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The Dawn of Humane Leprosy Segregation: Transforming Leprosarium into Home

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ABSTRACT

Leprosarium or leprosy asylum has always been associated with cruel segregation of leprosy sufferers from the society. However, humane approach was suggested in the international arena in 1923 to reform the former unsympathetic compulsory segregation to make leprosy sufferers "human" again. Prior to this revelation that leprosarium should be attractive to persuade leprosy sufferers to admit themselves voluntarily, missionary organizations have been establishing humane leprosarium that mirrors a home rather than an institution. There are studies on the eminent Mission to Lepers, such as Kakar (1996), Buckingham (2002), Joseph (2003), and Robertson (2009). However, the architectural and planning idea of the missionary organizations, which is disparate from the conventional leprosy institutions established since the medieval time, has yet to be studied. The aim of this paper is to identify the idea and principles of humane segregation in leprosarium practiced by missionary organizations, especially the influential leprosarium model by Mission to Lepers. It is carried out through content analysis on missionary books, reports and biographies, leprosy journals, newspapers, drawings, and photographs. The analysis enables the identification of unique spatial planning and built form of missionary leprosarium model. The findings showed that missionary leprosarium model imitates the natural village to create a sense of home for leprosy sufferers, and self-sustainable in character. Missionary leprosaria are also community-driven and semi-autonomous. All this has accredited missionary leprosy organizations as the forerunner in humane leprosarium design that thrives in the 1920s to 1930s. This study would be able to help us to understand how architecture was utilized as a tool in disease prevention yet aspired to preserve the humanity among leprosy outcasts. Further research can be done to enhance the study such as human perception and psychology towards the architectural design of leprosarium and the socio-cultural impact on the residence as well as the society.

1. Introduction

'Leprosarium' or 'leprosaria' in plural form, is an exclusive institution that segregates leprosy sufferers from the society to prevent the spread of disease and as a medical treatment laboratory (Lim, 2013). Leprosy had impacted humankind for centuries and was no-stranger to ancient civilization such as China and Egypt. During the Middle Ages in England, leprosy sufferers were required to wear mask and hideous clothing to conceal disfigured face and body. They carried a bell along as a warning to others, announcing their unwanted presence (Haggard, 1929:131-134). In the past, leprosy has religious attachment, way before it became a public health issue. European medieval leprosaria were built annexed to the church building, such as the Kronoby Hospital in Finland shown in Figure 1. '*Li-Ren-Fang*', the first recorded leprosy asylum in China, was annexed to a Buddhist Monastery.

Leprosy then became a global phenomenon at the end of 19th century. The discovery of '*Mycobacterium leprae*', the leprosy germ, by Dr. Gerhard Armauer Hansen in 1873 contradicted with former hereditary theory and initiated the global urgency to device strict segregation policies. The first International Leprosy Conference in 1897 urged governments to apply compulsory segregation on leprosy patients as the best method against the disease and the Norwegian model was brought into limelight in the meeting to prove the feasibility of segregation method. Due to immense pressure from local and international parties, establishment of leprosaria around the world was unstoppable. There are still leprosaria that survived today, not as a place of segregation but a place where aged leprosy survivors spend the remaining day of their lives.

1.1 Background of the Study

Humane segregation approach was first proposed internationally at the third leprosy conference in Strasbourg in 1923. One of the resolutions passed in this conference, which was not present in the previous conference, is segregation of leprosy sufferers should be humane and

Figure 1: *Kronoby Hospital in Finland, accommodates leprosy patients in rooms (N), attached to church (M), where patients view into the church through tiny window (C) (Source: Richards, 1977:85)*

remain in the proximity of their family. This transformation in segregation policy has reform the previous institutional-like leprosarium and continues to evolve into the next decade by main advocator 'British Empire Leprosy Relief Association (BELRA). However, humane segregation approach was already in practice prior the international accord.

Since the first major evolution of leprosarium architecture occurred through the establishment and success of Culion Leper Colony, leprosaria has took lesser form of a hospital or asylum and more of a human settlement. The usual hospital type of leprosaria observed in Europe prior to the 18th century anteceded by cottage houses such as St Giles Leprosarium built in 1915.

Champa leprosy asylum in India was mentioned as a model leprosarium in a gathering of leprologists and asylum superintendents at Calcutta in 1920. Its architecture was shared in the conference as a fine example to be followed in the future direction of leprosarium construction in India – one of the most leprosy endemic regions. The leprosarium management discussed in this conference and in India has inspired some important leprologists such as Dr Ernest Muir, who was one of the key person at BELRA.

1.2 Definition of Humane Segregation of Leprosy Sufferers

The term 'humane' basically means compassion and relieving human sufferings. Thus, humane leprosy segregation can be defined as to approach leprosy sufferers as human rather than agent of disease. Previous leprosarium function as 'dumping site' to incarcerate leprosy sufferers away from the healthy public. Segregation of leprosy sufferer was nevertheless an inevitable part in leprosy prophylaxis. Therefore, leprosarium was reformed to provide them better living environment despite they have to be segregated from the outside world.

According to the conference in Strasbourg, humane segregation is led by segregation policy that is custom-made to native condition and feasibility. It means that one policy should not be applied in all regions and circumstances. The location of leprosarium should also be at the proximity of patients' family and efficacious treatment is available. The resolution only suggests compulsory segregation on pauper leprosy sufferers.

1.3 Significant of Study

Though many leprosy survivors contributed to the expansion of this history through oral testimonies, the recent demolition of leprosaria around the world had awaken us to look into this architectural product that bears cruel segregation practice in human history, which had affected millions of leprosy sufferers and their descendants. However, the humane leprosarium typology was scarcely discussed. Although it has ample contribution to the evolution of leprosarium, it did not receive much attention compared to its former typology.

The humane approach to segregation of leprosy patients has been long practice by missionaries. Missionary's leprosaria offers shelter and care to leprosy sufferers and ultimately to establish a Christian community. As this disease was perceived to be incurable, building a Christian community among leprosy patients was both practical and pious. Due to the strong missionary participation as well as disinterest of the colonial state in India, the Christian missionaries hold a significant role in disseminating modern western medicine for leprosy (Kakar, 1996). Even Gandhi pointed out the significant role missionary plays in leprosy prophylaxis work in India because there is no one else taking up this burden (Rogers, 1946).

Mission to Lepers was the first missionary group founded uniquely to serve leprosy sufferers (Joseph, 2003). Their contribution started in British India and then expanded to other regions such as China. This 'missionary model' inspires the forthcoming humane leprosarium evolution in the 1920s, including BELRA's leprosarium scheme. There are studies on the eminent Mission to Lepers, such as Kakar (1996), Buckingham (2002), Joseph (2003), and Robertson (2009). However, the architectural and planning idea of the missionary organizations, which is disparate from the conventional leprosy institutions established since the medieval time, has yet to be studied.

1.4 Objectives

The purpose of this paper is to identify the idea and principles of humane segregation practiced by missionary group, especially the significant leprosarium model by Mission to Lepers, and to demonstrate this new typology of leprosarium functioned more effectively as an architecture for disease prevention comparable to the former typology.

2. Methodology

This study employed content analysis method in order to understand the humane segregation principles in missionary leprosarium model. Content analysis is conducted on books written by Wellesley Bailey (founder of Mission to Lepers) especially three books recording his

travels and John Jackson's books on history of MTL, articles and reports written by leprologists and physicians, social historians, conference papers, drawings and photographs. The same method was also used to assess the strict and institutional-like leprosaria from widely read books on the topic on leprosy segregation such as 'Leprosy and Empire: A Medical and Cultural History' by Rod Edmond and 'Leprosy, Racism and Public Health' by Zachary Gussow, official reports, medical journals, drawings, and photographs of these leprosy institutions.

From the sources mentioned above, three types of data, which are (1) the building program, type, form, and spatial configuration of leprosaria constructed or funded by missionaries; (2) the principles and requirements established by Mission to Lepers in the construction of leprosaria and; (3) the segregation approach and the architectural characteristics of the former institutional-like leprosaria, were retrieved. The data collected from (1) and (2) on the missionary leprosarium model were analyzed in comparison with data (3) on the strict institutional-like leprosarium architecture.

The findings are categorized into three sections that discussed on the main design principles that attributed to the success of missionary model as humane leprosarium.

3. Findings and Discussions

3.1 Establishing a Home for Leprosy Patients

Generally, most of the buildings constructed for the purpose of medical treatment are in the form of institution, where it is hygienic, uniform, bland and furnished with modern equipment. Ever since the beginning, Mission to Lepers built leprosaria in simple form of houses in pleasant environment with no visible mark of confinement. The basic built form of their leprosarium is in the form of houses, where leprosy sufferers could re-establish a new community life in the leprosy colony. Mission to Lepers established their first leprosarium in Chamba, India in 1875. Chamba leprosarium has eight houses surrounded by scenic environment and fertile valleys. They build the first church for the leprosarium in 1877, which was used as school and venue for gathering. This is because Mission to Lepers believes that spiritual comfort is equally important in addition to physical and emotional relief. From the first observation on the approach employed by the missionary, leprosarium is defined as a place of refuge and comfort; it is not defined as an institution to segregate leprous people from the society.

Referring to Maslow's hierarchy of human needs, architecture that provides a sense of belonging and intimacy, which we usually found in our home, fulfills the third level of human need. Former harsher leprosaria generally only fulfilled the lowest level, which is food and shelter. Thus, the segregation method and leprosaria established by missionary demonstrates its humane design by being sympathetic to human basic needs.

In 1904, Mission to Lepers assisted in constructing a new home for the leprosy sufferers in Tarn Taran in Punjab, to replace mud houses of 200 to 300 patients (Jackson, 1910:36). Instead of hospital wards, Mission to Lepers builds co-shared houses for its patients made from local materials. The most apparent reason why missionary shelter leprosy sufferers in houses instead of wards is most of the sufferers were able-bodied, like any normal human being. It was just because of the hideous outward appearance that causes them to be ostracized. Thus, it was not necessary to place them on beds, in a ward building. They needed a

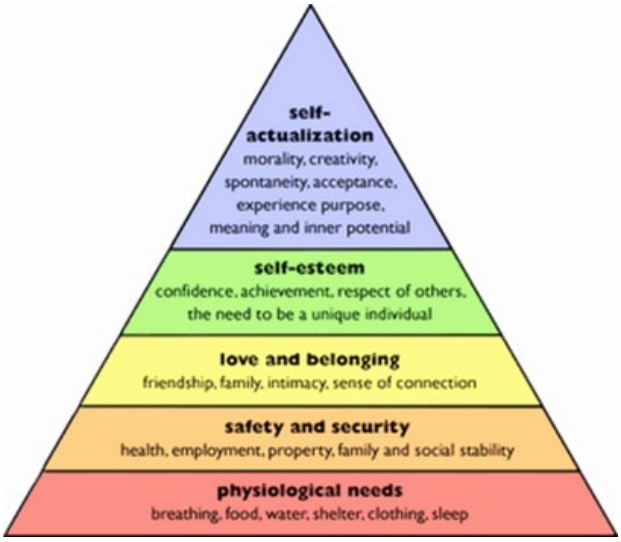

Figure 2: *Maslow's Hierarchy of Needs (Source: healtharchitecture.wikifoundry.com)*

home and not confined in an institution. How does the missionary built a home for these leprosy sufferers?

3.1.1 Leprosarium with a Natural and Pleasant Surrounding

Greenery landscape has always contributed to healing environment as it brings aesthetic values to the setting and improves human emotional health. Leprosarium located in such context reaped health benefits such as clean air produced to its environment. Bailey visited Almora leprosy asylum in 1881 shown in Figure 3. This asylum was one of the first four settlements aided by Mission to Lepers. Bailey described his journey through the little gate and a walk amongst fir trees leading to the settlement. The leprosarium appeared to him like a private dwelling (Jackson, 1910:24). Almora leprosy asylum was built on a hilly area and surrounded by trees and greenery. The patient's houses are constructed in terraces. The women's residences were located at the highest terrace while men's at the lowest. The married patients' houses were situated between the single men and women residence.

Such description on leprosarium seems to be analogous to the popular hill stations during British Raj. Hill stations were favored by many British officers due to the belief of its curative environment. The gardens around the hill stations offered peace and harmony to human

Figure 3: *Almora leprosarium built on terraces (Source: Bailey, 1888:iii)*

(Kennedy, 1996:47). This site planning strategy in missionary leprosaria model was reiterated in the later influential leprosarium model by the British Empire Leprosy Relief Association, BELRA. Prominent member of BELRA, Dr. Muir, included healthy site with good and fertile soil as essential requirement in his guidelines of establishing a good leprosarium. Besides offering a healing environment, healthy natural site has provided patients good cultivation grounds.

3.1.2 Human-scaled and Intimate

In his book 'Towards a Humane Architecture', Allsopp suggests a return to the village houses in the past, and rejects the monotonous housing design. He believes building should be human-scaled and intimate in order to be humane (Allsopp, 1974:80). A general layout and form of leprosy patient's house was presented by P.A. Penner at the 1920 Calcutta Conference. In his paper, "The Best Type of Wards", Penner described his quintessential house for leprosy patients based on Champa asylum in the region of Chhattisgarh (Penner, 1920). The house plan as shown in Figure 4 is 48ft long and 31ft wide, divided into three rooms of 12ft by 14ft. Each of this room can accommodate up to four patients and has a common 7ft wide open verandah space. This verandah area is designed as cooking space but can be used as sleeping area if needed. The house was also deliberately designed to allow abundant fresh air through windows, transoms and low-partition wall. According to Penner's house plan, it offers about 11.5 meters squared of space for each patients. The accommodation of living space is slightly larger compared to the typical barrack British built to house their workers in the colonies. Furthermore, leprosy patients did not have to share with a large number of people in one building.

Total of forty-nine leprosy workers from governments, mission, private organizations, Ernest Muir, and Issac Santra attended the Madras Leprosy Conference held in 1933 to discuss how the resolution of the

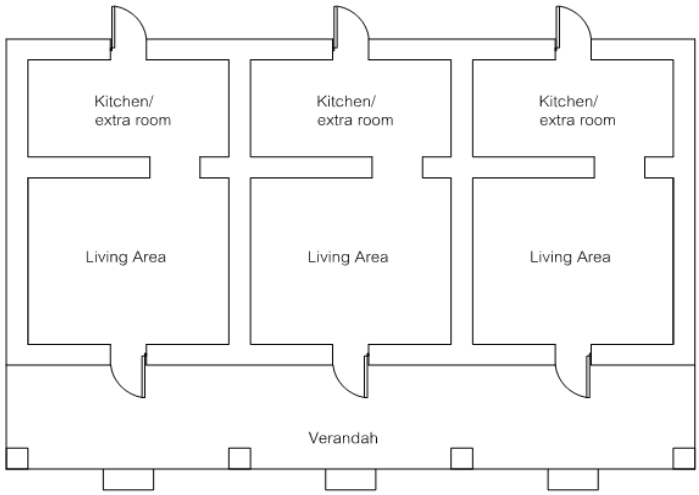

Figure 4: *A sketch of the patient's quarter according to Penner's proposal (Author)*

Calcutta Conference could be applied. Two leprosy institutions were suggested which were a large self-sustained colony and a voluntary colony just formed outside their own village ("Reports: Madras", 1930). This leprosarium scheme was important because it was later used as a fine model to follow in the construction of leprosaria in India and was also recommended by Ernest Muir in his book published in 1921 'Handbook on Leprosy: Its Diagnosis, Treatment and Prevention'. Muir's proposal became a guideline for planning and constructing leprosarium, especially on behalf on the influential humane advocator 'British Empire Leprosy Relief Association' (BELRA). This spatial planning of patient's house has certainly revolutionized the architecture of healing or disease prevention. Instead of ward pavilions, these human-scaled leprosarium co-shared houses gave patients sense of intimacy and community.

Figure 5: *Front view of the patient's house at Tampoi Leprosarium (Author, 2009)*

Figure 6: *Back view of the patient's house at Tampoi Leprosarium (Author, 2009)*

The patient's houses in Tampoi Leprosarium at Johor shown above in Figure 5 and Figure 6 has similar form and layout as Penner's proposal. Each room in the building, which can accommodate two patients, has one and a half storey of volume with windows and air vents. Tampoi leprosarium was built in 1928, thus suggested a legacy of missionary model.

Cochin leprosy asylum was one of the earliest leprosaria founded in India and it was established by Dutch missionary. It has two rows of houses and each row was assigned to each gender. One discernable planning strategy observed from the explanation above is gender segregation. Though leprosarium was designed to be intimate, the only contrast between leprosarium and a normal village is that male and female cannot reside together. Segregation according to gender is a common prevention measure in western medicine (Kakar, 1996). Yet, it was not for the same purpose. Leprosy asylums in India in the early

nineteenth century did not segregate patients according to their gender such as in Tarn Taran in 1886. Many children were born in the settlement due the absense of this restriction. The official proposal of segregation male and female patients in leprosarium was presented in a conference in Purulia in 1908. According to Mission to Lepers, male and female's living compound should be constructed apart as far as possible (Jackson, 1910:20). Instead for the reason of privacy and medical convenience, gender segregation was to avoid sexual intercourse among patients that leads to offspring, which might contract leprosy as well.

Segregation according to gender and discouraging marriage within the leprosarium received strong opposition from Indian sufferers. Most of the leprosaria in India separates male and female patients but there some exception such as Dharmsala in Bombay (Bailey, 1899:170). Bailey agreed on gender separation in leprosarium though the separation of married couple was against Christian teachings. Ultimately, gender segregation in leprosaria remained as one of principles in missionary model though the practice still varies in different location. Other than religious reason, gender separation within leprosarium was to avoid leprosy contagion from adult to children, who are more susceptible to leprosy disease. The untainted children born from patients must be separated from their parents and send to another institution outside the leprosarium.

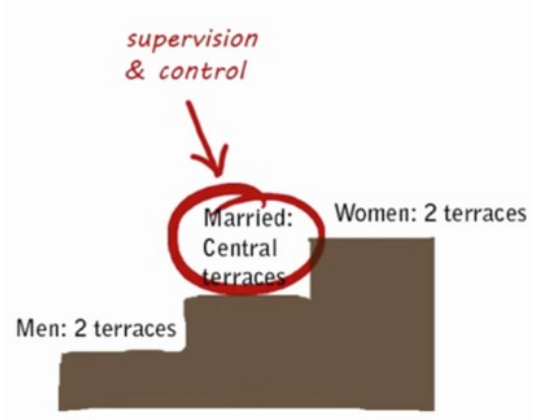

Figure 7: *Sex segregation in terrace arrangement at Almora asylum (Author)*

3.1.3 Organic Arrangement

The Mission to Lepers built a leprosarium two miles away from the city of Chumba. This leprosy colony has two compounds categorized by gender. Two rows of huts made from local materials were constructed for male patients. It is arranged in such a way it forms a common space in front of these houses. There was only one row of houses for female patients but it was constructed nearer to the river. The living environment that balances human and nature, such as the organic feature of a village and the communal atmosphere brings pleasure and enjoyment to the residents (Allsopp, 1974:91-92). Therefore, to establish a humane leprosarium, the arrangement of patient's houses should not be rigid or in massive scale. The whole leprosarium complex should be broken down into smaller form and distributed on pleasant landscape.

Mission to Leper's approach in building leprosarium alike to a village or human settlement is analogous to the social reformer William Booth. The founder of the Salvation Army, Booth proposed a solution in 1890 to reform urban poor by establishing a settlement for the hopeless. Booth did not adopt the workhouse typology, which was a widespread architectural solution for urban poor in Europe during the Victorian era. Booth suggested a farming colony instead. He repeatedly mentioned the first step to social reform was to create a decent, healthy and pleasant home, or assisting them to build one for themselves (Booth, 2008:212). The farm colony or settlement suggested by Booth was a self-sustained, self-governed and educative human settlement.

Figure 8: *A view of Hadleigh farm colony established by the Salvation Army (Source: hadleighhistory.org.uk)*

A rigid planning of patient's houses similarly to military barracks should be avoided. An example of a uniform, rigid and strict planning of leprosarium can be observed from the Kikuchi Keifuen Leprosarium in Japan shown in Figure 9. This institutional-like leprosarium was built in 1909, a result of Japan's Leprosy Prevention Act passed in 1907.

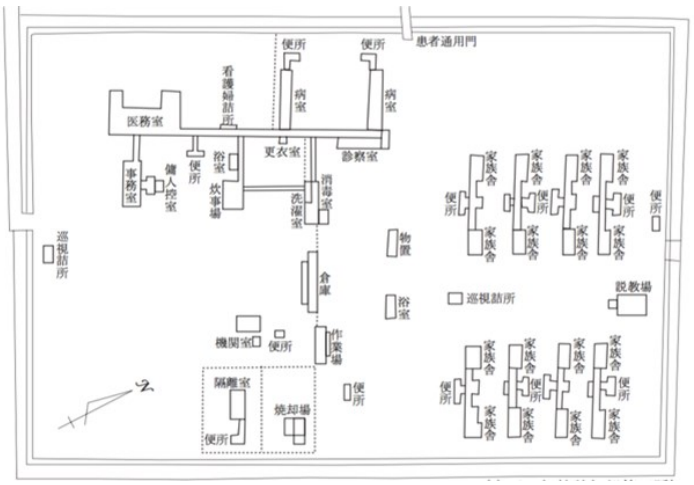

Figure 9: *Keifuen Leprosarium was built in 1909 (Sakaino, 2007:51)*

Most of the medical institution built during epidemic, such as leprosy, focuses on the functionality of the structure, not so much on the aesthetic. Nonetheless, some leprosaria are not built in haste and its appearance do matters to a certain extent. Carville leprosarium in the United States showed in Figure 10 was originally founded on a plantation ground and became an icon of modern medicine, with impressive white neo-Classical building complex in 1930. Leprosy patients lived in an institutional-like environment, rather than 'home', and lead a non-communal life (Fairchild, 2004). Even as referring to the seemingly comfortable and modern Carville leprosarium, editor from a major regional newspaper called it inhumane and senseless, when the officials mentioned inmates in the famous leprosarium was guarded from absconding the institution until they are paroled (Moran, 2012:166).

Figure 10: *The modern Carville leprosarium, patients lived in hospital wards and its architecture allows movement between wards only within an enclosed corridor (right) (HRSA)*

3.2 Leprosarium as Self-Sustainable Human Settlement

As idleness is not a virtue in mission leprosaria, all able-patients were either work, trained or educated to contribute to their new home. Most of the leprosarium under the management of Mission to Lepers has lands for farming or agriculture next to their settlement. The agricultural products will be divided among all the patients (Jackson, 1910:70).

Figure 11: *In Purulia Settlement, patients would work on fields to sustain their community (Source: Jackson, 1910:62)*

The principle of self-sustainable settlement in missionary model was just for economical purpose in the beginning, because growing food in the settlement done a great deal in reducing the cost for operating the leprosarium. During the early 20th century, research has proved that agricultural work does more than just providing food for the patients but also more speedy recovery and happier spirit, because working outside exposes them to sun and fresh air.

Leprosaria in Korea were built and managed by missionaries, such as Mission to Lepers, due to financial limitation (Fowler, 1930). Bailey visited Korea in 1913 and was impressed by the mission work among Korean leprosy sufferers and later raised funds to construct better buildings for them. As a result, more leprosy sufferers came voluntarily and form a self-support community within the leprosarium (Lewis and MacPherson, 2007:80). The two main leprosaria under Mission to Lepers are in Taiko and Yoshu. Robert Manton Wilson, a missionary from Southern Presbyterian Church in America, established leprosarium in Kwangju in 1909, which was later, moved to Yoshu. Wilson strongly encourages industrial work among leprosy patients. He stated that though the merchandises that the patients made were not for market, some colonies do sell to outsiders but only after it was sterilized. Wilson quoted a phrase "Faith, oil, work, but the greatest of this is work" to emphasize that work is indispensable in patient's life routine to fight the disease, apart from having faith and treatment oil (Wilson, 1930).

Mckean Leprosy Colony in Chiang Mai was established in 1908 on the southern part of Koh Klang (Middle Island). It was the first land granted by the government to leprosy sufferers. The ruler, Chao Inthwarorot Suriyawong donated the 164-acre of land to Dr. James McKean in 1907. The earliest houses were bamboo huts and their houses are grouped in villages. There were dormitories as well as small cottages for patients who can take care of themselves but male and female patients lived in separate villages. Many of the construction involved patients and with the hands-on effort, they took pride in their work and inspire other idle patients. The colony was built in the image of Siamese village, with houses on stilts and beautifully carved gable-end roof.

Figure 12: *Farm next to bamboo huts in McKean Leprosy Colony (McKean Rehabilitation Centre)*

Mission to Lepers was the main financial contributor to McKean Leprosy Colony from 1909 to 1917. Later during the Depression years, as McKean could barely support all the patients, the leprosy colony unintentionally becomes an educating and training centre because many trained patients resettled in different places to expand the work on leprosy treatment and religious faith.

3.3 Leprosarium as Semi-Autonomous Community

Unlike strict segregation in institutional-like leprosaria, leprosy sufferers in missionary leprosaria were not abandoned without care, even though medical provision was scarce. Leprosy patients were given power to manage their own community. Missionary leprosaria were built with very similar guidelines in building native churches. Missionaries were trained to establish Christian settlement that are self-governed and self-support. The self-supporting feature of missionary leprosarium model has been discussed above (Section 3.2). Leprosarium is still considered a semi-autonomous community because there is still a hierarchy of power between leprosy sufferers and the physicians. Nonetheless, leprosy patients were able to enjoy their freedom in managing their leprosy settlement. This approach also offered patients sense of dignity and control in their lives. A great example of such settlement under Mission to Lepers is Purulia Leper Colony.

3.3.1 Management and Maintenance Handled by Patients

Purulia leprosarium is the largest and perhaps the best example of Mission to Lepers's leprosarium model. The leprosarium is situated in a 'well-wooded' ground of fifty acres, housing almost seven hundred people including untainted children and health workers. Sir John Woodburn, the Lieutenant-Governor of Bengal then, commented Purulia as a model of compassionate approach in attracting leprosy sufferers without compulsion and walls (Jackson, 1910:79).

Figure 13: *Patient's houses in Purulia settlement has three rooms that accommodates four patients each (Source: Bailey, 1899:122)*

Muir commented that the self-governance approach practiced in Purulia settlement worked exceeding well (Muir, 1921:101). Purulia leprosy settlement was remarked as having 'well-devised' building scheme and that it has a symmetrical plan with houses built separately and ample spaces between each (Jackson, 1901:55). The housing compound was categorized into four main residential zones, which are reserved for male, female, boy and girl patients. The houses were uniform in size and have three rooms. Each room houses four leprosy patients, making twelve residents in one house. This human-scaled house has simple and clean facades.

Each of these houses has an appointed headman or headwoman. These leaders in each house took on the role of keeping peace, distributes food, as well as looking after the welfare of their members in the leprous community. This strategy in missionary model has lessened the burden of their caretakers. The strong and fit leprosy patients in Purulia settlement would help their other fellow sufferers who were too weak to take care of themselves (Jackson, 1901:60).

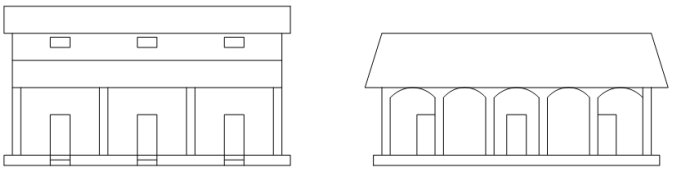

Figure 14: *A sketch illustrating the simple elevations of patient's house in Purulia colony (left) and Champa colony (right) (Author)*

From the sketch above, illustrating leprosy patient's houses in Purulia and Champa, shows similar guidelines in designing patient's residence. Both have three rooms per house and could accommodate up to twelve patients.

Leprosy patients in McKean leprosy colony selects their 'village elder', which what they commonly practiced too in normal native village. The security in the colony was not handle by outsiders but by the members of their own community. The leprosarium has their own police force to keep peace in the settlement (News, 1949:145).

3.3.2 Leprosarium as Educational Centre

Large leprosarium such as Purulia was functioning as teaching centre as well by training ex-leprosy patients and health workers to serve in the leprosarium ("This Spreading", 1974:31). Purulia colony was established in 1888 and the number of admissions grew rapidly and has about six hundred people at the turn of the century. Patient's previous dire living environment was transformed to be more airy and spacious (Jackson, 1910:131).

All able-bodied patients worked in the leprosarium. There is a large land for agricultural activities and also brick-making for building structure in the leprosy settlement (Jackson, 1901:55). Besides entertainment facilities, leprosarium also includes workshops. Not only that the life of attending school and work in the leprosaria helped the sufferers to forget their affliction, leprosy patients were equipped with skills that they might not obtained outside leprosarium. They do not only feel useful but they indeed becomes a productive community.

In the later humane leprosarium model, it continues to employ self-governed and educative characteristics. This practice has proven to be extremely valuable and essential during the discovery of effective cure for leprosy because many leprosy patients were able to support themselves after discharged from leprosarium. By 1929, the leprosarium has a unique building for leprosy patients with tuberculosis, a mortuary for post-mortem research, and dressing stations ("Mission to", 1931). Physicians and leprologists soon visited leprosaria around India and the world for research. Leprosarium was then transformed from an ailing community to a relevant center for medical breakthrough.

This is a description on Purulia Leprosy Colony in the early twentieth century:

"It is really a splendid place, wonderfully planned and executed. The houses are

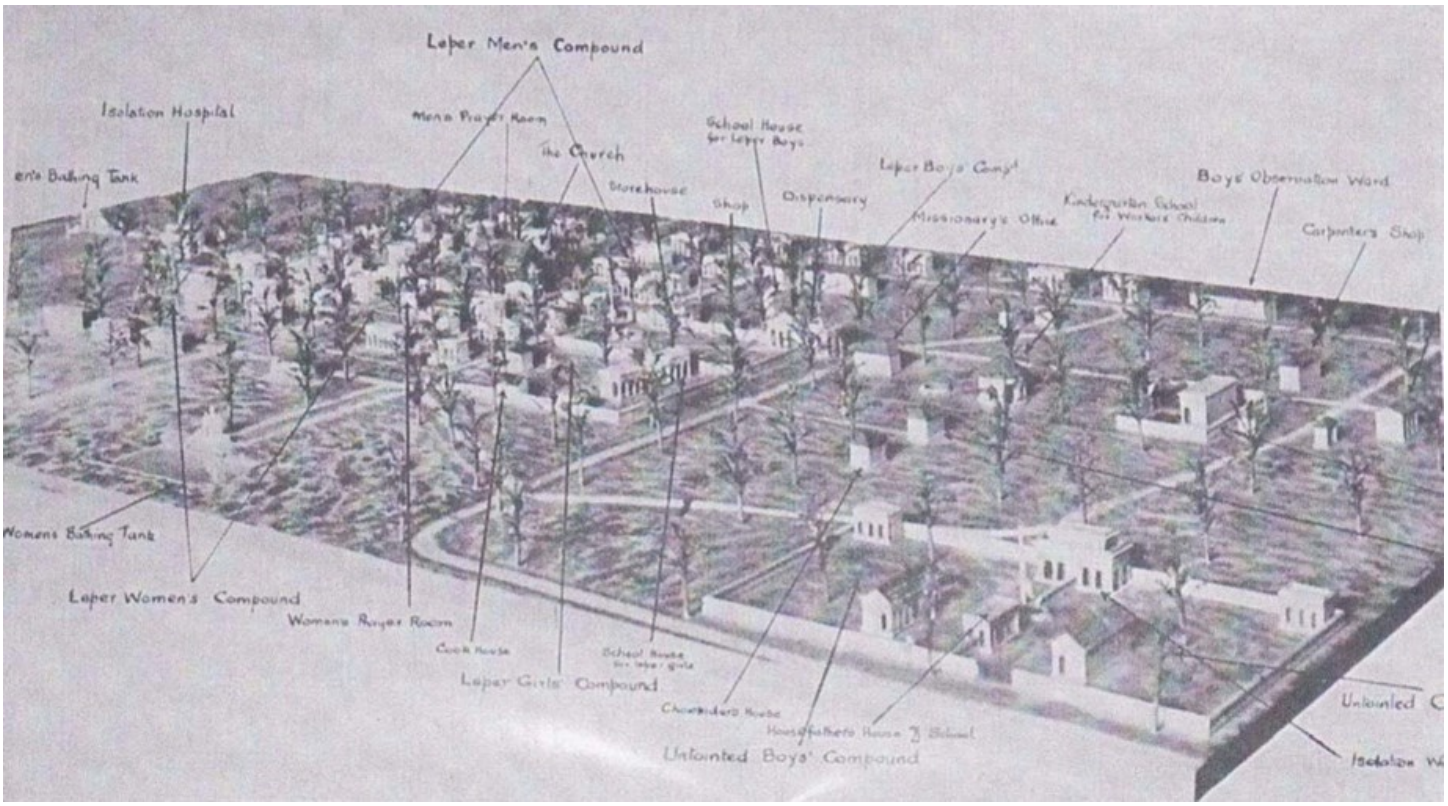

Figure 15: *A photograph of a model for Purulia Leper Settlement in India (MTL)*

strong and look very picturesque, being colour-washed in different hues. There are groves of trees all over the grounds, which are so spacious as to make a journey through them a good long walk."

The description above resonates curative environment that almost appear like a utopia for leprosy sufferers. The leprosarium offers more than mere shelter to its patients. The Purulia community was provided with a normal life routine where they enjoyed sports and music instruments (Jackson, 1910:164).

Figure 16: Native physicians and untainted boys were trained as health workers in the settlement or sent out to serve other leprosaria (Jackson, 1910:62)

4. Conclusion

Following the failure of compulsory segregation policy, harsh living environment and strict institutional-like buildings, leprologists came to acknowledge that to effectively stamp out the disease, leprosy sufferers have to come forward voluntarily. Segregation practices are both socially and financially challenging to many governments as leprosy issue gradually became a public health issue and an obstruction to national progress. In such timing, missionary method of segregation and leprosarium planning was perceived as an apt solution. The lack of attention and commitment from the government has aided missionary leprosarium model to flourish in many parts of the world. A long-term health institution such as leprosarium that replicated the external social environment akin to a normal human settlement has proven to be a more effective alternative in leprosy prophylaxis.

The missionary leprosarium avoided the orderly barrack planning and was broken down to smaller unit of houses and arranged in less intimidating configuration. Leprosarium as a human settlement also proved to be feasible during disease outbreak because of its self-sustainable ability. Leprosarium architecture and planning that imitates the natural village, self-sustainable, community-driven and semi-autonomous has brought missionary organizations as the forerunner of humane leprosarium builder, which later rise and thrive in the 1920s to 1930s. Missionary model of leprosarium has demonstrated that architecture built for plague did not have to be pathetic. It can be functional and humane at the same time.

In fact, missionary leprosarium model has produced a unique form of human settlement, a western legacy in tropical countries extended beyond disease prevention method. The missionaries were engineering an ideal, utopian, self-sustainable indigenous Christian community. The leprosy care and leprosarium construction contributed by missionaries, especially Mission to Lepers ultimately has a core purpose of evangelism. Missionaries acknowledged that by building a physical exclusionary world with 'homelike' environment has curative and moral reform effect. The physical environment in missionary leprosaria

was constructed in a way to reform its residents. Besides providing care and compassion, missionaries often view their responsibility in civilizing the seemingly 'backward' lifestyle of the leprosy sufferers. Leprosy sufferers were 'spiritually' civilized through religious teachings and were 'physically' civilized through hygienic practices, sexual abstinence, reject idleness through work, and contributing back to their community. It was proven to be a productive human settlement because patients were able to continue working, training, and learning, even within a segregated community. Relationship among patients and between health workers was also fostered in proximity amid facing a common struggle.

Even though missionary method was considered too 'soft' and inadequate in later 1930s, which legitimized the re-implementation of strict and authoritarian leprosaria in Nationalist model, this study has led us to understand how architecture was utilized as a tool in disease prevention yet aspired to preserve the humanity among leprosy outcasts. An architecture of human segregation can strived to be humane by providing a home environment to patients, be self-sustained through the hands of residents themselves, providing leisure and education as crucial for human development, and a productive self-govern community.

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