on ‘the great Indo-European family’ of what he called Arya – with the latter being described as the ‘holy land’ and indeed the cradle for primitive architecture. Historians today might easily dismiss these fanciful inventions, but at the time this strictly racialised view of the world was commonplace.

The 19th-century CE myth of the ‘Aryan’ was being driven mainly by two countries, Germany and France. In Germany, Jacob Grimm was the prolific promoter of the idea of the ‘Indo-German’, or ‘Aryan’, which he elaborated most fervently in his book, *History of the German Language*. From this point onwards, the pursuit of primitive architecture took on political implications. The ‘Aryans’ were believed to be a nomadic race who roamed across the European continent, disseminating their culture and civilisation in every place they settled.

Even if we no longer believe in a racialised appreciation of architecture, there are powerful social and psychological conditioning of how we understand and appreciate buildings. Pierre Bourdieu, in *Distinction*, argues that the formal and informal education received from whichever social class a person comes from sets the ground for discrimination in their choice of taste and that this resonates with what Immanuel Kant had described in his theory about aesthetic judgement. According to Kant, interest or reason are the fundamental aspects that define good aesthetics, and because of this, less educated
people tend to appreciate art merely in terms of its perceived practicality.  

‘Non-figurative painting, or simply classical music, is disconcerting to working-class people, partly because they feel incapable of understanding what these things must signify, insofar as they are signed’, writes Bourdieu.  

Our background and our training preconfigure how we regard architecture, and this was just as much the case for Dutch settlers and indigenous people in the Dutch East Indies in the late-19th and early-20th centuries, conditioned as both were by the realities of European imperialism. There we hence bound to be a divergence in architectural values and expectations between Dutch settlers and indigenous people, but how should we conceive such differences?  

Amidst the various instruments and interventions that were used by colonising nations such as the Netherlands, it was buildings – and by extension, building practices – that were always the most vulnerable to cultural transformation due to their inherently collaborative nature. Building construction required technical knowledge and skills, as well as a sizeable number of labours. Within the context of colonisation, a discrepancy in perception, knowledge and abilities between the coloniser and the indigenous people was inevitable. As a consequence, architectural collaboration was never going to be a straightforward process.

Any cultural collaboration under colonialism will always be a site of appropriation, or cross-appropriation, between the two interacting but distinct cultures. Two possible outcomes could therefore be expected in terms of architectural collaboration in the Dutch East Indies. The first was the instrumentalisation of typology as a field of reference for standardising the perception, knowledge and skills of the subjugated people. The second possibility was the adoption of some architectural features by the other party, although this would not necessarily create a hybrid. Instead, more likely to happen is that the adopted features, taken from whichever side, will be used as a cover to hide the actual intention. Eric Hobsbawm defines such methods of cultural appropriation as ‘the inventing traditions’. By this, he means ‘a process of formalisation and ritualisation, characterised by reference to the past’. Hobsbawm further elaborates by noting that the inventing traditions instrumentalise a set of practices by adopting a rule, ritual or symbolic form to imply continuity with the past. In other words, the inventing tradition uses history as a
platform, a device, to insert what is in actuality a brand new practice. The Houses of Parliament in London is an excellent example of how this mode of appropriation works: although erected in the mid-19th century CE, its Gothic-Revival style design seeks to evoke the importance of that institution to the British national tradition.¹⁰⁴

The distinction between ‘genuine traditions’ and ‘inventing traditions’ is thus key to Hobsbawm’s analysis. A genuine tradition needs neither be revived nor invented since it is already integral to a society’s everyday practices. According to Hobsbawm, the main prompt for the invention of a tradition is when the old ways are no longer available or viable; they have lost their capacity to adapt to the current needs.¹⁰⁵ What determines the viability of a genuine tradition is custom, which Hobsbawm argues functions like the motor and flywheel of tradition. Furthermore, custom must be agile and adaptable to ever-changing situation conditions, since its character has to be invariant to distinguish what is a genuine tradition. In contrast, the invented tradition borrows formal paraphernalia and ritualised practices instead of being built upon a custom. Consequently, the invented tradition displays a more contradictory character and cannot vary or adapt.¹⁰⁶

However, not everything that is ritualised and formalistic is an invented tradition, which brings us to another point raised by Hobsbawm about the distinction between ‘tradition’ and ‘convention’ or ‘routine’. In Britain, for example, the Industrial Revolution invented another way to make goods in which an automatic procedure consisting of reflexive, repetitive actions becomes a labour habit. Although this might resemble the typical ritualisation of an invented tradition, Hobsbawm argues it is not so. Instead, the routine of the Industrial Revolution was established as a technical/practical aspect of workers’ lives, rather than an ideological aspect: thus whereas invented tradition should be seen as part of the ‘superstructure’, in Marxist terminology, the routine belongs to the economic ‘base’.¹⁰⁷ In other words, the pragmatism involved in practical routine or convention is one factor that is able to diminish the authority of invented tradition – and thus there is an inverse relationship between tradition and pragmatic routine or conventions. Hobsbawm asserts that ‘tradition’ shows its weakness when it can be justified pragmatically and that objects or practices only really become available
for symbolic and ritual use once they have lost their practical use. Hobsbawm’s work is important in understanding the ways in which invented tradition occurs, and also the resilience of genuine tradition. Yet, many questions remain. How, for instance, does an invented tradition challenge or disrupt the existing social structures in a given community? And most relevant for this study, what happens when a tradition is invented in a non-Western society, something that is not discussed by Hobsbawm?

Here we can turn to Seeing Like a State by James C. Scott, which seeks to investigate the connection between the ideology of societies that believe themselves to be a harbinger of modernity, and how this operates as an intervention into another country’s worldview. Scott terms this kind of doctrine as High-Modernist Ideology. In his definition, this stance is rooted in ‘self-confidence on the role of scientific and technical progress, the expansion of production, the growing satisfaction of human needs, the mastery of nature, and above all, the rational design of social order commensurate with the scientific understanding of natural laws.’ Hence, for Western nations, modernity is described comprehended as a belief system. Accordingly, in their everyday practices, citizens of these countries tend to try to demonstrate their literacy through knowledge and skills in science and technology.

A concomitant outcome at the governmental level is a belief in state-initiated social engineering, for instance, that carried out by colonial administrations over their subjugated peoples. According to Scott, this kind of social engineering is comprised of four elements:

1. A comprehensive administrative ordering of nature and society.
2. The widespread promotion of High-Modernist Ideology.
3. The use of authoritarian rule that is willing and able to use its full coercive power to bring the corresponding High-Modernist designs into being.
4. A defeated, prostrate civil society that is unable to resist these plans.

Scott, however, argues that this state-initiated social engineering is always deemed to fail. The main realisation that leads him to that
conclusion is that such operations, as formal schemes, are inherently parasitic upon more informal processes that they simply cannot create or maintain. Consequently, the inability of formal social engineering scheme to exert a complete grip on actual complex, informal conditions will result in what he terms ‘miniaturisation’. Thus, any state-forced rationalisation or epistemic imposition will only ever lead to a reduced attempt to capture and restructure the unplanned illegibility of informal processes through planned, discernible outcomes that do not change things that much. For instance, as opposed to the full recognition of a society, one will see the establishment of a more easily controlled micro-order through partial phenomena like model cities, model villages and model farms.

Two obvious questions arise: 1/ What is the fundamental distinction between a formal scheme enacted by a state and the informal processes that it is trying to change?; 2/ To what extent, or in what ways, does the ‘intervened’ informal situation that is ‘intervened’ still prevail at the end of a formal operation? According to Scott, both formal and informal worldviews in human societies seek to structure themselves through a system of measurement. In terms of informal processes, the measurement system works as a unifying device that associates all things into a coherent and integrated environment. Units of weights and measures used in various traditional community are one of Scott’s examples. The formal scheme works in a completely different manner. Its measurement system tries to compartmentalise things into smaller fractions. By doing so, everything becomes clear, neat, simple, and without dispute. Absolute truth seems to be attainable. Furthermore, in the hands of High-Modern Ideology, the concept of truth is conceived as part of the practical logic of labour productivity. Scott says that there are four instruments used to impose this formal logic of quantification: 1/ Grids; 2/ Family surnames; 3/ Language, and 4/ Organisation of information. A vivid expression of High-Modern Ideology is in the colonisation of larger parts of the world by European empires.

At the layer of knowledge formation and dissemination, the practices of High-Modern societies in terms of European colonisation can be understood as an epistemic imposition onto the subjugated peoples.
Figure 9.


Figure 10.

(Top-Left) Changi barrack block built around 1930.

(Top-Right) Panoramic view of the new pavilion hospital SGH (Singapore General Hospital) opened in 1926.

(Bottom) The new type of housing at Balestier by SIT (Singapore Improvement Trust).

Scott explains that what he terms ‘Episteme’, as the fundamental knowledge of a High-Modern state, is inherent in attempts to gain control of the seemingly illegible nature of indigenous knowledge and practice. ‘Techne’, as a manifestation of Episteme, is thus based on logical deduction and is demonstrated through precise and comprehensive hard-and-fast rules (i.e. not rules of thumb), principles and propositions. Techne tends to strive for generalisation and universality; accordingly, it is characterised by impersonal, often qualitative, precision and is concerned above all with explanation and verification.

On the other hand, indigenous knowledge and practice operate in an entirely different register. Scott uses the term ‘Mētis’, another concept taken from the ancient Greek, to define their nature. In the Odyssey, the eponymous hero, Odysseus, is frequently acknowledged to possess excellent Mētis that he uses to outwit many of his rivals. Scott thus defines Mētis as ‘the ability and experience necessary to influence the outcome – to improve the odds – in a particular instance’. He adds further to explain its characteristics:

1. Mētis cannot be simplified into deductive principles because the environments in which it is exercised are complex and non-repeatable (i.e. each occasion that it operates in has to be seen as a unique case).
2. Mētis is both knowledge and practice, together, and is demonstrated in procedures that require hand-eye coordination and the capacity to make appropriate adjustments as necessary.
3. Mētis lies ‘in the space between the realm of genius, to which no formula can apply, and the realm of codified knowledge, which can be learned by rote’.
4. The knowledge and practice of Mētis are always local.

Scott’s description of Mētis echoes in some ways Hobsbawm’s idea of custom, as discussed earlier, and also Richard Sennett’s definition of a craftsman. In Sennett’s view, craftsmanship is not just a skill but also a state of mind. Hence, the problem-solving skill and worldview of the craftsman are ingrained socially and intellectually, and so, in performing their tasks, craftsmen demonstrate ‘a constant interplay between tacit knowledge and self-conscious awareness; the tacit knowledge serving as
an anchor, the explicit awareness serving as critique and corrective.\textsuperscript{127} In this sense, the craftsman always conducts a dialogue between actual practices and ways of thinking, thus establishing a sustainable habit. Only by practicing these habits can the proper rhythm between problem-solving and problem-finding be achieved.\textsuperscript{128}

Nevertheless, this integrative nature of Mētis, or of the craftsman, creates its own vulnerability. Mētis can only be embraced and not learned as such. Scott explains that Mētis is only ever established through close observation and long experience. Consequently, it has no central doctrine; each practitioner entitled to exercise their own angle.\textsuperscript{129} Such a characteristic enables Mētis to be plastic, local and divergent. Yet at the same time, democratic dissemination of Mētis would be impossible. The personal nature of Mētis means it depends on a knack that might not be common to all citizens, and access to its knowledge is not always available.\textsuperscript{130} Consequently, in a situation in which quantification is the core value, such as in a colony such as the Dutch East Indies, Mētis encounters great challenges if it hopes to prevail.

This discussion about the resilience of Mētis towards epistemic imposition by colonisers likewise leads us back to the other main group of reference sources discussed earlier, i.e. the more empirical studies of European colonisation – and in particular Arindam Dutta’s \textit{The Bureaucracy of Beauty: Design in the Age of its Global Reproducibility}\textsuperscript{131} and Jiat-Hwee Chiang’s \textit{A Genealogy of Tropical Architecture: Colonial Networks, Nature and Technoscience}.\textsuperscript{132}

Chang discusses the profound influence of building technology that was introduced to Singapore by British colonial architects, especially that related to climate control and hygiene, in the formation of new building typologies. This advancement of building technology under the pursuit of ‘tropicality’ became in effect the identity of modern Singaporean architecture. Dutta presents his analysis in a more critical tone, attacking the consequences of British colonisation on art and design education in India. He implies that the design education curriculum and pedagogy that was imposed was due to the inability of the British colonisers to comprehend phenomena and ideas beyond their usual conventions and practices. Consequently, argues Dutta, the British government established a standardized education programme in India
precisely to displace any concepts that lay outside the British system of thought. Having sketched out the key differences, it is worth now examining these two main bodies of reference texts in a bit more detail.

In the book by Dutta,\textsuperscript{133} he recounts the various methods used by colonisers in standardising technical knowledge and skill in the British possessions. These include the intervention of the Department of Science and Art (DSA), a British governmental unit set up to promote education in art, science, technology and design across the United Kingdom and lasting from 1853–99. In actuality, its main task became to manage the enormous number of various artefacts that the British government was steadily acquiring from the colonies. To achieve its documentation and archiving agenda, standardisation of knowledge and practice was required.\textsuperscript{134} Therefore, by the late-19\textsuperscript{th} century, DSA was encouraging one particular curriculum and pedagogic model for art and design education in Britain and also its empire.\textsuperscript{135}

As mentioned, Dutta argues that despite the DSA’s claims of efficiency, its calls for a standardised design education was intended as an instrument of intervention that would displace the unfamiliar complexity of these ‘foreign’ artefacts. For instance, many works of calligraphy and Arabic ornamentation defy the usual Western, Cartesian conception of how to layout a page, meaning that even which was the top or the bottom of an artwork becomes ambiguous. Consequently, instead of conducting a proper and thorough culturally specific examination of the concepts and principles of these artworks, the DSA employed a method of analysis based on Cartesian geometry as a way to reduce and rationalise the myriad cultural interpretations (Fig. 9).\textsuperscript{136}

By using Cartesian geometry as the backbone of its art and design curriculum, DSA could overcome two challenges concurrently: 1/ it negated the cultural idiosyncracies of the artworks in question; 2/ it limited the number of specialist types of labour required to understand the artworks. Western-style drawings became the direct tool to standardise the documentation and archiving processes. Moreover, henceforth, this principle became also the foundation for the flourishing vocational education initiative from the late-19\textsuperscript{th} century in Britain and its far-flung colonies.
A separate kind of colonial operation was where a new typology was established through a process of a cross-appropriation that took place during the colonisation process. Jiat-Hwee Chiang, in his book, concentrates on the so-called ‘Tropical Architecture’ in Singapore created as a reaction by British colonial architects towards the local climatic and cultural conditions on the island. Indeed, Chang argues that the intervention by the colonial administration in Singapore into matters of building practice was an endeavour to establish a specific style suitable for Britain’s tropical colonies. The first of these architectural experiments in Singapore was undertaken by George Drumgoole Coleman in the mid-19th century; his work was later described by T.H.H. Hancock, a Singapore-based architect in the early-20th century, as being in pursuit of a ‘Tropical Colonial Style’:

‘Coleman and his immediate successor skilfully adapted the Palladian manner to suit the tropics, These early architects, skilled in classical proportions, developed a classic colonial idiom with solidity of the Doric order, with deep and wide Verandas and hooded openings for shade, single room thickness for through ventilation and louvred windows to give light, yet reducing glare, and for protection from sudden heavy rainstorms.’  

Chang says that this pursuit engendered three new building types. The first to be experimented with were military barracks, a simple enough programme. The new kind of design for these military barracks aimed primarily to mitigate Singapore’s extreme humidity by making the buildings more porous. This was achieved by large, extensive verandas around the perimeter and high ceilings in the interior spaces. The second new type of building was the low pavilion, after a disease pandemic in Singapore forced the colonial architects to incorporate hygiene as a more prominent aspect of hospital design. Such unfavourable events thus brought the awareness that outdoor spaces needed to be integral with interior rooms, and hence the landscaping became an inseparable part of building design. The third type was in fact a further development of the pavilion type, once the idea of incorporating hygiene into hospital design was subsequently also
applied in new housing schemes in Singapore (Fig 10).  

In this way, the notion of ‘tropicality’ became the crux of architecture discourse in colonial Singapore, and at the same time, it began to take on a political motivation linked to the demands for urban development. In 1959, Kee Yeap, chair of the Department of Architecture and Building in the National University of Singapore, set out tropicality as the vision for the school. Henceforth, designing for Tropical Modernism became the model that defined the identity of Singaporean architecture.

From the writings of Dutta and Chang, it is apparent that the effects of colonisation went far beyond territorial occupation. Rather, it created a wide-ranging framework to mobilise ideas, knowledge, political ambitions and economic gain for the metropole. In relation to these socio-economic pressures, the DSA’s endeavours toward standardisation lay in parallel with the spirit of the 19th-century Industrial Revolution, as standardisation offered the means for a productive task to be divided into smaller components on which more rapid work could be completed in a shorter time. Yet this switch towards a more rationalised economic universe triggered counter-reactions in Britain and in its colonies, because of its seeming newness. As Adrian Forty observes:

> ‘The success of capitalism has always depended upon its capacity to innovate and to sell new products. Yet, paradoxically, most societies in which capitalism has taken hold have expressed resistance to the newness of things. This newness was evident in 18th century CE England as it is in developing countries today.’

Capitalism and production are thus two sides of the same coin. And this relationship makes what happened in the 19th century CE, first in Britain and then across Europe, rather different from production systems in previous eras. The compartmentalisation of works had been around since the start of the 18th century CE; according to Forty, from 1730 if not earlier, potters in England had used such a system to distribute the labour tasks. The typical mid-eighteenth century pottery manufacturer had a number of workshops in which each was engaged in a particular task such as throwing or handling or making glaze and slip. One of the successful examples was Whieldon’s Pottery, whereby the 1750s the work
was being distributed into seven different tasks.144

However, although it seemed similar on the surface, the division-of-labour system in Britain in the late-19th century distribution system was, in fact different, relying on precision and accuracy to increase the production rate. Forty notes that in the 18th-century pottery workshop, workers could make minor variations within the scope of their work if they felt it necessary.145 Such a situation was simply not allowed happen in the large, standardised factories of 19th-century Britain.

Mechanised manufacture propelled a huge surge in industrial production that underpinned a whole new socio-economic system, labelled by Karl Marx as ‘Capitalism’. In his masterwork, *Das Kapital* [Capital] (1867–83), Marx observed that there were three stages of transition before pre-capitalist societies embraced the capitalist system. The first phase was the simple cooperation of workers in selling their goods collectively or sharing their workspace. In the second stage, the diversification and distribution of tasks appear, with distinct groups of craftsmen and labourers assigned to do a specific job under the direction of a single overseer or master. The last stage, representing the advent of Capitalism, came with the establishment of the factory system.146

Also apparent to Karl Marx was that Capitalism was not just a socio-economic model that had now rooted itself in European countries such as Britain; instead it involved a world economic system in which the colonies of the European empires were integral parts of an exploitative mode of production, not just for their raw materials but also their cheap labour supplies. This reality was as true of the policies of the Netherlands towards the Dutch East Indies as it was of any colony at the time. Hence the colonisation of the archipelago has to be seen as directly linked to this global spread of the Capitalist system. The Dutch settlers who greatly increased in number in the colony after the 1870 Agrarian Law and then the 1901 Ethical Policy brought with them the standards and values of Capitalism to the colony. Their pursuit of new building typologies and the standardisation of building knowledge and practice were implemented through education and industry and labour, as undertaken by agencies such as the colonial government and Dutch architects and entrepreneurs who had emigrated to the Dutch East Indies.
The underlying economic agenda of Dutch colonisation, therefore, determined the pace of these interventions into the architecture of the Dutch East Indies. The three stages of transformation towards the adoption of Capitalist manufacturing, as set out by Karl Marx, occurred swiftly in the colony after 1870, especially in terms of industrial production. The subsequent arrival of many Dutch architects at the beginning of the 20th century CE thus served to expand this transformation into the field of building knowledge and practice, which is the subject of this doctoral thesis.

Thesis Structure

The discussion aims to reveal and at the same time scrutinize the three agencies; Education, Practice, and Hygiene in the epistemic imposition. To this aim, the chapter 2, 3, and 4 are not in chronological order. Instead, each chapter seeks to examine the conditions and the ways in which the three agencies partook of the epistemic imposition.

Three specific interventions constitute the subjects for the main chapters. The first one, ‘Migration of Technical Knowledge’ (Chapter 2), deals with the founding of the technical schools in the Dutch East Indies in which standardised Western methods and patterns of building labour were introduced. Here the main agency consisted in formal institutions such as governmental departments, Dutch missionaries, or lodges. The second, ‘Migration of Architectural Discourse’ (Chapter 3), analyses the introduction through scholarly debates and writings of a concept of ‘architecture’ founded on an entirely Western definition of building practices, with the key agents, in that case, being architects and scholars. The third aspect, ‘Migration of Domestic Space’ (Chapter 4), looks at the inception of the concept of healthy domestic space, with Dutch women this time as the main actors.

Chapter One: Building the Fictional Land

This chapter depicts the situation in the Dutch East Indies before the pronouncement of the 1901 Ethical Policy, noting for instance the
ways in which literary works, colonial exhibitions and touristic visits became important aspects within the Dutch colonial agenda. During the 19th century CE the Javanese people also underwent a dramatic shift in their social and political sphere. Following the Java War, the indigenous aristocracy was excluded from any political role, and this unexpectedly triggered an upsurge in Javanese literary appreciation. Aristocrats in the Javanese courts turned their hands to writing new forms of literature, and also during this period, traditional oral literature and scholarly knowledge were transcribed into compendious manuscripts.

This series of events represented the first attempt by Dutch settlers and their colonial government to comprehend the unfamiliar phenomenon of the Dutch East Indies. Colonial exhibitions and the burgeoning printing industry thus staged a close encounter between the metropole in the Netherlands and the subjugated indigenous people in the archipelago. Hence, it can also be seen as the first tense encounter between the (Dutch) Episteme and the (Javanese) Mētis.

Chapter Two: Migration of Technical Knowledge

Taking a different approach, this chapter elaborates on the colonial endeavours to establish and disseminate technical knowledge and skills – including those related to architecture – in the Dutch East Indies, mainly through the opening of technical/craft schools and the standardising of pedagogic practices. These initiatives exposed Javanese people to another type of knowledge and skill for building practice. At the same time, the Dutch settlers and their colonial government were only to aware that there were too few of these schools to entirely transform Javanese building practice, and so a compromise situation arose.

In this chapter, I will therefore argue that the opening of various educational institutions was a form of typological intervention by the Dutch colonisers to disrupt local technical knowledge and practices. It introduced ideas about standardization, technology, and science-based thinking as part of a policy of turning Javanese people into skilled labourers for colonial industries, including
architecture. Hence, the educational institutions were utilized as a mass-instrument for an epistemic imposition by the Netherlands onto the Dutch East Indies.

Chapter Three: Migration of Architectural Discourse

This chapter introduces another mode of establishment and dissemination in which the discussion of building knowledge and practices became public, often contentious, discourse. Traditionally among Javanese people, building knowledge and practices were only discussed by builders; it was not general knowledge. Dutch colonialism thus yielded two changes. Firstly, the pursuit of what some termed ‘Indies Architecture’ became the initial trigger for acts of appropriation that enabled broader exposure to traditional Javanese culture/architecture among Dutch and other European settlers. Secondly, this exposure also influenced the higher-rank, elite Javanese class who could understand and speak Dutch to modify their buildings, especially from a technological viewpoint.

Unlike the previous chapter, in which an epistemic imposition was enacted through educational institutions, here the imposition was undertaken by Dutch colonial architects through their projects and debates. Hence, the typological intervention was less direct. These architects instead imposed their view and practices through quasi-scientific analysis and discourse. Therefore, we can see that here the tension between the (Dutch) Episteme and the (Javanese) Mêtis was dynamic, in the sense that colonial architects did not seek to reject or displace Javanese building knowledge and practices – but instead attempted to appropriate it.

Chapter Four: Migration of Domestic Space

This chapter talks about the most impactful of the three ‘migrations’ because of its essentially pragmatic nature. Establishing a household in the Dutch Easts Indies by ordinary settlers was by no means easy, and as such, the aim of this group was to create a home where life would be comfortable and hygienic. In such a situation, it was Dutch
women who played a crucial role since they were in charge of domestic spaces – hence they would do whatever was necessary to build a ‘proper’ family home. Due to its pragmatic nature, Dutch domestic spaces possessed the vital characteristic of adaptability, in that it was able to appropriate any features (colonial or indigenous) for the sake of its primary objective, which was to create a thoroughly ‘Dutch’ home in the very different climatic and cultural conditions of the Dutch East Indies.

In this manner, domestic space diminished the otherwise totalitarian character of typological interventions by the Dutch settlers and their colonial government towards Javanese building knowledge and practices. Instead, the epistemic imposition was better understood as a tactical and pragmatic response to unfamiliar contexts and constraints.

The concluding section of the thesis, sub-titled ‘The Resilience of Métis, revisits the main research questions to describe the contestation over modernity in relation to architecture in the Dutch East Indies. The argument is that in the process of instilling ideas such as ‘modern’ and ‘modernity’, as part of the expansion of the Capitalist socio-economic system, the Netherlands embarked on various operations to impose their way of seeing – as an epistemic imposition. Nonetheless, this imposition was not without challenges and was not entirely successful. Contestation was hence a manifestation of the ongoing tension between the Episteme and the Métis. Hence, since it operated in a different mode, Javanese building practice proved remarkably resilient. Instead of giving birth to a hybrid, processes of cross-appropriation created a mutation of building knowledge and practices for both Dutch colonial architects and local builders versed in more traditional ways. To start to flesh out the details of this story, the next chapter will set the scene in the Dutch East Indies leading up to the transformative pronouncement in 1901 of the so-called Ethical Policy for the colony.
Notes

1 The phrase ‘modern building practices’ in this sentence refers to those aspects of building knowledge and skills that were disseminated and exercised by formal institutions and thus following regulated practice. Hence, in this context, the phrase does not imply that prior the 1901 Ethical Policy there were no ‘modern building practices’.


11 Vlekke, Nusantara: Sejarah Indonesia, 121-2.

12 Ibid., 175.

13 Ibid., 132.

14 Jan Pieterzoon Coen came to the Indies for the first time in 1607 as traders. Ibid., 149.

15 A compilation of letters and reports of Jan Pieterzoon Coen during his time in the Dutch East Indies was published by H.T. Colenbrander. This work was entitled Jan Pieterzoon Coen, Bescheiden omtrent zijn bedrijf in Indië [Records about his Company in the Indies] and was comprised of 6 volumes that were published in The Hague between 1919–23. His proposition for a unified trading region, Disconsolers aen de E. Heren Bewinthebberen Touscheerende Den Nederlandsch Indischen Staat, was also published by Colenbrander in 1934 as: Jan Pieterszoon Coen, Jan Pietersz. Coen, Bescheiden Omtrent Zijn Bedrijf in Indië., ed. H.T. Colenbrander, Colliaas, W. Philippus, vol. 7 (The Hague: ‘S-Gravenhage M. Nijhoff, 1919).

16 Vlekke, Nusantara: Sejarah Indonesia, 148.

17 Ibid., 150.

18 Pieter Both, Gerard Reynst and Laurens Reaal were the Governors-General of the Dutch East Indies from 1609–14, 1614–16, and 1616–18 respectively. D.P. Henige, Colonial Governors from the Fifteenth Century to the Present: A Comprehensive List (University of Wisconsin Press, 1970), 220.

19 Vlekke, Nusantara: Sejarah Indonesia, 153-4.

20 Despite the many interventions of the VOC during their trading ventures in the Dutch East Indies, their actions were limited to business interests. Hence, the relationship between European traders in the VOC and the indigenous people was highly opportunistic on both sides. Hostile or peaceful situations were determined by the inter-relationships at a particular time. For instance, the 1749 treaty between the VOC and the main Javanese ruler set both parties as allies. The
Javanese justified this moment in a mid-18th century text called Serat Baron Sakendher (The Book of Baron Sakendher), which depicted the Dutch as the legitimate heirs of the Sovereignty of Pajaran in West Java – and therefore, as important natural allies of the Central Javanese Kings, albeit not a sovereign power in the Central Java region. In other words, this text aimed to underscore that although Dutch held power in Java's western region and it coastal areas, their authority did not extend to the interior of Central Java. See Ricklefs, _A History of Modern Indonesia_, C. 1300 to the Present, 106.

21 The newspaper only ran for half-year because of the advent of the British Interregnum. Nobuto Yamamoto, _Censorship in Colonial Indonesia, 1901-1942_ (Leiden: Brill, 2019), 22.

22 Ricklefs, _A History of Modern Indonesia, C. 1300 to the Present_, 109-10; See also Vlekke, _Nusantara: Sejarah Indonesia_, 295-6.


25 Ricklefs, _A History of Modern Indonesia, C. 1300 to the Present_, 112-3; Vlekke, _Nusantara: Sejarah Indonesia_, 321-2.


27 Johannes van den Bosch, _Verhandeling over De Mogelijkheid, De Beste Wijze Van Invoering, en De Belangrijke Voordeelen Eender Algemeene Armen-Inrigting in het Rijk Der Nederlanden, Door het Vestigen Eener Landbouwende Kolonie in Desselfs Noordelijk Gedeelte (The Best Mode of Implementation, and the Important Advantages of General Arms Establishment in the Empire of the Netherlands, by the Establishment of a Farming Colony in its Northern Section) _ (Amsterdam: Johannes van der Heij, 1818).


30 Pramoedya Ananta Toer, “Best Story; the Book That Killed Colonialism,” _New York Times_.

31 Multatuli, _Max Havelaar, or, the Coffee Auctions of a Dutch Trading Company_, ix.

32 Toer, “Best Story; the Book That Killed Colonialism”.

33 The system was abolished gradually; started with the least profitable crops, pepper (abolished in 1862), Clove and Nutmeg (abolished in 1864), Indigo, Tea and Cinnamon (abolished in 1865), Tobacco (abolished in 1866) and the last ones were coffee and sugar (abolished in 1870). Ricklefs, _A History of Modern Indonesia, C. 1300 to the Present_.

34 Yamamoto, _Censorship in Colonial Indonesia, 1901-1942_, 22-3.

35 These private newspapers were usually owned by Dutch or Eurasian publishers, with Chinese publishers later participating in the industry from 1885. The Javanese language Bromartani was owned and managed by a European, C.F. Winters Senior and his son, Gustaf Winters. Kabar Bahasa Melaijoe was owned by E. Fuhrri. Soerat Chabar Betawi was owned by Lange & Company, and Selompret Melaijoe and Semarangsch Courant were owned by G.C.T. van Dorp & Co. Ibid., 27.

36 Ibid., 23.
37 Ibid., 27.

38 Wolter Robert Van Hoëvell (1812–79) was a Dutch minister and politician, as well as a friend of Eduard Douwes Dekker, the writer of Max Havelaar under the pseudonym of Multatuli. Van Hoëvell served as chairman of the Batavian Society of Arts and Sciences (Bataviaasch Genootschap der Kunsten en Wetenschappen). He edited and translated a 14th-century poem written in Jawi letters, called the Syair Bidasari. Because of his strong disagreements with the Dutch colonial government, he resigned from his ministerial post and returned to the Netherlands, where he was elected to the House of Representatives for the Liberal Party.


40 The Batavian Revolution in May 1848 in Batavia was a probably inspired by the February 1848 protests in Paris, albeit in its case addressing social discrimination imposed by the Dutch colonial government.

41 The Royal Academy, which lasted from 1842-64, was the initial institution which later became the Polytechnic School and then the Technical University in Delft.


45 Ibid., 212.

46 Ibid., 214.

47 Ibid., 235.

48 Ibid., 229.


52 Ibid.


54 Ibid., 7.


57 The notion of the ‘modern’ was always accompanied by the capitalistic agenda of the colonisers. The underpinning factors according to Frederic Jameson could be summed up as: (1) the industrialisation of all traditional peasantries, and (2) the colonisation and commercialisation of the unconscious or...mass culture


62 Eric Hobsbawm and Terence Ranger, The Invention of Tradition.


67 Jameson, A Singular Modernity 17.

68 Ibid., 17-8.


70 The earliest use of the French term, La modernité, was in 1847 in Chateaubriand’s book, Memoires d’ outre-tombe. In Germany, Eugen Wolff popularized die Moderne in his Princip der Moderne (Principle of the Modern) during a lecture to the Berlin literary society, Durch, in 1886. Ibid., 329.


73 A Description from Friderich Ohly was used used by Jauss to define typological thinking: ‘Typological interpretation is an act of appropriating the old with the power of the new. It preserves the past in the elation of the present’. Ibid., 336.

74 Jameson, A Singular Modernity 20.

75 Ibid., 20-1.

76 Ibid., 21.


78 Ibid., 9.

79 Ibid., 2.

80 Ibid., 3.

81 Marshall Berman eloquently describes ‘modernity’ as a body of experience as follows: ‘To be modern is to find ourself in an environment that promises us adventure, power, joy, growth, transformation of ourselves and the world – and, at the same time, it threatens to destroy everything we have, everything we know, everything we are.’ See Marshall Berman, All That Is Solid Melts into Air: The Experience of Modernity (New York:
82 Eisenstadt, “Multiple Modernities.”
83 Ibid., 4.
84 Macaulay, “Minute,” 111.
85 Ibid.
86 Ibid.
87 Jameson, A Singular Modernity
88 Macaulay, “Minute,” 112.
89 Jameson, A Singular Modernity 8.
92 Article 34: ‘De Gouverneur en Raden van Indie zullen ook overal op de voortplanting van de Christelijke religie, opbouwing van goede scholen en andere zaken daartoe nodig, alle behoorlijke ordre stellen’ (‘For the propagation of Christian religion, the Governor and Councils of the Indies shall be building schools, and other matters necessary to that end everywhere, all due orders.”) Ibid.
94 Teyssot, A Topology of Everyday Constellations, 69.
95 Ibid., 31.
96 Ibid., 32.
98 Teyssot, A Topology of Everyday Constellations, 32-3.
100 Ibid., 41.
101 Ibid., 43.
102 Eric Hobsbawm and Terrence Ranger, The Invention of Tradition.
103 Ibid., 3.
104 Ibid., 1.
105 Ibid., 7.
106 Ibid., 1-2.
107 Ibid., 3.
108 Ibid.
109 Scott, Seeing Like a State.
110 Ibid., 4.
111 The term ‘High Modernism’ is coined in David Harvey, The Condition of Post-Modernity: An Enquiry into the Origins of Social Change (Oxford: Basil Blackwell, 1989). Harvey introduces key characters of this belief of which the belief in linear progress, absolute truths, and rational planning of ideal social orders. See
In the practice of colonialism, this set of quantifying instruments is manifested through cartography, surveys and museums. Benedict Anderson asserts that the population census, the geographical map, and the public museum are effective in reconfiguring the social situation of a colony in the interests of the colonial government. See Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism*, revised ed. (New York: Verso, 2016), 167.

In his book, Scott uses the terms ‘Episteme’ and ‘Techne’ almost interchangeably, with no clear distinction between them. Throughout, Scott implies that Episteme is the principal framework for thinking, which seeks rational explanation and verification, whereas Techne is the practical manifestation of Episteme in everyday life. Ibid., 319–20.

The English translation of Mētis is ‘cunning’ or ‘cunning intelligence’. However, this translation fails to grasp the real essence of the concept. Ibid., 312.


One of the Dutta’s remarks is that this project of replicating and documenting artifacts engendered entanglement in the ethical and moral dimension, such as the issues of copyright and originality.


Chang, *A Genealogy of Tropical Architecture*.


One of the Dutta’s remarks is that this project of replicating and documenting artifacts engendered entanglement in the ethical and moral dimension, such as the issues of copyright and originality.
141 Ibid., 203.
143 Ibid., 32.
144 Ibid., 18.
145 Ibid., 33.
146 Ibid., 43-4.
‘Eiffeltoren van Bamboe (Eiffel Tower of Bamboo)’, Tasikmalaya in 1898. Designed by Gedipl Architect. Source: KITLV.
The last significant event supporting the fictional land was the promulgation of the Agrarian law. The new law opened the archipelago to private investments. It allowed foreigners to lease the land from the government for up to seventy-five years or directly from indigenous holders for maximum periods of between five and twenty years. Consequently, private estate agriculture could also be developed not only in Java but also in other islands. This policy brought a new model of the economy. It was a significant pivot for private enterprises in the Dutch East Indies. According to Ricklefs, in 1860, the value of all exports from private and governments combined was roughly equal. By 1885, the private exports were ten times than that of the government.¹

Concomitantly, the Suez Canal was opened on 17th November 1869. The canal reduced the travel duration to reach the Dutch East Indies significantly. It encouraged private development due to much more efficient and effective communication with Europe. The agrarian law and the opening of Suez Canal set a new beginning of the Dutch occupation in the Indies. The effect could be indicated by the increasing numbers of European, not only the Dutch, who lived there. Ricklefs noted that in 1852 there was only 17,285 Europeans in Java, but it increased almost four times in just 48 years. By 1900 the population of European in Java was 62,477 people.²

The year 1870 was a tense time for the Netherlands and the Dutch East Indies. A proliferation of protests by the Dutch of Liberal Party in the former forced the Dutch colonial government to revisit its policies. Consequently, a paradigm shift occurred among the Dutch settlers in terms of their attitude to colonising the archipelago. The initial step was the 1870 Agrarian Act, although this did not in the event mitigate the problems being caused by the worsening state of the colony’s cultivation system. The law introduced a new economic model that stopped the previous practice of trading with indigenous people for agricultural produce; instead, the new policy placed the Dutch colonial government...
not as a trader but as the estate manager/owner for all of the land. Henceforth, the archipelago was opened up to European investors to come over and establish their enterprises. On the other side, after the ending of the Java War in 1830, and defeated, the courts of local Javanese rulers shifted their attention to cultural matters than political contestation with the Dutch settlers. Endeavours to revive older traditions also began to flourish among the Javanese aristocracy, which in turn engendered a new ‘golden age’ of Javanese literature.

These opposing aims engendered a series of events on both sides that was to lead to a bitter ‘cultural collision’ between the Dutch colonists and the Javanese people at the beginning of the 20th century. The liberal economics of the Agrarian Law required more investors to settle in the Dutch East Indies, and hence the government back in the Netherlands sought to present the archipelago as an attractive, liveable and profitable place. Literature, tourism and exhibitions about the Dutch East Indies began to flourish, creating fictional imagery for the colony: The Indies as a spectacle. Interestingly, the local printing industry, which was crucial for the Dutch agenda to attract settlers to the archipelago, also played a key part in revitalising Javanese culture. During the last decades of the 19th century CE, the Javanese people began to transcribe their longstanding oral knowledge and customs into written form. This shift led to an unprecedented exposure of Javanese cultural knowledge, not only to the indigenous population but also to the Europeans.

This chapter aims to discuss the endeavours by both parties before an even more significant piece of legislation, the 1901 Ethical Policy, which albeit unintentionally created the cultural clash between coloniser and colonised. Elaboration is essential to comprehend fully the effects of 1901 Ethical Policy in the specific field of building practice in the Dutch East Indies. In this introductory chapter, I will argue that in this transitional period, both of the parties – Dutch settlers and Javanese people – used similar methods to reshape their political directions and cultural identities. Both parties instrumentalised a range of media (notably literature and exhibitions) to construct a ‘new’ image that served their political interests.

The first part of this chapter will address these following questions to help understand the context. Was the economic performance of the
Building A Fictional Land

Dutch East Indies the only driving factor in attracting new colonists? Or were there other factors that brought Dutch settlers and others from Europe to the archipelago? And if so, how did such factors operate in staging this dramatic mobilisation?

In the second part of the chapter, the focus will shift to the main island, Java, to discuss its socio-economic situation and cultural dynamics at the turn of the twentieth century. Here the discussion will ask the following questions: How did the advent of European colonial industries contribute to the revitalisation of Javanese traditional culture? To what extent was Javanese building practice at this time still part of the practices of Javanese traditional culture? What was the effect of this major change in the mode of knowledge/skill dissemination – moving from older oral knowledge to a written culture – on architectural ideas and debates in the Dutch East Indies?

The chapter hence comprises two sections, with the initial part discussing how colonial literature, tourism and exhibitions played their parts in bringing settlers to the Dutch East Indies. It will look at the flourishing role for those works of literature that used the Malay archipelago as a fictional construct and then at the substantial impact of the Internationale Koloniale en Uitvoerhandel Tentoonstelling [International Colonial and Export Trade Exhibition], held in 1883 in Amsterdam, on curiosity about the archipelago, not least in terms of political and scholarly discussions about its indigenous cultures. The second part looks at the late-19th century revitalisation of Javanese culture, and how this exposure of traditional building practices influenced some Dutch architects and scholars deeply. This will be explored in terms of the role of the printing/publishing industry in reinventing the Javanese cultural movement after the Java War. Javanese courts began to produce what many considered to be literary masterpieces while at the same time were compiling traditional stories in written/printed form. Traditional building practice was were a crucial part of the older knowledge/skills transcribed into the new media. This shift from oral knowledge to writing was profound, especially in increasing accessibility to knowledge/skills that in the past were only own among Java’s elite circles. Also, important to investigate is how these Javanese building practices affected everyday housebuilding practices in the
archipelago at the end of the 19th century CE.

To conclude, the correlation of these seemingly unrelated strands will be analysed in how both the Dutch settlers and the Javanese people dealt with ostensibly similar domestic political matters in the period. What is perhaps unexpected is that these events and phenomena paved the way for a range of different cross-appropriations between coloniser and colonised from the beginning of the 20th century CE.

Context 1: Constructing a Fictional Land

On 1st October 1921, the Dutch writer Louis Couperus and his wife Elisabeth Couperus-Baud embarked on a long journey to Sumatra, Java, and Bali. It was his third visit to the archipelago, the first having been when he was raised (although not born) there. Given that Couperus wrote regularly for The Hague Mail, the story of their journey became popular back in the Netherlands. He made various comments ranging from things that were related to his childhood in Batavia through to a more controversial criticism of the unthinking use of metal sheets as the roofing material for traditional Minang Kabau house. Regardless of what Couperus was saying, there was always exotic and adventurous nuance in his stories which helped to entice more Dutch people to also take a voyage to the Dutch East Indies (Fig. 1).

Couperus’ voyage was but one example of ‘grand-tour’ trips that were undertaken by the Dutch visitors in the late-19th and early-20th century CE. At first, these trips were organised by various tourist agencies which aggressively promoted trips to the archipelago. In 1908, these tourist agencies were merged into one entity, the Vereeniging voor Toeristenverkeer in Nederlandsch-Indië [Association of Tourist Agencies in the Dutch East Indies]. As a semi-governmental initiative, it was also responsible for stimulating broader international tourism to Java and, later, also to other islands of the Dutch East Indies. Its publications and brochures were circulated worldwide and seem to have been rather effective in bringing visitors from Europe, America, Asia and Australia to the ‘emerald archipelago’ – the promotional nickname they had given
Figure 1.


(Right) Compilation of Couperus’s articles during his journey to the Dutch East Indies. Source: Author.
to the Dutch East Indies (Fig. 2).

It is clear, however, that most tourists were Dutch. But were the tourist campaigns the only driving factor for them to decide to undertake such a long-distance journey? Or were there already other more important influences on the popularity of the archipelago as a destination?

Two major factors encouraged the emigration of people from the Netherlands to the Dutch East Indies in the last decades of the 19th century CE, following the enactment of the 1870 Agrarian Law. The first stem from the financial motive of the Dutch government in the agricultural and industrial development of the colony, which barely changed even after the pronouncement of the 1901 Ethical Policy. The second factor was the exotic framing of the archipelago in Dutch books, exhibitions and such like as an exciting and slightly dangerous place. Even though going for a holiday to visit historical places was by no means a new phenomenon in Europe, undertaking an adventure as far away as the Dutch East Indies had been unthinkable for ordinary people before this time. Now it was a challenge.

In his thesis ‘Tourism and Imperialism in the Dutch East Indies: Guidebooks of the Vereeniging Toeristenverkeer in the Late Colonial Era (1907-1939)’, Hans Meulendijk suggest that the notion of going away on holiday can most plausibly be traced back to the ‘Grand Tour’ tradition among European aristocratic circles that began in the 17th century CE. Young European noblemen undertook long journeys to visit foreign cultural sites as part of their learning, thereby broadening their knowledge of the history and cultures of countries in the continent. There was a belief that the ‘Grand Tour’ would elevate their aesthetic sensibility and taste, and therefore enhance their social status. Moreover, completing this voyage also marked the wealthy travellers’ transition into manhood.5

By the 19th century, the range of sites had been increased to include the Middle East and North African, and there were different motives for such holidays. The rise of middle-class in countries like the Netherlands, the advent of faster transportation technology such as trains and steamships, and the series of major Colonial Expositions revived and encouraged the idea of undertaking a ‘Grand Tour’.
Figure 2.

Middle-class families could now afford to travel to distant places, not merely aristocrats. For those people who had never visited, the Dutch East Indies was a mysterious and adventurous place that tempted them to explore it. Adding to travellers’ tales and other hearsay, the colonial exhibition in Amsterdam in 1883 undoubtedly the fictional images of the archipelago.

Dramatising the archipelago.

‘In the earliest morning a clean white lighthouse on an island was seen ahead, and as the sun rose, bluish mountains came up from the sea, grew in height, outlined themselves, and then stood out, detached volcanic peaks of most lovely lines, against the purest, pale-blue sky; soft clouds floated up and clung to the summits; the blue and green at the water’s edge resolved itself into groves and lines of palms; and over the sea and sky and the wonderland before us was all the dew freshness of dawn in Eden.’

One of the first texts to whet Dutch appetites to visit the archipelago was François Valentijn’s Oud en Nieuw Oost-Indië, published in 1724. Valentijn was a hydrographer for the VOC. During his term of service, he lived in the Dutch East Indies for approximately sixteen years. Oud en Nieuw Oost-Indië was published in five volumes and included over 1,000 engraved illustrations and maps. It became one of the very few books during the 18th century to provide an in-depth depiction of the Dutch East Indies.

Other sources were, however, more popular among Dutch people, especially novels. According to Denys Lombard in Le Carrefour Javanais [The Javanese Crossroad], the theme ’Mooie Indië’ ['Beautiful Indies'] was a common theme among authors. European writers like Onno Zwier van Haren, Étienne Casimir Hippolyte Cordellier-Delanoue, Emilio Salgari and Joseph Conrad embraced the enigmatic culture and nature of the archipelago for the setting of their stories.
Most of these writers never actually visited the Dutch East Indies; such was the case with Onno Zwier van Haren (1713–79). Van Haren was a controversial character, as well as a Dutch diplomat and politician. After King William IV died in 1751 and beset by allegations of incest, he withdrew from public life and shifted his career to poetry. His famous work was a play titled *Agon, Sultan van Bantam* [*Agon, Sultan of Bantam*]. It was written as a five-part tragedy telling of a protagonist, the Sultan of Bantam, in his dealings with a Dutch traitor. The play revolved around the struggle of succession to the Bantam throne between Agon’s two sons. Trading competition between Bantam and Batavia as two ports on the north coast of Java provided the political cause that triggered a betrayal within the Sultan’s family.

Since the narrative was told from the Sultan of Bantam’s side, van Haren’s play is probably one of the earliest works to present the voices of the indigenous people, even if only imagined. Throughout the play, Europeans were depicted as barbaric people who had no compassion and were only interested in trading profits:

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‘Een straffen ’t Hollandsch Volk van haar onmenschlykheden, Als haar barbaarsche vloot vervuld met rovers, kwam, en ’t donderend metaal uw Moeder ’t licht benam;

(That I may see the revenge on that coast with you, and punish the Dutch people for their inhumanities, when their barbarian fleet filled with robbers came, and the thundering metal took your mother’s light)’
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Étienne Casimir Hippolyte Cordellier-Delanoe (1806-1854), a 19th-century French dramatist, novelist and poet, in *Le Javanais, Histoire de 1682* published in 1845 also used an indigenous hero, Trunajaya, as his protagonist. The novel exploited the tension between the glory of the old Javanese kingdom of Majapahit and the spread of Islamic culture. If van Haren and Cordelier-Delanoe focussed upon social turmoil in their storytelling, Emilio Salgari and Joseph Conrad instead exploited the nature and wilderness of the archipelago. Salgari’s *Le Tigri di Mompracem* [*The Tigers of Mompracem*], published in 1883–84, tells of Sandokan, a Malay pirate who fights alongside Yanez de Gomera,
his Portuguese comrade, against the colonial power of the Dutch and the British navies. The Dutch East Indies is thus presented as an exotic melting-pot in which European traders are antagonistic and hostile. The natural setting of the Indies adds perfect nuance to Salgari’s romantic adventure:

‘On the night of 20th December 1849, a violent hurricane raged over Mompracem, a small island a few hundred miles off the west coast of Borneo and home to the most feared pirates in the South China Sea. Whipped by the wind, the raging seas roared relentlessly among the crashes of thunder, while above, clouds swirled wildly across the sky unleashing torrents of rain upon the island’s dark forest.’

‘The two pirate ships quickly pulled away and set a course for Labuan, the island home of the golden-haired young woman Sandokan strongly desired to see. The sea was calm, and a good wind blew from the northwest, it was not long before the two prahu racing at ten or eleven knots per hour.’

European readers revelled in Salgari’s rich adventurous imagination. By focussing on Sandokan and his multiethnic pirate crew, he was reviving tales of the ‘golden age’ of Caribbean pirates during the 18th century CE. Each of the ethnicities of Sandokan’s crew was described with a dramatic characterisation to heighten the exotic tone of the narrative:

‘Men had come from over the east to join the Tiger’s crew: Malays, short, agile men, famous for their daring and ferocity; Batavians, who despite an advanced civilisation, were renowned for their love of human flesh; a few Dyak headhunters from the neighbouring islands of Borneo, famous for their ruthlessness; some Cochin Chinese with long bianzi; a few Siamese, several Indians, some Bugis, Javanese, Tagalis, Filipinos, and a few Negritos.’
Unlike Salgari, who like many before relied on his imagination of the place, Joseph Conrad had visited the Dutch East Indies,\(^{20}\) and thus it became a substantial resource for his book, *Almayer’s Folly*.\(^{21}\) Published in 1895, the story follows a Dutch trader called Kaspar Almayer who marries an indigenous woman in Borneo and together they have a daughter named Nina. In the novel, Conrad touched on racial prejudice in the archipelago by introducing a romantic encounter between Nina and Dain Maroola, a Malay prince. Nina’s mother, whose name is never mentioned in the novel, represents someone who becomes prejudiced towards Europeans – whereas Almayer is depicted as a lazy White person who makes Nina’s mother despise him.

These playwrights and novelists were not Dutch, clearly, but those who were included Paulus Adrianus Daum, or P.A. Daum,\(^{22}\) and the aforementioned Louis Couperus. Both of these writers discussed the intangible layers of indigenous culture in the Dutch East Indies that seemed very foreign to Europeans. Daum’s novel *Goena-Goena* [Spellbinding]\(^{23}\) and Couperus’s *De Stille Kracht [The Hidden Force]*,\(^{24}\) which were published in 1889 and 1900 respectively, introduced native ritual and mysticism into their fiction. According to Lombard, both books framed these non-Western practices as the resilient force of the Javanese against Dutch settlers. The latter might possess stronger military force, enabling them to rule the archipelago, but magic and mysticism could be used by indigenous people in opposition to colonial power (Fig. 3).\(^{25}\)

Lombard thus traces a shift in how novelists used the archipelago in their stories. Novels written up to the late-19\(^{th}\) century CE (the first cycle) tended to describe the enigmatic nature of the setting, given that the authors had never visited and hence had to rely on a few secondary sources. By the end of the 19\(^{th}\) century CE and into the early-20\(^{th}\) century CE (the second cycle), writers could explore greater cultural and social intricacies. From around the 1930s, the final shift (the third cycle) took place whereby stories talked of problems arising from colonialism, especially in the outer islands – that is, the islands beyond Sumatra and Java.\(^{26}\) Interestingly, these changes in storytelling also resonated in another strand that contributed significantly to creating fictional imagery for the archipelago among Dutch and European people, the colonial exhibition.
Figure 3.

Book covers of Conrad’s *Almayer’s Folly*, Daum’s *Goena-Goena (Spellbinding)*, and Couperus’ *De Stille Kracht (The Hidden Force)*. Source: Author.
Initiating the Fictional Land: Colonial Expositions

'Immediately in front of the colonial spectacle hung a red curtain between two giant marble towers with Hindu decorations, which were supported by equally monumental plaster elephants. This facade served as the main entrance. On further inspection, the red of the curtains was not cashmere but painted canvas, and the towers were made of wood, covered with a layer of imitation marble.'

Novels provided a glimpse of information and provoked wonder about the colony where everything was completely foreign to Europeans. Since the archipelago had an area approximately 50 times larger than the Netherlands, with a very rich diversity in natural resources and indigenous cultures, literary works could not possibly embrace all of this diversity. Hence, a colonial exhibition held for six months in Amsterdam in 1883 offered a more profound spectacle to lure people to visit or even settle in the Dutch East Indies.

The 1883 colonial exposition, officially named the Internationale Koloniale en Uitvoerhandel Tentoonstelling [International Colonial and Export Trade Exhibition], proved enormously successful. It attracted 1.5 million visitors from all over Europe. The exposition represented both an attempt to glorify Dutch imperialism and a political device to actualise and promote the identity of the Netherlands identity within its European counterparts. Hence, before discussing how the 1883 exposition played a role in bringing settlers and tourists to the Dutch East Indies, first, it is important to locate the exhibition within its historical context.

The initiation of this colonial exposition in Amsterdam was a belated reaction to the 1851 Great Exhibition in London. The latter, titled as the Great Exhibition of the Works of Industry of All Nations, or simply The Great Exhibition, and housed in the iconic Crystal Palace, was the epitome of the success of Europe’s industrial revolution. Opening in spring 1851 in Hyde Park in London, a giant iron-and-glass structure – a greenhouse lookalike – covered approximately 76,890 m² (19 acres) and stood there in proud grandeur. The nickname ‘Crystal Palace’
was given by Douglas Jerrold, a columnist on *Punch* magazine. According to the exhibition catalogue, the building contained 13,000 exhibits, and participants were not only from Britain and its colonies but also other numerous other states, including the Netherlands. The exhibition was however not the first one of its kind in Europe. Henry Cole, one of its initiators, has been inspired by an 1849 exhibition in Paris and was thus keen to hold a similar event in Britain.

This giant structure, designed by the gardener and railway magnate, Joseph Paxton, took only five months to build. Paxton approach was ingenious in using prefabricated ironwork, timber and glass for the components. Without the need for bricks, mortar and foundations, the structure could be bolted together like a huge framed tent. This construction in itself was a demonstration of the exhibition’s desire to express industrial and technological advancement and show therefore that Britain led the field.

This message was not lost on observers from the Netherlands. Dutch journalists and members of the Dutch parliament who happened to visit the exhibition were generally disappointed. Compared to the rest of the 1851 Great Exhibition, the Dutch exhibits on the show were viewed as a demonstration of industrial backwardness. Likewise, the participation of the Netherlands in the 1878 world exhibition in Paris was reviewed negatively, for two reasons. The first was because it showed the low standard of Dutch industry concerning other European countries; the second was that the presentation of exhibits was improvised and chaotic. These two unfavourable experiences led to an official withdrawal of the Netherlands from any other international exhibition events until the colonial exposition in Amsterdam in 1883.

Criticisms of Dutch performance in international exhibitions became a crucial political debate. How should the Netherlands position themselves as a nation among other European countries?, was always the question. In September 1883 a four-day informal international gathering was held in the hall of Vrije Gemeente [Liberal Congregation Church] in Amsterdam to discuss the problem. These debates addressed three controversial issues. What was the actual purpose of Dutch imperialism, i.e. private self-interest or greater public interest? Secondly, what kind of perspective should the country use to express its colonial policy, i.e.
Eurocentric or else accepting of indigenous culture/worldview? And lastly, what was the moral basis of colonial policy? Were indigenous people in the Dutch East Indies only there are potential labourers for Dutch industries, or should the Netherlands assume responsibility for those people’s social and economic development as well?35

Pierre Èmile Levasseur, Professor of History at the Collège de France used his presentation on the labour issue to argue that the fact the ‘European race’ had occupied the archipelago was evidence of inherent superiority. Therefore, there was no moral issue in just employing the indigenous people, since they were the ‘lower races’. Furthermore, he asserted, imperial rivalry among Western nations was beneficial; ‘in a wholly peaceful rivalry, to occupy the best territory so as not to leave others with the privilege of occupying them alone; it is a new form of competition’.36 In this way, exhibiting superiority became the overarching idea for the Netherlands given the growing competition among European countries, such as in the ‘Scramble for Africa’. Yet because protests about the iniquities of colonial policy had begun to flourish, and a more liberal economic policy was just been initiated in the Dutch East Indies, a new form of ‘power’ needed to be demonstrated to reposition the Netherlands as a prominent imperial nation.

Hence, on 1st May 1883, the Internationale Koloniale en Uitvoerhandel Tentoonstelling [International Colonial and Export Trade Exhibition] was held on the ground behind Amsterdam’s Rijksmuseum (now the Museumplein). Unlike the previous world exhibitions in London, Philadelphia and Paris which had been organised in national groupings, the exhibition in Amsterdam chose to emphasise the interrelationship between international trade and colonial expansion. The exhibition’s objective was thus ‘a comparative study of the different systems of colonisation, tropical agriculture, development of mineral resources.’37 By setting this goal, the Netherlands hoped to position itself as the most sophisticated of the European empires.

The section on colonial expansion was the main event within the larger trade exhibition. Curated by Pieter Johannes Veth,38 the colonial section was arranged into three broader groups and 38 subdivisions. The first main group was named ‘het Terrain der Gekoloniseerde en
Overheerde Gewesten’ ['The Lands of the Colonised Territories under Dutch Rule’]. It aimed to depict the geographical features and natural environment of the Netherlands’ various colonies. The second group was titled ‘de Inlandsche Bevolking Dier Gewesten’ ['The Indigenous Population of the Territories’] and it exhibited the house types and cultural practices of indigenous people, such as their foods, arts, games, customs, traditional forms of government, and religious. The last group, ‘de Europeanen in Die Gewesten en Hunne Betrekkingen to de Inlanders’ ['Europeans in these Territories and their Relations with the Local Populations’] aimed to showcase different colonial policies, primarily focussing upon the efforts of the Public Works Department to improve the infrastructure and public health of a colony like the Dutch East Indies (Fig. 4). 39

Nevertheless, the spectacle that attracted most visitors was the Indies Kampong that was erected at the rear of the colonial exhibition. Daniel Veth, an engineer and also P.J. Veth’s son, proposed the idea of establishing a ‘village’ for Dutch and other European visitors to experience a simulation of the situation in the colony themselves. This village was filled with many types of indigenous dwellings from regions across the archipelago, occupied by actual live inhabitants. Veth’s proposition was agreed without much hesitation, although the size of the village was significantly reduced from his initial plan (Fig. 5, 6 & 7). 41

In reality, Daniel Veth’s Kampong was a brutal representation of how the Dutch framed indigenous people and culture in the archipelago, objectifying them as spectacles. Daniel Veth produced a careful chart of this village as part of the exhibition catalogue. For instance, he classified indigenous people, animals and artefacts in the village under the headings of ‘Group I’ and ‘Group II’. In regard to group I, the 38 village inhabitants were classified based upon their race/ethnicity. The different types of houses/interiors were categorised under the heading of ‘Domestic Life and Social Life’ in ‘Group II’, with their various live cattle, poultry and domestic animals and poultry entered under ‘Means of Subsistence’ within that second grouping. 42

The 1883 colonial exhibition was an excellent illustration of what Benedict Anderson has argued in terms of the population census, the
territorial map, and the museum as three key instruments with which an imperial state imagined their possessions: ‘the nature of the human beings it ruled, the geography of its domain, and the legitimacy of its ancestry’. As part of colonisation, the census operated by establishing a fictional structure of different races in the colony, which in everyday practice fixed the social conventions as to how each race was treated. Maps were a conceptual projection of how a colonial government imposed their territory on the ground: ‘a map was a model for, rather than a model of, what it purported to represent … a real instrument to concretise projections on the earth’s surface’. And the museum operated as a simulation in which information from the census and the map could be displayed within a spatial condition; in other words, ‘it is an image … of total surveyability. For the colonial state did not merely aspire to create, under its control, a human landscape of perfect visibility; the condition of this ‘visibility’ was that everyone, everything, had (as it were) the serial number.’

Such critiques, of course, come from later postcolonial theory. Back in its day, the Kampong proved to be the major attraction in the 1883 Amsterdam exhibition, having been staged to entertain and exhibit the Dutch project of modernity to the outside world. Moreover, for the Netherlands, this kind of curatorial practice was now very attractive, and hence the Kampong became a ‘recipe’ to be repeated in successive international expositions. It formed a key element in the Dutch section for the Exposition Universelle in Paris (1889), the Exposition de Siecle in Paris (1900), the World Exhibition in Brussels (1910) and the Exposition Coloniale Internationale in Paris (1931). Indeed, the only subsequent colonial exhibition where the Kampong was not part of the Dutch display was in the international showcase in Brussels in 1910 (Fig 8 & Fig. 9).

Context 2: The Javanese Literary Revival and the Dissemination of Javanese Building Practice

Spectacles in Europe such as the 1883 colonial exhibition did not immediately impact on the Dutch East Indies itself. Nonetheless, other
Figure 4.

(Left)

(Right)
Figure 5.

(Top)

Photographs of the indigenous house models that were displayed in the 1883 Colonial Exhibition in Amsterdam. Source: Robertson, Scott. “Significant Pavilions: The Traditional Javanese House as a Symbolic Terrain.” Sidney: University of NSW, Australia, 2012.

(Bottom)

Figure 6.

(Top)
The Javanese Village. *Source: Special Collection of the University Library University of Leiden.*

(Bottom)
Everyday activities of the village’s inhabitants as spectacle. *Source: Special Collection of the University Library University of Leiden.*
Figure 7.

(Top)

A Javanese Delman (Horse Wagon) in the Javanese Village. Source: Special Collection of the University Library University of Leiden.

(Bottom)

A small scale of a bamboo bridge. Source: Special Collection of the University Library University of Leiden.
Figure 8.

(Top)  

(Bottom)  
Figure 9.

(Left)


(Right)

prominent developments had been taking place in Java. The ending of the devastating Java War in 1830 triggered a shift within the Javanese royal courts in that they turned their attention more to cultural affairs, in turn affecting their relationship with Dutch colonial rule. Literature that emerged was less political than previously, tending to revive the old Javanese style of belle-lettres writing. In his book, *A History of Modern Indonesia c. 1300 to the present*, M.C. Ricklefs depicts this as a significant moment of transcultural exchange among those in the Javanese royal circle. The crown prince, Pakubuwana V (1785-1820), ordered the compilation of *Serat Centhini* (*The Tale of Centhini*). His successor, Raden Ngabei Ronggawarsita (1802-1873), was the author of both prose and verse works in Javanese, considered highly important, such as *Pustakaraja Purwa* [*The Book of Kings of Ancient Times*] and *Paramayoga* [*The Exalted Age*].

Javanese literature was thus encouraged to have an entirely distinct character from European novels and plays. Even though there was a fictional aspect in such writings, the intention was never just to tell a single dramatic tale. For the Javanese people, instead, the writing was very much an instrument to create and legitimate power structure. A text titled *Serat Baron Sakendher* [*The Book of Baron Sakendher*], written in the 18th century CE, offers an excellent example of how the Javanese employed literature to define their history and tradition. The book is set after the 1749 treaty became obsolete, and instead, the Dutch relationships to the Javanese royal courts took the form of an alliance. Dutch residents in those courts were acknowledged as ambassadors, not as colonisers. To legitimise this policy change, the Javanese royalty needed to create a mythological justification for their dealings with the Netherlands. In the book, therefore, the Dutch were pictured as the legitimate heirs to the sovereignty (and supernatural powers) of Pajajaran in West Java, a province traditionally considered to be an ally of the Central Javanese kings, but not a sovereign power in itself.

According to Theodore Pigeaud, a Javanese author was a diligent recorder who liked to make notes on everything that seemed of interest to them and then compiled these notes into individual books. This kind of books took on three main forms: 1) part of a larger compilation of cultural writings (Javanese: *Primbon*); 2) as poetry (Javanese: *Serat*); and 3) as an
educational manual (Javanese: *Kawruh*). Pigeaud and Zoetmulder have suggested that the Javanese approach to literature was undoubtedly either influenced by or at least inspired by, the succession of Indian traders, priests and monks who had visited Java between the 6th–8th centuries. Henceforth, this interaction involved the dissemination of Sanskrit letters and terminologies through many Javanese traditional texts. However, both scholars also argue that this was not done to express things in the Sanskrit language. Instead, the Javanese appropriated the letters and terminologies from Sanskrit to create their Javanese language. Zoetmulder thus concludes that, in contrast to other peoples on the Southeast Asian mainland, the appropriation of Sanskrit letters and terminologies did not make the Javanese lose their traditional identity.

Importantly, in *The Literature of Java*, Pigeaud proposes that the development of Javanese literature could be categorised into four stages. His periodisation was based on two criteria: firstly, the kind of exposure to different civilisations that influenced the contents of the texts; and secondly, the locus of where these texts proliferated.

According to Pigeaud, the first stage occurred between 900–1500 CE. The literature written in this period can be called ‘Pre-Islamic Javanese Texts’ or just ‘Classic Javanese Texts’. The influence of Indian culture was prominent in this era, especially during the 12th century CE, when India tended to dominate all Javanese life. All the texts in this stage were written in East Java, although there were some older texts, probably written in the 10th century CE, which came from the district of Mataram in Central Java. By the 14th and 15th century CE, books about intellectual ideas and mystical speculations came to be written. In this period, the amalgamation of imported Indian culture and native Javanese culture very much affected the latter’s literature, with Pigeaud arguing that such writings were still pre-eminently autochthonous Javanese in tone.

The second stage was the introduction of so-called Javanese-Balinese literature, which happened over four centuries from around 1500 to the early-20th century CE. During this stage, the ‘Pre-Islamic’ or ‘Classic’ texts developed into a ‘Javanese-Balinese’ form with characteristic features of its own. Balinese myths and historical traditions were now introduced, and a new style of prosody emerged. For Pigeaud, the third stage was the era of ‘Pasisir’ literature, which
occurred in parallel with the development of ‘Javanese-Balinese’ literature. Thus, ‘Pasisir’ texts were created from around 1500 until well into the 18th century CE. Most of these texts were written in places on Java’s north coast such as Surabaya (with Gresik), Demak (with Japara) and Cerbon (with Banten). ‘Pasisir’ literature can also be understood as Javanese Islamic literature, with Malay and some Arabic languages beginning to be used in books.35

Nevertheless, it was in Pigeaud’s last stage, from the 18th to the early-20th century CE, that saw the renaissance of ‘Classical Javanese’ literature. Many texts were now produced at the courts of the inland Javanese kings in Kartasura, Surakarta and Yogyakarta. The authors were now called Pujangga or Belletris, and their style was imitated all over the Dutch East Indies. As a result, 19th-century Surakarta literature is widely considered to be the Javanese literature par excellence – the epitome of the ability of these Javanese Renaissance authors during the 18th and 19th century CE to incorporate the products of previous periods of literature.36

Also during this period, and of especial relevance to this thesis, many books about Javanese building practices were compiled. Pigeaud and colleagues have grouped the writings of the Dutch East Indies from the 18th and 19th centuries into different subject categories. Under the group titled ‘Craft, Architecture, Agriculture, Cookery’ there were two specific sub-sections that list manuscripts related either to ‘Crafts and Industries, Javanese-Balinese and Islamic Javanese Texts’ (in which eight manuscripts are listed) or to ‘Housebuilding, Architecture’ (where there are seven manuscripts related to Javanese building practices).37

Among the latter group, Kawruh Kalang [The Carpenter’s Knowledge] 38 is one of several texts which were written in the late-19th century to document the knowledge of master carpenters/builders of Javanese houses. The original text of Kawruh Kalang has never been completely translated to the modern Indonesian language. Besides that book, there were similar texts produced such as Kawruh Griya [Manual for Housebuilding], translated from Javanese script to Latin script in 1906; Serat Tjarios Bab Kawroeh Kalang [Poetry of Tjarios chapter the Carpenter’s knowledge] typed in Javanese script in 1938), and Kawruh Kambeng [The Wedge’s knowledge] translated from Javanese script to Latin script in 1941, by Pigeaud). Javanese building practice was also mentioned in other types
of literary works, not in the form of educational manuals, but as *Primbon* or chronicles.

Revianto B. Santosa and Josef Prijotomo claim that much of this written information about traditional building practice was produced for a famous Javanese encyclopaedic text, the aforementioned *Serat Centhini [Tale of Centhini]*, completed in 1814. As a very long manuscript, *Serat Centhini [Tale of Centhini]* was indeed an extraordinary project. Benedict Anderson calls it an encyclopaedia and a masterpiece of Javanese literature. Published, for context, some five years before Daniel Defoe’s *Robinson Crusoe*, it tells a story of a journey by three children of the ruler of the Giri kingdom, one male and two females, fleeing from King Mataram’s army. During their adventures they visit places and meet people across Java, encountering a santri, a person who learn Islam, called Cebolang, who is also travelling. The overall plot was not the main point of the book, serving only to provide a narrative framework. Creating a story of travellers placed emphasis on discussing knowledge, people and sites on their voyage. This alone makes *Serat Centhini [Tale of Centhini]* unusual in Javanese literature, yet Benedict Anderson identifies three more specific features that make the book unprecedented: 1/ it contains no stories related to battles or royal courts; 2/ most of the stories were about ordinary villages and rural Islamic schools (Pesantren), and 3/ all of the characters are likewise commoners. Anderson further notes that this framework allows the text instead to discuss a lot of traditional Javanese knowledge about rural life on the island, taking in folk arts, architecture, cooking, cultivation, ceremonies, fauna/flora, religion, medicine, sexual practices and so forth.

Because of this encyclopaedic nature of *Serat Centhini [Tale of Centhini]*, Ann Kumar even suggests similarities to the renowned French masterpiece, *Encyclopédie ou Dictionnaire Raisonné des Science, des Arts et des Métiers [Encyclopedia or Reasoned Dictionary of Science, Arts and Crafts]*, as compiled by Diderot, d’Alembert and associates. The publication dates of both works were not that far apart; *Serat Centhini [Tale of Centhini]* was completed in 1714, while in 1777 the final supplementary volume of the *Encyclopédie [Encyclopedia]* was published.

Both texts were demonstrations of the resilient power of common people. In *Serat Centhini [Tale of Centhini]*, the traditional Javanese
knowledge that is presented was generally rural, whereas the Encyclopédie was a compendium of knowledge which was accumulated in a major city by and available to people of many professions. Anderson also supports Kumar’s proposition by concluded that both of these texts marked, in their ways, two significant events:

1. The celebration of skilled professional societies in which people devoted their life to mastery and development of one particular type of knowledge;

2. The advent of the major publishing industry, creating ‘print capital’, and thus staging a shift in the cultural paradigm.

These two aspects are inter-related, and they triggered a situation whereby knowledge dissemination could no longer be limited to a particular social class, the elite. Furthermore, neither was the source of knowledge now monopolised by the royal courts in Java and France. Hence, in the case of the *Serat Centhini [Tale of Centhini]*, Anderson argued that the book signifies the rise of a Javanese professional class.

Hence, the manuscripts regarding building practice which came later were iterations or derivations or iteration of what had been elucidated in *Serat Centhini [Tale of Centhini]*. According to Santosa, these publications on building practice mostly share a similar, if not identical, content. Their main differences are in their narrative structure and writing style.

In *Serat Centhini [Tale of Centhini]*, knowledge about traditional building practices was conveyed in the form of a dialogue between Cabolang and a carpenter, Ki Warsadikara. Interestingly, the manuscript was written using High-Javanese language, which meant there was a clear expectation about the reader’s intellectual level. Conversely, *Titika Wisma [Regarding House]*, another of the manuscripts in Pigeaud’s catalogue, was written in an entirely different manner. It did not use High-Javanese language and was intended to be far more explanatory. Santosa argues that based on its narrative structure, *Titika Wisma [Regarding House]* was probably a treatise for a house owner instead of a practical manual for builders. Illustrations and additional useful information on topics such as choosing a building, preparing for a house to be built, adding ornamentation and other decoration to the house, and so on (Fig. 10). 
Among the manuscripts mentioned above, *Kawruh Kalang [The Carpenter’s Knowledge]* - written for the 1883 Amsterdam colonial exhibition - was the most pragmatic and practical. It too was written in a Javanese everyday language, with an emphasis on technical aspects of housebuilding such as construction methods and details. Thus, presumably, *Kawruh Kalang [The Carpenter’s Knowledge]* was a text aimed more for a builder. In a doctoral dissertation titled ‘Significant Pavilions: The Traditional Javanese House as a Symbolic Terrain’, Scott Robertson suggests that *Kawruh Kalang [The Carpenter’s Knowledge]* was compiled and composed in Surakarta during the last stage proposed by Pigeaud, being published in 1882 or thereabouts.

**Practising Javanese Housebuilding: An Overview**

As noted, all these manuscripts shared a similar fundamental belief that Javanese building practices were deeply culturally ingrained. Therefore, although such practices varied between different Javanese social classes, the notion of pursuing harmony was also present in the lowest rank of Javanese house. In the worldview of a Javanese person, a building is not merely a shelter but also a spiritual sanctuary, as was evident particularly in the *Kawruh Kalang [The Carpenter’s Knowledge]*.

The Javanese carpenter/builder applies a special method, which Pigeaud called ‘a numerical divination calculation’, to ensure that the house’s construction is in sync with the cosmic order. The *Petungan*, the Javanese word for this method, assigns a numerical value (*Pasaran*) as an index for every aspect of life – for instance, site, colour, wind direction, materials, and many others (Fig. 11). Pigeaud explains that by using *Petungan*, the inhabitant can make predictions about events in their everyday experience such as when to marry, when to harvest the rice, and such alike. Ossenbruggen corroborates Pigeaud’s explanation, also mentioning that *Petungan* is also applied to determine the venue and day of communal markets. It thus works as a medium to integrates daily life into the cosmic order, including the marking of time (Fig. 12).

Javanese buildings are erected by a particular class of people called ‘*Kalang*’, whom Ricklefs defines as “a class of people, believed
Titika Wisma [Regarding Houses] was one of these compiled Javanese manuscripts, later transcribed into the Latin alphabet from Javanese letters by Pigeaud. Source: Special collection in the University Library at the University of Leiden, The Netherlands.
Figure 11.


<table>
<thead>
<tr>
<th>Sri (the Goddess Sri)</th>
<th>house</th>
<th>(V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitri (garden)</td>
<td>pavilion, social hall</td>
<td>(I)</td>
</tr>
<tr>
<td>Gana (the God Ganesa)</td>
<td>mosque, prayer house</td>
<td>(II)</td>
</tr>
<tr>
<td>Liga (weak)</td>
<td>kitchen</td>
<td>(III)</td>
</tr>
<tr>
<td>Pokali (broken)</td>
<td>stables</td>
<td>(IV)</td>
</tr>
<tr>
<td>Sri (the Goddess Sri)</td>
<td>house</td>
<td>(V)</td>
</tr>
</tbody>
</table>

The association of God’s virtue (first and second column) with location in a house (third column).

<table>
<thead>
<tr>
<th>East</th>
<th>silver</th>
<th>Legi</th>
<th>(I)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>suwasa, pinchbeck</td>
<td>Pahing</td>
<td>(II)</td>
</tr>
<tr>
<td>West</td>
<td>gold</td>
<td>Pon</td>
<td>(III)</td>
</tr>
<tr>
<td>North</td>
<td>iron</td>
<td>Wage</td>
<td>(IV)</td>
</tr>
<tr>
<td>Centre</td>
<td>pluriform</td>
<td>Kliwon</td>
<td>(V)</td>
</tr>
</tbody>
</table>

The association of wind directions (first column) with type of metals (second column) and market days (third column).

<table>
<thead>
<tr>
<th>Legi</th>
<th>East</th>
<th>all-encompassing</th>
<th>takes on all tasks</th>
<th>(I)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pahing</td>
<td>South</td>
<td>greedy</td>
<td>wants everything</td>
<td>(II)</td>
</tr>
<tr>
<td>Pon</td>
<td>West</td>
<td>flaunting</td>
<td>wants to show off high possessions</td>
<td>(III)</td>
</tr>
<tr>
<td>Wage</td>
<td>North</td>
<td>tight</td>
<td>unbending</td>
<td>(IV)</td>
</tr>
<tr>
<td>Kliwon</td>
<td>Centre</td>
<td>a speaker</td>
<td>eloquent</td>
<td>(V)</td>
</tr>
</tbody>
</table>

The association of five market days (first column) with the wind directions (second column), and characters (third and fourth column).

Figure 12.

Illustration of Javanese associative knowledge system from tables in fig. 10. *Source: Author.*
by the Javanese to be of non-Javanese origin, who fulfilled specialised functions at the court, especially in timber-cutting and wood-working. In Serat Centhini, the Kalang is described as the inhabitants of the forest, and as such versed in the lore of forestry, selecting which trees to cut down, and engaging in timber construction.

The knowledge/skills of the Kalangs was a deeply guarded secret known only by the members of the local ‘guild’ or community. The Kawruh Kalang and the Serat Centhini indicate that there were four sub-groups with particular responsibilities. The first group, Kalang Blandhong, specialised in cutting down trees, while the second, Kalang Obong, were responsible for clearing and maintaining the forest. Members of these two groups thus worked collaboratively to set up the site and prepare the materials for a new house. The third group was Kalang Adeg, whose task to plan and construct the house, while the last one was Kalang Abrek, whose expertise lay in demolishing buildings once dilapidated.

Javanese building practices, therefore, drew no demarcation between the act of building and the other activities of everyday life. Everything was intended to be harmonious with the cosmos, with the knowledge/skills being passed on as an oral tradition until translated into the form of the 19th-century manuscripts. What, then, were the ‘secrets’ to building a Javanese house?

In constructing a building, the Petungan works by integrating a numerical value derived from the future owner – usually obtained by measuring a particular part of their body, such as hand or foot – with other relevant Pasaran values. Using this information, the relation between length and width, or the height of the timber columns, or the number of rafters required could be identified (Fig. 13). Josef Prijotomo summarises from many Javanese building practice manuscripts this operation as follows:

\[ Y = Xn + p \]

‘x’ is a specific constant value (3, 4, 5, or 6) for each of the main construction components.

‘n’ is a remainder (even number) of a modulo operation. The total length of a timber beam is divided by number obtained by measuring the owner’s hands/feet. The remainder of this calculation is ‘n’.

‘p’ is a registered value/parameter relating to that particular room or building function and rank.
Thus, for instance, an ‘x’ value of 6 is used to produce the dimensions for width and length, an ‘x’ value of 4 gives the height of the columns, and the ‘x’ value of 5 determines the number of roof rafters. Some typical ‘p’ values were 3 for a Pawon (kitchen) or Regol (a small house with a porch door) and 4 for a Kandang (stables).

This mode of calculation reveals the inherent character of a Javanese building, especially in terms of its form and spatial configuration. As the main goal is to harmonise with the cosmic order, building practices had no rigid guidance as to construction details – which in turn yielded many varieties of details. Also, there was specific refinement about the building quality to be met. Therefore, although it is accepted that there are five generic forms of Javanese house, it does not limit the possibility of other forms too. In this sense, the Javanese carpenter/builder could adapt the basic forms to enable spatial expansion where needed. The variations of length-width, column height, and numbers of rafter hence fundamentally only changed the internal volume a given house. The building’s overall form was thus constituted through its structural construction to be able to support volumetric expansion in future (Fig. 14).

Today, authentic Javanese traditional building practices can barely be found. As the practice was integral to traditional culture, and everyday life, now that the patterns of Javanese everyday life are diminishing, so also are the older building methods declining. This point aside, it is still possible to identify the key elements of traditional building practices, at least in the constructional method. Tectonics-wise, a typical Javanese house was designed as an assemblage that could be dismantled, moved, and re-assembled easily elsewhere. This means that the architectural intricacies of a traditional Javanese house lay not in its form and shape, but rather in its timber joinery system. Hence it would have a recognisably simple and straightforward layout, with a core at the centre surrounded by outer spaces. Vertically it would comprise three parts: roof, inhabited middle section, and columned sub-structure.

Conceptually, the traditional Javanese house was a compound composed of one or more masses. Each block would serve a particular function: for instance, the mass located in the front was the place where guests were welcomed, or meetings were held. It is, therefore, the most public space in the house and is called the Pendopo. At the centre of the
**Figure 13.**


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**Figure 14.**

Evolution of the roof-form of a traditional Javanese house to show the steady expansion of the scale and proportions of the dwelling. *Source: Diagram by author.*
compound is the *Dalem*, the core of the house, and also where the most sacred room, the *Sentong*, is located. In between the *Pendopo* and *Dalem* would be a long, narrow block called the *Pringitan*, which served as the transitional space from the public to the private realm of the dwelling. In a traditional shadow puppet performance, it is in the *Pringitan* that the screen would be installed. The *Dalang* (puppet-master) sat on the *Dalem* side, while the audience watched the performance from the *Pendopo* side (Fig. 15). When the family in a house grew in size, additional blocks were built, located on the right and left sides of the *Dalem*. These extra additional masses were usually rooms for children or guests. This said the compound in a traditional Javanese house was composed in a centrifugal manner, and so from the centre/*Dalem* one moves outward. What matters is what happens in the inside, unseen and tacit. The more that the house goes outward, the more banal its operations become.

This centrifugal pattern also applied to the house’s joinery/assemblage method, which was complex (albeit with the complexity being invisible from the outside). Its tectonic system was designed in such a way to distribute loads efficiently using a timber-framed structure (Fig. 16, 17 & 18). Assembling a Javanese house always started from the central part as the first to be erected. After it stands rigid and firm, the outer structures began to be assembled. In this way, the scale of a traditional Javanese house was determined by the size of the centre part. Hence the *Petungan* only needed to be used to calculate the scale/proportion of the central part, since the other parts of the house would simply then extend proportionally (Fig. 19).

**Concluding Remarks**

Through literature, colonial exhibitions and tourism, the Netherlands constructed colonial spectacles about the Dutch East Indies, with their narratives working in two ways. Firstly, they served the Dutch colonial agenda in representing and legitimising colonial authority over the archipelago; secondly, these spectacles were used to enhance the Netherlands’s status among other European imperial nations.
Figure 15.

Diagram of a traditional developed Javanese house as based on fieldwork by Scott Robertson. The Pendopo (red), Pringitan (yellow) and Dalem (green) are surrounded by smaller blocks that usually functioned as guest rooms, kitchen, and other service spaces. *Source: Scott Robertson. ‘Significant Pavilions: The Traditional Javanese House as a Symbolic Terrain.’ Sydney: University of NSW, 2012, Appendix M.*

Figure 16.

Examples of the joinery systems of traditional Javanese houses in which the complexity is concealed from outside. *Source: Photographs by author.*
Such spectacles/narratives came to surface due to the unprecedented exposure of the colony by the late-19th century, to the extent that had never happened before. This exposure also created transparency and connectedness between the Netherlands and the Dutch East Indies. To borrow a term from Bloembergen, ‘mirror images’ were constructed to address three underpinning questions: What was the proper colonial form for the Dutch East Indies? What was the appropriate attitude to the colony’s indigenous civilisation? And how should the Netherlands establish their identity to this situation?  

The Kampong built in the 1883 Amsterdam colonial exhibition was a theme-park which brought all of the stories and tales together in physical, tactile form. The exhibition proved extremely successful in setting the starting point for the subsequent colonisation project. The Dutch East Indies as the land of adventure and opportunity became a new message in every organised colonial exposition up to the last exhibition in 1993 in Paris. The tourism agency that was established for the Dutch East Indies in the early-20th century CE can be perceived as another layer in this fictional campaign.

If the novels and plays that incorporated the archipelago were mostly based on travellers’ stories and hearsay, the colonial exhibitions could import artefacts as its ingredients and present these to the European public. Both initiatives, however, did not seek directly to attract people to visit or move to the Dutch East Indies. Tourism worked differently, in that the Vereeniging Toeristenverkeer, founded in 1907, utilised actual developments in the Dutch East Indies to attract people to come over and explore the colony.

If the Dutch, through their stories and exhibitions, attempted to construct a fictional and dreamy land of mystery and adventure, thereby entrenching their colonial power, the Javanese people conversely continue to use their literature to try to alter, historicise and disseminate their traditions, often in response. Both therefore employed fiction as an instrument to propagate very different images of the Dutch East Indies. What the next chapter of this thesis will do now is to explain how colonial relationships led to new models of technical/building knowledge and training for the archipelago – before then, in the subsequent chapters, looking at distortions within the architectural discourse and the pressing issue of hygiene/public health in the colony.
Old Traditional Javanese House in Yogyakarta. This unoccupied house is made of all timber and constructed following traditional method. Source: Documentation of Eko Prawoto.
Figure 18.
Traditional join between column and beam (top) and the centre stacking beams construction (bottom). Source: *Documentation of Eko Prawoto*.
Figure 19.
Notes


2 Ibid., 119.

3 Louis Marie-Anne Couperus, or Louis Couperus, was a Dutch novelist. He and his wife travelled extensively in Europe and also Asia. His works covered a variety of genres and hence he was acknowledged as a prominent figure in Dutch literature. Although not born in the Dutch East Indies, Couperus had spent his childhood in Batavia. He attended Lagere School (Elementary School) and then Gymnasium there from 1872–78. He had also returned to the Indies with his wife for a second stay in 1899.

4 The series of articles that Couperus wrote for The Hague Mail was published as a collected book in 1921 with the title Oostwaarts. Louis Couperus, Oostwaarts (Eastward) (Amsterdam Veen 1992).


7 The book comprises of 5 volumes. The first two volumes were published in 1724. Volume 3 – 5 were published in 1726. François Valentijn, Oud En Nieuw Oost-Indië (Old and New East Indies) (Amsterdam: Joannes van Braam, 1724).

8 This book is only published in two languages: French and Bahasa Indonesia. The title of the Bahasa Indonesia version is Nusa Jawa: Silang Budaya. The discussion in this section corroborates Denys Lombard’s contention that the depiction of the Malay archipelago was primarily established through literary works. Denys Lombard, Nusa Jawa: Silang Budaya (the Javanese Crossroad), trans. Winarisih Partaningrat Arifin, Rahayu S. Hidayat, and Nini Hidayati Yusuf (Jakarta: Gramedia Pustaka Utama, 1990).


10 ‘Mooi Indië’ (‘Beautiful Indies’) was the most common label used the represent exotic quality of the place. Lombard, Nusa Jawa: Silang Budaya (the Javanese Crossroad), 43-4.

11 The protagonist was based on a previous Bantam king, Sultan Ageng Tirtayasa (1631–95). Although van Haren’s play selected Bantam as the setting, there is no account that confirms he had been in the Dutch East Indies before. Scholars see it as highly unlikely, especially given the terrible scandals of van Haren’s life.


14 Emilio Salgari was an Italian journalist and novelist often considered as the ‘father’ of Italian adventure fiction.

15 Jozef Korzeniowski, better known as Joseph Conrad, was a Polish-British author famous for his tales of the underside of European empires. See Lombard, Nusa Jawa: Silang Budaya (the Javanese Crossroad), 45.


17 Ibid., 1.

18 Ibid., 16.

19 Ibid., 9.
Conrad came several times to the archipelago. His first trip was to Muntok, an island of Bangka, as an officer on a merchant ship in 1883. In 1887 he made a year-long journey to the Dutch East Indies visiting various places such as Java, Singapore, Borneo and Celebes. Lombard, *Nusa Jawa: Silang Budaya (the Javanese Crossroad)*, 45.


Paulus Adrianus Daum (1850–98) was Dutch author and journalist. In 1879 he was appointed as the editor of the newspaper *De Locomotief (The Locomotive)* in Semarang. Later he moved to Batavia and founded the newspaper *Bataviaasch Nieuwsblad (Batavian Newspaper)* in 1885.

Paulus Adrianus Daum, *Goena-Goena (Spellbinding)* (Benthuizen: Astoria Uitgeverij, 2019).


Lombard names these three cycles as ‘the adventurous cycle’, ‘the Javanese cycle’ and ‘the Outer Islands cycle’, respectively. ibid., 45-8.


The area of Indonesia is approximately 1.900.000 km2, or 57 times the size of the Netherlands’. It is also five times the size of Japan, four times the size the size of France, twice the size of Pakistan, and almost half the size of India. Lombard, *Nusa Jawa: Silang Budaya (the Javanese Crossroad)*, 12-13.

A total of 1.5 million visitors was a huge number considering that the population of Amsterdam at the time was only 300,000 people. See Bloembergen, *Colonial Spectacles: The Netherlands and the Dutch East Indies at the World Exhibitions, 1880-1931*, 52.


There were 44 European states participated in the exhibition, as well as many others from around the world. George Wagstaffe Yapp, “Official Catalogue Great Exhibition, 1851,” (Oxford: Oxford University 1851).


Ibid., 17-8.

Ibid., 25.

Ibid., 25-6.

Ibid., 58.

Pieter Johannes Veth (1814-1895) was a Dutch professor of geography and ethnology at the University of Leiden. He was also the first chairman of the Royal Netherlands Geographical Society.


Daniel David Veth (1850–85) was a son of P.J. Veth. He studied engineering at the Technical Colleges in Hanover and Stuttgart.

42 Ibid., 64.


44 Ibid., 170.

45 Benedict Anderson quoted this statement from the Thai historian, Thongchai Winichakul, from the latter’s investigations into the founding of ‘Siamese’ border between 1850 and 1910. See ibid., 175.

46 Ibid., 189.

47 Ricklefs, A History of Modern Indonesia, C. 1300 to the Present, 119.

48 Both the Pustakaraja Purwa (The Book of Kings of Ancient Times) and Paramayoga (The Exalted Age) told of a mythical past of Java since the beginning of Indian gods and ending in 730 CE. Ibid., 120.

49 The book was probably published in the late-18th century, certainly after the 1749 treaty had taken place. Ibid., 106.


52 Pigeaud, Literature of Java: Catalogue Raisonné of Javanese Manuscripts in the Library of the University of Leiden and Other Public Collections in the Netherlands / by Theodore G. Th. Pigeaud, 1, 15; ibid.; ibid.

53 Pigeaud, Literature of Java: Catalogue Raisonné of Javanese Manuscripts in the Library of the University of Leiden and Other Public Collections in the Netherlands / by Theodore G. Th. Pigeaud, 1.

54 Ibid., 4.

55 Ibid., 5.

56 In this later era, works of ‘Pasisir’ literature tended to be disregarded. Ibid., 7.

57 The categorization of manuscripts in the Special Collection of the University Library at the University of Leiden is however not entirely consistent. Two manuscripts – Asta Kosali, Asta Kosala and Wisma Karma – that deal with site planning and housebuilding are for some reason grouped under ‘Craft and Industry’, probably upon the language used in the scripts rather than their contents. In the group called ‘Craft and Industry’ all of the manuscripts are written in old Balinese language, whereas for ‘Housebuilding, Architecture’, the manuscripts are written in Javanese language. See ibid., 291-2.

58 Kawruh Kalang, edited by Raden mas Tumenggung Purwanogoro, is a text that was intentionally prepared for the Internationale Koloniale en Uitvoerhandel Tentoonstelling (International Colonial and Export Exhibition) in Amsterdam from 1st May to 1st October 1883.


For further elaboration of *Serat Centhini* see also: Timothy E. Behrend, “The Serat Jatiswara: Structure and Change in a Javanese Poem, 1600 - 1930,” (Canberra: Australian National University 1988), 79-84.


Ibid., 273.


Ibid., 276.


Ibid., 92.

Ibid.


Ibid.


Ibid.

Ibid., 104-5.

Ibid., 108.

Ibid.

The Technic School 'Koningin Wilhelmina School in Batavia in 1908. Source: KITLV
Technical knowledge from the Netherlands was disseminated in the Dutch East Indies in two phases. The first phase was the founding of craft schools as a direct consequence of the privatisation of the Dutch East Indies in 1870. The main agenda of establishing vocational education in this phase was to produce technicians as a reinforcement for existing industries. The second phase was triggered by the 1910 Ethical Policy. After the enactment of this policy, vocational education in the colony was obliged to consider technical training as a benefit for the indigenous population, to be utilised to improve their built environment and everyday life. Accordingly, a more comprehensive educational system was tailored. Everyone in the Dutch East Indies by then had access to higher education, especially in this context, to Technical Schools and Technical Colleges. Nonetheless, in reality, the primary agenda did not shift; supporting industry was still the primary objective in education.

This chapter aims to respond to two key questions. In what ways were Dutch technical knowledge and skills disseminated in Java? To what extent did this dissemination contribute to the formulation of standards of practice within the technical and engineering industries in the Dutch East Indies? The discussion in this chapter is organised into four sections. The first section provides an overview of the underpinning condition that propelled the founding of vocational schools. The second section emphasises contemporary discussions about the distinct role and nature of craft schools within the constellation of vocational education in the colony. The third section intends to discuss the critique by Popping,1 headmaster of the Koningin Wilhemina School – one of the two main Technical Schools in Java – that urged the necessity of practical training over theoretical education. His critique came in an article titled ‘Het Technisch- en Ambachts- Onderwijs in Nederlandsch-Indie [The Technical and Crafts Education in the Dutch East Indies]’, which questioned the contribution of Technical Schools/Colleges to the technical field in the Indies.2 In the last section, the discussion focuses on an overview of the technical competences and skills disseminated by these schools.
Propelling Vocational Educations in the Dutch East Indies

Privatisation flourished in the Dutch East Indies after the enactment of the Agrarian Law in 1870. Moreover, after the colonial government conquered the outer islands (i.e. beyond Java and Sumatra), the industries run by tropical settlers expanded swiftly. From 1900–30, sugar production rose almost fourfold, and tea by nearly eleven. Tobacco, which was grown there from the 1860s, along with pepper, copra, tin and coffee, were promoted mainly in the outer islands during that period. Nevertheless, sugar remained the most profitable industry that supported the wealth of the Dutch East Indies. In the year of 1929, there were 180 sugar factories in the Dutch East Indies employing 60,000 workers, most of whom lived close to the plantations where they worked in the fields, factories or transport networks for sugar cane. In addition, there were another 700,000 temporary workers employed to cut sugar cane or carry out seasonal tasks.

Along with the proliferation of European settler plantations in the Dutch East Indies, much machinery and equipment were also imported to increase production (Fig. 1). For instance, in the sugar industry, machines proved to be the most significant investment item. This crucial role of technology in sugar cultivation was illustrated by J.H. Abendanon in ‘Het Onderwijs in Ambachten en Bedrijven in Nederlands Indie’ [The Education in Crafts and Business in the Dutch East Indies], which showed that technological innovation (i.e. new machines and chemical additives) not only replaced traditional farming methods, which extracted sugar from canes by hand but also accelerated the volume of sugar that could be extracted. In term, this technological transformation triggered a new set of demands: standardised processes and technical labour skills.

A growth in infrastructural projects was the other factor that added urgency to the calls to establish better vocational education in the Dutch East Indies. As industries flourished, the need for an improved infrastructural system became urgent, especially for transporting goods from one place to another (i.e. from the farms/factories to the harbours). For this reason, a particular technical institution was established in the mid-1850s. By the Royal Decree of 4th November 1854, the Bureau of Public Works began to undertake various infrastructural works such
Figure. 1.

Figure. 2.
One of the many advertisements for the new opening railways line in 1867. These advertisements were meant to facilitate transportation so that factories could attract labour from different places. Source: Jong, Michiel van Ballegoijen de. Spoorwegstations Op Java (Railway Stations in Java). Amsterdam: De Bataafsche Leeuw, 1993.
as bridges, harbours, canals and associated structures. This new infrastructure played a critical role in the success of existing industries. From 1867–73 there was an expansion of the railways and tramways in the Dutch East Indies of a total of 235 kilometres, which meant an addition of 39.16 kilometres per year. Even more dramatic expansion took place from 1873–1930, during which an average of 125.80 kilometres of new railways and tramways was added each year. Hence the total length of railways and tramways in the colony had reached 7,425 kilometres by the start of the 1930s (Fig. 2).

This emerging need for trained technicians caused a real urgency for new technical institutions in the Dutch East Indies. The problem was the limited supply of professional technicians and engineers from Europe, and to wait for more to arrive in the colony was unfeasible. The most logical solution to this problem would have been to train more of the European settlers living there with the necessary technical knowledge and skills. Unfortunately, most of the European settlers showed little interest in this field. They preferred to work as government officials or as office workers, as the technical field was considered to be a low-class job. As a direct consequence, a new kind of training institution called the Craft School [Ambachtschool] was opened to indigenous people in the Dutch East Indies to meet the demand (Fig. 3 & Fig. 4).

The pronouncement of the Ethical Policy in 1901 set out a new overall perspective towards education from the Dutch colonial government. Education in the Dutch East Indies, along with irrigation schemes and immigration incentives, were now considered the main pillars of propaganda. Due to this, a thoroughgoing educational system was established to provide equal opportunity and access for all groups of people within the colony. Before then in the Dutch East Indies, there had been only one type of school called European Elementary School or ELS [Europeesche Lagere School], first founded in 1817 as an elementary school intended for the children of European settlers. These schools gave clear priority to Europeans, while for the Javanese, only children from elite social strata could be admitted. Most graduates of the ELS schools continued their study in the Netherlands or else went into paid employment, as there simply were no higher educational institutions at all.
The 1901 Ethical Policy thus integrated technical/craft education, which had begun to flourish from the 1860s, into a complete system (Fig. 3). Henceforth were three levels of educational provision: 1/ Primary education from the European Elementary School or ELS [Europeesche Lagere Schools], Dutch-Chinese School or HCS [Hollandsch Chineesche Schools], and Dutch Indisch Schools or HIS [Hollandsch Inlandsche School]; 2/ Secondary education, of which vocational/technical schools were a part; 3/ Tertiary education in the form of universities or colleges. In the period up to the Second World War, there were five university/college level institutions in the Dutch East Indies. These were Technical College in Bandoeng [Technische Hoogeschool te Bandoeng] founded in 1921, Higher School for Legal Education in Batavia [Rechtshoogeschool te Batavia] founded in 1924, Higher School for Medical Education in Batavia [Geneeskundige Hoogeschool te Batavia] founded in 1927, School of Literature and Philosophy [Faculteit der Letteren en Wijsbegeerte] founded in 1940, and School for Agricultural Science [Faculteit der Landbouwwetenschap] founded in 1940.12

Complexity in the educational system arose from the demographical constitution of the colony and the vast geographical area of the Dutch East Indies. Legally, the Dutch government acknowledged three groups of people: Europeans, indigenous islanders, and ‘Foreign Easterners’ (who were mainly Chinese or Arabic). This legalised acknowledgement of ethnicity influenced privileges to whichever educational institution they could be admitted to. Pedagogically, this was also related to whichever language was used to deliver lessons in the classroom.13 This colonial condition complicated the organisation of education in the Dutch East Indies. The practical goal of ensuring a sufficient supply of technicians and the ideological goal of elevating the education of the indigenous people was therefore hindered by the existing educational privileges of the different classes/ethnicities (Fig. 6).

As a result, there were two opposing schools of thought among Dutch scholars and officials. Snouck Hugronje, a specialist in Oriental cultures and languages, and J.H. Abendanon, Director of Education from 1900–05, favoured a European-style education in which Dutch was the delivery language used. According to them, this approach would be
Figure 3.
Local laymen and a local supervisor in a government building project in Bandoeng in 1920s. Source: Special Collection Library - University of Leiden.
Figure 4.
A Dutch engineer supervised housing projects. Source: Special Collection Library - University of Leiden.
### General Education and Vocational Schools in the Dutch East Indies

<table>
<thead>
<tr>
<th>Primary Education (Lagere School)</th>
<th>ELS (Europeesche Lagere School)</th>
<th>HCS (Hollandsch Chineesche School)</th>
<th>HIS (Hollandsch Inlandse School)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary Education (Middelbare School)</td>
<td>HBS (Hooger Burgerlijke School)</td>
<td>MULO (Meer Uitgebreid Lager Onderwijs)</td>
<td>Kweekschool - 4 years [Teacher School]</td>
</tr>
<tr>
<td></td>
<td>AMP (Algemeen Middelbare School)</td>
<td>Kweekschool - 4 years [Teacher School]</td>
<td>Ambachtschool - 2 years [Craft School]</td>
</tr>
<tr>
<td>College/University (Hogeschool/Universiteit)</td>
<td></td>
<td>Technische School (ELS) - 4 years [Technical School]</td>
<td>UNIVERSITEIT/HOOGESCHOOL 4-5 years</td>
</tr>
</tbody>
</table>

Figure 5.

This diagram shows the three-level educational system in the Dutch East Indies as established after the 1901 Ethical Policy. Up till then, most schools were only at the primary education level. Vocational education was provided as secondary education, notably the Boarding School for Teachers (Kweekschool), the Crafts School (Ambachtschool), and the Technical School (Technische School). *Source: Brugmans, I.J. Geschiedenis Van Het Onderwijs in Nederlandsch-Indië [History of Education in the Dutch East Indies]. Groningen: Wolters, 1938.*
Pathways of Vocational Schools in the Dutch East Indies.

The top diagram illustrates the pathways for general education in the colony up to university or college level. The lower diagram shows specifically the pathway for vocational education. Widespread secondary education like MULO and AMS was only established after 1901, which meant before that higher education was only accessible to Europeans or elite-class natives. Vocational education shared the same situation. The pathway was opened to indigenous peoples so they could work in industries, not continue to university or college. Source: Brugmans, I.J. Geschiedenis Van Het Onderwijs in Nederlandsch-Indië [History of Education in the Dutch East Indies]. Groningen: Wolters, 1938.
more fruitful in producing a westernised Indonesian elite who could work as colonial civil servants and set a model to local people of lower social strata. The second school of thought was the one favoured by J.B. van Heutsz, Governor-General from 1904–09, and his successor A.W.F. Idenburg, Governor-General between 1909–16. Both believed that delivering primary and secondary practical education using local languages would bring greater benefits for the wider indigenous society.

A clear overview of technical and crafts training in the Dutch East Indies was drawn by Popping in his 1925 article. According to Popping, there were three types of education set up to achieve this objective. The first was the Technical College [Technische Hoogeschool], the second the Technical School [Technic School], and the last one The Craft School [Ambacht School]. Each kind of institution had a specific goal that would supposedly complement each other in supporting the technical fields in the colony.

The prime difference between these three kinds of schools lied in their pedagogy. The Craft School was the most pragmatic and therefore the earliest type to be established in the Dutch East Indies. Education in the Craft Schools, of which 75% of the program was on practical knowledge and skills, aimed to train all students to work for small-scale industries making shoes, watches, spectacles and furniture, and the like. Education in Technical Schools, as in the Craft Schools, also valued practicality but was aimed more to support larger industries such as building construction or factory manufacturing. Of three types of schools, the Technical College was the most distinct and advanced, in that its educational program strove for mastery in engineering and scientific knowledge.

Graduates of the Technical College could earn the title of 'Ingenieur [Engineer]', and as such would be eligible to work in the Public Works Department or other governmental institutions that involved engineering or building works. Hence in this educational scheme, and typical also of educational systems in colonies run by other European nations, building practice in the Dutch East Indies was very tightly integrated into civil engineering. Architecture education in the Technical College, therefore, tended to concentrate on the constructional and technical aspects of building, rather than creative design.
Producing Craftsmen

It should be pointed out that the term Craft School [Ambachtschool] was somewhat generic and loosely used in the Dutch East Indies. The term was commonly applied to any vocational education that focused on practical artisanal skills. Handicraft Schools [Handwerkonderwijs] and Home Industry Schools [Huislijtschool] were some of those among others in this category. Later on, especially after the 1901 Ethical Policy, the term ‘Craft School’ was also used to address vocational education that trained indigenous peoples to work in Dutch manufacturing industries, not just handicrafts.16

Once again, there tended to be two kinds of Craft Schools: one for Europeans and another for locals, each specified to meet different objectives. Craft Schools for Europeans were to reinforce the position of European enterprises, while the Craft Schools for indigenous people trained them in practical knowledge/skills so that they would provide the labour supply for small industries.17 However, following the 1901 Ethical Policy, this simple differentiation was reorganised. From then on, the Craft Schools for local peoples had two agendas – city-based schools trained native students to work in large-scale industries, and rural ones with more informal artisanal education such as the Desa Schools (village schools). The latter aimed to expand the knowledge/skills of indigenous craftsmen so they could participate in infrastructural maintenance in non-urban districts. Hence, carpenters could then not only produce excellent woodwork but were also expected to construct houses, make furniture, and install drainage systems and water supplies. Blacksmiths were expected to expand their work to make agricultural tools and household goods, repair bicycles and sewing machines, and even carry out simple electrical works. In this way, vocational knowledge/skills became disseminated more broadly throughout the Dutch East Indies. Yet it was evident that both kinds of Craft Schools shared the same underpinning agenda ultimately benefitting Dutch industries (Fig. 7).

There was also a significant gender division in vocational training in the Dutch East Indies. In Geschiedenis van Het Onderwijs in Nederlandsch-Indie [History of the Education in the Dutch East Indies], written in 1938, I.J. Brugmans mentions that the term ‘Craft Schools’ originally
These images are from the Crafts School in Batavia (top) and Tasikmalaya (bottom). Instruction in Dutch technical knowledge/skills took place not only through theoretical pedagogy but also through working methods. The use of different new tools and standardised industrial workbench introduced a different logic and methodology for craft education. Source: Special Collection Library of the University of Leiden.
referred specifically to secondary-level vocational schools for European boys. The equivalent for European girls was the Home Industry Schools [de huisvlijtschoolen]. Both took on pupils who had graduated from primary education. This gendered division continued after the reorganisation of the educational system in the 1890s, and then through the 1901 Ethical Policy when the Craft Schools was increasingly accessible to indigenous students.

Furthermore, there was clear ideological intent in founding the vocational education system. Before 1901, many of the original Crafts Schools in the Dutch East Indies were founded by private initiatives, generally driven by religious missionaries. For instance, in 1881 a new Craft School was founded by a Dutch missionary in Tanawangko (in Minahasa) in which students learned about braiding, wood-sawing and wood-carving. In 1884, the local Masonic Lodge established a Craft School in Makasar to provide practical education for low-income indigenous peoples, with courses in Mathematics, Construction Drawing, French, English and so on. Brugmans notes that another four Crafts Schools opened in the late-nineteenth century: Modjowarno (East Java, founded in 1893); Kediri (East Java, founded in 1896); Narumonda (founded by Batak missionaries in 1900), and Swaroe-Pasoeroean (founded in 1901).

Not all Craft Schools were the result of private initiatives, the colonial state had become increasingly involved in the Dutch East Indies. One of the early interventions anywhere by the Dutch colonial government was in establishing a boarding school in Batavia and an evening school in Soerabaja. In 1854, a committee was formed to establish a Christian school in Batavia under the leadership of J.F.G. Brumund. This school was called ‘Batoe Toelis’ and opened in 1856. It was a unisex boarding school for 6–15-year-olds. Pupils would learn general subjects as well as practical skills (Fig. 8) such as Drawing (for male students) and Sewing, and Household Management (for female students).

An evening school in Soerabaja that was opened in 1860 initially did not last long due to lack of students. The school later reopened in 1877, targeting young people who had completed primary education to train technical and industrial knowledge and skills in two-year courses where broad subjects were taught. In 1885, the school was reorganised in a final iteration to become the Public Craft School [Burger-
Ambachtsschool] that offered more substantial three-year courses. Graduates could then take the examinations for various posts such as in the Public Works Department, Land and Irrigation Department, or the Private Steam Shipping Company.22

Despite the intentions of the Ethical Policy, it was not until 1909 that the Dutch colonial government finally founded three Craft Schools aimed specifically at native peoples, located in Batavia, Semarang and Soerabaja. According to J.H. Abendanon, by the end of 1909, there were already 277 students enrolled in these schools: Batavia being the largest, with 145 students, followed by Semarang and Soerabaja with 69 and 72 students respectively. Interestingly, the students’ favourite subject was Metalwork, and indeed approximately half of the students in Batavia and Soerabaja took this course. Only in Batavia did carpentry become one of the most popular subjects, albeit the Semarang Craft School plus another set up in Ngawi were widely acknowledged for their excellence in teaching Carpentry (Fig. 9).

Debates about Technical Competencies: Engineers vs Technicians

The First World War, which ran from 28th July 1914 to 11th November 1918, significantly disrupted the links between the Netherlands and the Dutch East Indies. No students could go to the Netherlands to pursue engineering studies, and no engineers from the Netherlands could reach the colony. During this period – led by Karel Albert Rudolf Bosscha,23 a wealthy Dutch planter who owned the Malabar Plantation in Bandoeng – there began an initiative to establish a full-blown Technical College in the Dutch East Indies. This campaign was reinforced by the founding of the Royal Institute for Higher Technical Education in the Dutch East Indies [Koninklijk Instituut voor Hooger Technisch Onderwijs in Nederlandsch-Indie]24 back in The Hague as a preparatory institution for the new college.
### Batoe Toelis School in Batavia vs. Evening School in Soerabaja

<table>
<thead>
<tr>
<th>Subject</th>
<th>Batavia</th>
<th>Soerabaja</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>Mathematics</td>
<td></td>
</tr>
<tr>
<td>Arithmetic</td>
<td>Mechanic</td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>Technology</td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td>Commodity Science</td>
<td></td>
</tr>
<tr>
<td>Dutch</td>
<td>Physics</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>Chemistry</td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td>Accounting</td>
<td></td>
</tr>
<tr>
<td>Sewing &amp; Household Management</td>
<td>Economics</td>
<td></td>
</tr>
<tr>
<td>Hand- and Line-drawing (male students)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand- and Line-drawing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Figure 8.

Teaching subjects taught in two crafts schools before 1901. Mathematics and Trading knowledge was emphasized, and Drawing was a compulsory skill. *Source: Brugmans, I.J. Geschiedenis Van Het Onderwijs in Nederlandsch-Indië* [History of Education in the Dutch East Indies]. Groningen: Wolters, 1938.

#### Table: Number of Students in Three Crafts Schools

<table>
<thead>
<tr>
<th>Major</th>
<th>Batavia</th>
<th>Semarang (Opened in November 1910)</th>
<th>Soerabaja</th>
</tr>
</thead>
<tbody>
<tr>
<td>General (No Specialization)</td>
<td>60</td>
<td></td>
<td>59</td>
</tr>
<tr>
<td>Metalworking</td>
<td>67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woodworking</td>
<td>78</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>145</td>
<td></td>
<td>72</td>
</tr>
</tbody>
</table>

#### Figure 9.

This table shows the number of students in the three crafts schools in 1910. Woodwork and Metalwork were two of the main courses in the Crafts School, with the aim of producing skilled craftsmen for small industries in the colony. In the table, the Semarang school did not yet offer any particular courses. *Source: Brugmans, I.J. Geschiedenis Van Het Onderwijs in Nederlandsch-Indië* [History of Education in the Dutch East Indies]. Groningen: Wolters, 1938.
To design the curriculum, the institution appointed Jan Klopper, an engineering professor from the highly respected Technical College in Delft (TH Delft), to be the first Rector. According to the Annual Reports prepared in the 1920s for the General Assembly of the Royal Institute of Higher Technical Education in the Dutch East Indies, many of the first professors were European engineering professionals who had emigrated to the Dutch East Indies. Examples included R.L.A. Schoemaker, a former engineer in the Dutch East Indies Army, who was appointed as professor of architecture; J.H.G. Schepers, chief of the Triangulation Brigade of the Topographical Service in the Dutch East Indies, also a professor of bridge and road construction, and Ir. G. H. M. Viering, chief of the Central Purchasing Service in Bandoeng, was appointed as a professor of mechanical engineering.

The curriculum of the TH Delft was used as the primary reference for the new college in the Dutch East Indies, with just a few minor modifications: the duration of the engineering program was four years, one year shorter than at Delft; students were obliged to attend for the first year of their course; handbooks were provided for every course to mitigate the lack of access to source references; Mathematics was set as a core subject to provide students with an excellent engineering foundation; and such alike.

The Technische Hoogeschool te Bandoeng [The Technical College at Bandoeng] or TH Bandoeng, which was the official name of the new college, was thus aware from the beginning that the direction of education in the Dutch East Indies could not be identical to institutions such as TH Delft. As emphasised in the 1921 college annual, it realised that engineering problems in the colony were utterly different from those in the Netherlands where the land was flat and low, and seawater and rainwater were considered as the ‘enemy’. In the Dutch East Indies, with a radically different climate and topography, water was considered to be a blessing and a necessary element for irrigation systems. Engineers were required to be more innovative and creative, and the building of roads and bridges became more critical than that of water management.

Professor Klopper’s speech at the opening of the TH Bandoeng in 1920 highlighted the main objectives of the new institution (Fig. 10):
Our university of applied sciences also wants to meet this definition of higher education. And thus, like all higher education institutions, it accepts a dual-task. It undertakes the training and preparation for the independent practice of technical science, as well as the training for social relations. It wants to deliver practitioners of technical science and practitioners of technology. This education is not to say that a graduate will necessarily belong to either one or the other category. However, it is meant that every graduate should be as satisfactorily as possible a combination of both qualities, whereby personal aptitude and desire, sometimes also the circumstances, will decide which quality is the most prominent.31

This pedagogic agenda was implicit in its view that creativity and innovation were contradictory to the demands of the industry. As a result, the college chose to address practical and technical issues, although preferably using the more theoretical and scientific methods of engineering.

Meanwhile, after the 1901 Ethical Policy, several Technical Schools were established in the Dutch East Indies. The oldest was the Koningin Wilhemina School in Batavia32. Founded in 1901, it had two constituents: Department A offered a three-year course in Trade, while Department B offered technical training courses of the same length in Building Constructions, Mechanics and Mining Engineering. The school underwent a few reorganisations. In 1911, its Trade course was separated to become an independent school. In 1932, its other courses were expanded to four-year and five-year programs for hydraulic/electronic technicians and civil engineering technicians respectively. Another was the Koningin Emma School in Soerabaja. Established in 1912, it also offered two kinds of programs: four-year courses for railway technicians, mechanics and electrical engineers, and five-year courses for civil engineering technicians, mechanics and electrical technicians. A third institution was Princes Juliana School in Yogyakarta. Founded in 1917, it offered a four-year course for mechanics and a five-year course for building technicians and mechanics.33

Photographs of the college’s drawing studio (left) and the study model made by students (right). As was argued by Popping, education at the Technische Hoogeschool te Bandoeng favoured theoretical and scientific methods. The learning environment was hence different from that of Crafts School or Technical School/College, in that student scrutinised engineering problems at source through the use of drawings and models. Source: *Wetenschap, De Faculteit van Technische. Jaarboek Der Technische Hoogeschool Te Bandoeng* (Yearbook of the Technical College at Bandung). Bandoeng: TH Bandoeng, 1935.
With these brand new Technical Schools in mind, Popping launched a significant criticism of the prestigious Technische Hoogeschool te Bandoeng. In his aforementioned 1935 article, Popping urged a re-evaluation of the college because its contribution to the technical field in the Dutch East Indies was minimal. He offered two reasons in support. The first was that the financial situation of the Dutch colonial government was not as strong as before due to the detriments of the ‘Great Depression’ that had begun in 1929 in America, hence the operational costs of the TH Bandoeng were exceedingly high. This expense was not balanced either with an adequate or consistent number of graduates since never more than five students finished in any given year. Popping thus felt unable to justify the further existence of the college. Moreover, he pointed out that there was no shortage of engineers in the Dutch East Indies at the time. Popping noted that, based on the employment budget of governmental technical divisions in 1934 and 1935, the colony already contained approximately 200 civil engineers, which was sufficient.

His other point was related to the initial motive for establishing a major Technical College in the Dutch East Indies – the disruption caused by the First World War. However, since that war was long finished, the mobility of people between the Netherlands and its colony had returned to normal. Therefore, there was no necessity to educate engineers in the Dutch East Indies anymore. Furthermore, since all the new technologies that came to the colony came from Europe, it was better to study them over there.

Popping did not stop there, for he also argued that the actual demand for trained technicians in the Dutch East Indies had decreased significantly after 1928. Based on his calculations, over the forthcoming 30-year period, the demand for technicians in the colony – from both governmental offices and private industries – would amount to just 1,304 civil engineering technicians and 1,026 mechanics/electrical technicians. Hence, every year the availability of new employment between these two technical fields would be only 45 and 35 students respectively. As he pointed out, these numbers were not at all high and did not require a major college. The total numbers of graduates each year from two largest Technical Schools, the Koningin Wilhemina School in Batavia
and the Koningin Emma School in Soerabaja, could quickly provide the supply. When submitting his essay to the Dutch government officials, Popping insisted that they should instead return to the initial objective of Crafts Schools in the colony – that of simply training technicians to reinforce local industries. Therefore, he argued, practical education was more important than theoretical or scientific education. In this sense, the competences of secondary school graduates were already sufficient for the Dutch East Indies (Fig. 11).

Popping’s argument about the very small number of graduating students was corroborated by C.P.W. Schoemaker, professor of architecture at the TH Bandoeng. According to the Examination Report in August 1934 for that academic year, two batches of examinations had been conducted: the main examination in May 1934 and that for students with extensions in August 1934. However, Schoemaker implied that the results were not satisfactory. Indeed, almost all students had to take a remedial exercise in order to pass. In the first year in 1933–34, of 71 students admitted to course, 26 withdrew, 20 failed, and only 25 students passed in the Autumn extended examination. Only 37 students from the previous year’s cohort promoted to the second year of studies: 16 of them failed, and 7 of the remaining 21 needed to sit the extended examination to pass. For the third year of studies, 22 students were enrolled: of these, 3 were failed, and 11 of the remaining 19 students needed to sit for the extended examination to pass. Based on these figures, the pass rate was low in each batch; on average, only 50% of the students in the three classes (i.e. 65 students out of a total of 130) successfully continued into the next year or else graduated. This result was concerning for Schoemaker given that so many students were failing. In his report, he proposed to raise the difficulty level of the entrance examination and to revisit the idea of prolonging the course duration to five years. The latter suggestion was rejected, but the first one was taken seriously by the examination board. Schoemaker argued that this unfavourable situation was due to a lack of aptitude and intellectual capacity of those students being admitted. In his view, there were not many students who were ready for college-level technical education. Many of them frequently took a remedial examination. Consequently, they needed more time to complete their studies.
Figure 11.
Students and a teacher at the Princes Juliana School in Yogyakarta. Emphasising practical knowledge and skills, the students here worked and learned in small groups. This photograph shows the very different clothes and environment to the ordinary Crafts Schools. Given that education in the Technical Schools was intended to support Dutch colonial industries, this gave a certain social ambition to become part of European society. Source: Special Collection Library of the University of Leiden, The Netherlands.
It would appear that the debate about the expectancy for technical competences in the Dutch East Indies had been around since the late-nineteenth century, and was a long-running discussion even when training was only for Dutch settlers. H. De Bruyn, a Dutch Engineer who was Director of the Public Works Department in 1861 and 1874, raised this problem as far back as 1858 in a memorandum to the Minister of the Colonies at the time, J.J. Rochussen. De Bruyn said that to be able to work in the Dutch East Indies, engineers were required to possess excellent practical knowledge and skills, yet he felt that many young engineers coming over from the Netherlands lacked these necessary ingredients. It certainly seemed to be the case that Dutch engineers were not familiar with working under such different geographical and climatic constraints.

In response to Popping’s critique on the lack of need to train engineers in the Dutch East Indies, on the tenth anniversary of the TH Bandoeng a table was published to show just how small the number of engineers was. Hence in 1934, there were only 7 engineers per million inhabitants in the colony, compared to 115 engineers per million inhabitants back in the Netherlands. Thus the college argued that educating engineers at TH Bandoeng was still highly relevant. Notably, however, they ignored Popping’s frequently raised question of competences.

Popping’s argumentation was not without basis. As set according to the 1863 Secondary Education Act, all technical competencies required to reinforce industries in the Dutch East Indies were for fulfilled during the secondary technical education, with graduates’ focus on practical technical analysis. Mathematics and Geometry were thus to be the core of the training. Students who had graduated from secondary school could be admitted to various levels of its courses. In all, there were three stages of examination as elaborated in Articles 60 and 62 for students wanting to be awarded a Diploma in Building Engineering. The first stage, Examination A, was a general competence examination that students in all subjects needed to take. Students who passed this examination could continue to take Examination B and Examination C to test their proficiency in Mathematics and related theoretical subjects. Examination C was also used to test the student’s proficiency in the specific major
subject that they had elected to take, such as Architecture.\textsuperscript{44}

By having already obtained such sets of competencies from their secondary education, Popping argued that this means the education at the TH Bandoeng, which focused on theoretical and scientific discourse, was irrelevant for the Dutch East Indies. He felt that, in the field, technicians were more urgently needed than engineers. Doubts about whether the Dutch East Indies needed to have a higher-level Technical College had indeed been a debated topic since the foundation TH Bandoeng in 1917, and indeed the proposal to set it up was initially refused by the Netherlands government. They would have preferred it to be a secondary-level polytechnic but changed their minds in the face of demands from European societies in the colony whom the First World War showed a necessity for a complete educational system in the Dutch East Indies.

The debate rumbled on after the opening of the Technische Hoogeschool te Bandoeng in 1921, and so Popping’s arguments were hardly new. Endeavours to have education at TH Bandoeng validated by TH Delft were mentioned several times in correspondence with the foundation school in The Hague and in the meeting minutes of 28\textsuperscript{th} June 1928 and 28\textsuperscript{th} November 1934.\textsuperscript{45} Issues about funding and responses to Popping’s critiques were also raised in the latter meeting minutes, and again at the meeting on 22\textsuperscript{nd} January 1936.\textsuperscript{46} The duration of the architectural course at TH Bandoeng was another frequent discussion topic. Four years was seen as inadequate for students in the Dutch East Indies given that many students dropped out in the middle of the program or else required extended time to complete. Nevertheless, Jan Klopper continued to support the four-year course, such as in his letter to the foundation school on 18\textsuperscript{th} October 1935 after an extension of duration had once more been aired at a previous meeting.\textsuperscript{47}

At heart, the issue was one of ideology and finance. The relatively high operational cost of the TH Bandoeng was one of the key reasons for the criticisms launched by Popping. His view was that because many graduates from the ordinary Technical Schools possessed adequate knowledge and skills to meet the qualification requirements, then closing down the TH Bandoeng would better optimise governmental funding for technical education generally in the Dutch East Indies. Rather, to supply
the demand for technicians, as opposed to trained engineers, Popping proposed that the colony simply had to utilise the existing Technical Schools and Craft Schools more effectively. Those teaching at the TH Bandoeng naturally disagreed, arguing that their bigger task was to improve technical standards and design ambitions for the colony as a whole.

Concluding Remarks

**Technical Competences in the Dutch East Indies**

The discussion in this chapter has been of efforts to use technical training as an instrument to reinforce industrial performance in the Dutch East Indies, by incorporating students from indigenous communities as a necessary supplement to the smaller pool formed by the children of European settlers. The 1901 Ethical Policy added yet another layer of motives to this perceived need to reorganise technical education. Yet, in reality, the objectives behind technical and craft education in the Dutch East Indies did not change significantly during this period.

Instead, education and training in all of these institutions were utilised to introduce a particular set of knowledge and skills to the native society – in this case, the Javanese people. Although there were three pathways through which technical education was disseminated (Craft School, Technical School, and Technical College), there were many similarities in the expected competencies in terms of their curriculums and pedagogical methods. Technical knowledge and skills were already instilled in male students from the indigenous communities from the secondary school level in compliance with the 1863 Secondary Education Act. This piece of legislation outlined the kinds of competencies needed from Craft Schools and Technical Schools in its Articles 60, 61 and 62. Between them, these three articles guided in assessing the knowledge and skills of students as prerequisites to going on to obtain the diploma degree (Fig. 12).

As shown by the above table, Mathematics, Geometry and Drawing were the three subjects that underpinned both Craft and
Diploma Degree Examination of the Secondary school

[According to the 1863 Secondary Education Act]

Examination for the degree of technology major (Diploma van Technoloog)
Civil engineering, Architecture, Naval Engineering, Mechanical and Mining Engineering.

Examination A (Article 60)
1. Trigonometry and the principles of analytical geometry.
2. The Principle of Descriptive Geometry (Beschrijvende Meetkunde).
3. Theoretical and Applied Mechanis of the Knowledge of Tools.
4. Mechanical Technology
6. Applied and Analytical Chemistry.
7. Building Engineering - (as far as knowing building materials and composition of simple buildings.
8. Drawing and Ornament Drawing.

For obtaining the degree of Building Engineer (Architect), taking Examination B and Examination C was mandatory (Article 62)
1. Advance Philosophy
2. Spherical Trigonometry and Analytical Geometry.
3. Descriptive Geometry
4. Differential and Integral Calculus
6. Analytical Chemistry with regard to Building Materials.
7. Knowledge of Building Materials, both for building construction and Hydraulics Engineering.
8. Drawing for Hydraulic Engineering and Hand Drawing.

Examination C
1. Theoretical and Applied Mechanics and The Knowledge of Tools.
2. Hydraulic Engineering, including:
   - Construction of Generic Roads and Railways and Bridges.
   - Construction of Sea Defenses.
   - Knowledge on the rivers as a means of Drainages and Shipping.
   - Construction of Canals, Locks, Ports, and Maritime Works
   - Knowledge of Polders and Drainages.
3. Civil Engineering, including:
   - Construction of Simple Buildings.
   - Principle of Aesthetic in Architecture.
5. Specifications and Budget Planning
6. Principles of Geodesy and Practical Surveying and Leveling
7. Administrate Regulation with regard to Water and Public Works.

Figure 12.

Technical education in the Dutch East Indies: all similarly emphasised the need for the accurate delivery of information and a science-based approach. Each of the three subjects, however, played a different role in building up this technical training. Mathematics provided abstraction proficiency in scientific logic; Geometry equipped students with the capacity to exercise scientific methods in dealing with a practical problem, and Drawing offered the best practical instrument available in the technical field. This framework hence represented the core of the technical knowledge and skills that the Dutch colonists introduced to the Dutch East Indies.

This intervention undoubtedly succeeded to a certain extent. The proliferation of colonial industries in the Dutch East Indies did make a positive contribution to conditions in Java, and indeed to the lifestyle of some Javanese citizens – especially those in the elite social strata of indigenous peoples. A Javanese student who was admitted to a Craft School or Technical School, and especially to the TH Bandoeng at the peak of the pyramid, wished to earn themselves a better life by learning this foreign set of knowledge and skills now that local industries offered considerable opportunities for employment to those deemed eligible. For Javanese students who gained this technical training, it would give them direct economic benefit. And in doing so, this situation exposed Javanese people to various tools, techniques and working procedures that gradually came to influence their everyday practices in Carpentry and Metalwork – ultimately influencing the architecture of the Dutch East Indies accordingly.

Nevertheless, the effect of this migration of technical knowledge was not only limited to economic opportunities per se but intellectual participation. It provided access to the Javanese to participate further in the Dutch technical field, not only as a technician but an engineer and later on as an architect. The arrival of Dutch architects at the beginning of the 20th century, especially after the Ethical Policy, brought the notion of ‘architecture’ to the colony; building was no longer comprehended merely as construction but as design.

This polemic on the direction of technical education in the Dutch East Indies was not concluded until Indonesia’s independence in 1945. This engineering-based format was in fact carried out until the 1990s. The
title ‘Ingenieur’ or ‘Insinyur’ - in Bahasa Indonesia - was used for all graduates from technical fields, including architecture. In the 1950s, the only Dutch professor of architecture who taught in the technical college Vincent Van Romont suggested another way to conduct technical education in Indonesia. His inaugural speech in Fakultas Teknik Universiteit Indonesia (the name of Technische Hoogeschool te Bandoeng after Indonesia’s Independence) in 1954 reminds of C.P.W. Schoemaker’s inaugural speech, yet on opposite direction. Van Romondt, having worked as a technical inspector of the colonial Archaeological Service in Yogyakarta, Central Java from 20s years (1931-1954), had a great fascination and respect for Javanese culture. Hence instead of proposing Western rationality and education, he encouraged to instil traditional knowledge in building practice into technical college education. Further detailed discussion about Van Romondt is beyond this dissertation. Nevertheless, critical examination on the two inaugural speeches of Prof. Schoemaker and Prof. Van Romondt can be read in Abidin Kusno’s Charles Prosper Wolff Schoemaker & Vincent Van Romondt: Modernism and National Characteristics.

In the next chapter, we will discuss how this new intervention expanded the building practice in the colony and how it influenced building knowledge and practice of the indigenous people.
Notes

1 It is unsure whether “Popping” is a full name or just the surname. Nevertheless, in the referred article, besides the signature sign, the name that is written is only ‘Popping’. In a Minute of Meeting of the foundation of Bandung Technical School dated 22 January 1936, he was also mentioned by Mr. Popping.

2 This article, which written as a proposal in 1935, was a respond to the final report from de Commissie van Voorlichting inzake het Technisch- en Ambachtsonderwijs (The Assessment Committee for the Technical- en Craft Educations) submitted in 1929. The report suggested that international reorganization of the existing schools was necessary by merging some divisions into one, and reducing the teaching hours in the classes. The report also urged establishment of more Secondary Technical Training for Construction Engineer, Hydraulic Engineer, Land Engineer, Ship Operator and Electrical Engineer. Popping, “Het Technische- En Ambachts- Onderwijs in Nederlandsch-Indië (the Technic and the Craft Education in the Dutch East Indies),” ed. The Hague National Archief (The Hague: National archief, 1935).

3 Oil and rubber began to be explored and developed this period as well which set the Malay archipelago an important position of the world economic interest in the 20th century. The establishment of Royal Dutch Shell in 1907 staged this new phase. Although the overall predominant of the Dutch capital was in agricultural development, the outer islands were a more international operation. M.C. Ricklefs, A History of Modern Indonesia, C. 1300 to the Present (Boomington: Indiana University Press, 1981), 144.

4 70% of Dutch capital in 1928 was invested in Java and almost half of it in sugar. In East and South Sumatera over 40% of agricultural investment in 1929 was non-dutch, over 18% of it British. Small-scale industries in Dutch East Indies accounted for 35% of rubber production, 79% of tobacco, 57% of coffee, and 19% of tea of the total production.


6 Ibid., 50.

7 This text was prepared by Abendanon for a presentation at the Colonial Agricultural Exhibition (Het Koloniale Landbouwtentoonstelling) in 1912 which aimed to discuss the important connection between agriculture, crafts and trades.


11 After the pronouncement of the Secondary Education Act [Middelbare Onderwijswet] in 1863, which was initiated by Johan Rudolph Thorbecke, the equivalent secondary education for European (the five-years program of High Civic Scholl (HBS) was established in Batavia, Semarang, and Surabaya in 1879. I.J. Brugmans, Geschiedenis Van Het Onderwijs in Nederlandsch-Indië (History of Education in the Dutch East Indies) (Groningen: Wolters, 1938), 191.

12 Johan Rudolph Thorbecke (14 January 1798 – 4 June 1872 was the Prime Minister of the Netherlands for two periods (1862 – 1866 and 1871 – 1872). He was the author of the revised version (1848) of the constitution for the Kingdom of the Netherlands [Grondwet voor Het Koninklijk der Nederlanden].

13 The Royal Decree of September 28, 1892 (Koninklijk Besluit van September 1892) (Indisch Staatsblad 1893, no. 125) arranged the education for native into two
categories; the first category was an education for the aristocrat or the wealthy group, and the second category was for the ordinary group.

14 Rickels, *A History of Modern Indonesia, C. 1300 to the Present*, 148.; A work of M. Samidjo Dwidjoseomarto entitled Babad Nederland (Chronicle of the Netherlands) published in 1928, is another case of language issue in educational field in the colony. This work was actually a note on the history of the Netherlands. Dwidjoseomarto, a chair of an extracurricular course in Java, described in the preface that this work was his attempt to compile a brief history of the Netherlands in Javanese. In this way, more Javanese would have understood the subject better and able to pass the final examination of the teacher school (Normaalschool) in Kutaraja. See also M. Samidjo Dwidjoseomarto, *Babad Nederland (Chronicle of the Netherlands)* (Kotagede: Canisius, 1926).

15 Popping, “Het Technische- En Ambachts- Onderwijs in Nederlandsch-Indië (the Technic and the Craft Education in the Dutch East Indies),” 3-4.

16 Ibid., 5-7.

17 Crafts and craftsmen had been around in the Dutch East Indies, especially in Batavia, whom mostly were French, as part of the everyday life of the European. They were watchmaker, shoesmaker, furnituremaker and many more. Brugmans, *Geschiedenis Van Het Onderwijs in Nederlandsch-Indië (History of Education in the Dutch East Indies)*, 188.

18 13 August 1857 (Staatsblad no. 103), empowers the provision of the secondary education for girls.


20 Jan Frederik Gerrit Brumund (1814-1863)

21 At the end of 1875, Public Vocational Education was not ready yet in the Dutch East Indies. Nonetheless, there were few private schools for girl opened for teaching female students handicrats. Meanwhile in missionary areas, wifes of the missionaries become teacher in their spare time for teaching female students. Brugmans, *Geschiedenis Van Het Onderwijs in Nederlandsch-Indië (History of Education in the Dutch East Indies)*, 187.

22 Ibid., 189-90.

23 Karel Albert Rudolf Bosscha (The Hague, May 15 1865 - Malabar, Bandung, November 26, 1928) arrived in the Dutch East Indies in 1887 joining his uncle who already established a company there. He and his family was acknowledged as a philanthropist and a supporter of science. His foremost contribution was the developement of the Bosscha Observatory in Lembang, Bandung. Currently, the observatory is still in used and managed by the Department of Astronomy, Bandung Institute of Technology.

24 The Technische Hoogeschool te Bandoeng became a public school under the Dutch Government in 1924. Henceforth, the Royal Institute for High Technical Education of the Dutch East Indies was also disbandend. A fondation was established to support the connection between the Technical College in Delft and in Bandung called Bandoengsch Technische Hoogeschool-fonds.

25 Richard Leonard Arnold Schoemaker (1886-1942)

26 Johan Hildebrand George Schepers (1885-1968)


28 Delft has a long history of technical education. The technical school in Delft was started by the founding of the Royal Academy in 1842 (established by the Royal Decree on January 8th, 1842). Following the enactment of the Secondary Education Act in 1863, the school was disbanded and the Polytechnic school was established in 1864. In 1905, the polytechnis school was expanded to be a college level insitution.

Stichting van Het Koninklijk Instituut voor Hooger Technisch Onderwijs in Nederlandsch-Indië, De Technische Hogeschool Te Bandoeng (the Technical College at Bandung) (Weltevreden: Landsdrukkerij, 1920), 5.; See also De Faculteit van Technische Wetenschap, Jaarboek Der Technische Hogeschool Te Bandoeng (Yearbook of the Technical College at Bandoeng) (Bandoeng: TH Bandoeng, 1935), 10.

Probably because of this emphasis, Berlage gave a lecture about the extraordinary and innovative design of bridge construction. This lecture titled De Brug als Bouwwerk (The Bridge as Building Work) was delivered on 25 April 1923. Herman van Bergeijk, Berlage En Nederlands-Indie: ‘Een Innerlijke Drang Naar Het Schoone Land’ (Berlage and the Dutch East Indies: ‘A Personal Urge for the Beautiful Land’) (Rotterdam: Uitgeverij 010, 2011), 19.

Nederlandsch-Indië, De Technische Hogeschool Te Bandoeng (the Technical College at Bandung), 22.

Th Stevens mentioned that the Koningin Wilhemina School was actually expansion of the craft school founded by the mason in 1865. Th Stevens, Tarekat Mason Bebas Dan Masyarakat Di Hindia Belanda Dan Indonesia 1764-1962 (Freemason and Society in the Dutch East Indies and Indonesia 1764 - 1762) (Jakarta: Pustaka Sinar Harapan, 2004), 159.

In the minute of meeting of the Board of the Bandoensche Technische Hoogeschool Fonds, the issue of closing the higher education in the Dutch East Indies was raised. Lack of supporting funding became one of the primary issue. Furthermore, a remark was also made about the equality between engineer who graduated from TH Delft with whom graduated from TH Bandoeng. Although both schools were acknowledged equally, in reality the graduates from Delft were better recognized. This discussion is in Ir. Wouter Cool, “Vergadering Van Den Raad Van Beheer (Minutes of Meeting of the Board of Directors),” ed. Stichting Bandoensche Technische Hogeschool-Fonds (The Hague: National Archive - The Hague, 1933).

Popping, “Het Technische- En Ambachts- Onderwijs in Nederlandsch-Indië” (the Technic and the Craft Education in the Dutch East Indies)," 5-7.

Charless Prosper Wolff Schoemaker or Charles Schoemaker was an architect and the second professor of architecture at the TH Bandoeng. Further discussion about his thoughts and contribution in the dissemination of Dutch architectural knowledge and practice will be discussed in Chapter 3.

Wetenschap, Jaarboek Der Technische Hogeschool Te Bandoeng (Yearbook of the Technical College at Bandung), 164-5.

Most of the engineers that practiced work in the Bureau of Public Works were graduated from Delft. Since 1874, the diploma of Delft school was one of the prerequisite to be employed by the bureau. Ravesteijn and Kop, For Profit and Prosperity: The Contribution Made by Dutch Engineers to Public Works in Indonesia, 1800-2000, 56.

In the program book of Technische Hogeschool te Bandoeng in 1941 edition, his proposition was depicted in clarity in how the architecture program was conducted in the school. The program was a three-year program. It was grouped into two major
topics: 1. Building (bouwkunde) and 2. Architecture (bouwkunst). The topic of Building was delivered in the first and the second year of the program. Its classes focussed on materials, construction and details. It was only in the third year, the students would learn about the history of architecture and city planning as well as specification and budget in a building. He taught all of the topics by himself (at least by 1941) which indicated his substantial contribution to the practice of architecture in the archipelago.

43 In the Dutch East Indies, there were three types of secondary education. The first one was High Civic School or HBS (Hoogere Burgerlijke School), a five-years program aims to equip students with knowledge and skills for high administrative works. The second one, equivalent to HBS, was the MULO and AMS, a 3 years and 3 years program respectively. And the last type was Technical School. Initially Technical School was part of HBS and later after the separation, each of the school emphasized on different specific direction. The technical schools focused on equipping the students relevant technical skills to the existing industries. The education at the HBS concentrated on the trading and commerce.


45 In his minute of meeting of the foundation board, Ir. Wouter Cool, treasury secretary of Bandoengsche Technische Hoogeschool Fonds, that the matter of closing the technical college due to funding problems was already less concerning. Yet, the issue of maintaining quality of the graduates was still unsolved that pointed out that the problem might also due to the decreasing quality of the teaching of the secondary education. In response to this matter, the idea of exending the duration of program to 5-years was fair to revisit. This note is written in Ir. Wouter Cool, “Vergadering Van Het Algemeen Bestuur (Minutes of Meeting of the Board of the Directors),” ed. Stichting Bandoengsche Technische Hoogeschool-Fonds (The Hague: National Archive - The Hague, 1934).


48 Popping's concern was also shared by JHR. H. Loudon, Dutch Minister of Foreign Affaris during the First World War. In his letter to Ir. Wouter Cool, he found Popping's argumentation relevant. A higher education with only one faculty was unrealistic, and furthermore, the opinion in public that graduates from the TH Delft was better in public had also undermined the support of the existence of the college. The concern is written in Loudon, “Letter to Ir. Wouter Cool.”

As mentioned in Chapter 2, the enactment of the 1870 Agrarian Law propelled a dramatic increase in infrastructural projects in the Dutch East Indies. Already founded by a Royal Decree dated 4th November 1854, the Bureau of Public Works had been established precisely to undertake these kinds of strategic projects throughout the colony. In order to cover the vast area of the archipelago, it was split into two divisions. The first department was responsible for all public works in Java, while the second one undertook infrastructural projects in the outer islands. Commonly known then as the BOW [Burgerlijke Openbare Werken], the Department of Civil Public Works also became an important hub that connected engineering methods and technical proficiencies between the Dutch East Indies and the Netherlands. All engineers arriving from the Netherlands, mostly graduates from the Technische Hoogeschool back in Delft (TH Delft), worked in the Dutch East Indies through this bureau.

The BOW provided a systematic point of reference through the colonial buildings that are designed and constructed. According to the BOW’s archives, in 1931 it had fixed plans for 30 building types organised into four groups: 1/Governmental Buildings; 2/Police Buildings; 3/Schools; 4/Public Facilities. As a consequence, similarities in terms of spatial modulation and structural system were more than evident in the BOW’s schemes. Such an approach was efficient and economical; construction cost could be precisely estimated because the design information included the number of workers and the required time to complete a project. Given this rationalist framework, the BOW unsurprisingly tended to be indifferent towards architectural aesthetics. In their view, as long as the building met its functional purpose, then the objective was fulfilled. Criticisms towards the BOW’s reductive building practice were sprung by many Dutch architects after they arrived in the colony.

Nevertheless, there was no doubt the BOW was still acknowledged as one of the institutions with the technical expertise in conducting
engineering works in the tropical context. Regardless of the criticism towards their building practices, many architects who came to the Indies still considered BOW as a ‘foyer’ where they were commissioned to work or hired as officers at the bureau such as Frans Johan Lourens Ghijsels (1882 - 1947), and C. P. Wolff Schoemaker (1882 – 1949). Hendrik Petrus Berlage (1856 – 1934) ‘s trip to the Dutch East Indies in mid 1923 – in which he gave a lecture in Amsterdam in January 1924 and then published a travel journal titled *Mijn Indische reis [My Indies Trip]* in the summer of 1931 – brought a discussion of architectural practice in the colony to a broader architectural audience. Berlage’s near-four month visit to the Dutch East Indies began in Batavia, where he arrived at Tanjong Priok port on 23rd March 1923 (Fig. 1). He visited many places, although most were in Java. Starting in Batavia, he travelled to Bandung, Semarang, Yogyakarta, Trowulan, Wonosobo, Bali and Padang Panjang; of these, only Bali and Padang Panjang are outside Java. According to Herman van Bergeijk in his 2011 book, *Berlage en Nederlands-Indie [Berlage and the Dutch East Indies]*, the actual motive behind this visit to the Dutch East Indies was never entirely clear. Notes and remarks in Berlage’s journal implied that the trip was for personal reasons, although there were also correspondences indicating that he might have hoped to pick up some projects and commissions in the colony.4

Regardless of his motivation, Berlage was well prepared for the trip. He had received much information in advance about the architects and buildings of the Dutch East Indies from Jacob Frederik (Jaap) Klinkhamer, a professor of architecture at TH Delft, who knew many people in the colony from having previously practised there. From these references, Berlage was introduced to the works of two of the leading Dutch colonial architects, Henri Maclaine Pont and Herman Thomas Karsten, with whom he had met up frequently when over in the Dutch East Indies, and he learned about the magazines published by an architectural firm, Cuypers & Hulswit, under the title of *Het Nederlands Indische Huis Oud & Nieuw [Dutch East Indies Houses Old and New]*. 5

By the time Berlage arrived in the colony, discussions about what ought to be the appropriate new architecture for the Dutch East Indies was already in full force. Maclaine Pont and Thomas Karsten were unsurprisingly at the forefront of the debates. Another figure who
was highly vocal on this matter was the aforementioned C.P. Wolff Schoemaker, an architect and professor at the Technische Hoogeschool te Bandoeng (TH Bandoeng). All of their writings and debates about contemporary building practice in the colony not only garnered attention among European settlers but also among educated Javanese circles, especially the latter’s social elite who were mostly literate in the Dutch language and represented a valuable supply of clients for architects.

After Berlage returned to the Netherlands on 8th April 1924, the Royal Institute of Engineers [Het Koninklijk Instituut of Ingenieur] in Amsterdam invited him to give a presentation about his experiences in the Dutch East Indies. The lecture, which was titled ‘De Europeesche Bouwkunst op Java [European Architecture in Java]’, was later published in the weekly journal De Ingenieur in its May 1924 edition. Among the Dutch architects practising in the colony that was mentioned in Berlage’s talk (Fig. 2), there were three architects that he discussed in depth: Maclaine Pont, Thomas Karsten and C.P. Wolff Schoemaker.

During his trip, Berlage had discovered a lot of high quality craftsmanship in indigenous buildings. Furthermore, after meeting with Maclaine Pont in Trowulan on 23rd March 1923, the experience of visiting the remnants of 15th-century Javanese court in Majapahit impressed him greatly. In his Amsterdam lecture, Berlage observed pointedly that there seemed to be very little attempt neither from the colonial government nor Dutch architects in the Dutch East Indies to learn from this exquisite craftsmanship. He suggested in contrast that being influenced by local building practices was inevitable for colonial architects, and therefore should not be hindered:

‘Eventually, the problem is a historical phenomenon, by which a colonising power wants to impose not only its authority but also its culture on the dominated people. However, in that case, it is conceivable that there will be a reverse influence, which of course depends on the strength of the civilisation of the colonised people. The case of Rome and Greece was one of an example where Roman was highly influenced by the Greek art form.’
Figure 1.


Figure 2.

The knowing references to Neo-Classicism and Art Deco in these projects, each designed by Dutch-trained architects, demonstrated a different level of attention to aesthetics than in the BOW’s buildings: (a) Javasche Building Bank in Bandoeng (1918), designed by Eduard Cuypers (1859–1927); (b) Concordia Society Building in Soerabaija (1926), designed by Cosman Citroen (1881–1935); (c) Savoy Homan Hotel in Bandoeng (1880), designed by Albert Frederik Aalbers (1897–1961).
In his lecture, Berlage likewise criticised the banality of the commonplace practice in the Dutch East Indies of borrowing superficial elements from indigenous buildings and local crafts simply for decoration. Even though Berlage did not mention any particular names in this respect, it is certain that Wolff Schoemaker was one of those ‘banal’ architects to whom he was referring. The latter’s Majestic Theatre in Bandoeng was indeed one of the best-known examples of dressing up European-style architecture with Javanese ornamental details (Fig 3).

In this regard, architects were undoubtedly one of the professions that played a critical role in the Dutch East Indies in the era following the 1901 Ethical Policy. As the archipelago was then going to be developed as a ‘second home’ for Dutch settlers, architects competed to devise novel building types to fit into the tropical context. Huib Akihary has produced a list of 127 Dutch architects practising in the Dutch East Indies at some point between 1905–45. In reality, the number of Dutch architects in the colony was likely to have been higher, but the scarcity of archives makes it impossible to trace them all.

This chapter will therefore discuss the interventions by this milieu of colonial architects in existing building practice in the Dutch East Indies, specifically through the agency of the BOW. The proliferation of private architectural firms in the colony also made less direct contributions to attempts to reduce the perceived gap in technical knowledge and skills among indigenous craftsmen. To achieve this objective, the Dutch architects who were involved tended to express two differing viewpoints. The first group styled themselves as reformers by rejecting Javanese crafts and culture outright and arguing instead for the imposition of Western scientific rationality as the only way to proceed. Conversely, the second group believed that Javanese crafts and culture offered a profound resource through which to develop new architectural typologies. Although these two positions were different ideologically and methodologically, both in their own way objectified Javanese culture values and building practices.

In this chapter, it will be argued that the discourse about pursuing an innovative type of architecture for the Dutch East Indies was at their
Figure 3.
The decorative detail of the Kala Head on the façade of the Majestic Cinema (1922) in Bandung, designed by Wolff Schoemaker. The original name of the cinema had been the Concordia, but this was later changed to avoid confusion with an earlier establishment called the Concordia Club. Source: van Dullemen, C.J. Tropical Modernity: Life and Work of C.P. Wolff Schoemaker. Amsterdam: SUN, 2010.
core based on a typological approach. Dutch colonial architects found themselves able to implement their knowledge about Javanese building practices at a technocratic level, without the necessity of comprehending the underlying values of Javanese culture. In other words, Dutch architects reformulated Javanese building practices away from their original meanings for their own vested interests. To examine how such pursuits operated, this chapter will scrutinise the ideas and designs of the three aforementioned Dutch architects highlighted in Berlage’s lecture: i.e. Maclaine Pont, Thomas Karsten and C.P. Wolff Schoemaker.

Problematising the Origins of Javanese Arts and Crafts.

Charles Prosper Wolff Schoemaker (1882–1949), who later shortened his name simply to Wolff Schoemaker, was as mentioned a prominent architect and professor of architecture at the TH Bandoeng. Together with his brother, Richard L. Schoemaker, they played a crucial role in disseminating colonial architectural ideas throughout the Dutch East Indies. Charles was born in Banjoe Biroe, Java on 25th July 1882, while Richard was born in Roermond, Netherlands, on 5th October 1886. Both went to the Koninklijke Militaire Academie in Breda to study engineering, but after that the siblings began separate paths. Upon completing his training, Richard moved to continue his engineering studies at TH Delft. Charles meanwhile returned to the Dutch East Indies, where – after a spell as a military engineer – he was employed from 1911 by the BOW. By 1914 he had risen to the role of the Director of Public Works for the colony.¹⁰

In 1917–18 Wolff Schoemaker travelled to Europe and the United States of America while on furlough during the First World War. He visited some key cities across the USA, namely New York, Buffalo, Cleveland, Detroit, Chicago, Washington, Los Angeles, Long Beach, Sacramento, Santa Rosa and San Francisco. Schoemaker’s fondness for the architecture of Frank Lloyd Wright, of which he saw many examples during this trip, came subsequently to influence his architectural ideas and projects for the Dutch East Indies.

Within the Dutch East Indies itself, the Dutchman was most
widely known for his teaching endeavours at TH Bandoeng. Following his furlough period during the First World War, Charles worked closely as an architect with his brother, Richard, and also supported the latter in becoming one of the very first professors at TH Bandoeng. In 1930, however, Richard decided to accept a position at TH Delft, at which point Wolff took over the position at TH Bandoeng.

Of the three architects being discussed in this chapter, Wolff Schoemaker possessed the most eccentric views regarding what should be the ‘New Indies Architecture’. He always liked to portray himself as a ‘modern’ person, albeit in a rather complicated sense. He was not an active writer either, unlike Maclaine Pont or Thomas Karsten, for instance. During his residence in the Dutch East Indies, there are only five known published articles by Wolff Schoemaker. In these texts, he wrote as a ‘man of science’ who carried the firm belief that Western research methods were the right and proper way to scrutinise phenomena, solve problems, and create innovations. Hence, much of his argument was delivered as an attempt to demonstrate that his judgment was derived from clarity and rationality, without any subjective or romantic bias. His lively debates with Maclaine Pont in the public media about the need to understand indigenous building practice when designing modern buildings for the Dutch East Indies were, as a result, nothing short of profound.11

Two of Wolff Schoemaker’s texts are especially enlightening. The first is a 1924 book entitled Aesthetiek en Oorsprong der Hindoe-Kuns [Aesthetics and Origin in Hindu Art],12 which was published as an explicit response to a recent book by Frederik David Kan Bosch about Javanese arts and crafts, Een Hypothese Omtrent den Oorsprong der Hindoe-Javaansche Kunst [A Hypothesis about the Origin of Indian-Javanese Art].13 The second text was written in 1930 under the title of De Aesthetiek der Architectuur en De Kunst der Modernen [The Aesthetics of Architecture and Modern Art], this being the text of his professorial inauguration speech at TH Bandoeng. Wolff Schoemaker’s support for European Modernist architecture was readily evident in these two texts, and hence it is worth further exploring each of them in turn.

As mentioned, in 1920 the head of the archaeological service in the Dutch East Indies, FDK. Bosch14 had published Een Hypothese Omtrent den Oorsprong der Hindoe-Javaansche Kunst [A Hypothesis about the Origin...
The term ‘origin’ (Dutch: Oorsprong) that Bosch used in his title aimed to emphasise the complex history of Javanese civilisation. Extensive remains of a former ‘high civilisation’ from around the 8th CE to 16th century CE could be readily found in Java; their refined stone and timber craftsmanship, and the scale of these monumental structures, were extraordinary. However, how had the Javanese people of that era acquired such knowledge and skills in building? Did the Javanese actually erect all of these monumental structures? Furthermore, if the Javanese had likely learned these building practices from India, how did this cultural transfer occur? And did the earlier Javanese people only replicate Indian arts and crafts, or were other aspects involved? These kinds of questions baffled Dutch scholars at the time. Furthermore, this tradition of monumental structures somehow disappeared once the power base of the Javanese kingdom moved back to Central Java at some point during the 16th century CE. Afterwards, Javanese houses and palaces were only built as more superficial timber structures, with the monumental stonework having disappeared. This phenomenon raised further questions. Why were the previously advanced building techniques not used anymore? What had disrupted Javanese architecture?

Responding to those questions, Bosch argued that Javanese arts and crafts had been the product of cultural appropriation. Traces of Indian culture were abundant in Javanese literary works, with Javanese names and words being frequently mixed with High Indian terms. Therefore, according to Bosch, the most probable explanation was that these earlier Javanese people had acquired their knowledge and skills not by direct teaching or formal training in India, but by reading Indian literature brought by the traders and priests who flourished during the era of the Mataram Empire in the 8th century CE.15

It is highly likely that knowledge of Silpasatra, one of the most prominent Indian building treatises, was widely disseminated in Java at that time.16 It certainly seems to have become an essential reference for Javanese builders who were erecting such monumental structures. For Bosch, this mode of dissemination explained why clear traces of Indianization were evident despite Javanese Hindu temples bearing little resemblance to those in India. Indeed, many citations of details and forms found in Javanese temples are in the pages of Silpasatra. In Bosch’s
argument, the only explanation for this situation was that Javanese people had learned their building practices directly from this manual, and had then reconfigured them when building their temples themselves. This proposition, in his view, was corroborated by the fact that there were no everyday Indian words in the Javanese language, suggesting that there were never any prominent Indian settlements in Java.

Accordingly, Bosch came up with five propositions: 17

1. There was never any large colony of Hindu building workers in Java.
2. No known structure in India can be rightly attributed to any artisans who had been working in Java.
3. Hindu art in Java can easily be explained by looking at the rules in the Silpasstra.
4. Before any Hindu influence arrived in Java, the Javanese were however already practising their own monumental culture.
5. The fact that the modern Javanese people ‘are satisfied with the poorest houses’ and ‘show no trace of genius or only the slightest pursuit of causality’ was, in fact, a common trait that occurred in many hitherto ‘high’ civilisations. People that used to excel in the past, like the Javanese, were sinking back to utter ignorance.

In other words, Bosch was convinced that the refined artisanship of that earlier Javanese civilisation was not entirely due to a process of Indianisation. He believed that advancement in the arts and crafts had already been present even before the 8th century CE.

Bosch’s five propositions were widely accepted among Dutch Javanese scholars and historians at the time, and indeed later on. One later supporter was Petrus Josephus Zoetmulder, a Dutch Jesuit priest and expert in the Old Javanese language. In his 1974 book, Kalangwan: A Survey of Old Javanese Literature, Zoetmulder asserts that Javanese writing, prior to the Islamic era in Java from the 16th century, took the form of belle-Lettres texts where the primary goal was to evoke a poetic resonance for literary art. This kind of literature was best represented by the Kakawin form, a poem that followed the rules of Sanskrit prosody.
According to Zoetmulder, *Kakawin* was a traditional pattern used to order literary composition. Therefore, although Sanskrit had influenced the Javanese language, traditional structure and pattern remained unaltered. This phenomenon was in contrast to places on the Southeast Asian mainland, where the Sanskrit overrode the existing linguistic properties.

The implication that the Javanese people had a long tradition of refined ‘high’ culture was very much doubted by Wolff Schoemaker. He accused Bosch’s analysis of being unsatisfactory due to its lack of references to contemporary anthropological studies, which implies that Bosch possibly made incorrect assumptions – thereby arriving at Bosch’s questionable conclusions. Schoemaker’s book written in response, *Aesthetiek en Oorsprong der Hindoe-Kunst op Java* [*Aesthetics and Origins of Indian Art in Java*], as published in 1924, was thereafter his attempt to contradict Bosch’s propositions on two fundamental grounds.

Firstly, Wolff Schoemaker argued that language was an unreliable medium through which to determine the presence or not of a particular ethnicity or nation. He pointed out that modern anthropology did not rely upon linguistic characteristics anymore because of all the erratic factors that are involved in language formation and adoption. Therefore, he felt there could be no valid conclusion taken from that kind of finding: the absence of Indian languages in the everyday words or phrases of the Javanese people did not constitute a hypothesis about whether there had been Indian settlements in Java in the past.

Wolff Schoemaker’s second challenge was about the seeming inconsistency of typology between temples in India and Java. According to Bosch, there was a minimal resemblance in terms of actual built form or ornamentation, which is why he contended that the construction of temples in Central Java had to have been carried out by indigenous peoples. Schoemaker counter-argued that such a comparison was futile; what was necessary was to look deeper into the prototypical designs of temples in both countries. Those prototypes would reveal the underlying principles, and not just the surface forms, which, as Schoemaker pointed out, could vary simply because of the influence of an individual craftsman’s creativity. Moreover, given that Indian temples were much older than those in Java, they had undergone several later
iterations in their form and ornamentation. Merely comparing the current configurations of temples, as Bosch did in his book, was hence methodologically invalid.

Wolff Schoemaker instead produced diagrams to reveal the essential compositional similarities between the oldest temples in Java (Fig. 4). Through this drawing, he was arguing that the resemblance of the overall anatomy between these temples was evident: i.e. there was a tripartite division (Capital – Body – Pedestal) in both temples, despite the apparent differences in their detailed ornamentation. It was a hypothesis reinforced by a further diagram that he drew (Fig. 5). Schoemaker believed that these various capital profiles all shared similar anatomy, and again that their differences were only at the decorative level.

This analysis of temple anatomy thus became the foundation of Wolff Schoemaker’s criticism of Bosch’s theory, with the former doubting that the formal composition and the constructional methods of temples in Central Java were produced by Javanese artisans working on their initiative. Schoemaker pointed out that Bosch did not seem to understand the actual nature of the Indian treatises. *Silpasastra* and the other *Vastu sastras* were never intended as a manual for building workers; instead, they were academic treatises, meaning that only highly educated persons would have been able to comprehend them. He felt it was unlikely that ordinary Javanese people of that period would have had sufficient literacy to read and comprehend these Indian building treatises.

Wolff Schoemaker’s fundamental objection stemmed from his definition of ‘Decorative Art’ compared to ‘Ornamental Art’. Schoemaker asserted that the latter, unlike the former, did not just consist of frivolous added elements; instead, it was something that needed to be integrated into the whole design intention of the particular structure. In this regard, he said that he could not find any innovation in Javanese temples aside for some minor variations here and there in their decorative details. Schoemaker was thus unconvinced that the Javanese people had never once possessed a fine tradition of building practice, only of the most superficially decorative arts and crafts.

Why, then, were there no remaining traces of settlements that might once have contained the educated Indian building workers who
Figure 4.

(Top) Carving profile comparison between Ardjoena and Kalasan Temples, considered to be the two oldest in Central Java (top).

(Bottom) Carving profiles of some other famous temples in Central Java. These diagrams were probably part of a project that Wolff Schoemaker was conducting during his time at TH Bandoeng (see the stamp at the top-centre of the diagram).

*Data in the footnotes is in parentheses.

Comparison of the profiles of Capital (top) and Pedestal (bottom) in temples in India (starting on the left) and Central Java (starting on the right). To strengthen his argument, Schoemaker used a similar method to show that many other Indian temples likewise followed a similar anatomical composition. Source: Schoemaker, C.P. Wolff. Aesthetiek En Oorsprong Der Hindoe-Kunst Op Java [Aesthetics and Origin of the Hindunese Art in Java]. Semarang - Soerabaia - Bandoeng: G.C.T. Van Dorp & Co., 1924. Redrawn by author.
built the Javanese temples? Wolff Schoemaker’s response to this question came from Eugenic theory. He quoted a statement from Dr Johan Hendrik Caspar Kern to the effect that the Javanese were not, in fact, the original population of Java or adjacent islands. According to Kern, they were a people who had simply migrated from the Indian coastline and spread themselves over Southeast Asia, including the Indonesian archipelago, from around 500 BCE.

Wolff Schoemaker believed that race determined not only people’s physical traits but intellectual traits as well. If some Javanese people descended from racially mixed relationships, it might explain why some earlier Javanese people would have been able to comprehend and execute such intricate buildings. He cited the 1915 statement by the German Eugenic theorist, Eugen Fischer, in _Die Rasseunterschiede der menschen [The Racial Differences of Humans]_, to assert that racial factors also determined people’s intelligence. Another supporting anthropological work that he quoted was by a medical officer, Dr Leon Balner who believed that the depiction of people in the relief sculptures in older Javanese temples did not resemble the face of contemporary Javanese people. Plaster masks made by Balner were used by Schoemaker to argue how current Javanese facial traits were, in fact, closer to ‘primitive’ mankind rather than to the people who were depicted in the temples (Fig. 6 & 7).

Bosch’s fifth proposition was also automatically invalid according to Wolff Schoemaker. The argument that it was a common phenomenon for some societies with a past ‘high’ civilisation to experience a drawback, ‘sinking to utter ignorance’, was only believable if one were discussing a ‘pure’ race that somehow lived in an isolated condition. However, that was not the case of the Javanese, Schoemaker pointed out, as the archipelago had been a trading melting pot for Southeast Asia since the 4th century CE. Additionally, given that Schoemaker was convinced that the Javanese were not a pure race, the idea of a supposed ‘fall’ in civilisation was therefore irrelevant.

Wolff Schoemaker’s writings were undoubtedly provocative in terms of his views about Javanese building practices, and thus could easily be perceived as offensive in their description of indigenous architecture. In his texts, he always inserted a warning paragraph to state
Javanese Facial Profile as used by Wolff Schoemaker. He wrote: 'Javanese Facial Profile. At the most-right, the profile shows the dominating "primordial-Malay" Javanese facial type with its distinctive feature on their mouth. Going to the left, it shows the transition of the facial profile, which gradually changed the mouth feature. The Caucasian blood is dominating in the most left facial profile, which confirms there were Hindu (Indian) settlements on a large scale (in Java). Source: Schoemaker, C.P. Wolff. Aesthetiek En Oorsprong Der Hindoe-Kunst Op Java [Aesthetics and Origin of the Hindunese Art in Java]. Semarang - Soerabaia - Bandoeng: G.C.T. Van Dorp & Co., 1924.

Figure 7.
that the goal of his critique was merely to provide a better methodology for comprehending vernacular architecture. Hence his later article, ‘De Aesthetiek der Architectuur en De Kunst der Modernen [The Aesthetics of Architecture and Modern Art]’, based upon his inaugural lecture in 1930 at TH Bandoeng, was an attempt to elaborate this claim. He struck a suitably superior and technocratic tone:

‘Architecture is a technical art, and therefore it requires a certain level of intellectuality to comprehend it.’

‘The (future) engineer must study and understand the technology of the building trade and how it evolves throughout time and also how this influences the development of building type. In addition to that, paying attention to the special construction methods and the peculiarity of their forms is necessarily important.’

Schoemaker was arguing that the fundamental principles of architecture were critical rationality and scientific methodology, without which one would fail to yield a functional design, let alone a beautiful one. His essay thus proposed that the concept of architectural beauty could never be separated from the development of building techniques and technologies. In his opinion, exemplary architecture was determined by two values: beauty and utility, both of which evolved explicitly in response to time and place. He argued that this was evident in the history of Western architecture: pyramids in Egypt, temples in Greece, and the monumental structures of the Roman Empire through to majestic French Gothic cathedrals, were all examples of how different functional requirements had led to the creation of a new sense of aesthetics. For him, utility lay at the intersection between the idea of the efficiency and the idea of form. Different contexts demanded different responses to meet a different need, with technology thereby playing a vital role. Architectural styles were thus the logical consequences of these interventions of particular techniques and technology. Consequently, this interplay between utility-technique-technology

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determined the aesthetic aspect of architecture, which he called ‘Objective Beauty’. In coining this term, Wolff Schoemaker was attacking his Dutch architect colleagues, whom he accused of being blinded by the decorative intricacy of the vernacular building in the Dutch East Indies. For him, their view was a fallacy. Any good craft needed instead to be born through a systematic method in which rationality and science were the foundations. On the contrary, any craft produced by an arbitrary process of decoration had no real contribution to make; moreover, it only created confusion and tediousness in the overall design.²⁹

Many of these ideas in Wolff Schoemaker’s inaugural speech were hardly new or unique. His definition of ‘Objective Beauty’, for instance, resonated with Claude Perrault’s concept of ‘Positive Beauty’ and ‘Arbitrary Beauty’. In his famous treatise, Ordonnance des cinq espèces de colonnes selon la méthode des Anciens [Ordonnance for the Five Kinds of Columns after the Method of the Ancients],³⁰ from 1683, Perrault had described the dual aspect of ‘fitness’ in architecture. He contended that an architectural composition which was harmonious with its social context, and which did not act as merely an empty edifice, possessed what he called ‘Positive Beauty’. ‘Arbitrary Beauty’ was instead what Perrault referred to as a composition where its orders and proportions had been constituted just for the sake of aesthetic effect.³¹

This concept was later reiterated by Jean-Nicolas-Louis Durand as professor of architecture at the Ecole Polytechnique when writing his central pedagogical text, Précis des leçons d’architecture données à l’École royale polytechnique [Precis of the Architectural Lectures given at the Royal Polytechnic School], first published in 1809. Durand used the term ‘economy’ to address the pursuit of fitness within architectural design. In Durand’s opinion, techniques and technologies were the instruments to achieve an effective and efficient building. He argued that the main objective of an architect’s work could be boiled down to responding to two problems: ‘1/ how to make the building as fit for its purpose as possible for a given sum; and 2/ how to build at the least possible expense’.³² For Durand, the economy was accordingly the principal creator of beauty.

Later in the 19th century CE, but this time in the Netherlands, the first professor of architecture at TH Delft, Eugen Heinrich Gugel (1832-
1905), also referred to the notion of ‘Positive Beauty’. In a book titled *Geschiedenis van de Bouwstildem de Hoofdijperken der Architectuur* [History of Building Styles in the Main Eras of Architecture], he introduced the concept of Kernvorm (‘Core Form’) and Kunstvorm (‘Art Form’). Gugel’s view was that the ‘Art Form’ could only be achieved through a ‘Core Form’ in which proper constructional logic and execution of techniques were fully exercised. Otherwise, no ‘Art Form’ would ever be created by a design.

Despite Wolff Schoemaker’s controversial views, he was significant for having introduced a debate about design method as part of architectural practice in the Dutch East Indies – this being a subject that was barely discussed there before. His role as professor of architecture played a crucial role in disseminating the rationalist/scientific approach, and his argument with Henri Maclaine Pont in various medias drew an unprecedented scale of attention to the subject. The following section will hence discuss how Maclaine Pont responded to Wolff Schoemaker’s contributions to the discourse about ‘New Indies Architecture’.

**The Pursuit of the ‘Indies Gothic’**

Henri Maclaine Pont (1884-1971)’s views were polar opposites to those of Wolff Schoemaker, and so their intellectual confrontation was perhaps inevitable. Despite their differing ideologies, both shared a similar connection to the colony. Like Schoemaker, Maclaine Pont was also born in the Dutch East Indies, on 21st June 1885 in Meester Cornelis, a district in Batavia.

Maclaine Pont went to the Netherlands to study architecture at TH Delft and completed his diploma there in February 1901. Before returning to the Dutch East Indies, he worked in the Amsterdam architecture office of Posthumus Meyjes for three years. Then, early in 1911, Maclaine Pont disembarked in Tegal, a town on Java’s north coast. Later he was asked by his uncle, Henri de Vogel, an official in the Cirebon-Semarang Railway Company, to design their new main office. It was to be Maclaine Pont’s first project in the Dutch East Indies.
Nevertheless, Maclaine Pont did not stay long in the Dutch East Indies. In the spring of 1915, Pont was ill that forced him, and his wife returned to the Netherlands for medical treatment. After he recovered, they lived in Bilthoven and worked at the railway office in Utrecht.  

Maclaine Pont stayed for a few years before sailing back to the Netherlands. However, it was the large commission to design the campus of TH Bandoeng (Fig. 8), a design that was much praised by Berlage, which brought back Maclaine Pont to the Dutch East Indies for a second time. He actually completed the design while in Utrecht before returning to the colony in 1919 to supervise the construction work. Citing this project, Berlage claimed that the sensitivity of Maclaine Pont’s design towards climatic conditions offered a suitable model for building practice in the Dutch East Indies. Berlage said it was:

‘... a new form suited to the tropical character of this country, a form which is at home here, which seeks harmony with the so beautiful architecture of the East, one which has not been taken without any alteration from Europe, which up to now has been common practice; we have to search for garden planning which is in harmony with the climate and sound tradition. See here now in the Technische Hoogeschool in Bandoeng, a courageous attempt by an elegant personality to solve those problems for this group of buildings. It is certainly not easy to deviate from a type which has been followed out of habit and to look for new ways, where not many yet will follow him with their appreciation.’

Maclaine Pont’s sensibility towards local context was certainly demonstrated in this design. By stretching the north-south axis of the city so that it ran inside the campus, the school became part of Bandoeng’s urban fabric. This axis hence acted as the backbone for the whole complex layout, with Pont’s landscape-centred approach being very atypical within the common practice of Dutch colonial architects of the period (Fig. 9).

Nevertheless, it was the formal design of the two large study halls
Figure 8.
The Technische Hogeschool in Bandoeng, known as TH Bandung. (Top) The northeast view of its East Hall (Bottom) Typical section through that hall.

Figure 9.

Aerial view of T.H. Bandung showing the main north-south axis of the campus.

that marked out this project as a provocative one, and undoubtedly his masterpiece. The East Hall and West Hall were longitudinal rectangle buildings in which the main school activities were to take place. A series of elegantly curved arches created a 15-metre-wide span in each of the halls. Two lower structures located on either side also functioned as buttresses to support these main arches. The whole structure was made out of timber, including the curved arches. To construct the arches, Pont used clamped-layers of thin timber planks that had been steamed beforehand so that they could then be bent to form the curvature for the arches (Fig. 10).

In both of the main halls, the arched timber structure supported a huge double-stacked gable roof, which Pont called the ‘Greater Sunda’ roof. It was indeed a kind of vernacular roofing that could be widely found in the archipelago. But as well as creating this unique form, the vertically stacked roof he designed also had a functional purpose, in that it provided an improved cross-ventilation system. This was because he inserted a gap between the bottom and top layers of the roof to allow air to pass through (Fig. 11).

The scheme was clearly extraordinary, in that no building of this scale in the Dutch East Indies up to that point had been designed in this way. Although it was not Maclaine Pont’s first building in the colony, it was certainly his first attempt to experiment with the materials and techniques of Javanese vernacular practices. Nevertheless, Pont was far from satisfied with the building, criticising himself for lack of integration between the roof structure and the curved arches as a weakness within the design. His studies into the vernacular building of the Dutch East Indies had shown that integration between structure and form was paramount, and hence he did not feel that he had succeeded in implementing this approach for the main halls at TH Bandoeng. The building could have been more straightforward, he contended:

'Since then, after a study of Javanese architecture, I have been convinced that the Javanese architecture has more in common with modern times. If I had to set up a new project for these buildings, they would look completely different, in an architecture in which an equal if not superior aesthetic effect could be reached by simple means.'
Figure 10.

The current condition of the auditorium designed by Maclaine Pont. *Source: Photographed by Author.*
Figure 11.

Section and other details of the timber arches and double-stacked roofs in the main halls at TH Bandoeng.

(Left) Maclaine Pont’s sketches of potential roof shapes for the halls. (Top right) Detailed section showing the timber arches and the ingenious natural ventilation system for the building.

(Right) The interior of the auditorium showing its curved timber arches.

Maclaine Pont discussed his views on Javanese architecture in various essays, always being expansive and meticulous in his explanations. His 1924 article in the journal, *Djawa*, titled ‘De Beteekenis der Middeleeuwsche Monumenten op Java [The Meaning of Medieval Monuments in Java]’, was a direct response to Wolff Schoemaker’s aforementioned book of that same year on *Aesthetiek en Oorsprong der Hindoe-Kunst [Aesthetics and Origin of the Hindunese Art in Java]*. Pont’s most extensive essay was ‘Javanese Architectuur [Javanese Architecture]’, published in two parts again in *Djawa*; the first instalment discussed the cultural and historical context of Javanese architecture, while the second focused on architectural features. In the latter, Maclaine Pont carried out a comparative analysis between typical building practices in the West and in Java to demonstrate the rationality behind one architecture being better or worse than the other. He had positioned Javanese building practice as a modern discourse, thereby placing it in on equal terms with its Western counterpart.

Maclaine Pont’s first criticism of Wolff Schoemaker’s views was that they suffered from a lack of objectivity. Furthermore, they contained a ‘dangerous’ racial bias for which there was no scientific evidence. Pont instead argued that it was impossible that the Javanese had not themselves built the Hindu temples around the archipelago. From an anthropological viewpoint, religious places always also function as communal places, and so it was highly unlikely that any construction of new religious structures had occurred abruptly, such as by the importation of Indian architects/masons, without any involvement by the indigenous people. Thus the Hindu influence from India can only have been absorbed by the Javanese through a gradual amalgamation in which dialogue between the Javanese rulers and their citizens would also have been essential.

Evidence that Javanese building practices were established before the coming of Hindu influences could be seen in relief sculptures in the 8th-century temple at Borobudur. House-types depicted in these reliefs were closer to the traditional dwellings of Campa (today in Vietnam) rather than those of India. Traces of primitive rituals of rice worship are also visible in the Javanese vernacular house, such as the most sacred room being that where the rice was stored. Even the current naming of the rice goddess in Java as Devi Sri – consort of Lord Vishnu – is something that occurred
Wolff Schoemaker’s argument about the inability of Javanese craftsmen to undertake refined works is erroneous. According to Maclaine Pont, the scale of Javanese monuments made it almost impossible to identify precise details within the structure, so it was fallible to argue that the Javanese temples were but a banal reproduction of Indian precedents. Pont pointed out that the plinth details in Javanese temples were, in fact, finer than those found in India. Furthermore, he observed that in Javanese temple complexes like that in Dieng, there was a certain controlling unity. Each temple in the complex used similar modules to create identical proportions, a characteristic not visible in Indian temples.

Maclaine Pont also echoed F.D.K Bosch’s theory that Hindu influence was mainly disseminated to Java through works of literature, including the *Silpasastra*. As a manual that also operated as a guideline for standardisation, the *Silpasastra* did not stipulate any strict method of execution. Rather, its aim was to construct harmonious proportions within the building. Therefore, in this way, there was liberty in knowledge and practice that yielded many variations. Dissimilarities in Javanese temples were not an indication of the inability to mimic details from India or wherever, but rather the creative variation of the craftsmen involved.

Nonetheless, it was the tectonic aesthetics of the *Pendopo* (*Pendhapa*) – an open-sided pavilion sitting on columns – in the Javanese house that, according to Maclaine Pont, best showed the genealogy of local vernacular practices. The entire roof eaves construction of a *Pendopo* represented an adaptation and evolution for the more tropical climate of Java, where it rains more frequently and heavily than its original location in sub-tropical Campa. For Maclaine Pont, this distinctive feature of the Javanese house was further strong evidence that fine Javanese crafts and building practices were not due to the influence of Hindu civilisation.

The two-part ‘Jawaansche Architectuur’ ['Javanese Architecture'] essay was Maclaine Pont’s key text in positioning Javanese architecture on a par with Western building practice, and in propositioning ways to utilise its tectonic language for the New Indies Architecture (Fig. 12). According to him, the principal distinction between Western and Javanese...
building was constructional. In other words, in Western houses the rafters were fixed on their shorter side so as to take the compressive load of the roof before distributing it down to the ground via columns. In contrast, in Javanese domestic architecture, the rafters were positioned on their wider side to have better bending properties, thereby working as a tension structure rather than compression. The columns placed at the centre of a Javanese vernacular house acted as its structural core, with the roof rafters connecting these central columns to the perimeter columns in the house’s outer layer. Maclaine Pont observed that this approach within Javanese construction carried two implications for post-and-beam construction methods:

1. In Western building construction, the larger the distance that a timber beam spanned, the heavier it would need to be – whereas, in Javanese construction, it was possible within certain limits for all beams to have the same weight irrespective of their span.
2. In the Javanese house, the timber columns were distributed outwardly in a specific order, playing a vital role in managing the deflection of the timber beams above caused by tensile force. The distance between columns affects the flux of tensile force in these beams – if the force was overloaded, then the potential deflection is reduced, making the structural system work ineffectively; conversely, if the force was too low, then the potential deflection rises, and the induced tensile force spikes in the beams above. Therefore, by carefully managing the distance between columns, the tensile force could be kept approximately equal.

Maclaine Pont further pointed out that the heavy material used for a *Pendopo* roof was necessary to stabilise the dwelling from the swings and shocks caused by earthquakes. Consequently, if one replaced it by lighter materials this would then make the whole tectonic system fail. He expressed this careful analysis via thorough calculations about Javanese timber construction in another 1924 essay, ‘Beginseen Der Javaansche Bouwconstructie [Principles of Javanese Building Construction].’
Figure 12.

Using these observations, Pont argued that this tent-like *Pendopo* construction was highly suitable for a place like the Dutch East Indies where storms and earthquakes were common phenomena. In this manner, this flexible and relatively lightweight timber structural system made dwellings more durable in the face of shocks from natural forces. Maclaine Pont thus concluded that Javanese construction was ‘unnatural’ (*tegennatuurlijk*). What he meant was that its tectonic system worked in contradiction to Western building logic which relied upon heavy, sturdy and stable forms for its stability. By following the alternative approach, Javanese houses achieved structural stability by using the opposite principles to European building practices. Maclaine Pont called the system Inverted Vault Construction (*Omgekeerde Gewelfbouw*). This then became the starting point for a series of tectonic experiments in his later projects (Fig. 13 & Fig. 14).

When Maclaine Pont undertook archaeological investigations in Trowulan to study remains from the Javanese Majapahit Empire, he also began to implement tectonic experiments in inverted vault construction in his buildings. He formulated two types of roof construction: the first he called ‘Equilibripetal’, or ‘Indies Gothic’ which took the form of a cupola-shaped tension structure; while the second typology was the aforementioned traditional gable roof, or ‘Great Sunda’ roof (Fig. 15).

Helen Jessup has described the ‘Indies Gothic’ structure as follows:

> The system of this construction comprises projecting gables, mounted on a column system, with a bundle of flexible bamboo slats forming a ridge pole. Over this are hooked rafters interlaced like needle and thread. The gable ends are forced out by diagonal braces. The construction is light, cheap, and easy to pre-fabricate... Heavy gable ends help to stabilise the roof.”

Maclaine Pont went on to adopt the principles of this experimental roof in several ways, for instance in the entrance gate to the Field Museum in Trowulan. Here the beams over the gates were all gathered up to a central point where wires were substituted for the bamboo ridge beams and rafters. Another iteration of this structure used a removable bolt at its central point, thus making the whole roof portable. Jessup
Figure 13.

Reconstruction of Maclaine Pont's studies into inverted vault construction for which he had used models made by his eldest daughter, Elisabeth Maclaine Pont. Source: Jessup, Helen Ibbitson. "Netherlands Architecture in Indonesia 1900-1942." London, UK: Courtauld Institute of Art, 1988.
Figure 14.

(Top) Maclaine Pont’s experiment with cupola construction, as photographed in 1955).

(Bottom) The constructional details inside the cupola.

concludes that the engineering principles of these experimentations led to Maclaine Pont’s cupola experiments, thus becoming the basis for the design of equilibrietal roofs for which he planned to apply for the patents. Regrettably, we cannot be totally sure of this point, since Maclaine Pont’s notes on these experiments and their purposes were lost during the time of his internment by occupying Japanese forces once they had seized the Dutch East Indies in 1943.

After he was released from the Japanese internment camp, Maclaine Pont returned to the Netherlands to pursue his structural experiments there. He consulted with GAT Cuperus, a Utrecht railway director, to develop the theoretical validity of the constructional method. Further testing was also conducted at Pont’s alma mater TH Delft. In 1951, Maclaine Point wrote a 32-page document written in Dutch and English on ‘Equilibrietal Construction’, for applying for patents in which he elucidated such thorough description of the system (Fig. 16 & Fig. 17).

The highlight of this concept of ‘Indies Gothic’ as the seed for New Indies Architecture came with Maclaine Pont’s Pohsarang Church in Kediri, dated 1936. There the cupola structure was used for the main building. The site’s hilly character was articulated through a processional path along which the visitors walked towards the church. Along the way, they would pass through two traditional stacked-stone Javanese/Balinese split gates. The church at the end of the path was arguably the best example of Maclaine Pont’s new typology for Dutch East Indies architecture (Fig. 18).

Maclaine Pont also explained the meaning of his term ‘Indies Gothic’ to describe the inverted vault system that he adapted from traditional Javanese building:

‘The quantity of material needed in a rigid construction… is in proportion to the square of the span. Ropes, chains, wires are used concerning the inflexion and span; this quantity is in proportion to the main force of the span. If the span is made ten times as large, in the rigid construction a hundred
Figure 15.

Figure 16.

Structural calculations for 'Indies Gothic' as contained in Maclaine Pont's 1951 essay on 'Equilibripetal Construction'. *Source: Maclaine Pont Archive at Het Nieuwe Institute, Rotterdam, Netherlands.*

Figure 17.


times the amount of material is needed. With a rope, wire or cable used as mentioned above, this is only ten times.

So there must be a possibility of using this as a construction principle for large and even huge spans if only it were possible to eliminate the losses of the strength in the elements in which the pressure forces reacting to the tension are concentrated. Because if once these elements weakened even a little bit, the momentum of the forces increasing, a catastrophe cannot be avoided.

I sought and found the solution to this problem in applying the principle of Gothic architecture to the native flexible construction...

If the pressure forces resulting from the weight of a roof were concentrated in two arches, rising from the opposite corners of a building and crossing each other in the middle at the top by a critical piece, the arches being made not of stone but resilient material such as wood or steel, and...

If, instead of the vaults of Gothic architecture, wire or bamboo networks were provided, fastened between these arches and between the arches and a cable surrounding the structure at the level of the arch bases, connecting them and serving as the moulding of the roof...

Unfortunately, except for the TH Bandoeng campus (now Bandung Institute of Technology) and Pohsarang Church, none of Maclaine Pont’s ambitious structures exists to date, which means we have to analyse his constructional experiments only from the sketches in his memoirs or from his writings. Yet what we do know for certain is that Pont’s scrutiny of Javanese tectonics broadened the ground for discourse on indigenous building practices throughout the archipelago. His studies helped to redefine Javanese architecture into a subject suitable for European audiences, yet his approach was clearly problematic. Pont’s emphasis on structural analysis served to compartmentalise Javanese buildings into neutral, disconnected parts. The building structure was ignorantly
Figure 18.
(Top) The main entrance of the Pohsarang Church with its traditional style split gate. (Bottom) Interior view of the church showing its cupola roof, as photographed in 2013.
Source: Photograph by author.
presented as a separate layer to that of the cultural layer, meaning that, instead of embracing a deeper knowledge of Javanese architecture, Maclaine Pont simply appropriated and reinvented vernacular ideas for his own, detached practical purposes. The following section will thus discuss a different attempt to instrumentalise Javanese architecture as part of the discourse around New Indies Architecture, this time through a Dutch-born architect, Thomas Karsten. Unlike Maclaine Pont, Karsten never engaged in any direct ideological battles with Wolff Schoemaker. Yet from his writings and projects, Karsten’s position was clear. He shared the views of Pont about the importance of understanding and learning from indigenous building practice in order to develop architecture in the Dutch East Indies, even if his conclusions were somewhat different.

Javanese space as a social placemaker

Unlike Wolff Schoemaker and Maclaine Pont, Thomas Karsten, who was born in the Netherlands on 22nd April 1885, came to be acknowledged as a deep thinker by his colleagues. Karsten studied at TH Delft between 1905 and 1909, with his interest in architecture’s social dimension already visible. In 1907 he had joined the Sociaal Democratische Arbeiderspartij [Social Democratic Labour Party] and the Sociaal-Technische Vereeniging voor Democratische Ingenieurs en Architecten [Social-Tecnical Association of Democratic Engineers and Architects], two organisations that actively campaigned about the social role of architects, especially in regards to working-class public housing. It was also during Thomas Karsten’s time at TH Delft that the subject of urban planning was first introduced as a subject (Fig. 19).

After completing studies at Delft, he moved to Berlin and lived there for two years. Karsten refers to this period in a 1920 piece titled ‘Vluchtige Indrukken [Fleeting Impressions],’ Despite little information on his Berlin activities, the two essays Karsten published, ‘Berlijnse Indrukken [Berlin Impressions]’ and ‘Over de Deutschen Werkbund [About the German Werkbund],’ demonstrated his growing interest in the Deutsche Werkbund movement. Hermann Muthesius was one
Figure 19.
Thomas Karsten (the fourth from left) and his TH Delft colleagues on a field trip to Reims Cathedral in 1907. Source: Cote, Joose, and Hugh O’Neill, eds. The Life and Work of Thomas Karsten. Amsterdam: Architectura & Natura Press, 2017.
Figure 20.

of the inspirations for Karsten and greatly influenced his later works in the Dutch East Indies.\textsuperscript{70} On 22\textsuperscript{nd} November 1914, just before the aforementioned exhibition in Semarang ended, Thomas Karsten landed in Tanjung Mas harbour in Semarang; this was the very first time he set foot on the colony. He had left Berlin due to an invitation from Maclaine Pont to set a practice together in the Dutch East Indies.

Thomas Karsten was an avid writer throughout his lifetime. During his 30 years in the Dutch East Indies – he died in the Japan internment camp in 1944 – he published some 29 articles. He also co-founded two publications: \textit{De Taak [The Task]} was launched in August 1917, and \textit{Djawa [Java]} was first published in 1921. Both journals shared the objective of creating a collaborative platform between Dutch and Javanese culture (Fig. 20).

Karsten retained a deep interest in how buildings could contribute to solving society’s problem. Hence, in comparison with the work of Maclaine Pont, whose main interest was structural/tectonic, Karsten’s architectural approach was rather eclectic, at least in terms of its style and form. For him, aesthetic achievement lay not in the intricacy of structures or details, but that instead dimensional proportions played the vital role in the harmonious composition of architectural elements.

In an essay of around 1919 titled ‘Opmerkingen over de Ontwikkelingsmogelijkheid der Inheemse Bouwkunst [Remarks about the Possibilities of Developing an Indigenous Architecture]’, Karsten problematised the pursuit of New Indies Architecture.\textsuperscript{71} According to Karsten, the fast pace of development in the Dutch East Indies over the previous few decades required large-scale financial support and material provision from the Dutch colonial government if they wanted to create a fairer distribution of technical knowledge and skills among all people in the colony. Moreover, in order to ‘create a true Indies architecture’, Dutch colonial architects needed to surrender their Western elitism and instead allow indigenous people themselves to become fully qualified architects.\textsuperscript{72}

Karsten’s first direct interaction with traditional Javanese architecture was when commissioned to renovate the living areas for the Mankunegaran Royal Court in Surakarta. It was unusual at the time to commission a Dutch architect to work on a Javanese palace, and it
probably happened here because the Javanese Prince, Prang Wedono (later King Mangunegara) had such a strong interest in Western culture.

Karsten’s main task for the Mangkunegaran Royal Court was to renovate its main Pendopo. Prince Wedono wanted to enlarge this space so he could invite more people and thus organise better events. There was no precedent in vernacular dwellings to have such a wide-span structure, especially if using traditional materials. In his design, Thomas Karsten used the approach common to Dutch architectural practice, albeit carefully controlling the ambience, colour, and the palette of materials so that they fitted in. His attention to such aspects was so meticulous that he was often caught up in debates with Prince Wedono. Karsten urged that traditional symbolism in Javanese architecture – as expressed in ornamentation, colour and proportion – had to be maintained so as to not losing the core characteristic of the spaces.

Correspondence between Thomas Karsten and Prince Wedono (later King Mangkunegara) began in June 1917 and ended in late–1920, and shows that Karsten interest in Javanese culture seems to have been greater than even the Javanese prince himself. For instance, in a letter to Prince Wedono on 15th February 1918, Karsten stressed the importance of keeping the central area of the petanen (ritual marriage bed) in the palace’s most sacred ceremonial hall, the Dalem. Furthermore, he also made the recommendation in a letter dated 24th Mat 1918 to use traditional iron-wood sirap (shingles) for the roof instead of the tiles that the prince desired, since Karsten argued that sirap – whose colour and surface finish age well – would make a better and suitable roof covering. Moreover, he noted that sirap was excellent for both steep and shallow slopes, and more importantly, it was in accordance with the roofing material on the palace’s existing Pendopo.

Karsten’s sensitivity to this connection between spatial proportion and its effect on social practices was well demonstrated in his design for the palace’s galleries (Fig. 21). He wanted to avoid the galleries looking too low, especially after they had been extended to provide the necessary additional space for Prince Wedono’s parties. But improving the proportion of the galleries by raising their ceiling height would then have distracted from the Dalem’s hierarchical status as the most sacred
Figure 21.

The renovation of the Mangkunegaran Palace by Thomas Karsten. (Top) Photograph of the renovated private apartments.

(Bottom) Diagram showing the articulation of floor levels so as to maintain the desired proportions of the gallery spaces in the palace.

Figure 22.

The Agung Pendopo as designed by Thomas Karsten. Source: Photography by author.
place within the complex. With this problem in mind, Karsten suggested lowering the floors of galleries by 30 centimetres – it was an alteration that solved the issue of visual hierarchy, and at the same time it created a more harmonious relationship between the levels of the inner section of the Agung Pendopo (Fig. 22) and its surrounding areas. The involvement of Thomas Karsten in this project was not only about architectural matters. A letter of 13th September 1920 implies that he was also choosing tiles, fabrics, lamps, carpets, furniture and even the type of ornaments – not to mention designing the gardens in the courtyard that enclosed the palace compound. 77

‘Wisselwerking (Interaction)’ between a building and its given program was always the key aspect in Thomas Karsten’s projects, as exemplified in the Sobokarti Theatre in Semarang (Fig. 23). This theatre was part of an initiative of the Java Institute, an organisation that he had founded to propel the modernisation of Javanese culture. In a letter dated 9th May 1919 from Thomas Karsten to now King Mangkunegara, his eclectic approach was noticeable:

‘...I have an idea about building a Javanese theatre, space where the Javanese, in a way, that feels good... [and] can listen to the gamelan, see wayang: seated, sheltered, with a good view, with a scene, set not in European but in Javanese style. The pendopo is the place one should proceed for such a building.’78

From outside this theatre, the building closely resembled, even if not identically, a typical Javanese house. The most significant difference was in its interior. Karsten maintained the centralising character of Javanese internal planning yet also ensured a firm spatial demarcation between the space for spectators and the space for performance (with a preparation place for the actors behind). However, in Karsten’s theatre, the performance space was not elevated as it is in a Western theatre. Instead there was a flat floor on the same level as the rest of the building, hence with no particular treatment for the performance space except from its location right in the centre, with the seats for the audience encircling it. Opposite to the actors’ preparation space, facing inwards from the entrance side, Karsten created a small elevated platform for distinguished guests (Fig. 24).
Figure 23.

The main entrance to the Sobokarti Theatre, Semarang, as seen in 2013. Source: Photograph by author.

Figure 24.

Karsten elucidated his concept of the project in an eight-page essay, ‘Van Pendopo naar Volksschouwburg [From Pendopo to Folk Theatre].’ As in many countries, a theatre in the Dutch East Indies had always to be seen a social space where people interacted: ‘it was a spiritual expression of the life of a society’, in Karsten’s words. Each class in society had their form of theatre, and hence, it was in theatre design that architecture worked best as a facilitator between the play and society, fiction and reality. Accordingly, a social and political function was always inherent in a theatre building.’

This very nature of a theatre clearly prompted a sense of architectural experimentation for Karsten. He hoped it would provide a place to unify all people in the Dutch East Indies, and thus somewhere where all classes could meet. The traditional form of the Javanese Pendopo was chosen for two reasons. Firstly, Karsten argued that Pendopo was the most original feature of traditional Javanese architecture, and therefore using the form would connect emphatically with all its people. Secondly, the use of the Pendopo layout offered an open spatial configuration that would be suitable for many Javanese plays.

The form of the Pendopo would thus in Karsten’s eyes serve as a social and political element, and so he was keen that the design should be as close as possible to the traditional arrangement. Nevertheless, the space inside the building still had to be modified so that it would be flexible for various kinds of theatre, including Western plays. Here again, the Pendopo’s open configuration was advantageous in this respect.

Karsten argued that there were three main distinctions between a typical Western theatre and a Javanese theatre. Firstly, in a Western theatre, the separation between the performance space and the audience was always clearly defined, whereas in a Javanese theatre they were inseparable. Secondly, in a Western theatre, the play could generally only be seen from one frontal direction, whereas in a Javanese the play was visible from all sides. Thirdly, in terms of staging a play, the Western theatre tended to play with a sense of depth on the stage, but in a Javanese production, it played more with the width of the stage. According to Karsten, this spatial distinction was due to the cultural differences that formed a different perspective on how to appreciate theatrical plays.
In other words, in Western theatre, there was a clear distinction between the fictional and the real, engaging a specific social behaviour among the audience. During the play, all the attention was on the stage, and to the individuality of the spectators was diminished. Hence the interplay between fiction and reality occurred in the breaks between the acts.  

Instead, Javanese theatre – which in his writings Karsten generalised as Eastern theatre – there was a lack of separation between fiction and reality. The tangible and the intangible were all seen as part of reality. During the play, the audience becomes part of the play, and vice versa; an interaction between the two realms was expected. Therefore, as Karsten pointed out, Eastern theatre encouraged the audience to embrace the play in a personal and intimate way:

‘How different is all this with Eastern game!
For Oriental people, and indeed Javanese, who do not acknowledge the concept of factual and logical, but rather the intangible and the imagined as the essential thing in his life – and for them, the unseen and seen are no less real than the visible. The evidence for this mentality, which has been presented several times elsewhere and cannot be repeated here, lies in numerous coarser and finer expressions of the life of the people. Thus, for them too, the fiction on the stage is part of their reality, as a realisation, becoming visible of what they had already occupied in the unseen, as a materialisation of what already existed. Furthermore, of course, they will feel the drama-- which is no longer fiction – most intensively, not when, as with the Westerner, it is formed at a distance from him into a new, independent reality, but on the contrary when it is as intimately possible is part of ordinary, tangible reality.’  

This explanation was Karsten’s attempt to find a middle-ground between the contrasting cultures in order to make the Sobokarti Theatre adaptable for various kinds of play. Karsten enclosed the Pendopo by placing walls just beyond the outer columns to enclose the theatre. There
Figure 25.
The interior of the Sobokarti Theatre as seen in 2013. (Top) The main *pendopo* performance hall. (Bottom) A projection room that has been inserted for cinema screenings in the future. *Source: Photographed by author.*
was only one entrance at the front, and two exits at the side. Nonetheless,
Karsten still attempted to promote the nuances of a traditional Javanese
theatre; by placing the performance space at the centre, intimate
interactions were retained between the audience, actors and musicians
(Fig. 25).

Thomas Karsten further experimented with this idea of ‘interaction’ in his design for the Johar Market in Semarang, a design with three reinforced concrete buildings placed next to one another in a linear arrangement. Each of these two-storey blocks had a rectangular plan with an elevated, almost-flat deck. Inside there was an immense void along the centre of the block connecting both its floors, thus enabling a multi-layered interaction between market traders and customers, or between one trader and another.

The structure was supported on a series of ‘mushroom’ concrete columns (Fig. 26). Cross-ventilation was achieved by placing openings in the roof and jalousie-screen windows in the upper storey. In configuring the interior space this way, Karsten said he wanted to reconstruct the informal atmosphere of a traditional Javanese market that typically happened in an open-air field. The mezzanine enabled vertical separation that split the ‘dry’ and the ‘wet’ areas in the market for the sake of hygiene.85

From these examples, we can see how Thomas Karsten tried to utilise traditional Javanese vernacular architecture to construct a syncretic meeting of indigenous and European building practices. As part of his efforts to invent New Indies Architecture, Karsten’s interest in the social aspect of architecture tended, however, to make his designs more conceptual and abstract. He undoubtedly brought new meanings and methods to local building practices, although in the end what he did was essentially no different from Wolff Schoemaker and Maclaine Pont in that it theorised and objectified Javanese architecture without allowing Javanese people to voice their views on the matter.
Figure 26.


(Bottom) Interior of the Johar Market (Pasar Djohar) in Semarang as seen in 2013. Source: Photographed by author.
Concluding Remarks

The International Resonance.

From the discussions in the three preceding sections, it is evident that architectural circumstances in the Dutch East Indies changed after the 1901 Ethical Policy. The role of BOW engineers who had been in charge of everything related to architectural/engineering projects gradually diminished and instead waves of Dutch settler architects established themselves as a new agency in their country’s colonial project.

The arrival of these architects brought not only new practices and visions but also stronger cultural links between Europe and the Dutch East Indies. Some of these architects were already well-known or else had a connection to a larger architectural circle in the Netherlands and other countries. For instance, Jacob Frederik (Jaap) Klinkhamer (1854-1928) was one of the first generations of Dutch architects to practise in the Dutch East Indies, having been a professor and a prominent figure at TH Delft. He and another professor, Hendrik Jorden (Henri) Evers (1855-1929), had been the two scholars who played an essential role in reforming pedagogy at Delft after the enactment of the 1901 Housing Law (woningwet), which made working-class public housing an urgent issue in the Netherlands due to a shortage of decent dwellings for industrial workers and generally unhygienic conditions. Henrik Petrus Berlage and Johan Wilhelm Hanrath argued that the housing issue was closely related to town planning, and consequently, it was inevitable that the subject of City Planning was introduced – again in 1901 – to the core architectural curriculum at TH Delft.

Accordingly, the period from 1905–09 proved pivotal for architecture in the Netherlands. It was the point when architectural discourses and practices branched out in two directions. The first branch yielded new movements like the Delft Traditionalists, the Amsterdam School of Michel de Klerk (1884-1923) and colleagues, and most famous of all, De Stijl as founded by Theo van Doesburg (1883-1931). The second branch, conversely, was focused on what needed to be done in the Dutch East Indies to create a new architectural style for that colony.

In this sense, the link – or rather the non-link – between the
architectural scene in the Dutch East Indies and that in the Netherlands was highly unusual. Colonial architects like Wolff Schoemaker, Maclaine Pont and Thomas Karsten curiously never mentioned any influences from, or even discussed, architects from the Amsterdam School or De Stijl, although they were surely aware of those movements from various journals and publications and vice versa. Most likely it was due the different context and challenges that made colonial architects in the Dutch East Indies seem indifferent to whatever debates were taking place in the Netherlands. But even this was peculiar since Pont and Karsten were otherwise very connected internationally. As mentioned, when preparing his proposal for design patents of the ‘Indies Gothic’, Pont corresponded with Frei Otto (1925-2015) in Germany, and Jessup suggests one might see a glimpse of Pont’s influence on Otto in the latter’s book, Zugbeanspruchte Konstruktionen [Tension Structures]. Thomas Karsten was invited to participate in the 1933 CIAM exhibition in Moscow (fig. 27 & 28), and so on.

Another well-known Dutch architect who practised successfully in the Dutch East Indies from the beginning of the 20th century was Eduard Cuypers (1859-1927). He was the nephew of Pierre Cuypers (1827-1921), the architect who had designed Amsterdam Central Railway Station and the Rijksmuseum. Eduard trained in his uncle’s office from 1874–78. Afterwards, he opened his own office in Amsterdam in 1881 and gradually became one of the leaders of the profession in the Netherlands. His office was often considered as a place where the Amsterdam School began since many of its proponents – such as Michel de Klerk (1884-1923), Johan van der Mey (1878-1949) and Piet Kramer (1881-1961) – had worked there. In 1901, Edward Cuypers joined forces with two colleagues to found the very well known architectural office of Hulswit, Fermont & Cuypers, which lasted until 1942.

Consequently, the most significant international connection came from Berlage. As a prominent European architect figure, his visit to the Dutch East Indies in 1923 was the point of reconnection between the two branches in Dutch architecture. During his time in the colony, Berlage often showcased the latest architectural developments in the Netherlands to audiences there. Furthermore, after he had returned from the trip, he showed works by some Dutch colonial architects to a European audience.
Figure 27.


Figure 28.

Berlage’s lectures and his travel journal formed the hinge between the two Dutch architectural worlds. Yet, even so, the socioeconomic and political realities of Empire powers was bound to diminish the international publicity of colonial architects in the Dutch East Indies. The situation in the colony could never be acknowledged in the same light or on the same level as those being practised in the metropoles back home.

The New Indies Architecture: a new collaboration or domination?

The bold rationalistic approach of the engineer usually tends to neglect or even to omit cultural and social aspects, yet clearly, these aspects are crucial in developing a reasonable and economic model for architectural practice. Alongside the need to mitigate climatic conditions and address topographical features, likewise to conceive good quality architectural space, a sensitivity to the socio-cultural realities of a building’s context is fundamental. Therefore, merely importing a way of practising architecture directly from Europe was never going to be relevant within the Dutch East Indies. Instead, a new approach and a new typology were regarded as necessary to put into perspective what the New Indies Architecture ought to be like.

This pursuit of the new approach and new typology was at heart a specific operation to overcome the misreading the Dutch colonial architects had of the colonised indigenous people. As mentioned at the start of this chapter, the concept of typology had been developed historically for the purpose of imposing a particular value upon an environment considered to be lacking order. It carried worrying consequences, for instance, with the use of building typologies as an instrument to assert authority over a particular place or aesthetic linked to Eugenic theory that was widely discussed in the early-20th century.

Investigations of type and the deployment of typology hence became a strategy to displace indigenous structures, in this case, the ‘ecosystem’ of vernacular building practices in Java and other islands. The ideas and projects of Charles Prosper Wolff Schoemaker, Henri Maclaine Pont and Thomas Karsten in the Dutch East Indies were, in effect, the cases through which this strategy was applied. Regardless of their ideological intention, for each architect, the voice of the Javanese people was knowingly omitted.
This chapter thus showed that while Wolff Schoemaker, Maclaine Pont and Thomas Karsten all held very different views, often bitterly disagreeing with each other about traditional Javanese architecture, all shared a coloniser objective to create a brand new typology for buildings in the Dutch East Indies. Schoemaker was on the side of those who promoted Western rationality over indigenous building practices, while Pont and Karsten shared the belief that reinterpreting these traditions was the fundamental ingredient in developing the New Indies Architecture. Both had attempted to reinvent the knowledge and skills of the Javanese vernacular to establish a new approach.

Despite their differences, these three architects equally contributed to the setting of a discourse of the Indies Architecture. Their thoughts that disseminated through debates or writings exposed different standpoints and emphasis. Wolff Schoemaker’s ideas addressed many issues in design methodology and architectural epistemology. Investigation and design experimentation that was conducted by Maclaine Pont contributed in the field of architectural tectonic. And many thoughts and works of Thomas Karsten had propagated discussion on spatial planning and programming in the Dutch East Indies.

Another implication of this pursuit of a new approach and new typology in the Dutch East Indies was the construction of ‘taste’ as a social contract. The establishment of the Java Institute in 1919 was an excellent example of this tendency. The organisation was founded by Western-educated Javanese aristocrats and Dutch colonials who shared an interest in the Javanese culture. Therefore, the Java Institute was not founded to respond to the needs of ordinary people at the time, but rather to create a new platform for appreciating the richness of older Javanese culture. This situation implied the use of taste as a means to distinguish between good and bad, and between beautiful and ugly.

It was not just a colonial construct confined to the Dutch East Indies. These kinds of discussion about taste and context/locality ran through the aforementioned 1933 CIAM conference in Moscow. On show were the plans of 33 cities: three were in North America, twenty-eight in Europe, and the other two were examples of colonial cities, namely Dalat in French Indochina and Bandung in the Dutch East Indies. The ‘Functional City’ was the underpinning idea for the exhibition, in
its attempt to develop a universal understanding of the concept of
town planning and of the functional nature of cities. For this reason,
although Thomas Karsten participated in the Moscow exhibition, he
roundly criticised the event. Karsten argued that participation of the
two colonial cities carried no real significance due to the near-
total lack of understanding by participants on the very different
conditions among these Southeast Asian colonies. CIAM’s proposal
to build high-rise buildings with flat roofs and interior arrangements
dependent on Modernist steel furniture was unsuitable in a tropical
location, and so Karsten denounced the conference’s insensitivity
to non-European contexts. Ironically, Karsten’s critique was
equally relevant to what he and other colonial architects were
actually building in the Dutch East Indies. The insensitivity of the
Dutch colonial government and Dutch colonial settlers to the local
climate and social context created inappropriate town planning
schemes in the colony. Hygiene had become a crucial issue for
both city planning and the design of domestic space, yet again there
was an enormous gap in understanding. In the next chapter, the
different agencies that shaped idea and typologies of space and
place in the Dutch East Indies will be analysed, also the activism
of Hendrik Freerk Tillema, and the role of Dutch women in
promoting vital hygiene issues within Dutch domestic spaces in the
colony.
Notes

1 The decentralization of the Bureau of Public Works (BOW) led to the creation of 8 regional divisions, with each division consisting of a technical (design) office and an administrative office. See W. Ravesteijn and J. Kop, For Profit and Prosperity: The Contribution Made by Dutch Engineers to Public Works in Indonesia, 1800-2000 (Leiden: KITLV, 2008), 53.

2 In a first group of fixed plan there were 14 types of buildings: (1) Import, Export and Custom, (2) Opium company, (3) Auctioneers, (4) Salt Trading Company, (5) Marine, (6) Administration and College, (7) Department of Justice, (8) Department of Finance, (9) Department of Home Affairs, (10) Department of Education and Worship, (11) Department of Agriculture, Crafts and Trades, (12) Department of Public Works, (13) State-Owned Enterprises, and (14) Naval Aviation Service. In a second group there were two types: (1) Field Police Office, and (2) City Police Office. In a third group, there were 9 type of schools building: (1) High Schools, (2) HBS and AMS, (3) MULO, (4) Europeesch Lager Onderwijs School, (5) Technical Schools, (6) Hollands Inlands Onderwijs School, (7) Teacher Boarding School, (8) School for Indigenous people, and (9) Subsidized Schools. A final fourth group comprised of 6 types: (1) Post, Telephone and Telegraph Office, (2) Prison, (3) Child Education and Orphanage, (4) Hospital, (5) Psychiatric Hospital, and (6) Quarantine Foundation.

3 Huib Akihary lists 127 Dutch architects that were practising in the Dutch East Indies in the period from 1905 to 1945. Due to the precarity of archives during the transition in power from the Dutch to the Indonesian government, most likely the real number was higher. Huib Akihary, Architectuur & Stedebouw in Indonesie (Architecture & Urban Design in Indonesia) (Zutphen: De Walburg Press, 1990).

4 Berlage wrote many letters prior to his departure to the Dutch East Indies to obtain financial support for his trip. In his correspondence with Herm E. Smalhout, Berlage noted that he had a connection to the Association of Dutch East Indies Art Circle (Bond van Nederlandsch-Indie Kunstkringen) in Batavia, from whom he received a grant of 500 guilders (equivalent to 16,500 Euros) for an evening lecture. He also received offers to give several other lectures while in the colony for a fee of 250-500 guilders per lecture. A commission for writing articles about his trip was also given by A.A. Humme, the editor-in-chief of Het Vaderland in The Hague, and so he delivered five pieces to this publication for 50 guilders per article. Herman van Bergeijk, Berlage En Nederlands-Indie: ‘Een Innerlijke Drang Naar Het Schoone Land’ (Berlage and the Dutch East Indies: ‘A Personal Urge for the Beautiful Land’) (Rotterdam: Uitgeverij 010, 2011), 15.

5 Ibid., 16.


7 Neither in his journal nor his lecture did Berlage state explicitly his position on how contemporary architecture in the Dutch East Indies should be designed. From a letter written to Berlage by an art critic, S.P. Abas, on 25th June 1923, while Berlage was still in the colony, it seems that a journalist from the De Sumatra Post had asked which direction architectural practice ought to be taking? Should they import Dutch practice or else find a suitably appropriate colonial style (‘associatie’ architectuur)? Unfortunately Berlage’s answer is unknown. See Bergeijk, Berlage En Nederlands-Indie: ‘Een Innerlijke Drang Naar Het Schoone Land’ (Berlage and the Dutch East Indies: ‘A Personal Urge for the Beautiful Land’), p37.

However, from various remarks in his journal, Berlage’s clearly favoured the latter approach. On this point, it is interesting to note that he wrote of the BOW’s design approach on 24th March 1923: ‘Ik was dan ook verrast over het talent, dat zich overal openbaart...Toch viel mij een volle waardeering niet zoo heel gemakkelijk, wanneer het nieuwe stijlkarakter teveel aan Europa deed denken, en een gebouw niet ‘Indisch’ ademde, n’en deplaise de meestal ook bij ons niet te bedwingen...’
verleiding hier en daar een Hindoe-Javaansche versiering toe te passen." (I was therefore surprised to see the talents that were revealed everywhere ... however it was difficult for me to appreciate their work fully when the new style was too reminiscent of Europe, and a building did not breathe the 'Indies', and where Hindu-Javanese character was only applied merely as decoration.) H.P. Berlage, *Mijn Indische Reis (My Indies Trip)* (Rotterdam: W.L. & J. Brusse's Uitgeversmaatchaappij N.V., 1931), 29.

8 "De Europeesche Bouwkunst Op Java (the European Architecture in Java)," De Ingenieur 39, no. 22 (1924): 400-1.

9 'Het spreekt van zelf dat hierbij niet in aanmerking komt. Het verregaand oppervlakkige tuuschengeval van die architecten, die meenen met een Kala-kop of Makara-ornament of eenigszins verjavaniseerde kapiteelen een karakteristiek Indo-Europeesch bouwerk te hebben gemaakt.' (It goes without saying that such practice is not proper, being mostly a superficial design approach of those architects who believe that their buildings have Indo-European characteristics by placing a Kala Head or Makara ornament in the capitals.). Ibid., 401-2.; See also C.J. van Dullemen, *Tropical Modernity: Life and Work of C.P. Wolff Schoemaker* (Amsterdam: SUN, 2010), 68.


11 The impassioned exchange between Wolff Schoemaker and Maclaine Pont ran for two years, taking place in public media such as newspapers and journals in the Dutch East Indies:

1. Charles P.W. Schoemaker, 'Indonesische Bouwkunst' (Indonesian Architecture), Bataviaasch Nieuwsblad, 20th October 1922;

2. Charles P.W. Schoemaker, 'Indonesia Kunst' (Indonesia Art), De Sumatra Post, 30th October 1922;

3. Maclaine Pont, 'De Javaansche Architectuur' (Javanese Architecture), De Indische Courant, 25th September 1923;


5. Maclaine Pont, 'Javaansche Architectuure-het Inlandsche Bouwambacht' (Javanese Architecture and Native Building Crafts), De Indische Courant, 1st October 1923;


7. Maclaine Pont, 'Javaansche Architectuur' (Javanese Architecture), Bataviaasch Nieuwsblad, 15th October 1924;

8. Maclaine Pont, 'Javaansche Architectuur' (Javanese Architecture), Het Nieuws van den Dag voor Nederlandsch Indie, 22nd February 1924.


14 Frederik David Kan Bosch (1887–1968) was an expert on Indian and Indonesian culture, having studied Sanskrit and Dutch Literature at the University of Leiden. From 1st January 1915 Bosch was appointed as the deputy antiquarian expert for the archaeological service in the Dutch East Indies and he then became the head of the service in 1915, at the age of 28 years old.
The Mataram Empire (or Medang Empire) was the Javanese Hindu-Buddhist kingdom that flourished from the 8th to 11th century. It was during this period that monumental structures such as the temples at Borobudur and Prambanan were constructed.

Silpasasrta, called sometimes the Manasara Silpasastra is one of the two main vastuastras or building treaties from ancient India. The other main vastuastra was entitled the Mayamatam (or Mayamata). See Bruno Dagens, *Mayamatam: Treatise of Housing, Architecture and Iconography* (ed&trans) 2000 ed. (Indira Gandhi National Centre for the Arts, New Delhi: Motilal Babarsidass Publishers Pvt. Ltd, 1994).

The contents of the two treaties are actually identical. Hence the existence of these two versions was probably related to the caste system in India that regulated which kind of knowledge was accessible to which caste of people. See Scott Robertson, “Significant Pavilions: The Traditional Javanese House as a Symbolic Terrain,” (Sidney: University of NSW, Australia, 2012), 116.

The Mayamatam comprises 36 chapters discussing a wide array of planning and building aspects including site selection, town planning, architectural elements, carpentry work, buildings types (temples, pavilions, gopuras, houses, palaces), vehicles (such as temple carts), and so on. Dagens urges that the Mayamatam seems not to be written as a theoretical text, but rather as a recollection of real structures. See Dagens, *Mayamatam: Treatise of Housing, Architecture and Iconography* vii.


The old Javanese literature used Kawi script which was introduced in the 8th century, this script being derived from the Pallava script in early South India. P.J. Zoetmulder, *Kalangwan; a Survey of Old Javanese Literature* (Leiden: Martinus Nijhoff, 1974), 39. See also S. Robson et al., *Javanese English Dictionary* (Hong Kong: Periplus Editions (HK) Limited, 2002), 9.

Dr Kern’s statement was discussed in the book titled of *Het Oude Java en Zijn Kunst (The Old Java and His Art)* by Dr. Nicolaas Johannes Krom. See N. J. Krom, *Het Oude Java En Zijn Kunst (the Ancient Java and Its Art)*, 2e herz. dr. ed. (Haalem: Erven F. Bohn, 1943).

The reference of Fischer’s works quoted by Schoemaker was not in the list of academic works of Eugen Fischer. It was possible that the quote was from Fischer’s paper or lecture but not from his book. Schoemaker, *Aesthetiek En Oorsprong Der Hindoe-Kunst Op Java (Aesthetics and Origin of the Hindunese Art in Java)*, 7.
“Voor vooroordeel tegen exotische kunsten behoeft ‘men bij mij zeker niet te vrezen, verdachtmaking te dien opzichte mist eiken grond. Maar te erkennen, dat ook Java een architectuur heeft – als levende kunst wel te verstaan- op grond van de enkele onzekere beginschreden oop dit kunstgebied, daarmede zou ik te ver gaan en de kans loopen niet ernstig genomen te worden.” (Prejudice against exotic art is certainly not be feared at me, suspicion in this respect no ground. However, to recognize that Java also has an architecture – as considered as a living art – on the basis of the few precarious initial steps in this field of art, I would go too far and run the risk of not being taken seriously). C.P. Wolff Schoemaker, “Indonesische Kunst (Indonesian Art),” Soerabajasch Handelsblad, 18 October 1922. Similar paragraphs were also found in Charles’ other articles.


Ibid., 4-5.

Ibid., 7-21.

‘…. een architectuur-stijl wordt gekenmerkt door zijn eigenaardige constructie-methode, zijn vorm-tendenzen en de wijze, waarop de structuur van de bouwwerken geleed en door lijstwerk en ornamentatie betoond wordt. Hierdoor onstaan in de architectuur-voortbrengselen van een cultuur-gemeenschap gemeenzame karaktertrekken, welke overgaan op alle andere vormen der beeldende kunst en uitdrukking geven aan de geestelijke instelling. (… an architectural style is characterised by its peculiar construction method, and it sets a tendency and method in which the structure of the building is articulated as mouldings and ornamentation. It creates common traits and characters in the architectural product of a particular cultural community, which pass on to all other forms of the visual arts and provide an expression for a spiritual attitude.’ ibid., 5-6.

‘Het niet begrijpen van een vreemdsoortigen vorm kan ook daarom een schoonheidssensatie teweegbrengen wijl door de eigenaardige vormgeving, ook al is deze objectief bepaald leelijk (Failure to understand a strange kind of form can therefore also trigger a sensation of beauty because of its peculiarity, even though this may be objectively determined as ugly).’ ibid., 11.

C. Perrault, Ordonnance Des Cinq Especes De Colonnes Selon La Methode Des Anciens (Ordonnance for the Five Kinds of Columns Ater the Method of the Ancients) (Paris: J. B. Coignard, 1683)


Although the title of this book implied a study of history of architecture, it was seemed to be written rather as a theoretical handbook. History was used as a laboratory where Gugel could make cases to explain technical aspect and construction logic of many great buildings. Eugen Gugel, Geschiedenis Van De Bouwstijlen in De Hoofdtijdperken Der Architectuur (History of Building Styles in the Main Eras of Architecture), ed. Willem Leliman, (Rotterdam, Netherlands: Bolle, 1902).

Ibid., 29.

When Pont was admitted at the Technical College in Delft, he did not apply for architecture program. Instead he followed his father’s suggestion to study in Mining Engineering Department. He only managed to stay in that department for a year, and decided to change his major to Building Engineering (Bouwkundige).

Jessup mentions that Henri Maclaine Point might have been involved in two projects while working in that Amsterdam office: a renovation project of a hospital in
Amsterdam, and the construction of the Prins Alexander Stichting, a foundation for
blind people near to Utrecht. Jessup, “Maclaine Pont’s Architecture in Indonesia,”
17.

37 Maclaine Pont had departed from the Netherlands to Java in January
1911. Ibid., 16.

38 Ibid., 19. See also Henri Maclaine Pont, “Het Nieuw Hoofdbureau Der
Semarang-Cheribon Stoomtram Maatschappij Te Tegal (the New Headquarter of
the Semarang-Cheribon Steam Tram Company in Tegal),” Nederlandsch-Indië Oud
& Nieuw 1, no. 2 (1916).

39 Jessup, “Maclaine Pont’s Architecture in Indonesia,” 34.

40 He supervised his project from 1919-1920 with a cooperation with the
Municipal Construction Organisation under Colonel C.L. Siors of Ontwerp Bureau
and Captain M.T. Van Steveren of the Technical Corps. Ibid., 36.

41 Berlage, “De Europeesche Bouwkunst Op Java (the European
Architecture in Java),” 420.

42 Ben F. Van Leerdam, Architect Henri Maclaine Pont: Een Speurtocht
Naar Het Wezenlijke Van De Javaanse Architectuur (Architect Henri Maclaine
Pont: A Quest for the Essence of the Javanese Architecture) (Gravenhage: CIP-
Gegevens Koninklijke Bibliotheek, Den Haag, 1995); See also Henri Maclaine
Pont, “Concept-Program Voor Den Bouw Der Nederlandsch-Indische Technische
Hoogeschool Op Java (Concept-Program for the Construction of the Dutch East
Indies Technical College in Java),” (s’-Gravenhage: Koninklijk Instituut voor Hooger
Technisch Onderwijs in Nederlandsch-Indië, 1918).

43 “Technische Hoogeschool Bandung, Bibliotheekgebouw, Memorie
Van Toelichting (Technical College at Bandung, Library Building, Explanatory
Memorandum),” (1924).

44 It was published in the three-monthly journal Djawa, no. 4, December
1924, pp. “De Betekenis Der Middeleeuwsche Monumenten Op Java (the

45 Both parts were published in Djawa. “Javaansche Architectuur
(Javanese Architecture),” Djawa III, no. 3 (1923), and the second in vol. 4 no. 2,
1924, pp. “Javaansche Architectuur (Javanese Architecture),” Djawa IV, no. 2
(1924): 44-73.

46 “De Betekenis Der Middeleeuwsche Monumenten Op Java (the Meaning
of Medieval Monuments in Java),” 207.

47 Ibid., 208.

48 Ibid., 210-1.

49 Ibid., 212.

50 Pont, “Javaansche Architectuur (Javanese Architecture),” 112-59; See
also “Javaansche Architectuur (Javanese Architecture),” 44-73.

51 “Javaansche Architectuur (Javanese Architecture),” 47.

52 “Beginselen Der Javaansche Bouwconstructie (Principles of Javanese

53 Maclaine Pont noted that such a principle was not unknown in European
engineering. Formula for calculating beams using that method could be found
in common engineering handbooks; this made it even more intriguing that such
suitable earthquake-proof construction method was not used by most of the Dutch
architects and engineers in the Dutch East Indies. See “Javaansche Architectuur
According to Helen Jessup, prior to using the constructional system in Trowulan, Maclaine Pont had built a few prototypes in the yard of his house.

56 Jessup, “Maclaine Pont’s Architecture in Indonesia,” Appendix B.

Based on a list in the Maclaine Pont Archive at the het Nieuwe Insituut, he lodged 4 patents for this research in America (Inverted Gothic no. 2,545,556, 20th March 1951; Web Building no. 2,592,465, 8th April 1953; Ballfoot Columns no. 2,705,928, 12th April 1953; and All-Prefab Rafter Principals, patent applied under serial number 342.879) and also a further 2 patents in Canada (Ballfoot Columns no. 515.637, 16th August 1955; and All-Prefab Rafter Principals, patent applied for under serial number 644.530).

59 Jessup does not mention the complete name of the Ingenieur that Pont consulted for this matter. The name is also not registered in an archive institution in Utrecht, Leiden, and The Hague. Jessup, “Maclaine Pont’s Architecture in Indonesia,” 90.

60 “Netherlands Architecture in Indonesia 1900-1942,” 257.

There is documentation of correspondences between Maclaine Pont and the German engineer/architect Frei Otto regarding his structural experiments. Otto knew of Maclaine Pont’s work via his former teacher, Professor Jobst, who also knew Maclaine Pont. This acquaintance is acknowledged in Otto’s first letter to Maclaine Pont on 20th February 1960. Then, on 1st August 1960, Otto explained his intention to include Maclaine Pont’s experiments in his new book about suspension construction. On 27th July 1961, Maclaine Pont sent a letter to Frei Otto asking for the return of his materials, perhaps indicating that the collaboration had not gone particularly well. There is for instance no mention or reference to Maclaine Pont in Frei Otto’s book Zugbeanspruchte Konstruktionen (Tension Structures) that was published in Frankfurt in 1962-63. See ibid., 261 footnote no. 59.


64 “Equilibripetal Constructions,” 18.

According to Hugh O’ Neil, who wrote the chapter on Thomas Karsten: A bibliography in the collection titled The Life and Works of Thomas Karsten, the surviving archive on Karsten’s student days at TH Delft is very limited. Yet some brief information can be garnered from a diary by his friend, Marinus Jan Granpre Moliere, and from the account left by Henri Maclaine Pont.


66 Herman Thomas Karsten, “Vluchtige Indrukken (Fleeting Impressions),” De Taak 4 (1920).

67 “Berlijnse Indrukken (Berlin Impressions),” Bouwkundig Weekblad 46 (1911).

68 “Over Den “Deutschen Werkbund” (About the “German Werkbund”),”
Helen Jessup notes that she met the late Charles Karsten, Thomas's cousin, in Amsterdam on 9th September 1977. During their meeting Charles Karsten said that Thomas had given him both volumes of Hermann Muthesius's Das Englische Hause (The English House), and that they had often discussed ideas about town planning. Thomas's son, Simon, has even suggested that his father worked in Muthesius's studio while in Berlin. However, Jessop says this information was not confirmed by Muthesius's son, Eckart. See Jessup, "Netherlands Architecture in Indonesia 1900-1942," 228. See also Cote and Neill, The Life and Work of Thomas Karsten, 77-8.

Jessup notes that the copy of this essay in the Sonobudoyo Museum Library is an off-print of a publication without source or date listed, but estimates that article must have been published around 1919 by the Java Institute as an example of 'new' writing on the subject. Jessup, "Netherlands Architecture in Indonesia 1900-1942," p. 233.

Herman Thomas Karsten, "Opmerkingen over De Ontwikkelingsmogelijkheid Der Inheemse Bouwkunst (Remarks About the Possibilities of Developing an Indigenous Architecture)," (Bandung: Institute of Technology, Bandung, 1919).

The prince's birthname was Raden Soeriosoeparto (1885–1945), and he was the third son of King Mangkunegara V. Already in his youth, Soeriosoeparto was already known for his Modernist aspirations. When he moved to Demak in 1896 because of his ideological opposition to the rest of the royal family, he worked as a translator. During this period he seized the opportunity to learn about Dutch and French literature/language. In 1913, Soeriosoeparto travelled to the Netherlands and attended lectures at Leiden University in which he studied Sanskrit, Old Javanese, and political theory. Jessup in her essay, "H.H. Mangkunegoro VII and the Search for a modern Javanese Architecture", observes that the young prince had a keen interest in various cultural and political matters taking place in the Netherlands. He even joined the Dutch military reserves rose to become a 2nd Lieutenant in the Grenadiers. In 1915, however, he was recalled to Java to be groomed as Prince Wedono, head of the Mangkunegaran princedom. Cote and Neill, The Life and Work of Thomas Karsten, 221-2.

However the precise reason behind the commissioning of Thomas Karsten to be the architect for the palace renovations remains unclear. Ibid., 224.

This correspondence is documented at the Mangkunagaraan Library, Surakarta Herman Thomas Karsten, "Letters to the Mangkunagaraan Palace Concerning the Extensions and Renovations to the Palace ", ed. The Mangkunagaraan Palace (Surakarta: Library of the Mangkunagaraan, 1937-43); "Letters to the Mangkunagaraan Palace Concerning the Extensions and Renovations to the Palace," ed. The Mangkunagaraan Palace (Surakarta: Library of the Mangkunagaraan, 1917-21).


Ibid. See also Cote and Neill, The Life and Work of Thomas Karsten, 221-43.

Jessup, “Netherlands Architecture in Indonesia 1900-1942," 270.


Ibid., 21.

Ibid., 24.

Ibid., 23-4.
The exchange building of Berlage was completed in 1903 and it immediately dominated architecture discussion in the Netherlands. One year later Berlage published Over Stijl in Bouw- en Meubelkunst (1904). Jessup suggests that Berlage's idea was most likely discussed widely and influenced architecture students in the Netherlands that time including Pont and Karsten. See Jessup, "Maclaine Pont's Architecture in Indonesia," 9. For Berlage's architectural idea see H.P. Berlage, Over Stijl in Bouw-En Meubelkunst (About Style in Construction and Furniture Art) (Amsterdam: A.B. Soep, 1908).


Jessup, "Netherlands Architecture in Indonesia 1900-1942," 108.


Ibid., 285.
(Top) H.F. Tillema and his collection of *KromoBlanda* publications.

(Bottom) A display of a traditional cooking set at *De Vrouw* Exhibition (The Women Exhibition), Amsterdam in 1913.

*Source: KITLV*
In his essay titled ‘Plague in Java’, Terrence Hull describes three waves of epidemics that swept Java from 1910 to 1939. In 1910, a ship carrying rice from Burma brought a plague that caused a total of around 31,000 deaths in East Java. From 1919–28, another outbreak in Central Java killed another 85,000 people. However, the most devastating plague took place from 1930–38 when a combination of cholera and smallpox led to many casualties, estimated at a staggering 630,000 deaths.

These mortality statistics were, however, sadly predictable. The reality was that there were many unhygienic and densely inhabited neighbourhoods in towns and cities in the Dutch East Indies from the beginning of the 20th century, contributing to severe hygiene problems for the colony. As an initial response to mitigate this dire situation, the 1903 Decentralisation Act was passed. This act bestowed administrative authority to major cities such as Batavia, Meester Cornelis, Buitenzorg, Surabaya and Semarang to implement public health policies, soon to be followed by other towns and cities in the colony.

Two of the architects discussed in detail in Chapter 3, Henri Maclaine Pont and Thomas Karsten, also participated in this endeavour. In 1920 while Maclaine Pont was working for the Burgerlijken Geneeskundigen Dients [Public Health Department], he proposed a special design for bamboo joinery to prevent rats from breeding. He slit the ends of the bamboo poles into longitudinal strips fanning out from the main stem, such that two bamboo poles could interlock with each other by the strips – thus eliminating any space in the cavity for a rat to occupy. Maclaine Pont admitted that this joinery was inspired by the stacked-beam construction used for the traditional Pendopo in the Dutch East Indies (Fig. 1). It was indeed a poetic structural system, with each of the timber beams being slotted into one another in a corbeled fashion to create a combined structural element that supported the roof beams above (Fig. 2)

Maclaine Pont’s colleague and former partner, Thomas Karsten,
Figure 1.

Photographs of the Pendopo in the Javanese Court in Solo showing the traditional structural solution. *Source: Photographed by Author.*

Figure 2.

(Center) Corner detail of the stacked beams of a Pendopo in an Old Javanese house in Yogyakarta. *Source: Photograph of the Pendopo by Eko Prawoto.*

(Middle) Maclaine Pont’s studies on stacked beams in a Javanese Pendopo from which he developed his rat-proof bamboo joint system.

(Right) Roof design using the rat-proof bamboo construction division by Maclaine Pont. *Source: Maclaine Pont archive at Het Nieuwe Institute, Rotterdam.*
wrote the first urban design guideline for the Dutch East Indies. His ninety-five-page report, entitled *Indiase Stedebouw: Doel en Geest van den Moderne Stedebouw* [Indies Town Planning: Aim and Spirit of Modern Town Planning], provided a standard for a hygienic settlement. It was presented at the annual Decentralisation Conference of the Vereeniging voor Locale Belangen [Association of Local Interests] held in Bandoeng in May 1920. Yet the most prominent contribution by Karsten for the colony arose from his actual design projects, especially for Semarang. Sometime in 1914 or 1915, he was invited by the Semarang City Council to help improve housing conditions there. After completing this scheme, Karsten received his next commission, his first significant town planning project. Thus from 1916, Karsten collaborated with August Plate, director of Semarang’s Dienst Bouw-en Woningtoezicht [Building Inspection Authority] to develop the most comprehensive town planning proposal thus far for any city in the Dutch East Indies.

Important as this contribution by Thomas Karsten undoubtedly was, this chapter chooses not to discuss further the role of architects and engineers in addressing this emergency of public hygiene in the Dutch East Indies. Instead, it will focus on another kind of agency that also contributed strongly to creating a new architectural typology: in other words, the ordinary indigenous people whose lives were directly affected by the dire conditions in settlements and houses in the colony.

The concept of ‘hygiene’ is pivotal in this chapter for two reasons. Triggered by the recurring pandemics in many major cities in Europe, India and Southeast Asia in the early-20th century, such as the so-called Spanish Flu that swept the world in 1918–19, a connection was born between all of these places in terms of debate and activism about the health of ordinary citizens. Both factors triggered a range of new discussions about spatial planning and aesthetics for buildings and cities, with ‘hygiene’ then becoming an important value in such deliberations.

This chapter will, therefore discuss how hygiene became a crucial factor in establishing a new spatial typology in the Dutch East Indies. The dangerous conditions brought about by unhealthy settlements and virulent diseases affected all classes of people. As a result, responses towards this matter did not come exclusively from the colonial government or professional elites. Every person had their stake,
and hence the discussion here will be organised into three parts.

The first part of the chapter analyses the health campaign led by Hendrik Freerk Tillema, a pharmacist and entrepreneur based in Semarang, Central Java. Tillema’s concerns about the poor condition of town planning in the Dutch East Indies, especially Semarang, were presented in his two extraordinary publications: *Van Wonen en Bewonen, van Bouwen, Huis en Erf* [On Dwelling and Living in a Building, House, and Yard], from 1913, and then the 1915–23 five-volume travelogue titled *Kromoblanda*.7

The role of Dutch women in shaping the typical colonial house will be discussed in the second part of the chapter. The exhibition ‘Ons Huis in Indie’ [‘Our House in the Indies’] which took place in the Netherlands in 1913, showed that the organisation of domestic space was the women primary responsibility. The exhibition’s title was an explicit nod to the women’s household handbook written by J.M.J. Catenius Van der Meiden in 19048, of the same name. Both the exhibition and the handbook thus demonstrated the significant agency of women in shaping ideas about domestic space in the Dutch East Indies.

The last part of the chapter will then reflect upon the ways these campaigns for better hygiene created a different perspective on the pursuit of New Indies Architecture. Different from the endeavours that were discussed in previous chapters, the issue of hygiene took this pursuit in a pragmatic direction. Therefore, this chapter will focus on making two specific arguments: firstly, that the advent of awareness towards the issue of hygiene had profound agency in creating a new typology for dwellings in the Dutch East Indies; secondly, that cultural cross-appropriation between Dutch settlers and indigenous people occurred most effectively within the domestic sphere.

‘Weg met de Malaria! Daarom Stempt op Tillema! (Get rid of Malaria! Therefore Vote for Tillema)’

Especially after the 1901 Ethical Policy, the Netherlands and the Dutch East Indies became more connected than in the past due to...
the growing mobility of people between the two places. According to Lekkerker in *Land en Volk van Java*, in 1930 there were 193,618 Europeans (mostly Dutch) in Java and Madoera, and a total of 242,372 in the entire Dutch East Indies. This number was almost 4% of the total population in the Netherlands in that same year.¹⁰

Likewise, the number of Dutch women in the colony had also significantly increased. According to the 1927 population survey, there were 95,854 Dutch women, not that short of the 111,931 Dutchmen living there.¹¹ Elsbeth Locher-Scholten also notes that between 1880–1930 the male/female ratio among European settlers changed from 471 women per 1,000 men to 884 per 1,000 men by the end of that period. If one looks just at Java, her population of 4,000 Dutch women in 1905 rose significantly to 26,000 by 1930.¹²

The situation highlighted that life in the colony had become so much more attractive to Dutch settlers. Among the horde of the migration wave was Henrik Freerk Tillema, a trained pharmacist. Tillema, born on 5th July 1870 in a small village in Friesland, Echtend, was a pharmacology student at the University of Leiden. In 1896, just two years after completing his professional qualification, Tillema sailed to the Dutch East Indies.¹³

Tillema lived in Semarang, the same city where Thomas Karsten was residing and began work in a pharmacy called Klaasesz en Co. In 1899, he bought out the company to become the sole owner. However, Tillema’s ambitions exceeded beyond that of a mere pharmacist, he took on the greater issue of ‘hygiene’. During his first year as owner of the pharmacy, he read an article in *Pharmaceutisch Weekblad [Pharmaceutical Weekly]* which stated that millions of bottles of carbonated drinking water were imported to Java annually for the Dutch settlers. This news made Tillema realise that fresh potable water was a highly marketable commodity in the Dutch East Indies. Inspired by this revelation, Tillema decided in 1901 to establish a drinking water company called Hygeia. In that same year, Tillema’s bottled drinking water was the first locally-produced that entered the market. The etymology of ‘Hygeia’ may have been derived from the ancient Greek goddess of health (a daughter of the Greek god of medicine, Asklepios), but for the indigenous population, this drinking water was simply known as ‘Ajer Blanda’ (‘Dutch water’).
Figure 3.


(Right) Photo of an original Hygeia drinking bottle. Source: Photograph by Pauletta Holst.
Hygeia’s sparkling lemonades and mineral water became popular among the colonial settlers in the Dutch East Indies. Tillema’s aggressive marketing strategy raked in a fortune for him. The swing-top bottle with a porcelain cap and rubber ring costed a quarter-gulden (approximately seven euros today). Furthermore, one could exchange six empty Hygeia bottles for six new full bottles for only 75 cents. This enterprise alone made Tillema one of the wealthiest figures in the colony (Fig. 3).14

Water did not only bring fortune to Tillema but also a greater awareness of the poor living conditions in many settlements in the Dutch East Indies. He believed that a better quality of public health for settlers would also improve the health of the indigenous people, and the crucial factor being good daily hygiene conditions. For this reason, Tillema got himself elected as a member of Semarang City Council on 30th November 1909 under the campaign slogan ‘Weg met de Malaria! Daarom Stempt op Tillema! (Get rid of malaria! Therefore vote for Tillema!).’15

Tillema argued that the main cause of the plague in Semarang was, firstly, because the commoners did not have access to freshwater, and secondly, due to the poor planning of their houses and neighbourhoods. The chart above (Fig. 4) was taken from Tillema’s magnum opus, Kromoblanda, and depicts cholera and smallpox outbreaks that happened in September and October 1912 in Semarang. It indicates that the lowest mortality rate was in southern Semarang, where the population density was lowest and more colonial settlers lived. The highest death rate was in the western district of the city, where dwellings were densely packed and cramped within. Furthermore, the latter area had insufficient water supply for washing, bathing and drinking.

Additionally, Tillema argued that indigenous people who lived in poorly designed houses had the least resistance to infectious diseases. Immunity would be weakened and, therefore, germs could be easily transmissible from one person to another, either directly or indirectly. Within the Dutch East Indies it affected the local population, but Tillema noted that a similar effect mirrored those of the slums in European cities, where infant mortality was so high because many poor families lived in damp, dirty, dimly-lit, crowded houses with minimal air ventilation.16
Figure 4.
Kromoblanda (‘Kromo’ refers to the Javanese people and ‘Blanda’ was Malay for the white Dutch settlers) was initially written as a report to be presented at an international housing conference in Rome in 1915. Considered to be his greatest contribution, Kromoblanda was an extensive work spanning six volumes that aimed to expose the challenges to better hygiene in the planning of settlements throughout the archipelago (Fig. 5). Tillema’s first propaganda tract on the topic had in fact been Riooliana [Seweriana], which he published in 1911 while serving, as mentioned, in the Semarang City Council.17 Riooliana was a 50-page booklet in which 20 pages of photographs, maps and texts were about various sanitation issues in Semarang.18 One of the most severe problems that Tillema considered rampant in the city was its substandard water supply and waste management system, and so in the booklet he purposefully included a design for a better public toilet (Fig. 6).

Tillema’s second book was published in 1913 under the title Van Wonen en Bewonen, van Bouwen, Huis en Erf [Of House and Home - Building, House, and Yard]. Like Riooliana, it was by no means an academic text but rather part of his publicity campaign about the importance of hygienic homes and neighbourhood. Therefore, many diagrams and comical illustrations were used to make the book accessible to the broader public. One such images was the chart (Fig. 7) comparing Semarang’s mortality with ten major European countries. The size of each skeleton represents the mortality rate of that country; the larger the skeleton, the higher the death rate. Semarang was predictably the largest skeleton (only Russia came close to it). Such illustrations helped to make public health information clear and straightforward to readers, instead of using numbers or tables, particularly for non-Dutch-speaking people.

In Van Wonen en Bouwen, the discourse on hygiene issues was more thorough than that in his first publication, Riooliana. Tillema argued that there were three factors behind Semarang’s high mortality rate: a lack of clean water, the poor design of dwellings and neighbourhoods, and the unaffordable housing rent and land prices across the Dutch East Indies. Because of these intertwining factors, people tended to build houses by the lowest means of economy, thereby compromising construction quality and hygienic matters.
(Left) The cover of the first volume of Kromoblanda.

(Right) Tillema published all of his books using his own plentiful money supply. He included the same text as his 'stamp' in every one of his books: ‘Not for Sale: It is sent to the government, parliament, State-General, and press. It is also available by request for libraries, reading rooms, and for women and men who are interested in the fate of the Indonesian people. For all enquiries, please write to the author, H.F. Tillema, in Groningen.’


Figure 6.

Figure 7.

(Left) Diagram of death rates comparing Semarang and ten European cities that formed Plate 1.

(Right) The European mortality figures were taken from those given by Professor Julius Wolff in his 1912 book, Der Geburtenrückgang.

‘... your health depends on water supply, land policy, road construction, house building, faeces drainage, etc., although your house maybe so spacious, your yard is so beautiful, you could get infected because of the extremely unfavourable conditions of life.’

Despite the stated factors, Tillema evidently felt that the fundamental problems were caused mainly by defective water supplies. To combat these major challenges, Tillema proposed two solutions. The first of these was town planning. Tillema claimed that a proper understanding of the character of the tropical climate was essential given that heat, humidity, and winds are vital issues when designing houses and neighbourhoods. Regardless of how good a sanitation system might be intended, if town planning principles were neglected, hygiene conditions would not improve. The case study that Tillema used to support this argument was the replanning of the old colonial town of Macau (Fig. 8). He created a diagram that superimposes the new regularised housing blocks over the town that would raise standards of social hygiene there.

Highlighting the contrast, Tillema argued that the housing blocks in the Pontjol district of Semarang were arranged without consideration for solar orientation or wind direction. As a consequence, some housing blocks had a shortage of fresh air circulation due to the scattered urban layout. This was precisely the problem that the Macau replanning scheme was aiming to correct by laying its new blocks in a gridded north-south alignment to maximise sunlight and fresh air.

Tillema’s second proposition was the need to set hygienic standards for a typical house in Semarang, and indeed for the Dutch East Indies as a whole. He suggested these following thirteen criteria:

1. All rooms must be adequately spacious and continuously connected.
2. All rooms, especially bedrooms, must be placed high above the ground (preferably on the second floor).
3. Any materials that potentially allow animals to nest are prohibited (sirap, bamboo, etc.).
4. Outside walls should not get any direct heat from the sun.
Figure 8.

(Top) Block plan of the Pontjol area in Semarang, for which Tillema pointed out that the existing urban planning did not address the local climate or solar orientation. The proposed replanning of Macau’s old town district, in contrast, shows the new housing blocks dotted on top of the older, less healthy plan (bottom). Source: Tillema, H.F. Van Wonen En Bewonen, Van Bouwen, Huis En Erf. Semarang: Tjandi, 1913.
5. There must be a gap between the roof and attic to allow proper cross-ventilation.
6. All rooms must get daylight.
7. Metal roofs should not be used, unless as a double layer roof with a substantial insulating layer of approximately 10 cm of sand covered by wire-mesh.
8. Cornices and all other kinds of decorations are unnecessary because they would only attract animals to nest in them.
9. Each house should have a spacious yard.
10. Servant’s/helper’s bedroom should be located far away from the main house.
11. Gutters should be installed around all units of the house (i.e. the main house and the external pavilion) to enable good water drainage.
12. There should be wide gravel edges around all units of the house (i.e. the main house and the external pavilion) to prevent snakes from entering.
13. The best planting to use in the yard is short grass. ’

To provide a better illustration of these criteria, Tillema referred to an existing housing study that was made by Raden Nosingo, one of the BOW’s engineers. Nosingo suggested that the two causes of unhygienic settlements were the cramped block layouts and the use of natural materials such as teakwood (djati) and bamboo since rats nested in them. Consequently, Nosingo proposed that houses should be spaced apart to introduce proper sunlight and sufficient air ventilation and that alternative materials and construction details were required. Tillema collaborated with Nosingo to develop seven types of dwellings that complied with his criteria. These houses varied in their footprint yet all shared a similar material and constructional specification because it was agreed that by standardising these aspects, the building costs could be kept relatively low without compromising hygiene quality.

In addition to using similar, if not identical, building materials and construction methods, the drawings of the seven dwelling types also displayed their design uniformity. In each, there were two core spaces – the living room and front gallery – which became the base modules for the internal spatial organisation of the houses.
terms of size, Type A (Fig. 9) & Type B (Fig. 10) were the largest and had identical spatial layouts. Their only real difference was that they were intended for different settings: Type A could be made into repeated row houses, as shown by the Type A-A variant, whereas Type B was a fully detached dwelling. Next were Type C and Type E houses, along with and their respective derivatives, Type D and Type F (Fig. 11 & Fig. 12). These alternatives were part of Tillema’s attempt to offer more affordable options, and so reused timber for the doors and wall panels would make it cheaper. The smallest variant was Type G, much like Type A could also be turned into a row of houses, depicted as Type G-G (Fig. 13). Tillema and Nosingo also drew a proposal for an external pavilion or annexe building that could be added to any of the dwelling types.

Since neither Tillema nor Nosingo was trained as architects, these designs were nothing revolutionary. Indeed, Tillema’s approach always tended to be very pragmatic. Instead, the importance of his work lay in his endeavours to disseminate technical and scientific knowledge amongst the broader public. His propaganda was aimed at enlightening common people about hygiene issues, and therefore his ideas and texts are very unlike those of the architects discussed in Chapter 3.

Nevertheless, Tillema had set the grounds for a broader discussion for an improved hygienic settlement planning and house building among Dutch and Indigenous settlers. He clearly stated in section ‘Recapitulatie’ (Recapitulation)’ in Van Wonen en Bewonen:23

1. The current condition of housing is not suitable for any residents of Semarang. They are impoverished housing masses, ..of whatever race! The high rate of mortality is one of the consequences of such a situation.
2. Architects must learn to build tropical houses, and owners/residents must learn to appreciate such design.
3. The construction cost of a house, especially for mingegoeden (a class between well-to-do and needy), will be higher than they used to be, due to demands, although for the time being this is the most necessary one. The rents shall, therefore, not be reduced.
4. (For most people) budget for rent is lower for various reasons than the past. I do not believe that such a condition will change in the foreseeable future.

5. A proposition of a less expensive land for housing and decentralising housing are necessary to maintain rents at a normal price. The municipality should help by purchasing the land before it had been valued as a specific building site, road construction, or any other vested interest by construction companies.

6. The municipality strives for “city” education (for public).

7. Learning from the British East Indies’s experience, the effect of water pipes, faeces drainages, etc., can only be expected if wide streets run throughout the entire city. Specifically, in front of, and behind the houses, and the streets are laid in the direction of the most prevalent winds come through.

8. It is absurd to improve the city into a better condition partially. If we want to control the situation, we must plan the city entirely, not partially.

9. In areas where the Chinese, Javanese, Arabs, and other ethnicities inhabit, the tremendous expense would be needed to meet the requirement of point 7.

10. To diminish much ignorance of hygiene issues, raising awareness among the low social class of people is necessary. Nevertheless, the real improvement would only happen if their income is increase.

11. Thanks to modern tropical hygiene, it is possible to be as healthy here as in ‘Patria’ (Metropole).

12. Attention must be taken to ensure that the habitation of a good house with its yard does not endanger the residents as well as the surrounding area.‘

Although these propositions were written specifically to address the problem in Semarang, it summed up Tillema’s ideas to establish a hygienic environment for the entire Dutch East Indies colony. The ideas were echoed throughout other Tillema’s published works. Furthermore, his usage of many illustrations accompanied by simple explanations made his campaigns more compelling for people across the colony.
Type A and Type A-A dwellings devised by Tillema and Nosinga for Semarang. Edited and translation by author. 


Type B & Type C dwellings. Edited and translation by author. 

Figure 11.


Figure 12.

Figure 13.

One significant impact of this hygiene crisis was the advent of unprecedented activism that embraced all the key colonial stakeholders in the Dutch East Indies, ranging from government officials, engineers, architects, entrepreneurs and so on. After all, diseases tended not to discriminate between social, economic or ethnic groups. Tillema was mainly concerned with systemic solutions for town planning and infrastructural provision, and consequently, his polemic did not discuss the importance of hygiene in domestic space. Instead, it was women who shaped the spatial typology of houses in the Dutch East Indies.

The next section will discuss another agency, that of Dutch female settlers, who also participated in the hygiene campaign for the colony.

Ons Huis in Indie (Our House in the Indies)

Throughout the 19th century CE, discussions on hygiene expanded into a broader debate about aesthetics, and more precisely to an assumed correlation between hygiene and aesthetics. One of the most critical issues regarded the use of corsets to shape women’s bodies. The corset, which was first introduced in 1550 as a peculiar method to comply with a ban on fat waists for those attending the court of King Henry II in France, henceforth had been used since to ‘cast’ the wearer’s body into a socially accepted image. Unfortunately, this ‘casting’ came with a toll, illustrated below (Fig. 14) in how this mode of dress disfigured women’s body.

As mentioned by Adrian Forty and Georges Teyssot, various reformers, designers and artists from the mid-19th century CE tried to address this health problem by proposing alternative kinds of dresses. Some of those taking part in this conversation were prominent figures: Catharine E. Beecher urged the total replacements of the corset in *letter to the People on Health and Happiness* (1855), Henry van de Velde organised an exhibition in 1900 on ‘The Artistic Improvement of Women’s Clothing’, and in 1901 Paul Schultze Naumburg published *Die Kulture des Weiblichen Körpers als Gundlage der Frauenkleidung [The Culture of the Feminine Body as the Foundation for Women’s Dress]*.

In the Netherlands, the debate about women and aesthetic-
Figure 14.

The drawing on the left Efectes del corsé en el cos femení (Effects of the corset on the female body) was made in 2011 by Andres Marin for the exhibition La Ciutat Viscuda ('The Living City' to depict the disfiguring effect of the corset by juxtaposing two images of a normal woman’s body and that after wearing a corset. Similarly, the drawing on the right from M.M. Burgess, Health (1914) also shows the severe effects of tightly laced corsets on women’s ribs. Source: Forty, Adrian. Objects of Desire: Design & Society since 1750. London: Thames and Hudson Ltd., 1986.
hygienic issues was expressed differently. The Women’s Exhibition (De Vrouw Tentoonstelling) held in Amsterdam in 1913 celebrated the crucial role that Dutch women played in the life of the population. The exhibition was initiated by two Dutch feminists, Rosa Manus and Mia Boissevain, as a continuation of an earlier 1898 exhibition about women’s labour titled De Nationale Tentoonstelling van Vrouwenarbeid, which, interestingly coincided with the coronation of Queen Wilhemina in The Hague.

The 1913 exhibition was comprised of two sections. The first was on visual art and featured the work of 181 Dutch female artists. The poster (Fig. 15) was designed by Wilhemina Cornelia Drupsteen, mostly known for her graphics for the Women’s Rights movement [de vrouwenrechtenbeweging]. Drupsteen was also the first women to be admitted to the Nederlandsche Vereeniging voor Ambachts- en Nijverheidskunt [Dutch Association for Crafts and Industrial Art, known as VANK).

The second section of the Women’s Exhibition dealt with domestic space, especially pertaining to settling in the Dutch East Indies. Its title, ‘Ons Huis in Indie’, was a direct nod to a handbook written by J.M.J. Catenius-van der Meijdens for Dutch women, Ons huis in Indie: Handboek bij der Keuze, de Inrichting, de Bewoning en de Verzorging van het Huis met Bijgebouwen en Erf, naar de Eischen der Hygiene, Benevens Raadgeningen on Wenken op Huischooldelik Gebied [Our House in the Indies: Handbook for selecting, furnishing, arranging, and maintaining the house and its outbuildings and yard for the requirements of hygiene, including advice and tips on domestic matters]. The opening poem for the Women’s Exhibition, dated 15th March 1913, was written by another Dutch woman, J.H. Baayyan van Oostveen, who lived in Medan during the colonisation. The seven-verse poem gave a vivid account of the everyday life of a typical Dutch woman’s role in the colony, recounting the hardship of creating a home in a foreign place that presented such unfamiliar circumstances:28
Figure 15.

(Left) The poster, designed by Wilhelmina Drupsteen, depicted domestic space as a female domain. In the centre stood a woman with a small child, both of them opening their arms wide to depict the welcoming gesture of a home. To their sides were figures representing the two sides of a woman’s role: as the keeper of domestic space (sewing by hand) and also testing out new technologies (using a sewing machine). The same analogy was described in the catalogue for the second section of the Women’s Exhibition, titled ‘Ons Huis in Indie’

(Right), which argued that in the domestic realm, women were in charge of everything from renovating the home through to maintaining the health of each member of the family.

Source: Special Collection University Library of University of Leiden, Leiden.
Daar is een heel oud liedje.
Met een bekend refrein.
Elk kent het melodietje,
Rik, arm, jong, groot of klein.
‘t Is maar een simpel wijsje,
We zongen ‘t allen thuis,
Ge zult het lichtlijk raden:
“In Holland staat een Huis”.

[There is a very old song,
With a familiar chorus.
Everyone knows the melody,
Rich, poor, young, big or small.
It is just a simple tune,
We all sang it at home,
You will guess it slightly:
“There is a home in Holland”.

2.
In Holland zal een huis staan,
Een Indisch huis getrouw,
Elk zal daar leeren kennen
Den werkring van de “Vrouw”.
Den “totoks” zal ‘t getuigen
Van last en van gerief,
Hen zal het nader brengen
Tot “Indisch” leed en lief.

[There shall be a home in Holland,
True to an Indies house,
Each will get to know there
The office of a ‘woman’.
The ‘totoks’ will testify
Of burden and convenience,
They will bring it closer
To ‘Indies’ sorrow and love.

3.
Geheimen zal ‘t onthullen,
Die U en ik lang ken,
Van “kollong” en van “dapoer”,
Van “goedang” en van “spen”,
De “boy” zal ‘t huis bewaken,
Met “baboe-djait” en “kok”,}
Op ’t erf de put de leksteen
En ’t kaaklend kippenhok.

[Secrets will not reveal,
Whom you and I have known for a long time,
From ‘kolong [basement]’ and ‘dapoer [kitchen],
From ‘goedang [storage]’ and ‘spen’,
From ‘boy’ who will guard the house,
With ‘baboe-djait [tailor]’ en ‘kok [chef]’,
In the yard the well and spillway,
And the jaw-like chicken coop.]

4.
In Holland zal een huis staan,
Een Indisch huis getrouw,
Van binnen en uitwendig.
Wat vorm betreft en bouw,
Den “oudgast” zal ’t herinneren
Aan lang verleden tijd,
“Zijn Huis”, - vervlogen-droombeeld,
Herrijst in werkelijkheid.

[There shall be a home in Holland,
True to an Indies house,
Inside and out.
As for shape and construction,
The ‘old guest’ will remember,
Long past,
‘His house’ – a bygone dream image,
Resurrected in reality.]

5.
’T Zal in ’t geheugen roepen,
Wat moeizaam werd gezocht,
Een toevluchtsoord, een rustplaats.
Na langen, zwaren tocht.
Hem zal het als een beeld zijn
Van ’t levenswerk verricht,
Vervulling van zijn wenschen,
EEN EIGEN HUIS gesticht.

[It will recall in memory,
What was sought with difficulty,
A haven, a resting place.

Migration of Domestic Space
After long, heavy drafts.
It shall be an image to them
Of life’s work done,
Fulfillment of his wishes,
Founding his own house.]

6.
In Holland zal een huis staan,
Een Indisch huis getrouw,
Ons gansche werken, streven,
Weerspiegelt in den “bouw”.
‘T Vertolkt ons als de woorden
Uit eigen mond gezegd,
Geeft weer ons zieeleven,
In ‘t stoffelijk neergelegd.

[There shall be a home in Holland,
True to an Indies house,
Our entire work, exertions,
Reflected in the ‘construction’.
It interprets us as the words
Said from your mouth.
Reflects our soul life,
Laid down in the material.]

7.
In Holland zal een Huis staan,
Een Indisch huis getrouw,
Van ‘t werk dat hier verricht werd,
T’ “symbool” – als hecht gebouw.
De steenen zullen spreken,
Van “wil”, van “durf”, van “moed”,
“What” Vrouwen-Samenwerking
In korte spanne doet.

[There shall be a home in Holland,
True to an Indies house,
From the work that was done here,
The ‘symbol’ – as a solid building.
The stones will speak,
From ‘will’, from ‘daring’, from ‘courage’,
‘What’ women’s cooperation can do in a short span.]

Other activities of Dutch female settlers were elaborated upon in
the catalogue’s second article, ‘Dagelijksche Werkzaamheden der Indische Huisvrouw’ ['Everyday Chores of a Housewife in the Dutch East Indies’]. The article listed the routine daily responsibilities that women were expected to do in a house:

1. Get up at 5.30 am or earlier;
2. Prepare breakfast for the family before the children went to school, and the husband went to his office;
3. Supervise the work of the gardener;
4. Meeting with the house’s chefs to plan which groceries were needed;
5. Inspect the pavilions to check they were good;
6. Inspect the bathroom, toilets, and gutters;
7. Inspect the stables and the animals, including looking at the condition of the yard;
8. Check whether the maids had swept the floors properly;
9. Afterwards, engage in baking bread, sewing, or going out for social activities before the husband and children returned home.

These chores were all about maintaining the quality of domestic comfort and hygiene, the two factors that served as indicators of the quality of a Dutch lifestyle. Everything that happened within a house was undoubtedly a woman’s responsibility to maintain. To transform a house into a home was seen ultimately as the purpose of a woman. As was written in Frances Power Cobbe’s The Final Cause of Women (1896):

‘The un-homeliness of the homes... of women in whom the feminine element is lacking is pitiable... The more womanly a woman is, the more she is sure to throw her personality over the home and transform it, from mere eating and sleeping place, or an upholsterer’s showroom, into a sort of outermost garment of her soul; harmonised with all her nature as her robe and the flower in her hair are harmonised with their bodily beauty. The arrangement of her rooms, the light and shade, warmth and coolness, sweet odours, and soft or rich colours, are not like the devices of well-
trained servant or tradesman. They are the expression of the character of the woman...
A woman whose home does not bear to her this relation of the nest to bird, calyx to flower, shell to mollusc, is in one or another imperfect condition. She is either not really mistress or her home; or being so, She is herself deficient in the feminine power of thoroughly imposing her personality upon her belongings.’

Apparently, in the Dutch East Indies, the ‘women movement’ was expressed differently. Unlike the aforementioned movement in Europe, the message for women in the colony was in more unequivocally pragmatic and practical ways. Women acted as an active agency for establishing domestic life in the colony.

The critical position of a woman as a housewife required her to be equipped with various domestic knowledge and skills. As a consequence, the formal education of girls was established in the latter part of the 19th century CE in the British and European region. For instance, from 1882 onwards, all the girls in the London Board Schools were taught basic cookery and housework. The interest to teach domestic knowledge and skills increased in the 1890s, when a formal syllabus was introduced for a three-year course in baking, laundry, and household management (Fig. 16).

The knowledge and skills were crucially being taught to ensure that women faced no problems in planning and maintaining health and hygiene in domestic spaces, as seen in these questions taken from the London School Board’s syllabus:

1. What is the proverb about cleanliness?
2. Describe how do you set to work to clean a bedroom! Furthermore, give any reasons for the order in which you set about doing so.
3. In dusting a room, how do you ensure that the dust is removed?
4. Of what substances does dust usually consist?
5. Why is it unwholesome, and in what diseases would it be dangerous to breathe the dusty air?
In the Dutch East Indies, as mentioned in Chapter 2, the primary school for girls in Batavia in 1876 was one of the earliest established. Prior to then, household skills had been taught in vocational schools, such as the Parapattan orphanage in Batavia. In the primary school curriculum, girls were to be trained in childcare, sewing, making clothes, and such the like. According to the *Official Gazette no. 51*, other primary schools for girls were soon opened in major cities such as Semarang, Surabaya, and Padang. From 1881, a three-year course was taught in a new secondary school for girls in Batavia. After the 1901 Ethical Policy, educational institutions for girls proliferated (Fig. 17).

The broad expertise expected of women to manage domestic spaces were extensively elaborated in Catenius-van der Meijden’s aforementioned handbook for girls. This handbook was special because of its immense attention to the architectural aspect of the house. The handbook had seven chapters addressing specific aspects of domestic life in the Dutch East Indies. Four dealt with matters related to constructing and managing a house, while the other three chapters discussed food, clothes, bookkeeping, nursing and other issues.

The fact that van der Meijden discussed house planning and construction was not without its reasons. In this way, she was responding to the problems raised by Tillema in that land prices and construction costs was so high in the colony. Consequently, getting to own a house at all was not an easy matter, let alone maintaining a hygienic one. It was common for newly arrived Dutch settlers and their families to lodge temporarily at someone else’s home. Once they had sufficient money, they would then try to construct a simple house using cheap materials such as bamboo or timber. Without adequate knowledge and awareness, such houses would often be built to a poor standard of hygiene.

According to van der Meijden, housing for Dutch settlers in the Dutch East Indies was officially managed and provided by the Department of Water or Department of Warfare, although some chose to find their houses independently. These houses were built and maintained by the Department of Public Works. Part of regular maintenances that were done were re-painting the houses (in white colour because it was believed to reduce heat absorption) and repairing/fixing woodwork every three-to-four years. For others intending to build their house
Figure 16.

Figure 17.
Advertisements of training and educational institution for girls were included in the 1913 ‘Ons Huis in Indie’ exhibition catalogue. (Left) The Institute for Young Ladies provided many levels of education from elementary through to high school, plus also courses in handicrafts.;
(Centre) The Hoogere Burgerschool was a high school level for upper-class girls that opened in 1902.;
(Right) Organisations like the Roemer Visscher Association offered support for girls to upgrade their proficiency in household skills.
independently, they could instead commission professional architects or engineers to oversee the work.37

Clearly, houses in the Dutch East Indies required a different typology to those in the Netherlands. Back in the Netherlands, where the land was so flat, and seismic activity is not an issue, a large family would typically live in the same dwelling but on different floors or else build two houses next to each other. Furthermore, houses in the Netherlands tended to have no garden or simply minimum greenery. In contrast, according to van der Meijden, the defining features of a settler’s house in the Dutch East Indies were the presence of a garden, a yard, and a pavilion as elements of a larger housing compound. Additionally, since the colony lay within a volcanic and seismic region, it was not recommended for dwellings to have more than one storey. Accordingly, these geographical factors affected typology. The heart of the dwelling was the main house located in the middle of the plot, where the family lived. Attached to the main house and extending out into the back yard were one or two rows of annexe buildings surrounded by a garden or, at least, a vacant space which could be transformed into a garden later on. If the plot size was limited, this rear area would be used simply as a yard (Fig. 18).38

There were three primary spaces within the main house; veranda, inner gallery and rear gallery. The veranda and rear gallery were connected by the inner gallery. If the veranda functioned as the place to welcome guests, the rear gallery was where the family gathered. It served as the house’ living room’. Leading off the inner gallery were several rooms, such as the bedrooms (Fig. 19). Besides these common planning features, houses in the Dutch East Indies were not standardised, and hence they took on many variations.39

From Multatuli’s depiction (Fig. 20) of a typical Indies house in his 1860 novel, Max Havelaar, we know that this housing typology was around from at least the 19th century CE. This suggests it had been embraced as the normal dwelling among the colonial settlers in the Dutch East Indies. For this reason, van der Meijden’s decision to include a description of a ‘vernacular’ house in her account was unlikely intended to offer any design guidelines. Instead, by reiterating the composition of this existing typology, she set the stage for her description of the
Figure 18.

(Left) Example of a typical main house.

(Right) Photo of a yard with a Dutch lady wearing a Javanese kebaya and accompanied by her husband. Their maid waits at the back.

Figure 19.

(Left) Photo of a Dutchman in the veranda as the houses’ front room’.
(Right) A settler family with their servants in the rear gallery.


Figure 20.

domestic role of Dutch women; typically, colonial houses were the epicentres of domesticity, therefore comprehending the fundamental characteristics of the dwelling was essential.

With this in mind, the contents of van der Meijden’s handbook can be placed into two groups. The first group dealt with wider planning issues such as how to choose a site, how to ensure good air ventilation flows, and how to provide clean water (Fig. 21. I1-4). The second group dealt with technical aspects of building and renovating a house, including how to build foundations, floors, walls, ceilings, roofs and how to choose suitable building materials (Fig. 21. II1-4).

Despite the general similarities of the technical information in Tillema’s and Van der Meijden’s books, there was a distinction in how they presented the information. Tillema aimed to invoke better policies for town planning, hence his emphasis on exposing public health problems in the Dutch East Indies to instill a sense of urgency among the colonial stakeholders. On the contrary, Ons Huis Indies was written explicitly by van der Meijden as a practical manual, and all this information was provided in a prescriptive manner as seen in the following examples:

All these prescriptions would undoubtedly contribute to creating healthy dwellings, and the inclusion of these detailed technical prescriptions in van der Meijden’s handbook was there in case a housewife had to supervise renovation work. However, to create a truly comfortable home, the sensible arrangement of domestic space played a significant role. Elsie de Wolfe in The House in Good Taste (1913) asserted that what mattered was how sensible a woman was in expressing her personality in domestic space; men might build a dwelling but establishing it is home was always a woman’s responsibility. Essential to achieving this aim, according to Van der Meijden, was for Dutch women to have a refined sensibility in personalising the otherwise dull spatial organisation of an Indies house.

To underscore her point, van der Meijden quoted the criticism by another Dutch writer, N. Harting, of the interior aesthetics of the Indies house:

'... the existing building order makes it difficult to decorate the Indies house tastefully.'
He rightly screams: "one finds in Europe in the very old houses and in the contemporary one, all kinds of halls, large and small rooms, octagonal or pentagonal, with deep, round windows, verandas, and expansions, which form making cosy corners and stylishly furnished space easy. In the Indies, one always has to do with the front gallery, the inner gallery, corridor, the rooms on both sides thereof, then the rear gallery, everything in the square".

According to Harting, the Indies house only had monotonous kinds of rooms which were considered dull and challenging to decorate. Obviously, Harting’s criticism was debatable. Two entirely contextual differences between a typical house in the Netherlands and that in the Dutch East Indies made them incomparable. The high costs for land and construction was a factor in the colony that Dutch people did not experience in the Netherlands. Consequently, in the Dutch East Indies, the crucial factor in house design was always the economy of means, and this was the challenges facing Dutch women who had just arrived at the colony.

‘Doodende symmetrie is er de hoogste wet. (Killing symmetry is the absolute rule!): this was the main principle suggested by N. Harting, and he offered some examples of how to do this. Firstly, since a large garden almost always surrounded the houses in the Dutch East Indies, it would seem repetitious to use carpets that had floral or plant patterns. Considered placement of window openings could instead create an elegant spatial dynamic between the interior and the exterior, with no need to imitate nature in the internal decorations. Secondly, do not use a similar shape for tables, chairs or benches, but make them highly varied. Thirdly, in no circumstances should one use a chandelier in a room, but rather use silver lamps and place these randomly around the walls to a casual effect. Furthermore, fourthly, never arrange the furniture in a room in an ordered or regular manner. Randomness and irregularity thus seemed to be the core idea of Harting’s method. In such a way, he felt that the dull ambiance of a square room could be mitigated, and its atmosphere would feel more dynamic and livelier (Fig. 22).
### Guidance for Women to Supervise Building Works in Catenius Van Der Meijden's *Ons Huis Indies*.

<table>
<thead>
<tr>
<th>NO</th>
<th>TOPIC</th>
<th>DESCRIPTION</th>
</tr>
</thead>
</table>
| 1.1 | Site Planning | ‘If people want to live well and healthy, they must seriously consider the location of their house; pay attention to the opening and closing of windows and doors, also concerning the trees.’

- ‘If someone can choose where to live or build their own houses, low land is not recommended. Coastal areas such as Batavia, Semarang, and Soerabaia are too hot, and the air is dry. Dry air is unhealthy for Europeans because it promotes evaporation and causes dehydration from the lungs and skin.’

- ‘A good soil guarantees a “dry” construction for a house. Additionally, using proper materials will significantly influence the health of its residents.

- Sandy soil is healthy if it contains few organic substances; a gravel floor is exceptionally healthy. On the contrary, clay and alluvial soils are not recommended.

- Low-lying and moist soils are also not recommended, such as plains at the foot of a hill. The rainwater that flows down from above will not only cause high humidity but also grow moss.’

| 1.2 | The Importance of Fresh Air and Water. | ‘… everything must be closed in the evening, both for protection against thieves and for health considerations of the residents.’

- The humid atmosphere at swampy places or large shallow rivers and lakes makes people sick. Thus, for example, it is a must in Bajoe-Biroe (Central Java) to close windows early in the evening, since the gentle wind from the westerly direction brings marsh vapours from Rawah-Pening over the town, and causes many people to experience insidious fevers.’

- It is also generally known that evening- and night-dews have an unhealthy effect on many inhabitants. Whatever the case, ventilation during the day is necessary to ensure fresh air in bedrooms.’

- ‘To ensure a good quality of air, there should be not too many tall trees and hardwoods planted too close to windows.

- Not only does this block fresh air flow into the house, but they also become nests for numerous insects, which in the evening, when the light is one, will approach light sources. This condition makes it a less comfortable situation for the residents.’

| 1.3 | On Cross-Ventilation | ‘Especially in the warm Indies climate, where the temperature difference between inside and outside is minute, proper ventilation must be provided. Otherwise, the internal air would remain still, and people would suffer from the effects of unhealthy air in their house.’

I.3. **On Cross-Ventilation**

> 'This ventilation can be either artificial or natural. The first one includes the application of poengka, as applied in the British-Indies’ and French’s motorboats, and the use of fans. For the second one, construction materials contribute significantly. Many materials through their porosity allow abundant air and light entering the house.’

> ‘All these natural materials could be used to create proper ventilation, despite including some disadvantages.

> Snakes and other vermin can crawl easily through the reeds. Hence, it shows that the advantages of natural ventilation come along with very unpleasant, annoying things.

> If a ceiling has been installed under an atap or sirap roof, or of any other light material, it must be ensured that everything above is closed off so that no birds, bats or other animals can nestle in it.’

I.4. **On Clean Water.**

> ‘It is a pity that, with such an enormous supply of water from artesian wells, the construction of water pipes for all houses, for public buildings, squares and streets is inadequate. Because of this, even though the costs would be high, an improvement in this infrastructure would mitigate general hygiene issues significantly. Most diseases are caused by inadequate water, and unfortunately, this is prevalent everywhere all over the Indies.’

II.1. **On Building Foundation.**

> ‘When laying the foundations of a house, the bottom of the foundations must be at least 0.5 metres below the surface level of the site.’

II.2. **On Roof Coverings.**

<table>
<thead>
<tr>
<th>Roof Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atappen (thatched)</td>
<td>lasts for 4-5 years</td>
</tr>
<tr>
<td>Welits</td>
<td>lasts for 3 years, although this could be longer depending upon many layers cover each other.</td>
</tr>
<tr>
<td>Gloempal</td>
<td>lasts for 3 years, but like Welits this could be longer depending on the number of layers.</td>
</tr>
<tr>
<td>Sirap</td>
<td>consists of wooden planks of specific dimensions, hung by pins on battens to which they are also nailed.</td>
</tr>
<tr>
<td>Sirap</td>
<td>requires 25 pieces per square metre. The minimum angle for this type is about 25 degrees. Sirap can last for 15-20 years, but if using djati this can even reach 30 years.</td>
</tr>
<tr>
<td>aked-clay tiles</td>
<td>made in Palembang, Malacca and Singapore or of European models ('Echtsche', French, Flemish). The slope should be 25 degrees.</td>
</tr>
</tbody>
</table>
| Iron roofs         | should be of galvanised corrugated sheets (made using zinc). The minimum angle for this type is about 18 degrees. These roofs are durable and relatively inexpensive, but warm!’

Migration of Domestic Space
### II.3. On Ceilings

‘Ceilings are a necessary feature in the main building and pavilions of an Indies house. It is made from Singaporean wood or in the more expensive version, of dry djati timber and using ploughed boards.

They are better to be painted white and hung and fixed using ceiling hangers. Those hangers are light and attached to wooden ribs at the bottom against the joists.’

### II.4. On Wall Construction

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber wall</td>
<td>– using a common type of timber.</td>
</tr>
<tr>
<td>Clay wall and poor quality of local mortar.</td>
<td></td>
</tr>
<tr>
<td>Metal sheets</td>
<td>– usually used for warehouses, these sheets expand during the day because of the heat and, therefore, should be attached only on one side so that they can slide over each other.</td>
</tr>
<tr>
<td>Fired-clay brick (in thicknesses of 1 to 1.5 bricks)</td>
<td>These walls or partitions are composed of bricks and mortar. If however, the brick wall is too tall, it could be dangerous in the event of earthquakes.</td>
</tr>
</tbody>
</table>

The ratio between windows and wall should be calculated as follows:

The minimum requirement per 30 cubic metres of interior space is that it should have at least 1 square metre of a window opening. For example, a room of 5 x 6 x 5 metres = 150 cubic metres must, therefore, have at least 5 square metres of window openings. In this case, someone could make it into two openings of 1 metre in width and 2.5 metres in height, if they prefer.’

### II.5. On Flooring

The most straightforward type is the one that commonly found in the desa (village): just use some soil, level it, and, where necessary, add in some stones (large boulders are recommended).

When installing wooden flooring in a house, they should never be placed directly in contact with the ground; a ventilated gap must always separate the wood from the ground.

---

Figure 21.

This intersection between hygiene and women’s control over domestic space was by no means a regional phenomenon. An advertisement from the *Ladies Home Journal* in April 1918 positioned hygiene as the determining factor in establishing a peaceful and untroubled home. The tagline, ‘*Do you live in a haunted house?’*, turned the quality of unsanitary into one of horror. Another illustration of an association between the role of women and hygiene clearly depicted in this following refrigerator advertisement (Fig 23. & Fig. 24):

‘Denkt U eens over....de schatkist der huisvrouw (Think about...The housewife’s treasure chest)’

‘Heeft U tot zooever gelezen, dan zal het U vanzelf duidelijk geworden zijn, dat een General Electric koelkast, “de schatkist der huisvrouw”, zich zelf betaalt, door besparingen op Uw huishoud-budget en door betere gezondheid. en wat is gezondheid niet waard? Ziekte kost geld, niet waar? En gezonde, krachtige voeding is onze eerste levensbehoefte! Zonder gezonde voeding geen gezond lichaam!

(‘If you have read so far, it will have become clear to you that a General Electric refrigerator, “the treasure chest of the home crowd”, pays for itself, through savings on your household budget and better health. and what is not worth our health? Illness costs money, doesn’t it? Moreover, healthy, powerful food is our primary necessity! No healthy body without a healthy diet!’)

The principal agency of women in setting and managing domestic space was related to the rise of women movement in the early-20th century CE both in the Netherlands and in the Dutch East Indies. The resonance of 1905 *De Vrouw Tentoonstelling* and the 1907 Fourth Conference of the International Women’s Suffrage Alliance in the Netherland reached the Dutch East Indies through educational institutions, women’s association, and various publications. Many educated Javanese women also turned the tides and began raising their voices for social equality given that in
Figure 22.
(Left) View of a typical rear gallery.;
(Right) View of an inner gallery. Here we can see an eclectic variety of decoration and furniture: rattan chairs, Chinese ceramics, small lamps and chandelier. Nevertheless, there is also a simplicity because the local climate was humid and dusty, and hence heavy materials such as textiles are avoided.


Figure 23.
There is another kind of haunted house, the germ-haunted house, that shelters a menace which is far from imaginary, which is dangerously real. Source: ‘advertisement for disinfectants and cleaning products. “Do You Live in a Haunted House?” Ladies’ Home Journal, April 1918.
In de General Electric koelkast blijven levensmiddelen ongrijpbaar langer tijd goed, dank zij de VEUL/GE, gelijkmatige temperatuur en de DROOG lucht in de koelkast.

Dit betekent, dat U ook op afgelegen plaatsen, bijvoorbeeld op boerderijen, huizen, opleidingen, enz., niet minder gemakkelijk en onbehagen ondervindt als in de stad.

U kunt een advertentie of bewerken genieten en dranken zowel gemakkelijk bereiden als met beperkte tijd bewaren.

Niet te wendig en schadelijk te zijn, niet te warm om tegen te staan. Hoewel koel en drinkwater, zuurdeeg, van gekookt water, zonder ijs van twijfelachtige kwaliteit erin te maken doen.

U zult strijd over een soortgelijke voorraad te beschikken. Want de koelkast, die de koelkastmachine maakt, komt U goedkoper in de koelkast (zonder het verfrissingsbedrijf) bewaren.

En als U het maken van het ijs gekookt en geïsoleerd water gebruiken, dan heeft U altijd een bevaarbare en steriel ijs ter beschikking.

U kunt limonade, stroop en vers vruchten sap laten bewaren, een lekkernij voor groot en klein.

Voor vruchten kunt U gerecht gedurende vele dagen in de koelkast laten bewaren. U weet vooral dat schaatsen uitsluitend, niet alleen ongemakkelijk is, doch tevens voedzamer en lichter verterbaar dan versch liaison!

Heeft U tot boven gelezen, dan zal het u wel duidelijk geworden zijn dat een General Electric koelkast: “De schaats van de huisvrouw”, echt zelf benut, door bepaalde op Uw huishoud-bedrijf door betere geschiptheid, en wat is gezondheid niet waar! Zeldzame kant geld, niet waar? En gezonde, krachtige voeding is onze bestste bestebeket! Zonder gezonde voeding geen gezond leven!

Dat een General Electric koelkast uiterst reizigerbaar is, bewijzen wij U niet te vertellen. Ondankzame uiterst handhaven, en handhaven gebruikers van G. E. Koelkasten gaan gerust afgangers.

Met het nog op de tijdens de volgende weken door General Electric koelkasten ook op door bodem, gemakkelijke bestelzaken worden geopend.

Figure 24.

their culture women traditionally deferred to men.

Raden Ajeng Kartini, a daughter of Raden Mas Adipati Sosronigrat, the Regent of Japara, was one such extraordinary Javanese woman. She was born on 21st April 1879. As a traditional Javanese family, Kartini’s family was already aware of the importance of good education. Pangeran Ario Tjadronegoro, Kartini’s grandfather and the Regent of Demak, had given all of his sons an excellent European education. Kartini described her grandfather as ‘The first regent of Central Java to unlatch his door to that guest from over the sea – Western Civilization’.

Her modern-facing thoughts became known to many readers in the Netherlands and throughout the Dutch East Indies after her letters were compiled and published in 1911 following her death. Kartini had died young, at just 25 years old, after giving birth to her first son. This posthumous letter compilation was called Door Duisternis tot Licht [From Darkness to Light] and proved to be a watershed in the women’s movement in the Dutch East Indies. An English translation was published ten years later, in 1921, under the title of Letters of A Javanese Princess, translated by Agnes Louise Symmer.

Kartini was an epitome of a thoroughly modern woman. Independent, critical and open-minded, she fought against inequality in social status and social opportunity. In a letter to Mrs Abendanon in August 1900, she expressed a keen wish to become a teacher if Abendanon’s plan to open up girls’ education in the Dutch East Indies were to be realised. Kartini saw the ‘new’ technologies as the path to liberate women’s mobility, something which, as a Javanese aristocrat, was a luxury she barely had. Thereafter, Kartini’s excitement on her very first train journey was a liberating experience beautifully penned in her letter:

‘In the train... I pressed my hand on my heart... I heard much in the tram... Now, we fly with storm over the iron road... Would I ever be able to forget that divine ride with her to the station?... Do not fly so fast on the smooth iron tracks, you sniffling, steaming monster, do not let this beautiful meeting end so quickly... I prayed that the ride would never end... But, alas! The stoker did not hear me.’
Kartini’s voice was an influential stepping stone in the emerging women’s movement. After her death, publications such as *Isteri Indonesia, Isteri PPI, Wanita,* and *Karya* went on to become the platforms for female empowerment. The establishment of Het Moederfond [The Mother’s Foundation] was an example of the way in which Kartini had contributed to propagating ideas of independence and equality among indigenous Javanese women. The main goal of this foundation was to provide support for women’s health, which in the early part of the 20th century CE was extremely deficient (Fig. 25).

The hygiene campaign consequently made the bond between women and new technology much closer than it had ever been before. More fixtures were introduced into domestic spaces for hygiene, especially in the bathroom since it was seen as presumably the filthiest and most diseased place in the home. Harmsworth’s *Household Encyclopedia,* for instance, described it as follows:

> 'There is no room where cleanliness and neatness are so necessary... No baths should be fixed except in such a way that every part, underneath or at the sides, can be easily got at and cleaned. Woodwork, whether as a rim to the bath or as a casing around it, is to be avoided at all costs.'

Referring to the two crucial characteristics of domestic space as being both a functional space and a sanctuary, these new household fixtures then not only needed to be designed to perform well but to also look visibly ‘hygienic’. For instance, in 1935, the industrial designer Raymond Loewy was invited to design a refrigerator that would satisfy these two criteria. Loewy’s design (Fig. 27) for the Coldspot fridge with its pressed steel casting was epitomised as the representative image of absolute cleanliness and hygiene.

Likewise, throughout the Dutch colony there was an increasing awareness about the importance of technologies in supporting the campaign for hygienic domestic space, as could be seen in the proliferation of marketing for household goods in newspaper and magazines (Fig. 28). The 1938 annual Damesbeurs (Women’s Festival) in
Article about Het Moderfonds (The Mother’s Foundation) for raising funds for the organisation: “For the benefit of the unemployed and the Mother’s Fund. Publication of the Bond of VVH in Ned. Indies. The calendar was sold on the 3rd Ladies Fair for only F 0.25. It is a beautiful gift!” This advertisement was published in Extra edition of Officiel Orgaan van De Vereeniging van Huisvrouwen Soerabaja [Official Body of the Soerabaja Housewives Association], March 1936.

Source: Special Collection University Library of University of Leiden, Leiden.
Figure 26.

(Left) Typical Twyfords bathroom advertisements from the mid-1930s.

(Right) The refrigerator on the left is a 1929 Leonard model that was then replaced by the Roesbuck’s Coldspot fridge, shown on the right since the latter possessed a ‘more hygienic’ form.


Figure 27.

Advertisements for household products in Isteri magazine, no 6-7, 3rd year, October -November 1931. Source: Special Collection University Library of University of Leiden, Leiden.
Figure 28.

Houde Haagje, in what is now the Kaliasin area, was held in Surabaya and demonstrated just how vital women’s responsibility for household tasks were. For five days from 30th May to 3rd June 1938, more than 100 outdoor stands and 66 indoor stands participated in this festival (Fig. 28).

The discussion in this section thus shows that the typological formation of ‘domestic space’ was established through a very different mechanism to that involved in house building houses or settlement planning for Dutch settlers. In terms of domestic organisation and design, the role of women was prominent. Hence, spatial typology in the dwellings was tightly related to how housewives choose to activate that space, and what aesthetic qualities they wished to give it. Simultaneously, proficiency in the ways domestic spaces were arranged also affected how household chores were performed. Both aspects effectively determined the qualities of a home for a Dutch settler family. In this sense, although implementation of hygiene was paramount in creating domestic space, its role was never as firmly defined as it was in housebuilding or town planning. Domestic space as the domain of women tended to be more pragmatic, and therefore multi-cultural cross-appropriation quickly occurred, as seen from photos of these interiors. To conclude, it is now worth looking at how the proliferation of women’s education, women’s publications and women’s association from the early-20th century CE transformed female settlers to become one of the central agencies in architecture in the Dutch East Indies, connected significantly to the advent of new industries and technologies.

Concluding Remarks

There are two potential suppositions about the genealogy of domestic space within the Indies house. The first argues that it stemmed from a very close connection with domestic space in the Netherlands, and the other asserts that it was the pragmatic result of cross-appropriation between Dutch housewives and local indigenous practices. Rudolf Mrazek, in his book, Engineer of the Happy Land, supports the first view, while Esther Wils’s Women in Indie and Catenius van Der Meijden’s
handbook corroborate the latter.

Mrazek is convinced that interior layouts and decorations in the colony were influenced by a peculiar artistic style between 1830 and 1895 in the Netherlands. During this period, a lot of furniture and jewellery was designed by non-conforming to specific stylistic conventions. Instead, he notes, it was a period of ‘rebellion’ as described in the exhibition catalogues of the times:

‘They picked now from this and then from another style. The houses were filled with new objects in old styles, best if varied to the extreme... Moreover, no model from the past should be copied exactly, but it should be adjusted according to modern needs and methods of construction. For instance, garden furniture was made of wrought iron and in Gothic style, or a Medieval castle was filled, among other things, with thirty bathrooms with running hot and cold water.’

This period was hence called ‘De Lelijke Tijd’ ['The Ugly Period'], according to an exhibition at the Rijksmuseum in Amsterdam in 1995. The Dutch art journalist, AF van Toor, explained that this peculiar 19th-century artistic period occurred due to three factors: the wave of the Industrial Revolution then sweeping Europe; flourishing commissions of decorative art for the Dutch royal family; the rise of sizeable middle-class society as an unprecedented phenomenon whereby, for once, ordinary people could set aesthetic taste. This rise of the bourgeois, with their new-found financial power, enabled the privatisation of arts and crafts. Workshops were full of commissions not only from the Royal Court but from wealthy citizens wishing to customise styles following their own particular preferences.

According to Mrazek, although in the Netherlands ‘De Lelijke Tijd’ proved to be short-lived, in the colony it was the trendy convention for decorating an interior of a settler’s house. At the start of the 20th century, this eclectic style was brought over to the colony by the aforementioned wave of Dutch migration – creating for Mrazek’s the explanation for the similarities in ambience between dwellings in the Netherlands and the Dutch East Indies (Fig. 29).
Figure 29.


(Bottom) The veranda/front room of a house in the Dutch East Indies.

Mrazek, however, adds to his remarks that there was a distinction in the spirit underpinning interior design in the Netherlands from that of the Dutch East Indies. In the former, decorations were often a token of adventures to various places, with the displayed objects serving as instruments to preserve these travel memories. Such a manner was not appropriate in the colony. For those settlers who had migrated to the colony, this trip was not a temporary one or a holiday even. They had moved to establish a new life.

"While in Europe, the bourgeois house was equipped to permit its owner to sense the possibility of an occasional excursion to another place and time, a temporary reprieve, in the Indies the house was being built and equipped as for a permanent trip."\(^{55}\)

Mrazek does not elaborate further about this notion of permanency within the Indies house. To what extent had it affected domestic space? Perhaps, rather it was merely about aesthetic taste? Although it might look similar, were domestic spaces in typical Indies houses created by the same factors and mechanisms as its counterpart in the Netherlands?

As mentioned below, Wils and Van der Meijden put forward a very different reading of domestic space lived in by settlers in the Dutch East Indies. Wils argued that the typology of the Indies house was established through a pragmatic process of making shelter, without the involvement of a designer.\(^{56}\) Yet this claim of the absence of a designer is unconvincing, as it was certainly mentioned in Van der Meijden’s 1904 handbook. The latter even suggested involving an architect or engineer where possible:

"... an architect can also be consulted. It may cost you something, but that release is necessary in order not to be disappointed later. Such experts are also the engineers in India, quite different from the so-called engineers, who, e.g. here in the Hague, started in a carpenter’s job and then build on that by taking up money (revolution building!). There are hundreds of “engineers” here, but they are also there. Better titles
Instead, the most substantial factor that created the pragmatic process of cross-appropriation of domestic space constituted a combination of the urgency of hygiene control and the rise of the women’s movement. H.F. Tillema urged the colonial government to establish rigorous standards of hygiene for houses and neighbourhoods. As a trained chemist, he had sufficient knowledge about hygiene issues to help him disseminate these ideas to broader audiences. In this regard, Tillema’s activism was hardly unusual. In the late-19th century, Dr Henri Cazalis pursued similar propaganda activities in France. Indeed, both operated in similar character, working outside official institutions and disseminating their ideas through publications.

Like Tillema, who was an inquisitive pharmacist, Cazalis was a physician with many talents and interests. He was also a phrenologist, a pseudo-science practice derived from Eugenics. Many of his hygiene campaigns were, needless to say, based upon phrenology. His fundamental idea, expressed in *L’Art Nouveau, Son Historie, L’Art Nouveau étranger à l’Exposition, Au Point de Vue Social (Art Nouveau, Its History, Foreign Art Nouveau at the Exhibition, A Social Point of View)* (1901), emphasised a theory of social organisation that was rooted in group traits. Cazalis argued that this social organisation of groups was necessary for a healthy and harmonious built environment. He believed that people’s traits were contagious, and so those with unfavourable traits should be contained and controlled to prevent their spread to the wider community. This idea was taken from Gustave Le Bon’s proposition on the ‘herd mentality’ of the crowd – this was explained as a psychological condition in which individuality was diminished and transformed into a collective entity. Such a condition, according to Le Bon, could bring about the psychological decline of individual races.\(^{58}\) Hence, the main difference between Tillema’s and Cazalis’ views was their radical standpoints: Tillema’s was underpinned by pragmatic, empirical studies from his field surveys and documentation, while Cazalis held a conceptual belief in Eugenics/phrenology that substantiates the framework for his spatial compartmentalisation strategies.

Perhaps taking on a different perspective, it was Dutch women who were in charge of domestic space. This responsibility put women
in a highly strategic position in establishing spatial arrangements and functionalities of new housing for settlers in the Dutch East Indies. The handbook of Catenius van der Meijden offered a vivid picture of the extensive range of tasks and skills that Dutch women were expected to possess to exercise their role of ensuring that houses were healthy and comfortable.

Outwardly, Tillema’s *Van Wonen en Bewonen* and Catenius van der Meijden’s *Ons Huis in Indies* operated in a similar manner, seeking to propagate knowledge about hygiene. Yet their viewpoints were remarkably different. Tillema always positioned himself as a policymaker, and all the information he gathered was based on his field surveys or consultations with medical experts. The agency of women did no help for him to propagate the suitable kinds of practice needed to meet hygienic standards. As such, Tillema’s work tended to offer overviews, data, general principles and calls for standardisation. Throughout his writings, Tillema seldom provided any detailed practical proposals, preferring to stay at the policy level in regards to town planning. On the contrary, the handbook written by van der Meijden dealt with the agency of women at a practical level and was therefore full of extensive prescriptions for meeting everyday challenges in the domestic space.

In this way, this chapter has shown how the pragmatic nature of domestic space in the Dutch East Indies created a process of cross-appropriation between the Dutch settlers and local everyday practices. The formation of domestic space carried no grand agenda like that of technical education or architectural discourse, as were discussed in the previous chapters. One substantial difference in this was the point of departure. The underpinning view about technical knowledge and the new architectural discourse was that those knowledge and skills were the new norms and ideals to follow. It was tailored by other agencies separate from those who applied the knowledge and skills or used the results. What happened in terms of domestic space in the colony was quite the opposite. The spatial formation of the Indies house was constructed in reaction to concerns about hygiene, and it was this sheer practicality and mundanity that made it so susceptible and vulnerable to foreign influences, in the areas of traditional local crafts, clothes, food, and building materials.
As a consequence, the constructed typology of the domestic space of Dutch settlers maintained an informality. It was a result of a tripartite dialogue between Dutch women and their surroundings and their expected roles. Innovative buildings forms, technical sophistication, and conceptual ideas were mostly irrelevant in this case. Instead, Dutch women instrumentalised the house in a pragmatic matter to create the personalised spatial comfort-zone that is called ‘Home’. Naturally, it revealed a very different mechanism and reality for the colonial production of space in the Dutch East Indies. It is now time to draw these distinct strands of the thesis together in conclusion.
Notes


4 In 1922, M.J. Granpré Molière, who had been Thomas Karsten’s and Henri Maclaine Pont’s colleague at TH Delft, reviewed Karsten’s report, hailing it as the first comprehensive and detail exposition of town planning in the Dutch East Indies. Molière went on to become Delft’s first professor of town planning in 1924. See Cote and Neill, The Life and Work of Thomas Karsten, 270. For Molière’s comments on the Semarang town plan see also Granpré Molière, “Indische Stedebouw Door Ir. Th. Karsten (Indies Town Planning by Ir. Th. Karsten),” Tijdschrift voor Volkshuisvesting 9 (1922).

5 This is discussed in an essay by Pauline van Roosmalen, ‘Modern Indisch Town Planning’ in Cote and Neill, The Life and Work of Thomas Karsten, 265-303.


9 The title of Van der Meijden’s handbook was Ons huis in Indie: Handboek bij de Keuze, de Inrichting, de Bewoning en de Verzorging van het Huis met Bijgebouwen en Erf, naar de Eischen der Hygiene, Benevens Raadgevingen en Wenken op Huishoudelijk Gebied (Our House in the Indies: Handbook for selecting, furnishing, arranging, and maintaining the house and its pavilion and yard for the requirements of hygiene, including advice and tips on household matters).


12 E. Locher-Scholten, Women and the Colonial State: Essays on Gender and Modernity in the Netherlands Indies, 1900-1942 (Amsterdam: Amsterdam University Press, 2014), 7.

Ibid., 26.

Ibid., 27-8.


Tillema was then re-elected as a member of Semarang City Council on 8th October 1912. See Vanvugt, *Een Propagandist Van Het Zuiverste Water: H.F. Tillema (1870-1952)* En De Fotografie Van Tempo Doeloe (a Propaganda of the Pure Water: H.F. Tillema (1870 - 1952) and the Photography of the Past), 27.

H.F. Tillema, *Riooliana (Seweriana)* (Semarang: H.A. Benjamins, 1911).

‘… de gezondheid van al de uwen, hangen af van waterleiding, grondpolitiek, wegenaanleg, huizenbouw, faecalienafvoer, doorlegging van den bodem, e.d.m., want u wordt besmet door uw huis- en kantoor-bedienden, die allen onder hoogst ongunstige voorwaarden leven, al is uw huis noog zoo, ruim, uw eigen erf nog zoo schoon. ’ *Van Wonen En Bewonen, Van Bouwen, Huis en Erf (on Dwelling and Living in a Building, House, and Yard)*, 33.

Ibid., 29.

Ibid., 29.

Tillema simply wrote the name as Heer Nosingo (Mr. Nosingo) rather than giving the complete name. However, he was most likely referring to Raden Soehoed Nosingo, an official in the Public Works Department.


This exhibition was a follow-up of the establishment of de Vereeniging voor Verbetering van Vrouwenkleeding (the Improvement of Women’s Dress) or V.v.V.v.V. in
1899 in the Netherlands. Similar organisation had also established in Germany in 1898. There was also an exhibition of women's work in The Hague in 1898 in which designs of a reform costume for working women was exhibited. See Patricia Anne Cunningham, *Reforming Women’s Fashion, 1850-1920: Politics, Health, and Art* (Kent: Kent State University Press, 2003), 198.


31 Ibid., 161.

32 Ibid., 162.


34 Similar publications were also common in Britain and the USA at this time. The British publications included *Hints on Household Taste* (1868) by Charles Eastlake, *Decoration and Furnishing of Town Houses* by Colonel Edi, the book series on *Art at Home* (late 1879) edited by W.J. Loftie, *The Art of Decoration* (1881) by Mrs. Haweis, *Suburban Residences and How to Circumvent Them* (1896) by Mrs. Panton, and *The Art of the House* (1897) by R.M. Watson. In the USA were *The Decoration of Houses* (1897) by Edith Wharton and Ogden Codman, and *The House in Good Taste* by Elsie de Wolfe. See Forty, *Objects of Desire*, 111.

35 The contents of van der Meijden’s book were as follows:

A. Learning

1. The house
2. Air and water
3. Classification of an Indies House: The main house and the pavilion.
4. House decoration
5. Those that accompany us (insects, etc).
6. Nutrition
7. Clothes

B. Management

1. Bookkeeping for the family
2. Expenditure
3. Renting a house
4. Taxes
5. Local maids
6. Animals care
8. Table of coins in the Indies, their sizes and weights

C. Code of Conduct

1. General consideration (NB: this part discusses domestic etiquette, flower arrangement in the house, and manners)

D. Teaching about beauty

1. Brief understanding of the theory of beauty (aesthetics)
2. Complementary colours
3. The decoration of the Indies house
4. ‘Het reform huis’ (‘The Reformed House’)

E. Nursing

1. Brief understanding of theories of illness
2. Nursing
3. First aid
4. Avoiding illness and accidents
5. Health theories for the Tropics
6. Home pharmacy
7. What to do in the event of deaths
8. The baby

F. Children’s education

1. Managing maids
2. Spoiling the little ones
3. Homework and schoolwork
4. Becoming a man
5. Formation
6. ‘A word against the system’, an essay by Nelly van Kol

G. Advices and tips on household matters

1. In and out the kitchen
2. For the household
3. For the toilet
4. For garden and stable

36 Van Der Meijden, Ons Huis in Indie, 12.

37 van der Meijden noted that in the Dutch East Indies, engineers also did carpentry jobs and were willing to be hired for housebuilding projects. Ibid., 11-3.; For another discussion about this situation see also Esther Wils, Wonen in Indië: House and Home in the Dutch East Indies (Den Haag: Stichting Tong Tong, 2000), 82.

38 van der Meijden depiction of the Indies House in the early-20th century was paralleled by how Multatuli (the pen-name of Eduard Douwes Dekker) described the protagonist’s house in his 1860 novel, Max Havelaar, probably one of the earliest elaborations about house typology in the colony:

‘The houses are of one storey, and Havelaar’s did not belong to the few exceptions to this rule. On entering... but no, I will give proof that I abandon all claims to the picturesque. “Given”, an oblong: divide it into twenty-one parts, three in breadth, seven in-depth, you give each of these partitions a number, beginning with the lower corner on the left-hand side, from there to the right, so that four comes under one, and so on. The first three numbers together from the fore-gallery, which is often open on three sides, and whose roof is supported in the front by pillars. From there, one enters by two folding doors the inner gallery which is represented by the three following numbers. The partitions 7,9,10,12,13,15,16 and 18, are rooms, most of them being connected by doors with each other. The three last numbers from the open gallery behind, and what I have not mentioned is a sort of closed inner gallery or passage. I am immensely proud of this description.’


39 Ons Huis in Indie, 30-1.

40 Wils, Wonen in Indië, 82.

41 Elsie De Wolfe, The House in Good Taste (New York, NY: Century Company,
1913).

Forty, Objects of Desire, 104.

There was a probability that van der Meijden neither knew this information from secondary sources. In the part ‘De Versiering van Het Indische Huis (The Decoration of the Indies House)’, she addressed Harting by ‘de Schrijver (of schrijfster?)’ (‘the male writer (or the female writer?)’) expressing her doubts. Van Der Meijden, Ons Huis in Indie, 229.

‘Zeer terecht schrijft hij; “Vindt men in Europa in de héél oude huizen en tegenwoordig ook weer in de aller nieuwste, allerlei variaties van zalen, groote en keline kamers, achthoekig of vij hoekig, met diepe, ronde vensternissen, veranda’s en uitbouwsels, die het vormen van gezellige hoekjes en stijvol gemuebileerde ruimten gemakkelijk maken, in Indië heft men steeds te doen met voorgalerij, binnengalerij, gang, aan weerskanten daarvan de kamers, daarna de achtergalerij, alles in het vierkant...”’ ibid., 229-30.

Ibid., 230.

Forty, Objects of Desire, 158.

J.H. Abendanon, the Minister of Education and Industry in the Dutch East Indies, was very close to his wife, and both greatly admired Kartini’s ‘rebellious’ thoughts. Most of Kartini’s letters were addressed to Abendanon’s wife, whom she called ‘Moedertje’ (‘Little Mother’).


Forty, Objects of Desire, 166-7.

Ibid., 156.

Mrázek, Engineers of Happy Land.


Mrázek, Engineers of Happy Land, 45.

According to Wils, house-building in the Dutch East in Indies was undertaken by officers of Engineering crops and officials of Department of Public Work who had no specific training in architecture. Hence, to build a new house, owners supervised the building themselves with a helped from Chinese building contractors and Indonesian laymen. Wils’ emphasises on ‘no specific training in architecture’ to underscore the pragmatic nature of the Dutch house in Indies. However, I argue that Wils uses the term not in a precise manner. At the time architecture was part of engineering field which made all engineers could exercise house-building and, hence, they were trained for such project. Wils, Wonen in Indië, 82.

Van Der Meijden, Ons Huis in Indie, 13.

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CONCLUSION: THE RESILIENCE OF MĒTIS

The 1901 Ethical Policy resulted in initiatives that would bring modernity in the Dutch East Indies. Infrastructural improvements were carried out in many places by private companies or the colonial government. Nevertheless, as Chapter 1 showed, the Dutch colonial project was built upon previous developments and policies such as the emergence of national and local newspapers at the beginning of the 19th century, especially in Java, and the introduction of the liberal economic system, on the Capitalist model, in the wake of the 1870 Agrarian Law. Both created a situation in which a political realignment between the Netherlands and its colony in the Dutch East Indies was necessary, indeed inevitable.

As was mentioned in the Introduction, the primary aim of this thesis is to examine the effects of the establishment and dissemination of colonial technical knowledge and skills on the practice of architecture in the Dutch East Indies. Adrian Vickers in A History of Modern Indonesia and Rudolf Mrazek in Engineers of Happy Land argue that this was a direct consequence of infrastructural and industrial development in the colony. In other words, technical knowledge and skills were necessary to support the growing Capitalist economy of the Dutch East Indies, and in that way feedback to the benefit of the Netherlands. Within that historical process, the agency of Javanese building knowledge and practice, and the various ways in which the latter came to be appropriated, was another important aspect in this study.

This concluding chapter will return to the two main research questions: firstly, about the extent and methods of establishing and disseminating Dutch building knowledge in the colony, including changes in architectural training, aesthetic norms and building programme; and secondly, the broader consequences for local building practices and construction techniques, and the implications for notions of ‘modern’ and modernity in the Dutch East Indies. As observed in the Introduction, the ideas about those two terms were frequently used as the foundation on which a European country’s colonisation agenda was launched. Accordingly, the colonisers positioned themselves as the
harbinger of progression, bringing light to uncivilised people. Despite the fact that the process being not nearly as simple or smooth as those in the Netherlands had hoped, their colonisation did have a major impact on the colony – in this particular case, in terms of building practices.

The establishment and dissemination of Dutch architectural knowledge and skills in the archipelago undoubtedly affected indigenous building technologies and contributed to the introduction of a more ‘modern’ form of architectural practice. This process was carried out primarily through the three agencies analysed in their own chapter in this thesis: i.e. educational institutions (Chapter 2), architects (Chapter 3), and entrepreneurs and Dutch female settlers (Chapter 4). Throughout these discussions, it was shown that what Hobsbawm describes as ‘invented tradition’ served as the instrument to implement the agenda of Dutch colonisation. Javanese building practice was acknowledged as the historic past and was required to be substituted by newly invented knowledge and skills, in the hope of making this older tradition adaptable to the new colonial conditions.

The key argument in this thesis is that such an approach by Dutch settlers and their colonial government was a crucial means to carry out an epistemic imposition. James C. Scott in *Seeing Like A State* says that High-Modern Ideology contributes profoundly to the propagation of the ‘Episteme’ towards the ‘Mētis’ – but in practice, and indeed in the Dutch East Indies, such propagation did not exist. Instead, the relationship between the two forms of knowledge, theoretical and practical, was one of contestation.

**Brief remarks on the Javanese Mētis**

Josef Prijotomo provides an excellent illustration of Javanese Mētis in his essay on ‘Ubah Ingsut Dalam Arsitektur Jawa Kasus Kawruh Kalang Soetoprawiro’ [*Modification in Javanese Architecture in the case of Soetoprawiro’s Building Manual*]. He notes that design variations in Javanese buildings should be considered neither as something fixed nor arbitrary. For instance, in Soetoprawiro’s *Kawruh Kalang* there are
descriptions of two variations of the *Tajug* type, seven variations of the *Joglo* type, twelve variations of the *Limasan* type, and nine variations of the *Kampung* type. However, these descriptions provide documentary evidence rather than prescribe any given rules, and so Soetoprawiro further elaborated on the logic behind each variation. From this, it becomes evident that these variations occurred as a response to specific constraints of their sites, rather than any major formal development in Javanese architecture.

In his article, Prijotomo also introduces the concept of *Ubah-Ingsut* as the principle underpinning the formal variety of Javanese houses. He writes that *Ubah-Ingsut* is a concept that allows the *Kalang* (craftsman) to adjust a particular building convention to a specific context. In the English language, *Ubah* means ‘to transform’, and *Ingsut* means ‘to adjust.’ Prijotomo thus defines *Ubah* (‘transform’) as an operation needed to differentiate an object from its original form, whereas *Ingsut* (‘adjust’) is conversely an operation that associates an object closer to its original form. The Javanese treat these two divergent operations equally, meaning that one is no less important than the other. In other words, *Ubah-Ingsut* is the privilege of the *Kalang* to do anything they feel necessary for the success of the building. Therefore, the knowledge and skills to create such modifications according to given constraints and purpose are where the craftsman’s expertise is demonstrated.

With these broader points in mind, it is worth now drawing together the findings in Chapters 2, 3 and 4 of this thesis, interpreting each process in turn for its role in establishing and disseminating Dutch ‘Techne’ as a support in the promotion of ‘Episteme’ over the Javanese’ Métis’.

### Institutional Enforcement: Dissemination of Technical Knowledge and Skills.

The founding of the Technical College, Technical Schools and Crafts Schools in the Dutch East Indies in the late-19th century was the precursor of dissemination of Techne in the archipelago. The role of
these educational and training institutions was to introduce technical knowledge and skills that were suitable for the colonial government and colonial industries. This new educational system in the Dutch East Indies was based explicitly upon the system used in the Netherlands, with near-identical curricula.

However, there was at least one clear difference. In the Dutch East Indies, the underlying motive for establishing this educational system was to produce specialised labour for Dutch-run enterprises, especially sugar factories. In this context, we can comprehend the Technical College, Technical Schools and Crafts Schools as the vehicles through which the process which Marx conceptualised as alienated labour took place. The subjects being taught and the methods of training in these institutions were intended to yield a different way of thinking and a new worldview. In this sense, the training transformed Javanese people into a labour force to partake in an ‘alien’ working process which produced an ‘alien’ product. Javanese students learned skills to enable them to work in the new factories or other institutions that were foreign to their local surroundings and familiar jobs. Rail, road and bridge engineering was the ‘products’ of the new technical expertise and training, and the introduction of workstations and new tools contributed to the estrangement from traditional modes of working and making.

Moreover, the technical knowledge and skills that Javanese people acquired from the Technical College, Technical Schools and Crafts Schools made them qualified to find work in the Dutch East Indies; indeed, they only became employable because of it. In their usual everyday practices, crafts and craftsmanship belonged to a community, and hence all labour was engaged in some way in collective works, as was noted in Chapter 1. However, equipped with the foreign technical knowledge and skills that flowed from the Netherlands, it enabled the indigenous people to work as an individual, this being the fourth aspect in Marx’s theory of ‘alienated labour’. Because of the altered nature of work under Capitalism, each person became an independent unit of labour, diminished the previously ingrained sense of commonality.

By the early-1880s, William Morris was reading Marx and had become a full-blown socialist, sharing all of Marx’s concerns about the consequences of Capitalist manufacturing. In his 1885 essay on ‘The
Worker’s Share of Art’, Morris declared:

‘The workers, by means of whose hands the mass of art must be made, are forced by the commercial system to live, even at best, in places so squalid and hideous that no one could live in them and keep his sanity without losing all sense of beauty and enjoyment of life. The advance of the industrial army under its 'captain of industry' is traced, like the advance of other armies, in the ruin of the peace and loveliness of earth’s surface, and nature, who will have use live less like men than ourselves. Men living amidst such ugliness cannot conceive of beauty, and therefore, cannot express it.’

Paralleling the criticisms made by Karl Marx and also William Morris, the transformation into alienated labourers was not automatically successful. The main motive for Javanese people to be admitted to the Technical College, Technical Schools and Craft Schools were purely economic, in that they needed the expertise to get jobs. Therefore, the acquisition of this new knowledge and skills by indigenous people was driven by pragmatic needs, rather than any ideological commitment to the Capitalist system.

A similar argument is made by Scott about the tactical value of trade unions who went on work-to-rule strikes against their employers. Scott notes that in work-to-rule industrial action (grève du zèle), workers were required to understand and follow all of the rules and regulations if their aim was only to perform those tasks stated in their job description. However, what happened in practice was that they found this to be not very effective, as in truth the workers believed that labour carried out through informal understandings and improvisations was much better than strictly adhering to the written rules. For the workers, learning all the meticulous rules and regulations was part of what Michel de Certeau describes as ‘Savoir-faire’ or ‘Arts de Faire’. It did not change the core of their everyday labour practices, but in fact, expanded and adjusted it to suit the specific situation.

Such resilience was also seen in the Technical College, Technical Schools and Craft Schools in the Dutch East Indies. Wolff Schoemaker,
professor of architecture in the Technische Hoogeschool te Bandoeng (TH Bandoeng), argued that the indigenous people were not ready for learning such an advanced level of technical knowledge. Concurrently, Poppin was criticising as wasteful the insignificant contribution that this higher-level Technical College was making in the preparation of specialised technicians who could work in colonial industries. He argued that teaching practical skills would be far more effective and beneficial for the Dutch East Indies. How did these different attitudes relate to the engagement of Javanese people with the institutions?

Returning to Scott’s proposition, he explains that Mētis is concerned with practical adjustments which follow the everyday practice. In Mētis, knowledge and concepts, as with practical skills, are there to help to overcome quotidian challenges – as was the case in traditional Javanese cultural understanding and building practiced discussed in Chapter 1. Further, Scott states that the litmus test for Mētis is a practical success. In this light, the teaching of highly conceptual subjects would lead to deep resistance, if not disinterest, for the Javanese to comprehend a different way of thinking. To comprehend this matter better, we have to look at the underlying approach of TH Bandoeng in relation to the Technical School and Craft Schools.

TH Bandoeng emphasised the importance of theory, while the lower-tier institutions emphasised practical skills, and although all were underpinned by the logic of Techne, for Javanese people any new working procedures they learned were seen merely an enrichment to their everyday, tactical, indigenous worldview, summed up as Mētis. Therefore, after graduated from Technical Schools and Crafts schools, they could exercise their new skillsets without compromising their worldview – yet this kind of enrichment was missing in TH Bandoeng. This is why Poppin argued that Javanese people were better suited if trained in a skill-focused educational system since their training would not lead to any contradiction between their Techne and their Mētis.
Professional Enforcement: Appropriation of Architectural Knowledge.

Of the engineers and architects discussed in Chapter 3 as another kind of agency that contributed strongly to the dissemination of a new Techne in the Dutch East Indies, most of them were educated as professionals back home in the metropole. They arrived on the colony looking to work for the colonial government or else set their own private practices.

These professionals founded associations, forums, conferences and also journals as the stage of establishing and disseminating their colonial ideas. They introduced discourse as a means to comprehend and codify traditional Javanese building practices. In this sense, they operated differently from the educational institutions mentioned above. They were more open to considering and accepting indigenous building knowledge and practices as being essential to any new design approach in the colony. This more lenient aim implied a different form of epistemic operation. Although the tendency to observe, deduct and codify was still prevalent, these professionals seriously considered learning about indigenous architecture as an essential ingredient in creating new typologies. Whereas the technical educational institutions chose to teach their version of Episteme as Dutch technical expertise, many of the building professionals empowered Episteme in order to simplify and categorise indigenous knowledge so that the older traditions could be reinvented as part of contemporary epistemic knowledge.

The engagement of the three main architects discussed in Chapter 3 – i.e. Wolff Schoemaker, Maclaine Pont and Thomas Karsten – with traditional Javanese building knowledge and practices offered a clear demonstration of how these European settlers simplified and generalised the Javanese Mētis.

In Aesthetiek en Oorsprong der Hindoe-Kunts (Aesthetics and Origin in Hindu Art), Wolff Schoemaker sought to comprehend many unexplained features in older Javanese construction. As a proud rationalist, however, Schoemaker tended to conceive Javanese building knowledge and practices as inferior. This view was a common mistake of those who saw their ideas
as ‘modern’ and ‘scientific’, according to Michael Oakeshott. He argues that in responding to ‘tradition’ or ‘practical knowledge’, contemporary Rationalists overlooked the fact that indigenous people in locations like the Dutch East Indies possessed their logic, and thus the difference was not as rigid or fixed as they wished to think.

In the first part of his essay on ‘Javaansche Architectuur’ (‘Javanese Architecture’), Maclaine Pont described the cultural aspects of indigenous building practices, but it was soon apparent that his main interest was not that topic. Instead, in the second part of the essay, and also in ‘Beginselen der Javaansche Bouwconstructie’ (‘Principles of Javanese Building Construction’), he focussed on the structural and constructional aspects of Javanese architecture. Pont’s argument operated on three levels. Firstly, he introduced the term ‘architectuur’ to describe Javanese housebuilding; secondly, he offered a definition of Javanese architecture; and thirdly, he sought to appropriate a simplified interpretation of indigenous building technology into modern building practices, in a way that was understandable to Dutch colonial architects. ‘Architectuur’ by its etymological definition emphasised the art of construction, so by using this term Pont was generalising indigenous practice into a pragmatic structural idiom and vocabulary that he could then use as the ingredients for his ‘Indies Gothic’ experimentations. Hence, the term ‘architectuur’ itself yielded, among others, a mode of typological intervention.

Similar attitudes to cultural appropriation could also be seen in Thomas Karsten’s works. In the two essays, ‘Opmerkingen over de Ontwikkelingsmogelijkheid der Inheemse Bouwkunst’ (‘Remarks about the Possibilities of Developing an Indigenous Architecture’) and ‘Van Pendopo naar Volksschouwburg’ (‘From Pendopo to Folk Theatre’), Karsten described Javanese architecture as a manifestation of indigenous social activities. If Pont had only described the cultural aspects of Javanese architecture briefly, Karsten acknowledged it as the crucial departing point for appropriation. Therefore, unlike Pont’s strategy, Karsten’s tended to be much more eclectic in what it chose to take from traditional Javanese building practices.

Throughout the architectural designs by Karsten, only the construction and form of the Javanese Folk Theatre in Semarang and
Sanabudaya Museum in Yogyakarta had a strong association and indeed was even identical, to the traditional feature of the Pendopo. The rest of his projects used Europeanised structures in reinforced concrete and steel. Therefore, given this realisation, I would argue that Karsten considered the essence of Javanese architecture as ornamental. He reused indigenous architectural forms and structures in his designs in order to be seen to be close as possible to original Javanese precedents, and he did so precisely in order to give his new architecture a social and political agency. As such, Karsten was instrumentalising the traditional forms of Javanese building as a cultural sign within the colonial context of the Dutch East Indies.

Cross-Appropriation in Domestic Space

The bubonic plague that spread across eastern Java from 1911–16 and then across central Java in 1919–26 caused many deaths – and it also, as mentioned, turned hygiene into a profound subject within the policies for planning new and existing settlements. Furthermore, it triggered various adjustments with domestic space in the Dutch East Indies in attempts to overcome the perceived hygienic problem. Together these circumstances forced a cross-appropriation of building knowledge and practices between indigenous people and the European colonists.

Hence, if in the previous chapters, technical knowledge and practice were always disseminated by educational institutions and building professions, Chapter 4 discussed other external forces. Works of Tillema and the manual for women by Catenius van der Meijden displayed how Techne was disseminated in a rather pragmatic manner.

The extensive surveys of Hendrik Freerk Tillema, a colonial pharmacist and then entrepreneur, provide the most vivid depiction of hygiene problems in the Dutch East Indies. His writings and activities provoked many architects and government officials to deal with this serious matter. Notwithstanding, it was, in fact, the agency of female Dutch settlers that most actively shaped the new type of Dutch houses built in the colony. The manual written by Catenius van der Meijden and the catalogue of ‘De Vrouw Tentoonstelling’ (‘The Women’s Exhibition)
held in 1913 in Amsterdam offer a comprehensive insight into the role that Dutch women played in the configuration of the domestic space in the archipelago.

As described by van der Meijden, not all the colonial emigrants who arrived in the Dutch East Indies had a place to shelter. There were occasions when they had initially to rent a room or build a temporary house until they were in better economic circumstances. Consequently, the act of establishing a home was highly practical: climate, site topography and hygiene were the foremost factors in design decisions, regardless of styles and tectonics. Therefore, the Dutch houses in the colony came to acquire spatial arrangements and organisations different from those found in the Netherlands.

The trend also demonstrated how new knowledge and skills operated at very different scales. Tillema’s prognostications about how to plan a healthy settlement and how to plan a healthy house were intended to be executed in a standardised manner. Scott discusses this kind of attitude as a manifestation of the European tradition of ‘energetics’ whereby workers were treated as a machine, and so to make them work productively, aspects such as rest, hygiene and nutrition must be measured. Contrarily, the intervention of female Dutch settlers at the domestic scale disrupted any hopes of official standardisation. Van der Meijden’s manual shows that intervention in the domestic space by women was always plastic, local and divergent – again echoing Michel de Certeau’s notion of ‘Savoir-faire’.

In 1925 a Javanese elementary teacher, Mas Sastrasudirja published a book entitled *Layang Balèwarna: Amratèlakè Kahananing Balè Pomahanè Wong Cilik ing Tahan Jawà lan Panuntun amrih Raharjaning Omah-omah* (*Layang Balèwarna: A Description on Ordinary Houses in Java and a Guide of a Prosperous Household*). This book provided a critique of the unhygienic conditions in the colony and aimed to improve the construction of Javanese houses. This text was extraordinary in two ways. First, unlike the traditional indigenous building manuscripts referred to in Chapter 1, which were hand-written sheets and were only later compiled into collected pieces, *Layang Balèwarna* was a new work about Javanese building practices. Secondly, although it was written using the Javanese language/alphabet, it openly criticised traditional building
technologies in order to propose ‘modern’ guidelines for housebuilding for the Javanese people.28

*Layang Balèwarna* consisted of ten parts. The first of these were a current description of Javanese houses, which essentially represented Sastrasudirja’s critique toward Javanese traditional building practice. The last five parts, however, interestingly enough, elaborated on new propositions.29 In his introduction to the book, Sastrasudirja noted the problem of indigenous housebuilding in that it neglected the issue of hygiene. He wrote that it explained why:

‘... there were no good houses in Java in the past. As long as the house could be erected as used as a shelter, they felt sufficient. Moreover, this view was inherited until now. Consequently, there was no thoughtful consideration to make a better house rather than just to preserve the old way. ’30

Using this logic, Sastrasudirja argued that traditional practices – which were often defined under the term, *Petungan* – were at root superstitious and hence, in reality, would only create unhealthy conditions within a Javanese house.31

According to Revianto Santosa, *Layang Balèwarna* can best be understood as another hygienic campaign of the colonial government in the Dutch East Indies. As a teacher, Sastrasudirja had been educated and fully equipped with the Dutch ‘Episteme’. Hence, his intention in *Layang Balèwarna* was to revise or even to correct the older Javanese practice of housebuilding so that it now followed the Dutch standardisation model. That said, if we read the text carefully, Sastrasudirja’s narrative was consciously prescriptive rather than observational or analytical, as the writings of Tillema or van der Meijden. Sastrasudirja did not lay out any facts or evidence in his attempt to prove his argument. Although he seemed to be critical towards traditional housebuilding, the narrative within his book, in contrast, resembled old Javanese manuscripts in which useful everyday information was disseminated in the form of storytelling. In *Layang Balèwarna*, although no folklore telling was used, Sastrasudirja’s description seems consciously composed in such a way that it could then be used also for oral storytelling.
Josef Prijotomo in ‘SERAT BALEWARNA: Jawa Menolak Jawa Kolonialisasi Ataukah Rasionalisasi Pengetahuan Arsitektur Jawa?’ (‘SERAT BALEWARNA: The Javanese against Colonised Javanese or the Rationalisation of Javanese Architectural Knowledge’) corroborates Santosa’s argumentation. He suggests that Serat Balèwarna, (another title of Layang Balèwarna) was just another case of Dutch colonial appropriation of Javanese building knowledge and practices. However, Prijotomo – like Santosa – does not venture into the question of whether the axiomatic nature of Sastrasudirja’s prescriptions could conversely be understood as a form of Javanese appropriation of Dutch building knowledge and practices. Sastrasudirja’s method of trying to appropriate the influence of Dutch architecture in Layang Balèwarna is highly reminiscent of the way that Maclaine Pont was trying to encapsulate Javanese building practices. Both Sastrasudirja and Pont structured the narrative based on their conscious decision to promote themselves as the purveyor of ‘rationalisation’. Hence, the Javanese architecture that was highlighted by Pont was not, in fact, part of authentic indigenous building practices, and the Dutch building practices that were mentioned by Sastrasudirja far from representing the incredible ambition and diversity of Dutch Modernist architecture. That problem aside, it seems to interpret that Sastrasudirja and Pont reinvented their concepts of Javanese and Dutch architectures to suit their needs.

This final point about Layang Balèwarna also explains why domestic space was so fluid. Such acts of cross-appropriation occurred neither in the educational institutions in the Dutch East Indies nor in its professional conferences and forums. Instead, Chapter 4 showed that colonial settlers searched for intimacy in domestic spaces provoked ad-hoc, pragmatic responses to the needs of the building. As such, any acts of cross-appropriation only took place as tactical responses to what was collectively regarded as particular, decentralised conditions.

Accordingly, I conclude there are three effects yielded from the three migrations as follows:

1. The migration of knowledge and practices exposed the Javanese to new technologies in building practice. Nevertheless, it should be noted that the number of such
training institutions in the Dutch East Indies was insufficient to transform Javanese building practice entirely.

2. The migration of architectural discourse introduced a different mode of dissemination in which building knowledge and practice were turned into items for public discussion among a pan-European audience in the colony and overseas.

3. The realm and scale of domestic space in the final case-study were the most impactful of the three ‘migrations’ in regard to the intensity of exchange between ‘Episteme’ and ‘Mêtis’. The practical issues that needed to be addressed within the context of this highly intimate spatial scale showed that the domestic realm was most adaptive when dealing with the surrounding context.

The Resilience of Mêtis

In his novel *De Stille Kracht (The Hidden Force)*, Louis Couperus tells a story of a group of Dutch colonial figures in Surabaya who have to deal with the unexplainable phenomenon. Ongoing social friction with a local Javanese aristocratic family was causing various disturbing incidents to happen inside the home owned by van Oudijk, a decent and strict Dutch official who loved the Dutch East Indies but lacks tolerance towards anything that he does not understand. His attitude created social turbulence after he disagreed with the need to show compassion to a local prince who had messed things up. That incident then triggered the unusual events in van Oudijk’s house, such as strange sounds emanating from the ceiling, the sound of a child’s crying voice out in the trees, suddenly an infestation of frogs inside the bathroom, a glimpse of man’s shadow wandering in the yard, and many others. Somehow these inexplicable phenomena gradually unfold the hidden secrets inside van Oudijk’s family, and as a result, his household and his career crumble.

Nevertheless, until the eventual conclusion of the novel, Couperus does not offer any explanation of these phenomena. Whether they are supernatural forces sent by the Javanese gods or else mere
hallucinations by van Oudijk and his family, no answers are given. Nevertheless, the book helpfully provides a snapshot of the everyday social dynamics between Dutch settlers and indigenous people. In the novel, Couperus intends to display the reality that there can be no simple stereotype of the ‘Dutch’ and the ‘Javanese’. Nevertheless, he also accepts it as the fact that the Dutch and Javanese think differently – and, hence, by implication, there can be a concealed route whereby to reach mutual understanding is possible.

This sense of mystery of the Dutch East Indies – indeed its incomprehensibility – was conveyed by Couperus. This intangible force that was captured in the novel can be seen as a representation of the resilience of the Javanese people towards foreign intervention. As a phenomenon that is strongly present within the archipelago, its unexplainable nature is disturbing but at the same time – due to its absurdity – the Dutch colonists found they could do little anything about it. Couperus depicts this situation eloquently:

‘... but deep down this island had never been conquered. Although smiling with dignified contempt-resigned, bowing to its fate-deep down, despite a grovelling veneration, it was living freely its own mysterious life, hidden from Western eyes, however hard they tried to fathom the mystery-as if there had been a philosophy of being sure to preserve one’s dignified equilibrium with a smile, giving way flexibility, apparently politely seeking rapprochement—but deep down with a divine certainty about its own opinion, ... and the Westerner, proud of his power, of his civilisation, his humanity is seated high on his throne, blind, selfish, self-obsessed within the intricate mechanism of his authority within which he operates as precisely as clockwork, controlling each revolution until to the foreigner looking from outside this conquest of the visible, this colonisation of land physically and spiritually alien, appears a masterpiece, the creation of a new world. ’
'But one thing that is certain is that here I feel a force that opposes me, opposes all my Westerners, a force that thwarts me. Sometimes I’m afraid here. Here I always feel on the point of being overwhelmed, I don’t know by what; by something out of the ground, by the power in nature, by a secret in the souls of those black people, whom I don’t know …'\(^{35}\)

Such an atmosphere, as poetically painted in the novel is a proper analogy of what was undergone due to the dissemination of Dutch technical knowledge and practices in Java. The Techne that was disseminated through educational institutions, the circle of building professionals, and the pragmatism of Dutch women in terms of their desires for domestic space had been prevalent but always with a sense of resistance. By the late-19\(^{th}\) century, the apparent obedience of Javanese people to follow the Dutch colonial agenda could be read from a totally different angle. As a countermove, the resilience of the indigenous population was not visible, operating as it did in a distinct logic.

This exchange between the colonisers and the indigenous people transformed the building practices of both, although the science-based approach of Dutch building knowledge and skills managed to remain intact despite the appropriations of features from traditional Javanese architecture. Furthermore, the use of new materials such as steel, reinforced concrete and plaster in new dwellings in the colony did not alter the Javanese understanding of the house as a spiritual sanctuary. Therefore, the argument here is that the processes of cross-appropriation should be interpreted in terms of architectural mutations rather than hybrids.\(^{36}\)

This mutation was not without its consequences, especially on the Javanese side. The Technical College and Technical Schools founded in the early-20\(^{th}\) century CE continued in operation even after Indonesia achieved independence in 1945 (although some changed their names after being claimed by the new national government). Moreover, many of the Technical Schools that were established in independent Indonesia reused the curricula and pedagogy of the early schools as their primary reference. It meant the formal education for Indonesia’s architects, engineers and technicians was conducted by schools which still
carried out the pragmatic kind of training that had been established and disseminated by the Dutch colonisers. Nevertheless, much of this formal knowledge and skills was not entirely applicable to everyday realities in post-independence Indonesia. Many craftsmen continued to follow the older customs in building practices, and therefore any trained professionals were required to adapt to these customs if they hoped to get their designs delivered. Such awkwardness in regard to building practices is still found in Indonesia today.

I would therefore like to conclude this thesis by stressing that the colonisation of the Dutch East Indies caused distinct views of the ‘modern’ and ‘modernity’ to co-exist in the same space and time. Modernisation in this kind of colonial situation is always a struggle between opposing perspectives, and the various outcomes make manifest the multiple understandings of ‘modern’ and ‘modernity’. As was discussed in the Introduction, Hilde Heynen, Shmuel Eisenstadt and James C. Scott have pointed out that one interpretation of modernity, which is generally Western, determines that certain forms of knowledge and skills are duly prioritised and hegemonically structured. This then sets the measurement of ‘success’ and ‘failure’ in achieving the prescribed definition of modernity. Accordingly, the presence of two distinct views of modern/modernity does not necessarily lead to a fruitful collision which yields a hybrid. There is also a possibility that the colonisers and colonised might cross-appropriate their cultures and in so doing unintentionally complement each other. This condition echoes Eisenstadt’s contention that, as a consequence of European colonisation, certain groups or parties could ‘reappropriate modernity and redefine the discourse of modernity in their new terms’.

Modernity was hence the project on which the Dutch colonial project stood, and this yielded an unexpected phenomenon in that – corroborating Eisenstadt’s arguments – it was individual or collective agencies that were the critical factor in the spread of Capitalist modernity but also that these individual or institutional agencies were less important than the larger process itself. The archipelago became a stage of cultural cross-appropriation where any parties could participate from either side, in an uncoordinated manner. Hence, we can conclude that the existence of ‘multiple modernities’ as a condition within the Dutch East Indies was not
established as a result of political consensus. Instead, it was formulated as a result of how each of the agencies responded to the prevailing political and cultural conditions. Each of the agencies from society in the Netherland that came to settle in the Dutch East Indies reinvented its own ideas of the modern and of modernity, just as much as they altered viewpoints among the indigenous population. Therefore, the contestation over what Eisenstadt terms the ‘reconstruction of the cultural program of modernity’ was not only between Dutch settlers and the Javanese people but proved to be a more fluid and complex process that produced the plural phenomenon in building practices traced in this thesis.38

Notwithstanding this ‘collaborative’ process in propelling modernity as a cultural conquest in the Dutch East Indies, we could not forgo that in colonisation, autonomy would never entirely work on equal terms. Colonisation was a cultural intervention by design. Hence, it would never have been a ‘neutral’ or a natural cultural project as implied by Eisenstadt. As the coloniser, the Dutch would tend to dominate on all aspects of everyday practice within their Colony. The publication of Serat Balewarna is a good case to illustrate how the Javanese anticipated such domination. The proliferation of architectural practices and building industries imported from the Netherlands inevitably imposed a clear notion of superiority. The Serat Balewarna explicitly transcribed that superiority as the better way or even the ideal. Written in the Javanese language (not in Dutch), the Serat Balewarna instrumentalised language to persuade Javanese people. In this sense, this publication was neither a demonstration of submission nor contestation of the Dutch colonisers. However, it was an epitome on how the Javanese seduced the dominant power not as an actual power but as a phantasm, like the one described in the novel De Stille Kracht (The Hidden Force). Hence, unlike Achilles Mbembe, who, in On the Postcolony, describes the instrumentalisation of language as an entry of conversion to the other, the Javanese used their language to internalise the foreign idea. Nonetheless, this employment of Javanese language as a means of resilience is to an extent a form of acknowledgement from the Javanese that there was no power symmetry between the Dutch and the Javanese in the context of colonisation.
Serat Balewarna published by Commissie Voor de Volkslectuur (Commission for the Folk Reading). Written in Javanese Characters, the publication prescribing how to plan a better (hygienic) Javanese house. Source: Collection of Johannes Adiyanto.

Common construction of a Javanese house nowadays. Steels and Bricks are for walls and additional structures. However, the main structures are still timber structure. Source: Documentation of Eko Prawoto.
Certainly, many things are not discussed in this dissertation especially, in the context of Indonesia, considering the scale of geography and socio-political complexity. Nonetheless, I should mention one agency that is closely related to this work but uncovered. That is the role of Chinese builder in the formation of building practice. It is already commonly known that in the early of the 20th century there were Chinese builders who helped BOW (Dutch Public Works Department) undertook infrastructural and building projects. The inaccessibility of materials was the main reason to set this discussion aside. It would require archival investigations as well as interviews. Therefore, to avoid undermining its focus and argumentation, I limit my scope of discussion only on the interaction between two parties: the Dutch and the Javanese. Nonetheless, throughout this dissertation, we have seen that by categorizing in two parties is already a oversimplification of the matter.

In the future, this study could lead into three branches which I thought important for understanding formation of architectural knowledge and practice in Indonesia:

2. Performance of Vernacular buildings, in this case Javanese Traditional buildings.
Notes:


4 Ibid., 7.


7 Ibid., 6.

8 Ibid., 7.

9 Ibid., 3.

10 Karl Marx’s concept of ‘alienated labour’ was first drafted in 1844 as part of his major work title Economic and Philosophic Manuscripts (sometimes called the Paris Manuscripts). In this essay, Marx argued that Capitalism required what he called alienated labour that consisted of these four aspects: 1/ the alienation of the product from a worker as the producer; 2/ the alienation of the process of production from a worker’s usual way of working, with workers losing their ‘social-essence’ in their labour; 3/ the worker becomes a commodity; and lastly, 4/ workers become alienated from one another. See David McLellan, ed. Karl Marx: Selected Writings (New York, NY: Oxford University Press, 2000).

11 William Morris in ‘The Worker’s Share of Art’, an article that was published in Commonweal in April 1885, argued that the advance of industrialization would lead to a degradation of ‘manhood’. His criticisms of the new proliferation of industrial production, even though he was specifically discussing conditions in the arts and crafts, echoed Marx’s theory of alienated labour. Asa Briggs, ed. William Morris: Selected Writings and Designs (London: Penguin Books, 1962), 140-2.

12 Ibid.

13 Scott, Seeing Like a State, 310.


15 Jiat-Hwee Chang in A Genealogy of Tropical Architecture discusses the negotiation or even contestation between ‘universal’, abstract, simplified knowledge and ‘local’ practical knowledge in the case of Singapore. In their first endeavours to establish a new kind of building practice in Singapore, the British colonisers recognised the discrepancy in building practices between the standardized methods of their military engineer and the local craftsmen. Consequently, they could not draw up a firm, predefined plan for the building, in this case a military barracks. To mitigate this problem, the type plans that the British engineers subsequently produced were designed in such a way to be sufficiently flexible to accommodate changes. Jiat-Hwee Chang, A Genealogy of Tropical Architecture: Colonial Networks, Nature and Technoscience (New York: Routledge, 2016), 56-7.

16 See Chapter 2.
Ibid.

Scott, *Seeing Like a State*, 323.


Henri Maclaine Pont, “Javaansche Architectuur (Javanese Architecture),” *Djawa* III, no. 3 (1923). See also “Javaansche Architectuur (Javanese Architecture),” *Djawa* IV, no. 2 (1924).


Mahatmanto mentioned that in almost all of Pont’s writing, he frequently used phrase ‘Wij Hollanders’ (we Dutch people) as the first-person pronoun. Such verbal gesture implied that the writings were addressed to and for the interest of Dutch people only. Mahatmanto, “Publikasi Pemikiran Henri Maclaine Pont Di Jawa (Publication of Henri Maclaine Pont’s Thoughts in Java),” *DIMENSI: JOURNAL OF ARCHITECTURE AND BUILT-ENVIRONMENT* 30, no. 2 (2002): 122.

Herman Thomas Karsten, “Opmerkingen over De Ontwikkelingsmogelijkheid Der Inheemse Bouwkunst (Remarks About the Possibilities of Developing an Indigenous Architecture),” (Bandung: Institute of Technology, Bandung, 1919).

“Van Pendopo Naar Volksschouwburg (from Pendopo to Folk Theatre),” *Djawa* no 1, no. January-April (1921).

Scott, *Seeing Like a State*, 98.


The first five sections were: 1/ Introduction; 2/ Javanese houses in villages; 3/ Interior of Javanese House; 4/ Yard in a village; 5/ Common fixtures of a Javanese house. The following four sections were: 6/ Maintaining a house yard; 7/ Maintaining plants; 8/ Position of stable, rice barn, and other facilities; 9/ Maintaining a house and its fixtures. See: Sudirja, *Layang Balèwarna*.


34 Ibid., loc. 1515.

35 Ibid., loc. 2041.

36 By definition, hybrid refers to ‘the offspring of two parents that differ in one or more inheritable characteristics, especially the offspring of two different varieties of the same species or the offspring of two parents belonging to different species.’ The term thus tends to be applied to intentional fusions that are aimed at improving in some way the ‘parental’ species. Nevertheless, in a hybrid, the fundamental traits of the two ‘parental’ species remains intact. In a mutation, conversely the alteration might cause a structural change in an organism that results in the creation of a new character or trait that cannot be found in the ‘parental’ species. Accordingly, what occurred in domestic space in the Dutch East Indies was a mutation. The outside influence from the colony transformed the organization and function of the Dutch settlers’ houses from the ‘parental’ type that prevailed in the Netherlands.


38 Ibid.

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