Role of the Journal of Building Engineers in Dutch East India
In Discussing the Emergence of Indonesian Modern Architecture

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Abstract
This paper is an attempt to mark the emergence and awakening of modern Indonesian architecture through analyzing the content of the building engineers journal published by the professional association from the late 19th century until the outbreak of the Second World War. The content of the journal gradually shifted from general issues of construction technology to architectural design and finally to urban improvement. It is argued that by conducting an in-depth review on the shift of content of the official journal of the professional association, the beginning of Indonesian modern architecture and its impact on today's architecture and cities will be more comprehensively understood.

Keywords: modern architecture; professional association; journal; Indonesia; Indo-European

1. Introduction
Java, the most populous island of Indonesia, was largely developed during the Dutch colonial period (1800-1942). The main economy of the island was traditionally cultivation, but focused on some specific agricultural products such as sugar, coffee, tobacco, indigo, tea, etc., by the so-called 'Cultivation System' (Cultuurstelsel) of the 1830s. In order to execute the System, the government initially relied on the military engineering corps for all aspects of construction, including irrigation and transportation infrastructure.

On November 4, 1854, the government set up their own building engineering division, the Public Works Department (BOW, Burgelijke Openbare Werken), which took over all responsibilities for the development of the social and industrial infrastructure. Although the headquarters of BOW was situated at Batavia, the capital of Dutch East India, a large number of engineers worked in different cities in Java, such as Semarang and Surabaya (Fig.1.) and other islands.

Engineers from those places agreed to establish a forum in which they could communicate and share knowledge with each other. In 1898 they established an association The Association of Building Engineers in Dutch East India (VvB; Vereeniging van Bouwkundigen in Nederlandsch-Indie). The establishment of this association followed the Dutch precedent, The Royal Institute of Dutch Architects (BNA, Bond van Nederlandse Architecten) in 1842. As it served to improve the members' knowledge and skill through the publication of a journal, therefore the VvB played an important role as a learning association for its members. Through the journal, the members presented their ideas, reported their project activities, and shared the challenges they had to overcome. By analyzing the contents of the journal, it is intended to show the shift of concerns, interests and critical thoughts of the first architects in Indonesia. Previous studies on Indonesian modern architecture during the Dutch colonial era include Jessup (1975, 1989), Dullemen (2010) which focused more on specific leading architects. This paper argues that the emergence of Modern Architecture as the beginning of a new way of thinking, is better seen as a shift of thought towards better living conditions. This study intends to map the shift of architectural thought of Dutch East India architects as reflected in their professional journal.

The establishment of the first association of building engineers will be taken as the background, and then

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Fig.1. Big Cities and Railway Networks in Java, 1888. Source: http://www.indonesianhistory.info/ (accessed May 15, 2015)
a review of its official journal and the changes of its content are highlighted as progress towards promoting modern architecture among its members.

2. Association of Building Engineers (VvB)

Soon after the establishment of BOW in 1854 which concentrated on irrigation and transportation construction projects, the lack of tasteful public buildings was recognized. At the end of the 19th century almost all BOW engineers were military and civil engineering specialists who did not have adequate skills for architectural design. The shortage of qualified Dutch architects from the home country of the Netherlands urged BOW to set up architectural training courses for the existing engineers. At the time, engineers or technical staff were classified into the following categories: Architect, 1st Class Supervisor, 2nd Class Supervisor and 3rd Class Supervisor (Ravesteijn 2008: p.56).

Besides in Batavia, the capital city of the colony, the engineers were spread out to other cities of Java and other outer islands. Semarang in Central Java was one of the most important seaports. Engineers in this area took responsibility for the construction of the first railway network to Tanggung in 1867, to connect the inland products to its harbour. Engineers in Surabaya constructed lots of dams and canals along the Solo and Brantas rivers in East Java to accelerate the irrigation development in that area. The construction of harbours, bridges, and railways were to support colonial policies in the development of irrigation, education and immigration.

As they worked in diverse areas, the engineers needed to communicate with one another to improve their knowledge and skills. In their first meeting in Sidhoardjo, East Java, on April 24, 1898 an agreement was made to found an association (IBT 1898, 1: p.1-2). C.P. Franken (Fig.2.), a senior architect from Pasoeroean was appointed as the first President, and B.H.W. Willebrands, an irrigation supervisor from Lawang as Vice-President and Chief Editor of the Journal. Legally, the association was founded in the name of the Association of Building Engineers in Netherlands-India (VvB; Vereeniging van Bouwkundigen in Nederlandsch-Indie) on June 8, 1898 (IBT 1898, 1: p.1). As stated by the Chief Editor in his Opening Statement, the mission of this association is “promoting the social status of engineers in the colony and improving their design skills” (IBT 1898, 1: p.2).

The association was founded by 149 BOW engineers, consisting of 13 architects, 126 supervisors and 10 temporary supervisors. The inclusion of four local-born engineers as members shows that VvB did not limit its membership only to Dutch engineers (IBT 1898, 1: Appendix). The association was sustained by membership fees, donations, and subscriptions from registered non-members, as can be seen in Table 1.

IBT, the official journal of VvB, occasionally reports the membership status of the association. As shown in its Jubilee Edition of 1923, the number of members and non-members had been constantly increasing. This shows the relevant role of VvB and its journal for engineers and architects in the colony.

3. IBT and Journals of Building Engineers in Dutch East India

At the end of the 19th century, there were some building engineering journals and printed publications that circulated in Dutch East India. Among them are architecture-related journals published in Batavia, such as Nederlandsch-Indie Huis Oud en Nieuw and Nederlandsch-Indie Oud en Nieuw (Stiebbe 1921: p.459-469). Both were popular illustrated magazines intending to introduce new styles of life and modern housing in comparison with old and traditional housing. These publications, and especially Indisch Bouwkundig Tijdschrift or IBT as the official journal of VvB, formed a rich source to figure out the dissemination of modern ideas among the first architects in Dutch East India.

IBT was edited and published at the stations where the leading members gathered. Firstly in Surabaya, capital city of East Java, in 1898-1919, and then moved to Semarang, capital city of Central Java, in 1919-1931. The editorial manner also changed as the publication stations moved. The early period (1898-
1919) of the IBT had 6 categories in the content list, while the late period had just 2. The decreasing content of the journal prior to the liquidation of VvB in 1927, related to the structurization of BOW. Then in 1933, IBT merged with another journal, Local Technique (LT: Locale Techniek), official journal of the Association of Local Interests (VLB; Vereeniging voor Locale Belangen). VLB, which was aimed to discuss the urban issues of the colony, was established in 1915. After the merger, the journal's name was changed to IBT-LT (Kerchman 1930: p.193-197).

Reinforced concrete came to the colony in the early 20th century, and soon became the building engineers' main concern as to how to use it for public works such as irrigation dams and harbors. However, the technical articles of building design in category F gradually increased with the coming of newly graduated architects from Delft Polytechnic School. After 1933, category G became dominant when IBT merged with LT. The technical articles of Category F constantly appeared in the IBT and IBT-LT, and were mostly about the application of reinforced concrete as a building material for houses and offices. The shift of reinforced concrete application obviously popularized western styles of architecture among the members of VvB. During this period IBT-LT presented members' project reports regularly, such as Smuyt's 'Medan Post Office 1909' (IBT 1911, Aug: p.119) and NN's 'House for a School Principle, Yogyakarta' (IBT 1911, Jan: p.28).

Along with this development were the research and experiments with local building materials for local peoples' housing.

The increasing number of articles on local building and urban design issues in the late editions of IBT-LT shows the process of localization among engineers in Dutch East India. A process in which the discourse of concrete local issues replaces the abstract explanation of material and construction principles. However, articles in the early 1920s were special, as they were a series of debates on what style was the most appropriate for Dutch East India. The debate was around the queries to Indo-Europesche Style: a modern and yet locally rooted architectural style.

Many technical articles written by the members in each volume may be classified into the following categories (Table 2.).

| Categories of Topics                        | 1898-1933 (IBT) | 1934-1941 (IBT-LT) |
|---------------------------------------------|-----------------|-------------------|
| A. Transport design, constr. and material   | 60              | 6                 |
| B. Irrigation planning and construction     | 76              | 2                 |
| C. Urban utilities and sewage system        | 36              | 11                |
| D. Building material                        | 182             | 4                 |
| E. Building construction                     | 100             | 2                 |
| F. Building design/Architecture             | 140             | 41                |
| G. Urban design and planning                | 11              | 56                |
| H. Technical education and training         | 25              | 2                 |

Technical articles on building material issues (Category D) were the most frequently appearing articles in IBT, followed by Category F (building design) and E (building construction). The situation changed after the merging with IBT-LT, in which urban design and architectural issues dominated the content of the journal.

Research and application of local materials such as wood, and also newly introduced reinforced concrete were frequently reported in early editions of IBT. As writers and readers of IBT were building engineers, their concerns were on public works construction.

The queries were triggered by Editorial Notes of the journal IBT (IBT, Jan 1920) on the occasion of the inauguration of a new technical highschool (THS: Technische Hooge School) campus in Bandung in June 1920. Henri Maclaine Pont, a private architect of Semarang, designed this modern campus according to the Javanese traditional spatial concept and Great Sunda roof style (Fig.4.).

The design of this campus reflected Pont's belief that Modern Architecture in Dutch East India should
be developed from within the local living architecture. In his opinion, the option to support Javanese living architecture or building craftsmanship (bouwambacht) rather than developing geometry and formal aesthetic will sustain its long tradition in building construction (Pont, 1923).

This sympathy for local architectural traditions was opposed by the professor of THS, C.P. Wolff Schoemaker, who responded bitterly in his article "Indonesian Art" published in IBT (IBT 1922). In that article he stated: "Java does not have architecture as we understand the term". Instead of choosing the Javanese living architecture, he claimed the monumental Hindu temples in Java as a more appropriate basis for the development of an Indo-European Style in Dutch East India. He claimed Hindu temples were the product of highly civilized Indians who mastered formal aesthetics and ornamentation. In this Vitruvian view he argued that Modern Architecture in East India should be an adaptation of Western and Classical Hindu architecture to the tropical environment (Schoemaker 1923: p.191).

The debate prompted many architects (Thomas Karsten, Moojen, Jacques Mellis, Gerber, and H.P. Berlage) to publish responses in IBT and other contemporary journals (NION, Djawa) and daily newspapers (Djawa Bode, Preanger Bode). Although the publication of this debate in IBT ended in 1924 without any unanimously accepted conclusion, this discourse on local identity inspired many young local Indonesian architects to develop Indonesian Modern Architecture in more diverse ways.

4. Conclusion

This paper reveals that the beginning of Modern Architecture in Indonesia occurred earlier than the beginning of the 20th century as shown in the gradual shift of discourses among engineers in their professional journal.

The development of the content of that journal reflects the development of engineer's role that gave way to the maturity of architecture as a separate profession from civil engineering. In line with this, it also reflected the member's intention to improve and modernize current local architecture and urban quality.

IBT as an official journal of the Building Engineers Association actively introduced modern ideas to the members. The publication of new building materials research and its application, and new methods of construction of local materials inspired many young architects to build a new architecture in the colony.

Moreover, this journal was also pioneering in a public debate on localized modern architecture in which local identity should be clearly expressed in buildings. As a platform for discussing Modern Architecture in Indonesia, IBT opened up the first public debate on how to modernize local architecture.

The series of debates maintained by young leading members such as Prof. C.P. Wolff Schoemaker, Henri Maclaine Pont, and Thomas Karsten started a new discourse on Modern Architecture in which local craftsmanship, as well as its formal geometry was centrally placed. Undoubtedly, they were prominent figures in the architectural discourse of Dutch East India. Through the publication of their works and thoughts in IBT, they initiated the process of the modernization of architecture.

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