The Rehabilitation of the Philippines' Bureau of Science Building in the Post-War Period, 1945-1958

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ABSTRACT

The Bureau of Science in Manila was the Philippines' foremost scientific research and development facility during the American occupation period. Its work toward attaining scientific progress in the fledgling nation screeched to a halt in the wake of World War II, which culminated in the destruction of the buildings housing the Bureau, taking with its demise some forty years' worth of invaluable scientific research, collections, and specimens. This paper aims to provide a comprehensive account of the events concerning the fate of the Bureau during the Battle of Manila and its post-war rehabilitation. Further, this paper posits that the Bureau's prewar structure, largely presumed by historians and literature to have been lost in the War, was not entirely destroyed and was in fact rehabilitated and rebuilt in the same site as the original. This newer structure showcased a simpler architectural style and was rebuilt under the supervision of prominent state architect Federico Ilustre. However, despite these rehabilitative efforts, circumstances surrounding the building's reconstruction in the post-colonial era contributed to the gradual erasure of the building's relevance and significance from the Filipino collective memory and cultural milieu, leaving its legacy in relative obscurity.

Keywords: Bureau of Science, World War II, science and technology in the Philippines, Federico Ilustre, collective memory

Established in 1905 as a reorganization of the colonial administration's Bureau of Government Laboratories, the Bureau of Science (BS) was initially situated in a two-storey T-shaped building located at the corner of Taft Avenue and Herran Street (present day Pedro Gil St.). This state-of-the-art edifice was planned by the Chief of the Bureau of Insular Architecture Edgar K. Bourne in a California Mission Revival style and housed a biological and chemical laboratory, a power plant, serum laboratory, and a library. Forming part of the building's well-recognized façade were two towers, which housed exhaust fans (Freer, 1905). The cost of the building's construction and the acquisition of its equipment amounted to $263,508.99 (Garcia, 2014). In the years that followed, several upgrades were made to the building. The power plant was enlarged in 1910 to supply the nearby Philippine General Hospital and the University of the Philippines College of Medicine and Surgery with steam and electric energy, and a new fireproof building (the East Wing) was added in 1911 to accommodate the growing number of researchers using the premises (Cox, 1918). The building's West Wing was constructed in 1930 (Davis, 1931).

Part of the Bureau of Science's buildings was allotted for the use of the Philippine Library and Museum in 1916, which became the National Museum of the Philippine Islands in 1928. Both of these were successor entities of the Bureau's Division of Ethnology, which was established in 1905. In 1933, the National Museum was broken up, with the Division of Fine Arts and History going to the National Library housed in the Legislative Building at Padre Burgos St., while the rest went to the Bureau of Science as its Museum Division. In 1939, the division

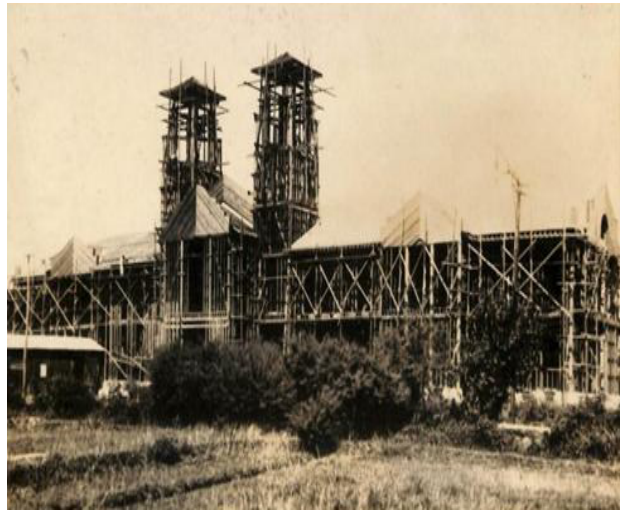

Figure 1. The Bureau of Science building under construction, ca. 1904. Photo courtesy of the National Library of the Philippines.

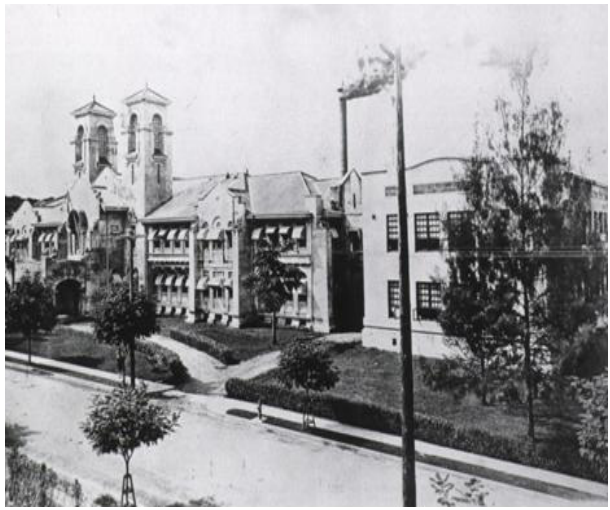

Figure 2. The main building of the Bureau of Science, circa 1911. Photo courtesy of the US National Library of Medicine.

was renamed the Natural History Museum Division and was placed under the Department of Agriculture and Commerce, but its premises remained with the Bureau of Science (Hartendorp, 1958).

War and Destruction

For the next four decades since its inception, the Bureau delved in medical, biological, chemical, geological, and ethnological studies, and gained a reputation for being one of the premier research facilities in the colony and in the region. The Bureau was also at the helm of the scientific periodical *Philippine Journal of Science*, which it published quarterly continuously from 1906 up until the onset of World War II, with its last prewar issue being published in November 1941. During the Japanese occupation, scientific activity in the country was effectively halted. Professor Shinkishi Hatai, a zoologist from the Sendai Imperial University, was sent to the Philippines with a rank of major general to supervise scientific work. However, the Japanese regime interfered with the financing of various scientific institutions, leading to the stagnation of scientific output during the period (Gressitt, 1945). Since its last November 1941 issue, the *Philippine Journal of Science* was only able to produce a single issue, released in August 1944, throughout the whole period of the Japanese occupation.

Scientific work at the time was limited to the research, development, and production of basic necessities like soap and coconut oil, as well as substitutes for in-demand medications. An example of the latter would be

the development of a native substitute to quinine, which was used extensively to curb malaria that spread from returning soldiers from Bataan and Corregidor (UNESCO, 1970). However, whether these activities were funded by the Bureau itself cannot be ascertained with certainty, since budgetary data from the post-war period did not indicate appropriations for the Bureau from 1942 to 1944 (Hartendorp, 1958). Nevertheless, President Jose Laurel, in a meeting with scientists from the Bureau of Science, once expressed his wish to form a committee of Bureau scientists to tackle the problem of medicine scarcity in the Philippines, presumably with Bureau resources (Laurel, 1943).

Towards the end of the war, the Bureau of Science building was caught in the Battle of Manila, one of the fiercest battles fought in the Pacific theater. From February to March, 1945, Manila became the site of intense skirmishes and civilian massacres. Structural damage was more pronounced in buildings located to the south of the Pasig River, and the Bureau of Science building was not spared. Aiming to defend their positions against advancing American lines, the Japanese fortified most buildings in the University of the Philippines and Philippine General Hospital complex from Herran Street to Padre Faura Street. The American 149th Infantry "found that the Japanese had so arranged their defenses that crossfires covered all approaches to the hospital and university buildings" (Smith, 1963). Machine guns were placed along building foundations, ground floor positions have been sandbagged, and riflemen and machine gunners took advantage of good vantage points offered by windows from the buildings' upper floors. The Bureau of Science building had been fortified by the Japanese, cementing most windows and doors, leaving only narrow shooting slits in their place. These slits were where the American 2nd Battalion, 148th Infantry unleashed their flamethrowers during their assault on the building on the 17th of February, 1945, burning the Japanese encamped inside. Around 28 dead Japanese were found inside the building afterwards (Aluit, 1995).

On the same day, the Americans were able to reclaim the Nurses' Home in PGH and the Bureau of Science buildings, both of which were among the last Japanese strongholds in the area. The UP-PGH complex was finally cleared of the Japanese on the night of February 19, when the 5th Cavalry used an 8-foot wall connecting the UP College of Medicine and the Bureau of Science building to storm the former with bazookas and flamethrowers.

Around 150 Japanese were killed in the College of Medicine during this siege, and other university buildings to the north of PGH that have not been totally cleared were finally claimed by the Americans (Smith, 1963).

Figure 3. From L-R, the ruins of the UP Institute of Hygiene, the West Wing of the Bureau of Science, and the Bureau of Science main building. Courtesy of Mr. John Tewell on Flickr.

Exactly two weeks after seizing the Bureau of Science building, on March 3, the Allied forces were able to liberate Manila from the Imperial Japanese Army. The Bureau's building, however, was already reduced to ruins. Contemporary accounts during the time reported that the Bureau's buildings "have been utterly destroyed in the fighting for that city; the whole structure has gone" (Destruction of Scientific Institutes in the Philippines, 1945) and that "two of the three buildings of the Bureau of Science collapsed, and the third was gutted but may be repaired" (Gressitt, 1945). These accounts lamented the loss of irreparable scientific collections and the

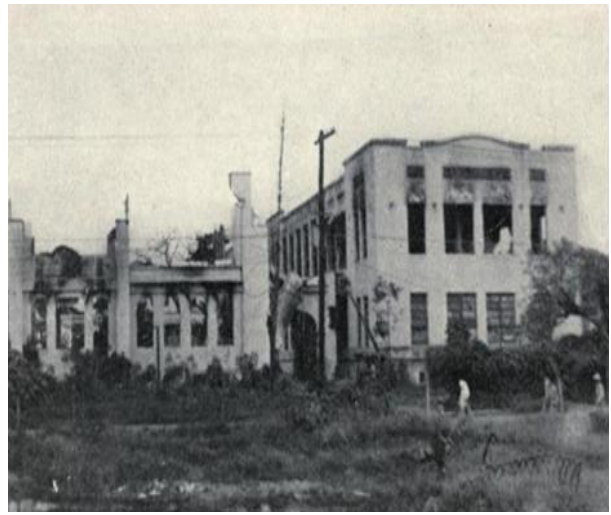

Figure 4. The ruins of the Bureau of Science's main building and East Wing in 1946 (from Hoogstral, 1951).

Bureau's library, which was home to 300,000 volumes of material (Hartendorp, 1958). Of special note was the loss of the Bureau of Science's herbarium, which contained 305,367 specimens, and was described to be a "botanical library second to none in Asia" (Santos, 1984; Destruction of Scientific Institutes in the Philippines, 1945). At the 56th Annual Meeting of the Association of American Medical Colleges in Pittsburgh on October 1945, Dr. Arturo Rotor recounted how "the scientific plant that we had laboriously built up for years and years was lost in a few nights of ruthless pillage and destruction; and our scientific program was set back at least 30 years" (Rotor & Dy, 1945). This huge loss of the Bureau of Science's buildings and facilities can be attributed to how most of the buildings in the block between Herran and Padre Faura Streets were subjected to burning, both by the Japanese and the Americans. Only a single room in the Bureau of Science remained unscathed. This room contained some old publications of the Bureau, which were mostly special publications and ten-year indices of the *Philippine Journal of Science* (Gressitt, 1945). The total loss was estimated to be worth $2,000,000 (Hartendorp, 1958).

Rebuilding After the War

In the years that followed, the Bureau struggled to rebuild both its offices and manpower. Dr. Angel Arguelles, appointed in 1934, remained as the Bureau's Director. Of the original 50 or so specialists affiliated with the Bureau of Science before the war, about half were able to immediately return to their work in the Bureau despite not having equipment and facilities at their disposal (Gressitt, 1945). Some scientists affiliated with the Bureau have also died during the war: zoologist Dr. Hilario Roxas, chief of the Bureau's Division of Fisheries, died of natural causes; while the following were killed by the Japanese or died as a result of the war itself: parasitologists Dr. Candido Africa from the Institute of Hygiene and Dr. Lamberto Leiva of the UP College of Medicine, zoologist Dr. Miguel Manresa of the UP College of Agriculture in Los Baños, chemist Dr. Salvador del Mundo, and botanist Dr. Jose Juliano of the Natural History Museum (Gressitt, 1945). Dr. Leopoldo Uichanco, entomologist and Dean of the UP College of Agriculture, narrowly escaped death during the war. He was incarcerated, tortured, and sentenced to death in 1943 for supporting guerrillas and hiding Americans and firearms, but he was pardoned and dismissed from his job after ranking Filipino collaborators intervened (Bernardo, 2007). He was reinstated as the Dean of the UP College of Agriculture after the war and remained in the position until 1959.

The Bureau of Science formally reopened in July 1945. Research work on a variety of subjects, e.g. antihelminthic properties of local plants, printer ink production from copra, and industrial plans for totaquina and derris dehydration units, were undertaken with the help of various US Army units (Aluit, 1995). By 1947, publication of the *Philippine Journal of Science* had resumed, releasing two issues in May and August of that year. On October 4, 1947, President Manuel Roxas signed Executive Order No. 94, which recreated the National Museum and renamed the Bureau of Science into the Institute of Science (Roxas, 1947). He placed both agencies and their functions under the Office of the President. Dr. Eduardo Quisumbing, the head of the Bureau of Science's Division of Botany and Natural History Museum Division since 1934, was appointed as the National Museum's Director.[1]

Reorganization and Financial Challenges

The immediate post-war years saw the absorption of the former Bureau of Science's pure scientific endeavors by the National Museum. Some PhP74,610 was appropriated for the Museum in 1947, and from 1948 to 1957, the Museum received a yearly budget of around PhP94,100. Pure and basic scientific research by the Institute's scientists had to share this meager budget with the efforts to rebuild the Museum's collection, which had been mostly destroyed during the war. This included the repatriation of duplicate specimens and collections that the Bureau of Science sent out to foreign museums and herbariums during the prewar period, including some 76,983 preserved botanical specimens (Santos, 1984).

Since the National Museum took charge of pure scientific research[2], the Institute of Science, on the other hand, dabbled more on industrial and applied scientific research[3], as mandated by EO No. 94. This focus became more pronounced with the issuance of Executive Order No. 392 by President Elpidio Quirino in 1950, which reorganized the Institute of Science by placing it under the Office of Economic Coordination and renaming it as the Institute of Science and Technology (IST) (Quirino, 1950). Despite this move, which positioned the agency into a purely industrial research output-based scientific institution (which was criticized as being merely complementary to the work of other government agencies), the IST reeled from budget cuts that year and in 1951. Table 1 shows the appropriations made by the government to the Institute of Science and Technology (formerly the Bureau of Science) from

1930 to 1958, as detailed in A.V.H. Hartendorp's 1958 article in the *American Chamber of Commerce Journal*.

Table 1. Budget appropriations for the Institute of Science and Technology (formerly the Bureau of Science) from 1930 to 1958.

Year	Budget (in PhP)	Year	Budget (in PhP)
1930	754,420	1945	264,292
1931	735,911	1946	256,292
1932	673,891	1947	326,670
1933[a]	369,025	1948	555,250
1934	337,026	1949	555,250
1935[b]	550,119	1950	448,080
1936[c]	461,413	1951	465,340
1937	350,225	1952	551,860
1938	567,493	1953	551,860
Jan-Jun 1939[d]	254,483	1954	551,860
Jul 1939-Jun 1940[e]	317,430	1955	651,860
Jul 1940-1941	287,599	1956	954,755
1942-1944	---	1957	1,055,000

[a] The Divisions of Fisheries, Zoology, Publications, and the Library were transferred to the Department of Agriculture and Commerce.

[b] Transferred divisions were returned to the Bureau of Science.

[c] The following entities were transferred to other agencies: Biological Products and Alabang Power Plant, Pasteur Treatment, Cebu and Iloilo Laboratories, Home Economics Division, Nutrition Laboratory, Division of Mines, and the Tiki-tiki Plant.

[d] The Division of Soils Survey (which became the Bureau of Soils) was transferred to the Department of Agriculture and Commerce.

[e] The Natural History Museum Division (which became the National Museum) was transferred to the Department of Agriculture and Commerce.

Seemingly wanting to offset these budget cuts in 1950 and 1951, President Quirino signed in 1952 Republic Act No. 770, which established the Science Foundation of the Philippines, a public corporation which was tasked to "initiate, promote, stimulate, solicit, encourage, and support basic applied scientific research in the mathematical, physical, medical, biological, engineering and other sciences, by means of grants, loans, and other forms of assistance to qualified persons and institutions" (Congress of the Philippines, 1952). Through this foundation, scholarships, graduate fellowships, and financial aid for scientific clubs and organizations were awarded using donations from the private sector. Thus, it was not provided annual appropriation of funds from the government. The establishment of this foundation, however, did not bring about a significant impact on the dwindling funding for scientific activity in the country. By 1957, only P32,000 had been donated to the foundation (Hartendorp, 1958).

The budget for the Institute of Science and Technology improved during the second fiscal year of President Ramon Magsaysay, who considered science and research to be an important basis for social and economic development. In his third State of the Nation Address, President Magsaysay quipped that "the decreasing emphasis on the natural and physical sciences runs counter to the rapidly developing era of electronics and atomics," and that "if we are to participate fully in the blessings of science, we must recast our educational system to train more engineers and scientists" (Magsaysay, 1956).

The National Science Board (NSB) was formed shortly thereafter through Republic Act No. 1606, and the IST was placed under its supervision after being renamed as the National Scientific and Industrial Research Institute (NSIRI). Under RA 1606, an amount of PhP100,000 was suggested for the repair of the library wing of the NSIRI building, with an additional PhP500,000 for the purchase of volumes and material to replace the Scientific Library collection of the Bureau of Science, which was lost during the war. After a decade of poor funding and numerous attempts at reorganization, the agency finally received its highest budget in 25 years in 1956, with its funding surpassing the PhP1 million mark in 1957.

In 1958, the Philippine Congress enacted Republic Act No. 2067, or the "Science Act of 1958," which reconstituted the NSB into the National Science Development Board (NSDB), which was tasked to coordinate, promote, develop, and basically oversee all scientific activity in the country. NSIRI was renamed into the National Institute of Science and Technology (NIST) and was placed under the NSDB. At the time, the NIST was organized into having the following subunits: the Administrative Division, Division of Industrial Technology, Division of Chemical Research, Division of Engineering Research, Division of Tests and Standards, Division of Biological Research, Division of Food Technology, Scientific Library Division, Aircraft Research and Development Unit, Budget and Accounting Unit, and the Technical Information and Publications Unit. The wide range of scientific fields under the helm of the NIST showed that after almost a decade and a half from the war, its research output had somehow picked up despite being dogged by budget cuts and frequent attempts at bureaucratic reorganization.

Post-war Status of the Bureau of Science Building

Despite having the Bureau of Science's post-war institutional history relatively well documented, documentary evidence relating to the fate of its prewar building and premises have been scarce. One of the most popular narratives regarding the fate of the building was that it was entirely destroyed in the Battle of Manila and was never rebuilt. As a result, the once magnificent edifice was considered to be permanently lost to time and history, and this narrative has persisted to the present (Alcazaren, 2005; Filipinas Heritage Library, 2015). Few sources and accounts, however, would acknowledge that where the building used to stand, now stood buildings of the University of the Philippines Manila campus (Garcia, 2014), with some going further and correctly specifying that the UP National Institutes of Health (NIH) building currently stands on the site (Nisola, 2015; Batongbakal, 2015). Despite this, historical sources and references indicating that the current edifice is actually a reincarnation of the original Bureau of Science building remain to be obscure and almost nonexistent. The author was only able to find one article directly connecting the Bureau of Science with the UP NIH, where it was mentioned that the UP NIH, upon its founding in 1996, moved into the "old, antiquated building of the Bureau of Science" (Villamor, 2017).

The persistence of contradicting accounts as to the fate of the Bureau of Science building after the War can be explained by the following: 1) the major destruction it suffered from the Battle of Manila and the subsequent reportage on it that followed; 2) the decade-long gap between the liberation of Manila and the Bureau building's reconstruction; and 3.) the significantly different architectural style used in the building's reconstruction in the 1950s, all of which led to the gradual erasure of the structure's relevance and significance from the Filipino collective memory and cultural milieu. Contemporary reports that the building suffered "total destruction" (Merrill, 1945), that "the whole structure has gone" (Destruction of Scientific Institutes in the Philippines, 1945), and that from the original three buildings, only one remained reparable (Gressitt, 1945) helped solidify the historical narrative that the building has been, for most of the part, destroyed, together with its contents. However, the decade of dismal state funding that followed, which held back efforts to rehabilitate the Bureau and its premises, arguably dealt a bigger blow to how the public and academic narrative on the post-war fate of the Bureau of Science building would be shaped.

The budget appropriated for the Bureau of Science and its successor entity, the Institute of Science, in the first two fiscal years after the war averaged at PhP260,292. It should be noted that relatively, this was meager compared to its average pre-war budget, considering that the Bureau's facilities and collections have been almost wiped out, increasing the needed money for the Bureau's survival and upkeep. Also, the Philippine peso has devalued to approximately PhP1 = $0.50 by this time, so maintaining the amount of post-war appropriations at prewar levels proved to be unsatisfactory. The Philippine government, however, could not be entirely faulted for this measly appropriation, since the 1945-1946 budget was intentionally repurposed to be a reproduction of the 1942 General Appropriations Act to encourage the return of former government employees by having it contain the same plantilla items that were present in 1942. Furthermore, revenue collection was "meager and far from sufficient to meet the necessary expenses of the Government for urgent and essential services" (Osmeña, 1945), hence the budget cuts for government agencies which were considered non-essential.

By 1947, the budget for the Institute of Science increased, perhaps as a result of the Roxas administration's attempt at reorganizing government

agencies to streamline funding; in the context of the country's scientific activity, the government aimed to reduce the duplication of scientific research activities (Roxas, 1947). Despite this increase, however, no appropriations were made for the rehabilitation of the Bureau building and its facilities in the 1947 budget. Much of the PhP326,670 allotted for the Institute went to plantilla items, while a PhP100,000 portion of this budget was set aside "for scientific research to be expended upon recommendation of the Board of Regents of the Institute of Science and approved by the President" (Roxas, 1947).

Up until 1948, no specific appropriations through executive issuances or legislation, in the form of general appropriation acts and public works acts, were made for the rehabilitation and reconstruction of what remained of the Bureau of Science facilities in Manila. Hence, it was not clear whether the Bureau used other nearby usable buildings or facilities as was customary at the time; several buildings of the Philippine General Hospital were used as temporary classrooms by students from the University of the Philippines as reconstruction projects of university buildings were underway. However, it was noted that the National Museum had been occupying and operating at the partially repaired buildings of the old Bureau of Science in as early as 1948, sharing its premises with the Institute of Science (Tolentino, 1948). Art exhibitions and surviving collections were put on display by then, with the Museum eventually accommodating some 4,800 visitors by 1950 (Aquino, 1951). The Museum's Divisions of Anthropology, Archeology, and Ethnography occupied the first floor of the IS building, while the Director's Office, administrative offices, and the Divisions of Botany, Geology, Ornithology, and Ichthyology occupied the second floor of the IS building's West Wing, which housed the Bureau of Mines (Cruz-Araneta, 2020). It was during this time that its Director, Dr. Eduardo Quisumbing, rebuilt the Philippine National Herbarium and other museum collections from scratch.

With the abolition of Congress during Martial Law in 1972, the National Museum was given the second floor of the Legislative Building (then named "Executive House"), with the old House Session Hall being converted into the Museum's main art gallery (PCDSPO, 2012). Despite this, some of the Museum's divisions remained at the IS building during this time up until 1996, when the Museum remained as the sole occupant of the old Legislative Building, and the remaining divisions subsequently moved in. The transfer of the Museum's collections to its present location at the National

Museum Complex (consisting of the old Legislative Building, Department of Agriculture Building, and Department of Finance Building) would not be institutionalized until 1998, when RA 8492, or the "National Museum Act of 1998," was passed into law. This made the building complex the National Museum's permanent exclusive home, ending decades of bureaucratic reorganizations, relocations, and separation of the Museum's divisions.

Figure 5. (L) Part of the National Museum housed at the post-war Bureau of Mines building, which occupied the West Wing of the former Bureau of Science building. Photo courtesy of the National Library of the Philippines. (R) Today, this building is occupied by classrooms of the UP College of Medicine and is named the Dr. Maria Paz Mendoza-Guazon Memorial Medical Building. Photo courtesy of the author.

By 1949, the Institute of Science had been operating at the old Bureau site and building. In the *Philippine Journal of Science*'s Volume 78, Issue 1, its associate editor Dr. Eduardo Quisumbing listed the Institute's address as "Taft Ave. and Herran Street, Manila" – the same corner lot used by the Bureau of Science before the war (Arguelles & Quisumbing, 1949). This was also the same address listed for the Institute in the 1950 Philippine government manual (Malacañan Office of Public Information, 1950).

Full reconstruction and rehabilitation of the old Bureau building, however, had not been possible at this point. Most reconstructions for national government buildings damaged in the war had been relying on funding from the United States Philippine War Damage Commission, and the IS failed to get funding from the agency. Despite its important role in academic, scientific, and industrial advancement, the rehabilitation of the former Bureau of Science building was not immediately prioritized, since schools, hospitals, and dispensaries were given priority over national government buildings (United

States Philippine War Damage Commission, 1950). Moreover, reconstruction efforts had been stalled due to the government's indecision on whether the new Bureau of Science building should stay at its old site or be rebuilt somewhere else (Hartendorp, 1958).

A 1948 memorandum from the War Damage Commission proposed the reallocation of $8 million from the funds to be used for the National Capitol Building to other government building reconstruction projects, one of which was the Bureau of Science building (United States Philippine War Damage Commission, 1948). This, however, did not push through. This prompted Special Adviser to the Commission Richard Herd to write to Commission Chairman Frank Waring on December 29, 1949 to ask for an additional $1,000,000 allocation for the rehabilitation of the Bureau of Science building and its facilities (United States Philippine War Damage Commission, 1949).

Since public property claims made under the War Damage Commission had to be accomplished before the Commission ceased its function on June 30, 1950, time was of the essence to have this $1 million allocation approved. Under the initial conditions set by the Philippine Rehabilitation Act of 1946, the US government would only remit to "the Philippine Government the money awarded to specific projects, only as their progress and completion were verified by representatives of the Commission" (Schein, 1951). Hence, if a public property project was not completed by the cessation of the Commission's functions, then the awarded money for this project would revert back to the United States Treasury. With these provisions, the Philippine government would have had to prefinance the projects, only to be reimbursed by the US government upon completion. However, this was found to be impractical due to the prevailing financial conditions in the Philippines at the time, so liberal award and payment policies were adopted. These included partial prepayments from the US government for claims worth over $5,000, and full prepayments for claims worth less than $5,000 (United States Philippine War Damage Commission, 1950).

By October 12, 1950, the less than $8,120,000 that remained to be paid as final payments on completed projects was disbursed to the Philippine government. This allowed the completion of all public property projects whose claims were awarded by the War Damage Commission before it ceased operations (United States Philippine War Damage Commission, 1951). Bronze

plaques, which bore the inscription, "Rebuilt with the Aid of the People of the United States of America under the Philippine Rehabilitation Act of 1946," were installed at the façade of major public projects reconstructed using US aid. Among the prewar government buildings along Herran St. that were reconstructed in the post-war period (e.g., the UP College of Medicine, UP College of Pharmacy, and the UP Institute of Hygiene), it can be noted that only the Bureau of Science building does not feature such a plaque. This is the case since unfortunately, the Bureau of Science building did not get the allocation recommended for it by the War Damage Commission in 1949, and the building would not be fully rehabilitated until seven years after, with appropriations from this period coming entirely from Philippine government funding.

In 1953, initial appropriations of PhP197,500 and PhP15,000 were made for the construction, repair, and upkeep of the buildings of the Institute of Science and Technology and the Bureau of Mines, respectively, through RA 920 (Congress of the Philippines, 1953). In 1956, concurrent with the reorganization of the IST into the National Scientific and Industrial Research Institute through the passage of RA 1606, an additional PhP2,285,000 was appropriated to the NSIRI for its use within the next five years. Of this sum, PhP840,000 was to be spent on the rehabilitation of the Scientific Library, PhP810,000 on the improvement and expansion of present laboratory facilities, equipment, and personnel of the Institute, PhP460,000 for the Electro-Metallurgical Laboratory of the Bureau of Mines and UP College of Engineering, and PhP175,000 for the rehabilitation of the Institute's Ceramics Pilot Plant (Congress of the Philippines, 1956).

With these fresh sources of funding, it was ultimately decided that the Bureau of Science building be rebuilt on its old site, costing the government some PhP691,000 (Hartendorp, 1958). Federico Ilustre from the Bureau of Public Works, known for works such as the Quezon Memorial Shrine in Quezon City and the now-demolished Manila International Airport Main Terminal, served as the project's Consulting Architect. The building's reconstruction and rehabilitation started on March 2, 1956 and would not be completed until November 14, 1956. The building was formally inaugurated, with First Lady Luz Magsaysay serving as the event's sponsor, on November 19, 1956 during that year's National Special Science Week (Magsaysay, 1956; Hartendorp, 1958; Republic of the Philippines, 1956), almost 12 years since the Bureau's liberation from the Japanese in February 1945.

Following the new building's inauguration, in 1957, Republic Act 1900, which sought to appropriate funds into several public works projects, was approved by Congress. This provided the Bureau of Public Works with an additional PhP955,000 to further rehabilitate the IST and its premises. This amount for reconstruction and improvement of the Institute's premises was to be spent over the next five years and was allocated accordingly: PhP500,000 for the Pilot Plant Building, PhP80,000 for the Science Building, PhP50,000 for the Tanning, Ceramics, and Vegetable Oils Laboratories, PhP25,000 for pavements and driveways within the compound, PhP250,000 for the Second Floor of the Industrial Technology and Physical Testing Laboratories, and PhP50,000 for the Mezzanine and the Engineering Research Building (Congress of the Philippines, 1957). The primary source of this funding did not come from the government's general revenue; rather, general obligation bonds were used and bondholders were to be repaid after the project had been completed.

With its reconstruction and rehabilitation, the once-ruined building is now home to several government agencies and is fully functional once more. President Carlos Garcia would later visit the building multiple times in 1957 and 1958 to deliver keynote addresses on human rights (Garcia, 1957) and in the opening ceremonies of the science exhibits displayed in the building (Garcia, 1958).

Erasure from Collective Memory

However, despite this flurry of generous funding in the late 1950s care of multiple legislative efforts, the damage to the building's place in the Filipino cultural milieu has been done. Unlike the physical devastation it suffered during the War, the Bureau of Science building faced a different kind of destruction during peacetime: that being the loss of its place in the Filipino consciousness and collective memory as a result of its protracted period of reconstruction and rehabilitation.

Collective memories, as posited by Hoteit (2015), are not necessarily a representation of individual experiences; rather, it describes the shared experiences and memories among members of a certain group of community. It is thus neither objective nor abstract but is selective, with members adapting their collective memory in the process of identity formation and group solidarity.

In the context of buildings as a subject of collective memory among individuals of a certain community, a "place" results from the interactions of these individuals with physical structures as a component of their built environment. As long as these places survive, the collective memory of the people which partake in them survives as well. When these places are left unused or are destroyed, such as in wars or disasters, the memory will disappear gradually with time. Thus, the built environment keeps an important role in the preservation of collective memories among those who partake in its existence. To illustrate this point, the Metropolitan Theater in Manila, considered to be one of Manila's prime architectural landmarks, was largely left to go into decline after the war. It was renovated in 1978 under the auspices of First Lady Imelda Marcos, only to be abandoned once again in 1996 as Marcos used the Theater as a collateral in a loan that she was not able to pay. Until 2015, when the most recent efforts to rehabilitate the structure were initiated, the Theater was virtually unknown and irrelevant to a generation which has not partaken in its existence as a cultural center for almost 20 years. As Lico and Ong (2018) posits, due to the "obsolescence of the Metropolitan Theater […] and the erosion of both the physical and social structure of the Met, there is a vacuum in the collective memory of the Filipino, particularly regarding the theater's social relevance." Hence, for the Theater's restorers, allowing this generation to participate in "cultural development and civic engagement [is] integral in continuing the legacy and social-cultural relevance of the Metropolitan [Theater]" (Lico & Ong, 2018).

Apart from changes in their use, major modifications to the built environment can influence how collective memories are perpetuated. Extreme changes, as in the case of destruction, demolition, effacement, and even reconstruction, can bring about a possible total erasure of these memories (Hoteit, 2015). In the case of reconstructions, memory is reshaped especially when the reconstructed structure is perceived to be different from the original structure, as the absence or transformation of its original elements makes for newer *cadre matériel* for remembrance (Bădescu, 2019).

The Bureau of Science's tumultuous post-war history notwithstanding, the almost 12-year gap between the Bureau of Science building's destruction and subsequent reconstruction, coupled by relatively poor funding and documentation during this period (unlike its more prominent government building counterparts that were hastily rebuilt using

war damage claims), contributed to the fading of the Bureau building's prominence and significance in the Filipino collective cultural memory after the Second World War. In addition, the building's reconstruction featured a recognizably different façade compared to the original, thereby helping solidify the erasure of the old Bureau of Science building from both the Filipinos' collective memories and subsequently, their cultural milieu.

As a result, all these perpetuated the popular narrative among historians, architects, and history enthusiasts that the Bureau building was indeed lost in the war, never rebuilt, and never to be seen by the public again—a bygone relic of the past (Alcazaren, 2005; Garcia, 2014; Filipinas Heritage Library, 2015; Nisola, 2015; Batongbakal, 2015). Despite its predecessor having been extensively featured in various prewar travel books and magazines about the Philippines, the reconstructed edifice enjoyed little to nonexistent architectural, historical, and symbolic recognition by the public and academicians alike in the decades that followed. This was in contrast to its more prominent, and arguably more publicly utilized, reconstructed structural contemporaries, like the Legislative Building, Finance and Agriculture Buildings, Manila City Hall, and the Jones Bridge along the Pasig River.

Of special note is the latter, since despite being reconstructed after the War in a simpler, more practical style compared to its original Neoclassical design by Juan Arellano, proper recognition was given to its history, unlike the fate which befell the Bureau of Science building. One of the reasons that the Jones Bridge was afforded better historiography was due to it being part of the collective memory of a broader population, owing to its central location, high visibility, and perceived utility. On the other hand, the Bureau of Science building was relegated to minor government agencies, with limited foot traffic and use for the general public, while being tucked away in a then-primarily residential district. As a result, these factors limited the building's penetration into the public's collective memory and sealed its fate in relative obscurity.

The Reconstructed Bureau of Science Building Today

It can be argued that the reconstructed building's design, which heavily differed from the original, was also a major factor in the pervasion of the narrative that the Bureau of Science building was never rebuilt. Compared

to the original building's California Mission Revival-style approach, the reconstructed building took on a more simplified mix of neoclassical and modernist styles, similar to a contemporary work by Federico Ilustre: the Government Service Insurance System (GSIS) Building in Arroceros Street, Manila, which was built in 1957. Another thing of note was that the Bureau of Science building façade's most defining prewar features, its two towers, were not rebuilt in its post-war incarnation. This helped lead to the impression that the original 1905 Bureau of Science building and its 1956 reconstruction were two structures with distinct, unique histories, whose only similarity was that they were built on the same site. However, not only did the reconstruction of the old Bureau of Science building incorporate the layout, floor plan, and various architectural elements of the original, but it also took its function as a research hub and laboratory, albeit only for the health sciences, well into the present day.

It should be clarified, however, that the observation that Ilustre's significant deviation from the original architectural design of the building during its reconstruction in the 1950s, which subsequently led to the poorer recognition of the original structure in its present form, is not a criticism of Ilustre and the government's seeming lack of attention to preserve the original structure's architectural provenance. The decisions they made at the time have to be put in context with the various circumstances that they had to work with while rehabilitative efforts for the Bureau of Science were underway. For one, the project did not enjoy the same amount of funding afforded other major government buildings through the US Philippine War Damage Commission. Even so, despite being funded by US aid, most of these projects were also rebuilt with more practical features and simplified elements, which were considered more appropriate for the budget-strapped, war-torn nation.

The fact that the government still tried to push for the reconstruction of the Bureau of Science building complex with limited resources at around a decade after it has been destroyed, still makes for a laudable example of an early attempt at architectural conservation in the country. Ilustre was able to utilize some of the building's remaining architectural components, maintain its original layout, and repurposed these elements to fit the scientific needs of the country in the post-war period. The lack of recognition given to this rebuilt structure in the decades that followed, however, is a reminder of the

implications that the process of architectural conservation and restoration can impose on reconstructed buildings and their role in the built environment, especially when significant changes are made. This, in addition to the decentralization of the former Bureau's roles and functions in the post-colonial era to the different poorly-coordinated and funded agencies under the Institute of Science and Technology and its successor entities (Anderson, 2007) diminished the former Bureau's status as the country's premier scientific facility.

Much of Ilustre's 1956 reconstruction still stands today. During the latter half of the 20th century, the new Bureau of Science building housed the National Science and Technology Authority (NSTA), Ermita Science Community, and the Department of Science and Technology (DOST) and some of its agencies. These included the Industrial Technology Development Institute (ITDI), Food and Nutrition Research Institute (FNRI), and the Philippine Science Centrum in the 1980s up to the 1990s[4]. Upon the creation of the UP National Institutes of Health by the UP Board of Regents in its 1094th meeting on January 26, 1996 (University of the Philippines Board of Regents, 1996), the new health research institute of the state university formally moved into the reconstructed Bureau of Science building on April 18, 1997. Currently, the UP NIH still holds office in the building, with plans underway for the construction of a modern, multi-level building at its rear, replacing the now-demolished Science Centrum building, which stood on the site of the original Bureau of Science building's central power plant. Apart from the 1956 plaque on its façade heralding the building's reconstruction as

Figure 6. (L) Façade of the former Bureau of Science building. Photo courtesy of the National Library of the Philippines. (R) Façade of the 1956 Bureau of Science Building reconstruction. Photo courtesy of the author.

the Institute of Science and Technology building, there appears to be no other institutional efforts to recognize the structure as belonging to the former Bureau of Science.

Figure 7. (L) Central staircase of the former Bureau of Science building (from Freer, 1905). (R) Central staircase of the 1956 Bureau of Science Building reconstruction. Photo courtesy of the author.

Conclusion

The immediate post-war years saw dismal funding and frequent reorganization for the Bureau of Science and its successor entities. As what may be gleaned from legislations and budget appropriations from 1945 to 1952, scientific research and development were not among the priorities of a government still reeling from the effects of war. A reflection of this would be in the protracted, decade-long rehabilitation effort at the Bureau of Science, which attempted to reconstruct its premises previously reduced to ruins during the Battle of Manila in 1945. It was only in 1953 when funding was explicitly given to finance the then-Institute of Science and Technology building's reconstruction, with reconstruction efforts being completed by 1956.

This newer incarnation of the original 1905 California Mission Revival-styled Bureau of Science building was designed by Federico Ilustre, featuring a mix of neoclassical and modernist approaches. However, this significant deviation from the building's original design, along with the long period it took for the Philippine government to have it rebuilt, both contributed to the gradual erasure of the original building's significance and relevance in the Filipino collective memory and cultural milieu. Further, the

decentralization of the former Bureau of Science's functions during the post-colonial era eroded its status as the country's foremost scientific facility. Thus, narratives that the Bureau of Science building was permanently lost to the War persisted until the present, and both the public and the academe have failed to properly recognize and document the structure's post-war existence.

It is therefore emphasized that in reconstructing or modifying structures of historical significance, due attention must be paid to the documentation and analysis of the structure's architectural and historical provenance. As for the case of the post-war Bureau of Science building, the edifice became the home of the government's various scientific agencies for the latter half of the 20th century and has quietly survived to the present day. Currently, it assumes a function akin to its prewar role as a hub for scientific research and development and now serves as one of the leading research units for the health sciences at the University of the Philippines campus in Manila.

ENDNOTES

[1] While Dr. Quisumbing survived the war, his son Honorato or "Rety," a PGH medical intern and a member of the UP College of Medicine Class of 1945, was killed at PGH while it was being liberated by the Americans on February 17, 1945 (Dayrit, 1997). He was buried within hospital grounds.

[2] The post-war National Museum not only took the Bureau of Science's remaining pre-war collections but also researches in the following fields: Anthropology, Botany, Geology, Paleontology, Zoology, and Art and History. These included the efforts undertaken in rebuilding the Bureau and Museum's collections destroyed during the war.

[3] Defined by EO No. 94 to be the "conduct of researches, investigations, and experiments […] that will benefit, increase, promote, and improve industrial production." These researches included those which aimed to find new uses for raw materials and their byproducts, as well as to look into the possibility of manufacturing aircrafts locally.

[4] By 1987, when the NSTA was promoted to a cabinet-level agency and renamed as DOST through EO 128, much of the offices and bureaus under the department were transferred to the DOST Complex in Bicutan, Taguig City.

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