

Gabaldon School Buildings: The Schoolhouses of Our Forefathers

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ABSTRACT

Education was a major feature of governance during the American period, and school building construction was a priority in the government infrastructure program.

Schoolhouses built during the American period were generally simple and functional. The architecture was dignified and durable; the buildings were planned to be sturdy to meet the essential conditions of varying climate, earthquakes, insect infestation, and limited funds. The curriculum likewise had to be considered, for the curriculum largely shaped the organization of the school and provided much of the understanding that helped determine the teaching and learning spaces. The standard designs also took into consideration the use of local building materials as well as architectural styles and motifs typical of the locality.

INTRODUCTION

Architectural achievements during the American period were considerable. There was a building frenzy in an attempt to showcase American accomplishments in various fields and to make the Philippines the admirable Pearl of the Orient—especially Manila, a modern cosmopolitan Asian capital city that Americans could really be proud of.

School building construction during the American period is an interesting field of study. Because of its nature and because of the American government's policies, the schoolhouse was an indispensable structure in every community. During the period, it was conspicuous in its presence in cities, towns, and barrios, just as the churches and chapels were during the Spanish period.

School officials were well aware that the physical aspects of the school environment greatly influenced the quality of education. Facilities had to be provided to make both the teaching and learning experience totally enriching and productive. One of the earliest and most serious problems confronted by school authorities was the lack of decent school buildings to house the American-established educational system. The system prescribed a set of standard requirements for the public schools in terms of architectural design, layout, and landscaping.

Officials required that schoolhouse architecture be generally simple. The resulting building had to be dignified, sturdy, and durable to meet the essential conditions of varying climate, earthquakes, and infestation of termites and other insects. The school building had to provide a comfortable and healthful environment conducive to pedagogical needs: clean and commodious surroundings, ample light and ventilation, and a general resistance to deterioration—natural or man-made.

Designers also had to take into consideration the availability of local materials and the limited funds available to the Bureau of Education.

DESIGN FACTORS

CLIMATE

Americans contemplating on coming to the Philippines during the American period had the general assumption that since the Islands were in the exotic tropics, the cold winters were the only thing they would be missing. The climate of the Philippines, however, was a source of much discomfort to those who could not readily adjust to the varying weather conditions. Soldiers, civil servants, and teachers who finished their tour of duty invariably made haste to leave the Islands for the cool comfort of the temperate zones. Weather was a daily factor that affected the performance of their duties.

The architectural designs of the schoolhouses had to take into account the nuances of the country's tropical climate: intense heat during the summer months, torrential rains and strong winds during the rainy season. The dry season was from November to May, with April and May being the hottest and driest months, with their "persistent, consistent, all inclusive and non-escapable heat."¹ The rainy season came in June and lasted until October or November, with August usually the wettest month, and July to September the typhoon months.

EARTHQUAKES

School building design also had to take into consideration earthquakes that constantly shook the Islands. At the start of the

American period, the Manila Observatory recorded an average of fifty-six earthquakes per year.² Manila was particularly plagued with very destructive tremors during the nineteenth century. Before the advent of steel reinforcements, such geological conditions necessitated buildings with thick walls that hugged the ground. Multi-storey buildings or those more than five storeys high were the exception rather than the rule. Moreover, as one American observed, ground was plentiful in the Philippines, so buildings tended to be low and spread out.³

TERMITES

The school building, like any other structure in the Philippines, had to be resistant to termites, which were abundant, especially in structures made of wood—even first-class hardwood.

Woods that were highly valued for their resistance to insect infestation were *ipil*, *molave*, *yakal*, tindalo, and *batikuling*. Tindalo was said to be attacked by termites when there was no other wood in the vicinity, and batikuling was attacked but not destroyed, except for those parts that were buried underground.⁴

Aside from the *anay*, there were also the giant ants, cockroaches, and beetles, which were destructive on the structural or wooden parts of buildings.

BUILDING MATERIALS

The Philippines was abundantly blessed with natural resources, which impressed the Americans. Forest resources, especially timber, was remarkably bountiful. There were several kinds of hardwoods, valuable for construction, interior finish, and

furniture needs. The Bureau of Forestry’s *Bulletin* (no. 14, 1916) divided commercial woods into three groups.

In the first group were woods for structural components, floors, and interior finishes. Timber from this group had excellent qualities of perfect polish, resistance to termites and warping, and hardness.

Table 1. Commercial woods of the Philippines

FIRST GROUP	SECOND GROUP	THIRD GROUP
Akle	Banaba	Amuguis
Aranga	Bituong or Palomaria de la Playa	Apitong
Bansalagin	Guijo	Lumbayan
Batikuling	Kalamansanai	Mayapis
Betis	Katmon	Nato
Camagon	Lanete	Oak
Ebony	Makaasim	Pagatpat
Ipil	Malugai	Palosapis
Kalantas	Manggachapui	Red Lauan
Mancono		Sakat
Molave		Tanguile
Narra		White Lauan
Teak		Almon
Tindalo		Manggasinoro
Yakal		Batete
		Binuang

Source: *Philippine Public Schools* 4, no. 2 (1931): 97.

Each year, the Bureau of Forestry issued two public gratuitous timber licenses to each province. One was to the district engineer for which all timbers for all public works other than school buildings were invoiced. The other was to the division superintendent of schools for which all timbers intended only for public school buildings were invoiced.⁵

Several large steam mills, with full outfits of handsaws and planks, were set up in Manila to work on these woods and place them in the local markets or for export.⁶ There was always an abundant supply of good quality lumber for the construction of public schools and government buildings.



Figure 1. A school building of mixed materials (*Annual Report 1914*)

Other building materials were easily sourced. Adobe stone was available in Laguna, Cavite, and Tayabas. River stones were taken from the banks of Bulacan and Pampanga. Glass for windows was unavailable and expensive; instead, *capiz* shells were used, of which Cavite was the primary source.

FUNDING

One of the most difficult problems faced by school officials was the sourcing of funds for the construction of school buildings following the standards set by the Bureau of Education. The funds that were available determined largely the design standards of a schoolhouse.

In the early years, funds for school purposes were largely used for the payment of salaries of American and Filipino teachers, so that very little was left for the construction of new school buildings or the repair of old ones, and the purchase of equipment and supplies.

Before a school was opened, it had to have a first-class site and a good building, conforming to the standards set by the Bureau of Education. To finance the acquisition of the site and the building construction, 20 percent of the municipal school fund was set aside each year, and continued until the legislature granted to the municipality the permission to finance permanent improvements by means of taxes imposed for specific projects.⁷ If the municipality had the necessary funds, information on the total amount on hand and available for construction was sent to the Bureau of Architecture, together with the preliminary drawings prepared by the Bureau of Education. The preliminary drawings enabled the architects to prepare working drawings and specifications for the building, with the strict consideration that the cost was not to exceed the amount available for its construction.⁸

Act No. 1801, more commonly known as the Gabaldon Act, was enacted by the Philippine Legislature on 20 December 1907. Introduced by Congressman Isauro Gabaldon of Nueva Ecija, it provided for an appropriation of one million pesos between the years 1907 and 1915 for the construction of schoolhouses of strong materials in the barrios, provided that the guaranteed daily attendance should not be less than sixty pupils. Funds available for each school should not exceed four thousand pesos, on condition that the municipality, either by making an appropriation from its funds or through voluntary contributions of money, manual labor, or materials, shall contribute a sum of not less than 50 percent of the total amount that may be granted

in accordance with the act. To provide for special building projects that could not be realized under the provisions of the Gabaldon Act, special appropriations were made from time to time.

THE MAIN BUILDING

ARCHITECTURE

Generally, the architecture of a particular region or territory reflected that of the colonizers, with modifications occasioned by factors such as climate, types of building materials available, and geological conditions. Such was the case of schoolhouse architecture in the Philippines during the American period.

In the United States, architectural classicism dominated the latter half of the nineteenth century and onto the twentieth century. The revivalist styles and neoclassicist trends that prevailed during the period were highly influenced by two important exhibitions: the Centennial Exposition in Philadelphia in 1876 and the World's Columbian Exposition in Chicago in 1893. The architectural tendencies of these expositions dominated much of the buildings constructed during the time. Classical forms and colossal columns were adopted for schools, libraries, banks, town halls, and other public buildings.

The neoclassical style was carried over to the Philippines by American architects who worked for the government. For schoolhouses, the Palladian motif—an arcade of columns on the front facade, approached by a flight of steps—was a recurring feature for one-storey permanent buildings. The designers implemented the architectural style with forms and details adapted to tropical conditions. Such adaptations included the use of capiz shell windows, latticework on walls and corridors,

pierced soffits, building heights of one or two storeys, and elevated floors with a crawl space underneath.



Figure 2. The Tondo Elementary School with a neo-classical facade
(*Annual Report 1912*)

LAYOUT

The Bureau of Education's standard plans for school buildings had very symmetrical layouts, from the simplest one-room schoolhouse to the forty-room, two-storey school building. These were either linear, U-shape, H-shape, or quadrangular with a central courtyard. Accessory structures, such as the home economics building, shop building, and outhouses, were located behind the main building. The athletic field, gardens, and school nursery were usually situated behind these accessory buildings.

CLASSROOM SIZE

Classrooms had standard sizes of seven meters by nine meters. Even if the number of pupils did not reach the ideal, each classroom had to be of such standard dimensions.

In the early years of the American-established educational system, there was an average of over seventy pupils for each teacher, and a larger number when more unfavorable conditions existed.⁹ Although the initial school policy was to attract children, a large class population was not considered ideal in pupil instruction. Even when the educational system was stabilized in the 1920s, there were still many cases of teachers having from eighty to ninety pupils each under their charge.¹⁰ The Bureau of Education's *Service Manual* set the maximum number of students in the primary classes at fifty-six, and forty-six for the intermediate classes. These figures, however, were not recommended as desirable; lower figures were targeted for more efficient instruction.¹¹

The classroom sizes were large enough to divide a normal-size class into two. In the primary grades, pupils under a teacher were sometimes divided into two groups. One group would do recitation, while the other group would do writing or other tasks, such as clay modeling, board carving, and paper pulp making. The objective was to reduce mental fatigue and restlessness brought about by long periods of monotonous recitation.¹²

Standard-size classrooms were sometimes provided with partitions that could be pushed back to make space for a bigger room, with double the floor area. An assembly room or auditorium was fashioned out in this manner, from two or three classrooms, usually located in the middle portion of the hall or wing.

WINDOWS

Designers noted that the lighting problem of classrooms in the United States was reversed in the Philippines. Instead of providing

more illumination, the problem in Philippine classrooms was to shut out or control excessive light.¹³ Classrooms were designed in such a manner that natural light fell over the child's left shoulder or from the left and rear when reading, writing, or working.¹⁴ One wall on the nine-meter side of the classroom usually consisted entirely of windows.

In his report to the Philippine Commission, Daniel Burnham wrote: "The first consideration in determining architectural style is the question of adaptability to local conditions. In any given locality the things already existing as a result of long experience are likely to prove the best."¹⁵ For foreign visitors, capiz windows, used in almost all civic, ecclesiastical, and residential structures, were an architectural peculiarity. Unlike windows in places with severe climates, capiz windows, though fragile-looking, were durable and well-adapted to extreme heat and glaring light.¹⁶

Capiz shell windows transmitted a pleasant opalescent light, which was not harsh to the eyes. Classroom windows were of capiz shell latticework, sash-type, horizontally pivoted, or hinged at midsection. This type of window functioned admirably in letting in the cool breeze almost 100 percent.



Figure 3. Classrooms with swing-out capiz windows to let in fresh air
(*Annual Report 1922*)

Windows were of the sash type similar to those of the indigenous *bahay kubo*, rather than the sliding type of the *bahay na bato*, to take into consideration the ease in opening and closing such windows by children.

The windows were two meters high and one meter wide, and topped by a transom one meter in height, similarly of capiz latticework. Transom windows were usually fixed, but later school officials had them altered so they could be opened for added air circulation in the classrooms. To further improve ventilation, some buildings were installed with ventilators. Lower boards or *ventanillas*, as in the *bahay na bato*, were added in some classrooms.

The floors of classrooms were of long planks of native hardwood. Students took turns in polishing the floors with petroleum pads and banana leaves until they shone like mirrors.

Two-storey buildings had wide staircases in the main lobby, which led to the mezzanine level and branched into two smaller flights to the second floor, or its reverse of two flights of stairs from the main lobby, which converged into one wide flight of stairs from the mezzanine floor to the second floor.

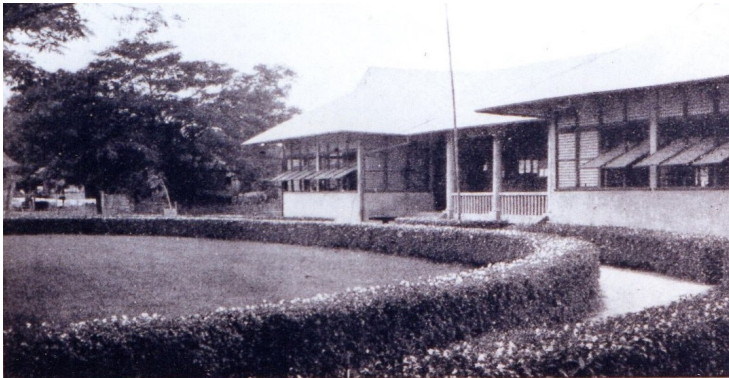
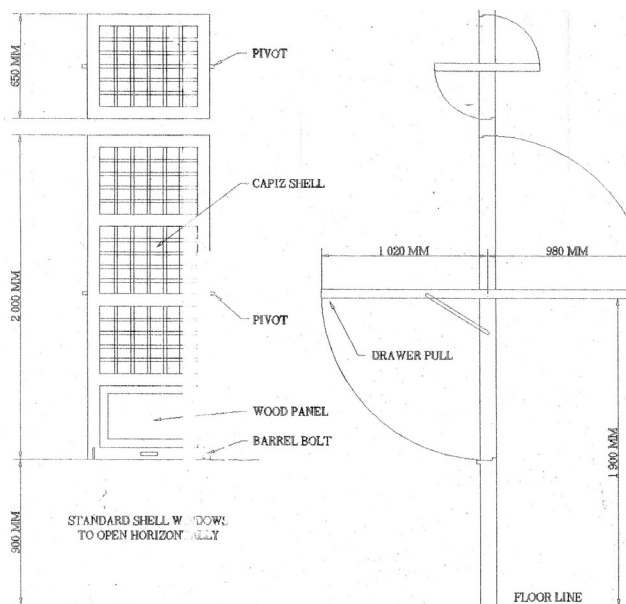


Figure 4. Schoolhouses with wide capiz windows, large classroom sizes, and well-landscaped grounds surrounded by shade trees (*Annual Report 1912*)



WINDOW DETAILS

Figure 5. Window details

FLOORS

Floor planks for both the main stairs and the side stairs were of thick hardwood, resistant to the wear and tear of everyday use of hundreds of tiny shod and unshod feet.

CEILINGS

Ceilings were made of sawali, tongue, and groove, or coffered plywood. The floor-to-ceiling height of the rooms, even in temporary structures with nipa or sawali walls, was four meters. With this height, there was good air circulation and lesser accumulation of hot air in the building.

ROOFS

Roofs were of galvanized iron sheets, plain or corrugated, or flat cement tiles. Roof overhangs were wide enough to diminish the glare brought into the classrooms. In some schools, awnings were installed over the tall window openings to shade the interiors. Roof eaves were slatted and held up by exposed carved wooden rafters. In some buildings, where the roof eaves met the building wall, the corner was perforated to help cool the interiors. To let out hot air under the roof, vents were utilized.

ACCESSORY BUILDINGS

HOME ECONOMICS BUILDING

To house the home economics course for girls, a cottage was usually constructed. The cottage provided the girls with working quarters given conditions that simulated a model Filipino home. The construction of model Filipino homes began in 1910.¹⁷ The Home Economics Department coordinated with the Bureau of Education's Buildings Division in planning new or remodeling old Home Economics buildings. It also consulted the Division of Purchase and Supply in selecting equipment and furnishings for the buildings, and sought the suggestions of the Department of Trade and Industry's Vocational Division for kitchen articles and furnishings, which shop boys in industrial arts classes may make for use in the Home Economics building.

The cottage was meant to represent a livable home that would serve as an inspiration to the community. It was usually made of light materials like bamboo or wood, with a roof of nipa or galvanized iron. Like a typical Filipino home, it was elevated one or two meters from the ground. Windows were of capiz shell latticework that slid on grooves. The porch and the

upper partitions of the interior rooms were of open woodwork. The airy, comfortable ambience was typically Filipino.



Figure 6. The Domestic Science or Home Economics Building, a prototype of the typical Filipino dwelling



Figure 7. Home Economics Building being built with local materials
(*Annual Report 1927*)

The spaces in the home economics cottage were those found in a typical Filipino house: a front porch, living room, one or two bedrooms, toilet, and kitchen. The wide front porch was indicative of Filipino hospitality. The space was likewise wide enough for the porch to be utilized for classes.

The living room was furnished with comfortable sofas and chairs fashioned by the boys' woodworking class. The space was used for social gatherings, a lecture area, or a sewing room.

The bedroom was not just a necessary feature in the house; it was also meant to impress upon each girl the need for privacy. One American supervisor noted, however, "since families of this country will probably not adopt this custom for some time to come and since most of the people are bound to sleep on the floor, our immediate duty is to help the girls find the most healthful way of doing so."¹⁸

In their home economics classes, girls were taught interior decoration, furniture and flower arrangements, and general housekeeping.

One feature that made the house different from what a model home might have been was the large kitchen. This was an important area of the house because a great deal of the course focused on food preparation and cooking. Although the kitchen provided work space sufficient for a class of twenty-four, necessity and efficiency only allowed a few girls to actually work on the recipe. The other members of the class did cleaning chores inside and outside the house. Cooking classes were divided into two sections of twelve girls, which was the ideal number handled by a teacher at one time.

The kitchen was furnished with zinc-covered work tables, stoves with hoods and ovens, and blue-flame oil stove and

fireless cooker. Care was taken so that the smoke would not accumulate in the room. Stoves had hoods to carry the smoke up the chimney. Cooking utensils, china, glassware, and linen were stored in shelves and cabinets. Wooden stirring and mixing spoons and paddles, mashers, graters, chopping and paring knives, food cabinets, and shelves were made by the shop boys.

The ideal kitchen furniture for an intermediate school that could be prepared by the boys in the trade school or carpentry class were¹⁹

- three large tables with two drawers each (four girls work at each table, allowing about one square meter space to each girl);
- one cupboard with lock for supplies;
- one teacher's desk or table with four drawers for caps, aprons, tablecloths, towels, etc.;
- one set corner shelves;
- one low, broad shelf for wash basins, soap, nailbrush, etc.;
- one dining table;
- fourteen chairs or stools.

It was equally important for the teacher to instruct the students on cleanliness in the kitchen. The girls had to know the value of wood ashes, sand, and *is-is* leaves. The kitchen had to be cleaned regularly with plenty of chloride and lime.

The students were given the leeway to develop the space around the schoolhouse. The front garden was pleasant to look at, planted with bushes and vines with colorful leaves and flowers. The kitchen garden at the rear was designed for the gardening class of boys at the intermediate level.

Having separate buildings for instruction in home economics was for many years a unique feature of the Philippine public school system. Interestingly, the practice was developed in the United States in the 1930s, particularly in Pennsylvania.²⁰

SHOP BUILDING

The shop building was for the industrial arts classes of boys at the intermediate levels. It was meant to balance domestic science in general appearance and arrangement. The building, usually made of wood or a combination of wood and reinforced concrete, was one big room with work tables, chairs, benches, hand tools for woodworking, storage shelves, tool cabinets, chalkboards, and attendance and assignment boards. The doorway was wide enough to let in equipment and raw materials, and to bring out finished products like furniture. Windows of capiz shell latticework, horizontally pivoted as in the main building, were tall and wide on three or four sides of the room, providing ample ventilation inside.

The tasks in the school shops were not limited to woodworking. The room also had segregated work spaces for craft, electric and metal, furniture repair, and display area for finished products.



Figure 8. Boys being taught a variety of skills to prepare them for a future occupation (*Annual Report 1927*)



Figure 9. Grade VII pupils constructing the school's shop building (*Annual Report 1932*)



Figure 10. Adding finishing touches to a school shop building construction project (*Annual Report 1929*)

Though simplicity in design was common, some shop buildings were especially designed, such as that of Legarda Elementary School by the noted architect Andres Luna de San Pedro.

In other schools, there were no separate buildings for the home economics and the industrial arts classes. The Lakandula Elementary School in Tondo, for example, had a two-storey wooden building for both the shop and the home economics classes.²¹

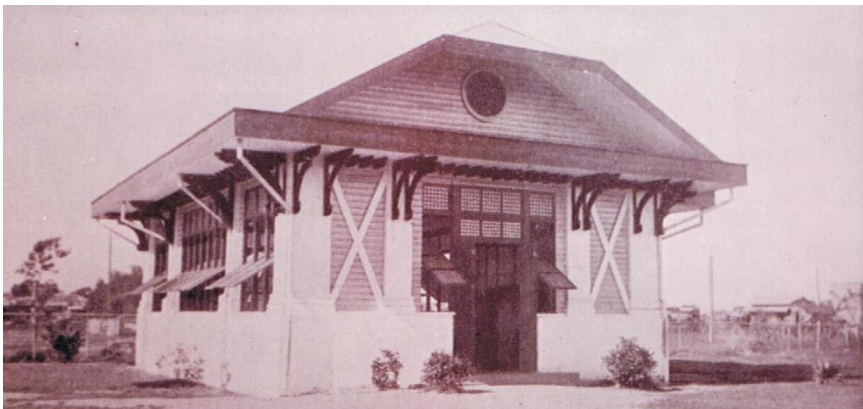


Figure 11. Legarda Elementary School Shop Building
(*Annual Report 1927*)

OUTHOUSES

The provision of adequate toilet facilities came hand in hand with the construction of a school building. Toilet facilities for boys and girls were built separately and apart from the main building. Outhouse plans were prepared by the Bureau of Education and approved by the Director of Health. These ranged from nipa and bamboo structures to concrete buildings.²² One of the duties of the principal was to ensure that these toilets were properly used and kept sanitary with the

daily use of disinfectants. Lessons were given to boys and girls on the proper use of the sanitary closets.

Outhouses were partly or wholly screened by latticework or wire fencing attached to wooden or tubular iron poses over which vines were trained.²³

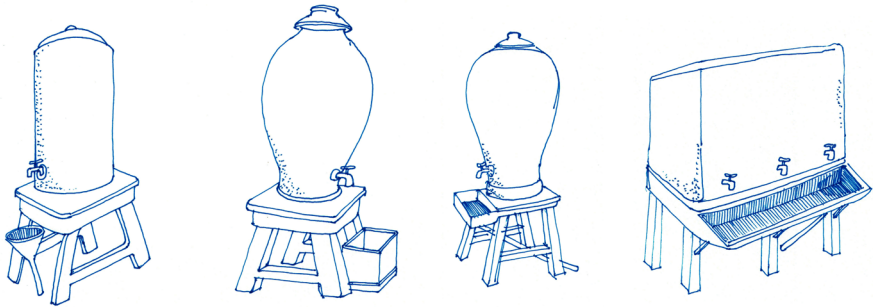


Figure 12. Handwashing devices

Handwashing facilities were provided outside the outhouses. Some schools had handwashing facilities inside the classrooms, particularly at the primary level. These were used to teach children the necessity of washing their hands for disease prevention. The children were drilled regularly, and a chart was placed near the handwashing facility to record the number of times a pupil washed his hands.²⁴

In later years, toilets were incorporated in the classroom buildings, at the ends of corridors. Handwashing and drinking fountains were located outside the building.

Division superintendents were instructed to provide each school with boiled drinking water in clean, well-covered jars or vessels. Tanks for collecting rain water for drinking were

constructed in many schools. Later, school facilities were provided with modern drinking fountains, with the standard set at one jet for every seventy-five pupils. Platforms of various heights were constructed around the pedestal of the fountain to accommodate small and large children.²⁵

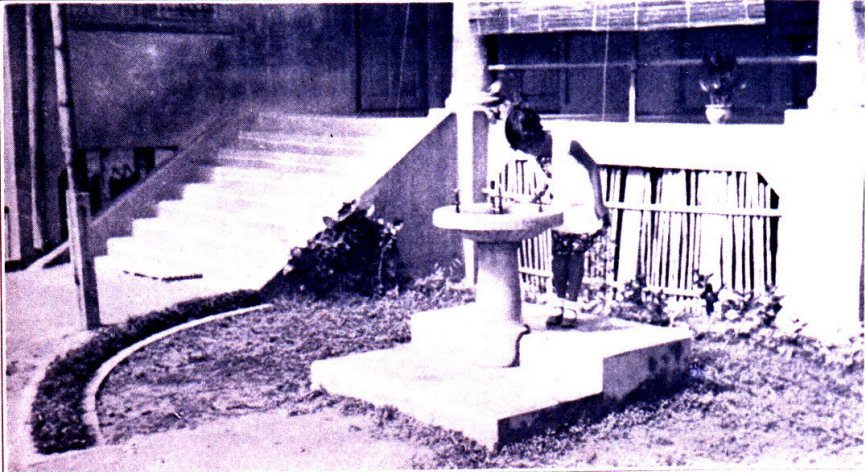


Figure 13. Drinking fountain (*Annual Report 1929*)

The school building became a platform marking differences in the Spanish and American standards of sanitation. The Monroe report in 1913 stated:

The first efforts of a superior culture acquired by an individual are to be seen in her more refined habits of living. This refinement consists not merely in an external improvement in manners but in more rational habits of life, brought about by the application of scientific knowledge to social customs.²⁶

Administrative orders were issued prohibiting employees of the Bureau of Education and the Philippine Health Service

from living in houses without sanitary toilets. A public school teacher went further by requiring a toilet in every child's home as a prerequisite for admission.²⁷

CONCLUSION

The educational system introduced by the Americans aimed to prepare Filipinos for good citizenship and governance. A major feature of this educational system was the schoolhouse whose design took into account several factors—that is, climate, earthquakes, available building materials, presence of termites, and funding. The curriculum also had to be considered, as it largely shaped the organization of the school and provided much of the understanding that helped determine the teaching and learning spaces.

The classrooms had to be well-equipped, well-ventilated, and well-lighted in order to provide an environment that would make both the teaching and learning experience enriching and productive. The home economics buildings simulating the Filipino house were constructed for the teaching of home economics to girls, while the shop buildings housed the industrial arts classes for boys.

The public school buildings of the American period were solid and cool, durable, and well-adapted to the environment. No wonder some school buildings have lasted for more than a century now. With the few that remain to date, preservation efforts should be exerted to protect and conserve the school buildings of our forefathers.

NOTES

- 1 Frederick S. Marquardt, *Before Bataan—and After* (Indianapolis and New York: The Bobbs-Merrill Company, 1943), 51.
- 2 Archie Lowell Ryan, *Religious Education in the Philippines* (Manila: Methodist Publishing House, 1930), 10.
- 3 *Census of the Philippine Islands, 1903*, vol. 1 (Washington: Government Printing Office, 1904), 251.
- 4 Daniel Roderick Williams, *The United States and the Philippines* (Garden City, New York: Doubleday, Page & Co., 1926), 54.
- 5 Bureau of Education, *Annual Report 1918* (Manila: Bureau of Printing, 1919), 76.
- 6 Bureau of Education, *Service Manual* (Manila: Bureau of Printing, 1927), 218.
- 7 Bureau of Education, *Annual Report 1918*, 76.
- 8 Circular No. 45, s. 1905, by the General Superintendent, 8 June 1905, in Bureau of Education, *Annual School Reports 1901–1905* (Manila: Bureau of Printing, 1954), 1017–19.
- 9 Homer Stuntz, *The Philippines and the Far East* (Cincinnati: Jennings and Pye, 1904), 258.
- 10 Bureau of Education, *Annual School Reports 1901–1905*, 598.
- 11 Bureau of Education, *Annual Report 1916* (Manila: Government Printing Office, 1907), 19.

- 12 Bureau of Education, *Service Manual*, 32–33.
- 13 Federico Semilla, “Construction or Busywork for Grade Four,” *Philippine Education Magazine*, July 1925, 79.
- 14 Clarence H. Dempsey, “What Is a Satisfactory School?” *The Journal of the National Education Association*, May 1929, 157–59.
- 15 Board of Educational Survey, *A Survey of the Educational System of the Philippine Islands* (Manila: Bureau of Printing, 1925), 471–72.
- 16 Daniel H. Burnham, “Report on Improvements at Manila,” in *Report of the Philippine Commission* (Washington: Government Printing Office, 1906), 635.
- 17 Bureau of Education, *Annual School Reports 1901–1905*, 16.
- 18 P. R. Belmonte, E. V. Capati, and C. C. San Juan, eds., *65 Years of Public Education in Manila* (Manila, 1963), 58.
- 19 Alice M. Fuller, *Housekeeping and Household Arts: A Manual for Work with Girls in the Elementary Schools of the Philippine Islands*, Bulletin No. 35, Bureau of Education (Manila: Bureau of Printing, 1911), 13.
- 20 *Ibid.*, Appendix A.
- 21 George W. St. Clair, “The School Lunch System in the Manila Schools,” *The Teachers’ Assembly Herald* 4 (May 1913): 162–64.
- 22 Information furnished by Mr. Mario Valencia.
- 23 Bureau of Education, *Service Manual*, 233–34.

- ²⁴ Annual Report 1927, 55.
- ²⁵ Bureau of Education, *School and Home Gardening in the Primary Grades*, Bulletin No. 31 (rev.) (Manila: Bureau of Printing, 1913), 93.
- ²⁶ James E. McCall, *The Philippine School Plant* (Manila: Sugar News Press, 1934), 28.
- ²⁷ Board of Educational Survey, *A Survey of the Educational System of the Philippine Islands*, 472.

BIBLIOGRAPHY

Belmonte, P. R., E. V. Capati, and C. C. San Juan, eds. *65 Years of Public Education in Manila*. Manila, 1963.

Board of Education Survey. *A Survey of Educational System of the Philippine Islands*. Manila: Bureau of Printing, 1925.

Bureau of Census. *Census of the Philippine Islands, 1903, Vol. 1*. Washington: Government Printing Office, 1904.

Bureau of Education. *Annual Report 1916*. Manila: Government Printing Office, 1907.

———. *Annual Report 1918*. Manila, Bureau of Printing, 1919.

———. *Annual School Reports 1901–1905*. Reprint. Manila: Bureau of Printing, 1954.

- . *School and Home Gardening in the Primary Grades*. Bulletin No. 31 (rev.). Manila: Bureau of Printing, 1913.
- . *Service Manual*. Manila: Bureau of Printing, 1927.
- Burnham, Daniel H. “Report on Improvements at Manila.” In *Report of the Philippine Commission*. Washington: Government Printing Office, 1906.
- Dempsey, Clarence H. “What Is the Satisfactory School?” *The Journal of the National Education Association*, May 1929.
- Fuller, Alice M. *Housekeeping and Household Arts: A Manual for Work with Girls in the Elementary Schools of the Philippine Islands*. Bulletin No. 35, Bureau of Education. Manila: Bureau of Printing, 1911.
- Marquardt, Frederick S. *Before Bataan—and After*. Indianapolis and New York: The Bobbs-Merrill Company, 1943.
- Ryan, Archie Lowell. *Religious Education in the Philippines*. Manila: Methodist Printing House, 1930.
- St. Clair, George W. “The School Lunch System in Manila Schools.” *The Teacher’s Assembly Herald* 4 (May 1913).
- Semilla, Federico. “Construccion or Busywork for Grade Four.” *Philippine Education Magazine*, July 1925.
- Stuntz, Homer. *The Philippines and the Far East*. Cincinnati: Jennings and Pye, 1904.
- Williams, Daniel Roderick. *The United States and the Philippines*. Garden City, New York: Doubleday, Page & Co., 1926.