

The Magic Mountain Revisited: History of the Madanapalle TB Sanatorium

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The sanatorium was central to tuberculosis treatment in the 19th and early 20th centuries. The long-drawn nature of treatment and the highly infectious nature of the disease made the sanatorium regimen effective and popular before antibiotics entered the scene. The sanatorium was not just a hospital, it was a social world – isolated from the rest of society it created its own definition of “community”. Now it has faded from public memory. This paper revisits the sanatorium in an effort to uncover and construct the social history of TB in India. The Union Mission Tuberculosis Sanatorium in Chittoor district, Andhra Pradesh, provides the site for this historical enquiry.

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Such Institutions as the Berghof (Sanatorium) were a typical pre-war phenomenon. They were only possible in a capitalist economy that was still functioning well and normally. Only under such a system was it possible for patients to remain there year after year at the family's expense. *The Magic Mountain* became a swan song of that form of existence.

– Thomas Mann on *The Magic Mountain*¹

Any understanding of tuberculosis (TB) without an engagement with the sanatorium will be an incomplete one. The sanatorium has been a key institution that defined and dominated the treatment of the disease before the chemotherapy era of the 1940s. A more nuanced reading of the history of TB is critical, as the disease while being a scourge in the past, persists in being the major health problem in many parts of the world even today.

Most 18th and 19th century physicians looked upon tuberculosis as a hopeless disease, and argued that there was no measure available to prevent or resist the disease. As faith in medicine declined in finding a speedy cure for tuberculosis, many 19th century physicians stressed the importance of hygiene, change of climate, sunshine, mental tranquility, exercise, fresh air, avoidance of excessive passions, and proper diet in the prevention and treatment of tuberculosis [Teller 1988]. In the middle of the 19th century, the primary therapy for tuberculosis was prolonged bed rest, nutritious food, fresh air and change of climate, and such therapies were practised usually in the setting of special institutions called “sanatoria”.

This paper attempts to retrieve the sanatorium from the annals of history and stitch together a loose narrative about its functions and role in TB treatment. The sanatorium is deployed as an entry point to configure the social construction of the disease in the early 20th century, with special reference to India. While the TB sanatorium at Madanapalle in Andhra Pradesh provides the backdrop for this interrogation, Thomas Mann's novel *The Magic Mountain*, that made the sanatorium so popular in public imagination, is used as a metaphor to represent the sanatorium in the west. In contemporary memory, the sanatorium is a forgotten institution that no longer exists in its original form, but any meaningful understanding of the history of TB cannot ignore this vital past. In the 19th century and till antibiotics were discovered in the 1940s, it was the sanatorium that provided the backbone of treatment for TB. The sanatorium was not just a hospital, it was also a social world where patients were forced to live together in isolation for long periods, as treatment for TB stretched over months.

How was the sanatorium perceived/constituted in the west and in India? Was the sanatorium seen as a public health measure to separate and quarantine TB patients, largely the poor, or, was it an elite institution that was set up by private doctors to serve rich patients? Did the exclusion of the poor from accessing sanatoriums make it easier for them to be blamed for TB epidemics? How did social stratification get represented/played out in the sanitised confines of the collective space of the sanatorium? Can we see the inmates of the sanatorium as a “community” – or, did class, caste, race and language divide them? In the Indian context, was the sanatorium in colonial India a statist project to legitimise control and hegemony of western medicine and Christianity? Can we track the history of the sanatorium in India that had a missionary/colonial dimension and how do we understand the treatment that was both “scientific/medical” and “religious/moral”? Is there an urgency in India, to resurrect the sanatorium in the present times, in an effort to control the rise in the incidence of TB?

This paper endeavours to revisit the “sanatorium” and engage with some of these questions, in the hope that some historical insights emerge in our understanding of the medical and social dimensions of TB.

1 Emergence of the TB Sanatorium

We discuss in this section the history of the sanatorium in treatment of TB.

1.1 The ‘Isolate-Diet-Rest-Cure’ Regimen

The word sanatorium is derived from Latin word *Sanatorius* meaning “an establishment providing therapy” [Madkour et al 2003]. The introduction of the sanatorium cure provided the first real step against the management of tuberculosis. Bodington (UK), Brehmer (Germany) and Trudeau (US), all laid the groundwork for the introduction of the sanatorium type of treatment. According to Joseph (1956) sanatoriums were established because of the certain characteristic features of the tuberculosis disease itself.

The fact that TB is a dreaded infectious disease made it necessary that the sufferers be separated from the healthy, and placed in institutions where special provisions are made for personal hygiene and prevention of infection. Secondly, the disease in the majority of the cases being of long and chronic nature, it was found desirable that arrangements should be made for patients to settle down into a routine, for months or years together, and adopt a restful regulated mode of life with provision for a liberal supply of good food. Thirdly, no medicinal or other forms of direct attack on the disease were known and treatment was mostly ‘nature cure’ and emphasis came to be laid on climate, fresh air, and surroundings [Joseph 1956: 7].

In the early 18th century tuberculosis was recognised as a highly contagious disease. Hospitals began to exclude tuberculosis patients and many were ostracised from communities and even from their own families. Due to an escalated fear of contagion, sanatoriums met the basic psychological need of community to check the spread of infection by isolating its sick (i.e., the source of infection) and also satisfied society’s efforts to cure those with tuberculosis. In other words, sanatoriums served a dual function, they not only aided the healing process by providing good rest, good nutrition, well-regulated life and a healthy environment,

but they also served to remove the sick and diseased from the general population and thereby reduced risk to others. Almost everyone in the early 1920s had family members or friends who were sick with tuberculosis.²

In 1836, a medical practitioner George Bodington, from UK, for the first time, proposed isolation of consumptives in a separate house for providing therapy. He believed that diet, physical exercise and fresh air were essential for treatment of tuberculosis. However, his suggestions failed due to lack of support [Madkour op cit]. Hermann Brehmer, a botanical student from Silesia, Germany, himself a sufferer from the disease, was instructed by his doctor to seek a healthy climate. Brehmer travelled to the Himalaya Mountains, returned home cured, studied medicine and in 1854 presented his doctoral dissertation on ‘Tuberculosis Primis in Stadiis Semper Curabilis’ (Tuberculosis is a Curable Disease). He argued that it was important to bring the consumptives to an immune place, away from the crowded urban centres, where the disease would heal by itself [Herzog 1998; Mohan and Sharma 2001].

In 1859, Brehmer, built a sanatorium in Gorbardsdorf, Germany, in the middle of a pine forest. This was the first sanatorium opened for the treatment of patients with pulmonary tuberculosis, and it became a blueprint for all sanatoriums across the world as far as site selection and building layout was concerned [Mohan and Sharma *ibid*]. In the following years, many sanatoriums came up in different parts of Europe, America and other countries. Some of the more famous ones were Badenweiler, Lausanne and Davos in Europe and the Trudeau Sanatorium in Saranac Lake, Blue Ridge and Catabwa in the US.

It was the terror of infection, the high fatality rate and the desperate search for cure that saw the first sanatoriums come up in Europe. The setting up of the sanatoriums in sparsely populated rural areas was to avoid the crowded towns and cities that were seen as unhealthy, the sources of infection and epidemics. The preferred locations for the sanatoriums were the hills as they provided open spaces, fresh air, sunshine and available land for cultivation of crops and dairy farming, all seen as essential components in the healing process of the disease. The sanatorium line of treatment was based on the dictum of “fresh air-sunshine-rest-high protein diet-mild exercise”. The hope that these early sanatoriums generated, resulted in this regimen of institutionalised treatment becoming popular and spreading to the US and other parts of the world. Before the advent of antibiotics in the 1940s, sanatoriums dominated the treatment of TB. As Shiela M Rotham, the author of *Living in the Shadow of Death: Tuberculosis and the Social Experience of Illness in American History*, argued:

A generation of physicians, social reformers and philanthropists were convinced that confining the tubercular in these facilities would promote not only societal well-being by isolating those with the disease, but also individual well-being by implementing a therapeutic regimen. The sanatorium satisfied both the drive to coerce and cure.³

The advent of the 20th century saw the increased popularity of sanatoriums in different parts of the world including India. Christian missionaries working in India played a pivotal role in establishing the first few sanatoriums in India. The first sanatorium in India was started in 1906 in Tilaunia, Rajasthan, intended primarily for treating girls from mission schools and orphanages

connected with this mission. This was followed by one in Almora in the Himalayas in 1908 and another for women and girls in Pendra Road, Central Provinces in Madhya Pradesh. In 1915, the Union Mission Tuberculosis Sanatorium (UMTS) was established in Madanapalle, Chittoor district, Andhra Pradesh. The first sanatorium outside the influence of Christian missionary organisations was opened in 1909 at Dharampore (near Shimla) in 1909, and was called Hardinge Sanatorium. Bombay-based philanthropists, mainly Parsees, generously contributed for the construction of this sanatorium. The first sanatorium under government control was opened in 1912 in Bhowali in Uttar Pradesh, and was named King Edward Sanatorium to commemorate the reign of King Edward VII [INJT 2002: 132].

1.2 An Elite Institution of Discipline and Control?

The Swiss Alps and Germany were the favourite sites for the well known sanatoriums, most of them privately run by doctors who were or had been TB patients themselves. State run sanatoriums were established later and were fewer in number. The most luxurious sanatoriums of the Swiss Alps resembled hotels, similar to the description of the Bergh of Sanatorium in the *The Magic Mountain*, which was a cross between a hospital, a luxury health farm and a winter sports centre [Colston 1998]. These sanatoriums had various floors with rooms opening out to a central corridor and a large balcony. The balcony was an essential feature in these sanatoriums, as the TB patients had to sit out in the open sun for fresh air that was a mandatory part of the treatment programme. Other less exclusive sanatoriums were usually long, narrow buildings with porches running the lengths of both sides and the buildings were open on both ends to allow the fresh air to circulate. Patients were allowed to come indoors in the day time to bathe and rest, otherwise were expected to soak in the sunshine outside. Summer and winter alike, the residents of the sanatoriums ate, slept, socialised and died on these porches.

The mess or the dining hall was the nerve centre of the sanatoriums and was the meeting place for the inmates four to five times in a day. Food and nutrition was given high priority in the treatment regime with a high protein diet expected to counter the ill-effects of the disease. It was only after antibiotics were discovered that the importance given to nutrition in the treatment of TB declined. The sanatorium physician Lawrason Brown noted that the “kitchen is the only pharmacy that many patients should know” [quoted in Teller op cit: 25]. The staple diet included substantial amounts of milk, meat, eggs and pulses. A study conducted by Irving Fisher in 1906 showed that the calorie intake per patient ranged from 2,140 to 4,380 calories per day at various American sanatoriums.

An important objective of the sanatorium treatment was the balance between diet, rest and exercise [Teller 1988]. Life in the sanatorium revolved around the daily timetable that each patient was expected to strictly follow. Discipline and control were important mechanisms in treatment and the doctor’s authority was unquestioned. Such an expectation of adherence to discipline involved “implicit obedience” on the part of the patient and formed a major part of the success story of the sanatorium treatment regime [Bryder 1988:58]. As Bryder argues, in the sanatorium

treatment, “emphasis was also placed on individual responsibility and education rather than on broader economic and social problems. The high levels of tuberculosis in areas of unemployment and material hardship were dismissed by many in Britain” [quoted in Marland 1990].

The sanatorium that *The Magic Mountain* portrayed was a world available to the rich in Europe and elsewhere. The European, specially the Swiss sanatoriums, were expensive with many of them not even calling themselves sanatoriums, instead were known as health resorts, hotels or clinics to avoid the stigma of TB associated with the word “sanatorium”. In a sense, Mann’s novel brought this insular, “caught in a time warp” world of the TB patients in sanatoriums, into the public consciousness. It was through the vivid depictions in the novel of everyday life of TB patients, that most outsiders/readers got a peep into the world of loneliness and suffering that the sanatorium represented. But the popularity of the sanatorium remained unquestioned as it was seen as a space of hope for curing TB, as no other method of treatment had as yet shown any promise. Not all the sanatoriums were for the wealthy – the state, missionaries and charitable organisations built ordinary ones for the rest of society but the virulent prevalence of TB during this period meant that for the poor demand for sanatoriums outstripped supply.

A critical reading of the history of the sanatoriums brings out the class, gender, race divides that were representative of society at that time. Many of the sanatoriums were elite privately-owned institutions meant only for the wealthy. While the classy sanatoriums of Europe provided an option for the rich, the poor who were the worst victims of TB, could not exercise this choice and continued to suffer and die and be blamed for causing the TB epidemics. In the US, sanatoriums reflected racial segregation, with the first sanatoriums meant for whites only and later separate sanatoriums opened for the blacks. In Virginia, in 1909, the Catawba sanatorium and in 1919 the Blue Ridge sanatorium opened for white TB patients, while in 1917 the Piedmont sanatorium was opened for blacks [Terry 2002]. One observes that in the US most of the sanatoriums were built by the state and were not exclusively for the rich, unlike the Swiss and German ones, as most of the latter were privately owned.

In the case of India, the fact that the early sanatoriums were set up by missionaries and later by the state meant treatment was free or minimally priced and helped to blunt an elitist slant to the inpatient profiles in these institutions. But within the sanatorium, there were special wards with separate kitchens for the Anglo-Indian, British and richer patients. This will be obvious from the discussion in the later section on the UMTS sanatorium. It needs to be mentioned that for the really poor in India, the sanatorium was often inaccessible, not because they could not afford it, but probably because they were unaware of its existence and also there were so few of them in the country. Moreover, the stigma associated with TB prevented many patients from seeking treatment.

1.3 TB, Sanatoriums and the Nehrus

If both TB and the sanatorium were familiar in the popular imagination of most urban Indians, during the freedom struggle of the 1930s and later, it was due to the Nehru family. Jawaharlal

Nehru can be portrayed as India's Thomas Mann. Nehru's wife Kamala was diagnosed with TB in 1924 and spent the rest of her years, in and out of sanatoriums till she died in 1936. There are quite a few parallels that resonate in both Mann's and Nehru's life. Mann's wife too was suspected of TB in 1912 and advised to spend a few months in the Davos sanatorium. Mann spent a few weeks in this sanatorium visiting his wife and the experiences of this stay formed the backdrop of his novel *The Magic Mountain*. Similarly, Nehru visited his wife during her stays in various sanatoriums, both in India and Europe, was familiar with the TB regimen and wrote about these visits and her health in his book *Discovery of India*. Nehru's writings about his visits to Kamala in the sanatoriums, that included Bhowali and Kasauli in India and Badenweiler and Lausanne in Europe made media news and were topics of discussion among the urban populations.

Coming from an upper class/caste family, the Nehrus could afford the best treatment possible for Kamala, including very expensive private sanatoriums in Europe meant only for the wealthy. That many of the sanatoriums were elite institutions catering for a small section of upper class TB patients does emerge clearly from the narratives of both Nehru and Mann. In the context of India, the fact that Nehru's wife had TB may have helped reduce its stigma among the general public. Nehru did not shy away from acknowledging or discussing the fact that his wife had TB and the sanatorium represented an important connect in his life.⁴

2 Union Mission Tuberculosis Sanatorium

This section describes the history of the Madanapalle sanatorium.

2.1 Early Beginnings

T V Campbell (a medical missionary of the London Christian Mission, Jammalamadugu, Cuddapah district in Andhra Pradesh, himself a sufferer from pulmonary tuberculosis, travelled to England for treatment. Encouraged by his own recovery from pulmonary tuberculosis in a sanatorium setting in England, Campbell strongly believed that fresh air, nutritious food, clean environment free of dust and noise, and well-regulated life practised in the setting of a sanatorium played an indispensable role in his recovery from the dreaded disease. Campbell proposed for the first time to establish a sanatorium in south India at a meeting attended by a group of medical missionaries working in south India, in Kodaikanal in 1908. In the following year, the proposal to build a sanatorium was accepted by the South Indian Missionary Association at a meeting in Madras [UMTS Golden Jubilee Souvenir 1966].

A large number of locations in south India were examined. After extensive search for many years, an ideal site was located at a short distance from a small town Madanapalle in Chittoor district, Andhra Pradesh. The site was at a height of 2,700 metres above sea level and located four miles away from a small railway station and a similar distance from Madanapalle town. This site successfully met the ideal guidelines for planning a sanatorium that were laid out clearly: (1) the site was located at a moderate elevation above sea-level and resulted in nights that were cool and invigorating. The sanatorium was encircled by hills which provided protection against strong winds and heavy monsoon-storms;

(2) the site was relatively free from dust for two important reasons; one that it was located at a considerable distance from crowded urban centres and the second that it was covered with vegetation; (3) the climatic conditions were dry and pleasant throughout the year, during the winter and summer seasons the maximum temperatures ranged between 21°C and 27°C, and 35°C and 38°C, respectively. Even during the hottest months of summer the nights were always cool. As the climate was more or less equable for the most part of the year, all seasons were beneficial for the treatment of tuberculosis; (4) finally the selected site fell under the jurisdiction of the Madras presidency of British India, making it eligible for getting government support and funds for the construction of the sanatorium.

The UMTS was established in October 1912 in Madanapalle. The sanatorium grounds were expanded to nearly 350 acres over the years and included a post office, library, barber shop, butcher shop, grocery shops, laundry, printing press, wells for water and schools for children [UMTS Golden Jubilee Souvenir 1966].

2.2 Profile of Patients and Catchment Area

The gender break-up of patients over the decades shows a fair representation of both men and women (Table 1). Most years women comprised a little over 40 per cent of the total patients, suggesting that women used the sanatorium as much as men did. One is not sure whether this was due to the fact that the Christian missions had a large number of girls schools and women serving in them or the social stigma of the disease that forced women to take refuge in the sanatorium. The average age of the patients rose steadily over the years from 22 for women in 1920 to 27 in 1960, while for men it increased from 25 in 1920 to 35 in 1960. Over the decades, the range in age of the inpatients varied from less than one year to 70 years [Annual Reports, UMTS].

Initially till the 1930s, most of the inpatients were Christians who came from the various missions. However, from 1950s onwards, Hindus constituted a majority, and only about 25 per cent of the patients were from the Christian missions. Between 1912 and 1915 Christians accounted for 67 per cent of the patients, Hindus 23 per cent and Muslims 5.7 per cent. But by 1950 Christians declined to 23 per cent, Hindus rose to 61 per cent and Muslims to 12 per cent (Tables 2a and 2b, p 56). Also in the early decades of the sanatorium, there were significant numbers of European and Anglo-Indian patients but after independence there are hardly any. This suggests that though the UMTS was established by the Christian missions and religion did play a key role in daily life at the sanatorium and service to the patient was seen as service to the lord, yet the facility was open to people of all faiths.

Patients at the sanatorium ranged from students (from the missionary schools), doctors, lawyers, government officials, merchants, teachers, clerks, industrial workers, agriculturalists and coolies. About 20 per cent of the patients were provided free

Table 1: UMTS: Gender Profile of the Patients 1912-24

Year	Male	Female	Total Admitted	% of Patients Who are Male
1912-15	117	109	226	51.8
1916-17	122	82	204	43.26
1917-18	159	128	287	55.40
1919-20	169	100	269	62.8
1920-21	151	98	249	60.6
1921-22	137	101	238	57.6
1922-23	109	83	192	56.7
1923-24	209	125	84	59.8

treatment and these were the poor. The UMTs profile of patients shows a mix of rich and poor patients. The rich patients paid and the poor were treated free. For poor TB patients the sanatorium was a space of hope and shelter, as it gave them good food and rest, besides treatment, all of which was not possible outside.

Table 2a: Religious Profile of Patients 1912-15 and 1916-24

Year	Total Patients	Christians %	Hindus %	Muslims %	Anglo-Indians %	Europeans %	Buddhists %	Jew %	Parsee	Jain
1912-15	226	67	23.0	5.7	3.5	0.9	-	-	-	-
1916-17	204	60.2	29.6	5.4	2.5	2.5	-	-	-	-
1917-18	287	44.25	41.8	8.7	4.18	7.3	-	-	-	-
1919-20	269	43.8	36.8	12.2	4.4	2.6	-	-	-	-
1920-21	249	31.7	50.2	8.4	4.4	5.2	-	-	-	-
1921-22	238	33.1	44.1	13.4	4.62	4.62	-	-	-	-
1923-24	209	48.3	42.1	7.6	-	-	-	1	1	-

Table 2b: Religious Profile of Patients 1950-60

Year	Total Patients	Christians %	Hindus %	Muslims %	Anglo-Indians %	Europeans %	Buddhists %	Jew %	Parsee	Jain	Others
1950-51	541	23.2	60.9	12.0	5.7	-	3.3	-	-	-	0.3
1951-52	535	19.6	64.4	12.5	-	-	2.8	-	-	-	0.5
1952-53	506	20.7	63.2	12.6	-	-	3.3	-	-	-	-
1953-54	597	18.0	68.1	10.9	-	-	2.5	0.1	-	-	0.1
1954-55	598	20.2	65.5	12.0	-	-	2.0	0.1	-	-	-
1955-56	528	16.3	71.2	10.8	-	-	1.5	0.2	-	-	-
1956-57	608	17.6	69.2	10.4	-	-	2.4	0.2	-	-	-
1957-58	691	15.2	70.9	12.3	-	-	1.4	-	-	0.1	-
1959-60	620	12.4	77.0	10	-	-	-	-	-	-	-

The reputation of UMTs was established worldwide in the fields of patient care, therapy, research and teaching within a short period of time and this institution became one of the famous institutions for TB care within and outside India. Patients came from various districts of south India. Patients also came from different regions of India including Assam, West Bengal, Bihar, Bombay, Hyderabad, Madhya Pradesh, Mysore, Orissa, Cochin, and Uttar Pradesh. The UMTs acquired fame and attracted patients from neighbouring countries like Sri Lanka, Burma, Malaysia, Nepal, Singapore and the west Asia. The catchment area of UMTs was wide, though till the 1940s most patients (70 per cent) came from the Madras presidency region, we find that right up to the 1960s about 5-8 per cent of the patients are foreigners (Tables 3a and 3b). The opening of another sanatorium at Tambaram near Madras in 1928 gave patients another option who earlier had to come only to the UMTs.

2.3 Rules and Regulations

As the sanatorium was meant for patients with early stages of tuberculosis and in a good condition of health, a medical certificate on a prescribed form had to be sent to the medical superintendent of the sanatorium

before a patient was called. Patients were admitted strictly according to the order of registration. All the patients had to pay for accommodation, food, surgery and other expenses in the sanatorium. However, poor patients admitted into general wards were provided free services (e.g., accommodation, food, medicines, surgery, etc), on the production of certificate from a gazetted official or from a representative of the missions or churches on the governing body of the sanatorium. In 1925 the charges per month per patient in the general ward was Rs 5 for members of the Christian unions and Rs 15 for non-members. In the private ward the charge was Rs 40 upwards per month depending on the income of the patient and the accommodation required [UMTS Annual Report 1925, Appendix V]. Patients in special wards were allowed to have attendants, and if desired a cook as well, whereas, patients in the general wards were not permitted to have attendants. Children were not allowed to stay with patients [UMTS Golden Jubilee Souvenir 1965].

On entering the sanatorium a copy of the rules and regulations was given to each patient. These rules were taken very seriously, and had to be obeyed by every patient. There were strict rules governing coughing in public, spitting on the floor and basically controlling any potential spray that came from the lungs, throat or mouth. Patients were required to cover their mouths when coughing and to expectorate into a disposable cup. Life in the sanatorium was highly regulated and controlled and patients had to adhere to written and unwritten regulations. Doctor's orders had to be followed strictly with regard to treatment and exercise regimen. If a patient wished to meet his/her relatives and friends, he/she must obtain permission from the doctor. The friends, servants and family members of tuberculosis patients were also subject to the doctor's orders. Violations of these rules could

result in the dismissal of a patient from the sanatorium. The timetable of the sanatorium was strictly followed and discipline (Box 1, p 57). Timings for various activities that each patient had to adhere to were clearly laid down. The taking of temperature (four times daily); meals (five times daily) and rest (four times daily) were the major activities for most patients and became part of their daily life in the sanatorium. Religion was also important and the time for prayer was also built into the daily schedule of patients, though it was voluntary for non-Christian patients. Religious meetings in the evenings were common along with services on Sundays and there was a strong belief encouraged about the healing hand of god.

These rules enforced a routine and discipline that characterised the sanatorium as the institutions of control and power. For the patient falling in line with this regimen was mandatory. Issues of non-compliance did arise occasionally with some patients leaving, unable to cope with the pressure of

Table 3a: UMTs: Catchment Area of Patients 1912-15 and 1916-23 (in %)

Year	Madras Presidency	Madras State	Andhra State	Other States	Foreign
1912-15	89.3	-	-	10.7	-
1916-17	76.4	-	-	18.6	5.8
1917-18	79	-	-	21	-
1919-20	72.4	-	-	25.2	2
1920-21	64	-	-	29.3	2.8
1921-22	66.8	-	-	30.2	2.8
1922-23	52.6	-	-	38.3	6.0
1923-24	66	-	-	26.8	7.1

Table 3b: UMTs: Catchment Area of Patients 1950-60 (in %)

Year	Madras Presidency	Madras State	Andhra State	Other States	Foreign
1950-51	62.1	-	-	30.1	7.8
1951-52	62.6	-	-	30	3.5
1952-53	62.1	-	-	31.2	6.7
1953-54	-	13.3	55.1	27.6	4.0
1954-55	-	11.4	63.7	21.4	3.5
1955-56	-	10	64.2	22.2	3.6
1956-57	-	6.9	69.6	18.5	5.1
1957-58	-	6.3	72.8	18.7	2.5
1958-59	-	7.4	76	14	1.8
1959-60	-	8.2	73	17.4	1.0

the strict rules, once they showed signs of improvement. As the treatment of TB is slow and long drawn (even today with chemotherapy), issues of non-compliance have historically been associated with this disease.

Box 1: UMTS Timetable for Patients (1925)

In 1925, the daily schedule for patients of the UMTS was as follows:

6.0 am	Take temperature
6.15 am	Rise and wash
7.0 am	Morning meal
7.30 am	Morning service (conducted in the hall, attendance optional)
8.15-10 am	Rest on bed
10.20 am	Take temperature
10.30 am	Breakfast
11.15 am-1 pm	Restful recreation
1-3 pm	Lunch followed by rest on bed, silence (Note – That patient must be punctual in lying down to secure proper rest whether they feel tired or not)
3 pm	Take temperature
3.15-4 pm	Restful recreation
4 pm	Tea/snacks
4.45-6.15 pm	Walking exercise
6.15-6.35 pm	Rest on bed
6.35 pm	Take temperature
7.0 pm	Supper
8.0 pm	Prayers (optional)
8.15-8.45 pm	Restful recreation
8.45 pm	Go to bed
9.0 pm	Lights lowered and silence

Source: UMTS Annual Report, 1925, Appendix 1V.

2.4 UMTS Morphology: Inclusive/Exclusive Spaces

The UMTS was registered as a charitable institution in 1914 and this set the pattern for its more egalitarian patient profile. The UMTS began with five general wards (two female and three male wards), one separate general ward for Anglo-Indian women, and 12 special wards for rich patients. In each general ward there were 18 beds, making the total number of beds available in the general wards 90. In special wards a total of 15 patients were accommodated, and there were four beds available in a small separate ward for Anglo-Indian women. Thus in 1915, the total number of beds available in the sanatorium was 109. The physical layout of the sanatorium points to the marking of certain segregated spaces – the doctor's bungalow, the lady superintendent's bungalow, European wards, general wards, private wards, the wards for Anglo-Indians, the quarters for Indian assistants and nurses and the quarters for menial staff.

As with all sanatoriums, the architecture of the wards conformed to certain specifications laid down to facilitate treatment. A description follows:

The wards are simple but substantial structures with a high basement and a running roof supported on a series of pillars and open on all sides to the flow of the fresh air. Two small rooms were built in each of the four corners of the general wards and in the two corners of each private ward for various purposes including use as a store room and nursing station. The four sides of the wards were otherwise protected by bamboo 'tatties' lined with cloth (the Indian substitute for Venetian blinds) which when lowered give a good protection against rain and the beating sun and against too strong wind. These tatties secure privacy to the patients, while at the same time they give free access of fresh air. Built in small blocks, at a little distance, there is a separate kitchen for each private ward. Preferring to have the kitchen quite close to the private wards some well-to-do patients or their relatives

have built such as donation to the sanatorium. The wards were spartan and open-air, built this way partly because money was not available for a more luxurious type of ward and partly because this fitted in with the current ideas of open-air treatment. Fortunately the climate was such that there was no severe cold weather in winter or excessive hot summer that necessitated more protection than could be given by simple bamboo tatties which could be rolled up when not required [UMTS Golden Jubilee Souvenir 1965:23].

The waiting list for admission to general wards was very long and many patients waited two to three months for admission. The waiting list for women was longer, for instance, in the year 1963-64 women patients had waited as long as nine months before they were admitted to the sanatorium. The demand for private wards was very high, and a number of special wards were built to meet the demand. In majority of the cases the patients who were very anxious to get admission contributed generously towards constructing special wards. In early cases of TB, the recommended length of stay in the sanatorium was four to six months, whereas in the moderately advanced cases the stay was over six months (*ibid.*).

The UMTS can be portrayed as an exclusive space. What bound all the inmates of the sanatorium and separated them from the rest of the world was their suffering of TB. The sanatorium was for them an exclusive space. But within the walls of the sanatorium they were segregated in terms of men/women; rich/poor; Anglo-Indian/natives, Christian/non-Christian. The UMTS can be seen as a religious medical institution inspired by the love of the lord to heal and serve. While people of other religions were welcome and attendance in the religious meetings was optional, it is clear from the various annual reports of the UMTS that religious work was an important agenda in the sanatorium activities.

The caste divide does not come across clearly, but it may be surmised that the lower castes would probably have been excluded from the sanatorium unless they came in as those converted by the missions. In a sense missionary activity and conversion of the lower castes made the sanatorium space more inclusive in the sanatoriums set up by the missionaries in India. The collective living at close quarters that life in the sanatorium involved may have ensured blurring of categories like "pollution" and "purity" among the high and low castes. But caste/class hierarchies did not totally get erased as evident from the fact in UMTS, the separate wards had their own kitchen and cooked their own food, were allowed attendants and visitors. The Anglo-Indians enjoyed greater privileges than most others. Also, deference to caste sentiments by the church is obvious from the fact that in UMTS the food cooked in the common kitchen was by Hindus (Annual Reports 1917-1918). The physical and social morphology of the sanatorium both in relation to the outside and inside world suggests the marking out of exclusive spaces. For the outsiders, the sanatorium represented a "community" of TB patients but within its walls this "community" appears to have been divided on the basis of identity into different wards/zones.

2.5 Methods of Treatment

During the early part of 20th century, physicians relied primarily on natural remedies for treating tuberculosis. Physicians believed that natural remedies (i.e., fresh air, moderate exercise, bed rest,

sunshine and nutritious diet), play an indispensable role in strengthening the body's defence against TB bacillus.

An important feature of sanatorium treatment was diet. It was assumed that an increase in the weight of a patient was an important indication of the success of the treatment. Hence, each patient was weighed every week under the supervision of a qualified dietician and the weight was noted on a chart. Special diet was given to the weak patients to build up their physical strength and immunity power to fight off the disease. At the UMTs, the staple diet was milk, eggs, meat, fruits, vegetables, wheat bread (chapati) and pulses. Meat and wheat bread (chapati) were given to the patients daily for lunch and dinner (Box 2 for the diet chart

Box 2: Diet Chart of Ramakrishna Mission TB Sanatorium, Ranchi, 2006	
Monday to Sunday	
Breakfast	– Bread, three slices – Milk, 200ml – Banana, one daily
Lunch	– Rice (250gm-300gm) or eight chapatis – Dal (thick lentils soup); Vegetable curry – One piece of fish (65gm) or meat (90gm)
At 4 pm	– Milk, 200ml
Supper	– Rice (250gm-300gm) or eight chapatis – Dal (thick lentils soup); Vegetable curry; One egg
Sunday	– Non-meat diet with additional vegetable curry
Each patient gets about 2,600 to 2,800 calories per day.	
Source: www.rkmtbs.org/Rolofnutrition2.htm.	

in a private sanatorium in India today). Till the 1930s in the UMTs, of the total annual expenditure of the sanatorium about 20-25 per cent was spent on food (Table 4).

The next feature of the sanatorium treatment was exercise. The exercise regimen mainly consisted of walking at a slow pace. It was assumed that exercise increased lungs strength and breathing power. In order to regulate and control the exercise regimen, sanatorium authorities laid several walking paths during the first decade of its existence (1915-25). These walking paths were carefully measured, and stones were erected that indicated the exact distances. In addition to this, a large number of trees were planted to provide protection from wind and as well as to enhance the scenic beauty of the area. Every day between 4.45 pm and 6.15 pm patients exercised under the supervision of a medical personnel. Physicians prescribed rest and exercise in right proportion in each individual case, giving due consideration to the patient's temperature, weight, cough, sputum, general feeling of well-being or fatigue. The patients were advised to never exercise when the body temperature was high and when the sputum was bloody. Patients were also warned to never run or walk fast, never get tired and never get out of breath. Like many other institutions, the sanatorium kept the male and female patients separated, and hence, separate graded walking paths were established for both men and women patients for daily exercise.

Table 4: Expenditure Details

Total expenditure during the year 1919-20	Rs 92,782.00	
Diet expenditure	21,760.00	(23.45%)
Total expenditure during the year 1920-21	Rs 1,10,547.00	
Diet expenditure	22,636.00	(20.4%)

Source: UMTs Annual Report, 1921.

Heliotherapy (Sunlight therapy) or natural sunlight treatment was used in the treatment of non-pulmonary tuberculosis, for instance, joints, skin, eyes, etc. It was believed that sunlight acts as a bactericidal, and kills TB bacillus when a patient is exposed to moderate temperatures for a considerable period of time. Ultraviolet sunlamp treatment was employed when the weather conditions were unfavourable.

Apart from rest, fresh air, good nutrition and exercise, the UMTs kept in touch with various surgical methods and techniques

developed in the west that were found to be useful to a certain extent in curing this disease. By the 1930s "collapse therapy" became common in the west. Around the same time, collapse therapy methods such as artificial pneumothorax, thoracoplasty, bronchoscopy, lung resection, lumbar puncture, lobectomy,

phrenic nerve operations, oleothorax (introduction of oil into the pleural cavity), plompage (a technique of packing the pleural cavity with inert material), etc, were performed in the UMTs. From 1921, artificial pneumothorax became a standard treatment in the sanatorium. Thoracoplasty operation was done for the first time in India at UMTs in 1922. X-ray facilities were installed in the year 1925, and it became possible to diagnose

precisely the severity of the disease and as well as in locating the diseased portions of the lung. By the 1930s collapse therapies became common at UMTs and approximately 40 per cent of the tuberculosis patients received artificial pneumothorax. By the end of 1945, 811 thoracoplasty operations had been performed, 1003 thoracoscopies with cauterisation of adhesions, and other operations were performed [UMTs, *Diamond Jubilee Souvenir*, 1975].

That the UMTs played a critical role in legitimising research, teaching and treatment of TB in India is obvious from its list of claimed achievements.

- Tropical eosinophilia was discovered and described from the wards of UMTs.
- From 1920 began the concept of the TB colony, a rehabilitation settlement within the sanatorium premises for the poor patients cured of the disease.
- The first preliminary trials in 1948-50, before BCG vaccination was officially accepted in India was done here.
- In 1950 the World Health Organisation set up the TB research unit in UMTs with the government of India.
- The drug trials for streptomycin and PAS were first done on patients in UMTs before they were introduced in the market.
- Short courses on TB were offered in the UMTs from 1922 and the first postgraduate diploma course on TB in India started here.
- Nehru visited UMTs in 1952 (UMTs Annual Reports).

3 End of the Sanatorium Era

By the second decade of the 20th century, it was apparent that the sanatorium was not the solution to the cure of tuberculosis. According to Herzog (1998), "Although patients recovered surprisingly well during the sanatorium treatment, the long-term results were fairly depressing. American statistics show that over 60 per cent of the patients discharged from sanatoriums died of the disease within six years" [Herzog 1998:10]. For many poor patients it was difficult to sustain the high level of nutritious diet and rest that the sanatorium provided once they were discharged. For those who did not have severe forms of TB and were richer, the sanatorium offered better chances for cure.

Treatment of tuberculosis changed with the discovery of antibiotic streptomycin in 1944. Soon after, the anti-TB drugs like p-aminosalicylic acid in 1946 and isoniazid in 1952 were introduced. The discovery of these three drugs have marked the beginning of the “chemotherapeutic era” in the fight against TB. The findings of the “home-sanatorium study” conducted by the Tuberculosis Research Centre, Madras (Chennai) in the late 1950s showed that TB patients can be treated effectively on an outpatient basis and did not require admission in a sanatorium. The global impact of the findings of this study is now well-recognised and domiciliary treatment for TB became the therapeutic policy for developing countries [Jawar 2003]. It is interesting to observe that many of the strategies which are now globally recommended as the DOTs (directly observed treatment, short course strategy) were experimented and validated in India.

These developments triggered the disappearance of hundreds of open-air health resorts that until then had been the dominant mode of treatment. Most of the private sanatoriums in Europe are now transformed into exclusive hotels, ski resorts and sports hotels. The state-run sanatoriums were either demolished or became general hospitals. In 1975, Obul Reddy, then governor of Andhra Pradesh, officially announced the conversion of UMTS to Arogyavaram Medical Centre, a general hospital with 350 beds. Presently Arogyavaram Medical Centre is providing services to the patients in the fields of general medicine, general surgery, obstetrics, gynaecology, ophthalmology, pediatrics, ENT, orthopedics, community medicine and HIV/TB. Today the UMTS has lost its identity as a TB sanatorium but the legacy of decades of treating TB patients continues – 200 of the 350 beds in the restructured Arogyavaram Medical Centre are marked for TB patients.

4 Conclusions

The sanatorium was an institution designed specifically for the requirements of TB patients as they were not welcome in the general hospitals due to fear of infection. There can therefore be no history of TB without a history of the sanatorium. This narrative of the sanatorium endeavours to capture the defining moments in both the medical and social history of the disease in the early part of the 20th century. It nudges back into public memory an institution that has not only been forgotten, but also marginalised in writings on the history of TB. The paper would like to argue that the sanatorium was more than just a medical/health institution – it was also a social space. It was a socially-engineered site to concede/conform to the agendas/demands of society that existed at that time. It is because of these differing purposes that we find a wide variety of sanatoriums – private privileged ones with restricted entry for the wealthy; government ones for both the rich and poor; missionary ones to propagate and serve the cause of Christianity; sanatoriums for the whites and sanatoriums for the blacks. In the designing of the sanatorium was implicit the objectives of control and discipline of the patient by the physician who was the recognised authority with power. In the missionary sanatoriums of India the doctor and the priest had coalesced/merged identities. Complying with the sanatorium routine defined a good patient/subject and these were qualities that one was expected to carry into the outside world and continue to practise.

In India, the sanatorium can be read as another example of a colonial project to push the twin agendas of western medicine and Christianity. The history of missionary medicine in India documents the close links between the two and the sanatorium provided an ideal location for this convergence. Both western medicine and Christianity to gain acceptability in colonial India, used each other to draw in larger number of converts. In the missionary sanatoriums of India the identities of the doctor and the priest coalesced/merged. While the sanatorium was not a coercive space for other religions, the officially encouraged, legitimate and dominant mode of religious practice was Christianity. It can be surmised that while state sanatoriums were secular, the missionary sanatoriums did place an importance on religious activities. The sanatorium may have served a purpose in enabling the British and the missionaries in their efforts in constructing the “good modern subject” out of the traditional native.

That the sanatorium was seen as a space of hope by TB patients across the country cannot be doubted as the waiting time to get admission took over three months. For many TB patients the sanatorium was not just a hospital, but also a home that these patients could hide in, away from the stigma and associated suffering of the disease. Sanatoriums in India provided succour in an otherwise hopeless scenario for TB patients at that time, but like elsewhere in the west they too were accessed by the more well-to-do patients. The sanatorium had different implications in the west and in India due to varying political, social and economic histories. In colonial India, debates on the value of specialised sanatorium care threw up interesting arguments. The high levels of poverty coupled with rising incidence of TB and most other communicable diseases and low access to modern healthcare facilities legitimised demands for more sanatoriums to be set up. As Moller, the physician-in-charge of UMTS said in his 1915 address on the opening of UMTS, “A sanatorium in India affords many possibilities, not to be observed to such an extent in other medical institutions in India, for doing some research work, because in a sanatorium the patients are under daily observation for a much longer period than they usually are in general hospitals in India” [UMTS Annual Report 1916-1917:8]. It was argued that the relevance of the sanatorium was far greater in India than in the west, due to higher poverty and poor hygiene in the former.

The recent rise in TB incidence in India along with HIV pushes us to rethink the sanatorium as a relic of the past. Not much has

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changed in India since independence: high poverty, poor healthcare, low education, poor nutrition and lack of proper public healthcare continue to haunt most Indians. For a long drawn, slow curing disease like TB, the sanatorium with a modified treatment regimen of "rest-diet-exercise-drugs" may provide a more effective cure to combat TB, especially for the poor. The current excessive dependence on drugs under conditions of

malnutrition will not be able to control the incidence of TB. Food insecurity is a growing concern for a large number of Indians and the one thing that the sanatoriums never compromised on was a rich diet. Today may be the appropriate moment in India to resurrect the sanatoriums to life in the hope of better controlling the twin concerns of rising incidence of TB and poor nutrition.

NOTES

- 1 *The Magic Mountain* (1924), a popular novel by Nobel Prize winning author Thomas Mann, is set in a tuberculosis sanatorium near Davos in the Swiss Alps. The novel documents the everyday life within the sanatorium and can be read as an illustrative text on the social history of TB in Europe.
- 2 www.faculty.virginia.edu/blueridgesanatorium/landscape.html.
- 3 Quoted in Tulloch, www.faculty.virginia.edu/blueridgesanatorium/tuberculosis.html
- 4 <http://indianchestociety.org/Family.html>

REFERENCES

- Bryder, Linda (1988): *Below the Magic Mountain: A Social History of Tuberculosis in Twentieth Century Britain*, Oxford Historical Monographs, Clarendon Press of Oxford University Press, New York.
- Colston, Jo (1998): 'Descending the Magic Mountain: How Early Clinical Trials Transformed the Treatment of Tuberculosis', www.nimr.mrc.ac.uk/millhillesays/1998/clintrial.html
- Herzog, H Basel (1998): 'History of Tuberculosis', *Respiration*, 65, pp 5-15.
- INJT (2002): 'Leaves from History – 12 Anti-Tuberculosis Movement in India', *Indian Journal of Tuberculosis*, Vol 49(3), p 132.
- (2003): 'Leaves from History – 15', The Union Mission Tuberculosis Sanatorium Arogyavaram, Madanapalle, *Indian Journal of Tuberculosis*, Vol 50 (2).
- Jawar, M S (2003): 'Current Trends in Chemotherapy of Tuberculosis', *Indian Journal of Medical Research*, 120, pp 398-417.
- Joseph, T J (1956): 'The Scope and Limitations of Tuberculosis Hospitals and Sanatoria', *The Indian Journal of Tuberculosis*, IV(1), pp 7-13.
- Madkour, M M, K E Al-Otobi and R L Swailem (2003): 'Historical Aspects of Tuberculosis' in Madkour et al (eds), *Tuberculosis*, Springer Publications, New Delhi.
- Marland, Hillary (1990): Book Review of 'Below the Magic Mountain: A Social History of Tuberculosis in Twentieth Century Britain' by Linda Bryder, *The American Historical Reviews*, 95(3), pp 828-29.
- Mohan and Sharma (2001): 'History' in Sharma and Mohan (eds), *Tuberculosis*, Jaypee Brothers, Medical Publishers, New Delhi.
- Teller, M E (1988): *The Tuberculosis Movement: A Public Health Campaign in the Progressive Era*, Green Wood Press, London.
- Terry, Janet (2002): 'The Religion of Tuberculosis', www.faculty.virginia.edu/blueridgesanatorium/chapel/html
- UMTS (1966): *Golden Jubilee Souvenir*, UMTS Sanatorium Press, Arogyavaram, Andhra Pradesh.
- (1975): *Diamond Jubilee Souvenir*, UMTS Sanatorium Press, Arogyavaram, Andhra Pradesh.
- UMTS Annual Report (1922-1923): 'UMTS Sanatorium Press', Arogyavaram, Andhra Pradesh.
- (1917-1918): 'UMTS Sanatorium Press', Arogyavaram, Andhra Pradesh.
- www.faculty.virginia.edu/blueridgesanatorium/landscape.html
- www.faculty.virginia.edu/blueridgesanatorium/tuberculosis.html



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