

# **Constructing Changes: Seoul National University Hospital and China Medical Board Support, 1967-1978**

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# Introduction

On December 8, 1978, the completion of a new Seoul National University Hospital (SNUH) was announced.<sup>1</sup> SNUH was praised as “the largest hospital in Asia” with 1,056 beds in a 81,259m<sup>2</sup>, fourteen-story building. This project was considered one of largest architectural programs in Korea during the 1970s. Construction of the hospital took eleven years and cost US\$60 million in total, which was triple of the initial planning estimates.

Construction of SNUH illustrated changes in hospital architecture, from horizontal layout to vertical layout.<sup>2</sup> Since the completion of SNUH, Korean hospitals have massively increased their size. Major hospitals raced to expand their bed capacity, and the era of the “big 5” soon emerged. These hospitals in the Seoul metropolitan area are some of the largest hospitals in the world and now have over 2,705 beds.<sup>3</sup>

Also, the process of SNUH’s initial planning for the final architecture design highlights changes in Korea’s medical system and medical education during the 1960s and 1970s. During this pivotal period, the China Medical Board (CMB) provided support for the design and consultation of the hospital architecture throughout the project. The initial planning of the architectural work was ambitious, but the details and execution plans were still uncertain, as Korea did not have the proper expertise in organizing a massive hospital complex.

This paper analyzes the construction of SNUH during the 1960s and 1970s, in conjunction with the changing medical landscape in Korea, focusing on support from the China Medical Board. American influence in medical practice and education in Korea was significant, starting in the late 1950s.<sup>4</sup> Much research has focused on the early American influence on Korean medicine such as missionary activities or the Minnesota Project by the International Cooperation Administration.<sup>5</sup> Recently, more attention has been given to later support for Korean medicine from Western private philanthropies, such as the Rockefeller Foundation and the China Medical Board. This support laid the material foundation and research organization for contemporary Korean medicine.<sup>6</sup>

Buildings for SNUH and for the School of Medicine were largely supported by Western donors. The medical library, the multi-purpose laboratory, and the School of Public Health building, which are all still in use today, were funded entirely by the CMB.<sup>7</sup> Also, the main hospital building of SNUH was partly supported by CMB for its design and construction oversight. Analyzing the architecture of a medical complex can reveal the contemporary understanding and culture of medicine in a society.<sup>8</sup> Also, changes in building plans and differences in opinion between donors and recipients may shed light on different approaches to medicine in difference cultures.

# Korean Medical Education and Hospital Architecture during the Colonial Period, before 1945



Fig 1. Photo of Daehan Hospital (built in 1908), and SNUH (built in 1978) behind.<sup>9</sup>

In 1908, Daehan Hospital with 150 beds was built in Seoul, Korea. This building was the central governmental hospital, as well as the teaching institution for early modern medicine in Korea. Technical support was provided by the Japanese government, and most of the architectural features resembled Japanese

governmental building layout, especially that of Tokyo Imperial University.<sup>10</sup> As shown in Fig. 1, Daehan Hospital displays early 20<sup>th</sup>-century hospital architecture, with high ceilings and large windows to maximize the natural ventilation.<sup>11</sup> As a colonial government hospital, it was mainly used by Japanese residents. Between 1907 and 1924, clinical demands continued to grow as more Japanese migrated to the Korean peninsula, and a pavilion style ward was added to increase bed capacity to 368.<sup>12</sup> During the 1910s, each expanded ward was specialized for a specific field of medicine, such as infectious diseases and obstetrics. However, patients were also segregated by their social and financial status.<sup>13</sup>

In 1924, during the colonial period, Keijo Imperial University was established. This was one of six imperial universities in the empire and the only one on the Asian continent. Daehan Hospital was absorbed into the university teaching hospital to accommodate increased clinical education.<sup>14</sup> As the number of students grew, more admissions were required to meet the demands for teaching cases. Also, an increase in out-patients led to expansion of a separate out-patient clinic building.<sup>15</sup> In the 1930s, most of wards were in constant renovation and rebuilding due to both aging structures and an increase in clinical demands. An earlier single-story building was replaced by a two-story building, and all the wards were assigned to designated specialties, rather than differentiation based on patients' paying ability. This change reflected more specialization in medicine.<sup>16</sup>

## **Liberation and Rehabilitation of Seoul National University Hospital, 1945-1960s**

Although Korean students were able to enroll in Keijo University during the colonial period, usually over half of the students were Japanese. Also, all the faculty positions were Japanese-held and Korean were only allowed to fill positions as teaching or research assistants.<sup>17</sup> This left significant gaps in teaching and research ability after liberation in 1945. Soon after liberation, Keijo University was renamed Seoul National University and inherited most of its physical assets

from Keijo. Efforts ensued to secure teaching staff, standardize curriculum, and provide teaching and research materials. However, the subsequent Korean War from 1950 to 1953 left devastation. When SNU staff returned to Seoul, most of the buildings were emptied and many of the professors and students were either killed or went missing.<sup>18</sup>

Both the United Nations and the US government involved in the rehabilitation of Korea recognized a dire need for higher education to normalize the war-torn country. In October 1954, the “Seoul National University Cooperative Project,” or the so-called “Minnesota Project” (MP) was initiated.<sup>19</sup> MP was based on an exchange program between SNU and the University of Minnesota. This program was mainly focused on the Colleges of Medicine, Agriculture, and Engineering, as these areas were essential for sustainable development and changes in Korean society. From 1954 to 1961, MP cost US\$10 million for the exchange program, building rehabilitation, and equipment support.<sup>20</sup> As most of junior staff went to the United States for higher education, this marked a turning point for medical education in Korea. Before 1960, most of the doctors and university professors were trained according to Japanese medical curricula. With influence from the US, Korean medical education rapidly changed with a curriculum more suited for clinical education.<sup>21</sup>



ATTACHED HOSPITAL,  
SEOUL NATIONAL UNIVERSITY

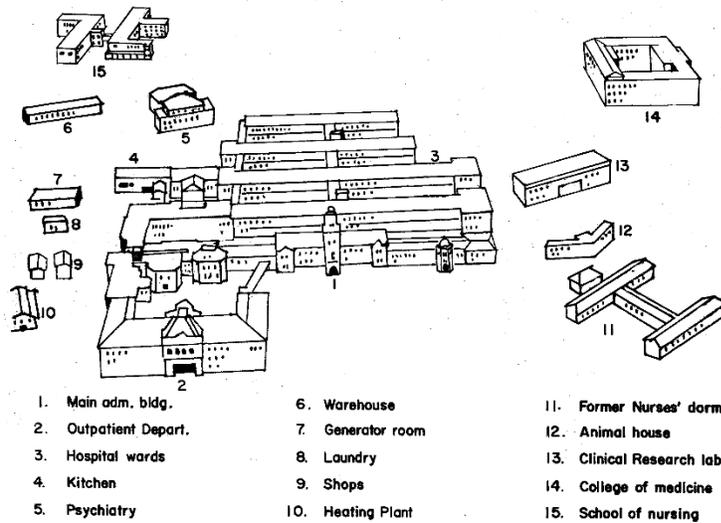


Fig 2. Seoul National University Hospital and School of Medicine in 1961. N.L. Gault (1961). Observation and Comments on the College of Medicine, Attached Hospital, School of Nursing, and School of Public Health, Seoul National University. Seoul, Korea. 54-55.

As most of the building was renovated or newly constructed during the 1930s and 1940s, the primarily concrete and brick structure was well maintained. However, the utilities and equipment were a major problem, as most of them had not been updated since the early 1940s. Also, more specialized facilities were now installed such as an emergency room and central supplies. During the Minnesota Project, the Korean and US governments provided matching funds for rehabilitation of SNUH. The obstetric ward and the pediatric ward were completed in 1956, and heating, water supply, corridors, and roadways were also renewed. A new water tank and two boilers resolved some of the issues with water and heating. This equipment cost US\$695,346.<sup>22</sup> With this support, advisors from MP tried to modernize both the hospital organization and administration. However, the hospital layout maintained its original pavilion style and stretched over an 88,000m<sup>2</sup> area.<sup>23</sup> This physical distance between the hospital, the school, and the research facilities caused limited integration between these essential functions of the teaching hospital. (Fig. 2)

## **Changing Medicine and Planning for the New SNUH, 1960s**

An “SNU Three Year Construction Plan of Seoul National University Hospital” was submitted to the China Medical Board on September 10, 1966. Initially, the plan was to construct a concrete building with thirteen stories and a basement, providing 49,000m<sup>2</sup> of space for 1200 bed. The first four floors were to be for outpatients and the rest were wards for admitted patients. For SNU, the most pressing concern was the lack of patients and facilities available for adequate teaching. Most advanced nations had at least ten beds per medical student, whereas SNU only provided 2~2.5 beds per student.<sup>24</sup> This realization about the importance of bedside teaching was directly related to the Americanization of Korean medical education after MP during the 1950s.

Changes in buildings came with changes in medical education. When the first phase of the Minnesota Project was completed in 1957, SNU initiated a revision

of curriculum.<sup>25</sup> Previous curricula came from Keijo Imperial University, dating back to the 1930s. Due to the lack of teaching staff and educational materials, most of the lecturers continued the tradition of didactic lectures rather than placing more emphasis on bedside teaching. Teaching was done from “teachers’ note to students’ notes.”<sup>26</sup>

The situation was rapidly transformed when many of the young faculty members returned from the exchange program in Minnesota. These young members of the teaching faculty were ready to embrace the change, and eager to apply their learning to teaching.<sup>27</sup> After completion of MP in 1961, SNU continued to seek outside support to enhance its clinical and educational capacity.<sup>28</sup> The China Medical Board was an ideal partner for this continuing support, as CMB had already worked with a number of partners in East Asia, and CMB had also provided grants for medical textbooks and journals for the SNU Medical Library, starting in 1953.<sup>29</sup>

With support of CMB, SNU continued to make curriculum changes and set new priorities in its medical education program. The new curriculum focused on bedside teaching and basic science. In 1966, there were only 523 beds operational at the hospital, but the admission rate was around 60%. This created a significant impediment for teaching capacity. With growing demands in medical care, the number of students in medicine and nursing was rapidly expanding.<sup>30</sup> The impact of MP was also notable on graduate medical education. Until the early 1950s, there was no standardized internship or residency program. Most of the graduate medical education was done as an apprenticeship with individual professors in compartmentalized departments.<sup>31</sup> As clinical rotations developed for third-year medical students and interns, resident training became standardized, and demands for clinical teaching and securing relevant patients surged.

By the 1960s, the existing hospital and wards that were built during the colonial period were now well over 60 years old. These buildings did not have adequate heating or water supplies, and during winters with extremely cold weather, patients had to be sent home for safety reasons.<sup>32</sup> Thus, the initial expansion plan was to increase the number of beds to at least 1,500 by conserving old wards and

building a new thirteen-story building.<sup>33</sup>

The proposed total budget for the three-year plan was 1,3000,000,000 won (US\$4,815,000).<sup>34</sup> A feasibility study and an initial design were done by a professor of architecture at SNU, Lee Kwang-no. He had extensive experience in large construction projects, but never with a hospital of this size. At the time of the initial planning, there was no expert in Korea who could manage the complexity of hospital construction. Dr. Neal Gault<sup>35</sup>, an advisor dispatched by CMB to SNU, suggested Edmund J. Whiting for this architectural advisory service.<sup>36</sup> A key issue was mechanical and electrical planning. They had to meet the need for newly installed equipment and facilities, but also anticipate for further expansion.<sup>37</sup>

The China Medical Board assigned the American architectural firm Whiting Associates International for expert consultation. Whiting Associates was an experienced architectural consultation firm and, in the past, had been involved in a number of Rockefeller Foundation and CMB medical facilities construction projects in Asia, including the Medical Center in Bangkok and the clinical diagnostic building at National Taiwan University.<sup>38</sup>

## **Constructing a Hospital in a Changing Landscape of Medicine, 1966-1979**

In April 1967, Whiting Associates submitted a review of the architectural program for SNUH. The initial planning from SNU put much of the focus on the clinical ability of the building, with large out-patient areas and an admission ward in the rest of the building. A large driveway and a foyer for the out-patient facility were highlighted in the initial design. (Fig. 3)



Fig 3. Original building plan from Lee Kwang-no.<sup>39</sup>

However, Whiting Associates International was more focused on “creative interrelationships” among the clinical departments, as well as among the clinical, educational, and research aspects of the hospital.<sup>40</sup> To enhance this relationship between the basic science and clinical departments, the firm suggested to have a centralized clinical research area in the hospital for both human and animals. It also recommended the inclusion of at least one nursing unit to be used entirely for special human research. Basic and clinical research in hospital would also serve as a valuable teaching asset. To integrate teaching into hospital function, Whiting recommended the installation of an auditorium with a seating capacity of 400 to 500. Also, a lecture room and a medical library in the hospital would further enhance the shared activities between the medical college and the hospital.<sup>41</sup>

During the first year of construction, it became evident that this massive project required careful monitoring, particularly since Korean contractors were not experienced with this kind of architectural program.<sup>42</sup> To coordinate continuously changing building plans, an experienced coordinator and consultant was required. Both CMB and SNU requested that Whiting Associates dispatch an on-site advisor.<sup>43</sup>

Ideally, the plan from Whiting Associates would conjoin multiple functions as a teaching hospital. However, the social and economic situation in Korea was changing rapidly. Income per capita rose from \$60 in early 1960s to \$2,000 in 1983, and the population increased from 25 million to 38 million in 1980. Rapid industrialization fueled urbanization which led to an increased number of patients in city hospitals. The population in Seoul was 2 million in 1959, but soon rose to 5.4 million by 1970, 7.25 million by 1976, and then 9.2 million by 1983.

The number of patients receiving care at SNUH grew from a total of 210,952 (admitted 83,252; outpatient 127,700) in 1961 to 326,425 (admitted 151,915; outpatient 174,510) in 1969, and 395,308 (admitted 159,373; outpatient 235,935) in 1977.<sup>44</sup> As demands for clinical care grew, it became clear that the original plan to incorporate research and educational facilities in the hospital was unrealistic. Also, national health insurance policy was to be adopted in 1977, which would greatly increase the clinical demands for tertiary hospitals.<sup>45</sup>

The initial plan was for an advisor to stay in Korea for the first two years of the project.<sup>46</sup> However, this was extended to almost ten years, as construction of SNUH continued to be delayed. A major reason for the delay was the lack of funding from the Korean government. The Korean government had not anticipated significant inflation due to rapid economic growth. As construction costs continued to increase, the government sought new loans from the Export–Import Bank of the United States in 1972. The loans were first granted by December 1975, and most of the construction was halted during that interim period.<sup>47</sup>

Another reason for delay were the continuous changes to the plan for the building. As mentioned above, clinical demand from society grew significantly during the 1970s. To meet the demand, the original plan to incorporate research and education functions into the main hospital building had to be adjusted. During the 1970s, with support of CMB, a new medical library and a multi-purpose laboratory were built. Also, a separate research and education building was established on the medical campus during the delay of the hospital construction.<sup>48</sup> Changes in planning also came partly from inter-departmental conflicts, as well

as from the evolving needs of SNU faculty. Even by 1971, ground floor plans to allocate department space were still underway.<sup>49</sup> As debates continued regarding allocation of departmental locations and space, floor plan continued to change. SNU sent its faculty to an overseas observation program to study hospital administration and architecture.<sup>50</sup> This also meant that electrical and mechanical design had to be changed in order to install the appropriate equipment for each department.

Although the construction project took almost triple the initial cost and double the construction time, SNUH was completed after eleven years and US\$60 million in total. While the initial plan was to keep the old wards from the colonial period to utilize all the beds possible, most of the old wards were demolished from 1978 to 1979 to build a more vertically-incorporated medical complex.<sup>51</sup>

## **Conclusion**

The new SNUH was the largest hospital construction project in Korea during the 1970s. China Medical Board's support for the initial planning of the building and its continued expert consultation were key to the success of the project as there was no local expertise. However, the original idea to incorporate clinic, education, and research into a main medical complex was discarded due to the rapidly changing medical environment of Korea. The School of Medicine had to seek alternatives to meet the educational demand for its student which translated into continued delays in the main SNUH construction effort. CMB supported the construction of a medical library and laboratory to relieve such pressure. However, a centralized clinical laboratory and supply system in the new SNUH invigorated clinical research for young faculty in the 1980s. The physical proximity of clinical and research facilities along with matching research grants created between SNU and CMB had further synergistic impact. Until the early 1980s, CMB remained the largest civil donor to SNUH. CMB renewed the contract of supervision from the University of Minnesota, so that changes made during MP could remain securely in place at SNUH.

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- <sup>27</sup> Lee W. J. (2006). 168-169.
- <sup>28</sup> Yeo I. S. (2015). 176.
- <sup>29</sup> After the Korean War, CMB supported all six medical colleges in Korea with medical textbooks and periodicals. This undoubtedly had great impact on early intellectual development of modern Korean medicine, as this was the period when legacy of Japanese and German medical education and research was fading and substituted with US influence. Jung H. S. & Yeo J. S. (2007). "A Study on the University and College Libraries under the Japanese Occupation of Korea." *Journal of Korean Library and Information Science Society*, 38(3), 406-407.
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- <sup>34</sup> Lee Chae Koo to Dr O. R. McCoy. Dec 6, 1966. Folder 63, Box 13, Series 2, Fellowships and Grants, China Medical Board, Inc. records, SG 1, Rockefeller Archive Center.
- <sup>35</sup> Dr Neal Gault was in SNU from 1959 to 1961 as senior advisor for Minnesota Project. Later SNU specifically asked CMB to send Dr. Gault as an advisor of their program.
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