

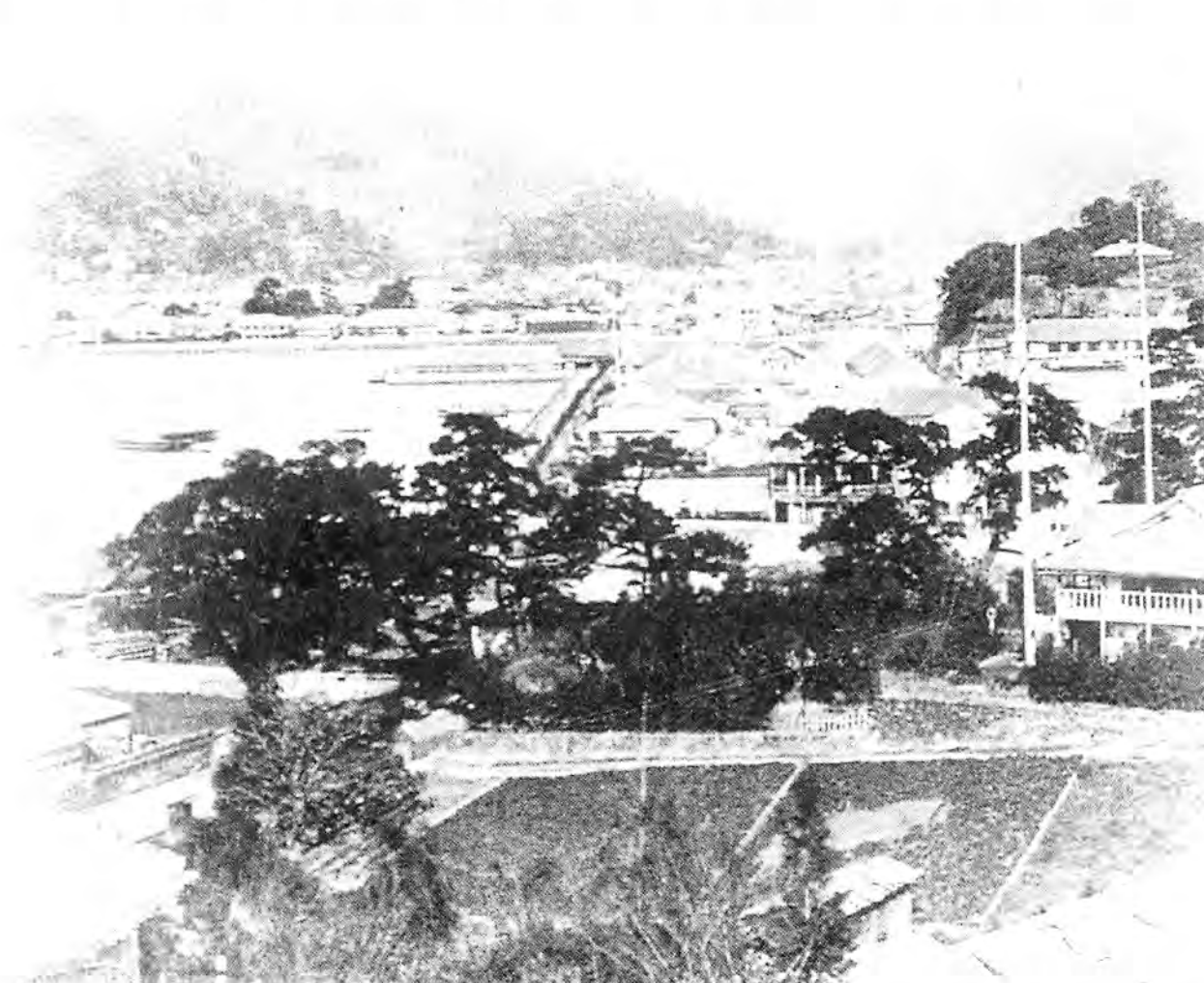
Modern (Western Style) Buildings in the Meiji Period (1868-1912) with Comparison to Contemporary Western Style Buildings in Siam

SOMCHART CHUNGSIRIARAK

Background and goals of the study

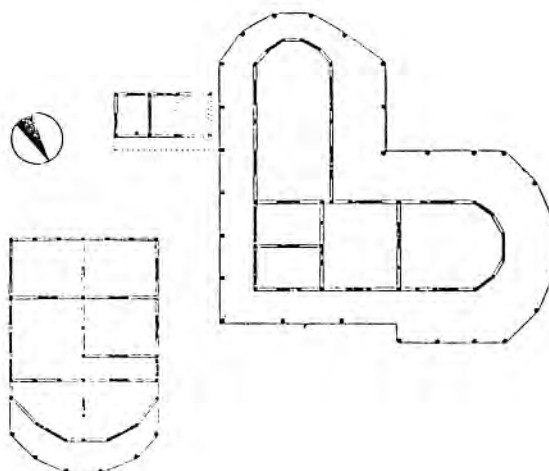
During the reign of King Rama V (1868-1910) it was the period of great development in Siam. The country started changing its traditional society into a modernized

(1) Nagasaki at the beginning of the Meiji period. (from 1868). After three centuries as a restricted port for foreigners.



country. Following the king's policy of development, a great number of European professionals and experts were employed to conduct abundant construction projects throughout the country. This resulted in the execution of many high quality buildings ranged from palaces to headquarters of governmental offices. Most of these buildings were actually modern technological built architecture with classical facades. On the other hand only few examples found in the Jugendstil style which appeared in the very late phase of the reign.

I have been seriously interested in buildings of Rama V's period since 1985 when I had an opportunity to restore a distinctive former palace built in 1910 by a competent German architect in the Jugendstil characteristic. A preliminary research has been established modestly since then and it has been push forward when I had an opportu-

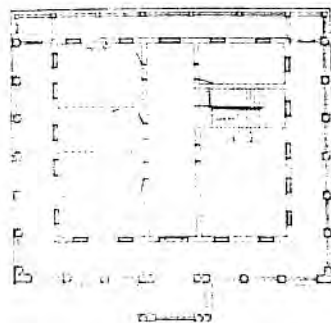
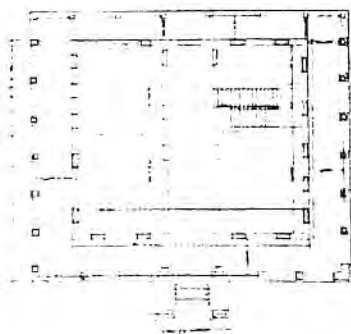


(2) Glover House, Nagasaki, 1863. The house is surrounded by veranda.

nity to do an advanced research in Germany sponsored by the Deutscher Akademischer Austauschdienst (DAAD) in 1993. My research unveiled that this particular Jugendstil building in Siam had its root of inspiration from various sources of great architecture in Germany.

I also found that the period of great development in Siam happened at the same time with the Meiji Restoration in Japan (1868-1912). In 1868 the Meiji government set up the Building and Repair Department which was to be responsible for the design of important public buildings. The government invited architects and engineers from foreign countries to apply for opportunities in the Department. Among these professionals British and German contributed some outstanding buildings for Japan.

Concerning the coincidence of time, the similar method of acceptance in foreign culture and the influence



(3) Waters : Sempukan, the Mint at Osaka, 1868-71. The use of classical order and pedimental front with an open veranda plan.

of European professionals in creating important buildings in both countries. Now my ambition for the research is extended to the investigation of the buildings of that period in Japan with particular interest in making a comparison of building design and building quality of Siam and Japan in the particular period.

At the beginning this research was focused on the Jugendstil buildings in Japan as a sequence next to my earlier research in the same Jugendstil buildings in Thailand. But after a period of searching information in Japan. I discovered that these special Jugendstil buildings were almost extinct from that country. Consequently the research was revised to have a wider scope that included every kind of western style buildings in the Meiji period (1868-1912) no matter what styles or types. Emphasis now is on the development of these particular types of buildings with analysis on some very important ones. The arrangement of plan in relation to the building form and its method of construction are also investigated.

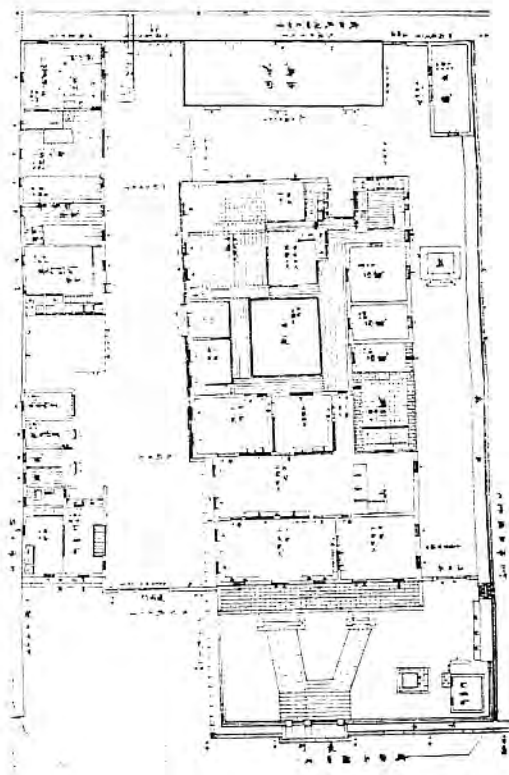
I would like to express my sincere gratitude for the Japan Foundation who granted me a research scholarship in 1995 for this project, Professor Dr. Yukio Nishimura of the Urban Design Laboratory, Faculty of Engineering, the University of Tokyo who gave me a kind invitation as a guest researcher as well as gave me hospitality during my stay in Japan. I am very in debt to my dear friend Professor Dr. Tech. K.E. Larsen of the Norwegian Institute of Tech-



(1) Tateishi : Kaichi Primary School, Matsumoto, Nagano Prefecture, 1876. "Giyofu" or pseudo Western Style.

nology who advised and strongly encouraged me to conduct this research.

However with the limitation of time, finance and knowledge, this research inevitably needs further development. There are some obscure matters to be searched out which I wish to have another opportunity to continue in the very near future.



(5) Shimizu : First Mitsui Bank, Kaitunbashi, Tokyo, 1871-72. Unusual planning is seen at the double entrances and a strange location for the staircase.

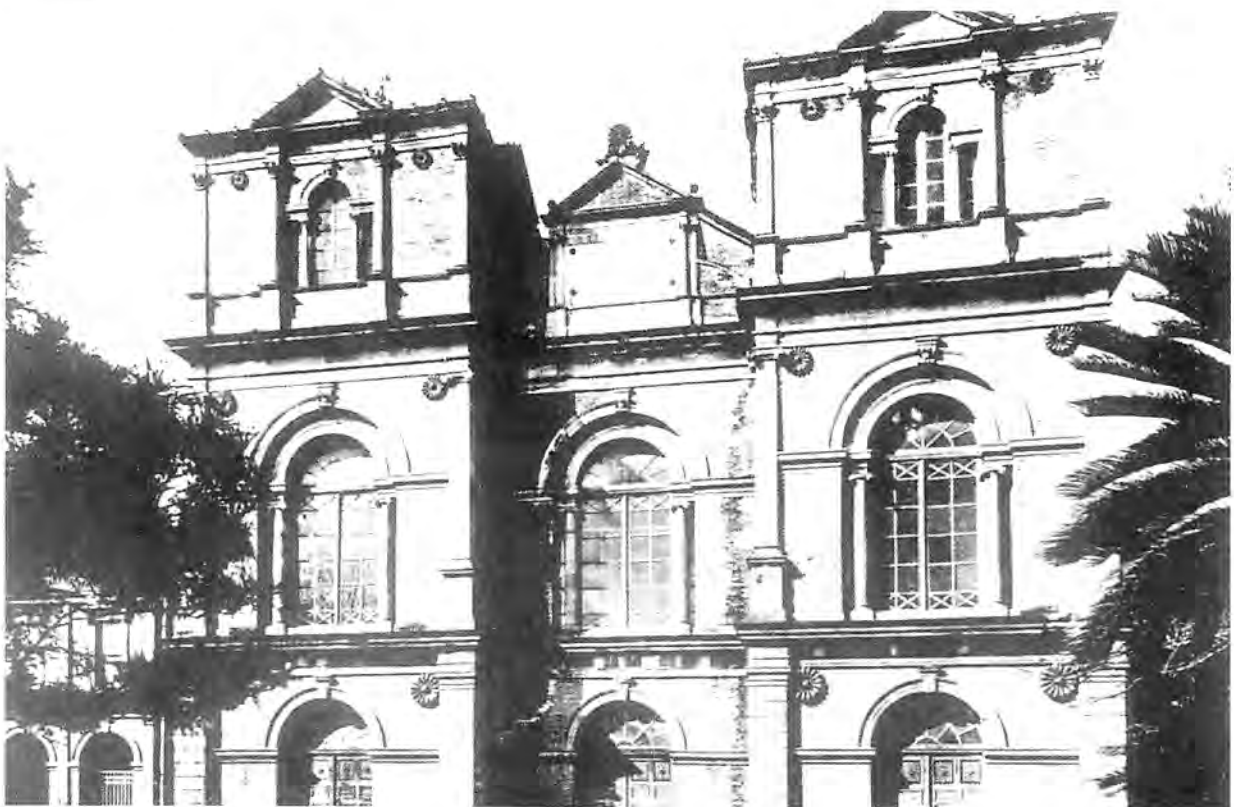
Finally I hope, besides widening the realm of architectural knowledge, this research will increase the better and closer relationship between people of the two countries, Thailand and Japan.

I. Development of Western Style Buildings in Japan

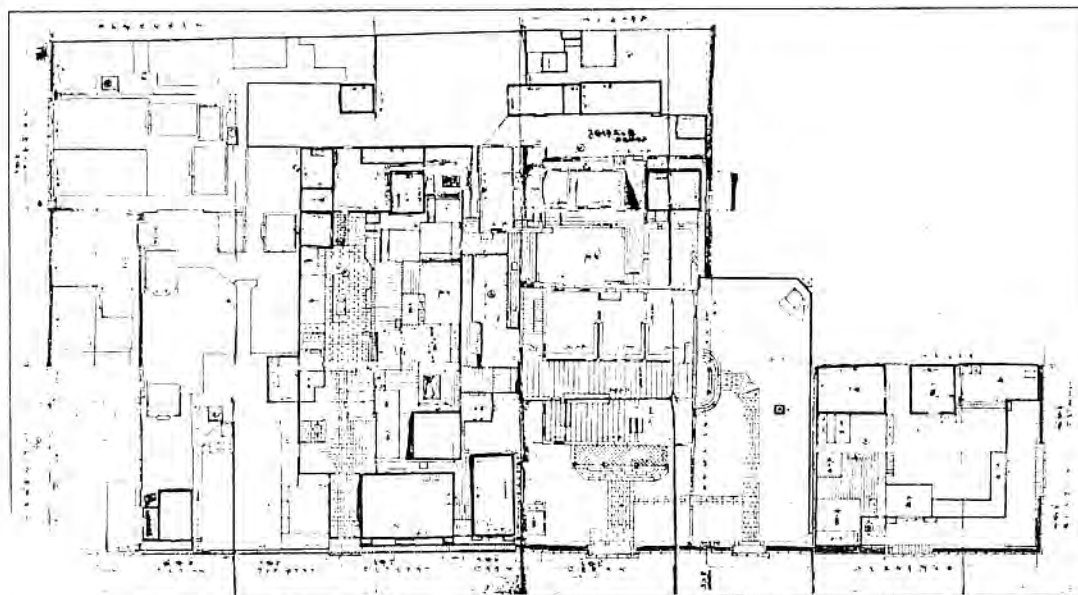
1). Architectural Periods

Western style buildings in the Meiji reign (1868-1912) was a result of the westernization of Japan in that period. The development of industries, politics and economics was the major factor which led to an acute cultural change. The favour of Japanese to western culture represented through the way of life, art and especially architecture. It was the symbol of Japanese acceptance for the western civilization as well as the symbol of a progressive nation.

(6) De Boinville : Auditorium building at the Technical College, Tokyo, 1877. A building with a closer appearance to classical architecture.



Although there were records and prints shown the existence of western style buildings built by foreign missionaries and merchants in Japanese territory since 16th century, these buildings did not have any influence over Japanese builders because of the 200 years long isolation policy of the Shogunates. Only Dutch and Chinese merchants were allowed to conduct a limit trade with Japan through the port of Nagasaki.(1) Consequently those western style buildings on the foreign settlements had no opportunity to spread out. The rapid change in Japanese politics in the second half of the 19th century brought about the open door policy that allowed the first wave of western



(7) Shimizu : Second Mitsui Bank, Surugacho, Tokyo, 1874. Although the plan is still confused, the appearance of this "giyofu" building is seemed to be improved.

influence blown into the kingdom. The Meiji Restoration rapidly followed in 1868 and the necessity to accept western civilization was emphasized. Western style buildings as a substantial product of western culture was also regarded to be followed by Japanese. Consequently the making of this kind of buildings had been rapidly developed and their numbers dramatically increased within the 44 years of the reign.

According to the different architectural development namely building character, spatial organization and method of construction, we are able to classify western style buildings in the Meiji Era into two important periods such as follows.

1.1 The Early Meiji Period (1868 - 1877)

1.2 The Stylistic Period (1877 - 1912)

1.1 The Early Meiji Period (1868 - 1877)

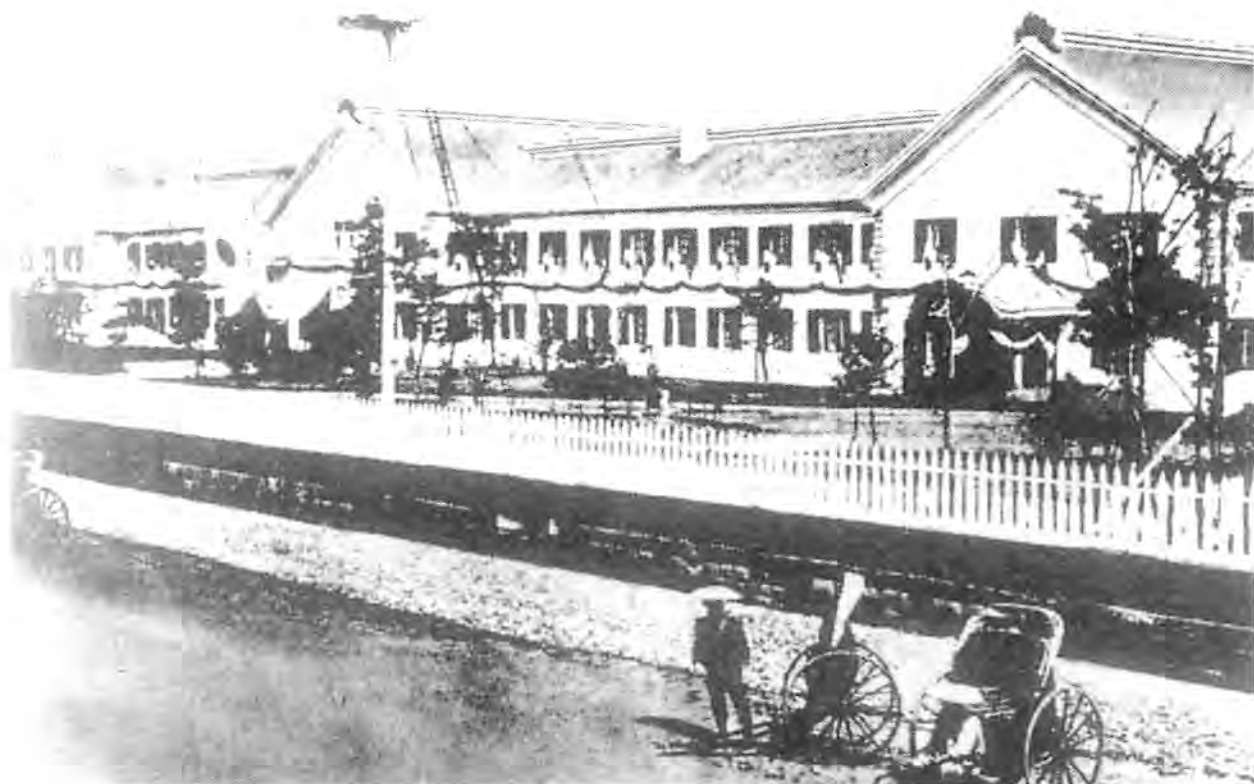
This period covers from the beginning of the Meiji reign to the year of the coming of Josiah Conder who had



(8) Professor Josiah Conder (1852-1920) :
The founder of modern architectural education
in Japan.

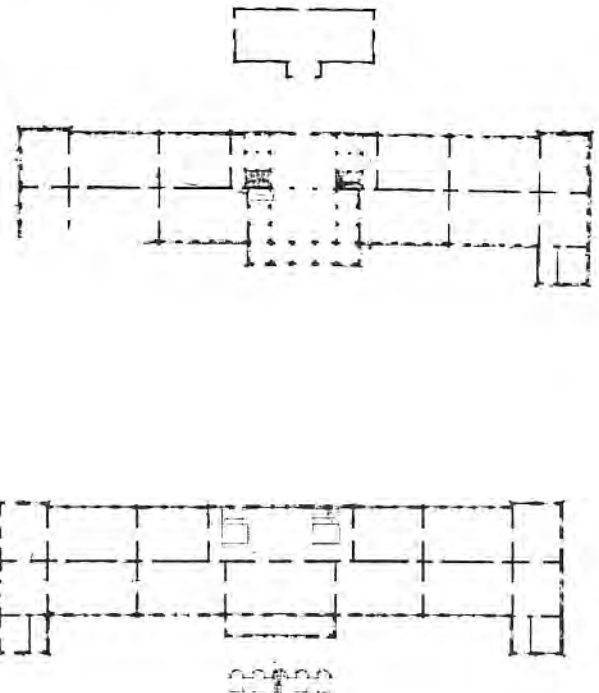
given a great leap forward for modern architecture in Japan. Buildings in this period were mostly built for functional purpose with very little regard of beauty and correctness. The prominent character of these buildings was the imitation of western buildings whereas local materials such as timber and local construction method were still maintained. Western style buildings in this period were designed and built by two professional groups. Firstly, foreign professionals who were not only architects but also engineers and surveyors, secondly local carpenters who had very little knowledge on classical architecture but had experience in building of western style buildings for foreign professionals. In this early period buildings were based on a very simple rectangular or square plan usually with veranda around each side in order to provide better ventilation as well as heat protection(2). These buildings had only one or two storeys and constructed with timber framing. Walls were usually of timber boards and in some cases covered with plaster to imitate brick building appearance as brick was commonly used for construction after 1870. Classical appearance of buildings was considered desirable by adding a Greek-Roman assimilated pediment over the central

(9) Hayashi : Liberal Arts College (Kaisei Gakko)
Tokyo, 1873. The studies of modern
engineering and architecture are firstly
started here.



entrance(3). On the other hand building composition and proportion had never been seriously examined. Thus the building quality was far from satisfactory.

Buildings designed by local carpenters had even more fanciful decorated elements. These elements were usually of local origins(4) for example pagoda cupola, curved gable, iconic phoenix, dragon, clouds and lotus. Besides the local character, the main difference between buildings designed by local carpenters and ones by foreign professionals was its planning. Buildings by local carpenters were found a difficulty in spatial organization. The arrangement of various rooms within a single plan was not either systematical or logical for example a main staircase was usually located in a difficultly accessible corner(5).



110) Conder : Ueno Museum, Tokyo, 1882

A "modern" building with an exotic appearance for Japan.



However a certain degree of improvement was seen at the late phase of this period when some distinguished buildings were erected namely the auditorium of the Technical College of Tokyo built in 1877 by C.De Boinville(6) which had a more correct order and well proportion of classical building. Western style buildings by local carpenters were also improved their appearance especially the Second Mitsui Bank at Surugacho, Tokyo built in 1874 by Shimizu(7). However the plan was still far from correctness.

1.2 The Stylistic Period (1877 - 1912)

The period started from 1877 to 1912, the end of the Meiji-reign. The year of 1877 saw the coming of a young energetic English architect from London, Josiah Conder(8) to assume a position of Professor of Architecture in the Engineering College of Tokyo. Conder was the man who started the glorious Japanese modern architecture history.

After 10 years of restoration and some experiences in buildings of western style buildings had been gained, now the Japanese government needed a true modern building, which could be an international show piece and represent the progressiveness of modern Japan. Japanese



(11) The firm of Ende and Bockmann in Berlin.
1887-1888.

government invited foreign experts to execute these buildings and at the same time these experts had the duty to transfer their knowledge to young Japanese students. This policy was later proved the invaluable means, which led the nation to achieve its goals. Having set the policy of knowledge transferring, professional education was found before 1870 and architecture included in the field of engineering was chosen to be a necessary subject to be learned(9). Only 10 years in the college, this young professor Conder educated a number of young and talent students who later took the full responsibility to create important buildings for Japan. Never entering any systematic higher education and having only practical experience in a Romantic design office, Conder was able to teach architectural design and building technology effectively enough as the quality of buildings produced later by his students indicated. This fact revealed his personality as a high quality and logical approached teacher rather than an imaginative designer. Conder's own designed buildings were a production of rational approach, which gave priority to function



(12) Tatsumi Kingo (1854-1919). One of the first class students in architecture of Conder.

and appropriate technology. This was obviously seen in his early year works before 1890 particularly, the Ueno Museum (1882) showing a building designed for good ventilation with an exotic appearance suited to India rather than Japan(10).

Another source of knowledge came from competent foreign architects invited by the government to conduct important building designs in Japan during 1880's and 1890's. It is inevitable to mention the German architectural firm called Ende and Bockmann(11) who designed only a few buildings, i.e., the Ministry of Justice and the Supreme Court for particular. Their designs set a standard for major public buildings in their appearance and construction. Their influence remained very long in Japan.

The third group that participated the shaping of history of Meiji architecture was the first class students of Josiah Conder who graduated from the College of Engineering of Tokyo in 1878 especially Tatsuno Kingo(12) and Katayama Toguma(13). Both men designed many landmark buildings in Japan from 1880's. It was also these two



(13) Katayama Toguma (1854-1917). Another first class students in architecture of Conder.

men who formulated the identity of Japanese architecture of Meiji period from various mainstreams of inspiration.

To make a further investigation on Meiji architecture three important aspects embodying the architecture should be considered. Firstly the character of the building, secondly the spatial organization and thirdly the materials and construction methods.

(14) Burges : Project for Trinity College at Hartford, Connecticut, 1873. An example of a Neo-Gothic design.

(15) Conder : Department of Law and Literature, Tokyo Imperial University, Hongo, 1884. The influence of Conder's master, Burges was seen in this Neo-Gothic structure.



2). Architectural Characters

Buildings of this period were inspired by many sources thus it is difficult to set orders for their characters. However some characters dominantly reveal in the buildings that we can trace the design back to the original sources in Europe around the contemporary period. At least three categories of characters can be classified for the Meiji architecture.

(16) Cuijpers : Rijksmuseum, Amsterdam, 1877-85.
A Neo-Gothic polychrome structure, one of the favourite styles of the 19th century in Europe.

(17) Conder : The First Mitsubishi Building, Tokyo, 1894.



2.1 Victorian Polychrome

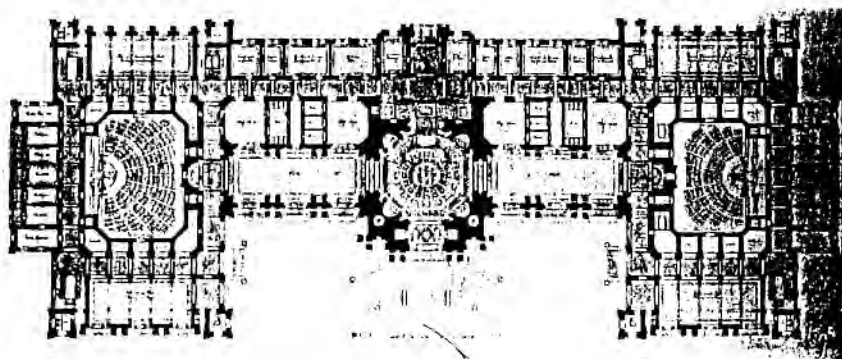
Buildings in this group followed its original models of buildings of the Queen Victoria reign in Britain and its colonies. Since the essential content of this mode was eclectic consequently several characters were included in this style. They ranged from classical models to picturesque models which included the Neo-Gothic, Neo Romanesque, Neo-Vernacular, etc. All these styles were built in a polychrome structure made by brick wallings with stone trimming(14). This character drew most of impression from the original works of the 19th century British architects namely R.N.Shaw, G.G.Scott, P.Webb and W. Burges. Important original models are the Scotland Yard Building in London built in 1887 by R.N. Shaw and the Rijksmuseum in Amsterdam built between 1877-85 by P.J.H. Cuijpers(16). British architects in Japan were the group who early introduced this style as particularly seen in the works of Conder such as the Ueno Museum in Tokyo (1882)(10) and the First Mitsubishi Building in Tokyo (1894)(17).

(18) Wallot : The Reichstag of Berlin. 1884-94.
An example of German Neo-Baroque design,
which spreaded throughout Europe in the late
19th century.



2.2 German Neo-Baroque

Prussian architects from the beginning of the 19th century as early as C.F. Schinkel (1781-1841) maintained their own identical design in architecture by following a strict model of classical Greek architecture. From the second half of the 19th century the model became more elaborate in scale and decoration especially in architectural design competitions. In this mode, buildings were specially treated, and at the central entrance a grand pavilion with pedimental roof was added and crowned with a big domical roof. The two wings were also elaborately treated by a towered pavilion decorated with elegant motifs. The original model was the Reichstag of Berlin designed by P. Wallot (1884-94)(18). A German architectural firm Ande and Bockmann introduced this character to Japan by their proposal for building the Japanese Parliament (1887)(19). This



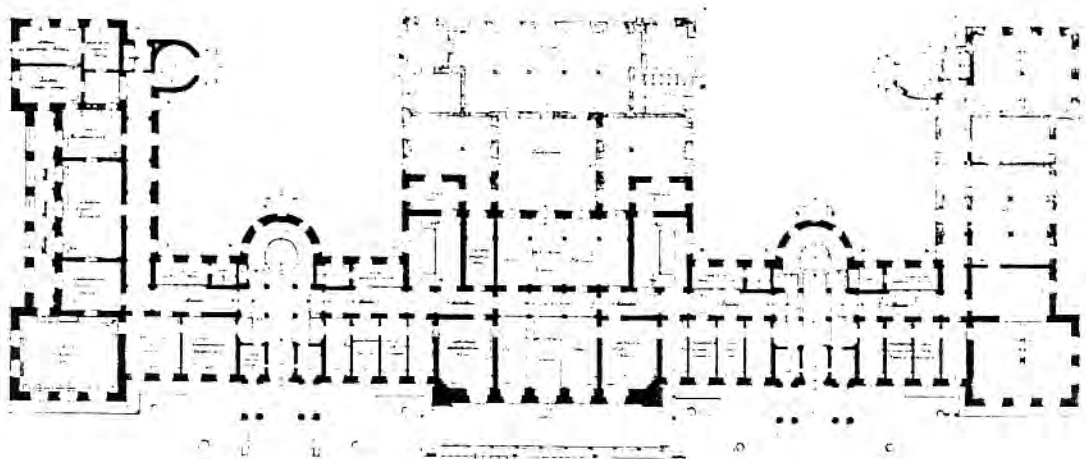
(19) Ande and Bockmann : Project for the Japanese Parliament, 1887. The period of extravagant design was found in Japan by this design.



extravagant design was found a favour by the Japanese government. Consequently two important buildings in this mode were built, the Ministry of Justice(20) and the Supreme Court(21) in 1887 an 1896, respectively. The style had been followed by Japanese architects for some decades.

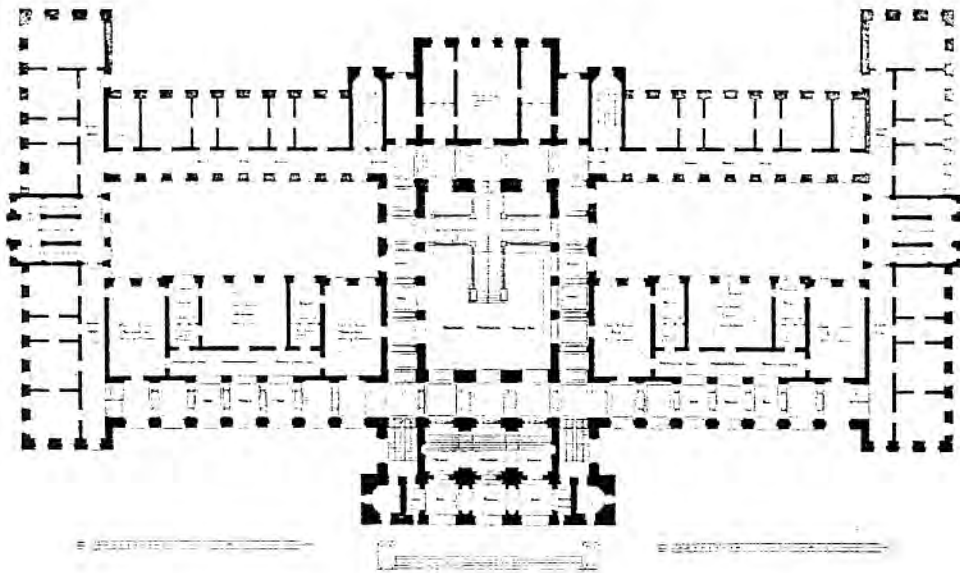
2.3 French Classicism

French architects were influenced by Italian Renaissance as early as the late of the 15th century. However the achievement of French Renaissance was not appreciate until a century later as evidences shown in the works of Lescot and Delorme.



(20) Ande and Bockmann : The Ministry of Justice, Tokyo, 1887. A luxurious building combined the Second Empire mode and the Neo-Baroque.

From the 17th century to the end of the 19th century French classicism was dominated by two important characteristics, “noble simplicity” on the one hand and “authoritative and extravagant” on the other hand. Probably it was the first time that architecture of French classicism surpassed its contemporary Italian classicism in its identity and aesthetic quality as Sir Christopher Wren admitted when he surveyed buildings in Paris after the Great Fire of London in 1666. Best examples of this period are numerous particularly the east front of Louvre by Perrault (1665), Versailles by Leveau and Hardouin-Mansart (1661-1678), and the Hotel de Salm by Rousseau (1780’s) (43).



(21) Ende and Bockmann : The Supreme Court,
Tokyo, 1887.

By the second half of the 19th century classical architecture was made more elaborately than its precedents by decoration on facades with two or three dimension motif. The roof was designed prominently by a huge curved side or straight side mansard type. These grand buildings were usually emphasized in three parts, the central and its both ends. Each part was made distinctive by a grand pavilion decorated by pedimental front full of sculptures. This mode of design are known under the title "the Second Empire" whose original source of reference is the Grand Louvre of Paris designed by Tullio & Visconti in 1852-57 (22).

French classicism had a strong influence on court architecture of the Meiji period designed by Katayama Tokuma particular examples are the Hyokeikan of Ueno Museum in Tokyo (1901-9) (23) and the Akasaka Detached Palace (1899-1909) (24). Apart from these the inspiration of this mode was spread to other masters' works particularly Ministry of the Navy by Conder (1894) (29), Tokyo Prefectural Office by Tsumaki (1894) (30), and the Bank of Japan by Kingo (1890-96) (33).

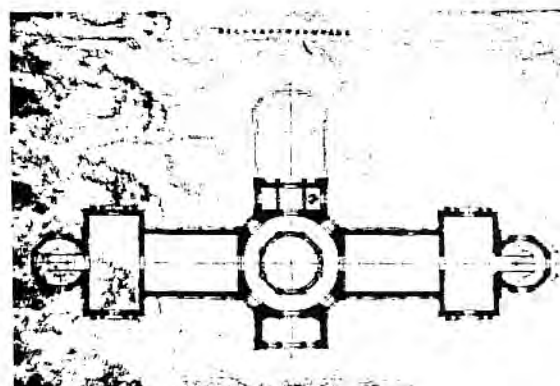
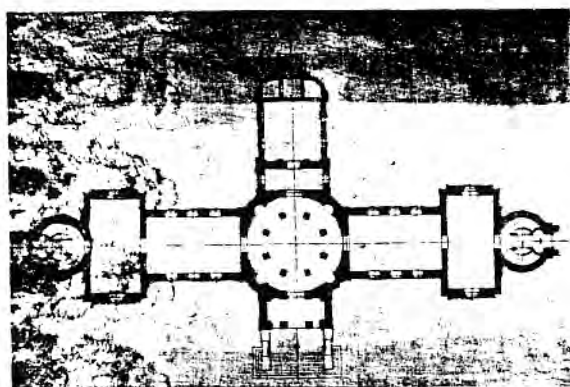
(22) Tullio & Visconti : The Grand Louvre of Paris, 1852-57. The original elaboration of the Second Empire style.



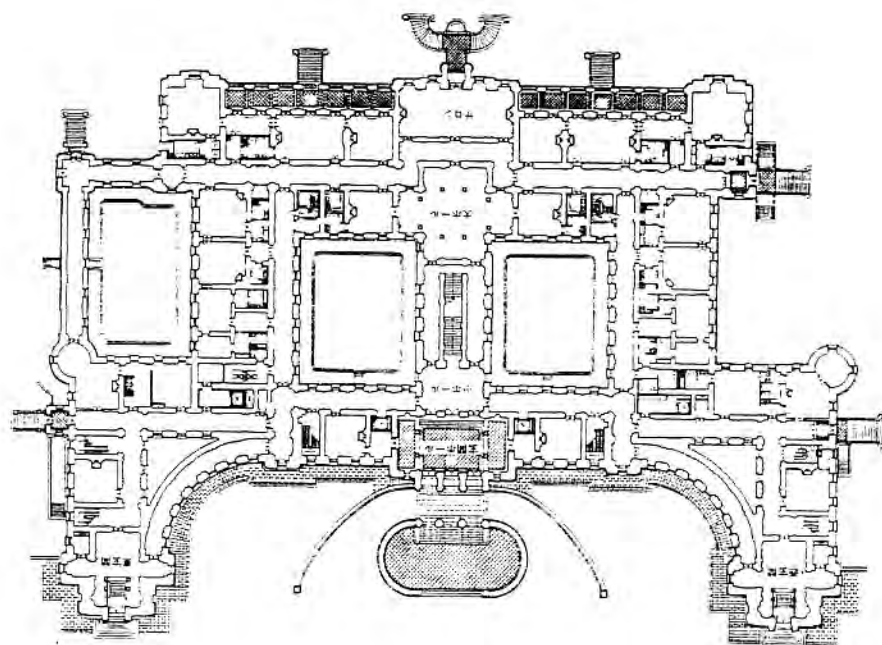
3. Spatial Organization

Making captivated building appearance was not only the achievement of this period. We also see the progress in the organization of space within the building which appears through its plan. The arrangement of space of a building during the earlier period showed an inadequate understanding to organize various functions within the plan as obviously shown in the First and Second Mitsui Bank (5, 7) in Tokyo. Japanese builders had limited experience in organizing complex spaces through its own traditional design. Public buildings like temples and shrines were mainly built to accommodate one function. Traditionally complex function buildings were found in a compound of many single buildings.

(23) Katayama : The Hyokeikan of Ueno Museum, Tokyo, 1901-9. The French classical principle can be traced. (see figure no. 42, 43).



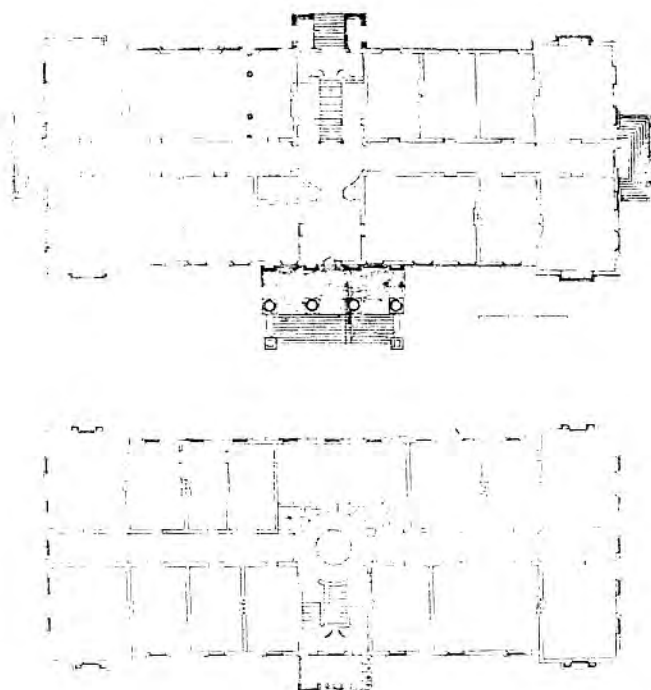
At the beginning of the Meiji Restoration only simple plan shapes were used particularly a rectangle or square, which was suitable for a non-complicated functioned building like residences. In public buildings a long and narrow rectangular plan was used with a special treatment by projecting the central entrance as well as the two ends. (25) Only one strange and also interesting plan shape was found in the Jail of Tokyo (26), whose cross shape plan was designed for the intensive control requirement. The introduction of twin quadrangle court plan for Tsukiji Hotel by R.P. Bridgens (27) in 1868 was remarkable because it proved to be appropriate type for a complex functional building such as a hotel or a public administration building.



(24) Katayama : The Akasaka Detached Palace, Tokyo, 1899-1909. Although the appearance was believed to be inspired by the French Versailles, the plan was very close to the Blenheim Palace of England. (see also figure no. 31)



This twin quadrangle court type was elaborately used in the 1890's in many stately important buildings starting from the Ministry of Culture and Commerce in 1891 (28), the Ministry of Navy in 1894 (29) by Conder, the Tokyo Prefectural Office also in 1894 (30) and the Supreme Court in 1896 by Ende and Bockmann. The most elaborate plan of this type was the plan of Akasaka Detached Palace designed

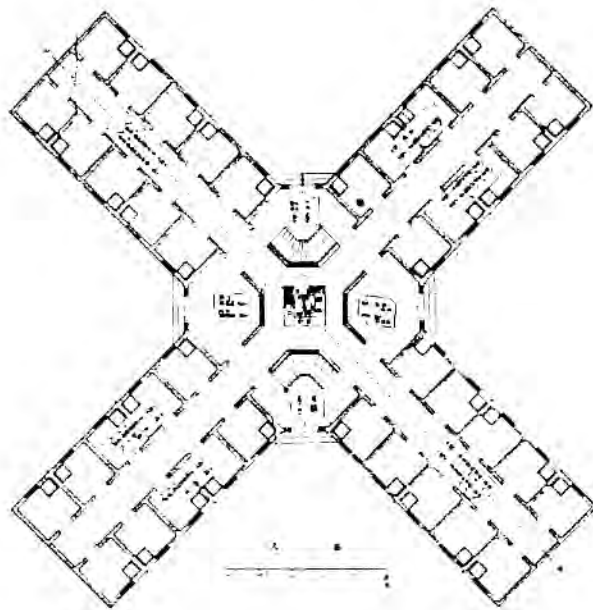


(25) Osaka Prefectural Office, Osaka, 1874.

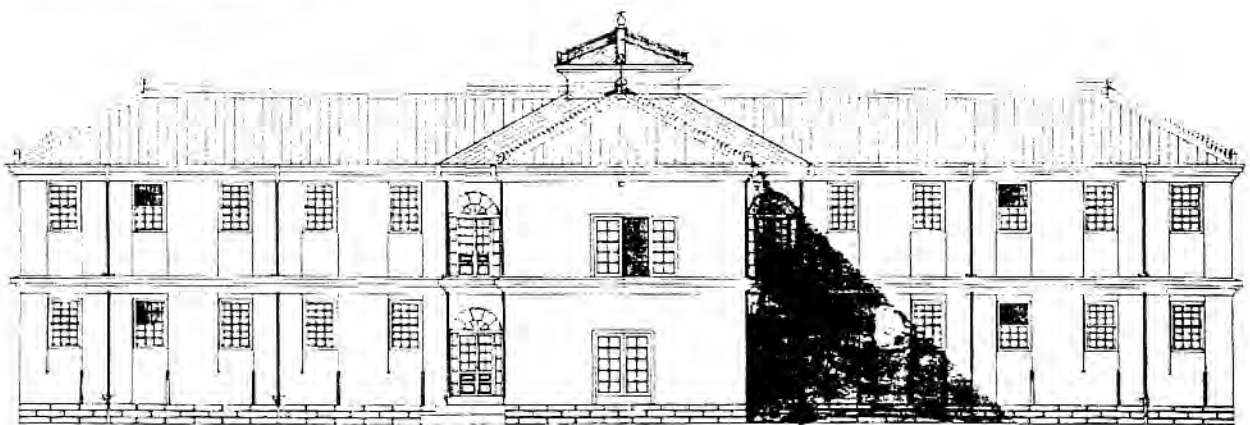
An example of early western style building for public offices. The plan was a simple rectangle. The central entrance as well as two wings were accentuated by classical columns supporting the pedimental roof.



by Katayama Tokuma in 1909 (24). Although the palace design was believed to have strong inspiration from the French Versailles, the plan was in fact much closer to the Blenheim Palace in England (31) designed by Sir John Vanbrugh in 1724. This plan type was often matched by a classical appearance thus it was extensively used for public administrative buildings of many prefectural headquarters ranging from Tokyo (in 1894) to Taipei in Taiwan (32) (designed in 1910 and finished in 1919). The use of the three quadrangle court plan of the Bank of Japan (33) designed by Tatsuno Kingo in 1896 was also spectacular for the reason that the plan might be a result of the architect's



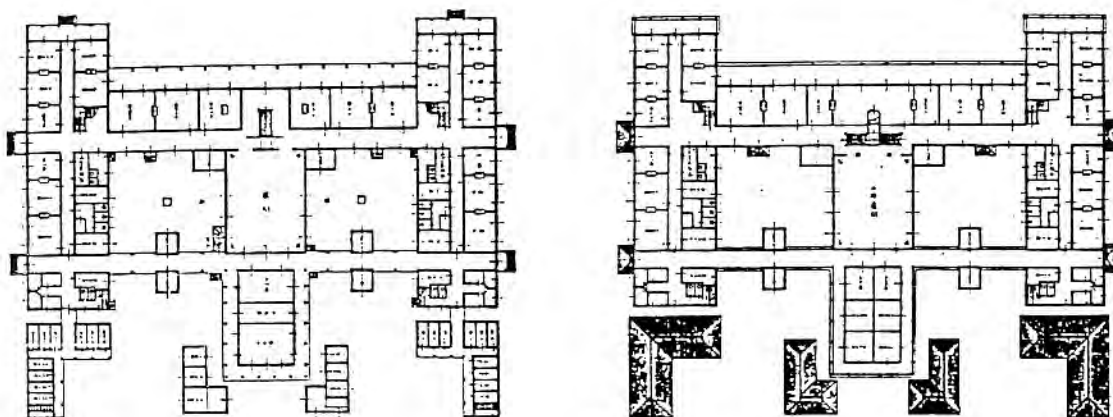
(26) Jail attached to the Ministry of Justice.
Tokyo, 1874. The cross shape plan showed
an appropriate design for certain functions.



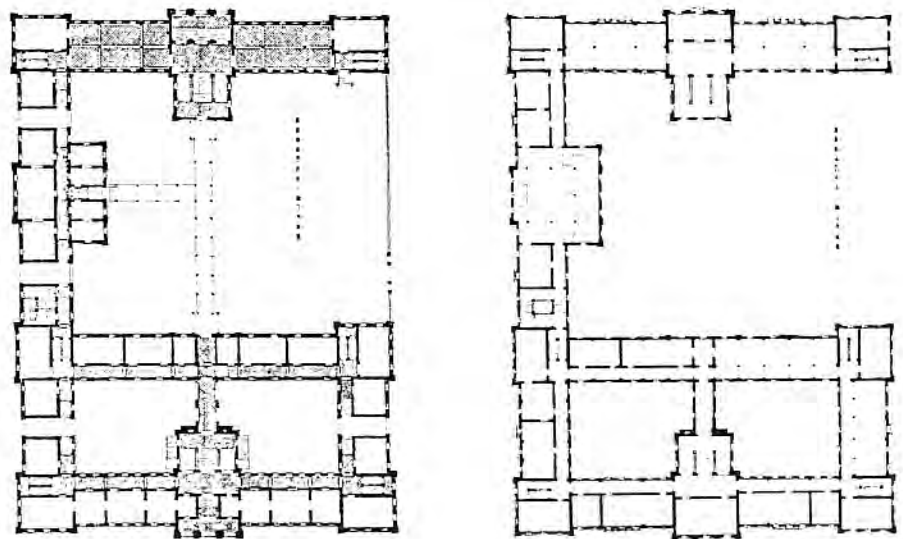
consideration of approaching design to the building as well as of building appearance. However a resemble plan type can be found at the Palais du Luxembourg in Paris designed in 1615-24. (34)

Round shape plan and octagonal shape plan were not in common used and they were only found in special buildings required central spectacle for example the Pavilion for Panorama in Tokyo built in 1890 (35) designed by Takamasa Niinomi, the Sumo Arena in Tokyo built in 1908 (36) designed by Tatsuno Kingo and the Lecture Hall of the Faculty of Law of Tokyo Imperial University built in 1914. (37) We also found an advance in theatre planning shown in the early Kabukiza Theatre in 1889. (38) The theatre comprised three simple rectangular shapes, which were the

(27) Bridgens : Tsukiji (Yedo) Hotel, Tokyo, 1868.
A very early example of a twin quadrangle court plan used for large public buildings.

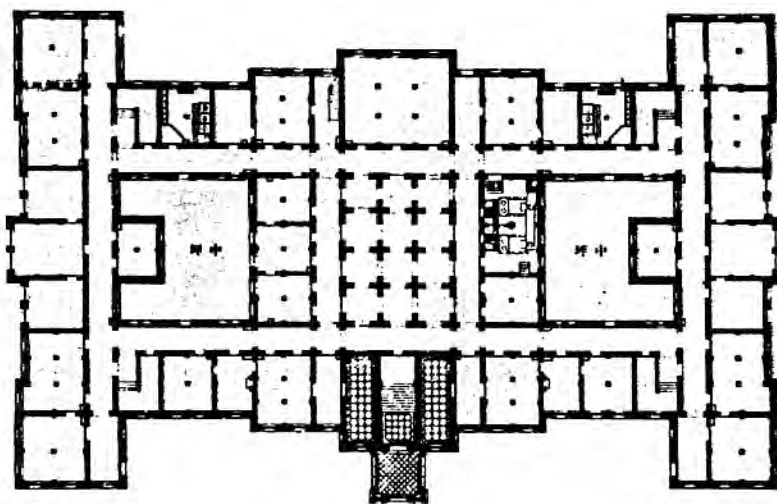


same as the brand new Imperial theatre designed by Yokogawa firm in 1911 (39), composed of three basic rectangles where complex functions were arranged systematically within. Department stores and private offices from 1900 saw the widely use of an L-shaped building with a central round corner which was specially treated to respond to the street intersection as well as visual effect. This kind of urban architecture was found as early as 1873 in the plan of the Ministry of Communication (40) designed by Tadayuki Hayashi. In this building at a corner facing streets, an entrance was made and treated by a pedimental porch. In the Mitsubishi Company no. 2 (41) Josiah Conder early introduced a new method of corner treatment by placing a round tower at the corner of this building next to the intersection of streets and also made it an entrance. This plan type was followed for some decades further.



(28) Takamasa Ninomi : Ministry of Agriculture and Commerce, Tokyo, 1891. The twin quadrangle court plan for a great public administrative building.

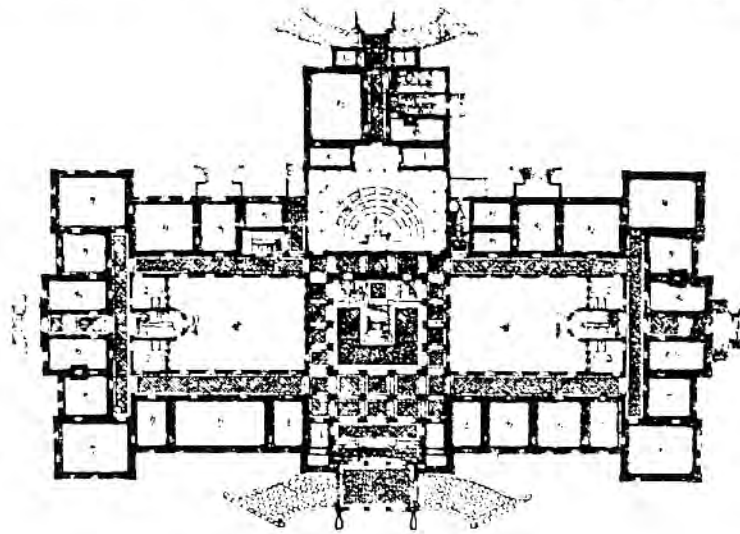
By 1910's it is no doubt for Japanese architects' ability in spatial organization which appeared successfully in many complex buildings as already mentioned. Furthermore leading architects also masterly selected appropriate type of plan for their specific function. Among these, the Sumo Arena in Tokyo (1908), The Memorial Pavilion of Ueno museum (1908) and the Imperial Theatre in Tokyo (1911) were of special interest. The Memorial Pavilion (the Hyokeikan) of Ueno Museum (23) should be particularly mentioned on the architect's understanding in the three dimensional organization of space, which impressively appeared in the vertically spatial interrelationship of the central hall. The building's appearance very much recalled the Petit Palais (42) in Paris built in 1897-1900 and the Hotel (palace) de Salm (43) also in Paris built around 1780's.



(29) Josiah Conder : Ministry of the Navy,
Tokyo, 1894. Another public administrative
building with a twin quadrangle court plan.

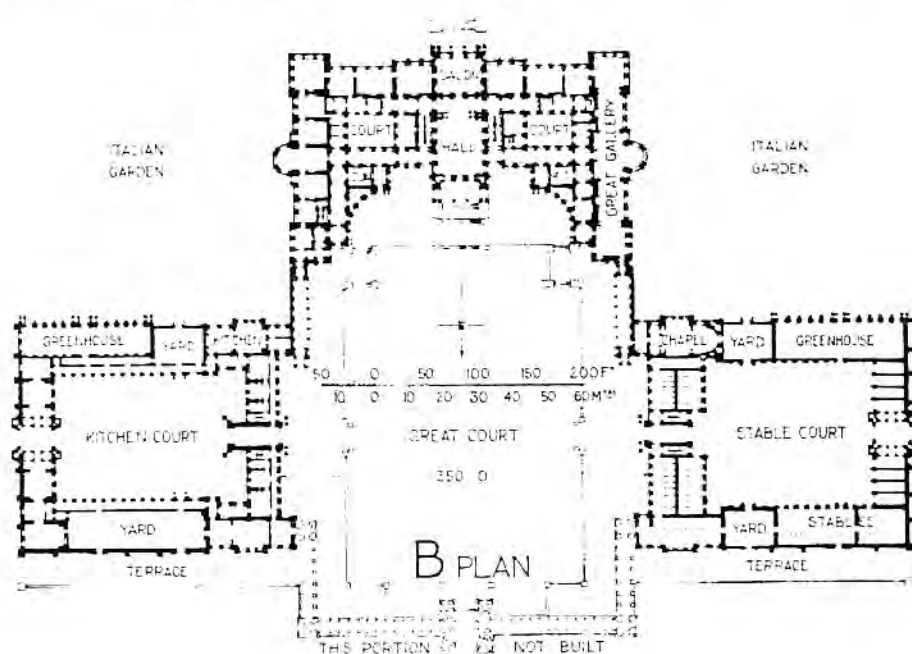
4) Materials and Construction Methods

Building materials and methods of construction were also found to have a great leap forward. In the early Meiji's days only timber boards and timber framing were the major material and method of construction in Japan. Japanese carpenters used these techniques and materials to construct western style buildings called "Giyofu", or pseudo western style (4, 5, 7) because their appearance was very much far from those original classical buildings in Europe. Carpenters had to apply plaster on timber boards in order to make a mansory appearance. Brick was not widely known by Japanese as a building material until T.J. Waters, an early English surveyor imported them from Hong-Kong to build the first brick buildings in Tokyo designed by him-



(30) Yorinaka Tsumaki : Tokyo Prefectural Office, Tokyo, 1894. The building plan was also a twin quadrangle court.

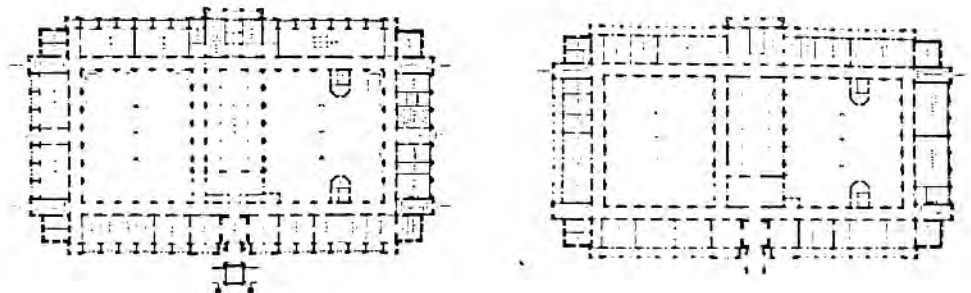
self (44) in 1870's. Ende and Bockmann, German architects also introduced the floating foundation technique for the new building of the Ministry of Justice (20) and the Supreme Court (21) in Tokyo in 1890's. Steel was used for the dome of the Sumo Arena (36) in Tokyo as early as 1908 one year before the all steel framing building of the Maruzen Company (45) finished whereas the first reinforced concrete building in Japan was executed in 1905. Around 30 years after the first brick building in Tokyo was completed, advanced techniques and materials in construction, which were introduced to Japan in order to provide a better protection against damages by fire and earthquake, were seccessfully accomplished by Japanese.



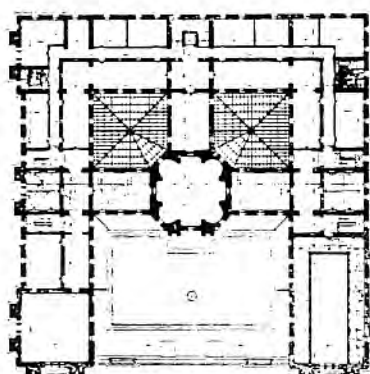
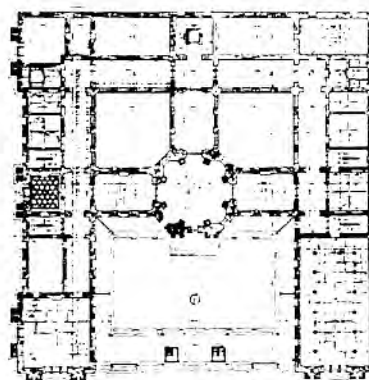
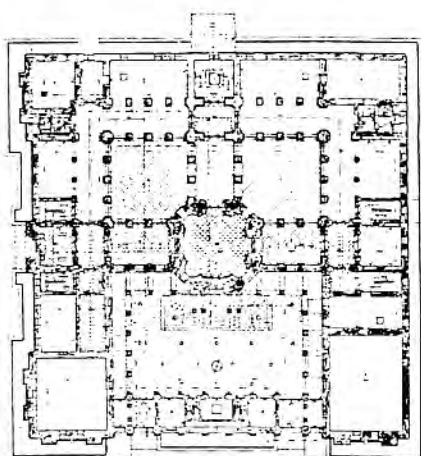
(31) Sir John Vanbrugh : The Blenheim Palace, England, 1724. The palace plan inspired a certain degree on the plan of Akasaka Detached Palace. (see fig. 24)

5) New Movement at the End of Meiji Era

Although western style buildings were the most favourable building type throughout the Meiji reign the occurrence of Japanese style buildings was seen. The turning towards native architectural character was firstly associated with an intention to provide a harmony between modern buildings and the historic landscape as recorded in the case of the building of the Nara Prefectural Office (46) by Nagano Uheiji in 1895. However the movement had been more political stimulated by the victory of wars over China and Russia in 1895 and 1905, respectively. In this building type only the appearance called a degree of Japanese identity by the imitation of traditional temple roof. On



(32) Uheiji Nagano : Governor's Office, Taipei.
Taiwan, 1910-1919. The twin quadrangle court
plan proved to be practicable for Japanese
public administrative buildings for some
decades.



(33) Tatsuno Kingo : Bank of Japan, Tokyo, 1890-96. The use of the three quadrangle court plan was a spectacular example.



2.32. Tatsuno: Bank of Japan, Otema Tokyo, 1890-96. South front.

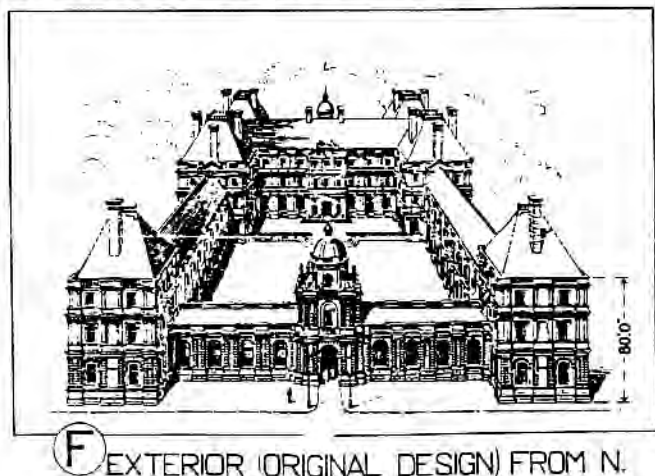
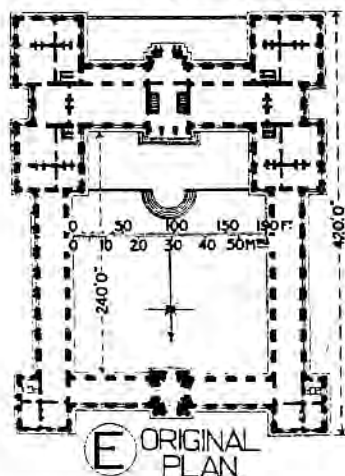
the other hand the spatial planning was totally indifferent from their western style building counterparts. The favour of this movement was gradually increased as the nationalism grew up and led to its peak from the 1920's to 1940's, the period of military regime governing the country.(47, 48, 49)

The beginning of the 20th century also saw Japan experiencing a new movement of architecture, the Art Nouveau through a small number of shops, companies and residences. The Art Nouveau, Kaminoto Barber shop in Osaka (50) by Yutaka Hidaka was appeared as early as 1903 and some residences and banks of the same type followed in a few years time. The style was firstly appreciated by Japanese architecture students in Europe around the first decade of the 20th century who then brought this idea to Japan. However the Art Nouveau in Japan was a short life and fashionable trend rather than a serious movement as in Europe. By the last year of 1910's some prominent characters of Art Nouveau design were widely known particularly the horse-shoe arch opening. This appeared in the buildings designed by leading Japanese architects as seen in the Maruzen Company (45) in Tokyo in 1909 and the National Sumo Arena at Asakusa (51), Tokyo in 1911.

(34) Brosse : Palais du Luxembourg,

Paris 1615-24. The low front screen facade with the central gate crowned by a domical roof hid the open court behind perhaps was a model for development of the Bank of Japan.

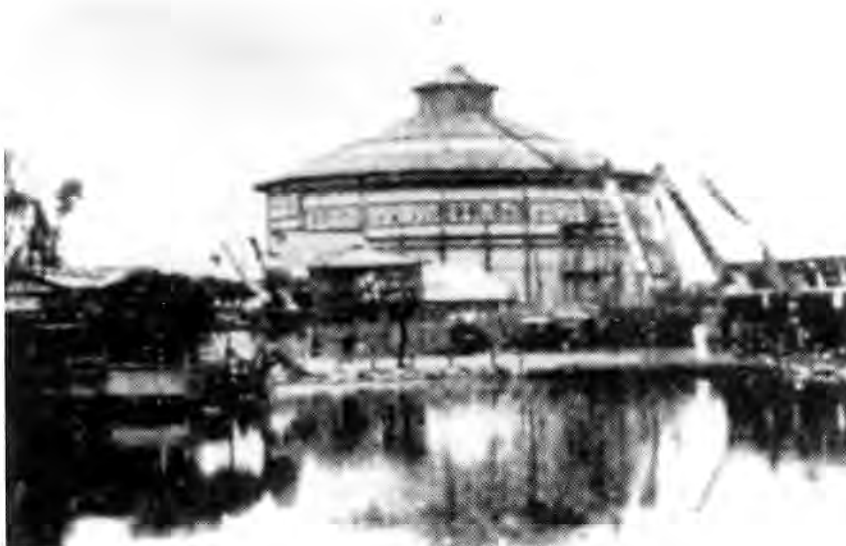
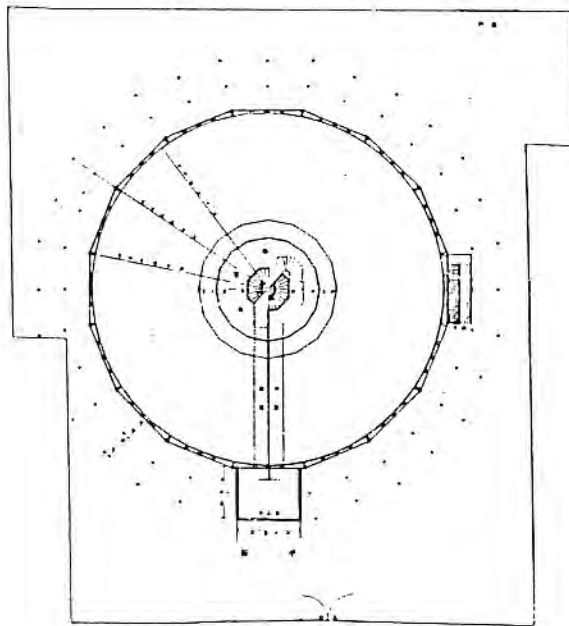
PALAIS DU LUXEMBOURG: PARIS



II. Development of Western Style Buildings in Siam

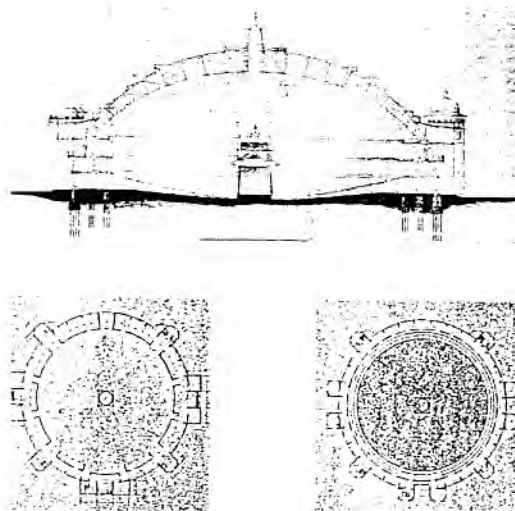
1) The Early Period

The knowledge in western style buildings in Siam was acquired from the trade relationship with Europeans since the 16th century in the Ayuthaya period. As an international port Ayuthaya, the capital city of Siamese Kingdom from the 14th to the 18th century, had a number of foreign settlements, which included Portuguese, Dutch and French. The ruin of the Portuguese Village (52), the



(35) Takamasa Nitnomi: Pavilion for Panorama, 1890. An early example of a round shape plan building resulting from a certain functional purpose.

biggest European community in Ayuthaya in the 17th century has been still in a good state of preservation, however hardly any characters of its buildings can be traced. The best evidence of European style buildings is the ruin of “the Guest House for the Diplomats” (Falcon House) (53) in the city of Lopburi. The house was dated between 1656-1688 in the reign of King Narai the Great, the period when the kingdom reached its peak in trade and diplomatic relationship with some European countries, France for particular. In this house although the roof was long disappeared, several sides of wall have been still intact enough to show its classical pediment on the roof and openings. However the plan showed no sign of classical discipline. Rooms were arranged in asymmetrical way. Other western style structures remained in Lopburi, including a few temples

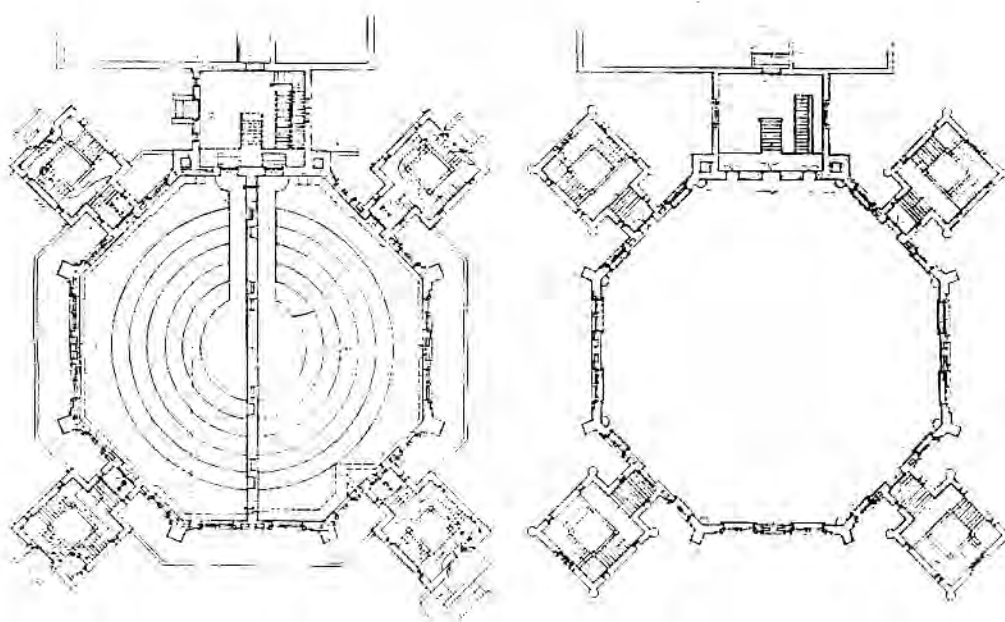
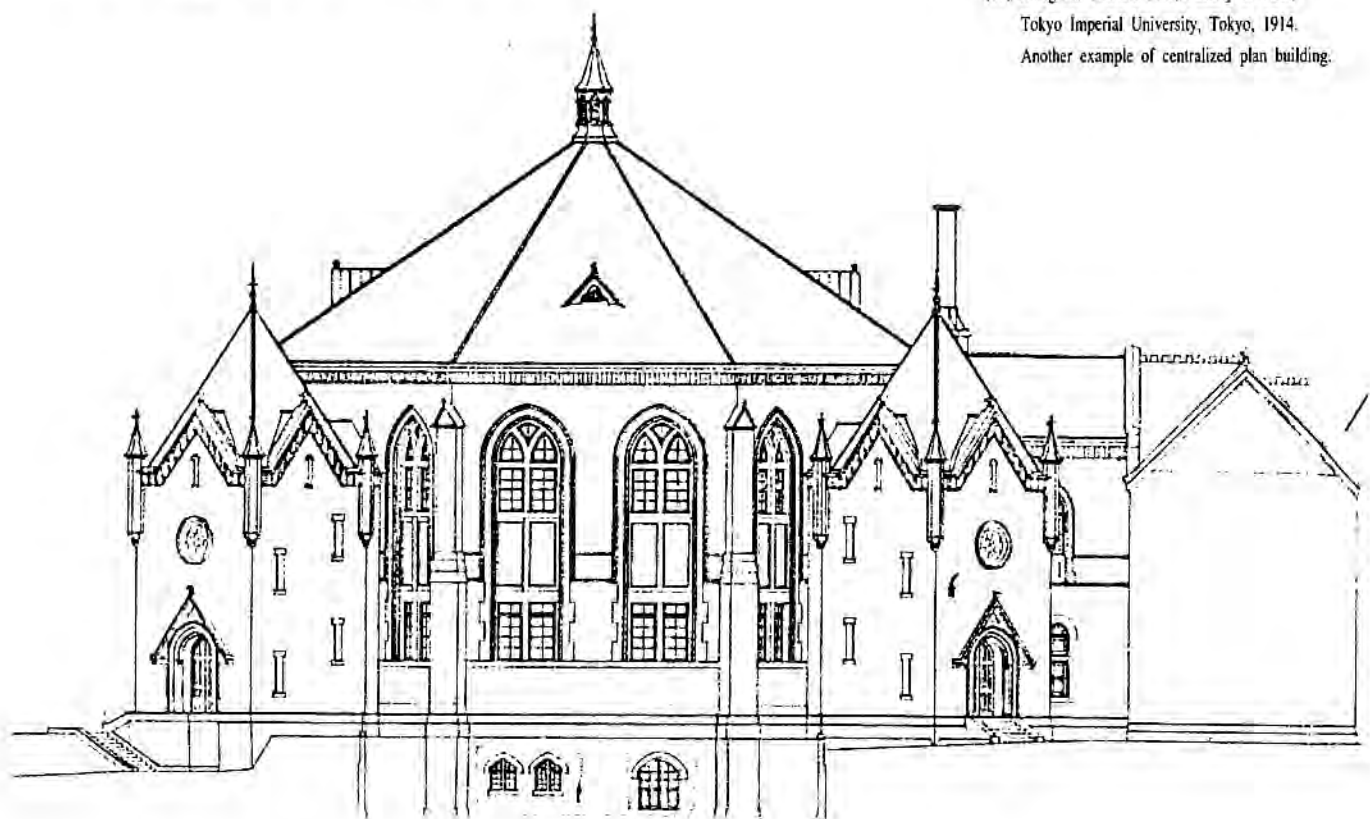


(36) Tatsuno Kingo: Simo Arena, Tokyo, 1908.

Another round shape plan was used for central spectacle purpose. Note the planning improvement on the connection between vertical and horizontal circulations.

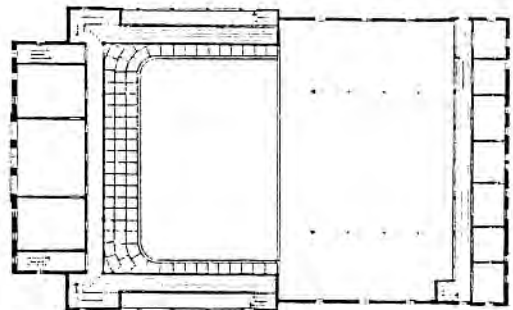
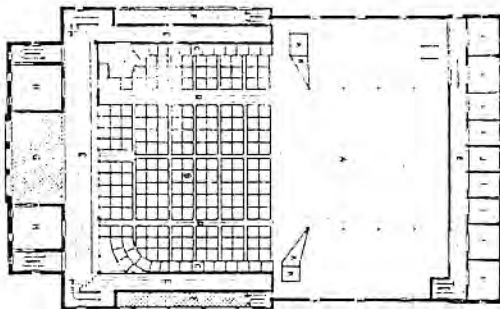
and an observatory tower, which western influence can be traced in construction of pointed arch openings. Unfortunately, no more evidences of western style structures appeared after this period because the relationship with the west was ceased by the new monarch after the pass away of King Narai the Great in 1688.

(37) Octagonal Lecture Hall, Faculty of Law,
Tokyo Imperial University, Tokyo, 1914.
Another example of centralized plan building.



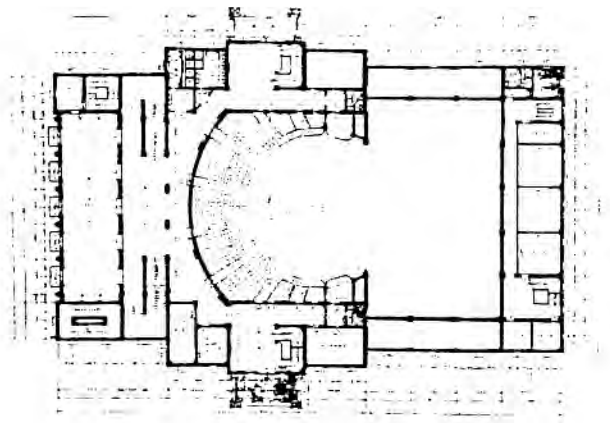
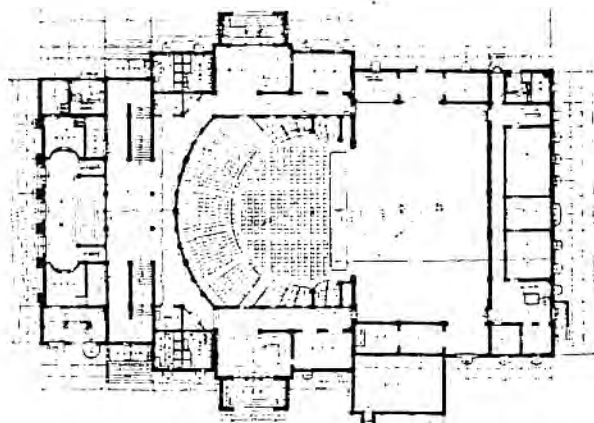
2) The Pre-Modern Period

The revival of relationship with Europeans started in the early of the 19th century when King Rama III of the Chackri dynasty (the Bangkok period) signed the treaty of trade and friendship with Britain in 1826. Consequently a number of same kind of treaties with other European countries and America followed. The return of the west in the 19th century was back up with Imperialism equipped with gun ships ready to force any nations to conform for their benefits. Tragedy in India, China and Burma made Siam proceeded on a compromised policy. Advantageous trading condition as well as domestic jurisdiction exemption were granted for those imperial powers. At the same time accepting western culture and technologies as the method to modernize the country was gradually recognized since the reign of King Rama IV (1851-1866).



(38) Kozo Takahara : Kabuki-za Theater,
Tokyo, 1889. An early modern planning for
a place for traditional performing arts.

The first building of western style palace in Bangkok period by King Rama IV in 1855 was the official symbol of Siamese accepting western culture. A palace compound of five buildings was constructed within the Royal Palace Compound of Bangkok, using traditional materials and construction, brick and plaster. The classical appearance was created by a pedimental roof. The character of this Royal Palace named “Pra Apinaovanivej”(54) was not so different from the original model of “the Guest House for the Diplomats” in Lopuri built nearly 200 years earlier, it looked clean and simple. The favour of Rame IV on the Siamese-made neo-classical palace led to later construction of some new style palaces. The most important one was Pranakorn Kiri (55), a vacational palace in the city of Petchaburi built in 1860, the biggest regional palace ever built in the Bangkok period. Other two western style palaces were the



(39) Yokogawa Architectural Firm : Imperial Theater, Tokyo, 1911. The theater plan was also a rectangle shape but a substantial improvement in planning was seen in the arrangement of complex function.

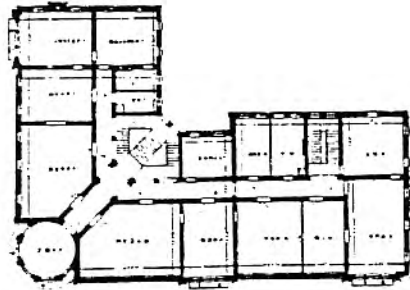
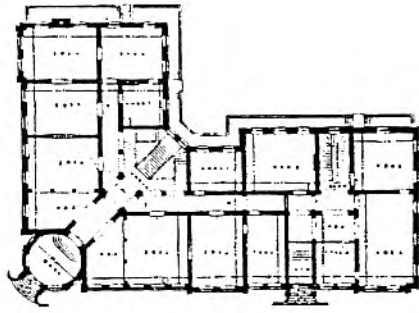
Narai Rajnivej in Lopburi (56) and Wang Chankasem (57) in Ayuthaya both built in 1866. All of these palaces except the first one in Bangkok have been still survived today.

These buildings did not represent any profound understanding of Siamese architects on the European classical buildings. In fact they were very simple both in planning and form. The classical elements used were limited only the pediment, a few types of capital and the arched construction. Each building had a certain function thus a number of buildings made up a building compound for complex functions, reflecting the local method of spatial organization. The actual value of these buildings was the wisely interpretation of local architects on occidental art through traditional knowledge and resource in the mid 19th century.

King Rama IV also introduced the buildings on modern roads. He constructed four modern roads in Bangkok between 1861-1863 for the improvement of transportation in addition to such traditional transportation on canals. Many street architecture or known as shop-houses

(40) Tadayuki Hayashi : Ministry
of Communication, Tokyo, 1874.
An L-shaped building with the corner entrance.





(41) Josiah Conder : Mitsubishi Co. Building
No. 2, Tokyo, 1895. The corner entrance was
specially treated in a form of a round tower.



(58) were also built along sides of those roads hence new commercial areas in Bangkok were extended.

3) The Modernization Period

King Rama V ascended the throne in 1868 when the aggressiveness of colonialism was reaching its peak. The king understood that the only way to have the country's independent survival was to modernize its sociality, economy and military from the grassroots. When this comprehensive plan started, a number of foreign experts were employed as well as several European architects were called to execute many new ministerial buildings and new palaces for the royal reception to foreign diplomats. These buildings were naturally designed in Italian classical appearance as the majority of architects working for Siam were Italian. Among many classical buildings in this reign, special mention should be made for these particular buildings, Wang Burapapirom Palace (60), the earliest Italian classical building built in 1875, Wat Nivej-Thammapravat (61), the earliest and the only Buddhist temple built in English parish church mode in 1878. Furthermore the Chackri Mahaprasat Palace (62) was built in 1876 with a character of French classicism but crowned by three Siamese multi-levelled pyramidal roofs in stead of curved-side mansard roof. This controversial design was

(42) Girault : The Petit Palais, Paris. 1897-1900.

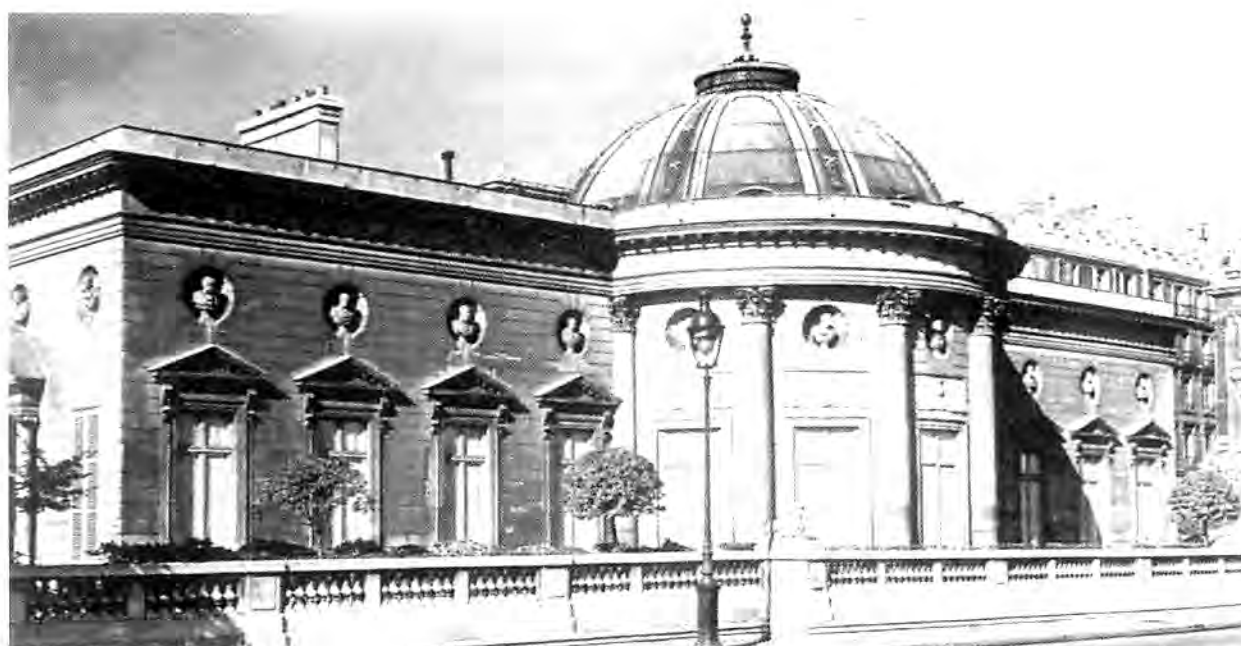
Its domical pavilions at the center and both ends represented a characteristic of Neo-Baroque style.



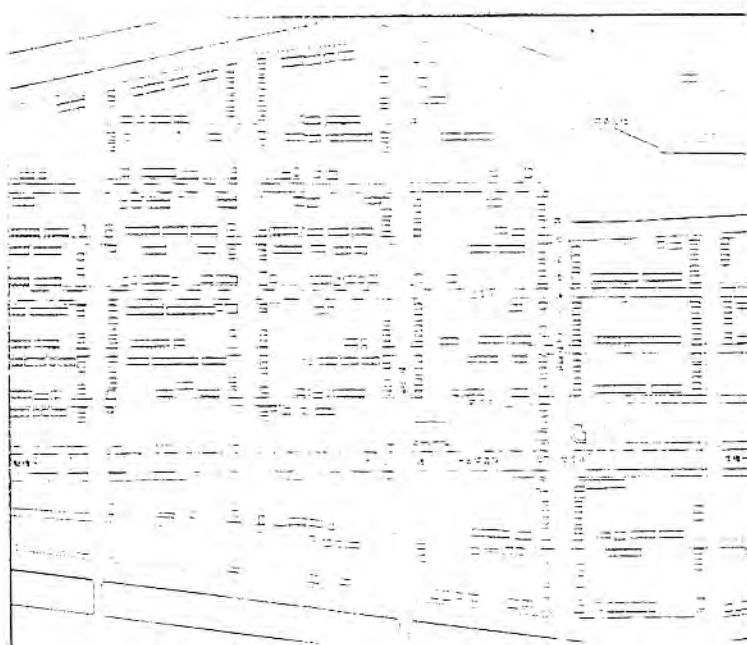
the compromised result to end the argument on whether a pure Thai designed palace or a pure classical one should be built on the sacred ground of the Royal Palace. Consequently its character made the palace one of the most beautiful and most symbolically significant in South-east Asia. The case of the Chackri Mahaprasat Palace obviously showed that the conflict between the conservative attitude and the modernized attitude among Siamese elites in the late 19th century was still deeply persisted. This had never been solved for decades later. However the modernization of building design continuously progressed. After two visits to Europe in 1897 and 1907, the King introduced the idea to beautify Bangkok by urban design. A series of boulevards named “Rajdamnern” was built in 1902 especially the Rajdamnern Nok Boulevard (63) leading to the vast square of Suan Dusit Palace was specially designed for the royal procession. Later in 1908 a majestically grand palace named “Prathinang Anantasamakom” (64) was built in front of the vast square with a character combined between Italian and French classicism. The appeal on the inappropriation for a Siamese palace built in western style was re-issued however this time the king insisted to have a real western style palace despite his worry on the future criticism on the royal favourite on classical architecture.

(43) Rousseau : Hotel de Salm, Paris, 1784.

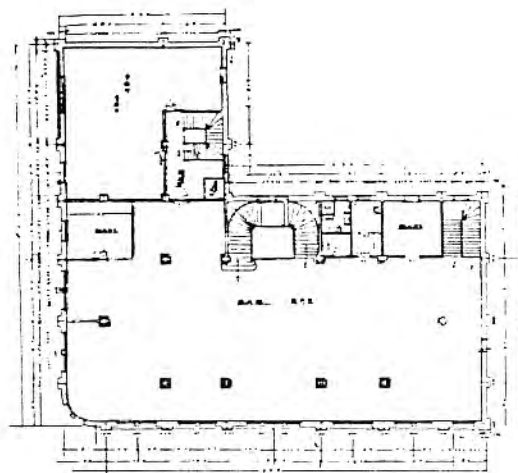
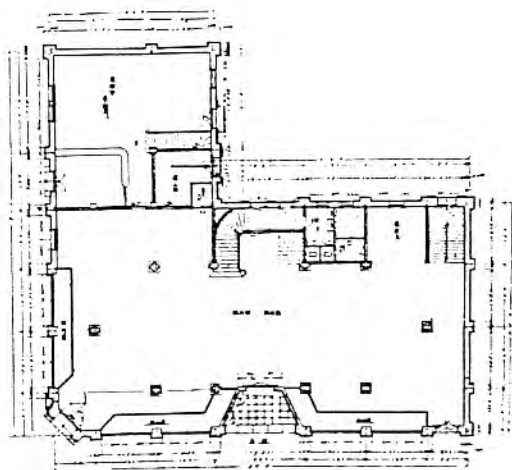
The central semi-projecting rotunda and the architectural elements were gently articulated in a neo-classical manner.



A more progressive step in design was found in the very late period of the reign particularly Wang Ban Puen Palace (65) in the city of Petchaburi built in 1910. A young German architect tried to incorporate a modern spatial organization with a Romanesque church plan. His design strongly revealed the Jugendstil idea. Only three buildings of this kind have remained in Thailand.



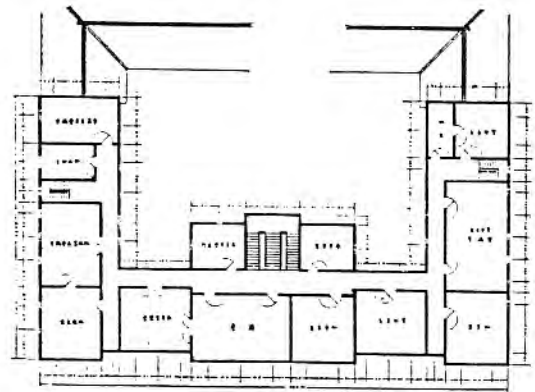
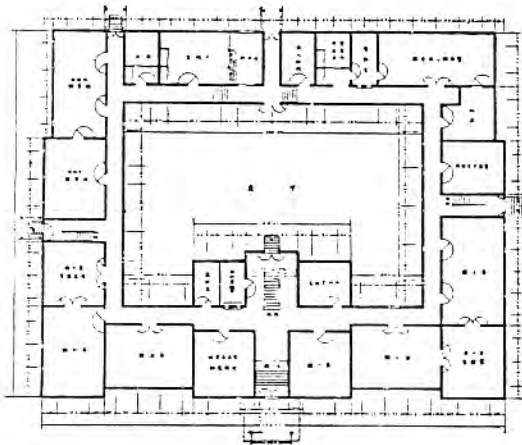
(44) Waters : Ginza Bricktown, Tokyo, began 1872.



(45) Toshikata Sano : Maruzen Company,
Tokyo, 1909. The first all steel framing
building in Japan.

In fact by the end of the reign of Rama V in 1910, it was not only building design in Siam that was substantially progressed but also the construction method. The modernization introduced new techniques (66) for heavy construction for example, the European brick wall system, the reinforced concrete foundation with piling system as well as steel frame roofing for long span buildings. However this advanced method was so expensive that it was only employed on the majestic buildings. On the other hand the conventional method of brick masonry with timber framing roof had been still widely used, so its life was extended to many decades later.

(46) Uheiji Nagano : Nara Prefectural Office,
Nara, 1895. A modern plan building with
the native architectural charater.



Apart from western style, traditional style was obviously seen in the field of religious buildings but now built with modern materials such as concrete or marble as seen in the Marble Temple (67) built in 1899. The traditional style was extensively exploited in the reign of Rama VI, starting in 1912 for many types of public buildings including administrative and educational buildings. The prominent character of this style was the multi-levelled overlapping roof crowning the building with a modern plan. (68)

III. A Comparative Study

The development of western style buildings in Japan and Siam from the 16th century to the beginning of the 20th century was very similar in the aspect of time and the attitude towards the making of these buildings. This similarity provides a possibility to compare the development of these buildings in both countries. We can roughly divide this progress into 4 phases according to the achievement of development. The first phase was the period from the 16th century to the beginning of the 19th century. The second period dated from the beginning of

(47) Kanagawa Prefectural Office, Yokohama, 1928. A design for native architectural character of the 1930's.



the 19th century to the period before modernization (in the second half of the 19th century). The third phase was the modernization period from 1868 to 1910 and 1912 in Siam and Japan, respectively. The fourth phase was focused on the seeking of identity which occurred within the modernization period and proceeding beyond.

(48) Ryoichi Kawamoto : Soldiers' Hall, Tokyo, 1934. A mixture between modern facades and the traditional roofing.

(49) Jin Watanabe : The Imperial Museum, Tokyo, 1937. Another example of Imperial Crown style, (Teikan yoshiki) the symbol of Japanese Nationalism.



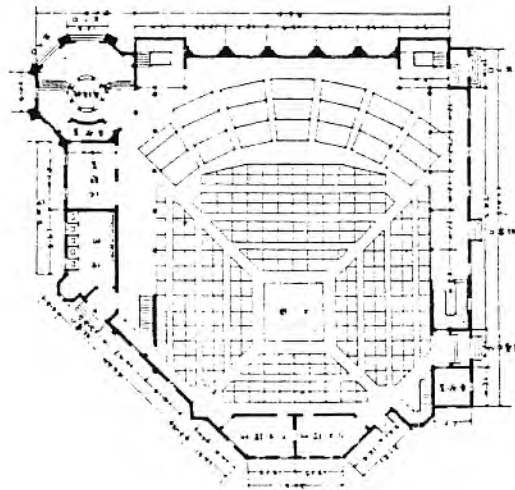
1) The First Phase

Western style buildings were firstly introduced by foreign missionaries and merchants coming for religious and trading purposes in both countries since the 16th century, as recorded in 1521 for Siam and in 1543 for Japan, respectively. These buildings were built only for functional purposes and flourished only in those foreign settlements. King Narai the Great of Siam made a progressive step by adopting these building characters for his royal palace and temples whereas in Japan these buildings had never been accepted until 200 years later. No substantial



(50) Yutaka Hidaka : Kaminoto Barber shop, Osaka, 1903. An early example of the short life style "Art Nouveau" in Japanese architecture.

progress was seen in this phase because both countries broke their relationship with European countries almost at the same time as recorded in 1639 in Japan and 1688 in Siam. The important reason was the local authority felt insecure on the possibility of Europeans' conspiracy.



(51) Kingo Tatsuno : National Sumo Arena,
Asakusa, Tokyo, 1911. Although the overall
appearance was eclecticism, the grand horse
shoe entrance revealed the Art Nouveau
influence.



2) The Second Phase

The relationship with Europeans had been stopped for nearly 150 years until the Imperialism invaded their powers into Asia in the 19th century, which brought about the re-open door policy in both countries, Siam in 1826 and Japan in 1858. This second phase of relationship with the west was compulsory and for the survival as an independent nation. The new relationship was accompanied with acceptance of western culture and modernization of the country. Western style buildings were re-introduced as a symbol of modernization. At the beginning these buildings were built by local builders through their traditional method and own interpretation of classicism. We found this early kind of western buildings in both Japan and Siam. Two important examples have been chosen to make a comparison, Pranakorn Kiri Palace (55) in the city of Petchaburi in Thailand built in 1860 and the Kaichi Primany School (4) in Japan, built in 1876.

(52) The ruin of the Portuguese settlement, Ayuthaya, the 17th century. One of the earliest Europeans settlement found in Thailand.



The similarity of these two buildings was the brave attempt of those builders to imitate classical architecture within their own limit of knowledge and technique. On the other hand the difference was the character of building, Kaichi School still maintained a character of wooden frame building owing to the local materials and construction technique. Whereas Pranakorn Kiri had a character of real masonry building. This indicated an advantage of Siamese builders over Japanese to follow the western building method because of the less difference of construction materials between Siam and European. However the design of both buildings were still far from classicism, Kaichi School still looked very local and Pranakorn Kiri appeared closer to a mediteranean vernacular building than a classical palace.

Although western style buildings in this time had a vague value according to classical building discipline, their historic merit was distinctive

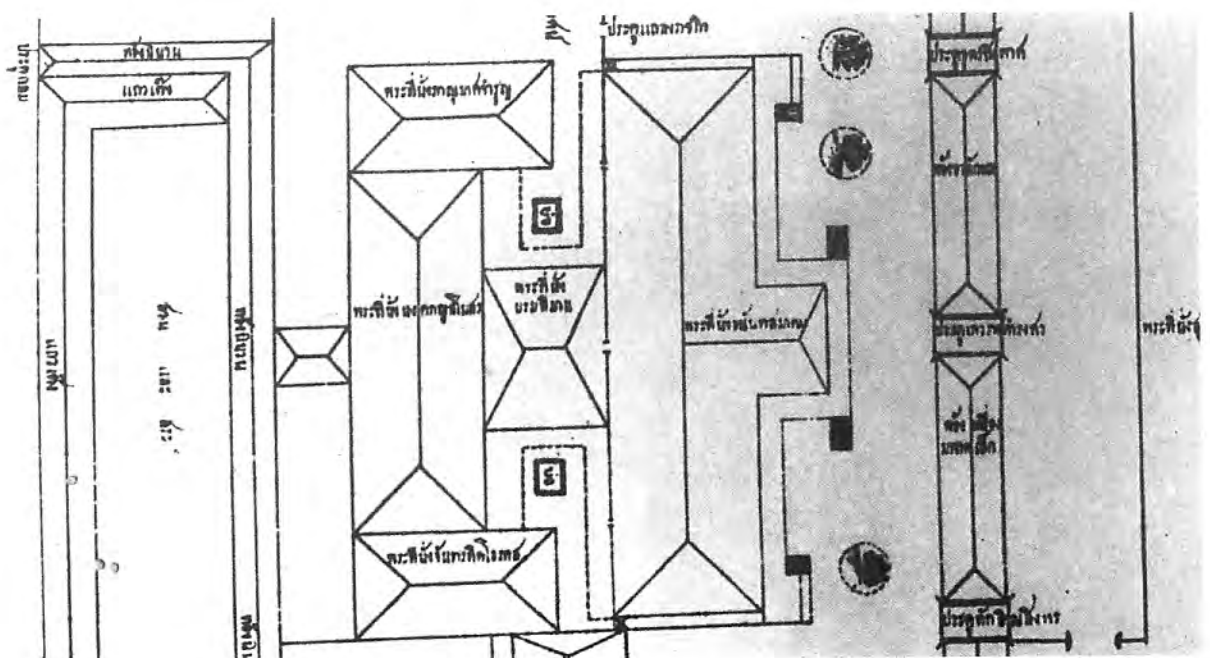
(53) "The Guest House (or the Diplomats" (Falcon House) Lopburi, the 17th century. One of the earliest Western style structures survived in Thailand.



3) The Third Phase

This phase was the most important period known as the Restoration period starting in 1868, the same year both in Japan and Siam, and ending in 1910 in Siam and 1912 in Japan. Now in 1868 both countries had a

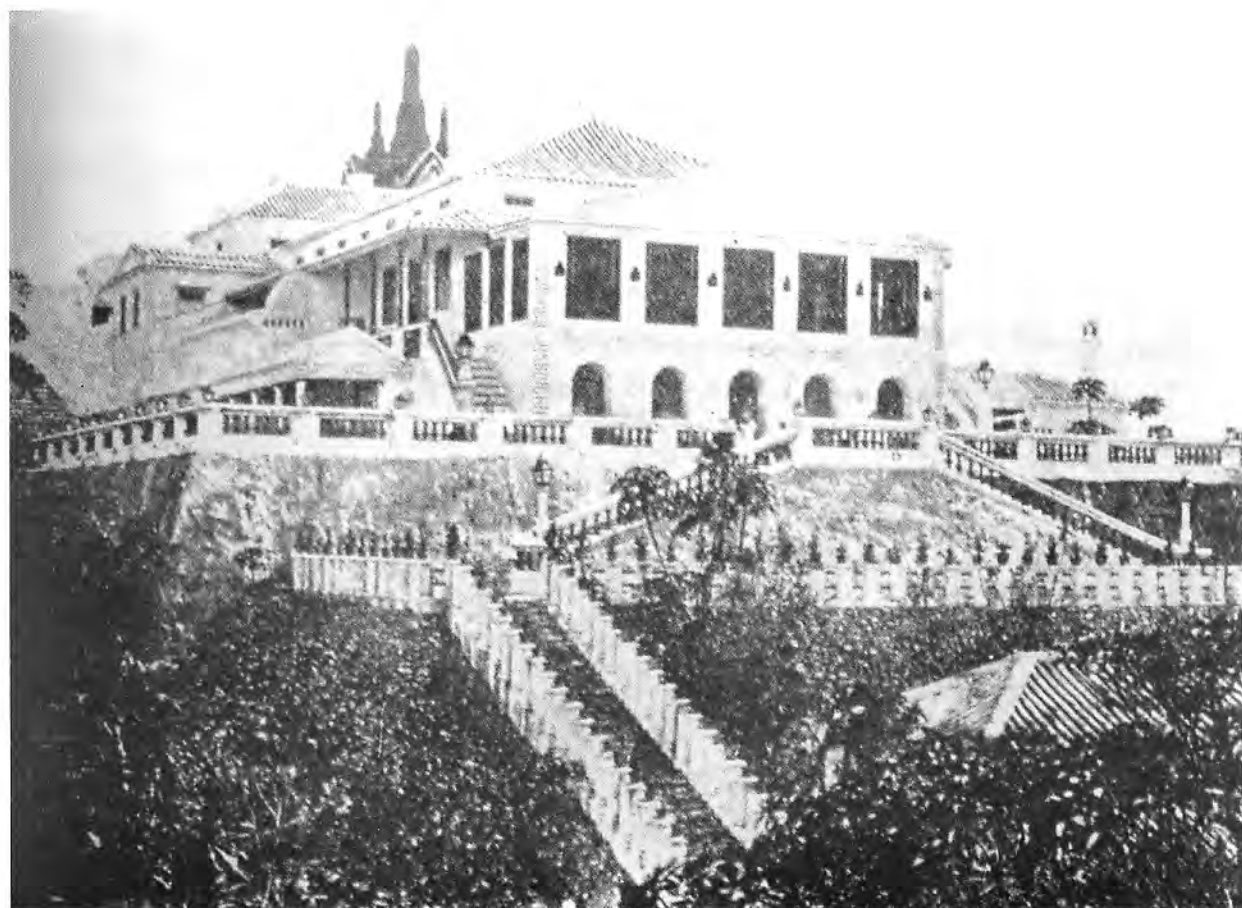
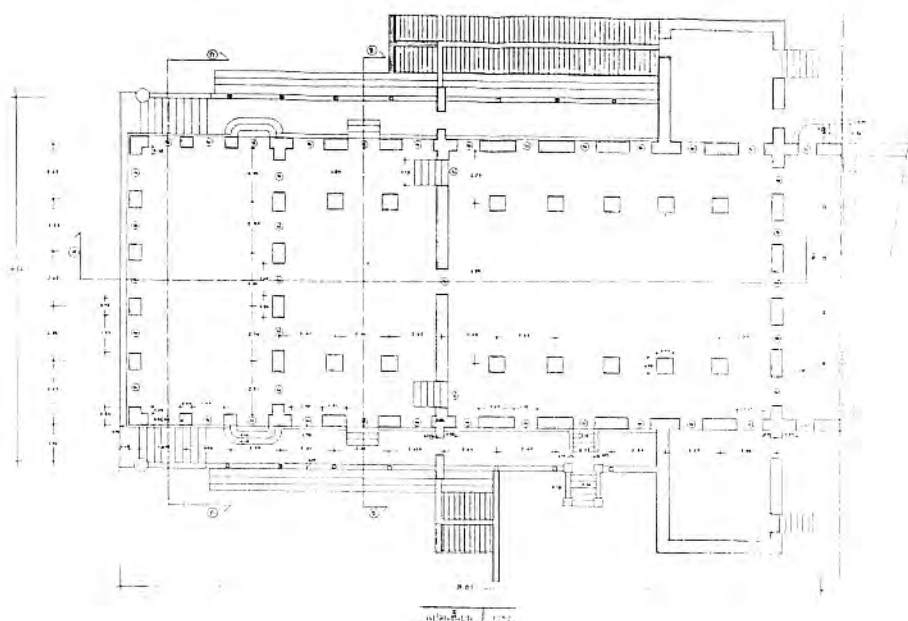
(54) Pra Apinaovanivej Royal Palace Compound, Bangkok, 1855. The first western style palace of Bangkok period designed by Siamese architects in the reign of Rama IV. The source of inspiration was perhaps from Singapore.



modern reign, Meiji Emperor of Japan and King Rama V of Siam both kings receiving certain aspects of western studies before ascending the throne. As western knowledge was dramatically increased, both countries had a strong

(55) Pranakorn Kiri Royal Palace Compound.

Petchaburi, 1860. A vacational palace in the reign of Rama IV designed by Siamese architects.



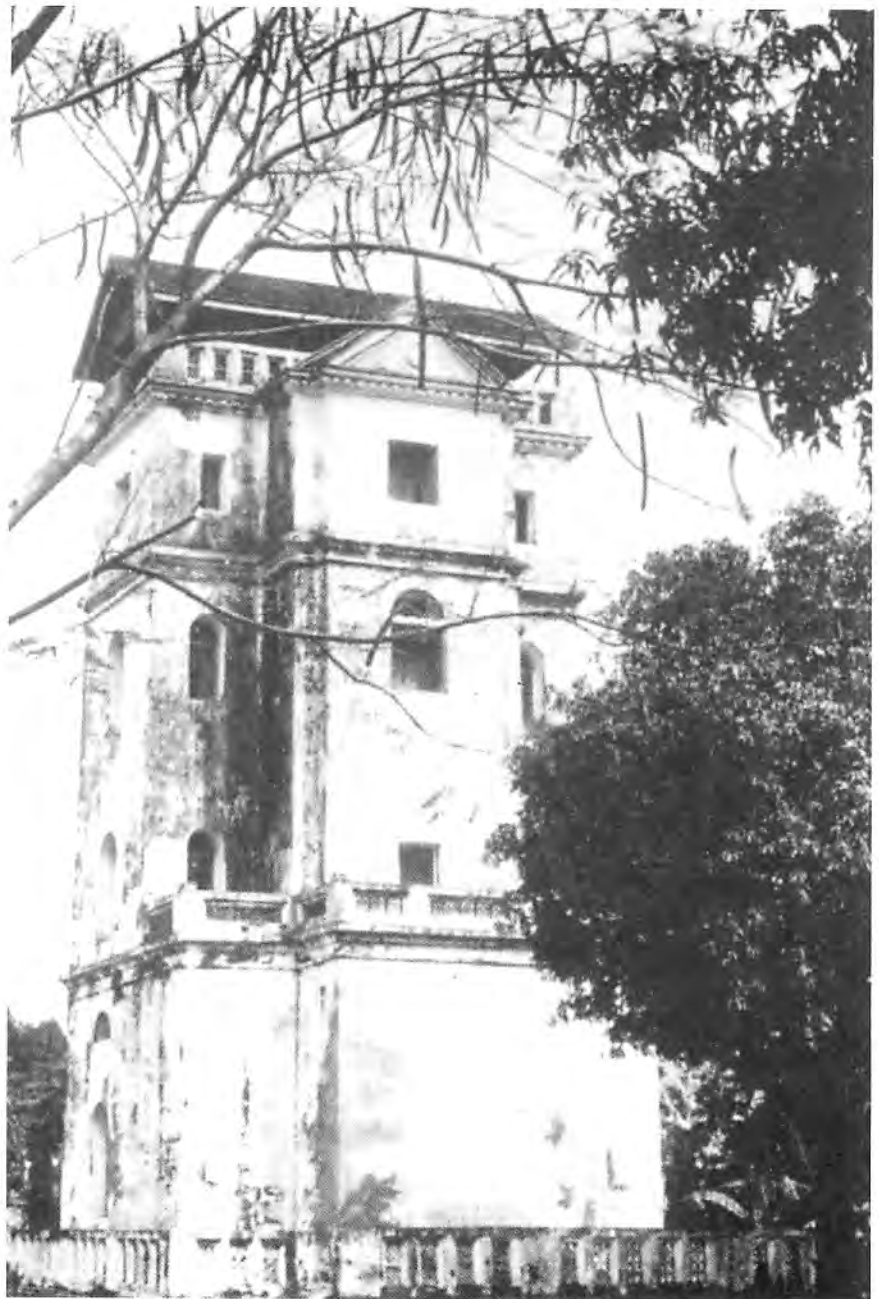
intention to modernize their countries. New sociality and economics brought about the need of many new buildings for newly established institutions but at this time only correct western buildings were needed for a symbol of true modern knowledge.

Despite having the same concept in making modern buildings, Siam and Japan deployed the policy differently, which brought about the very different results. Japanese government's policy in building western style buildings was the same as its policy on other field of knowledge, "learning and transferring". This policy was firstly to invite young and talent foreign professionals to teach Japanese students. Within a period of time after those students gained experience and advanced knowledge from practicing real design



(56) Pra Narai Rajnivej Royal Palace, Lopburi, 1866. A combination character between western style and chinese style palace in the reign of Rama IV designed by Siamese architects.

and construction, all responsibilities of foreigners were transferred into Japanese. The subsequent success in the making of modern architecture in Japan proved that this policy was the heart of the achievement. On the contrary when Siam firstly employed foreign professionals to build western style buildings, it seemed that no plan had been set for the knowledge transferring. Consequently all western style buildings built during the 43 years long of the reign of Rama V solely depended on foreigners' brain. The professional education for modern architects was realised very much later. The university level study in architecture was



(57) Pisaisanyalak Observatory in the Wang Chankasim Royal Palace, Ayuthaya, 1866. Another western style palace in the reign of Rama IV designed by Siamese architects.

set up only in 1933, 56 years after Josiah Conder's first introduction of western architecture study to Japan and 58 years after an Italian architect designed the first classical palace in Siam. (60)

The western style buildings in this period were very eclectic and stylistic in Japan but a rather classical oriented in Siam. The differences resulted from a different beginning.

(58) Modern shop houses along the newly built modern road called "Bamrungmuang". These roads were built between 1861-1863.

(59) The Saranrom Palace, Bangkok, 1897. One of classical buildings designed by European architects.



Josiah Conder introduced rational and systematic approach in design process to Japanese at the same time he chose eclecticism for facade designs for visual attraction. Ende and Bockmann early designed on the projects of the Parliament (19) and the Ministry of Justice (20) as well as the High Court (21) stimulated the grandeur and luxury for public building designs. These two influences deeply inspired the first generation of modern Japanese architects who decided to continue this grandiose and eclectic mode for important buildings of Meiji Era. There were only a few attempts to create classical buildings for example the Bank of Japan (33) by Tatsuno Kingo in 1896, the Hyokeikan Museum (23) in 1908 and the Asakasa Detached Palace (24) in 1909, both by Katayama Tokuma. However the classical quality of the buildings was not fully appreciated.

It is complicated to evaluate “value” of western style buildings in Japan especially in comparison to those contemporary buildings in Europe. One reason is that the

(60) J. Grassi : Wang Burapapirom Palace, Bangkok, 1875. An early example of Italian classical building in Thailand.



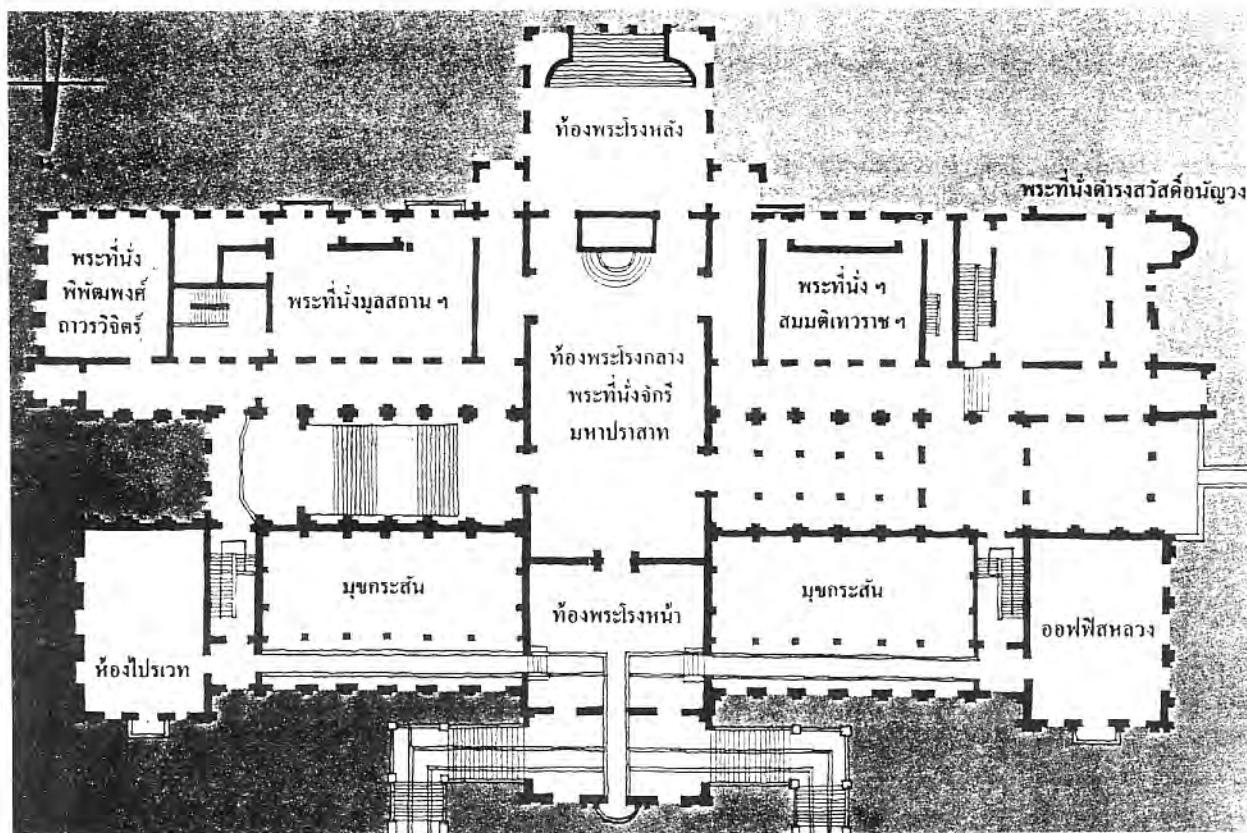
style was adopted and Japanese architects concluded a thousand year long development of European architecture within a period of only 35 years. This state of development was too short for Japanese to set up their identical thought in architectural design, which was much more important than “style”. Therefore their buildings, despite of good production, were only reproduction of the European masters’ models.

However the concise practice in Meiji period deserved a praise for its efficiency and fast progress but not for excellent design. Apart from this, self-confidence among those Japanese masters in creating architecture for a “modern” society was achieved.

In fact when Japan adopted the eclecticism by the late of the 19th century, the style was dying out in Europe and almost completely disappeared after 1900. In Japan it survived until around the end of the First World War. Although this first generation of western style architecture had a relatively short span of life, it did inspire the design

(61) Wat Nivej Thammapravat, Bangpa-in, Ayuthaya, 1878. A Buddhism temple designed in the English parish church mode.





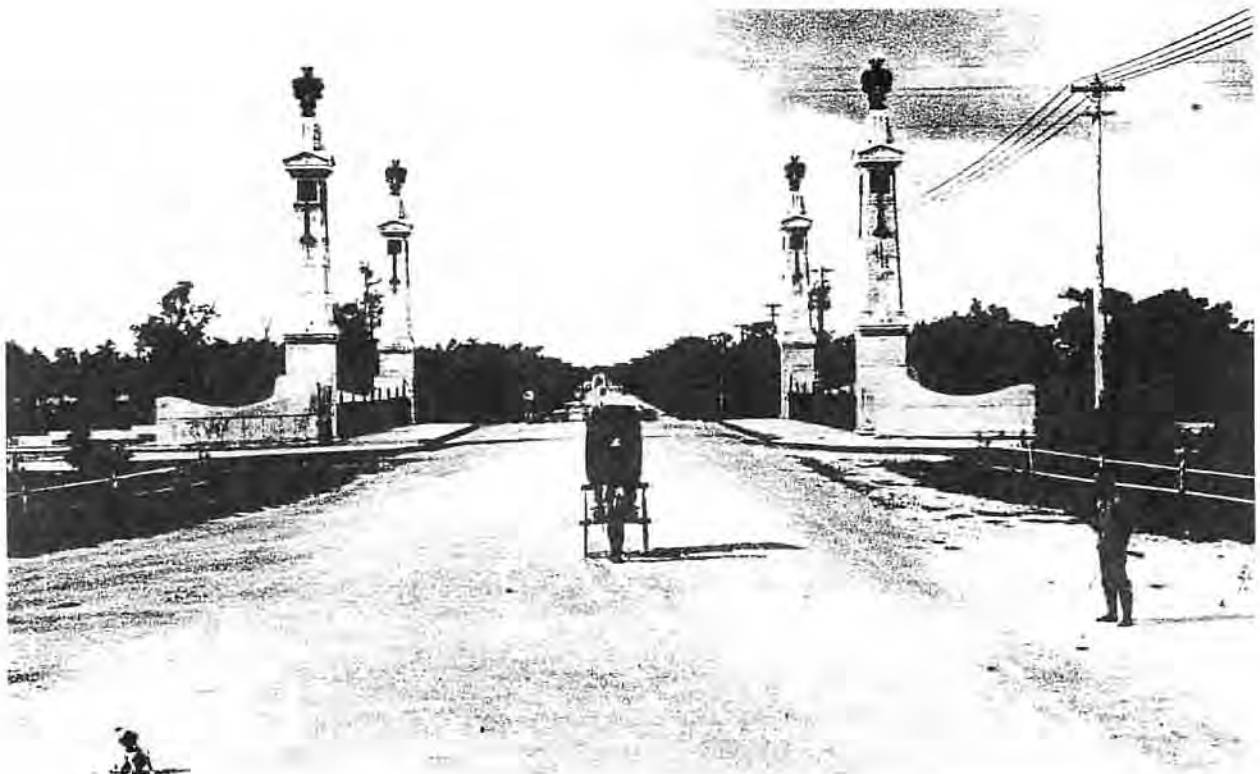
(62) J. Clunich? : Chakri Mahaprasat Palace,
Bangkok, 1876. A French classicism palace
crowned by three multi-levelled pyramidal
roofs.



of later generations of architects particularly of the Taisho period. Besides its extravagant appearance, Meiji architecture had settled some long ranged aspects for its later generations. Firstly the improvement of building technologies against fire and earthquake such as reinforced concrete and steel structure were introduced. Secondly spatial organization for great public buildings had been established and it was followed by the Taisho period as seen in some prefectural halls of the cities such as Yamaguchi (69), Osaka (70) and Kanagawa. (71)

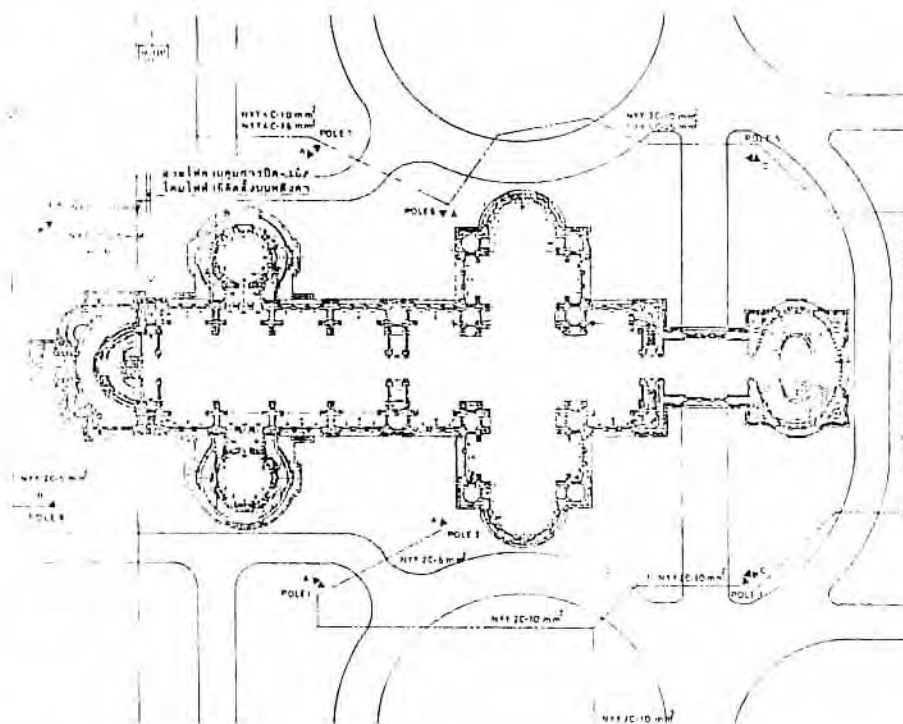
Western style buildings in Siam during the modernization period can be divided into 2 categories, firstly governmental and palatial buildings, secondly commercial buildings and private residences. Most buildings in the first group were designed by foreign architects employed by the royal government whereas buildings of the second group were not so important to be necessarily designed by architects. The designers might be builders with experience in building western style buildings. Classical mode was generally used for the governmental and palatial buildings. These large buildings usually had a rectangular plan with inner courts. The front facade was made three distinctive

(63) A scene of the "Rajdamnern Nok" Boulevard built in 1902 revealed the city beautiful concept of the 19th century of Europe.



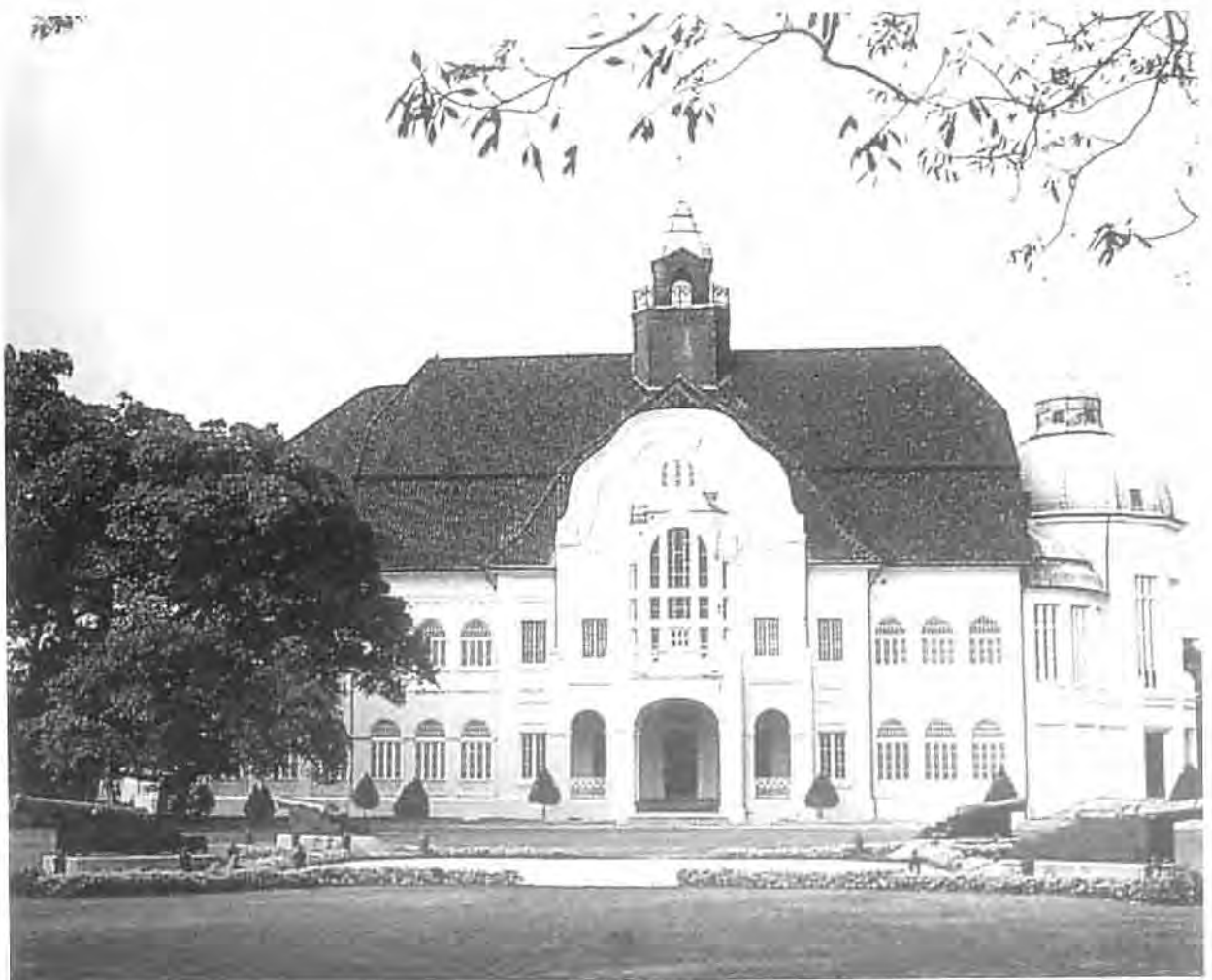
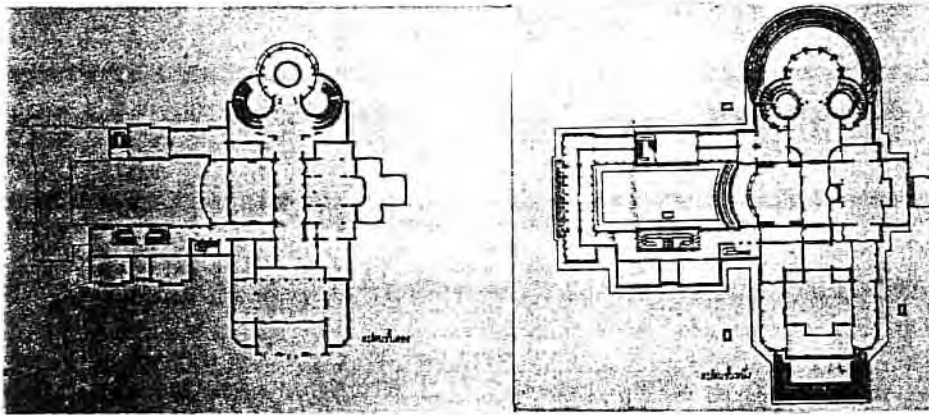
(64) M. Tamagno : Prathinang Anantasamakom
Palace, Bangkok, 1907-1915. The greatest and
last classical palace built in the reign of
Rama V.

parts, the central part with two wings where classical elements such as pedimental roof and arched openings were added in order to accentuate classicism. Simplicity was



emphasized and beauty was spelled through the correctness of orders and building proportion. Important examples were Wang Burapapirom Palace (60) and the Ministry of Defence (72) built in 1875 and 1884, respectively by Italian architects. The emphasis on classicism was in the reign of Rama V perhaps because its simplicity did not cost expensively as well as the construction method had been

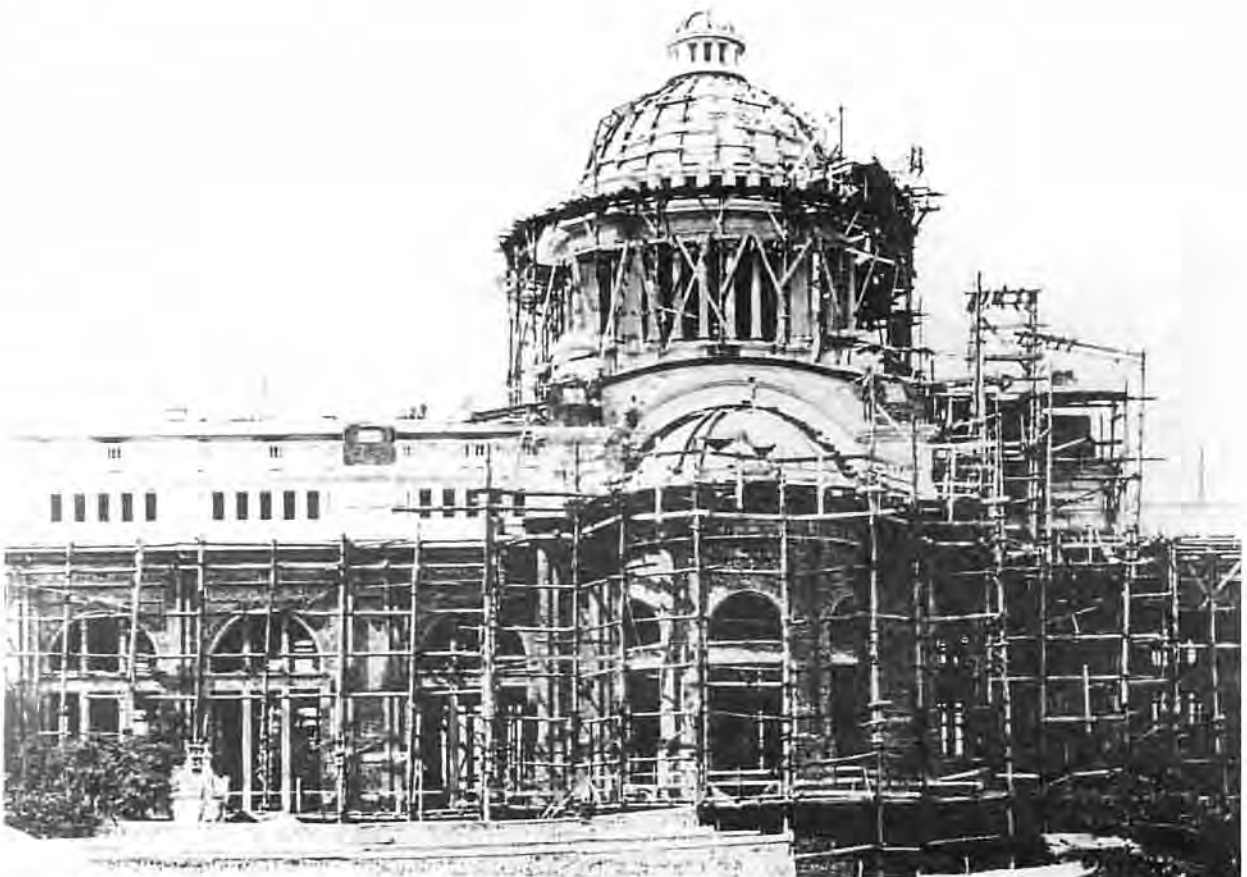
(65) K.S.Döhring : Wang Ban Puen Palace, Petchaburi 1910-1918. The last great palace in the reign of Rama V designed by a young German architect in the style of Jugendstil.



already familiar to the Siamese builders since the previous reign of Rama IV. However an extravagant mode of French classicism was also introduced twice at the beginning and the end of the reign. The mode appeared in the Chackri Mahaprasat Palace (62) and the Anantasmakom Palace (64) built in 1876 and 1908, respectively. The elaborate decoration of both palaces brought about immense cost of construction. Perhaps they were too expensive for an agricultural based country like Siam to afford a third one.

Another difference between Japan and Siam in the making of western style buildings in this period was the role of local people in the building process. The role of Siamese was limited for only the owner and the worker not the designer whereas Japanese role was a complete circuit. There was no realistic attempt to transfer the design duty to Siamese, unlike the “learning and transferring” system in Japan. The professional education for architects in Siam happened much later. Perhaps Siam still would like to maintain the condition of an agricultural country rather than an

(66) Modern technologies and materials were widely employed in the construction of large palaces from the beginning of the 20th century onward.



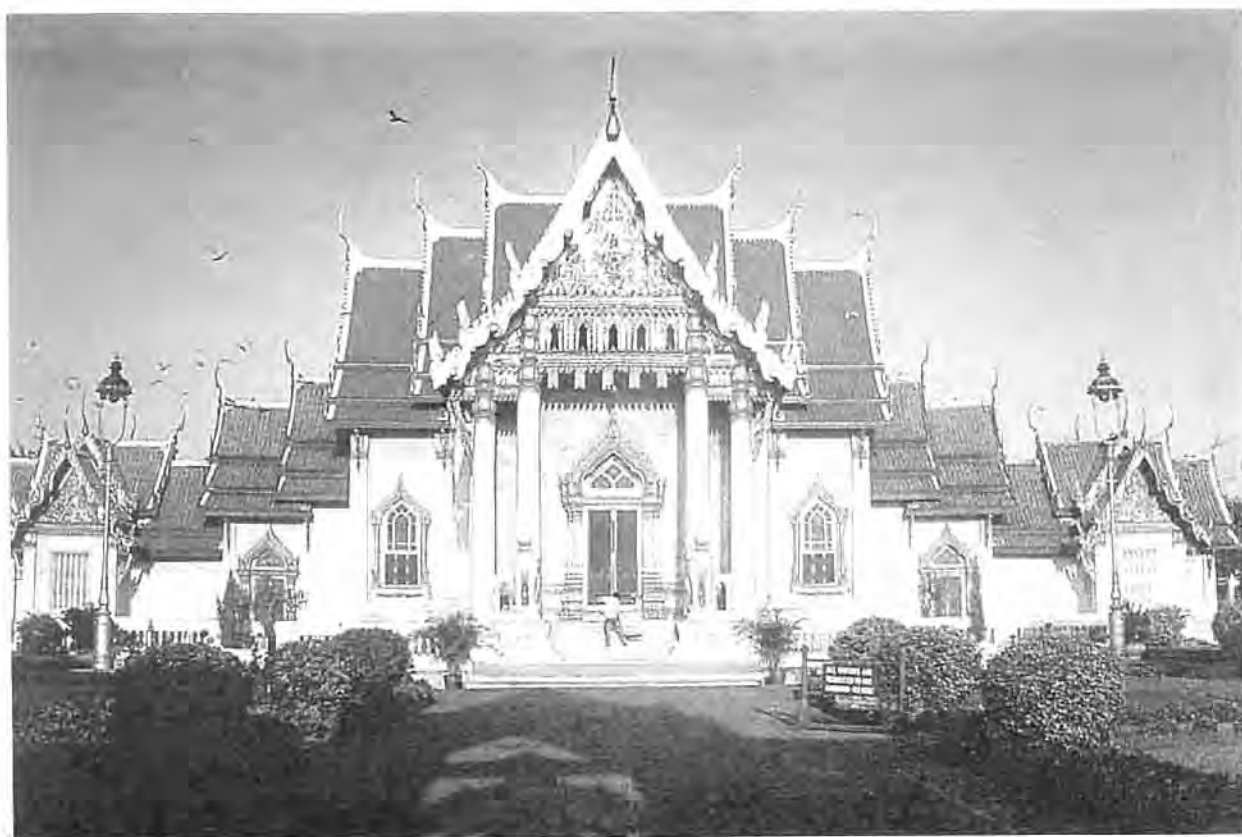
industrial country as Japan. Consequently a large quantity of buildings was not needed and development in advanced education was not accelerated.

Therefore western style buildings in this particular phase in Siam was very much an isolated monument to Siamese and its history of architecture. The creation of these buildings was largely commanded by foreigners with an imported idea. Thus inspiration of later generations influenced from these buildings has been quite slight. However their inherent architectural values as well as their values as evidences of great cultural changes have been always appreciated.

4) The Fourth phase

The final phase of development of western style buildings was the period of founding national identity through the modern culture. In this particular phase, which actually was a period within the third phase, modern culture was accepted and gradually gained popularity from the second half of the 19th century. However the thousand years long of traditional culture was not faded away. On

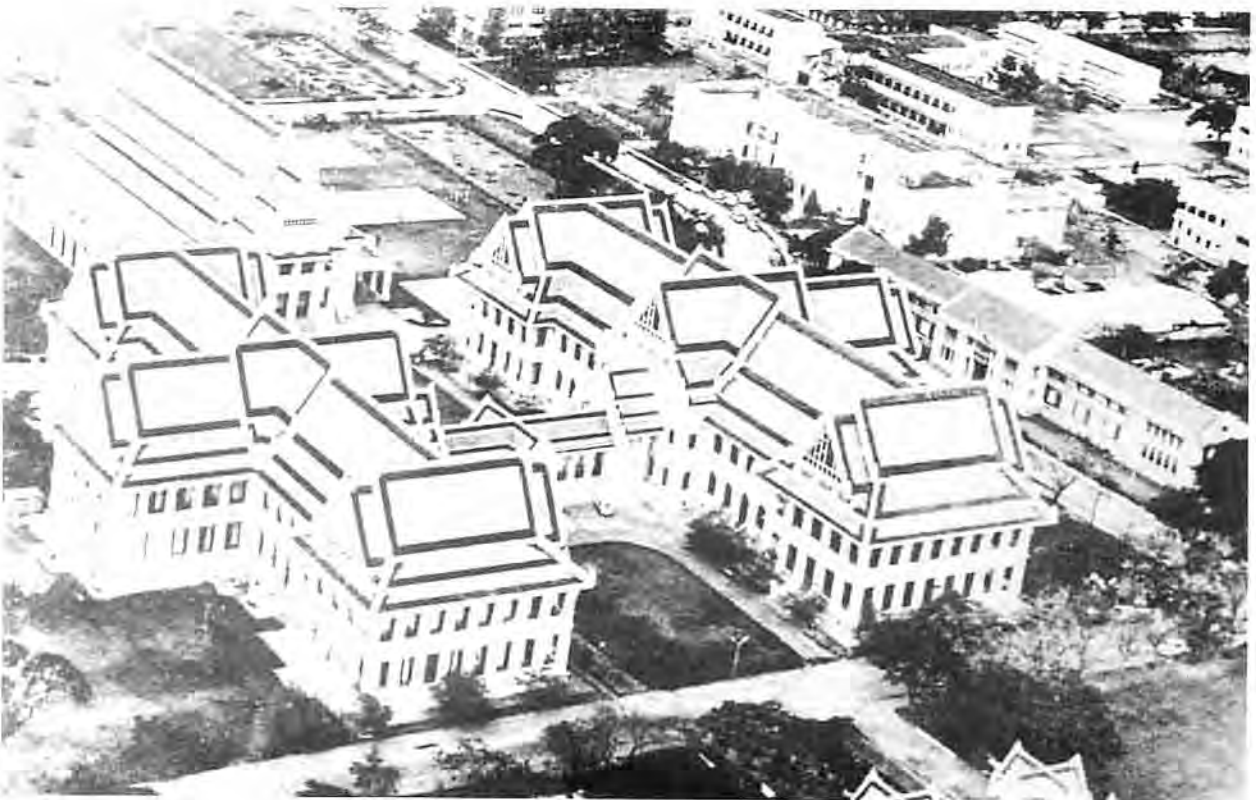
(67) Prince Narisaramwattiwong : The Marble Temple Bangkok, 1899. The traditional style was still exploited for Buddhism temples although the materials and construction were gradually changed to modern method.



the contrary the striving for seeking national identity through the modern and traditional culture happened both in Siam and Japan.

In Siam King Rama V was in favour with western style buildings as he built many royal palaces in the classical mode. The conservative reactions against western style buildings for nationally important buildings appeared as early as 1876 when the controversy on the appropriate character of the being built Chackri Mahaprasat Palace (62) was concluded by a hybrid solution seen in a French classical building crowned with Siamese multi-tiered pyramidal roofs. In religious buildings no debate on style was recorded. Traditional style had been always preserved for Buddhist temples. However at the beginning of this period, temples were built by modern technology, i.e., the reinforced concrete structure, for example Wat Benjamabopit (the White Marble Temple) (67) one of the most important temple in the reign of Rama V built in 1900. Another progressive example shown the attempt to create a modern building developed from the local sources, was the former Wachirayan Library in Bangkok (73) built in

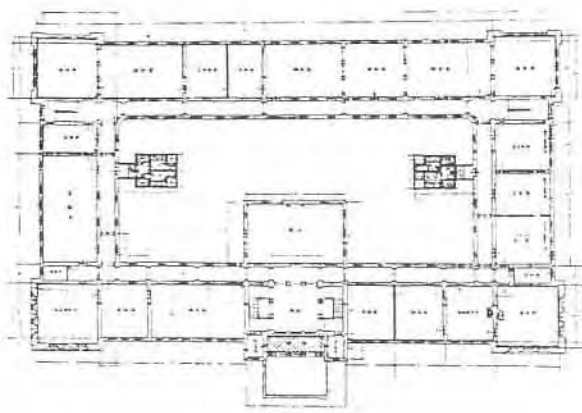
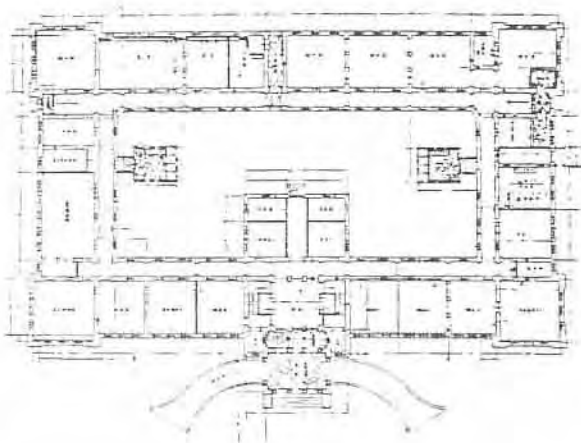
(68) E. Healey? : Faculty of Arts, Chulalongkorn University, Bangkok 1914-1920. A compound of modern planning building with the traditional style roofing.



1894, the building was embodied by a modified plan and form from Cambodian sactuary origin.

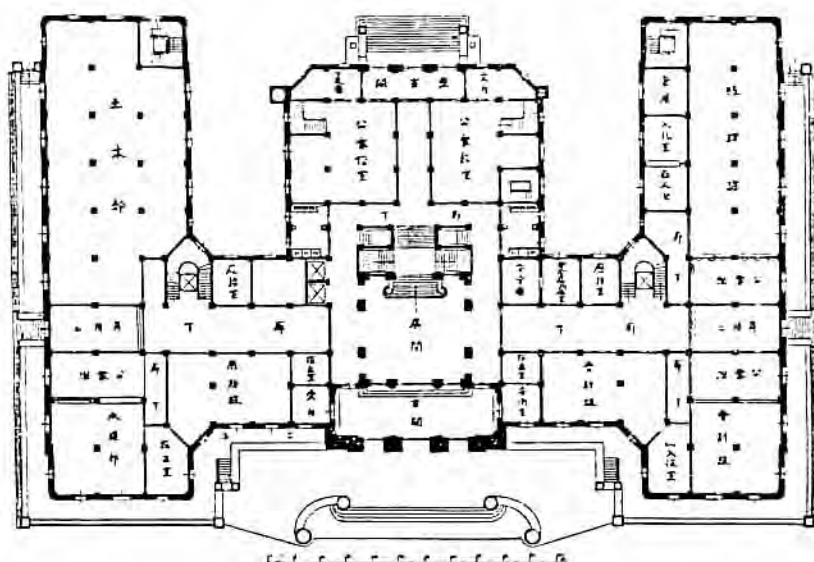
The much favourable in western style buildings of King Rama V might lead to a change in the successive reign of Rama VI (1910-1928). In this reign the development of nationalism effected architectural character substantially. A so called “Thai Style” building was fully established during this period. These buildings were usually embodied by a simplified rectangle or a cross plan crowned by multilevelled overlapping timber roofs. Important examples

(69) Goschi Takeda : Yamaguchi Prefectural Office, Yamaguchi, 1916. The single quadrangular court plan with the projected central pavilion recalled the pioneered plan type of those buildings in Meiji period (see figure no. 46)



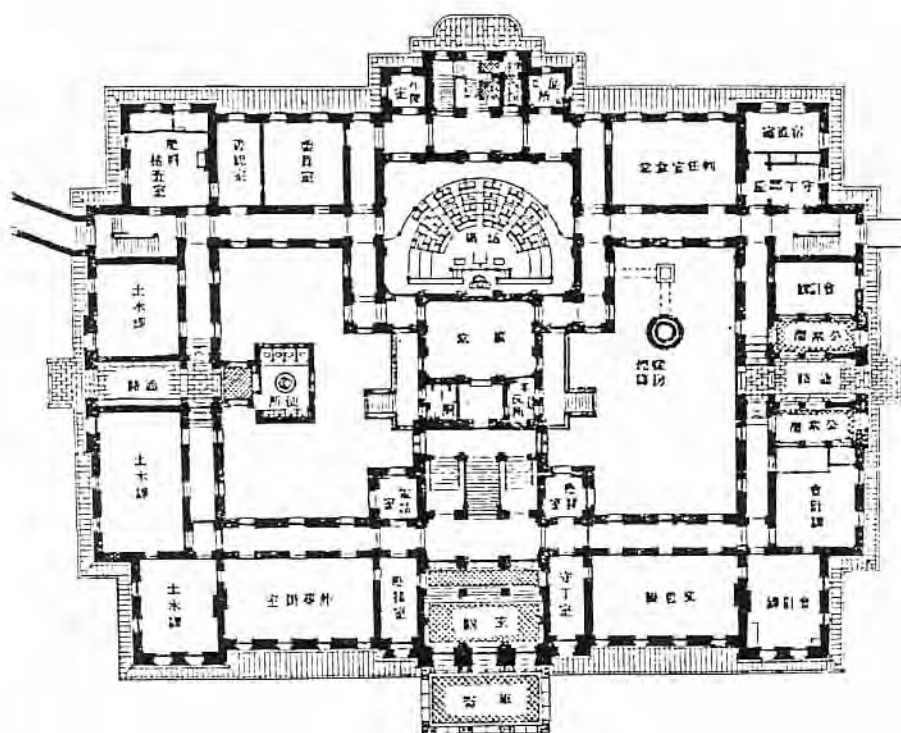
were Chulalongkorn University (75) and Vatchiravuth School (74) both built in 1917. Surprisingly the mode had been applied for governmental buildings for more than a half century later.

In Japan the persistence of traditional culture was perhaps stronger than that in Siam. Consequently the reaction against western style buildings was clearly revealed. The first modern building in the “traditional style” in Japan was the Nara Prefectural Office (46) built in 1895 only one year after the former Wachirayan Library in Bangkok. Both buildings employed the same method in representing each national content by distinctive traditional roofs. The



(70) Yusushi Kataoka / Osaka Municipal Office, Osaka, 1921. Although the central pavilion was emphasized by a tower, its plan still followed the original design of the Ministry of Justice. (see figure no. 20)

reason in creating this particular style for the Nara building was to make the new building harmonious to the physical forms of the old capital city of Nara. Nationalism initially driven by the victories over China and Russia in 1895 and 1905, respectively, was perhaps another important reason behind the making of national identity in architecture. The conferences organized twice by the Architectural Institute of Japan in 1910 on the theme “What Shall Our Future Architecture Be?” revealed the serious concern of Japanese



(71) Tokuma Katayama : Kanagawa Prefectural Office, Kanagawa, Yokohama, 1913.
The typical twin quadrangle plan was still persistent for large public buildings in Taisho period.

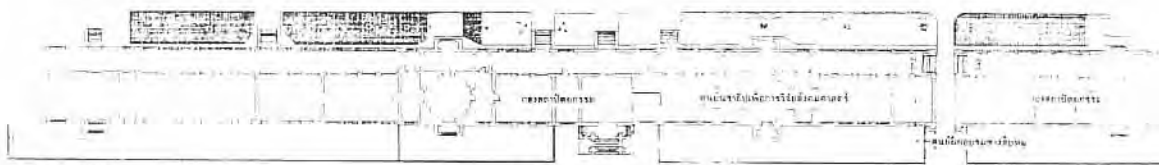
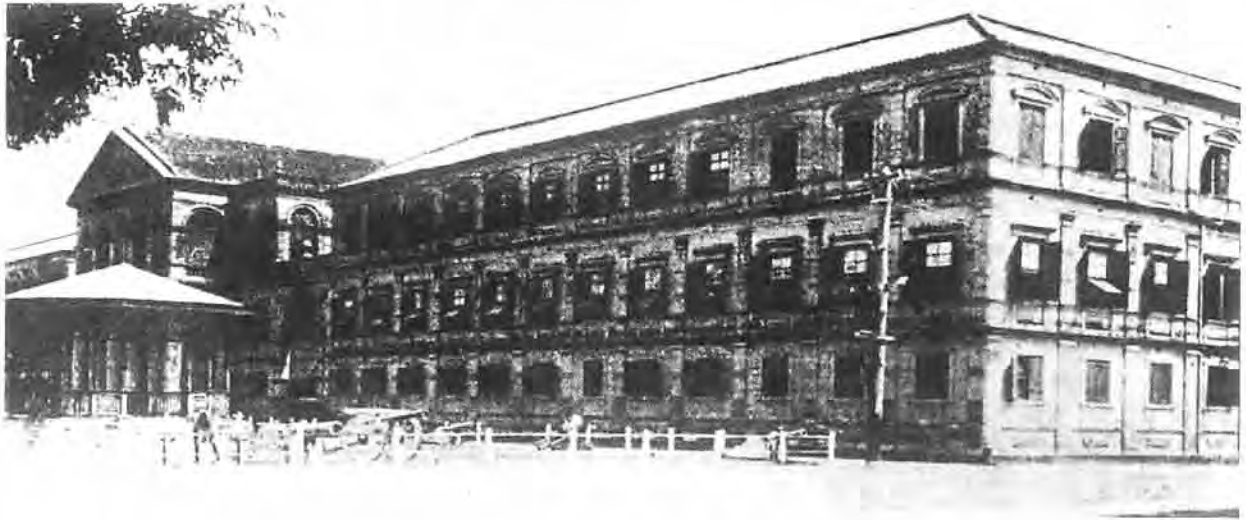
172 Ministry of Defence, Bangkok, 1881-1884

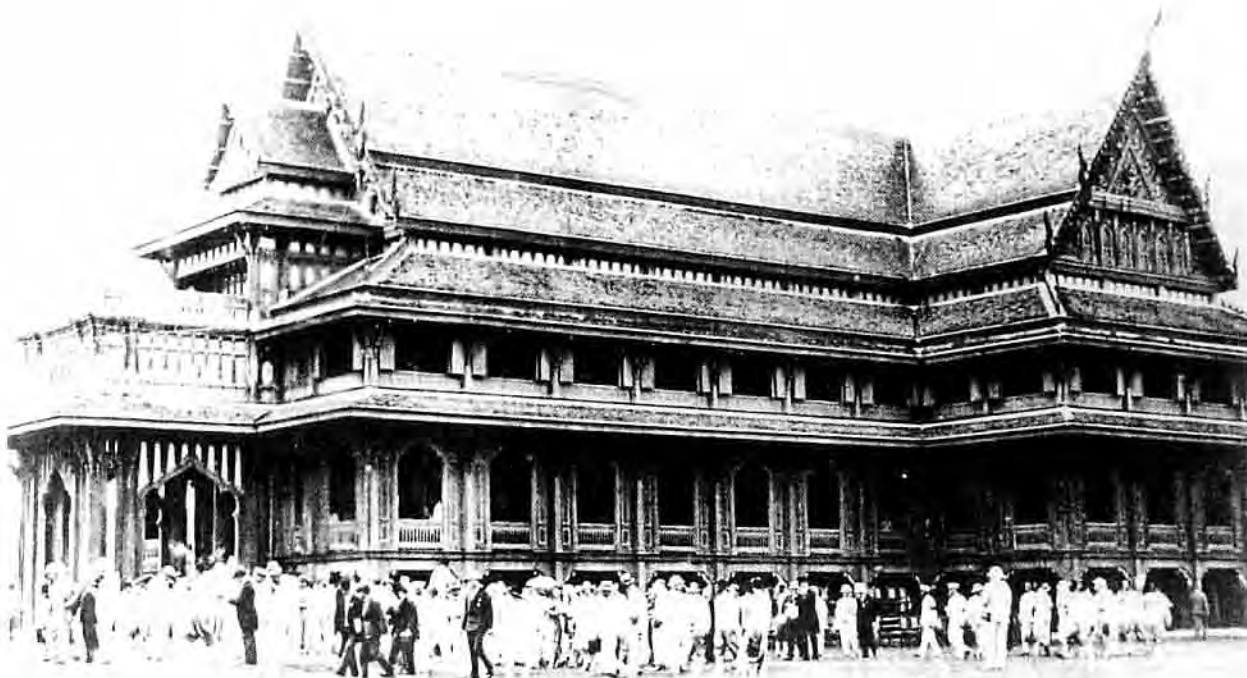
The emphasis was on classicism in the reign of Rama V perhaps because the style provided noble simplicity and its constructional technique was acquainted to Siamese builders since the former reign.

173 The former Wachirayan Library, Bangkok, 1894

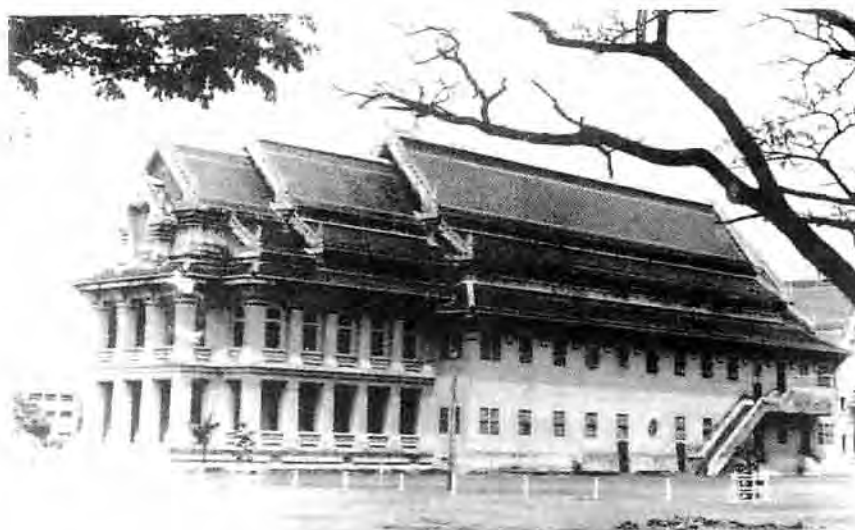
An example showed the early attempt to create a modern building developed from the local sources of culture.

architects for identity. However in practice, not much development on this traditional design was seen except the more frequent appearance of these buildings both in public and religious institutions from the Taisho period to the end of the Second World War. The later attempts to create modern Japanese architecture have been continued until today with ever changing ideas and architectural styles yet its initiative concept of the Meiji foundation has been constantly remained.





(74) Phraya Chindarangsan : The auditorium of Vachiravuth School, Bangkok, 1917. Another early example of modern building incorporated in the character of wooden Buddhism temple.



(75) Phra Phromphuchit : The auditorium of Chulalongkorn University, Bangkok, 1939. Although the roofs appeared to be traditional, the concrete construction and the planning increased some degrees of modernity to the building.

BIBLIOGRAPHY

Beamish, Jane and Ferguson, Jane. *A History of Singapore Architecture, The Making of a City*. Singapore, 1985.

The City Planning Institute of Japan (Ed.). *Centenary of Modern City Planning and Its Perspective*. Tokyo, 1988.

Chungsiriarak, Somchart. *Pranakorn Krir : A Conservation Study. An Unpublished Dissertation University of York, York, 1983.*

Chungsiriarak, Somchart. *The Works of Karl Siegfried Döhring, Architect*. Nakorn Prathom, 1997.

Finn, Dallas. *Conder Josiah (1852-1920)*, in *Kodansha Encyclopedia of Japan*, volumn I. Tokyo, 1983.

Fujimori, Terunobu. *Nihon-no-Kenchiku (Meiji Taisho Showa), West Meets East : The Japanese Introduction to Western Architecture in 19th and 20th Centuries*, volumn III, *Kokka-no-Dezain*. Tokyo, 1987.

Hanna, Lerski. "Conder Josiah", in *Placzek, Adolf K. (Ed.), Macmillan Encyclopedia of Architects*, volumn I. New York, 1982.

Hasegawa, Takashi. "Katayama Tokuma", in *Placzek, Adolf K. (Ed.), Macmillan Encyclopedia of Architects*, volumn II. New York, 1982.

Hasegawa, Akira. *Nihon-no-Kenchiku (Meiji Taisho Showa), West Meets East : The Japanese Introduction to Western Architecture in 19th and 20th Centuries*, volumn IV, *Gijido-Eno-Keihu*. Tokyo, 1987.

Hiroyasu, Fujioka. "A Report form Japan", *Museum*, no.167 (vol.XLII, no. 3), 1990.

Hiroyasu, Fujioka. "The Search for "Japanese Architecture" in the Modern Age", *The Japan Foundation Newsletter*, vol.XV/no.3, December, 1987.

Hitchcock, Henry-Russell. *Architecture Nineteenth and Twentieth Centuries*. Harmondsworth, 1963.

Inagaki, Eizo and Parent Mary Neighbour. "Chapter 36 Japan", in *Musgrove John (Ed.), Sir Banister Fletcher's A History of Architecture*. (19th ed.) London, 1989.

Jansen, B. Marius. *Meiji Restoration in Kodansha Encyclopedia of Japan*, volumn V. Tokyo, 1983.

Koshino, Takeshi. *Nihon-no-Kenchiku (Meiji Taisho Showa), West Meets East : The Japanese Introduction to Western Architecture in 19th and 20th centuries*, volumn I, Kaika-no-Katachi. Tokyo, 1987.

Maeno, Masaru. "Chronological Table of Japanese Architecture 1840-1945". International Editon of Shinkenchiku, The Japan Architect, no.109, June, 1965.

Meid, Michiko. *Europaische und Nordamerikanische Architektur in Japan*. Koln, 1977.

Muramatsu, Teijiuro. "Ventures into Western Architecture", in Yamada Chisaburo (Ed.), *Dialogue in Art : Japan and the West*. Tokyo and New York, 1976.

Muramatsu, Teijiuro. *Machi, Meiji Taisho Showa, Ehagaki-ni-Miru-Nihon Kindai Toshi-no-Ayumi, 1902-1941. (Townscape of Japan 1902-1941)*. Tokyo, 1980.

Muramatsu, Teijiuro. "The Course of Modern Japanese Architecture", International Edition of Shinkenchiku, The Japan Architect no.109, June, 1965.

Muramatsu, Teijiuro and Sekiya, Naomi. *Yoshiki Sozo-no-Kokoromi*, Tokyo, 1984.

Nihon Kenchiku Gakkai. *Nihon Kindai Kenchiku Soran*, Gihodo Shuppan, 1983.

Nihon Kenchiku Gakkai. *Soran Nihon-no-Kenchiku Di-San-Kan*, Tokyo, Shadanhojin. Tokyo, 1987.

Onogia, Shigekatsu. *Nihon-no-Kenchiku (Meiji Taisho Showa), West Meets East : The Japanese Introduction to Wester Architecture in 19th and 20th Centuries*, volumn II, Yoshiki-no-Ishizue. Tokyo, 1987.

Pevsner, Nikolaus. *A History of Building Types*. London, 1976.

Richards, J.M. "Missionary to Japan, An Exhumation of Josiah Conder", *The Architectural Review*, August, 1964.

Sakamoto, Katsuhiko. *Nihon-no-Kenchiku (Meiji Taisho Showa), West Meets East : The Japanese Introduction to Western Architecture in 19th and 20th Centuries*, volumn V, Shoto-no-Dezain. Tokyo, 1987.

Sata, Tomoko and Toshio, Watanabe. "The Aesthetic Dialogue Examined Japan and Britain 1850-1930", in Sata Tomoko and Toshio Watanabe (Ed.), *Japan and Britain An Aesthetic Dialogue 1850-1930*. London, 1991.

Schwantes, Robert S. "Foreign Employees in The Development of Japan", in Burks, Ardath W. (Ed.), *The Modernizers Overseas Students, Foreign Employees and Meiji Japan*. Boulder and London, 1985.

Shishido, Minoru and Others. *Kindai Kenchiku Guide Book (Kanto-Hen)*. Tokyo, 1986.

Silpakorn University, Faculty of Architecture. *Samudpap Sathapattayakam Krung Rattanakosin (The Architectural Pictures of Rattanakosin)*. Bangkok, 1982.

Stewart, David B. *The Making of A Modern Japanese Architecture, 1868 to the Present*. Tokyo and New York, 1987.

Summerson, John. *Architecture in Britain 1530-1830*. Harmondsworth, 1963.

Suzuki, Hiroyuki and Hatsuda, Tohru. *Zumen-de-Miru-Toshikenchiku-no-Meiji (Urban Architecture in Meiji, a Visual Anthology)*. Tokyo, 1990.

Suzuki, Hiroyuki and Hatsuda, Tohru. *Zumen-de-Miru-Toshikenchiku-no-Taisho (Urban Architecture in Taisho, a Visual Anthology)*. Tokyo, 1992.

Tokyo-to Kyoiku Inkai. *Tokyo-no-Kindai Yohu Kenchiku (Dai Niji)*. Tokyo-to Joho Renrakushitsu, 1991.

Watanabe, Hiroshi. *Tatsuno Kingo (1854-1919)*, in *Kodansha Encyclopedia of Japan*, volume VII. Tokyo, 1983.

Yamaguchi, Hiroshi. "Tatsuno Kingo", in Placzek, Adolf K. (Ed.), *Macmillan Encyclopedia of Architects*, volume IV. New York, 1982.

Yonemura, Ann. *Yokohama, Prints from 19th Century Japan*. Washington D.C., 1990.

Yoshiyuki, Kawahigashi. *Josaia Kondoru : Kenchiku Zumenshu (Josiah Conder : Collection of His Architectural Drawings)*. Tokyo, 1981.