

HISTORIC HOSPITALS IN NATAL

by

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VOLUME I

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ABSTRACT

The object of this research is to investigate in detail the origin and growth of Natal Hospitals - their design and function.

The 19th Century saw the birth of the Republic of Natalia, and with it the establishment of towns and villages where public institutions, including hospitals, were being founded parallel with private dwellings.

Twofold development of the colony by Voortrekkers and English settlers resulted in different cultural influences, which can be observed in the architecture of that time.

Whereas public, commercial, religious, domestic and collegiate buildings in Natal were, in their own scaled-down fashion, comparable with their counterparts in the United Kingdom, matters of public hygiene, mental health and prison systems were seriously neglected. The importance of the problem was recognised only in the late 1850's.

The change in thinking was caused by the radical improvements in European Hospitals which were considered to be:

"..... essentially creations of the era beginning in the mid-18th century (for before this date the accommodation was provided in ad hoc premises), and all possessed the common quality of demanding, that certain clearly defined functions be fulfilled. The new hospitals imposed an overriding demand for maximum ventilation.

It was in buildings such as these, that modern functionalism best expressed itself, and as a result, the 19th century subjected to a considerable amount of architectural research."

Natal Hospitals represent an interesting group of institutions. Their layouts and architectural styles originating in Europe, they were brought here by Dutch and English settlers.

Though the study of the function and design of the hospitals included in this research is focused on a limited range of buildings, the general conclusions are related to the overall situation in Natal.

In addition the research is done only on some specific aspects, covering the most important issues regarding the quality of hospital services and general standard of design.

In the complex environment of the Natal hospital, the influence of design upon function is very significant, although it is often believed that function has dictated the design.

P R E F A C E

This research represents the original work by the author and has not been submitted in any form to another University. Where use was made of the work of others it has been duly acknowledged in the text.

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INSTITUTIONS IN SOUTH AFRICA

Works Branch Library, Pietermaritzburg.

Town Planning Library, Pietermaritzburg.

Natal University Architectural Library, Durban.

Medunsa University Library, Johannesburg.

Natal Society Library, Pietermaritzburg.

INSTITUTIONS IN SOUTH AFRICA

Government Archives, Pietermaritzburg, (also known as Natal Archives)
Department of Hospital Services Archives, Pietermaritzburg.
Augustinian Convent Archives, Durban.
Natal Museum, Pietermaritzburg.
Local History Museum, Durban.
Killie Campbell Museum, Durban.
Addington Hospital Centenary Museum and Archives, Durban.
Talana Museum, Dundee.
Newcastle Museum.
Macrorie House Museum, Pietermaritzburg.
Mariannahill Monastery Museum, Mariannahill.
La Verna Hospital Archives

COMMERCIAL FIRMS IN SOUTH AFRICA

INTERPLAN, Pietermaritzburg - Lunatic Asylum Drawings.
FRIDJON & FULFORD, Durban - Durban Sanatorium Drawings.
A. SKORDIS ASSOCIATES, Durban - Zulu McCord Hospital Drawings

INSTITUTIONS IN EUROPE

1. Local History Museum, Zabrze, Poland.
2. Historical Museum, Vienna.
3. Allgemeine Krankenhaus Archives, Vienna.
4. National Museum, Zurich, Switzerland.
5. Lariboisiere Hospital Archives, Paris.

INTRODUCTION

This research investigates the aspect of evolution of hospital form in Natal. When focusing on the buildings themselves and their architectural character, the analysis of all the elements that contribute to this, i.e.: localization, general layout, services, and circulation, had to be prepared. The layout was of primary importance, as it served as a basis for discussion and criticism.

OBJECTIVES

The main objective of this study is to investigate the inception and growth of hospital institutions in Natal and to compare it with the most advanced hospitals mainly those in Europe.

An interesting fact is that the majority of Natal hospitals started as small, often primitive institutions, and over the years they developed into fully adequate, modern equipped structures.

In order to achieve the aim of this research the following methods were applied:

1. an indication of a brief history of the development of hospital layout from the Medieval period, through Renaissance and Baroque to the Modern Era.
2. an analysis of the advanced form of the hospital, and its design principles in the Victorian Era which evolved as a result of trial and development by generations of reformers and architects;
3. an introduction to a number of the 19th century hospitals in British Colonial countries in order to compare them with the British Natal Colony hospitals.

4. an overview of the development of hospital institution in South Africa based mainly on the early Cape hospital plans,
5. the production of the evidence of the objective : to analyze each of the included hospital layouts - their original form and subsequent changes.
6. a definition of the reasons for such an evolution of hospital design:
 - the need for more accommodation in hospitals as a result of the general growth of population and special events, such as: the Zulu War of 1879, the Anglo-Boer War, and the Bambata Rebellion when the war wounded had to be hospitalized. The development of the services followed the growth of accommodation space;
 - the introduction of Hospital Legislation (Quarantine Law No.14 of 1854, the Custody of Lunatics Law - No. 1 of 1868, Law Relating to the Persons of Unsound Mind, Leprosy Law No. 60 of 1880);
 - the co-ordination of the Medical Profession and Health Services (Act No. 30 of 1896); the establishment of a Department of Health (Act No. 23 of 1897);
 - the introduction of the Medical and Pharmacy Act of 1899, which allowed for the registration of Nurses, midwives and mental nurses in Natal. Initiation of the formal training for the nursing profession in Natal (in 1890 in Addington Hospital);
 - the scientific discoveries in the medical field - advancement in medical technology (operating theatre equipment , anaesthesia, X-Ray);
 - general improvement in the Natal Colony Economy - more funds became available for development of Hospital Services.

7. a summary of the discussed material and the production of conclusions with regards to:

- (a) classification of the layouts : original and developed;
- (b) the origin and evolution of service spaces;
- (c) materials and methods on construction;
- (d) architectural style and detail.

ANALYSIS

This research includes the detailed analysis of examples of Government and Private Hospitals built in Natal in the 19th and the beginning of the 20th century. Not all the Institutions erected in this period of time are included. Only the most characteristic ones were chosen and these served as the basis for analysis.

The work consists of three parts:

- I Historical Development of Hospital Institutions.
- II Natal Hospitals - evidence material.
- III Conclusions - Analysis and Evaluation.

The original plans and historical facts, which further influenced the development of hospitals were put in chronological order and represent the evidence material.

The analysis of each of the hospitals led to the introduction of their classification.

On the basis of their layouts and comparison with the layouts of the advanced European hospitals built to new design principles, the division of buildings into groups, according to the type of plan became necessary.

The main classification is as follows:

- 1. the pavilion type suggested as the most suitable one by the reformers, and introduced as a radical change in hospital planning;

2. the corridor type - the conservative old method of building hospitals, where very little attention was put on the internal, environmental control conditions.

A subsequent form of classification introduced is that defined by the type of institution the hospitals represented.

There are two main groups of institutions:

1. Government controlled hospitals:

- (a) major hospitals erected in towns;
- (b) minor or "cottage" hospitals, established mainly in rural areas;
- (c) Lunatic Asylum - the only specialized institution for the mentally ill in Natal;
- (d) Indian Government hospitals - built after 1860, when the first Indian labourers were brought to Natal.

2. Private hospitals:

- (a) Sanatoria - established and controlled by the Augustinian Order of French origin;
- (b) Mission hospitals - founded either by the Church missionaries (Catholic, Anglican, Presbyterian, Lutheran etc.) or by civil persons (Zulu McCord Hospital).

The last part of this study is the summary of conclusions of the evidence.

The hospital layouts discussed here, contain design similarities and differences in the way of arranging the ward, localization, size and equipment of service rooms, internal and external circulation.

The plans of service spaces and of different types of wards discussed in accordance with the patients', nurses' and doctors' requirements and opinions are contained here, and are compared with the standard design principles of the Victorian Era hospitals described in the first part.

A separate study was made of the environmental control conditions and of the services of the buildings, which included water supply, sewerage, excreta removal, heating and ventilation.

The influence of the Natal climate on the design (veranda, French doors), the type of building materials used, and methods of construction and detailing, made an important contribution to the plan and architectural character of the structures.

The above also formed part of the study.

The architectural style of the buildings was not as great a concern in this research as it was the layout which served as the basis for analysis and criticism. Sometimes, however, characteristic structural or decorative elements helped to identify the architect of the establishment when the author was officially unknown.

When the cultural influences of foreign architecture were adopted in the design, a particular feature was given a description.

The aspect of landscape was also considered in order to identify the qualities and advantages of the natural environment.

The object of this research is to demonstrate the evolution in "hospital thinking" in Natal and to show the exact phases of the development of these establishments, using the examples of local institutions.

METHODS OF RESEARCH

Various sources have been researched and many people consulted in order to obtain original plans and sufficient historical information.

All existing hospital buildings have been visited, the majority of which no longer serve their original purpose. Over the years, changes in hospital requirements - mainly the increase in the number of patients - have occurred and the buildings have had to be extended and altered.

The analysis of original layouts on the basis of existing buildings was impossible, due to their delapidated condition and various later changes in their layouts and architectural character.

The very first plans and photographs had to be found, and existing structures were sometimes measured in order to prepare the reconstructional plan.

Searching for original plans created the biggest problem. The plans, if still in existence could belong either to a Public Institution (Natal Museum, Natal Archives, Hospital Services Department, Public Works Department) or to private persons. In the case of Government Hospitals, written descriptions and plans were relatively easy to obtain, but where private institutions were concerned, the situation became more complicated.

When the plans were not available, reconstruction based on the written descriptions of old photographs had to be made.

Proceeding with the research created an opportunity of meeting interesting people and the work became enjoyable.

TIME SCHEDULE

The first six months of the investigation were devoted to general reading, discussions, and visits to hospitals (this also included hospitals in Poland, Austria, France and Switzerland).

During this period of time, the research programme was gradually developed. The first detailed study undertaken concerned the historical survey of hospital form. The plans of hospitals obtained in Europe were of great help.

The second stage, the longest one, included the specialized studies aimed at the collection of objective data, key problems, and opinions on Natal hospitals.

The third stage was a synthesis of the various detailed studies.

part i

**historical
development**

ORIGINAL PURPOSE : HOSPICE

Originally, the purpose of the establishment of the institution called the "hospital" was to create a lodging where an indigent person would be assured of hospitality and maintenance under a sheltering roof.¹

The poor, aged, infirm and sick, pilgrims and wayfarers were to be assisted in their need.

The word "Hospital" derived from the Latin word "hospes = guest" (or host). Christian faith saw this place as a house of God and considered a simple building for the protection of those requiring help as fitting for this purpose.

As mediaeval traditions show, the criterion for the indigence of the person to be admitted was his inability, owing to age or physical infirmity, to support himself by begging.

The hospital as a refuge for the indigent could serve for either a temporary visit or permanent maintenance.

Although the sick were also admitted, the hospital was nevertheless not a hospital in a modern sense, for sick-nursing continued to be a family task and was not the responsibility of public welfare.

Notes and references:

1. Leistikow, D. "Ten Centuries of European Hospital Architecture", Ingelheim am Rhein, 1967.

EARLY CHRISTIAN PRECEDENT

From the early foundations in the first expansion areas of the Christian religion, the hospital soon became a permanent institution, established by the bishop or secular lords, intended for inmates. In Western Europe, the hospital always took the form of a religious institution dedicated to a special patron saint under the supervision of a bishop, who appointed the management.¹

The number of those to be admitted was usually predetermined; the inmates remained in the hospital until their death, and were amply provided for during their lifetime.

Admission for a limited period for the purpose of healing particular diseases was unknown.

The designation "hospital" has been preserved until today in the European languages: (French "Hôpital", English "Hospital", Italian "Ospedale", Spanish "Hospital"). In Germany, Poland, Switzerland, and Austria, where the Latin concept "hospital" was prevalent, the word has been simplified to "Spital", or "Szpital" in Polish.²

In northern regions, where the word "hospital" also appears at first, the so-called "Helligandshus" (*domus hospitalis Sancti Spiritus*) arose as a separate form which can be set alongside the Middle-European hospitals of the Holy Ghost.³

-
1. Atkinson, T.D. "An Architectural History of the Benedictine Monastery at St. Etheldrede at Ely"; Cambridge 1933.
 2. Leistikow, D. op. cit, p.26.
 3. Code, G.H. "English Monasteries in the Middle Ages"; London 1961.

Early Christian hospitals in the countries bordering on the eastern Mediterranean are mentioned in certain sources, and this also applies to Byzantine hospitals, which had already attained a high degree of development.

The influence of Arabian Hospitals must also be mentioned.

THE MONASTIC HOSPITAL

The first fully developed hospital of early Christian Era can be found in a plan of St. Gall, a creation of a Benedictines (Fig.4) - a document of immense value for the history of hospital planning. This plan, dating from about 820 A.D., is regarded as an ideal Benedictine monastic construction of its time.

The buildings for the harbourage of strangers and the nursing of the sick, represented on the plan were to remain the standard for centuries.

Harbourages are shown as follows: the house for distinguished guests, the house for the poor and for pilgrims, and the dwelling for foreign monks.²

The "buildings for the nursing of the sick" included the monks' hospital, with kitchen and bathroom, the blood letting house, the doctor's house with space for the seriously ill and a dispensary, and a connecting garden for medicinal herbs. The buildings, for the most part one-storeyed, were arranged as separate blocks on a rectangular ground-plan.

1. Godfrey, W.H. "The English Almshouse with Some Account of its Predecessor, the Medieval Hospital"; London 1955; Kruger Eduard "Swabisch Hall"; Der Haalquell, 17 (1965) p.p. 61-68.
2. Horn, W. "Modell nach dem Plan von St. Gallen." In : "Karl der Große. Werk und Wirkung"; Aachen 1965.

The monks' hospital (called an infirmarium) was built on the plan of a quadrangle. All rooms were linked together by an arcade around a courtyard.

The "Union of Hospital and Church", was an off-shoot of the mediaeval intellectual world.¹ For centuries it ranked above all the other problems of hospital architecture to which sick nursing, medical treatment, hygienic, sanitary and finally social demands gave rise.

MONASTIC INFIRMARIES

In the monastic infirmaries the division of the main building into a hall and the chapel, which occasionally displayed a separate chancel, seemed typical. The main building, which often had good proportions, usually had three aisles and was provided with various outbuildings such as the kitchen and domestic offices. The sick and the old obviously spent their lives in the great halls.²

One of the earliest examples of such an infirmary was at Canterbury, where from amongst the buildings of the "little cloister", the three-aisled hall, about 75 m long and 21 m broad had almost the proportions of a parish church. (Fig. 6)

In the incorporated also three-aisled section, a rectangular chancel carrying on the breadth of the middle aisle, was divided off. The building had a basilican cross-section and was covered by an exposed wooden roof.¹

1. Kuhn, O. "Krankenhäuser - Handbuch der Architektur", Stuttgart 1897.

2. Pelican History of Art, vol. 12 "Architecture in Britain. The Middle Ages", Middlesex 1956.

The English monastery "Fountains Abbey" (Yorkshire) deserves special mention as an example of supreme compactness. (Fig. 7) All the hospital buildings were arranged along the water's edge and were built in part over the river. Both large infirmaries, on strong piles, span the river with part of their bases.

The large monastic infirmary was a brilliant example of mediaeval hospital architecture. Towards the east the dwelling head of the infirmary, the storeroom, chapel and kitchen were sited in front of the approximately 55 x 25 m long central hall, with the other rooms connected to it.

The lay monks' infirmary followed similar architectural ideas. Here, too, the three-aisled building of the basilican cross-section was chosen.²

"HALL" AS THE TRADITIONAL TYPE OF HOSPITAL

The "hall" became the "classic" type of the mediaeval hospital at the height of its development.

It was generally a one-storeyed building with one or more aisles like a church, the interior of which was undivided and was provided on its long facades with windows. Sometimes a chancel was separated. Except for out-buildings, this hall appeared simply as a hospital itself, fulfilling all essential functions under one roof.

The basic idea was to house the hospital inmates, who lived as a community under its special rules, in one room which would satisfy the demands

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1. Smith, J.T. "Mediaeval Aisled Halls and their Derivation"; Archeological Journal, C. XII, London 1956.
 2. Code, G.H. op. cit, p.64.

of human life viz; living, eating and sleeping, and above all, divine worship. This room required, in addition to a suitable amount of space, sufficient atmosphere to make living conditions bearable, with the altar as the focal point of the religious service.

From a technical point of view a concept of this kind required from the builder the ability to span rooms of great breadth, either with a wooden truss, or with stone vaulting. As well as the one-aisled building, the arrangement in two or three aisles suggested itself in order to lessen the distance between the supporting pillars and suggesting the position of the internal division of the room.

The couches were placed, according to the position of the pillars, in long rows paralld to the external walls, leaving sufficient space for the sick to be waited on. The division of the inmates according to sex and sometimes according to their state of destitution¹ suggested itself.

SECULAR HOSPITALS

From the outset of the 12th century, the hospital began to free itself from the narrow and exclusive adherence to the monasteries and cathedrals. The chief reasons for this were the growing participation of the layman in religious life, and the growth of the urban population. The sites of the hospitals of that time were usually outside the towns, which inevitably became drawn within the encircling walls. Characteristically, the hospitals were often sited on one of the sortie roads, preferably beside a stream and near one of the gates.² A fairly large court accommodating the extensive auxiliary administrative premises became an integral component of the mediaeval civic hospital.

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1. Gilyard - Bear, R. "Abbeys. An Introduction to the Religious Houses of England and Wales"; London 1958.
 2. Aubert, M. "L'Architecture Cistercienne en France"; Paris 1947.

LAZARET-HOUSE

Mention must be made of Lazaret or Plague houses. In contrast to the older hospitals, which did not usually admit the seriously ill but provided permanent maintenance, the sick here were isolated from the remainder in cases of emergency.¹

The task of these hospitals was to isolate the victims of contagious diseases and to house suspicious cases in quarantine quarters.

At Leiden (Southern Holland), the townsfolk built a plague-house (Fig. 12) as a precautionary measure after a visitation of the plague in 1655, and this was completed between 1658 and 1661.² (Phot. 5)

The layout, which consisted of a colonnade surrounding an almost rectangular court, obviously followed Italian Renaissance precedent.

The four, one-storeyed wings enclosing the inner court were divided into eight wards and contained in all 214 beds. This block, which was surrounded by a moat, was originally accessible only by a bridge on the northern side. The circulation of fresh air was ensured by the provision of open louvres in the roof.

THE DEVELOPMENT OF THE "MODERN" HOSPITAL - THE RENAISSANCE PERIOD

Hospital construction at the commencement of the modern era differed basically from the mediaeval conception, but it was not a change of ideas concerning its tasks or aims nor the freer development of medicine or science which evoked fresh architectural ideas. They appeared as a result

1. Atkinson, T.D. op. cit, p.68.

2. Tumler, P. M. "Der Deutsche Orden"; Wien 1954.

of the historic and social conditions of Italy and other European countries then liberating themselves from the constraints of the mediaeval intellectual world.

In Italy, the emergence of the Renaissance is an aspect of this revolution which exerted a lasting influence on hospital design.

Three characteristic elements of the Renaissance period distinguished the new hospitals from mediaeval ones:

1. their inclination towards the development of what was called the "palace" lay-out, which usually comprised a four-winged structure around a colonnaded court;
2. the arrangement of the wards on a cruciform ground-plan;
3. the use of the loggia.

Hospitals, which had formerly been tied to religious forms, then followed the principle of the palace.

In pioneer buildings of the period, such as the famous Ospedale Maggiore in Milan, new forms deriving from theoretical studies made their appearance considerably different from that of the mediaeval hospitals.

Traditional principles gave way to structures displaying a self-confident spirit, communal independence, and new aspirations in dimensions of monumental scale.

The best brains of the period, among them architectural theorists such as Leon Battista Alberti and Antonio Averlino, called Filarete, occupied themselves with the problems of hospital building.

"The Hospitals are to be built with much Thought, and a good Deal of Variety; for one Place is proper for harbouring the Differred, and another for curing and fostering the Sick and Infirm. Among there last two we should take Care to make a good Deal of Distinction, that while we are providing for a few useless People, we do not neglect more that might really be of Service.

The Apartments for all there should be to laid out and distributed, that there may be distinct Places for those who are unable, and those whom you take in rather to maintain the for the Remainder of their unhappy Days, than to cure them: of this Sort are the Superannuated, and those who want their Senses.

Add further that the Men and Women, as well the Patients, as the Persons that attend them, should have Apartments separate from one another; and as some Parts of the Building should be for Particulars, other should be in common, according as it shall be found necessary for the Management of the Patients, and the more easy cohabiting together."¹

Leon Battista Alberti

One of the most outstanding examples of their studies was the Ospedale Maggiore, by Filarete, begun in 1456. (Fig. 17)². The features of the Renaissance hospitals are seen here in their most mature form.

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1. Alberti, L.B. "Ten books of Architecture", London 1955.
 2. von Oettingen, W. "Antonio Averlino Filaretos Tractat über die Baukunst nebst seinen Büchern von der Zeichenkunst und den Bauten der Medici", Wien 1886.

This monumental complex was possibly the most impressive example of a symmetrical hospital lay-out possibly extant.

It was described as a rectangle measuring 235 m x 94 m wide. Ranges of intersecting wards with wings formed eight courts within this rectangle round a central court. Arcaded and collonaded corridors connected the internal courts and also the three external facades. A chapel was placed in the central court. This geometrical scheme formed the basis of subsequent developments by the followers of Filarete.¹

The cruciform arrangement of the wards was also illustrated in the large hall for male patients at the Ospedale di S. Maria Nuova in Florence (erected c. 1334) (Fig. 16). A further ward for women, similarly arranged on the plan of a Greek cross, was provided later.²

One of the most characteristic hospitals of the Renaissance was the Ospedale degli Innocenti at Florence, the work of Fillippe Brunelleschi, instituted c. 1420. (Phot. 1, 2)

In this case the "master" treated the loggia as an independent architectural element, placing the entrance to the colonnaded court on its main axis.

1. Huber, W. "Das Ospedale Maggiore in Mailand"; Karlsruhe 1947.

2. Deibele, A. "Zur Geschichte des Gmünder Heiligeist - Hospitals"; Einhorn 1963-64, vol. 1-IV.

Less complicated forms of hospitals also appeared.

The arrangement of two adjoining colonnaded courts, in front of the church, provided an illustration of magnificent planning combined with individual treatment. A free-standing, double-tiered loggia of graceful form cut across the courts and led to the church.

POST - REFORMATION HOSPITALS

In England, the mediaeval hospital buildings, which were intended for the communal life of inmates who were subjected to a strict religious rule, gave way in many places to more individual forms even before the Reformation.¹ The Reformation then brought about drastic changes including the secularization of the older hospitals some of which were dissolved, while others were re-established under amended constitutions.

In contrast to their mediaeval forerunners, new foundations assured inmates of individual accommodation which was self-contained and independent of the overall lay-out.²

In such buildings, the inmates' quarters were often arranged round a quadrangle and usually consisted of two storeys. The principle of individual quarters accessible from a court replaced the old one of communal rooms of the monastery.

1. Godfrey, W.H. op. cit, p.204.

2. Ives, A.G.L. "British Hospitals"; London 1948.

BAROQUE HOSPITALS IN ENGLAND

At a later stage the enclosed court concept was abandoned in favour of a three-sided layout which consisted of two opposing ranges connected by a chapel which formed the main feature of the composition.

Baroque features introduced new life to the residential wings, breaking their earlier rigid outlines.

This was readily apparent in Blackheath (London) 1695 the design of which Sir Christopher Wren was responsible for.¹

The same ideas but enlarged to monumental proportions and endowed with all the elements of great architecture, were apparent in the Royal Hospital Chelsea (London)². (Phot.4)

This building was designed and erected from 1682 onwards by Christopher Wren to house pensioned soldiers on the same model as the Hôtel des Invalides, which had been founded in Paris in 1670.

Wren arranged both the chapel and the hall on either side of a central vestibule crowned by a cupola, the centres of the facades on both sides being defined by high porticos. The wards containing the living accommodation were arranged in side wings connected by a colonnaded passageway enclosing the forecourt on three sides. (Fig. 18) The Royal Hospital Greenwich was planned on similar principles. Founded in 1694, it incorporated some earlier buildings of classic genre.³

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1. Poynter, F.N.L. "The Evolution of Hospitals in Britain" London 1964 p.p. 43-71.
 2. Ives, A.G.L. op. cit, p.115.
 3. Ibid, p.116.

Both the chapel and the hall were crowned by imposing domes dominating the whole group. (Fig. 18)

English Baroque certainly reached its peak of development in Wren's masterful conception.

The 18th century opened new possibilities for hospital architecture. Mediaeval St. Thomas's in London was replaced by the hospital designed by James Gibbs from 1730 onwards and became a landmark of hospital architecture.¹ (Phot.11)

The basic concept consisted of the separation of ranges of buildings enclosing a court which allowed the free circulation of light and air, and its court was surrounded by four free-standing 4-storeyed blocks, 46 m long, and 14,2 m wide, three of them being wards, while the other was set apart for administrative purposes.

Staircases and staff rooms were provided in the central section of each block with long wards on each side divided by a central wall and containing two rows of beds.

Numerous different foundations were established in England, Wales, Scotland and Ireland dating from the 18th Century.²

The traditional hospital became one for the care of the sick. The new development also found expression in the name so that and some of the new establishments came to be called infirmaries.

1. Clay, R.M. "The Mediaeval Hospitals of England", London 1909.

2. Poynter, F.N.L. op. cit, p.76.

EUROPEAN BAROQUE HOSPITALS

The Johannes-Hospital in Salzburg, Austria towered above all the 17th and 18th century hospitals in the sphere of artistic importance.¹ Its architect was Johann Bernhard Fischer von Erlach, who made this the model form of Baroque hospital structure. (Fig. 19)

The wings containing the male and female wards radiated from the central chapel which became the focal point of the complex. The projecting corner blocks contained the larger wards, those in the other parts being smaller. (Phot.3)

Austria's most important contribution to the development of hospital design was exemplified in the "Allgemeines Krankenhaus Vienna." In 1781, following the proposals of F.X. Fauken, M. Stoll and T.P. Frank, plans were evolved which led to the taking over of an already existing Welfare Institute in the Alserstrasse and the erection of the new hospital.² (Fig. 19)

The two-storeyed wings were divided into separate departments consisting of large wards arranged with their relevant offices in pairs on the staircases. Corridors were abolished to obtain light on both sides, and additional single rooms were also provided.

Architecturally, the chief feature was the well-proportioned main building which contained, on its central axis, the entrance, with the chapel on the upper storey. The designs were provided by Isidor Canevale.

1. Tumler, P. M. op. cit, p.84.

2. Grois, B. "Das Allgemeine Krankenhaus und Seine Geschichte", Wien 1965.

The sanitary arrangements were exemplary as each ward had the ablution block provided with baths and showers attached to it.

The "Narrenturm" or Fool's Tower, set apart and still a unique architectural phenomenon erected in 1783 from designs by Canevale, comprised a circular 5-storeyed mental home.¹ The building provided for 139 patients, two to a room, each of which was heated by hot-air piping and served from a passage surrounding the court. A cross range in the inner court contained stairs and staff rooms. (Fig. 19)

In its time this institution, which manifested the Age of Enlightenment, made undoubted contributions to mental care, being also impressive in its architectural forms.²

THE PAVILION PLAN (FIG. 14)

An even greater consequence of modernising hospital planning was the advance from the old block type to the pavilion system, first instituted in 1756-64 at Rovehead's Royal Naval Hospital at Plymouth (Devon).³

The layout here consisted of 14 pavilions connected by collonades arranged on both sides of a court, their roofs serving as terraces while the chapel closed the vista on the open side. (Fig. 14) The larger pavilions, which consisted of two storeys, and the smaller ones containing two one-storeyed wards, were aligned longitudinally on a north-south orientation.

1. Grois, B. op. cit, p.26.

2. Gabriel, A. "La Cite de Rhodes" MCCCX-MDXXII Paris 1921-23.

3. Poynter, F.N.L. op. cit, p.p. 27-41.

HÔTEL-DIEU - PARIS: THE RADIAL PLAN (FIG. 20)

An event which proved to be the stimulus for new lines of thought and a serious reevaluation of the older methods was the burning of the Hôtel-Dieu in Paris.

This occurred during August 1737, and from this date and the second fire in 1772, a new and decisive chapter in the history of hospital planning took place.¹

The conditions prevailing at the old Hôtel-Dieu (unsatisfactory sanitary conditions, shortage of sufficient space for patients, lack of adequate services), as described in contemporary publications², were very poor. Henri Louis Duhamel examined the problem of its ventilation and proposed in 1748 that fresh air should be admitted from high windows and warmed by stoves connected to flues.³

A new site for the hospital opposite the Isle des Cygnes was considered or alternatively, on the island itself. Several architects made tentative proposals for the new building.

A work published in the same year by the Paris surgeon, Antione Petit, "Memorandum on the Best Method of Constructing a Hospital for the Sick", advocated a radial type plan for the new Hôtel-Dieu. (Fig. 20)

The maximum number of patients were to be accommodated in substantially built and well-ventilated wards on the Belleville Hill, outside the city.

1. Coyecque, E. "L'Hôtel-Dieu des Paris au moyen âge"; Paris 1889-91.
2. van Puyvelde, L. "Un Hôpital du Moyen Age et une Abbaye y annexee", Grand - Paris 1925; Coyecque, E. "L'Hôtel-Dieu des Paris au moyen âge"; Paris 1889-91.
3. Coyecque, E. op. cit, p.16.

The design embraced six four-storeyed blocks containing galleries radiating from the centre each to be allocated to a separate department, the whole group encircled by a colonnade. Estimated to be capable of accommodating 2 000 beds, it had, at its centre, a circular building containing an altar surmounted by a high, cone-shaped ventilation shaft and lantern. All the wards were to be connected to this centre, which formed a combination of both chapel and ventilation installation. The exterior, had an undeniable relationship with "revolutionary architecture", and its evidence of enlightenment is unmistakable.

The central position was shared by both altar and hygienic installation, now matters of equal importance. Although some of the merits of Petit's conception were not at first recognized, subsequent designers adopted many of his ideas.¹

The proposals put forward in 1773-77 by Jean Baptiste Le Roy, but which were not published by 1789, were based on the idea of accommodating the sick in isolated, one-storeyed wards with cellars beneath to obviate damp, and with a well considered ventilation system.² The concept of the pavilion thus reappeared and was to be increasingly employed in future, ousting the older radial plan (Fig. 21)

Although Le Roy was regarded as the innovator of this system, in all probability he borrowed the idea from earlier English examples, such as that at Plymouth Hospital.

If Le Roy's scheme, similar to the later radial plan of Poyet, had been adopted, it would certainly have resulted in the most splendid example of hospital architecture since the erection of the Ospedale Maggiore in Milan.

1. Coyecque, E. op. cit, p.17.

2. Ibid, p.21.

Eleven free-standing pavilions were proposed on either side of a large central court with continuous colonnading. The great church stood at one end connected to the establishment by arcades in the form of quadrants. On the Seine front, courts were arranged on both sides of the wings containing auxiliary rooms. Additional pavilions were included for contagious cases and for those requiring surgical treatment. The manner in which some of the individual wards were planned, however, gives rise to certain doubts.

It was characteristic of the new spirit that Le Roy should have insisted upon a small ward being built first as a model for the fullsize ones, in order that ventilation problems might be studied. He said:

"A hospital ward is really a machine for the treatment of the sick".¹

The 18th and 19th Century's hospitals followed the new principles of building. Healing the sick became the predominant aim of the new institutions, and progress in every sphere of medical science inaugurated the establishment of more modern equipped buildings.

Fresh variants, emancipated from stylistic elements, thereupon evolved to give architectural form to the discoveries of medical science.

CONCLUSION

The main objective of this description is to show the major evolution of the hospital function and form during the centuries. It is interesting to note, that the change which occurred in the general lay-out of the hospital was dependent upon:

1. the function it served firstly as a guesthouse and later a place of medical care;
2. the kind of institution it represented (religious or public).

1. Leistikow, D. op. cit, p. 216

The hospital, which started as a "hospice" attached to the Monastery, developed into a perfectly designed public institution, fulfilling all the requirements necessary for the patient's health and the convenience of the service given by the medical staff.

The main principles of Modern era Hospital design, thus established were adopted as the basis for hospital planning in the developing countries.

BACKGROUND:

Until Victorian times the traditional hospital, often quite large and stately, did not differ in any specific way from other large public buildings. Insufficient light and air seemed to be the worst deficiencies.¹

It was remarked in 1858 that:

".... in most hospitals the cure of the inmates was by no means considered a priority; people would have more hope of a cure by lying in the open air than in a hospital."²

Light and space were considered the main problems to be solved by the Victorians : even in 1906 it was remarked that they were more important than drugs. A focus for the reformers' attention among recent buildings was the Royal Victoria Military Hospital at Netley out of Southampton in Hampshire, built in 1856-61 to designs by a War Department Surveyor called Mennie.³ It was criticized for the arrangement of the wards, and the windows which were placed on only one side of the room. "The Builder" predicted that many patients would die from lack of ventilation.

Notes and references:

1. Dixon, R., Muthesius, S. "Victorian Architecture"; Thames and Hudson Ltd. London, 1978.
2. Tattan - Brown, W. "Owed to the Nightingale - 1" - Nursing Times, August 3, 1978; p.1273.
3. King, A. "Hospital planning : Revised Thoughts on the Origin of the Pavilion Principle in England (Medical History, Vol. X, No. 4, October 1966).

POST-CRIMEAN HOSPITAL PLANNING

Of the many domestic reforms hastened by the Crimean War, the rethinking of hospital design was one which most concerned the mid-Victorian architect. The deplorable state of military hospitals revealed by the Report of the Commission of 1858 appointed to inquire into the regulations affecting the sanitary conditions of the army, the organization of military hospitals and the treatment of the sick and wounded, stimulated the discussion of civil hospital reform which was already active in the mid-1850's. The change which took place from the early to the late nineteenth century, from conditions "where cross-infection was a constant menace" to those "where hospitals were of positive benefit to a substantial number of patients" occurred largely in the years following this report. Improved medical knowledge, nursing reforms, increased attention to sanitation, and better planning and administration combined to ensure that Florence Nightingale's maxim.

"The first requirement in a hospital is that it should do the sick no harm"²

was far less relevant in 1890 than it had been fifty years before.

Prior to 1861, there had been a considerable variety of different architectural designs for hospitals in England, but in the 1870's and 1880's, the vast majority of new hospitals and rebuilt hospitals conformed to one basic plan - a series of separate pavilions placed parallel to one another. The "pavilion system" consisted preferably of single storey, or two-storey ward blocks, usually placed at right angles to a linking corridor which

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1. King, A. op. cit, vol. X. No. 4.
 2. Tattan-Brown, W. "Owed to the Nightingale - 2: Ward Evaluation", Nursing Times, August 3, 1978, p. 1279.

was either straight or enclosed a large central square. The pavilions were widely separated usually by lawns or gardens. In the wards, complete cross-ventilation was achieved by opposite rows of tall, narrow windows reaching from floor to ceiling. Natural ventilation from doors, windows and fireplaces was the rule.

The uniformity of design among the late Victorian hospitals, with its emphasis on spaciousness and natural ventilation, was the logical outcome of the general acceptance of the aerial conduction of disease.

The responsibility for this change, as well as for other aspects of hospital reform is attributed to Florence Nightingale.¹ Her "Notes on Hospitals" of 1859 revolutionised the whole theory of hospital management and hospital construction. Sir Edward Cook, the author of Florence Nightingale's biography points out in his articles to "The Builder" that other interested parties, surgeons and architects, were actively engaged and were successful in bringing about changes in the state of English hospitals prior to Miss Nightingale's influence.

He suggests too, that her "Notes on Hospitals" was in all probability, strongly influenced by the writings of another hospital reformer, John Roberton, and the editor of "The Builder", George Godwin, social reformer and promotor of the public health cause.²

1. King, A. op.cit, vol. X. No. 4.

2. Watts, G.E. "Planning Competition - Ward Design", "Nursing Times", September 17, 1965, p. 1278.

VICTORIAN PRINCIPLES OF HOSPITAL DESIGN

1. Hospitals should consist of detached buildings so situated as to get the best light and fresh air. Such detached buildings should be at considerable distances apart:

"..... so 1 000 sick should be spread like a village"

Each patient should have 100-120 feet of superficial space and from 1 500 to 2 000 feet of cubic space. ¹

2. Ventilation should be natural and the best arrangements for this are:
 - opposite windows reaching nearly to the ceiling on the sides and a large end window,
 - additional openings to secure a vertical movement of the air.

E.A. Parkes in his "A Manual of Practical Hygiene" (edited in 1878) wrote:

"A tube opening at once to the external air should run transversely along the floor of the ward to each bed, and should end in a box placed under the bed, and provided with openings at the top and sides, which can be more or less closed. In the box, coils of hot-water pipes should be introduced to warm the air when necessary. The area of the tube should not be less than 72 square inches to each bed, and the area of the openings in the box at least four times larger. The fresh air, warmed to any degree and moistened, if necessary, by placing wet cloths in the box, or medicated by placing chlorine, iodine or other substances will then pass under each bed, and ventilate that space so often left unaired, and then, ascending round the sides of the bed, will at once dilute and carry up the products of respiration and transpiration to the ceiling.

It would, I presume, be a simple matter so to arrange the hot-water pipes as to be able to cut off all or some of the pipes under a particular bed from the hot-water current if desired, and so to give a fever patient air of any temperature, from cold to hot, desired by the physician.

1. Parkes, E.A. "A Manual of Practical Hygiene"; London 1878.

In the low and exhausted stages of fever warm air is often desirable. By this simple plan, it seems to me we could deal more effectively with the atmosphere round our patients, as to warmth, dryness, humidity and medication, than by any other. At the same time, the open fire-place and chimney, and the open doors and windows, might be preserved." ¹

3. Channels in the roof ridge should be provided to ensure the exit of foul air. To facilitate this system, one storeyed buildings were advisable. It could also be used in two-storeyed buildings, but then the discharge flues had to be placed at the sides and run up inside the walls.
4. The walls should be of impermeable material - Parian cement was considered the best. Large slabs of coloured tiles joined by a Portland cement could also be used.
5. Ceilings were to be either cemented or frequently limewashed.
6. Good oak laid on concrete seemed to be the best material for floors. Oil-cloth or material of a like kind was put on the floor in order to prevent "the substances from sinking into the boards." ²

Dr. Langstaff of Southampton strongly recommended paraffin melted and then poured onto the floor and ironed into it with a box-iron.
7. The furniture in a ward was to be reduced to the minimum, iron being considered the most hygienic material. Mattresses of horse-hair or coir fibre were introduced.

1. Parkes, E.A. op. cit, p.204.

2. Ibid, p.210.

8. The arrangement of bathrooms and lavatories was considered of the greatest importance. The best way of arranging the closets was by placing them in detached lobbies at one end of the ward and separated from it by a through cross-ventilation. ¹
9. All excreta, dirty dressings, foul linen were to be immediately removed from the wards.

THE REVOLUTIONARY MATERIALS

The sound economic and technical developments of the Victorian Era led to the demand for new types of buildings, more practical and functional.

To solve these problems Victorian designers were able to use new building materials made available by the Industrial Revolution. The materials were: ²

1. cast iron
2. wrought iron
3. steel.

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1. Nightingale, F. "Notes on the hospitals", London 1859.
 2. Cast iron was made in increasingly large quantities following Abraham Derby's successful development in 1709 of the process of smelting iron by means of coke. In the early 1790's it was used for the columns, floor beams and window frames of mills in an attempt to make them fireproof.

Constructional cast iron became increasingly popular in the 1840's and 1850's, with the building of a series of railway stations and glasshouses. Cast iron was brittle and although it was very strong in compression, under tension wrought iron was much stronger and therefore superior for much constructional work. Wrought iron was however

LARGE ENGLISH HOSPITALS

The Pavilion type plan was adopted in large hospitals. The first large establishment to follow the new principles was the Herbert Royal Military Hospital at Woolwich begun in 1860 by a Royal Engineer, Captain Galton. The new St. Thomas's Hospital opposite the Houses of Parliament was also a model example of the new principles. Built in 1868-71, it accommodated 588 patients in 44 wards which were arranged in 6 blocks at right angles to the river. Designed by Henry Currey, this succession of blocks with their ornamental fronts was very effective. (Phot. 11),
 (Phot. 14. St. Thomas's Hospital, Operating Theatre)

(cont.)

expensive to produce until after 1820, when its manufacture increased through the use Henry Cort's puddling process of 1784.

Sir William Fairbarin became the great advocate of wrought iron for building.

Shortly afterwards wrought-iron girders were used by Paxton to span the nave of the Crystal Palace. In 1854 Fairbairn published his influential book "On the Application of Cast and Wrought Iron to Building."

In 1855 Sir Henry Bessemer invented a method of making steel in large quantities. His process produced a metal which was stronger and more durable than wrought iron and which cost only one third as much. Parallel with the use of iron and steel, glass began to be extensively used in early 19th century buildings, mainly in glasshouses, which took on monumental proportions. All these material innovations opened a wide prospect of various possibilities of solving constructional buildings for designers. Technical innovations in planning, construction and servicing were the main points to be observed in new structures, including hospitals.

MEDIUM SIZED HOSPITALS

Medium sized hospitals usually chose the H-plan with administration in the centre and wards on either side. This plan also provided efficient lighting and ventilation as in the 2-pavilion type.¹

An English example of this type is the Norwich and Norfolk Hospital built in 1879, for which the consultant architect was T.H. Wyatt. Saxon Snell, who became a specialist for this type of building, designed the St. Charles Hospital in North Kensington, London, in 1879 for "The Poor Law Board of Guardians."

COTTAGE HOSPITALS

Small hospitals, often called "cottage hospitals" multiplied after the 1860's.

Until the middle of the 19th century nearly all the hospitals were in the larger towns and consequently, people living in rural areas who were taken ill or met with accidents often had to be taken long distances to hospital or else remain in their own homes where there were no facilities for treatment. The first step to remedy this state of affairs was taken at the village of Cranleigh in Surrey in 1859, when a local surgeon, Mr. Albert Napper, opened the first cottage hospital.² It was in a former vicarage and had only four beds. Thirty-five years later there were over six hundred Cottage hospitals in Britain.³

1. Dixon, R. Stefan, M. op. cit, p.110.

2. Ibid, p.111.

3. Leistikow, D. op. cit, p.204.

G.E. Street's model design of 1855 for a "village hospital" for the Ecclesiological Society was as attractive as his schools and vicarages, but its ventilation would not have satisfied the reformers.

LUNATIC ASYLUMS

In the early Middle Ages the insane were admitted to the same hospital as people who were "diseased in body". They were not even accommodated in different wards. The first hospital to become famous as a refuge for the insane was the Bethlem Hospital at Bishopsgate, London. This is probably the oldest asylum in the world with a continuous history. It was founded as a priory in 1247, but the first record of insane persons being accommodated there is dated 1403.¹

The treatment of lunatics by placing them in chains was the normal practice in the Middle Ages and for centuries to come. Restraint and cruelty were often the only forms of treatment they received.

The Poor Law Amendment Act of 1834 reformed the centuries-old English Poor Law, by improving conditions under which the "Pauper Lunatics" Asylums were built. After 1828 paupers started to be kept in separate departments within the workhouses, but by the 1840's it was generally thought desirable to accommodate them in special institutions, and by 1860 most English counties had built at least one asylum, for a total of 30 000 or 40 000 inmates. It was reckoned that a building housing 350 inmates was the best size. With regard to the arrangement of the plan, where both ventilation and easy control were important, a number of different solutions were considered.

1. Leistikow, D. op. cit, p.205.

INFLUENCE OF THE PRISON PLAN (FIG. 22)

A few Asylums were based on the radiating principle devised for prisons for instance the Devon Asylum at Exminster near Exeter of 1843-6 by Charles Fowler.¹ As in the case of general hospitals, the arrangement of separate wings at right angles seemed the most satisfactory.

One of the largest buildings of its date was the asylum at Colney Hatch in Middlesex, built in 1847-51 by Samuel Dankes. It had about 1 300 inmates and cost over £200 000.²

In a very long building, the services were centrally placed and were later criticized for their distances from the wards.

The Lunatic Asylum at St. Ann's Health, Virginia Water, in Surrey, generally known as the Holloway Sanatorium, was built in 1871-84 for 100 middle-class patients, in Gothic style.³

In fact, the lunatic asylums were the first specialist hospitals except for the lazar-houses (for lepers), and they received proper attention in Victorian times.

UNIVERSITY COLLEGE HOSPITAL, (1834) (FIG. 24),
(PHOT. 15)

Cohen University College Hospital opened its doors as a charity institution in 1834, when the unwholesome effects of the industrial revolution were beginning to appear in London.

1. Dixon, R. and Muthesius, S. op. cit, p.113.

2. Ibid, p.115.

3. Ibid, p.119.

Medicine still awaited its own revolution. Physicians treated their patients by bleeding with leeches and purges and surgeons operated without anaesthetics and without any idea of the causes of wound infection. After several sites for building had been suggested and abandoned, very serious thought was given to joining the London Fever Hospital.

In 1832 at the Annual General Meeting of the University Authorities, a plan for the foundation and support of a hospital was presented.¹

It provided, among other things for:

1. the establishment of a hospital of 100 beds, capable of extension;
2. the cost to be £7 000; and
3. the funds for its support to be derived from the fees of students and from voluntary contributions.

Taking as their guide the cost of building, equipping and running the Middlesex and London Fever Hospitals, the University Committee of Management now requested the Secretary, Mr. Coates, to ask six architects for plans for a hospital as described, without ornaments. The sum of twenty pounds was to be given for the best plan and ten pounds for the second best plan.

By July 1832, it was agreed that Mr. Ainger's plan (Fig 24) was the most suitable and a Public Appeal for the North London Hospital was launched. The Committee decided to erect a Hospital on the vacant ground opposite the University to increase efficiency. The Public Appeal was so satisfactory (about £4 000) that on the 22nd May, 1833, the first stone of what was to be called the North London Hospital was laid by the Duke of Somerset. Building work was delayed by a strike and the Hospital was opened on the

1. Merrington, W.R. "University College Hospital and Its Medical School. A History"; London, 1976.

1st November, 1834 with accommodation for 130 patients. The central block only was opened in 1834. During the years 1838 to 1841 the South Wing was erected and the North Wing was added in 1846.

The ground floor (Fig. 24) consisted of two ten-bedded wards - one female and one male, a lecture room for students (by the side entrance), an out-patients department, a casualty room and a dispensary. The whole North Wing was occupied by the Eye Specialized Department.

A very interesting feature of this design was that the main entrance corridor led to the operating theatre which was also to be used by students. Private wards were on both sides of the main entrance, and one toilet and bathroom was attached to each ward. The Post Mortem Room, Mortuary and Boiler House were placed in the enclosed yard at the back of the building. The main communication system operated on a T-shaped layout.

The building was finished in classical style. Ground floor walls up to the height of the first floor were plastered, while the two remaining floors were of brick. An attic was provided in the roof, which served as a furniture store.¹

1. The main entrance corridor and two side corridors had their own wooden stair-cases. Each ward had its fire-place, the only source of heating. The operating theatre was furnished with a wooden operating table and 3 rows of seats for watching students. Cold and hot water was provided in the bathrooms, and the steward's office. The natural lighting problem was solved by providing four open courts each 7 x 10 feet in size. The first floor consisted of four 20-bedded wards, two male and two female with the nurses rooms placed centrally.

The old hospital building was enlarged and modified many times. Between 1838 and 1841 the South Wing was added to to provide two more wards on the upper storeys, and a lecture theatre and out-patients room on the ground floor. Shortage of funds with which to run the new wards left them unfurnished and unoccupied for a year. By 1844, funds and bequests were again sufficient to allow discussion on completing the Hospital by building the North Wing, the foundation stone of which was laid on the 20th May 1846 by Lord Brougham.¹ The wing was completed by the end of the year and provided fifty more beds, allowing separation of medical and surgical patients, beds of diseases of women, an eye infirmary, and space for greatly improved out-patient accommodation.

In 1867 it was decided to add another floor to the Hospital for resident medical officers, sisters, and their assistants and servants. It was the last major addition to the old Hospital building. The direct consequence of the addition was to provide three new wards, one of six beds for the use of surgical cases under Sir Henry Thompson, and two others of fourteen beds to be used exclusively for the treatment of children. Up to this time, children had been treated in adult wards.

From the earliest years of the Hospital's existence, periodic complaints had been made about what were clearly defective sanitary arrangements. In 1841, the Medical Committee was requested to consult with the Secretary of the College, Mr. Atkinson, about the state of the Water Closets and the best modes of remedying the "evil" smells complained of. In 1843, the Medical Committee agreed that:

"....the ventilation of the wards was exceedingly defective and greatly needs improvement.

.....a simple and cheap plan be tried first in one ward."²

1,2. Merrington, W.R. op. cit, p.216.

HERBERT HOSPITAL - WOOLWICH, (1860) (FIG. 25)

Herbert Hospital at Woolwich was considered by Florence Nightingale as "the best military hospital in this country (England) or perhaps anywhere."¹

The building designed on the pavilion plan and symmetrical in its layout represents a very interesting example of hospital architecture in the Victorian Era. (Fig. 25) The arrangement of the pavilions on each side of the spine corridor became the characteristic component of hospital design, according to Miss Nightingale's "prescription". The pavilions, of course, varied in many ways but generally they served the same purpose - proper environmental control.

The Herbert Hospital consisted of four double and three single pavilions of two floors each, all raised on basements. In the central pavilion, the convalescent's dayroom was situated on one side of the corridor and service rooms like stores, kitchen and huge library on the same line, but on the other side of the corridor. The frontal approach to the Administration Block, connected with the rest of the building by opened corridors on both sides, was situated centrally on the axis of the object.

The Basement corridor served the purpose of conveying food, medicines, coals and then, by a series of lifts, these goods were elevated to the wards.

"The terraces on the corridor, afford easy means of open-air exercise for the patients in the upper ward. The wards are warmed by two central open fire-places, with descending flues, round which are air-passages, so that the entering air is warmed. The internal finishes are simple. Walls built of bricks are plastered and painted. The floors are iron beams, filled in with concrete, and covered with oak boarding" ²

1. Parkes, E.A. op. cit, p.368.

2. Ibid, p.428.

UNIVERSITY COLLEGE HOSPITAL, (1897) (FIG. 28),
(PHOT. 16,17)

The pressing needs of the local population and the rising numbers of students led the Medical Committees to consider seriously whether the hospital should be enlarged again or completely rebuilt. In July 1877, the Medical Committee, after considering the Architect's report, gave its opinion that:

".....It would be impossible by any improvements to existing buildings, to raise the hospital to a standard of sanitary excellence required by modern Science and that to attain this object and at the same time a desirable increase in the number of beds, its complete reconstruction is absolutely necessary".¹

Then eighteen years (1877-1895) of discussion and planning began in the course of which Dr. G. Vivian Poore, a Physician on the staff of the hospital, introduced the suggestion of a "Diagonal" plan for the new hospital and this was adopted. Dr. Poore's idea of the diagonal plan, quite revolutionary at the time, was put forward in an attempt to solve the problems of ventilation, drainage and lighting by arranging the wards like the diagonal limbs of a cross. (Fig. 28) Passages, open on both sides, connected the wards to the central stairway and lifts and sanitary annexes and drains, properly isolated, were at the outer ends of the cross. The individual wards were also made in the form of a cross in order to give space for more beds.

The architect, Alfred Waterhouse, drew up details of this plan and at the same time was asked to present a second, more conventional, quadrangular plan as an alternative, and at a Medical Committee meeting in May 1895, it was decided that:

"...the Diagonal plan proposed by Alfred Waterhouse, R.A., be approved."²

1,2. Merrington, W.R. op. cit, p.220.

The new plan required a slightly larger site which was provided by adding the property owned by the College behind the hospital, and by using the still vacant back yard.

Excavations for the first (North-West) wing of the hospital started in 1897, building operations began on the 3rd September 1897, and the foundation stone was laid by H.R.H. the Prince of Wales on 21st June 1898.

The North-West Wing and Central Block of the hospital were opened for use on 24th September 1900. They included the operating theatres in the central block and several wards, with a Clinical Lecture Theatre and Pathology Department on the top floor. (Phot. 17)

In another year, the South-West Wing was opened providing quarters for Resident Officers and Nursing Staff. The South-East Wing, consisting of five wards with twenty-four beds each, was completed in 1902. (Phot. 16)

The new hospital was officially opened on 6th November 1906 "The Times" of the 7th November said:

"The style of the building is a free treatment of Renaissance, and the material red brick with Terra Cotta dressings. The plan of the building is cruciform. The wards are roomy and lofty and contain 24 beds each, there being about 300 beds in all. Each ward is strictly isolated according to the plan of the late Dr. Poore. The Architects were the late Mr. Alfred Waterhouse, R.A., and his son, Mr. Paul Waterhouse. The opening took place in the large general out-patient hall."¹

Alfred Waterhouse was born in 1830 in Liverpool and articled to a Manchester architect. After study in France, Italy and Germany, he practised in Manchester and later came to London where he designed the Natural History Museum, the Prudential Assurance Building, St. Paul's School, and many other buildings.

1. "The Times", 7th November 1906.

He belonged to the group of famous 'Seven Victorian Architects'. He was elected President of the Royal Institute of British Architects. Ill-health forced him to retire in 1901 and he died in 1905 before the hospital was opened.

"The ventilation and illumination of the staircase never troubled the mind of the builder or his architect. Starting from the front passage, the only light of which is from a closed fan-light over the door, the staircase oscillates between water-closet doors and bedroom doors, getting darker and darker as it ascends. In the hospitals every doctor may be familiar with the rancid whiff that comes up the absolutely dark stairs leading to the basement; the cold, damp smell of mildew and soot in the sacred front parlour, where the 'register' is closed and the blinds are drawn,"¹

Alfred Waterhouse

BELFAST ROYAL VICTORIA HOSPITAL, (1903) (FIG. 30,31)

The hospital was designed by Henman and Cooper in 1893, but was opened only ten years later. It was planned as a single-mass building, in which a masterpiece air-conditioning system was installed.² (Fig. 30-31)

Traditional pavilion layout would have been a waste of space and money in this case, as it was considered perfectly suitable in conditions where the natural cross-ventilation had to be involved. Great compactness of layout assured a small superficial area of external walls and little loss of heat and was considered very economical. The whole medical work space of the hospital was packed into a densely occupied single storey block divided into rooms all lit from above.

The institution was asymmetrical in its general layout. The main entrance to it was through the administration block, located in line

1. Merrington, W.R. op. cit, p.226.

2. Banham, R. "The Architecture of the Well-Tempered Environment" London 1969; p.81

with the gate onto the hospital premises. From the entrance hall, the door led to the offices on either of its sides and straight to the main spine corridor, from which 15 wards could be approached.

Each ward accommodated fourteen patients and had ablution and duty rooms attached to it. Since the wards were connected to each other and the intervening walls could not have windows, the wards were lit by long lay-lights on either side of their pitched roofs and by arched openings onto the balconies at the end. At the corridor end, kitchen, operating theatres, and private wards were fitted between the entrances to the wards.

The external aspect of the Royal Victoria Hospital demonstrates the total irrelevance of detailed architectural "style" to the modernity of the functional and environmental parts. The hospital was extremely modern and ahead of its time in its environmental controls, and also in the way its parts were functionally disposed along a spine corridor without regard for axial symmetry. In these aspects of plan and circulation it approximated the advanced practices of some thirty years later.

But its detailing in what its designers doubtless regarded as its art architecture, belongs dismally and irrevocably to a conception of "Welfare" architecture fathered by the London School Board some forty years before, a style already thoroughly discounted and out of fashion among consciously-progressive architects of 1900.¹

1. Banham, R. op. cit, p.81.

Parallel with England the new methods of hospital planning developed in other countries of Europe, showing the same design principles and differing perhaps only in the architectural style used.

THE GARRISON HOSPITAL IN STOCKHOLM, (1817-1834) (FIG.32, 33)

This building was considered the finest monumental building in Sweden of this period.

Karl Kristoffer Gjörvell (1766-1837), one of the foremost architects and a pupil of Desprez, was given the opportunity of displaying his architectural skill in the building of the Garrison Hospital. ¹ The exterior here was of immense importance. Consistent with the rule, the facade of the hospital was particularly long with a low roof. (Fig. 32) But the two projecting wings belonged to the neo-antique. The building was two and a half stories high, but the half-storey was so cleverly hidden beneath the roof that it was hardly noticeable. The Doric temple gable of the central protrusion with a column rising above the double flight of steps, gives an imposing impression of representation and authority. Swedish architecture derived impulses from the various phases of the Italian Renaissance and from the palace of the Baroque, and applied them in a manner peculiar to itself, as a rule severer in style, brick, and plaster, which material had an old tradition here. The hospital built on the U-shaped plan had a central entrance between two wings projecting out of the facade (Fig. 33), and the entrance led into the hall from where two big doors on either side opened into the corridors. Attached to this hall were wards and service rooms. The building faced south, and most of its wards were

Notes and references:

1. Hahr, A. "Architecture in Sweden"; Stockholm 1938, p.31.

also placed on that side (the best aspect in Europe). All service rooms were put on the opposite side of the corridor.

The building was planned on the old corridor type, without taking into consideration lighting or ventilation. Built in neo-classical style it had a well-articulated facade.

LARIBOISIÈRE HOSPITAL - PARIS, (1850's) (FIG. 34)

The pavilion-type hospital was represented by Lariboisière Hospital in Paris built in the 1850's in classical style. (Fig. 34) Symmetrical in general layout, it was built on the plan of a quadrangular spine corridor to which the service rooms were attached on external sides.¹

Blocks of the wards created external branches of the connecting passage. The pavilions, five on either side of the axis of the object, overlooked the gardens enclosed between them, approachable from the dining halls on the ground floor. The ablution blocks situated at the ends of every block, flanked them nicely and were very well cross-ventilated. The main entrance, centrally placed in the facade, consisted of an archway leading to an enormous internal atrium with a beautifully organized garden and central fountain. The operating theatres, kitchen block and laundry were all placed at the back of the building.

The structure, practical in its general layout, was also carefully designed with regard to architectural style. Being built in the classical mode, it was proportional and elegant in its outlook.

This hospital was an example of good environmental and functional design according to the requirements suggested by Florence Nightingale.

1. Parkes, E.A. op. cit, p.412.

MUNICIPAL HOSPITAL, COPENHAGEN, (1859-63) (FIG. 35)

The Municipal Hospital, which was built during the years 1859-63 with Christian Hansen as its architect was characteristic of the new scale.¹ Built in conformity with the prescriptions of the 19th century reformers, it represented the pavilion type. (Fig. 35c) Symmetrical in its layout, it had a spine corridor in a U-shape, attached to which were separate blocks containing wards. It had an enclosed internal yard, in which a beautiful garden with a central fountain and space for patients was organized.

All the service rooms were grouped in the spaces attached to the main corridor and between wards. The building, designed on the layout conforming to Renaissance standards and new design principles, had something of the Romanesque or Byzantine style in its appearance. (Fig. 35a).

The introduced hierarchy of functions on the plan, central dining hall and chapel, were echoed in the elevations with dominant copper domes.

This 3-storeyed structure, built of bricks and topped by a tiled roof still serves its original purpose.

MUNICIPAL HOSPITAL, ZABRZE, POLAND, (1874-76) (FIG. 36-40)

This interesting hospital was designed by the German architect Josef Becken in 1873.

Upper Silesia, now Polish territory, was under German occupation during this period, so the influence of German architecture was very prominent.

1. Brochmann, O. "Copenhagen. A History of the City Told Through its Buildings"; Copenhagen 1970, p.54, 55.

This fine, double-storeyed structure had in addition a high cellar for all the laboratories, and the attic floor where the majority of staff and hospital stores were accommodated. ¹

The building faced a north-south direction, most of the wards being located on the southern, sunny side (Fig. 36). This structure was planned on the corridor-type layout with the main, central passage and the wards and service rooms placed on both sides of it, together creating the unusual stepping U-shape (Fig. 36).

The position of the main entrance was also atypical - on the side of the facade.

Thirty years, after the main part was erected, a new Lecture Theatre was linked to it by an enclosed walkway.

Externally, Zabrze Hospital represents a very interesting architectural example. The arched dormer attic ventilators of German origin and full mansard roof served to articulate all the elevations. (Fig. 37-40)

The main entrance of the facade was marked by fine gables, decorated with plaster ornaments, and the upper dome on the mansard basis. The hospital was situated in beautiful park-like grounds with oak trees and flowers.

The hospital is still in operation today.

1. Zabrze Museum. Zabrze, Poland.

The discoveries in hospital planning methods in the Victorian Era were brought with settlers to new developing Colonial Countries like Australia, India, the United States of America, South Africa and Canada, where they were adopted in the same form or transformed to the altered shape of layout, dependent upon the following conditions:

1. number of patients to be accommodated,
2. availability of funds,
3. availability of materials and labour,
4. different climatic components of design.

LIVERPOOL HOSPITAL, AUSTRALIA, (1822) (FIG. 91)

One of the finest small hospitals and finest colonial buildings of all was Liverpool Hospital designed by W. Greenway, a government architect.¹ The foundation stone was laid in 1822 and the building was finally completed in 1825. Designed in Italian Renaissance Style, this brick, plastered and white painted structure had the appearance of a 17th century Renaissance palace.

Symmetrical in plan it had a central entrance which led to a flight of stairs onto the east loggia. From here archways led to the wards on either side of the entrance.

A centrally situated spiral staircase ran up to the second storey and the tower was capped by a copper dome.

Notes and references:

1. Morton H. "The Early Australian Architects and their Work"; Sydney 1954.

On the western side a corridor was provided from which the entrances to the nurses' duty room and doctor's room were placed.

The plan of the first floor was generally the same as the floor below, but the size of the rooms was slightly increased by omitting the west loggia.

The pleasantly designed facade contained the arcades supported by Colonial Doric pillars on the ground floor, the first floor being articulated by a row of rectangular windows.

The long, tiled, hipped roof was enriched by the introduction of a dominant clock tower with arched openings and copper dome, placed on the axial line of the building.

The sides of the structure were flanked by projecting - out of the facade walls with niches, for windows.

GLADESVILLE LUNATIC ASYLUM, AUSTRALIA, (1835) (FIG. 43)

In January 1835, Mortimer William Levis - the Colonial Architect submitted the plan for a Lunatic Asylum, a need for which had been growing over the years, to Governor Bourke.¹

The design he produced was in the simple tradition of a rectangular facade with projections in the centre, surmounted by a pedimented roof.

He designed the facade in three squares and included a string course to give subtlety to the vertical divisions. The portico was remarkable in that it was designed with Ionic columns, and since the

1. Morton, H. op. cit., p. 216.

building was well on towards completion in 1837, this must have been one of the first examples of the use of these more ornate forms in Australia. Previously all the Colonial columns had been very correct or very free versions of the Doric order. The capitals of the columns of that order, being circular, could be turned on a simple spindle, an operation within the scope of even semi-skilled men. The Ionic capitals had to be carved by hand, which required a high order of craftsmanship. The plan was based on a rectangular as a single mass building. It had a central entrance leading to the corridor extended by the staircase.

The circulation on a cross plan was typical of a building of that shape. On the ground floor there was the superintendent's and doctor's residence, surgeon's room, waiting room, and board office, and the wards were located on the first floor.

This brider, a plastered and white painted structure had a tiled, hipped roof and the beautifully composed portico enriched the appearance of the facade.

The institution was built in a neo-Renaissance style, the European influence brought by English Colonisers.

RUM HOSPITAL, SYDNEY, AUSTRALIA, (1810) (FIG. 46, 48-50)

In the beginning of the 19th century a new hospital in Sydney was a priority.¹

1. The first building (imported in pieces by Governor Philip) was too small and was besides "in a wretched state of decay and tumbling down." An attempt to rebuild was found to be beyond the Government's means but at this juncture an extraordinary proposition was presented to Macquorie by which, it appeared, he could have his new hospital at almost no cost to the Government. Two local citizens, Alexander Riley, a properous merchant, and Garnham Blaxcell, a retired naval purser's assistant, offered to build a great new hospital to be "one of the finest public buildings in any of His Majesty's Colonies". In return they asked for the right to import forty-five thousand gallons of rum over a period of three years.

"The main part of the building was to be 287½ feet long, two storeyed, with a verandah in the front and back of the building, 10 feet wide; the pillars of the lower storey to be of stone and the upper storey of wood."¹

It was to be flanked by two similar but smaller additions, together forming the main part the H-shaped plan. The wings were to be used as surgeons' quarters, and the whole was to be fitted with:

"..... every sort of judicious ornament."²

No one knows who actually designed this magnificent project, but the wide verandas had a tropical character, which suggested that Macquorie himself, with his experience of India, may have had a hand in it.

The contract was signed on 6th November 1810, building operations took over 5 years, and finally, in mid-1816, the hospital was completed.³

The newly erected building was in a beautiful situation on the hill overlooking almost the whole town and the ocean.

The original plans were changed several times during the course of construction.

Symmetrical in plan, it had a staircase leading to the central entrance on either side. (Fig. 46). Additional stairs leading to the surgeons' quarters were attached to the right wing.

On each storey the colonnades consisting of 11 Tuscan columns, which were made of stone and painted, supported the front and back verandas and the tiled, hipped roof.

1. Morton, H. op. cit. p. 220.

2. Ibid, p. 220.

3. Ibid, p. 221.

The arched windows and doors were flanked by stone pilasters on both sides. The two projecting wings were also built of stone in neo-classical style, having gable wall tympanums. Their front and side elevations were articulated by Tuscan pilasters, between which the arched windows were put three in a line. Tuscan verandas had iron railings and the whole hospital site was fenced by ornamental iron bars. A central entrance led into the hall, from where two doors on either side opened to corridors with attached wards and duty rooms on both sides.

The hospital was finished in neo-classical style. It was one of the earliest and most interesting examples of Australian hospital architecture.

ST. MARTIN'S HOSPITAL, BRISBANE, AUSTRALIA, (1819) (FIG. 47, 51-53)

St. Martin's Hospital in Brisbane was built a century later than Rum Hospital in Sydney.¹

The building was designed in a style:

"... typical of the 17th century Renaissance, rather earlier than the period of Wren, with the strong classical tendencies of his time, partaking a little of the Jacobean times, with a slightly indicated Gothic origin - enough merely to mark its clerical origin - the whole being thoroughly English, and this with the idea of preserving a symbol of the attachment of the Church in Australia to the Mother Church of England. At the same time, the object has naturally been to treat this style in

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1. This building was erected as a war memorial, founded entirely by the Diocesan Council of the Church of England in Brisbane. It was decided that the hospital was to be built adjacent to St. John's Cathedral. The foundation stone of the hospital was laid by the Governor of Queensland, Sir Hamilton Goold-Adams, on Sunday, 9 November 1919. Three years later, on 28 November 1922, the hospital was opened by the Governor General of Australia, Baron Forster, and dedicated by Archbishop Sharp.

so free a manner as to harmonize it with the climatic conditions of our State, and more particularly to produce a result, that would be in proper and decent feeling with the very beautiful Cathedral - to group up both buildings to form a harmonious whole. The vigorous geometric form derived from Scottish Baronial Architecture were greatly favoured in Queensland at the beginning of the century." ¹

The architect of St. Martin's, Lange L. Powell, was no doubt influenced to a certain extent by the style of the other buildings in the cathedral ground. ²

It has been said, that he designed the elevations first and then juggled the plan form to suit them, but it cannot be denied, that the hospital was well-designed, both functionally and climatically. (Fig. 47). Most of the service facilities were grouped together to form a central unit from which radiated the two double-storeyed accommodation wings. On the cathedral side of the long corridors were private rooms each of which had access to a small balcony, while the wards on the opposite (Southern) side opened onto a long wide veranda. The balconies serving the private rooms afforded particularly pleasant views and received refreshing north-easterly breezes and sunlight. Located in the three-storeyed central unit were the entrance hall, the secretary's and matron's offices, day and duty rooms for the nurses, elevators, a narrow spiral staircase, and kitchenettes.

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1. Dickson, R. "The Making of St. Martin's Hospital"; Sydney 1969.
 2. Early in his career, Powell spent several years in the south of England during which time he toured much of the countryside, sketching and photographing rural cottages. On at least one of these trips Powell encountered the "Red House" of William Morris in Kent (built in 1859 by Philip Webb) for there are too many similarities between this building and St. Martin's to be a coincidence. Not only is there a great likeness between the overall forms of the two buildings, but many of the finer details of St. Martin's were obviously inspired by certain elements of the Red House. The conical roof of the minor operating theatre, for instance was almost identical to that of the Red House, the apex vents of both buildings were very prominent, and very similar, as were the roof tiles, windows and chimneys.

Adjoining this were the two operating theatres. The main theatre on ground level was one of the more dominant external features, its plan being in the form of a broken octagon.¹

Deep brick reveals on the relatively plain southern right facade protected wide verandas from the excessive penetration of the late afternoon sun.

Heavily-incised carving on the stonework above the entrance doorways contrasted sharply with the smoothness of surrounding sandstone. Flanking the rest of the archdiocese were two supporting shields carved with the emblem of St. Martin - a goose.

The courtyard between the hospital and the cathedral was a quiet corner, where patients often sought rest undisturbed by the noise of hospital routine. The hospital was built on the Greek-cross plan.

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1. Above the five windows of this theatre were panels which were to be carved with the arms of the archbishops and bishops of the province.

At one time, canvas canopies not only protected these five large areas of glass from the sun, but also tended to reduce the visual harshness of this part of the building. They became redundant, however, when air-conditioning units were fitted to both theatres. Among the more interesting architectural details are the two cruciform rainwater spouts on the cathedral elevation and the carved stonework above the entrance doorway. Internally, the detail is quite simple, the entrance hall being by far the most lavishly appointed part of the hospital with its parquet floor, silky-oak panelling, and enriched plaster ceiling. The architect was an accomplished furniture designer and many of his original pieces are still in use, amongst these being the tables, chairs and sideboard in the nurses' dining-room and the Jacobean suite in the entrance vestibule.

In South Africa, a country located at a great distance from the centre of western civilisation, the process of acquiring the elements of medicine of a high standard was slow, but was transplanted at the very birth of white settlement.

JAN VAN RIEBEECK HOSPITAL, (1659) (FIG 54)

The first hospital was founded by Jan van Riebeeck, himself a surgeon, in the Table Bay Settlement in 1659, and it was the second European one on the African continent south of the Sahara Desert.¹ An entry in was made in 1653 that "the hospital is quite full", but this remark probably referred to a temporary structure (possibly even tents) for, as late as January 1656, there was still no proper accommodation for the sick.

Later in that year, however, Van Riebeeck completed his hospital, one which could accommodate 40 patients. It was a fine hospital with stone walls built outside the fort², and facing the shore of the Bay. Although the site was badly chosen - the hospital adjoined the Company's plough - and wagonmaker's shop - this institution served the Cape for nearly forty years. Laidler states that in 1656, mattresses stuffed with grass which were more easily cleaned than wool were placed on the bare boards.³

The hospital was built on a rectangular plan (Fig. 54) with a central entrance. It consisted of four wards, two on each side of the entrance.

Notes and references:

1. The Portugese hospital at Mocambique dated from 1507 (Theal B. "South-Eastern Africa", vol. 2, p. 44)
2. Laidler P.W., Gelfand M. "South Africa. Its Medical History" Cape Town 1971.
3. Ibid, p 363.

Small windows did not provide enough light and there was not sufficient internal ventilation.¹

Van Riebeeck's hospital had been part of his fort and even before the close of the seventeenth century it had become unserviceable. The volume of the Company's shipping and the requirements of the Colony had increased and the hospital was too small and too dilapidated to serve its purpose satisfactorily. By 1693, the position was acute and it was decided to erect:

".... a greater, more beautiful, imposing and more comfortable building"²

SIMON VAN DER STEL HOSPITAL, (1697) (FIG. 59, 60),
(PHOT. 18)

The new hospital was commenced by Simon van der Stel in 1697 and construction was so far completed in October, 1699, that all patients were evacuated from Van Riebeeck's hospital and placed in the new hospital.³

The old one on the beach was then repaired and converted into a warehouse for storing ship's requirements such as rope and tackle.

1. Admission to hospital was by consent of the directors, who allocated each patient "a place". Each director was to visit the hospital twice a day to inspect the patients and the cleanliness of the building. The Surgeon was to advise the directors upon the individual dietary requirement of each patient and this information was to be passed to the Commander's cook.

The most famous surgeon of these early days was Pieter van Meerhoff, who came to the Cape in 1659 from Copenhagen.

2. Pama, C. "Regency Cape Town"; Cape Town 1975, p. 15.
3. Ibid, p. 16.

The site for a new Cape Hospital was chosen directly opposite the Grootte Kerk in the Heerengracht. The hospital was built as a single-storeyed edifice in the form of a Greek cross, about 300 feet long and 125 feet wide, and had four entrances or "poorten" corresponding to the four limbs of the cross. (Fig. 59, 60). The main entrance, or "Grootte Poort" was directly opposite the entrance of the Church on the Heerengracht. The gateways were let into the eight-foot high wall which was built in 1710 to deter patients from escaping,

"...and by improper conduct to aggravate their disease" ¹

and to prevent the two-way traffic in liquor and other goods between "kopenaars" and the patients.²

On either side of the building were forty-eight symmetrically placed glass windows, each about four feet square in size, which could be opened to let in fresh air. High square columns linked together by arches formed the support for the tiled roof and loft of the building. (Phot. 18)

"These pillars are so high and white as the walls, and since the exterior is also white-washed, it makes this wide hospital a very attractive building indeed".³

Designed to accommodate 500 patients normally and 750 in an emergency, the hospital's capacity could be further increased by extension of its wings.

This cruciate building served as the Cape Hospital until the early 1780's, when the staff and patients were transferred to the New Hospital. The building was demolished in 1785.

1. Laidler, P.W., Gelfand, M. op. cit, p.63.

2. Ibid, p. 64.

3. Kolbe, P. - "Report on the Cape Hospital" -
He was the earliest visitor to leave a detailed description.

THE NEW CAPE HOSPITAL, (1791) (FIG. 61)

The New Hospital was to lie between the Groote Kerk and the Castle. It was to be built to a grand design, with accommodation for 1450 patients, spacious living-quarters for the medical staff and hospital attendants, and large store-rooms. In November, 1772 the foundation stone was laid by Governor van Plettenberg and building operations commenced in the same year.¹

Governor C.J. van de Graaf commissioned the French engineer-artist of the Cape, L.M. Thibault to design the hospital. In August, 1788, Thibault produced a plan for a 1,200 bed hospital. The building designed on the H-shaped plan was enclosed at the back by a long and narrow building consisting of Apothecary's shop and quarters, and a storehouse for stones from Robben Island.² It had a Parade Ground symmetrical in layout at its front. Main wards for 60 patients each were placed in the H-wings and the central part was used as a military ward and administrative offices.

The symmetrical plan, which enclosed an internal patio and a centrally positioned Administration block showed the influence of the European Renaissance method of hospital planning. The Cape was then under British occupation, and the process of building was very slow and was unfortunately interrupted several times, so construction took over 20 years and vast amounts of money were spent on it.³

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1. Laidler, P.W., Gelfand, M. op. cit, p. 328.
Timber came from the Outenique forests and stone from False Bay and Robben Island. Large quantities of shell lime rendered the walls of the long and barrack-like building a gleaming white.
 2. Pama, C. op. cit, p. 18.
 3. Simon's Town Historical Society "Historical Simon's Town", Cape Town 1976.

The building served as a hospital until 1786, when it was demolished and the ground sold as plots.

SIMON'S TOWN HOSPITAL, (1760) (FIG. 62-3)

When the British fleet under Rear Admiral George Keith Elphinstone sailed into Simon's Bay in June 1759, the services of the hospital were sorely needed. The worst cases were accommodated in a temporary barrack-like hospital building. The design for a permanent hospital was prepared by the Engineers: J.F. Kirsten and I. Pantie, and submitted to Governor Ryk Tulbagh and the Council of Policy on 10th December, 1759, together with an attached report on possible sites for a hospital.¹

They prepared two alternative plans for buildings: (Fig. 62)

1. in a single line, 350 feet long;
2. with a frontage of 200 feet and two wings, each 100 feet long.

Neither plan was adopted.

The building was started in 1760 and completed in 1765 in the form of a quadrangle with sides of 130 feet, enclosing an open patio of 80 square feet. (Fig. 63)

This plan by Wm. Korsteman, the Major commanding the Royal Engineers, was probably made soon after the building was taken over by the British forces in 1795 and converted into the barracks for the troops of the garrison.²

The complete hospital was laid on the quadrangle plan and had a central entrance approached by 2 flights of steps on the facade.

1. Simon's Town Historical Society, op. cit, p. 28.

2. Ibid, p. 29.

Two doors led into wards on either side of the entrance hall. The front corners of the quadrangle contained the surgeon's offices and service rooms projecting from the facade. Two spacious L-shaped wards had rows of beds on either side with passages in the centre. The rear side contained two smaller wards, one for each sex, with the corners serving as lavatories. The rear side had an opening onto the atrium veranda in the form of arcades. Two small stores were attached to the external wall at the rear.

The main entrance, placed on the axial line of the building also continued to the back, so the hospital, could in fact, be entered from both sides. An enclosed patio contained the garden which had an organised system of paths. The facade was finished in the Cape Dutch Style with two gable walls in front and at the back. (Fig. 63) The whole building was plastered and painted white, had a tiled roof, and was surrounded by a retaining wall built of brick and in the same character as the building. This plan is an example of the Italian Renaissance Revival - palace type planning.

OLD SOMERSET HOSPITAL, (1818) (FIG. 55)

The first public institution which opened its doors to anyone in need of medical attention was the Old Somerset Hospital in Alfred Street, opened in July 1818. This, the first civilian hospital in the Cape, was also the first asylum for the mentally afflicted.¹

1. Laidler, P.W., Gelfand, M. op. cit, p. 368.

The hospital consisted of a single-storeyed building erected largely at Dr. Samuel Bailey's expense. Built on a rectangular layout it had two long wards on either side of the main entrance. (Fig. 55). Kitchen, bathrooms, and other service rooms were located at the end of each wing. Round windows placed on both sides of the ward's walls could not be opened.

The lunatics were accommodated together with other patients.

By 1821, the hospital debt was so great that Dr. Bailey had no alternative but to offer the Hospital to the Burgher Senate. In June 1855, a committee appointed by the Legislative Assembly found the old hospital unfit both because of its delapidated condition and because its site was considered to be unhealthy, and the Committee suggested the erection of a new hospital.

Bailey's building was not, however, demolished. It remained for some years as a government institution serving the whole Colony, and was used as a temporary place of accommodation for lunatics on the way to Robben Island.

KING WILLIAMS TOWN HOSPITAL, (1858) (FIG. 65)
(PHOT. 23)

Another example of interesting hospital architecture is the Hospital for Natives in Kingwilliamstown - British Kaffraria. The plans were drawn by Sir George Grey, author of a scheme for a number of hospitals to be built in Kaffraria with the object not only of helping the African but especially of breaking down the influence of the witchdoctor.

In March 1858, the new hospital was ready for accommodation after a long designing and building process. The opening of its doors on the 11th of June, 1859 was an event of great medical importance in Africa.

1. Oberholster, I.I. "Historical Monuments of South Africa", Cape Town 1979.

The building - an imposing one which remained intact and in daily use, the oldest original hospital in the Cape Province - was designed by Woodford Pilkington, C.E., and built by men of the 2nd and 45th Regiments, assisted by local Africans.

Timber from a wrecked vessel, the "Lady Kallaway", was used for the massive double doors of the entrance. The wards, twenty two feet square and sixteen feet high with pitched ceilings, provided each patient with 1 000 cubic inches of air space, in conformity with the prescription of the Royal College of Surgeons.¹ An ingenious ventilating device - a glass inverted funnel inserted at the spires of the dome-shaped ceilings - was introduced by Dr. Fitzgerald, after the design in the Hall of Baths at the Alhambra in Spain.² This was brought to the Colony by the Catholic Bishop of Grahamstown, the Right Reverend Dr. Ricards.

Other novel ideas introduced by Dr. Fitzgerald were the use of permanent canvas marques as adjuncts to the hospital. Their value in warm climates lay with the nursing of cases which were so offensive that they had to be isolated from the rest. Wooden struts topped by an iron roof and walled by sheets of navy canvas firmly roped down to resist gales were pitched in the grounds of the Hospital in the Ninth Kaffir War of 1877-1878, when all gunshot-wound cases had to be nursed outside, due to an epidemic of typhoid fever in the wards.

The Hospital was built on an H-shaped layout in neo-Renaissance style.

(Fig. 65)

Symmetrical in plan, it had a central entrance - portico, supported by two Doric Columns. A large entrance door, constructed of timber had an arched

1. Lewcock, R. "Early Nineteenth Century Architecture in South Africa". Cape Town 1963.

2. Laidler, P.W., Gelfand, M. op. cit, p. 368.

architrave, marked by a dome directly above it. (Phot. 23).

The imposing facade was articulated by four arched windows on either side of the entrance. Hipped roofs of timber were covered with galvanised corrugated iron sheeting. The side wings enclosed the space in front, where a magnificent approach flight of steps was erected. Large windows provided good ventilation and lighting inside the spacious wards. The internal circulation system was also solved on the H-shaped plan, with additional doors leading to the back yard. Services, including kitchen, laundry, and stores were placed in separate buildings in the back yard.

NEW SOMERSET HOSPITAL, (1861) (FIG. 64),
(PHOT. 21,2)

The foundation stone of the new Somerset Hospital was laid by Sir George Grey and patients were transferred to it in 1861.¹

It was designed to conform with the ideas of Florence Nightingale who objected to double wards. Offices and staff rooms occupied nearly the whole of the ground floor. Upstairs there was no economy in the use of space and only seventy patients could be comfortably accommodated since patients with every kind of disease were admitted and the only form of segregation was separation of the sexes though larger wards would have facilitated supervision and mitigated the problem of ventilation. (Fig. 64) Windows were placed at such an elevation that no sunshine could reach the beds.²

In the course of time alterations and extensions increased the space available for beds and when it was handed over to the hospital board in 1898, the maximum capacity was 370.³

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1. Laidler, P.W., Gelfand, M. op. cit, p. 369.
 2. "Cape Monthly Magazine", 1861 p.p. 287-305.
 3. "Cape Monthly Magazine", October 1898.

The impressive building, described on completion as "one of the largest in the metropolis", had an imposing facade and spacious interior.

(Phot. 21, 22)

The Tudor Style was not without its critics:

".....a stranger entering Table Bay might forgivably have mistaken the Hospital for the Castle"¹

and Dr. Henry White described it in Parliament as:

".....an abortion of a building"²

One enthusiast explained that the angular towers were not as useless as they appeared since most of the soil-pipes and sewage passed down them. The general plan of the hospital was in the shape of the letter T (Fig. 60) The entrance, centrally placed in the facade and flanked by massive towers, led into a spacious hall which opened on either side to the 220 foot - long passage, and at the back onto an enormous staircase,

"...the very magnitude of which would have satisfied the most ambitious mediaeval baron".³

Off the passage in the ground floor wings were the living quarters of the Resident Surgeon, the Apothecary, the Matron, the Clerk, and the Steward, a dispensary, a surgery, a consulting room, and a miniature out-patients department with an "accident ward" attached to it. Beneath the staircase and extending backwards from it were the kitchen, scullery and pantry. The wards, comprising only one-quarter of the total surface area of the building, were upstairs. The largest, sixty-two feet by thirty-five feet

1. "Cape Monthly Magazine", November 1861, p. 6.

2. Ibid, p. 7.

3. "Cape Monthly Magazine", October 1861.

in size, was the female ward above the kitchen, but four main wards were in the front piece, each about fifty by twenty-five feet in size, and each with its own bathroom, nurses' room, and lavatory. These were for male patients, as were several other small wards, one of which was called "the chapel", and another was the ward for cases of delirium tremens.¹ Another innovation was the lift system at the back of the building which carried the patients' food from the kitchen to the wards and

"...conveyed the dead (without interference with the main staircase) to the dead-house and the dissecting rooms."²

Thanks to Florence Nightingale, ventilation was of cardinal importance to the hospital architects of the day, and for this reason the upstairs corridor of the New Somerset Hospital had a lower ceiling than that of the wards.

Sir George Grey was highly interested in Florence Nightingale's research into Colonial hospitals and collected material for her work "The Sanitary Condition of Hospital and Hospital Construction" during his governorship of the Cape.²

In discussing the New Somerset Hospital, one writer criticized the architect for:

"...having allowed himself to be unduly influenced by Miss Nightingale."³

A more valid criticism was the failure to separate medicine and surgery in the wards.

1. A condition for which Victorians had a great respect.

2. Cook, E. "Papers on Florence Nightingale"; London 1890.

3. "Cape Monthly Magazine", October 1861.

The London hospitals had already accepted equality between physician and surgeon, and a plea was now made for the appointment of a physician in addition to the surgeon to the hospital and the establishment of separate medical wards.¹

During the 1870's and the decades that followed, the New Somerset Hospital became an established entity in medical life; it attracted a succession of industrious professional men, and in 1918 became the clinical teaching school of the University of Cape Town.²

COMMENTS

The era of change and development in South Africa resulted in erecting hospitals with noticeable influences of European standards of planning which was not only evident in the layouts and services in accordance with the new planning principles concerning ventilation, lighting, water supply, and disposal etc., but also in external appearance of the buildings, deriving mainly from classical architecture.

Size and the layout were dependent upon the number of patients to be accommodated in the hospital and the funds available for the purpose. As the need for hospitalisation was constantly increasing, the plans went through different stages of development, increasing in size, and improving in their functional solutions.

The ready prescriptions for a perfect hospital, achieved after years of trial and development in Europe, was brought to South Africa at the end of the 19th century. Before then, many different types of layouts were used, mainly Italian Renaissance ones based on traditional palace archi-

1. "Cape Monthly Magazine", 1861 v. 10 p.p. 287.

2. Laidler, P.W., Gelfand, M. op. cit, p. 404.

ecture (quadrangle, U-shape, Greek cross). Greek cross-shaped ones originated in Renaissance hospital planning methods where the wards were laid on such a plan.

The architect's task was to show the strict hierarchy of function on the external facades, without any concern for hospital services requirements. Lighting and ventilation of wards were not of great concern at that time. Windows were often put at such a height that the sun-light could not reach the interior of the ward either in summer and winter, and often they could not even open so that there was no ventilation at all. The sanitary conditions were very poor, and this often resulted in outbreaks of epidemics.

In early Victorian times, the general practitioner was commonly a surgeon-apothecary. There was no division between general practitioner and surgeon whose functions are so different, and only in the 1850's did this division begin to be noticeable. These were the days before the discovery of anaesthesia and antiseptics which led to a drastic revolution in surgical technique.

In medicine, patient effort in hospital and laboratory was laying the foundations of modern practice but there was a long way to go. Local activity in this field started in 1881 in Cape Town, with the formation of the Cape Town Medical Association.

This body, which had branches in some of the chief towns of the Colony, prepared the way for the assumption of self-government by the profession as a whole. This came in 1891, when legislation created a Medical Council to superintend medical matters and have jurisdiction over practitioners.

The first Cape Public Health Act (No. 4 of 1883) dealt with small pox and other virulent contagious diseases, and was essentially of a temporary nature.

The first South African Medical Congress was held at Kimberley in 1892. The Congress launched the first edition of the "Journal of the S.A. Medical Association". In the 'eighties, branches of the British Medical Association began to be formed in South Africa. As Natal was originally under the jurisdiction of the Cape, these facts pertained to this territory too.

All these changes in the status of the medical profession, discoveries in the field of modern medical technology, and the new principles of hospital planning launched a period of development of hospital design.

The new materials available after the Industrial Revolution in Europe, also became available in South Africa.

From the 1870's the South African Settlers were able and self-sufficient in the building industry, although some of the materials were still imported from Britain.

part II

**hospitals
in natal**

THE BEGINNINGS

When the Cape of Good Hope was "the old Colony",¹ well-known in Europe as being on the sea route to India, the New Colony of Port Natal was virtually unknown in the United Kingdom in the early days of Queen Victoria's reign.

Natal's subtropical climate opened wide prospects for agriculturists for cultivation of cotton, sugar, coffee and arrowroot and attracted many settlers.

The pronouncement that it was also climatically ideal for the treatment and cure of pulmonary complaints brought another wave of British Settlers.

Parallel with the immigration of British citizens, was the growth of the Voortrekker population coming from the Cape Colony. The twofold historical development of the Natal Colony by the Dutch and English settlers resulted in the founding of many agricultural villages and settlements in the second half of the nineteenth century.

Pietermaritzburg - the capital of the Natal Colony, in 1850, was still mainly a rural centre, its inhabitants cultivating their erven and keeping cattle.

For many years after the first settlement of Whites at Port Natal in 1824, the sick were dependant upon household remedies, but with the rapid growth of new towns and settlements the necessity of creating a system of hospitalization became apparent.

Notes and references:

1. Hattersley, A.F. "A Hospital Century"; Cape Town 1955.

By this time, the influx of regularly qualified medical men from the Cape was already well advanced; consequently the medical profession was represented in all three waves of settlers to the Garden Province.

The first two properly qualified medical men to settle in Natal were the American missionaries, Newton Adams and Alexander Erwin Wilson, both sent there by the American Board of Commissioners for Foreign Missions.¹

(Fig. 66, 67)

Medical conditions in the Voortrekker parties in Natal under Piet Retief and Geritz Maritz up to this time remained as they had been elsewhere.

The first qualified civil practitioner to settle in Natal was Barnardus Poortman.²

In 1842, the Volksraad agreed to the British terms of incorporating the District of Natal into the Cape of Good Hope. For eleven years it was administered as an integral part of the Cape, but in 1856, it became a separate Colony under the Crown. During this period, Natal had changed from a trekker community into a predominantly English-speaking area, and organized emigration from Britain brought several thousands of newcomers to the Colony.

1. Laidler, P.W., Gelfand, M. op. cit, p. 423.

2. Ibid, p. 424.

MEDICAL PRACTICE

In February 1851, a Government Notice announced that:

"...no person not possessing the necessary diplomas will be admitted to practice medicine or surgery within the district of Natal."¹

In 1856, the Natal Medical Committee was created, and all medical matters came under its control. An established body of medical men was to perform their work in Natal under the provisions of new medical legislations. The prospect of medical practice was depressing, as there were no governments for doctors.

The situation improved when in 1860 there was an agreement between the Colonial Secretary and the Indian Government about regular medical attention for Indian workers who had been brought to Natal to work on sugar cane plantations.²

This agreement led to the appointment of Indian Medical officers to various districts, and the popularisation of medical institutions.

TOWN HOSPITALS

While rural medicine remained isolated and primitive, the erection of fairly substantial hospitals in Pietermaritzburg and Durban proved a welcome stimulus to the medical fraternities of these rapidly growing towns.

1. Hitchins, R.A. and Sweeney, G.W. "Statutes of Natal"; Davis & Son., Pietermaritzburg, 1900; "Quarantine Laws", p.1.

The first Government-supported medical institutions were Bay and Addington Hospitals in Durban and Grey's Hospital - Pietermaritzburg.¹

COTTAGE HOSPITALS

As the nineteenth century ran its course, outlying villages like Newcastle, Stanger and Pomeroy established cottage hospitals, some, such as Stanger and Pomeroy (1890), purely for Indians and controlled by the Indian Immigration Trust Board.²

The magisterial officials believed that they would have a salutary effect in combating witchcraft, in affording correct treatment to the natives, and in reducing the mortality rate among them. The number and scope of these outlying institutions increased steadily during the 1890's, and in 1897 there were, apart from the Lunatic Asylum and Grey's Hospital at Pietermaritzburg and Addington in Durban, at least nine Government-controlled rural institutions: the Pietermaritzburg Railway, Depot, Avoca, Verulam, Stanger Isipingo, Umzinto, Estcourt and Howick Hospitals.

The Depot Hospital, and those at Verulam and Stanger were newly erected buildings while the rest were put into existing cottages with the outbreak of the Anglo-Boer War at the turn of the century when the need for the accommodation of wounded soldiers was growing rapidly. The Government decided to establish additional cottage hospitals. In the period

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1. Russell, G. "History of Old Durban"; Davis and Sons, Durban 1899, p. 446.
 2. "Statistical Year Book of the Colony of Natal;" 1909, Government Printer, Pietermaritzburg, 1909, p.75.

1899-1902, the rural institutions in Newcastle, Dundee, Eshowe, Ixopo, Bulwer and Richmond came into being.¹

MILITARY HOSPITALS

During the last thirty years of the nineteenth century and the early 1900's, further development of general government-controlled hospitals was considerably impeded, because of the priority given to the needs and requirements of military hospitals.

The Zulu War of 1879, the hostilities of 1880, the South African War (1899-1902) and the Bambata Rebellion (1906) caused the expropriation of existing hospitals for the care of the wounded.² Some of the more substantial military hospitals built during the Zulu War were later converted to civilian use.

During the Zulu War, twelve military hospitals were established in Natal. In Durban there were three hospitals one of which Addington, was taken over temporarily in 1879. A military hospital of 80 beds was established at Fort Napier in Pietermaritzburg.³ In December 1880, following the invasion of Natal by the Boers the emergency hospital was established at Newcastle.

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1. "Statistical Year Book of the Colony of Natal"; 1909, Government Printer, Pietermaritzburg, 1909, p. 85.
 2. Burrows, E.H. "History of Medicine in South Africa"; A.A. Balkema, Cape Town, 1958, p. 215.
 3. Hattersley, A. F., op. cit, p. 115.

During the South African War, in addition to the large permanent military hospitals at Pietermaritzburg, Ladysmith and Estcourt, there were numerous temporary hospitals providing additional accommodation for war wounded.

INDIAN HOSPITALS

The lack of amenities provided for the welfare of Indian labourers brought to Natal in 1860 for work on the sugar cane plantations had led to the appointment of the Coolie Commission in 1870.¹ The report of this Commission was published in 1872, and its recommendations included the appointment of a Protector of Indian Immigrants, and the provision of adequate medical services. As a first step, Medical Circles were established in 1875 to provide medical attendance and medicines to indentured Indians on the sugar estates.

In 1891, provision was made for the establishment of separate Indian hospitals run by the Indian Immigration Bureau. These were built at Amatikulu, Felixton, Durban (Point), Esperanza, Stanger, Tongaat, Avoca, Estcourt, Isipingo, Umzinto, Howick, Nottingham Road, Pomeroy and Verulam.

HOSPITAL LEGISLATION AND POLICY

1. PRE-UNION

In the early years of Colonial Government, public health legislation was concerned mainly with the entry and control of epidemic diseases, such as plague, cholera, smallpox and leprosy. Public concern resulted also in the early introduction of legislation in regard to the care and custody of persons of unsound mind. Except for the establishment

1. Palmer, M. "The History of Indians in Natal"; Vol. 10, Natal Regional Survey, Oxford University Press, 1957, p. 40.

of quarantine stations, lazarettos and infectious disease hospitals, no legal provision was made for the establishment of General hospitals or Lunatic Asylums.

In Natal, the Colonial Government was responsible for dealing with outbreaks of disease until 1883, when the local authorities took over this matter.¹

QUARANTINE LAWS

Natal's first medical legislation was Ordinance No. 4 of 1854, (Quarantine Act), which contained provisions to prevent the introduction of infectious diseases from vessels entering Durban harbour.²

It was not until 1884, that the Governor was empowered (by Law No. 2 of 1884) to erect quarantine stations on or near the borders of the Colony, and to establish lazarettos for isolating persons suffering from any contagious or infectious disease. Funds for this came from the general revenue.

LAWS RELATING TO PERSONS OF UNSOUND MIND

Prior to 1868, lunatics were placed, by order of a magistrate under strict custody in the goal or in the general hospital. Discharge could only be secured upon the production of a warrant from the Lieutenant-Governor.

1. Hitchins, R.A., Sweeney, G.W. op.cit, p. 1.

2. Ibid, p. 1.

Law No. 1 of 1868 (The Custody of Lunatics Law) made provision:

"...for the safe custody of persons dangerously insane and for the care and custody of persons of unsound mind."¹

Maintenance of persons so confined was paid out of colonial revenue except in cases where the patient's means were sufficient for such costs to be charged to his estate. Law No. 9 of 1891 made a distinction between:

"....persons dangerously insane, whether with suicidal tendencies or criminal inclinations."

and

"....persons of unsound mind, but not dangerously so."²

Stringent regulations were introduced for the certification of mental cases and these required the evidence of two medical practitioners, one of whom was preferably the district surgeon.

LEPROSY LAWS:

The sudden occurrence of leprosy in Natal, resulted in the introduction of the Leprosy Law No. 60 of 1880. This law empowered the Governor to acquire property for lazarets and provided for the enforced segregation of afflicted persons and of close relatives for observation Act 2 of 1897 prohibited the entry into the Colony by ship of infected cases or persons from known infected places beyond the borders of the Colony.³

1. Hitchins, R.A., Sweeney G.W., "Statutes of Natal;" P. Davis and Sons, Pietermaritzburg, 1900. "Laws Relating to Persons of Unsound Mind", p. 9.
2. Burrows, E.G. op. cit, p. 333.
3. Ibid, p. 333.

2. THE ESTABLISHMENT OF A DEPARTMENT OF HEALTH

The need for better co-ordination in medical matters, and for the creation of a Public Health Department resulted in a Public Health Amendment (No. 23 of 1879).

This Act authorised the Governor to appoint a Medical Officer of Health for the Colony:

"....to advise the Minister upon, and superintend any matters relating to the public health of the Colony".¹

3. THE ACT OF UNION, 1909 - NATIONAL LEGISLATION

The South African Act of 1909 (Section 4) united the Colonies of the Cape, Natal, Transvaal and Orange into a single political entity, the Union of South Africa.

This Act transformed the Colonial Governments into provincial Administrations, which retained such powers and functions as local government, including the erection, administration and maintenance of general hospitals.

Infectious disease hospitals and Mental Institution matters were transferred to the new Central Government.²

1. Burrows, E.H. op. cit, p. 340.

2. O'Reagain, M. "The Hospital Services of Natal"; University of Natal - Durban 1970, p. 37.

4. NURSING

Formal training for the nursing profession in Natal was initiated at Addington Hospital in 1890.¹ But, it was not until 1899, that the Medical and Pharmacy Act was amended to allow for the registration of nurses, midwives and mental nurses in Natal. In addition, a committee was appointed to formulate regulations for the training of nurses and midwives.

1. Thompson, L.M. "The Unification of South Africa, 1902-1910"; The Clarendon Press, Oxford, 1960, p. 260.

I. GREY'S HOSPITAL

"The destination of the institution is as a retreat for the old and disabled of both sexes; for curing the sick and wounded; for affording assistance to and recovering the strangled, the partially drowned, and the burnt; for the gratuitous delivery of advice and medicines, and for vaccination; and for the care and alleviation of insane people and lunatics, until suitable provision can be made for the latter by the Government."¹

Notes and references:

1. Hattersley, A.F. op. cit, p. 76.

BACKGROUND

In the early days of the Natal Colony, the need for a hospital in Pietermaritzburg had been evident, but its inhabitants were unable to finance such a project. This need became more acute with influx of British Settlers in the early 1850's.

At this time the sick were dependent upon household remedies, while lunatics and the destitute were housed in the gaol under miserable conditions or sent to the Robben Island Lunatic Asylum.

GAOL HOSPITAL

The first hospital - district gaol served the:

"...five fold purpose of a gaol, hospital, workhouse, lunatic asylum and penitentiary."¹

In construction a simple wattle-and-daub building, flanked with sod walls it was found in a shocking state of disrepair when taken over by the British. It was repaired in 1848 and enlarged in 1849, but still did not adequately serve the purpose of a hospital.

The sick were accommodated in one or two rooms, the front room on the Longmarket Street side being set aside as "a hospital", whilst a small apartment across a passage could be used as either hospital or cell. These conditions did not permit any classification of function beyond keeping males

1. "Natal Chronicle", 19 December 1855.

apart from females, but even that became impossible, when the number of prisoners or sick increased. However, this primitive establishment at least had the merit of being economical.

TEMPORARY HOSPITALS

In January 1852, a Provisional Committee was elected for the establishment of a hospital. Unfortunately, because of lack of funds, it soon became apparent that little was to be expected from the Natal Government. A public meeting assembled in the courthouse on 11 February 1853 inaugurated the "Pietermaritzburg Benevolent Society for the relief of destitute sick persons."¹

The possibility of finding a suitable house to serve as a hospital was explored and in May 1854, tenders were invited for a house with not less than four apartments.²

The Committee instructed the store-keeper, J.B. Cole, to draw up plans for a four-roomed cottage with outside wards intended for fever patients and for the insane. The plans were submitted to the Government, which offered two hundred pounds towards the cost of construction on condition that a similar amount should be raised by private subscription.

This proved to be impossible, as the Town Council was unable to vote money for the hospital. Instead, two cottages were rented as a temporary hospital, and asylum.³

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1. "The Natal Independent", 11 December 1851.
 2. "Tenders for Hospital and Gaol," "Natal Government Gazette", 1854.
 3. "Natal Witness", 24 August 1855.

GREY'S HOSPITAL - BEGINNINGS

This was the situation, when Sir George Grey, Governor of the Cape Colony and High Commissioner for adjacent territories, arrived on a visit to Pietermaritzburg in October 1855. He had recently made provision for the building of a hospital in Port Elizabeth and now set about planning one for Pietermaritzburg. He promised to furnish the local Government with the necessary funds for erecting a building provided that the Town Council contributed a suitable site and 1 000 acres of:

"...choice spots in various parts of the Town Lands".¹

the lease of which was intended to finance the running of the hospital. On completion of the building the Town Council was to take over its administration.

THE SITE (FIG. 70)

Peter Sutherland, Surveyor-General of Natal was appointed to find a suitable site and supervise the erection of the building.

He decided upon a piece of ground lying on the outskirts of the Town, bounded on one side by the Umsinduzi River with a view over the space which was planned to be Alexandra Park, and by the Dutch cemetery on the other side. The selection of this site was later criticized.

1. "Natal Witness", 10 October 1855.

One patient wrote:

"We have built a hospital in a place that is of itself enough to give a sensitive man the horrors. The word is running over the town, that, if a man enters that building he must surely die."¹

THE PLAN (FIG. 71, 72)

Dr. Gower, the Medical Superintendent and District Surgeon suggested a single-storeyed erection with small, inter-communicating wards.²

Sutherland however could not depart from the sketch made by Sir George Grey (Fig. 71). The building was to face a north aspect with the approach from Prince Alfred Street, which was then an unhardened road.

When completed the building consisted of twelve wards, opening onto a central passage which was continued into the wings by right-angled turns. (Fig. 72). The whole was laid on the H-shaped symmetrical plan, with the entrance in the centre of the facade.

This 2-pavilion structure was ventilated through window openings put into opposite walls of the wards. The beams supporting the floor had been raised two feet above the surface to improve ventilation.

The sizes of the wards, however were very small, and cubic air capacity for one patient was well below the recognized standard. (1 000 cubic feet per head).

1. Burrows, E.H. op cit, p. 216.

2. "Natal Witness", 24 August, 1855.

The largest ward contained eight beds. One of the small wards was used as a bathroom but, since there was no system of drainage

"water had to be carried to and from it by hand".¹

There was no water laid onto the hospital, the nearest supply being the open sluic running down Commercial Road.

The sanitary arrangement consisted of six privies, situated 115 feet from the nearest ward, the soil being washed away towards the river.

The kitchen 24 x 26 feet in size, was attached to the upper wing from the Prince Alfred Street side.

There was no provision for doctor's, matron's or nurses rooms, so this staff had to be accommodated in the wards together with the patients. The hospital did not have an operating theatre, surgical operations being performed in the wards.

The interior was heated by fire-places, built into internal walls inbetween the wards.

The original building was quite primitive and it did not fulfil the functional and hygienic requirements of the medical institution.

All the patients-Whites, Blacks and Indians, the physically and the mentally ill, the rich and the poor, patients with infectious and non-infectious diseases - were placed in the same wards. The only existing segregation was the division into female and male wards.

1. "Hospital Return", in the Blue Book for 1869.

EXTERIOR (PHOT. 28)

The hospital was built of shale (30 inch thick walls), cement plastered, and painted internally. The hipped roof was constructed of timber (yellow-wood planks), with thatching over it. The facade was articulated by two pairs of high and narrow double sliding sash windows with stone arches above them on either side of the central entrance.

The entrance door, arch-finished, was panelled with restrained mouldings, and all of it was painted with oil. The brick chimney shafts projected high above the ridge line and were topped with brick stacks.

The hospital appeared to be a very small structure and considering its size it was more in the character of a cottage than of public institution. Certainly its locale by the cemetery, and course appearance did not encourage the patients to enter it.¹

WORK ON SITE

In January 1856 the Cape Government was informed, that the Town Council had met the conditions laid down and funds became available.² Immediately, the work on site was begun under Sutherland's superintendence.

1. "Natal Witness", 24 August 1857.

2. Letter from R.W. Rawson to Colonial Secretary of Natal, 15 March 1856. Vol. 330 No. 49.

The building was to face north with the entrance from the unhardened road, the future Prince Alfred Street.

On the south side, the hospital would overlook a sudden fork of the Umsinduzi River its banks dotted with willow trees. When the hospital was first opened, the lay-out of the Park was in its early stages.

Sutherland suggested that it would be possible to use sappers from the Company of Royal Engineers and artisans of the 95th Regiment at Fort Napier on the work but this was found to be impossible.¹ Instead, convicts from the gaol were employed to quarry the stone and three local masons to dress the stone under John Gibson's supervision.

Roofing tiles were available from the tileyard near the camp, but Gibson preferred to use thatch, grass for this being supplied by arrangement with one of the neighbouring Black kraals. Blacks were hired to prepare mortar, act as barrowmen, and to make the bricks. The timber required for the whole building, most of it yellowwood, was brought from Joseph Few's Sawmills at Boston.

On Sutherland's advice the local Government decided to concentrate labour and material on completing the upper wing at the earliest possible date.

"This represented roughly one-half of the whole, comprising one large room of dimensions of 26 x 24 feet, three of the same width but six feet shorter in length and two small rooms each 16 x 12 feet."²

1. "Natal Guardian", 5 February 1856; "Natal Chronicle", 26 March 1856.

2. "The Times", Natal, 1 July 1857.

This part was sufficient for the accommodation of the sick and insane persons then in the gaol.

The removal of patients to the completed wing occurred in May 1857.

The stone work for the lower wing was finished at an early date, but at that point progress stopped.

Thatching of the roof and interior decoration under the direction of the Colonial Engineer, Peter Paterson occupied the final months of that year, but Dr. Sutherland remained personally responsible for the hospital, until it was transferred to the Municipal Authorities.¹

ALTERATIONS AND ADDITIONS PRIOR TO 1870

By the end of 1864 bathing facilities had been provided at the hospital. Better ventilation of the wards was planned and 12 iron beds ordered from England.

The hospital grounds had been enclosed along Commercial Road by a neat iron fence and, along the future Prince Alfred Street then scarcely more than a muddy track, a sod wall and ditch had been laid. The frontal grounds were planted with trees and shrubs from the neighbouring Alexandra Park.

1. In these years, Grey's served as a Lunatic Asylum and alms-house, as well as a hospital and infirmary. Mild lunatics were accepted in the hospital from its opening, but the majority of insane persons were confined within the precincts of the gaol.

HOSPITAL IN 1870 (FIG. 73), (PHOT. 29, 30)

The building stood in its original shape until 1870 when the thatch roof fire occurred.¹ The hospital was then redecorated. A new tiled roof was put on, and the building operations on site, provided the opportunity of improving the hospital functionally.

As the "veranda" became very practicable and fashionable, in private dwellings and public institutions, it was decided to introduce it here too.

Front and back verandas were erected, vastly improving the circulation system. Now the front veranda connecting two projecting facade wings acted as an intermediate zone between out - and indoor and provided a shaded entrance to the building.

The tiled veranda roof, not incorporated into the main roof, was supported by eight simple, wooden columns. In the centre above the entrance door it formed a small gable, decorated with attractive ornamental laces.

The windows all round the building remained the same. The ventilation openings were provided in the new brick gable walls, and added above the existing shale ones.

Internally, few improvements were made to the hospital. The internal corridors were elongated on each side, and there were two exits onto the back veranda. A flight of steps was built in the yard on the central line of the building.

The changes vastly improved the appearance of the hospital which now had more of a Victorian character.

1. "Natal Witness", 19 November 1862. For the fire brigade in 1856 see "Natal Government Gazette", 9 December 1856.

By August 1870, when all the siteworks have been completed, the Mayor was able to report that:

"The tiling of the entire building, together with alterations and improvements recently made, render it safe from fire, and more comfortable for the inmates and at the same time presents an external appearance characteristic of a public institution".¹

IMPERIAL INSPECTION

In 1864 the Imperial Authorities were gravely concerned over the condition of Colonial Hospitals, which were:

".....widely and deplorably different from what would be now considered to be consistent with the humane objects, they are designed to promote."²

Disclosure of abuses in the West Indies, particularly in Jamaica, had resulted in the issuing by the Secretary of State of a circular despatch requiring all Colonial Governors to furnish reports on Hospitals and Lunatic Asylums.

The facts reported in regard to Grey's Hospital did not meet the authorities' approval. It was observed that:

"The sick poison themselves and one another in an average of less than 400 cubic feet space per head",³

whereas each patient needed a ventilation space of 1 000 cubic feet in associated wards or 1 500 in single wards. These standards were based

1. "Natal Witness", 10 August 1870.
2. Letter from Fortescue, C. to Lieut. Governor of Natal, 6 April 1864. G.H. Vol. 192, Circular Despatches 1863-4.
3. Letter from Erskine to Sutherland, 25 November 1870. S.6.O. 111/11/38. Natal Archives.

on Florence Nightingale's "Notes on Hospitals", and in 1870 the Colonial Governors were provided with a pamphlet of "Instructions for the Guidance of Inspectors of Hospitals."¹

Reference was made to the previously circulated "Digest on Colonial Hospitals" which had recommended the consolidation of small wards by the breaking down of partitions. The ideal ward was pronounced to be a large room with windows on both sides and containing from 16 to 32 beds. Separate bathing establishments were to be adjoining the wards.

"Open sewerage, sewerage into adjoining cesspools without outlet and untrapped, and unflushed sewerage ought not to be permitted."²

In wards with more than thirty beds, the proportion of nurses to patients ought not to be less than one to seven. The employment of night nurses was essential.

THE IMPROVEMENTS, 1870-1874

If these standards were to be made effective, there was much to be done at the hospital. In November 1870, shortly after receipt of this despatch, Dr. Sutherland was formally appointed Inspector of Hospitals.³ Having built the hospital, he knew that radical improvements in ventilation were impracticable, and that there were far too many small wards. There were no sinks or drains, and no sanitary connections. Only one day nurse and four Black servants were employed, and there had never been any question of a night nurse.

1. Letter from Granville to Officer Administering the Government of Natal, 21 June 1870. G.H. Vol. 195.
2. Natal Blue Book for 1877.
3. Letter from Erskine to Sutherland, 25 November 1870. S.6.O. 111/11/38. Natal Archives.

Finally, the Town Council approved the necessary changes to be made and permitted the works, designating funds for the purpose.¹

The improvements were, however, very inadequate:

1. Two small wards were converted into bathrooms, and a vapour and shower bath added in 1874.
2. The covered well with pump attached at the rear of the building, which was supplied by a spring, was now utilised for drinking purposes in preference to the running stream.

On the other hand, the insanitary privies were retained on the grounds that:

"...they were found to answer better than the dry earth system in this hospital."²

In the middle "seventies" night nurses were to be employed when necessary, but the hospital was without even a day nurse on several occasions.³

Being more hygienic than the cement ones, two enamelled baths were installed in small rooms off the main building and had hot and cold water. Water tanks and pumps were erected and a new kitchen range replaced the old one.

1. "Times of Natal", 10 November 1873.
2. Natal Blue Book for 1877.
3. Indiscipline among the inmates was promoted by the absence of proper regulations. Alcoholic liquor was supplied to patients, especially to those, whose daily payments varied from 1/6 to 5/-. New regulations changed this situation. Patients were forbidden to leave the hospital precincts without the manager's permission. Smoking in the wards was prohibited.

In addition a "lavatory" or wash-room holding 4 iron hand and 3 foot basins with piped water was built.

This small building was detached from the main building and stood between it and the new "Kaffir Ward".

In 1877 the hospital was made up of 13 rooms. The matron and the manager each had one of these, the nurse another, and one was a dining room.

Two rooms were used as a surgery and there were 7 wards. The bathing facilities erected in 1873 were to remain unchanged as were the outdoor privies with bucket sanitation.¹

KAFFIR WARD, 1873 (FIG. 73), (PHOT. 113)

Black patients were housed in the main hospital building, but when their numbers, increased they were moved to the simple wattle-and-daub huts.

In 1871 it was resolved to build a large ward to house them.

The Government was approached and granted money from the Native Reserve Fund in October 1871, for this purpose.² At this time there were 19 White and 32 Black patients. The "Kaffir Ward" was nearing completion in August 1873. This was a much larger building than originally planned and comprised two wings linked by a cross-bar - U letter pattern.

1. By 1890, 2 night nurses as well as the 2 day nurses were employed, and they were assisted by 9 Indian attendants. In 1893 the training of nurses was formally recognised by the Natal Government, and by 1899 Grey's Hospital appointed several trained nurses registered with the Natal Medical Council.

2. "Natal Witness", 19 October 1874.

It was built as a brick, tiled-roof structure to match the main hospital building.

When completed in November 1873, it was first used to accommodate "rebel" prisoners captured during the Langalibalele Rebellion.

ALTERATIONS AND ADDITIONS, 1896 (PHOT. 32)

The first alterations and additions to Grey's Hospital since the building of the "Kaffir Ward" in 1873 took place in 1896. These included new gabled additions to the front of each wing, providing waiting and consulting rooms in the upper wing and matron's quarters in the lower. These latter featured beautiful bay windows overlooking the gardens and were the first comfortable quarters to be provided for her. The projections were surrounded by verandas covered with a tiled roof to match existing roofs, and supported by 7 elegant, light wooden columns with delicate wooden-cut brackets.

These new verandas, decorated with attractive wooden railings, vastly improved the appearance of the hospital. Old verandas were also redecorated, getting the same wooden finishes as the new ones. The new veranda, of similar construction was also attached to the building on the Prince Alfred Street side.

The original hospital was linked to the "Kaffir Wards" by two rooms which became the Female Ward and the linen store.

The function of the "Kaffir Wards" was changed to that of a Maternity Ward, and the building was redecorated externally receiving a front veranda. It now consisted of two big wards for Black females and 4 smaller ones for White females.

The kitchen was attached to the end of the right wing, and the ablutions detached from the hospital veranda on the lower side.

NEW HOSPITAL PROPOSAL, 1903

The Anglo-Boer War (1899-1902) brought a heavy increase in the number of patients, followed by an increase in numbers of staff, which comprised a surgeon, a house surgeon, the matron who was also a housekeeper, 5 nurses and 4 probationers.

In 1902 the financial powers of the hospital board were enlarged with a view to the contemplated erection of a new hospital more remote from the centre of town.¹

The difficulties of such a removal of Grey's to another site were never overcome. Finally, the Board decided to enlarge the existing hospital and to equip it with more up-to-date furniture and machinery.²

CHILDREN - MACDONALD WARD, 1907 (PHOT. 112)

The second, specialized ward (after the Maternity Ward) was the ward established for children only, opened in 1907.

Two rooms, previously storerooms which were extensions of the lower wing of the hospital, were converted for this purpose.

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1. On 10 September 1902, a public meeting was assembled with the object of raising funds for the erection of the new hospital with modern scientific equipment.
 2. Minute Book of Hospital Building Fund. Acc. 244/3. Natal Archives.

Monies collected by the Macdonald Memorial Fund (Mrs. Macdonald was the first Matron of Grey's Hospital) were used to equip and furnish it, and the walls were brightened with pictures painted on canvas and varnished so that they could be washed. The ward was named Macdonald Ward and was officially opened by Sir Matthew Nathan, Governor of Natal, on 26 May 1908.¹

OPERATING THEATRE, 1911 (FIG. 75)

In 1911 a proper operating theatre was erected in the back yard of the main hospital building. This small isolated structure, built of brick and iron, was only 35 x 25 feet in size. It was entered through an anaesthetic room which had a small sterilising room next to it. The theatre measured only 18 x 16 feet.² The building was linked with the main hospital by a covered way. The floors were of encaustic tiles and the yard was covered at the same time with granolithic tiles. The back of the yard was enclosed by a 70 cm high brick wall.

"H" WARD, 1911 (FIG. 76), (PHOT. 37)

In the same year the Private Wards (later named "H" Ward) were built below the hospital on the banks of the Umsinduzi River.³ This building was rather remote from the rest of the hospital. Its design, was similar to that of the Doctor's Quarters (also erected in 1911) with its surrounding wooden railed veranda.

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1. Hattersley, A.F. op. cit, p. 99.
 2. The first theatre trolley was built by E.F. Ford for £28,55.
 3. Hattersley, A.F. op. cit, p. 99.

It had seven rooms one of which held 2 beds for sick nurses. Also planned on the H-shape, it overlooked the River and Alexandra Park at the back. Built of brick with an iron roof and wooden verandas, it was proportional and elegant in its appearance. Small gables marked the entrance and flanked the roof on either side.

THE HOSPITAL, 1912 (FIG. 78, 79)

In 1912 a new duty room, bathroom and lavatory were added to the Isolation Wards, and an extension was made to the laundry. A room was erected for the installation of the X-ray machine which was expected shortly from England. It arrived, and was installed in 1913 at a total cost of £369.

The river banks were cleared and grassed.

"E" WARD, 1914

In 1914, the building of the new Kaffir and Indian Wards was begun. Funds for this were provided by the Government and the Pietermaritzburg Town Council.

The new wards were completed and officially opened on 8 December 1914 by the Administrator, the Honourable C.J. Smythe. At this stage this was a single-storeyed building, holding 32 beds, 16 on each side.

The wood and iron buildings erected in 1904 as Kaffir Wards were now dismantled.

"A" AND "B" WARDS, 1919 (FIG. 80, 81), (PHOT. 38)

The new European Wards designed by J.S. Cleland, Chief Architect of the P.W.D. of the Union of South Africa were opened on 4 December 1919 by Sir George Plowman, the Administrator. Named "A" and "B" Wards, this was the largest building to date put up at Grey's.

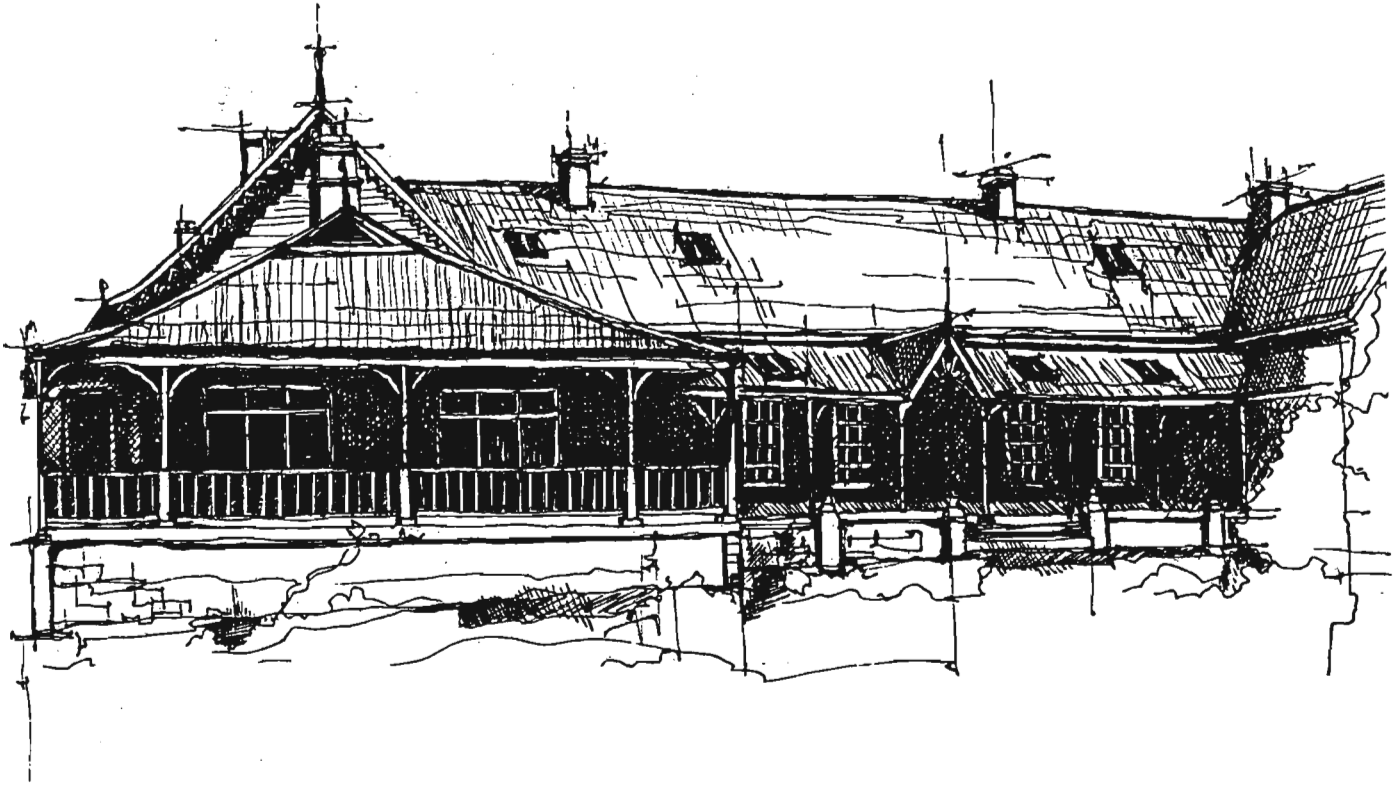
Built by the Natal Construction Company of Durban for £18 000, this imposing two-storeyed structure stood in the grounds in front of the main hospital facing Commercial Road.

The lower floor, "B" Ward, was Male Medical on one side and Surgical on the other.

"A" Ward, which was upstairs, was Female Medical and Surgical. A lift, the first to be installed at Grey's carried patients between the two. A covered way connected the building with the front entrance of the old building. The building was symmetrical in both plan and elevation. Two projecting towers, containing staircases flanked the central entrance on either side.¹

Verandas, erected on the northern and southern sides, took the form of arcades on the ground floor, and the balconies were supported by piers on the floor above. This elegant structure built of brick, was plastered, painted white externally, and covered with a tiled roof. Being located in close proximity to Alexandra Park within an organized garden, it had a palace-like appearance, showing the influences of Palladian Renaissance.

1. Further improvements to the main hospital building were carried out in 1915 when a central corridor was opened up from the main entrance, making access to the operating theatre block, situated in the back yard, more convenient. In this same year there were also improvements to hospital equipment. The machinery for the laundry arrived, and radiators were installed in the wards replacing the wood and coal fires.



THE ALTERATIONS TO THE HOSPITAL IN THE 1920'S (FIG. 82)
(PHOT. 36)

The main hospital building met a new wave of change in the twenties. The approach from the side road, of Prince Alfred Street, became inconvenient with the general growth of the complex. In 1924, J.S. Cleland prepared the plans for the alterations of the old building in response to the new requirements.

This plan involved putting the main entrance to the establishment from Prince Alfred Street. The previous transverse corridor now became the casualty entrance approached from Prince Alfred Street.

The main entrance, put on the elongated back veranda was created as a portico supported by two pairs of three attached Doric columns on either side. The front veranda was changed to a Doric collonade. The back of the yard was now enclosed by the new wards, creating an internal atrium.

All these changes were made without major change in the entire structure and its appearance. This proves the universality and adaptability of the H-shaped layout.¹

NEW HOSPITAL PROPOSAL, 1924 (FIG. 83)

In the twenties, at the time that the improvements to the main hospital building were discussed, the plans for the new layout for Grey's Hospital were prepared by P. Haidie, Architect of the P.W.D. of the Union of South Africa. It involved demolishing the old main building and old Nurses' Home and linking by enclosed covered ways the existing "A" and "B" Wards with similar structures put on the same axial line. The proposed pavilion type was to have a new central Administration Block, from which corridors led to different ward blocks and to the Nurses' Home. The whole building would be better ventilated and lit, but rebuilding the whole complex involved too much expense, so the project was not approved. Instead, improvements to the old building were proposed.

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1. At the same time, all the facade windows and doors took the form of arch-shaped ones. These building operations were carried out together with other improvements to the hospital.

In the front of the building facing Prince Alfred Street, the new Outpatients Department was erected. In 1926, the X-Ray room was altered. A bequest of £5 000 to the hospital under the will of Albert Nathan, resulted in the building of Nathan Ward in 1927. This was a single-storeyed building situated between the main hospital and the Private wards. It was initially used as a maternity ward, then later as Men's Medical.

FURTHER IMPROVEMENTS

After the erection of "A" and "B" Wards, the old building was turned into an infirmary for the old and for chronically sick patients, for whom there was no other provision in Pietermaritzburg at that time.

At the end of the twenties when the changes in the old building, designed by Cleland, took place, the structure became the hospital Administration Block which purpose it served until closing the hospital in 1984.

GREY'S UNDER THE NATAL PROVINCIAL ADMINISTRATION

In 1922 it was decided that the Hospital would be financially better off if taken over by the Natal Provincial Administration, so in August the old Hospital Board under Mr. W.J. O'Brien was dissolved¹ and the new Board with greatly curtailed power was inaugurated.

All the alterations and additions carried out in the late twenties, including the main change in the old building had already been financed by the Natal Provincial Administration. Very little maintenance work, however, was done on the old building.

The process of modernisation resulting in new buildings, revolutionised the appearance of the hospital and greatly extended the available accommodation.

The old Grey's Hospital operated until 22 July 1984, when it was moved to the new buildings on the new site.

1. Hattersley, A.F. op. cit, p. 104.

It had given service to the community of Pietermaritzburg and district for nearly 130 years, and it was the oldest hospital on its original site in South Africa.

CONCLUSIONS

Grey's Hospital, opened its doors in 1856 as a functionally poor medical institution with limited accommodation for the sick and inadequate services. Over the years it developed into a fully organised complex of buildings, fulfilling all the requirements regarding hospitals. In the beginning, all types of patients: Black, Indian, and White, mentally and physically sick, adults and children, and patients with infectious and non-infectious diseases were accommodated together in a few, badly lit and ventilated wards. The sanitary arrangements and the standard of services were far from the recognized standards of hospital planning.

The institution went through different phases of change and finally became an advanced establishment, in its form and equipment. It provided separate accommodation for different types of patients, and served as a military hospital during the Anglo-Boer War.

The main reasons for such a development were:

1. the need for more accommodation as the result of the general growth of the Pietermaritzburg population and the need for hospitalization of the Anglo-Boer War and Bambata Rebellion wounded;
2. advancement in medical technology (operating theatre, X-Ray Department, Specialistic Wards);
3. general advancement in hospital planning such as the introduction of the Florence Nightingale design standards (ventilation, superficial area, finishes);
4. the need for adequate services;

5. the introduction of proper Nursing Services such as Day and Night Duties and the erection of Nurses' Residence "A" and "B";
6. improvements in the economic situation which made more funds available, especially after the Unification of South Africa (1910) and under Natal Provincial Administration Patronage (since 1922).

II. DURBAN HOSPITALS

BACKGROUND

By 1835, the little settlement of Port Natal consisted of a collection of wattle and daub huts clustered under spreading bush trees not far from the Bay. This was between today's Field and Broad Streets, in the vicinity of the Old Well Court in Smith Street.¹

In the Eighteen Fifties the road to Durban from the landing place at The Point was a sandy track which wound through dense bush and entered the little village of D'Urban at the eastern end of Smith Street. There were only a small number of British Settlers, and in 1837 Piet Retief and his men were enthusiastically welcomed to the community.²

When the permanent white settlement was formed at Port Natal in 1824, the early settlers were largely dependent on home and herbal remedies, supplemented later by medical aid supplied by various groups of missionaries who had usually been given some basic medical training.³

Notes and references:

1. Malherbe, J. "Port Natal. A Pioneer Story", p. 114.
2. Apart from possible men of medicine who may have been among the shipwrecked unfortunates of the 16, 17th and 18th centuries, it seems that the first doctor to come to D'Urban was Dr. Cowan. In 1806 he set off from the Cape and travelled north-east across South Africa in an attempt to find an overland route to Portuguese East Africa. Some time later he reached the region where South-Eastern Transvaal today adjoins Zululand.
3. Henry Fynn, himself, had some knowledge of home doctoring and won the respect of Shaka, the Zulu King, by healing a stab wound he got in a drunken brawl in his kraal.

In the Eighteen-Forties, Durban itself had the medical services of "Mother" Strydom, who was doctor, nurse and midwife in one.

Durban's two earliest medical men were Dr. Julius Schultz, who became the first Borough medical officer of health in 1874, and DO. Charles Johnston.

In 1855, Durban had one hospital with one inmate and this was a room hired for the purpose.¹ The serious cases were sent to Pietermaritzburg.

In 1856, Natal became a Colony district of the Cape of Good Hope of which it had formerly been a province.²

Durban was at that time a small town of 11,000 European inhabitants, though it had had its own Mayor and Corporation for 4 years. The method of transport here was entirely by ox-wagon and none of its roads were hardened.³ Durban Bay was a sandy desert except at high tide when small ships could come in to discharge their cargoes directly into the ox-wagons.

GAOL HOSPITAL (PHOT. 39)

In 1856 the Government built a gaol in Durban and one of its eight cells, roughly 8 feet by 10 feet, was used as a hospital.⁴ This building faced Pine Terrace and stood with its back to Dalziel's store on West Street.

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1. "Durban's First Hospital" - an account written by Alex Anderson to Dr. Killie Campbell, 30 October 1926, Killie Campbell Museum.
 2. This change was made on the recommendation of Sir George Grey, Governor of the Cape who, during 1855, had paid a visit to Natal and had made a grant of R1,000 for the establishment of the hospital in Pietermaritzburg. It is probable that he also suggested a hospital in Durban, but it was Mr. John Scott, First Lieutenant Governor of the Colony under its new constitution, who took active steps to achieve this in 1858.
 3. Russell, G. "The History of Old Durban"; p. 448.
 4. "Origin of the Addington Hospital Durban" : notes compiled by the Natal Archives.

In addition to criminals, sick and well, and paupers, lunatics from all over the Colony were also admitted.¹

The combined hospital and gaol consisted of

"....a small mud, thatched cottage, surrounded by aborescent adornment, and affording both an attractive aspect to passers-by, and an easy outlet for escape, to desperate characters."²

However, the gaoler, Thomas Dand, who was also the superintendent of the "hospital":

"....had a wonderful way of getting the co-operation of his dubious charges by granting them special privileges on condition that they did not decamp."³

At this time Durban was still a primitive place, and only in November 1860, when the cemetery in West Street was laid out, did they start to bury people.

In 1860, the Editor of the "Natal Mercury" wrote:

"....The sanitary conditions of this town has been disgracefully neglected of late, and now the rains have set in with no provision for preserving the health of the place. Indeed, no attention whatever has been paid to the state of our drains, which are mostly chocked up, fallen in, an utterly useless, or worse than useless, for they have become cesspools of stagnant filth, and hot-beds of disease. The inhabitants are allowed to throw garbage of all sorts on unoccupied plots; and these, even in dry weather, have emitted horrible stenchs.

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1. Patients who could pay, were charged 1/1. per day with extra charges for additional medical comforts and clothing. White servants who needed hospitalisation were charged at the same rate, but non-white servants paid only 7d. per day.
 2. Malherbe, J. op. cit, p. 115.
 3. Pearson, M.G. "The Government Hospitals in Durban". One of these privileges was to allow a few men out at a time to slip down the lane and across West Street to the canteen on the site of Greenacre's Store. The agreement was that they had to be back by a certain time.

The footpaths and fences are in ruin, but every other improvement should give way to an instant effort to improve the drainage and provide the accommodation for sick of town."¹

At the gaol-hospital, too, there were no sewerage or sanitary services. Holes were dug and privies set up over them.²

It was not surprising, that measles, diptheria, malaria, dysentery and enteric epidemics occurred regularly with a frighteningly high death rate.³

Already in 1857, Durban's Town Council had importuned the Government for a proper gaol and a separate hospital, pointing out the harrowing circumstances:

"....the gaol accommodation is becoming a scandal and some separation of patients and prisoners, excluding lunatics, was essentially necessary, the old tronk being wholly inadequate for both apart from its use as a police station."⁴

There was usually an average of 40 inmates in the tiny building:

"....but up to 52 had already been known to rusticate in that delightful retreat."⁵

Gaoler Tom Dand pointed out that:

"....it was a complete mystery how so many lived, moved and had their being in such a confined space."⁶

The Government at last took heed and in 1860, Mr. James McKnight's sturdy brick house in St. George's Street was rented as a temporary hospital.

1. "Natal Mercury", 12 November 1860.

2. Malherbe, J. op. cit, p. 116.

3. Russell, G. op. cit, p. 449.

4. Pearson, M.G. "The Government Hospitals in Durban." A short sketch of their History 1858-1945"; Medical Congress Publication, 1946.

5. Malherbe, J. op. cit, p. 116.

6. Russell, G. op cit, p. 446.

FIRST GOVERNMENT HOSPITAL - BAY HOSPITALBEGINNINGS

In 1858 Lieutenant Governor Scott suggested that there be a Government hospital. In a despatch to the Rt. Honourable Lord Stanley, Minister of the Colony, dated 31 July 1858, he wrote:

"....I now propose to erect a hospital at D'Urban at a cost of about £800. The Hospital will be a native hospital but as there is no other building of the kind at D'Urban, it will be open for the white colonists while the accommodation will suffice for both ... it will require a small annual grant for a few years for the salary of a matron and male attendant, for the purchase of medicines and a small increase to the Government Allowance, now paid to the District Surgeon : but I have every confidence that after the lapse of a short time these institutions, that is to say, the Hospitals at Pietermaritzburg and D'Urban will become self-supporting."¹

Governor Scott soon found out, as so many after him have done, that architects' and builders' estimates were rarely below the actual cost, and five months later he wrote to the Rt. Honourable Sir. E.G. Lytton regretting:

"....to find that the Durban Hospital will cost £1,697 8s. 9d."²

and remarking with regard to this additional estimate:

"....this amount is largely in excess of that which I proposed to be appropriated for the purpose outlined in my former despatch, but it has been thought advisable to alter the design originally sketched out with the view of erecting a building of a more substantial character and of affording superior and greater accommodation."³

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1. Government House 1211 no. 81 p.p. 383-389, 31 July 1858.
 2. Ibid p.p. 443-444; 26 December 1858.
 3. Pearson, M.G. op. cit, p. 16; "Natal Mercury", 11 April, 1861.

On 24 March 1859, the amended estimates and appropriation of the amount for the erection of the building was approved by the Secretary of State and work was proceeded with.¹

THE BUILDING

The architect of the first proper hospital in Durban was Robert Sellars Upton. The "Natal Mercury" of 11 April 1861 reported that:

"....the hospital under the able architectural superintendence of R.S. Upton Esq., is finished almost to the wall plates. It is one of the most considerable buildings in the town."²

The building was completed in 1861 and the final cost of the erection was £2 500. It was situated on an erf extending from Smith Street to the bayside, the exact site being where the Law Courts are today.

The hospital was used only by Natives, and this was partly because it was built with money allocated for Native purposes, and partly because the few Europeans there were preferred to suffer their illnesses in their own homes.³

THE PLAN (FIG. 87)

The general layout of the hospital was on a rectangular shape. There were two wards (male and female) and one bathroom for each sex. The

1. Pearson, M.G. op. cit, p. 17.

2. "Natal Mercury", 11 April 1861.

3. It was difficult to persuade Europeans to go into hospital - major abdominal operations were often performed in private houses.

entrance to the building was placed centrally into the entrance hall, from where there were entrances to the wards. The operating theatre was placed in the back of the building and served also as a "Dead House". In 1871, a lean-to was attached to the operating theatre to serve as a proper mortuary.

One of the bathrooms was used to store provisions, while the other was used as a lumber room. When it was absolutely necessary, patients were washed by their beds in hip and slipper baths. Convalescent patients washed themselves on the hospital veranda.

There were no lavatories, but six privies were built 115 feet from the nearest ward. A running stream of water was diverted to wash the soil down to a nearby rivulet which emptied itself into the swamp fringing the Bay. Rubbish was dumped in the bushes, and amputated limbs and other relics of operations were buried in holes on the hospital terrain.¹

THE EXTERIOR (FIG. 88)

The building was erected in the classical style, having a palace-like appearance. The effective entrance portico consisting of four Tuscan columns supporting a simple pediment dominated the whole structure.

The symmetry in the plan was echoed on the facade, with the entrance placed on the central line. Well-proportioned, double sliding sash windows of English origin were fitted on either side of the entrance under the same roof.

1. Russell, G. op. cit, p. 448.

The building's facade continued beyond the portico in both directions with the lower roof creating the sides. There, the sash windows were repeated with additional narrow ones on both sides.

Side parts supported by the brick, plastered, half-columns were continued to the ends - the lowest parts. The ends were created by basket arched openings pleasantly flanking the front of the building. The horizontality of the structure was emphasised by the cornice and plinth lines.

The whole structure, plastered and painted white, was elegant with its proportional elements, and the use of classical elements on the facade increased its aesthetic appeal.

REPAIRS

By 1865, the Colonial Engineer was requested by the District Surgeon to make repairs to the building.¹

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1. The staffing was as primitive as the hospital itself; it was 17 years after the opening before any trained nurse was appointed, and then only one.

At the beginning Mr. and Mrs. Owen were appointed as male attendant and matron respectively, at salaries of £36 a year each. They were succeeded by Mr. and Mrs. Pike, during whose term of office the nursing of women patients was done by a St. Helena woman who was their only assistant until, in 1875, a dispenser was added at a salary of £84 per annum. In 1878 the first professional nurse was appointed at £45 per annum.

Medical attention was given by the district surgeon, Dr. Holland, who was the first medical superintendent, and he was succeeded by Dr. W.H. Addison Snr., his son Dr. W.H. Addison Jr., and Drs. Gordon, Taylor, Lyle, Bonner and Hyde.

Ten years later, there were strong complaints regarding the inadequacy of accommodation from different sources. While the situation in Pietermaritzburg was under control, the Government Hospital in Durban was in a state which left a lot to be desired. In 1875 Lord Carnarvon wrote:

"I commend the subject of Hospital management to your earnest attention and I should be glad to be furnished with the plans of the proposed hospital. Captain Hime, R.F., on whom the preparation of these plans will probably devolve has been in communication with my Department on the subject of Hospital construction."¹

There followed much correspondence as to whether the existing hospital should be extended or a new site be acquired from the Corporation.²

A Commission was established to inquire into the condition of the hospital and the efforts of the members resulted in a lengthy document which dealt with the following:³

1. that additions to the existing building would be useless
2. that impurities were poisoning the air
3. that sanitation, the cesspool, the washing, diet, general hospital administration were grossly inadequate.

The report suggested that the Government obtain from the Corporation the erf on which the "Kaffir Ward" was standing at the time, and a ground plan

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1. G.H. 66 No. 123 p. 141, 30 August 1875 Lord Carnarvon to Sir Henry Bulwer. (Local History Museum, Durban)
 2. Ibid and CSO 506 398/1875, 1 February 1875 : Colonial Engineer to Colonial Secretary. (Local History Museum, Durban)
 3. The report was published in the Natal Government Gazette, 5 September 1976; the plans have disappeared.

of the buildings and contemplated enlargement of these accompanied the report.¹

It is not surprising that there was such an outcry; hospital accommodation for the Durban population as well as the hundreds of sailors and many travellers needing medical care was very unsatisfactory.

This state of affairs needed immediate rectifying. Owing to the lack of knowledge in connection with hospital buildings and lack of faith in people's own judgement, it was decided to write to England for "Blue Books" and other reports containing information.

"...as to the most modern and approved plans and system adopted in the construction of Lunatic Asylums and Hospitals."²

The Colonial Engineer had written in March 1876 for plans and estimates but by August, he had not received any information and had meanwhile prepared plans for both buildings. He said:

"I think however that it will be best not to decide on any particular design until I receive the information from the Colonial Office which I have applied for."³

In 1904, the original buildings were still intact, having been added to and used after removal of the hospital to Addington as the Boy's High School.

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1. CSO 541 253/1876, 1 April 1876. (N. Arch)
 2. CSO 556 1755/1876, 1 July 1876 : Minute from Lieutenant Governor Bulwer to CS headed "Calling for Plans and Estimates for (1) A New Lunatic Asylum, Pietermaritzburg. (2) A New Hospital, Durban. (N. Arch)
 3. CE to CS, 1 August 1876. (N. Arch)

ADDINGTON HOSPITALBACKGROUND

With the growth of Durban and its development as a port, the work at the little Bayside Hospital outgrew its capacity and in the late 70's the Natal Government decided to build a new and larger hospital to hold 70 or 80 patients.

THE SITE (FIG. 89)

The site chosen for the new Government Hospital was at Addington, a township on the Point north of the harbour area which had been laid out by the Government Surveyor, Dr. P.C. Sutherland, in 1860 on instructions from Lieutenant Governor Sir John Scott.¹ The Government established Addington as a convenient place of residence for the ever increasing number of persons connected with the harbour development scheme in Durban. The hospital was to be the only building along the whole of the beach front, and it would be surrounded by sand dunes and bush.

THE ARCHITECT

At least three people claimed to have designed the building.

The three were Dudgeon, Upton, and the Government Clerk of Works, Jenkyn.²

Upton, Durban's first Town Surveyor and author of the Bayside Hospital, claimed the new design and was often credited with it.

1. Kearney, B. "Architecture in Natal 1824-1893", A.A. Balkema, 1973.

2. "Daily News", 31 July 1973.

Brian Kearney had his doubts. He said:

"Mystery surrounds the design of Addington Hospital. The Natal Government Clerk of Works, Yenkyn, claimed to have designed the building in addition to supervising its erection. Upton may also have had a hand in the design, but Dudgeon was stated to be the Architect when the building was completed."¹

Another possible author of the design was Stephen Chapman. Mrs. Hodge (his grand-daughter) wrote:

"I believe the architectural plans of Addington Hospital was one of my Grandfather's last commissions in South Africa. During his time in Africa he had travelled into the Rhodesias and also lived in Johannesburg. He was very proud of being commissioned to draw the plans of the Addington Hospital but felt that it should have been far larger originally. He once told his eldest son that the name Addington was applicable as it would soon stand for 'adding-it-on' hospital."²

It is quite possible that when the Government was seeking advice on the subject of hospital construction, Mr. Chapman was approached and that he submitted plans which were not executed. About the time that the building was completed, he was recalled to Great Britain and sent to Ireland.

Meantime, Dudgeon's statement to the Royal Institute of British Architects was mentioned in the contemporary press which acknowledged Dudgeon as the Architect of the Government Hospital in Durban. This article was repeated twice which gave all other contenders the opportunity of contradicting the contents but there was no contention to the contrary.³

1. Kearney, B. op. cit, p. 116.

2. Letter in the Addington Museum.

3. "Natal Mercury", 29 October and 4 November 1878.

In a public speech at the opening of the Durban Town Hall, Dudgeon was again declared the author of the design.¹

In December 1977 Ivor Daniels discovered a number of original Dudgeon drawings, amongst them which were drawings for the Government Hospital by Dudgeon.

The editor of the "Natal Mercury" of 4th November 1878 describing the hospital wrote:

"...Mr. Dudgeon, a gentlemen who has distinguished himself in his profession in Durban, is the Architect."²

PHILIP MAURICE DUDGEON

Philip Maurice Dudgeon was born in 1852 in Dublin, and left England for South Africa in the second half of 1876. He arrived in Durban in 1877 and entered the office of Robert Sellars Upton, where he practiced until 1888.³ In 1888 he returned to England to settle in Bath. He died at the age of 39, his death being brought about by alcoholic cirrhosis of the liver.

His works include:

Alexandra Hotel, Point (1879-80)

Standard Bank, Pietermaritzburg (1881-2)

Town Hall, Durban (1881-4)

House for the Hon. H. Shepstone, Pietermaritzburg (1886)

Addington Hospital, Durban (1877)

1. "Natal Mercury", 3 November 1885.

2. "Natal Mercury", 4 November 1878.

3. Kearney, B. op. cit, p. 45.

THE CONTRACT

Dudgeon's design, submitted to the local Government in November 1877, was approved and tenders were called for on 14 April 1877.¹ The time for submission of tenders was extended to April the 30th. When received, the Colonial Engineer Albert Henry Hime, on behalf of the Natal Government, chose John Nicol Builder, Durban, whose tender, the lowest one, was £12 13s. 6d.¹ as the main contractor:

"In recognizance entered into this seventeenth day of December in the year of Our Lord : one thousand eight hundred and seventy seven between Albert Hime Esq., Captain Royal Engineers Colonial Engineer for and on behalf of the Government of Natal on the one part and John Nicol Builder, Durban, Harry Escombe, Attorney at Law, both of Durban, on the other part John Nicol shall duly and faithfully carry out and complete the whole contracted for in full accordance with the Conditions of Contractor and Specification hereto annexed...."²

The contract period was to be one year, so by the end of 1878, the building was supposed to be handed over to the Government.

"The Conditions of Contract" stated that all the main building materials would be supplied by the Government, and the Contractor would organize the plant, tools and fittings.

Six specified drawings, signed by the Colonial Engineer of Natal were issued to the Contractor on 1 November 1877.

THE PLAN (FIG. 89, 90), (PHOT. 46)

Dudgeon scored a personal triumph in his masterful plan for the Government hospital and made a substantial contribution to the development of

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1. The "Natal Mercury" of 4th November 1878 reported: "The cost of the building is upwards of £13 000..."
 2. "New Durban Hospital - Conditions of Contract and Specification 1877" - Natal Archives.

such buildings in South Africa.

His design must have been the result of careful research, as it not only fulfilled every special demand of a hospital accommodating Whites, Blacks, Indians, physically and mentally ill people, and patients suffering from infectious and non-infectious diseases, but also answered every need regarding climatic conditions in Natal.¹ Kearney wrote:

"An interesting feature of the planning was the use of verandas and access ways and as a means of detaching rooms for lunatics and patients with infectious fevers."¹

The entrance to the hospital site, through the Lodge was from Cato Road, the Hospital Road of today.

The site was surrounded by roads recently laid out in Addington Township, Prince Street at the back and Cato Road at its western side. On its eastern side was a residential neighbourhood, and in front bushes divided the site from the beach.

At the back there were two entrance gates for carriages, and for convenience the stables were erected there in close proximity to one of these gates.

The building faced eastwards with a view onto the Indian Ocean.

Designed on the U-shaped plan derived from the Italian Renaissance palace layout, it had a section containing a portico and a projection from the U-shape added onto the facade. The whole was surrounded by a veranda.

The main entrance was put on the central axis of the facade, and it led through the semi-circular elegant flight of steps to:

".....a vestibule, with corridors, leading right and left to the various rooms.

1. Kearney, B. op. cit, p. 46.

On the right and left hand sides are waiting rooms, one for males, and the other for females. The corridors run right down through the building.

On the left hand side is a casualty and operating room, 20 feet by 15 feet, and in connection with these is a dispensary, where the out-door patients as well as those in the house, will be attended to.

Adjoining this is a consulting room, 12 feet by 14 feet. There are wings on either side of the building, one for Natives and the other for Europeans. The left wing will we believe, be used for Natives. There is a large ward on either side, each 25 feet by 24 feet to accommodate from twelve to fifteen patients, and a nine feet four inch veranda runs around the whole building.

Next to the large wards there is a smaller one on each side, to accommodate eight or ten patients, and these are 24 feet square.

The nurses' rooms are next, and there are spacious store rooms.

In the front, there are four semi-detached wards, two of which are for lunatics. These are 14 feet by 11 feet. There are excellent quarters for the matron and superintendent: and throughout the arrangements seem to be all that could be desired.

We should not omit to state that there are excellent apartments for patients, whose friends are prepared to pay for their sojourn at this establishment. These rooms are 14 feet by 12 feet. The height of the different apartments is the same throughout. On the right wing, there is a fever ward for infectious cases, and there are lavatories, and all requisite outbuildings. The mortuary and dissecting room is situated considerably in the rear."¹

This design was in accordance with the Florence Nightingale requirements in reference to hospital planning. Big, lofty wards surrounded by verandas, and having the windows on two sides ensured good internal environmental conditions:

"The ventilation is arranged on the most modern principle."²

The localization of ablution blocks was correctly at the ends of the wings with good ventilation, a great advantage in proper sanitary arrangements.

1. "Natal Mercury", 4 November 1878.

2. "Natal Mercury", 12 November 1878.

The circulation within the building was perfectly solved. The wide corridor running through the entire detached section of the building, made all the rooms as well as the veranda, back wards, and outbuildings easily accessible and resulted in a flowing, open plan.

By means of the arrangement of corridors, verandas, closed passages and detached sections, Dudgeon's plan succeeded in achieving easy egress and ingress where needed and isolation of areas where required, and provided the necessary passage for ventilation and cool sea breezes.

The use of verandas, which served as circulation links and as a sheltered space for resting in the fresh air for patients, was an interesting feature of this design. Easy approach straight from the wards ensured convenience in using them for this purpose.

The outbuildings housed lavatories, a mortuary, a dissecting room, the kitchen block, and the stables. The kitchen, in the centre of the back yard was very economically placed, with equal approach from all the directions, ensuring quick and convenient service.

THE DRAINAGE

The "Natal Mercury" of 12th November 1878 reported:

"...The building will be well drained, 12 in. circular tube pipes being used for the purpose. These will convey all the drainage matter to a large cess-pit in a deep hollow in the bush some distance off. The water supply will be from two 15,000 or 20,000 gallons tanks." ¹

1. "Natal Mercury", 12 November 1878.

THE EXTERIOR (FIG. 91-94), (PHOT. 44, 45)

The design for the Addington Hospital took the form of a "noble blocks of buildings"¹ built in a freely treated Italian Renaissance style. The building was superbly adopted to suit the site.

"...a more suitable site could not certainly have been selected in this neighbourhood."² The front of the premises will be handsome when finished."

The main facade consisted of two distinct elements:

1. a central block;
2. subsidiary flanking wings.

The wings were well integrated into the central part functionally and visually, presenting an effective sculptural quality. The long central frontage was articulated by two triangular gables which were reflected in the shape of the pitched roofs.

Cast iron columns supporting the side wings verandas continued the pattern set up by the eight Doric columns supporting the portico of the frontal part.

The windows in the wings and on either side of the front entrance were contrasted with the larger, more ornate openings below the roof gables.

The basic elements featured on the main section of the central part were subtly echoed in the wings.

The large windows which were situated below the roof gables were protected from the weather by projections supported on scrolled brackets and all

1. "Natal Mercury", 12 November 1878.

2. "Natal Mercury", 4 November 1878.

external door frames and pine window sashes were set back from the wall surface, creating variations of light and shade within the plain stucco face of the walls.

All the windows in the main building, including the glass panels in the front door and fanlights, were glazed, each main window having two panes.

The entrance steps, as well as all steps and doorways of the main building, were of cut stone, while the portico was paved with hard, well-burnt bricks laid on edge in mortar. All portico columns and pilasters were made of bricks covered with cement.

The magnificent pitch frame lantern, the focal point of the facade, was placed straight above the main entrance.

The simple pilasters of the portico and the fine coffered ceiling with egg-and-dart mouldings represented the clever combination of these elements carefully selected by Dudgeon.

All the string courses, cornices, architraves and mouldings were of excellent quality and workmanship accorded with Dudgeon's instructions for ornamental work:

".....to be run with pure cement and very neatly executed with sharp arrises; all mouldings to be run with zinc or copper moulds and worked accurately to the size shown on full-sized drawings."

The back of the building (west facade) was evidence that the architect considered the building as an organic whole. The wings with their verandas and abundant ventilators were well integrated into the design, and were similar to a colonnaded front.

Dudgeon's drawing of the side elevation reflected his concern with proportions that achieved functionality and high aesthetics.

On the whole, the hospital shows Dudgeon's masterful skill in variation and combination of building elements.

MATERIALS AND METHODS OF CONSTRUCTION

In January 1878, the contractor, John Nicol, moved onto the site with all the necessary equipment. The building materials were immediately supplied by the Government agents under the supervision of the Colonial Engineer, Albert, Robert Hime. Several Indian masons and bricklayers were employed, and mainly Natives were used to quarry the stone.

The hospital was constructed of brick and concrete plastered with portland cement and covered with a corrugated iron roof.

The stone for concrete was supplied to the Contractor from the Umgeni Quarries, the bricks were purchased in the brickyard in "the neighbourhood of Durban",¹ the lime used was the shell lime "procurable in Durban",² and the cement was of "the best quality white Portland cement."²

The timber, pitch pine (red and white), used for all internal and external wooden work was bought from the farmers in Pinetown.

Excavation work for the foundations took over one month, the foundations were laid in February, and in March the brick and stone work began.

1 - 2. "New Durban Hospital - Conditions of Contract and Specification 1877"
- Natal Archives.

According to the specifications for the job, the main Contractor was to appoint the sub-contractor for the road construction and all ironmongery. The firm "Founder and Smith" in Durban was selected to do this job.

The specifications were:

"The rafters of main building to be set 4 feet apart from centre to centre, purlins to be 3" x 3" so laid, that they shall be one under each and one under the centre of each sheet. The veranda rafters to be spaced 2 feet apart and boarded on top side with 5/8 ceiling board.

Purlins to be three in number 3" x 1½" ".¹

The floors of verandas and Portico were paved with:

"...hard, well burnt bricks laid on edge, in mortar..."²

and the "dead house", dissecting room, kitchen building, and bathroom wings were laid with paving tiles set in mortar and jointed in cement. Clinkers "laid flat and jointed in cement" were put on the stable floor. Wooden floors raised 2" above ground level were laid in the wards and staff accommodation rooms. These floors were to be:

"...ploughed, tongued and edge nailed in 5" widths, 1 1/8" thick laid with a straight joint"²

The floors of the operating theatre, dispensary, and waiting rooms were to be covered with tiles.

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1. "New Durban Hospital. Conditions of Contract and Specification 1877" - Natal Archives, p. 8.
 2. Ibid, p. 9.

All timber used on the building was pitch pine, red for the outside and white for the inside.

All of the window frames were:

"...sash frames throughout the building: of red pine prepared for 2" sashes with sills double rebatted."¹

The sash frames of the bathrooms, kitchen wing, attendants room, and "dead house" were 1½" sashes.

The door frames were also made of timber, and later varnished:

"All internal doors of main building to be of 2½ red pine moulded and panelled both sides. The four doors of main wards are to be of 2" deal hung to swing both ways, also in 4 panels moulded. All external door frames are to be put together with white lead, and to be set back 9" from wall face. The other doors in main building to be of 2" deal in 4 panels framed and moulded. The door to bath-rooms and closets to be of 1½ dial in 4 panels."²

The skirtings all over the main building, kitchen, and laundry blocks:

"...were of wood 9" high, single moulded"³

Where cement floors were specified, cement skirtings were used.

The roof ventilators were constructed of timber and covered with lead.

The lantern put on the roof above the main entrance was:

"framed with pitch pine with provision for pitch louvres, 1" thick"⁴

Architraves of deal were fixed round all windows and doors:

"those in main building .. 8" wide with double face moulded and stopped, 5" wide moulded single face"⁵

1- 5. "New Durban Hospital. Conditions of Contract and Specification 1877" - Natal Archives.

The Doric columns in the portico were built of carefully selected bricks, cement plastered.

The following instructions were given regarding the ceilings:

"...lath, plaster, float, set and whiten the ceilings of the whole of the rooms, passages, wards, corridors, internal walls-rendered, floated set and finished generally to receive distemper of such tint as may be directed."¹

All the wood and iron works that were usually painted were to receive four coats of oil colour and also:

"...finished to such a tint as may be directed."²

The specifications contained an interesting comment on the damp course. Dudgeon indicated that the trenches should be filled with concrete already mixed. The Colonial Engineer commented:

"Is this the usual way to make concrete here? In England all the materials are mixed dry first."³

The procedure was accordingly changed.

ADDITIONS (FIG. 96 - 97),
(PHOT. 47-49)

By the time the hospital was completed in 1879, the war had broken out between Natal and the Zulu King, Cetshwayo. The small military hospital at the Old Fort was inadequate to cope with the influx of wounded, so the

1 - 3. "New Durban Hospital. Conditions of Contract and Specification 1877" - Natal Archives.

authorities commandeered the Government Hospital at Addington early in 1879.¹

After the last of the Zulu War wounded had left Addington Hospital, the "inmates" were transferred from the Bayside Hospital towards the end of December, 1879. The Bayside Hospital itself was taken over for use by the Durban Boys High School.

At this time Addington Hospital had an annual intake of about 570 patients, most of whom were males.² In April 1880 tenders were called for the "Erection of Coolie Wards at the Addington Hospital", the plans to be viewed at the Colonial Engineer's office in Durban. These were apparently the only alterations brought about until a second storey was added to the whole of the existing building by W. Street-Wilson in 1890-92.³

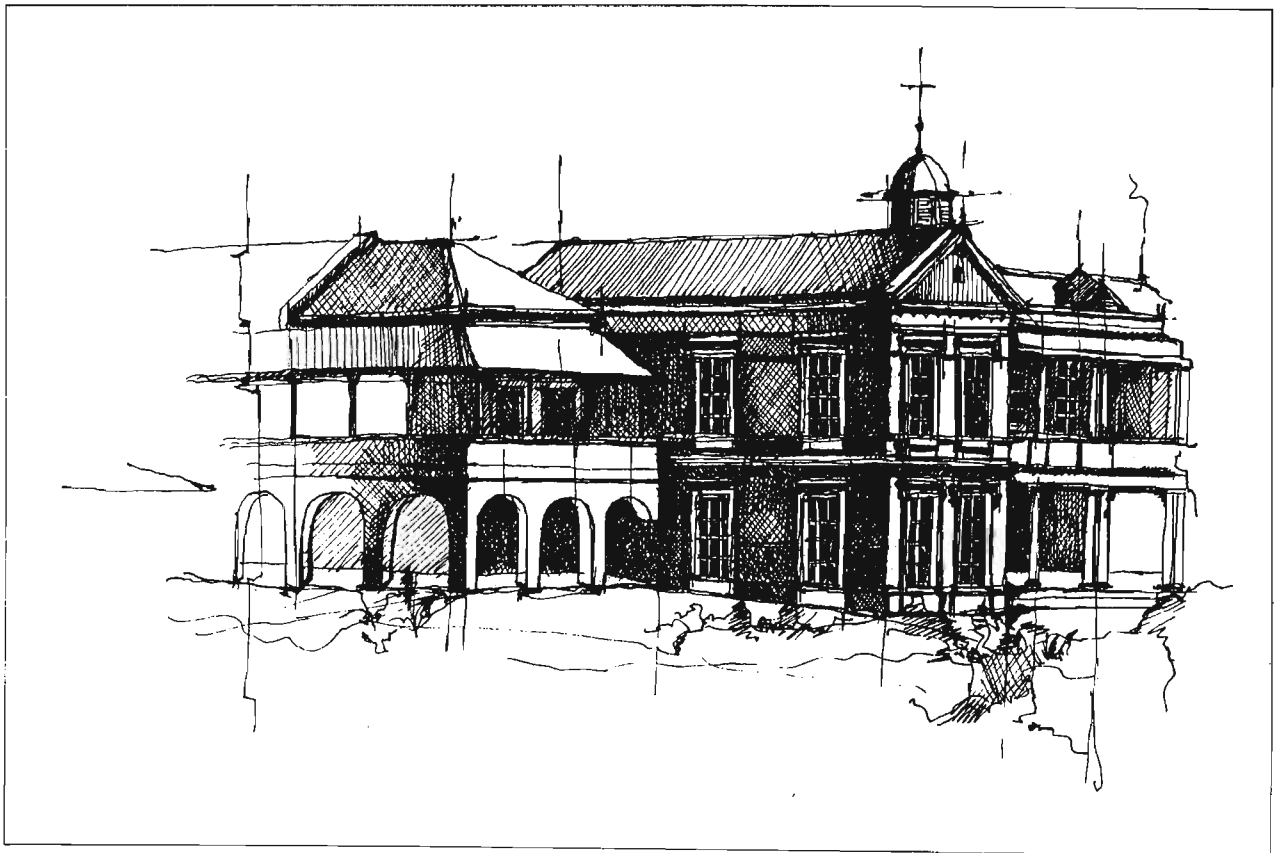
When designing the additions, Street-Wilson wisely and sensitively followed Dudgeon's example. He, as it were, multiplied existing elements while re-incorporating others such as the spheres and lanterns.

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1. From England came Mrs. Cecelia Debble with fourteen nurses, of whom eight were sent to Grey's Hospital. The remaining seven nurses were established at Addington, so this hospital started its career in the hands of a trained matron and staff.
 2. "Addington Chronicle", March 1973.
 3. Ibid, p.2.

The veranda encircling the wings was demolished and replaced by a substantial arcade and balcony, and it was here that Street-Wilson made his own significant contribution to the building. The superbly colonnaded wings and the fine quadrangle, which resulted from enclosing the back yard by covered walkways, connecting the kitchen block with the main building, helped enormously to enhance the quality and grandeur of Dudgeon's design. The new additions were completely in keeping with the style and spirit of the original.

The hospital could now accommodate 160 patients.

Erection of a Lunatic Asylum in Pietermaritzburg vastly improved the situation of the hospital. The insane were now sent to Pietermaritzburg, leaving room for other patients.



III. NATAL GOVERNMENT ASYLUMBACKGROUND

Mild lunatics were accepted at Grey's Hospital from its first opening, but the majority of insane persons were confined within the precincts of the gaol.

Until 1868 no legal enactments by which lunatics could be confined were in operation in Natal, the only procedure being by judicial trial before the supreme court, the issue of which might be the strict custody of the lunatic either in the common gaol or in hospital.

Law No. 1 of 1868 (the Custody of Lunatics Law), provided that the resident magistrate could commit the insane person to strict custody in gaol or hospital on condition that two medical practitioners agreed to this.¹

It also empowered the lieutenant-governor to remove to a public asylum persons who, on the application of relatives or guardians, had been certified as of unsound mind. By 1876, Dr. Allen, the medical superintendent of Grey's Hospital, advised that no further lunatics should be accepted since a separate asylum had at last been provided.

Grey's Hospital, full to capacity, could not accommodate more lunatics, as there was a shortage of space even for other patients particularly since, once admitted, lunatics were housed in hospital for years.

Different houses were hired in the hope that one might be found suitable for this purpose.

Notes and references:

1. O'Reagain, M. op. cit, p. 12.

TEMPORARY ASYLUMSGOAL ASYLUM (FIG. 100)

The first Lunatic Asylum in Natal formed part of the gaol on the Market Square. In 1855, it was intended to institute a proper asylum in Pietermaritzburg, but this did not materialize. In 1864, the Hospital Committee recommended that an institution be set apart for the reception of insane persons and the following year the Mayor was empowered to offer the Government a site in extent not more than 10 acres.¹

ASYLUM IN RENTED HOUSE

In the meantime a temporary lunatic asylum was used and some of the lunatics from Grey's were transferred there.

Though more than once enlarged, its capacity was small, the number of inmates never exceeding fifty of whom approximately one-half were Blacks. In 1869 it was enlarged to 12 dormitories and 8 single rooms.

This was the building at 525 Longmarket Street and it was at one time the home of Judge Lushington Phillips.

In 1872 it was reported to the Town Council that:

"...this asylum had a gross cubic space of 9180, gross superficial area 960, average cubic space per patient 510 and window space 158 feet 8 inches. After additions it has 13 dormitories and the average space per patient up to 691,5 cubic feet (total 19350 cubic feet and the area 19350 square feet)."²

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1. "Natal Witness", 30 June 1865, 25 August 1865.
 2. "Natal Witness", 3 June 1869.

In 1877 the managing board reported the presence of books, musical instruments and even chess boards, and called attention to the innovation of divine service within the building, but "mechanical restraint by wrist straps and iron handcuffs" was practised in the building until 1876.

In the Hospital Committee's opinion it was no longer thought necessary to confine the insane in buildings with long narrow windows, iron grills and cell doors of great strength. Nevertheless, a closely-shuttered house was eventually selected.

This temporary arrangement did not suffice for long and in 1868 the Colonial Secretary, Colonel Lloyd, asked for the grant of land for the erection of a more permanent structure.¹

Some of the insane were still being housed in the hospital and Sutherland complained that their presence was retarding the recovery of people who needed "...quiet and retirement...."²

In August 1874 the Legislative Council was informed that the admission to "that miserable place" had been stopped, as the institution was already full.

On 31 July 1871, at a Session of the Town Council, Mr. Paterson warned that limited capital should be invested in the betterment of the temporary buildings as they were unsuitable as a permanent measure.³

He submitted some short-term proposals for the alterations to the gaol. These proposals included the erection of four cells in the central airing yard against the dividing wall between it and the outer airing yard which also

1. Letter from Lloyd to Town Council, 15 February 1868. (N. Arch)
2. Report: Sutherland to Town Council, 11 August 1871. (N. Arch)
3. "Natal Witness", 1 August 1876.

formed the back wall of another row of four cells. (Fig. 100). A further proposal was to divide the outer airing yard into two yards by a brick cross wall, the lower portion to be retained as an airing yard for females, and a communicating door to be made into the next yard for the convenience of the persons in charge. The female prisoners being thus isolated could be usefully employed in washing and mending hospital clothing and in other suitable employment. The upper portion of the yard could be appropriated as a separate yard to the treadmill then about to be erected, with a door for access made through the wall of the general gaol yard.

THE SITE FOR THE PERMANENT AYSLUM (FIG. 101)

Although the Government had requested 100 acres, the Council was at first only prepared to grant 10 acres,¹ later agreeing to 50 acres at the upper end of Church Street, roughly where the railway station now stands.

"...extending in a line with the end of Berg Street to the Camp or Armstrong Garden on the condition that the Government construct a Barrel Drain throughout the whole of their frontage."²

A memorandum from 115 Burgesses objecting to the grant was received.³ It was then decided by the Council that 50 acres would be granted, provided it be not within one mile of the city and did not abut onto any of the main approach routes.

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1. Ordinary Meeting of Town Council, 4 February 1873. (N. Arch)
 2. Special Meeting of Town Council, 14 March 1873. (N. Arch)
 3. "Natal Witness", 15 May 1873.

Harmsworth objected to this resolution on the following grounds:

"...that the site chosen by the Government was a very suitable one, this piece of land being used only by Kaffirs and others... for every disgusting purpose repugnant to Public decency."¹

and, that the memorandum had been signed without due and deliberate consideration.

Fortunately, the Town Council was unwilling to have:

"....another building of a melancholy character at another entrance to the city."²

with the result that a new site, below Briar Chyll, property of Joseph Henderson, was approved. It was selected by Dr. Sutherland and Councillor Sam Williams, and conformed closely to the suggestions of the Lunacy Commissioners in London, who had advised that asylums, should be:

"elevated above the surrounding country not overlooked or intersected by public roads."³

The new mental hospital was ultimately to include farm buildings, stables, workshops, and an infirmary.⁴

Lot 205 of Town Lands was granted to the Government in 1877.

A Deed of Transfer, dated 19th November, 1873 transferred 50 acres of land, Lot No. 205, to the Government solely for the purpose of building an asylum. The document was signed by the Mayor, Peter Davis Esq., on behalf of

1. "Natal Witness" 14 April 1873.
2. "Natal Witness", 15 May 1873.
3. Hattersley, A. F. op. cit, p. 126.
4. Natal Blue Books, 1873.

the Lieutenant Governor and by David Erskine, the Colonial Secretary of Natal:

"....the original grant is subject to the following conditions, namely, that all roads thoroughfarers authorized by the Corporation running over the Land, shall remain free and uninterrupted, subject to the provisions of the above-mentioned Municipal Corporations Law 1872 and to all such regulations as are either already, or shall in future be established with regards to such Lands."¹

THE ARCHITECT

Some time after August 1876, Albert Henry Hime, the Colonial Engineer,² submitted three designs for a possible lunatic asylum housing one hundred patients. Plan one could be erected at a cost of £20 000, while plans two and three would cost £15 000 each to build.³

On 23 May 1877 a letter "by command of Governor in Council" directed the Colonial Engineer to alter the Lunatic Asylum plans as far as possible to meet the Governor's wishes, to combine the ward with the cell system, and to make a more complete division between the parts allotted for males and

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1. Deed of Transfer of Lot 205 of Town Lands dated 19th November 1873.

T.H. Spence while re-surveying lot 205, proceeded to establish beacons as nearly in accordance with the official diagram as possible without disturbing the beacons which were already in existence. Of the eight beacons shown, he found five. It was impossible to retain the exact distances and he worked as closely as was possible, with a discrepancy result.

The Architect had to measure the distances between to place the building on the property.

2. Albert Henry Hime became the Colonial Engineer in 1875. He had previously had experience in Bermuda in the construction of bridges. He designed the Mounted Police Barracks in Alexandra Road, Pietermaritzburg (1886).
3. CSO 556 1755/1876, letters dated 11 and 18 July 1876.

females.¹ These plans were approved on the 2nd and 6th of June, but none of them was realized.

The Colonial Engineer's papers contain some information regarding the identity of the architect; he himself submitted the approved plans to the Governor, but the Clerk of Works, C.H. Jenkyn² made suggestions, provided rough sketches, and was, to a large extent, in charge of the designs.

It is significant that all three Government institutions - hospital, asylum, and gaols - were planned and erected concurrently and it is significant that all three were listed on Dudgeon's application for membership of the Royal Institute of British Architects. But the dates present a problem. Dudgeon's date is 1878 and he invariably stipulated the year of design; but in February 1878 it had already been recommended that tenders be called and it can be concluded that a design was ready.³

An original drawing, a number of sketches of site together with the proposed building, and some correspondence have recently been recovered, all of which bear the signature of Alfred Singleton. The "Natal Blue Book" of 1876 also attributes the design to him. He started work on the design in July 1876. Alfred Singleton occupied the post of Clerk of Works in the Colonial Engineer's Office, Pietermaritzburg. He was the author of the new Boy's Preparatory School and Girls Model School in Pietermaritzburg, and Courthouses in Estcourt (1887) and Dundee (1888).

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1. CSO 588 1270/1877. (Local History Museum, Durban)
 2. C.H. Jenkyn was the Clerk of Works in Durban. His largest designs were the new Customs House (1884) and a Water Police Station (both in Durban).
 3. Documents relating to the site : CE 1690/1877; correspondence in connection with the surveying dated March April to June 1877. (Local History Museum, Durban)

Brian Kearney mentions that Singleton was evidently very conversant with the colonial style for his design for the Colenso toll house (1879) could easily be mistaken for a house of the early "fifties".¹ The characteristic elements repeated in each of his designs were "dormer" ventilators, and tall roof gables.

In his letter to Captain Hime, dated 17 November 1877 the Colonial Engineer expressed his opinion in reference to the suggestions made by Mr. Sukyns concerning design:

"I am of opinion that it would not be advisable to make upper floor to the part A, B, but on the central block only - the centre foundations are put in for the centre block only to two stories.

I think, the Warden, Matron and Attendants' quarters, should be on the ground floor. I approve of passages dividing the single from the two-storeyed buildings as then might be unequal settlement if connected. A general Dining Hall would not answer within, it's requirement as the day rooms will be used for this purpose.

Very few of the patients can be intended to be together at any period of time - the upper floor of the two side Blocks could be used for quiet patients and the Centre Block for Hospital Nervosis, both combined if necessary in future."²

By January 1878, the design was completed.

Singleton reported:

"I measured the distance from the face of Building to the Boundary and find that it is 537 feet, so that if the Building requires 426 feet, then will be 111 feet to the rear.

Stone beacons were put at A and B by the Town Surveyor and then today he placed stones at C and D to keep the line until the ground is fenced."³

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1. Kearney B. op. cit, p. 56.
 2. Letter from Singleton to Hime - dated 17th November 1877. (N. Arch)
 3. Letter from Singleton to Hime - dated 23 January 1878. (N. Arch)

In his letter to the Colonial Engineer dated 16 February 1878 Singleton advised:

"It is convenient that Public Tender be called for this work in accordance with the drawings and descriptive specifications. As this work will last two or perhaps three years, I think this would be the best plan, so that the matter would be under the direction of Contractor until the trees, shrubs are out of danger. There is not soil enough for the trees in front of the building, so that holes will have to be made through the plot to bring more soil in front."¹

SITE WORKS

In February tenders were called for and in March 1878 the work on the site commenced under the supervision of Captain Hime, the Colonial Engineer, and Alfred Singleton, the author of the design.

In October 1878 it was reported that:

....the side wings would be ready for the floors by the end of November"²

£244..5..6 worth of bricks had been used between March 1877 and July 1878.³

In October 1878 the "Natal Witness" editor commented:

"....enough has been now completed to enable one to form an idea of its projected proportions... There is so much yet to undertake that a considerable time must elapse before the institution can be used for the purposes intended."⁴

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1. Letter from Singleton to Hime dated 16 February 1878. (N. Arch)
 2. Minute Singleton to Hime dated 11 October 1878. (N. Arch)
 3. CE 1237/78. (N. Arch)
 4. "Natal Witness", 2 October, 1878.

Work was obviously interrupted by the Zulu War for by August 1879 the lunatics were still in an ill-suited building at the bottom of Longmarket Street. Fifty were accommodated in premises which - incredibly - also served the Orange Free State and the Transvaal.

The Natal Blue Book of 1878 contains two reports on the Asylum, one of which was by Charles Wand, Acting District Surgeon:

"To enumerate all the disadvantages of the Asylum would be only wearisome and unnecessary, and by the time this Report is in your hands, the new Asylum will have been completed, sufficiently to accommodate the patients, and a new era in the history of insanity in the Colony inaugurated."¹

The Government applied for a servitude over the section of land, through which it was desired to lead water for the Asylum. This was not granted, but it was agreed to sell the land lying between the Asylum and

"...Henderson's property at a nominal price of £7..10 per acre"²

A cattle track through the land was retained. On the suggestion of Hime the land in question was bought at £180..11.³

Despite the influence of the Zulu War, the cost materially increasing owing to the scarcity of labour and the abnormally high price of materials, transport and food for the labourers, the portions of the Asylum intended for construction at the time were almost ready for occupation at the end of 1879.⁴

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1. Natal Blue Book, 1879.
 2. Letter from Town Clerk to Government, dated 9 November 1878. (N. Arch)
 3. Minute Hime to Colonial Secretary dated 11 November 1878 and 25 November 1878. (N. Arch)
 4. Blue Books, 15 January 1880.

The completed sections were large enough for seventy patients as well as for the keeper and his family and the necessary attendants.

The Asylum was to have provided accommodation for all the lunatics in the Colony, but in spite of its size were two wards allocated for the mentally ill at the Durban Hospital.

In January 1880 it was reported that:

"....the handsome erection on the Town Hill will soon be completed...."¹

and that it would be occupied about the middle of the month:

"The rooms are lofty, cheerful, and well ventilated. The classification of the lunatics has been carefully provided for in the design, and the situation of the building is all than could be desired."²

HIME DESIGN FOR THE ASYLUM (FIG. 103)

Plan No. 1 of the three submitted plans prepared by the Colonial Engineer, Captain Hime, in co-operation with Dr. Hyslop, - the Pietermaritzburg District Surgeon and future Superintendent of the Asylum, presented a major advance in hospital planning.

The plan conformed closely to the ideas of Florence Nightingale, considering the pavilion layout introduced and the advance of internal environmental control conditions.

The proposed double-pavilion layout consisted of a number of blocks, put in one line and divided one from the other by the passages.

1. "Natal Mercury", 15 January 1880.
2. Natal Blue Book, 1880.

This idea was borrowed from earlier European examples, such as that at the Royal Naval Hospital in Plymouth (Fig. 14), which presented similar design principles.

The Government Hospital in Durban being erected at that time also represented this system. (Fig. 90)

Dudgeon's design for the Durban Hospital and Hime's for the Pietermaritzburg Asylum were similar and very innovative in South African conditions.

In his design, Hime introduced sex segregation and the segregation of "quiet" and "nervous" diseases. All the wards were attached to the covered walkway which served as a circulation link in the complex.

The whole was laid on the H-shaped plan, with additional projections, flanking the entire front of the building.

Side wings consisted of the wards, the left being planned for females, the right for males, and the central part was for Administration offices. The services were put on the central line of the back yard in a convenient distance to the main block - another advantage of the design.

The introduction of external passages at right angles dividing the wards and linking all the parts together was an interesting feature of this design. By means of the arrangement of corridors, verandas, and closed passages, Hime succeeded in achieving easy egress and ingress where needed, isolation of areas where required, and the necessary ventilation.

The building was double-storeyed, except for the flanking corners of the facade; these contained Female and Male Infirmeries and Matron's accommodation.

A garden was supposed to be established to keep the female patients occupied with useful activities.

The design was modern and fulfilled the latest requirements of hospital planning providing adequate space for patients and for services.

Big, lofty wards would be well cross-ventilated and lit, and the services of a high standard. All this presented the correct designer's approach to the problem.

The design was approved but there is no explanation in existing documents as to why it was not realized.

SINGLETON DESIGN FOR ASYLUM (ORIGINAL), 1878 (FIG. 104 - 107),
(PHOT. 52)

The final design, drawn by Alfred Singleton differed from the plan submitted by Hime.

It consisted of two separate parts. The main block containing the accommodation for patients was laid on the U-shape. The Service Block, rectangular in plan, was placed at the rear of the main block, almost enclosing the yard into a quadrangle.

The distance from the facade wall of the main building to the back wall of the Service Block was 426 feet. The whole complex was to be one-storeyed, except for the central part and side corners flanking the facade of the main building.

Females were to occupy the left side, males the right one. Singleton proposed additional segregation, by means of separating quiet and nervous patients.

The spacious, well ventilated wards for "quiet patients" were placed on either side of the central hall. Acute cases were in the side wings and special wards for "nervosis" patients were provided at both ends. These were separated from the rest of the building by strong doors.

The upper floors of the wings contained the Matron's accommodation above the female side, and attendants' accommodation above the male side.

The back building comprized kitchen, dining room, and two store rooms.

The site of the building was of great concern to Singleton. He must have considered it important to raise it on a terrace to overlook the surrounding landscape. The whole complex was to be put in an organized garden and park. (Fig. 102)

Small gardens arranged outside the side wings were to be established for the use of the patients. A beautiful in layout, the frontal square garden, placed on the slope of the hill, was to consist of a "flower" garden in the upper part and lawn in the lower part. The fountain, which was to be a focal point, was placed in the centre. The system of organized paths was to connect all the parts and serve as the patients' recreational space. Singleton designed the whole establishment in a Renaissance style with a touch of Palladian purity.

REALIZED PLAN, (1880) (FIG. 106)

When the Asylum was partially completed in 1880, its design departed from Singleton's proposal. Only the U-shaped building was erected.

The design was altered during the course of construction and the reason for this, was Singleton's decision to change the position of a Service block.

This change seemed to be very wise, as on the original plans, the services were placed inconveniently, at a great distance from the wards. In a new proposal a new kitchen block was to be directly connected with the main block and on the prolongation of the entrance passage. The Lavatory Blocks were to be placed symmetrically on either side of the kitchen block and were to be connected with the wards by the covered links.

The kitchen, dining hall, and lavatories had to wait for construction, as the funds were not immediately available.

The building operations commenced in April 1877 and by the end of 1878, cost £1 482..0.11, and by the end of 1879, £16 979.18.5., while the estimated expenditure was £20 000.

EXTERIOR (FIG. 102)
(PHOT. 52)

The completed building had an elegant appearance due to its dominant position on Town Hill and its classical proportions.

It was built in the neo-Renaissance style and the purity of its design resulted in a "palace-like" Palladian outlook. The symmetry of the layout was echoed in the elevations. Horizontality of a long facade, emphasized by the roof line, was equalled by the use of vertical articulation created by a row of arched windows and projections at two flanking ends. The windows on the facade, of the double sliding sash type, opened onto a view of the eastern side of the City of Pietermaritzburg in the valley below.

The main entrance took the form of an arched, 4-panelled door, access to which was gained through the flight of steps built into the bank of the hill.

This brick structure, plastered and white painted externally was topped by a pitch roof of wooden construction covered with tiles. The long line of the roof was broken by the introduction of four gables, the feature characteristic of Singleton's previous designs, containing timber louvre panels which served the purpose of loft ventilation. A brick chimney with a long shaft topped with concrete in the form of a decorative stack was put on the roof on each side of the main entrance.

The side wing roofs were articulated in the same way. Singleton once again used dormer ventilators in this design.

The service building proposed by Singleton in his original drawings was to have an appearance similar to the main block. The pitch roof, door and window openings were to be of the same character as those in the main building.

The major difference between the two structures was that there was a veranda on the facade of the service block.

INTERIOR

Internally, the walls were finished with plaster and paint, and the wooden floors raised by 4 inches above the ground level to improve ventilation. The 3-flight concrete staircases in the central and side towers had timber balustrades. All the internal wall mouldings were done in plaster, except for pitch pine skirting in the central hall.

ALTERATIONS AND ADDITIONS, 1884-1888

Sundry alterations and additions were put in hand in 1884 at a cost of £500.¹

The laying on of water was completed in 1885, but, owing principally to the large consumption of water in the City and suburbs during certain hours of the day, the supply was not always satisfactory.²

A house for the keeper was built in 1886. The work on site commenced in February 1886, and was completed in November 1886. The estimated expenditure was £750, and the real cost £687..5..9.³

ERECTION OF LAVATORIES, 1889

When it came to his attention that the lavatories, kitchen, dining room, and storerooms were omitted from the construction of the main building,

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1. Report Colonial Engineer 1884. (N. Arch)
 2. Report Colonial Engineer, February, 1885. (N. Arch)
 3. In 1888, D. Ritchie, the Storekeeper of the Colonial yard, suggested that a wire fence be erected on the boundary around the asylum grounds. He found, that heavy rains had nearly destroyed the whole of the soil bank which, in his opinion, it would be useless to try to mend as the ground was so brittle that it would not hold together to form a fence. Cattle were getting into the grounds everywhere, except where a barbed wire fence had been erected. He recommended that the whole grounds be protected with such a fence at a cost of about £38..18.

Dr. Hyslop, the Medical Superintendent, agreed to supply the labour. The Colonial Engineer, Hime, authorized £50 towards the erection of the fence and the work was put in hand. (Minute Colonial Engineer 417/88; Letter Hime to Ritchie, 17 February 1888; Letter Hyslop to Hime, 15 February 1888).

Dr. Hyslop submitted his objections and urged that at least the lavatories be included, saying:

"I understand that the tenders for the erection of buildings at the Asylum, which are at present being called for, the lavatories, dining room, store rooms, all shown on the plan, have been omitted.

Such rooms, I may be allowed to point out are absolutely essential for the proper working of any Asylum, and I would strongly urge upon the Government the desirability of having at least the Lavatories erected by the Main Building, of which they form an indispensable part.

I presume it is intended to proceed with the dining room and other accessory accommodation shown on the plan, as soon as funds are available."¹

The Colonial Engineer expressed the following opinion in a letter to the Colonial Secretary:

"I am of opinion that upon the trend of economy and advisability - the lavatories and two attendants rooms ought to be proceeded with, for which tenders are now being received; with your sanction I can obtain tenders for the lavatories along with the tenders called for. The dining room, may I think, stand behind the main Block if completed."²

The design for all these additions was done and submitted to the Colonial Engineer by the Colonial Architect, C. Bompas, on 30 May 1889.³

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1. Letter from Hyslop to Colonial Secretary, dated 27 May 1889. (N. Arch)
 2. Letter from Colonial Engineer to Colonial Secretary, dated 28 May 1889. (N. Arch)
 3. Bompas, C. was the first architect in the Colonial Engineer's office, since 1888.

The design of the Kitchen Block, Dining Room, Store Rooms and Lavatories belong to the first group of projects done by him.

The cost of the following was:¹

"The Kitchen and Storeroom at the back	-	£1212 - 2
Chapel	-	£2884 - 1
Two attendants rooms in the end blocks	-	£ 153 - 3
Lavatories at centres of front Block	-	£ <u>639</u> - 9
		£4888

Open tenders were called for on 28 May 1889.

By June 1889, four tenders were received from:

Mr. Bullen	-	for £15,531
Mr. Rousell	-	for £19,850 - for the first work only
Mr. Y. Hardey	-	for £17,650
Mr. Thos Drew	-	for £19,397 ²

Mr. Bullen's tender of £15,531 was successful.³

A large block was commenced in September 1889 and completed in August 1881.⁴ (Fig. 106)

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1. Estimate prepared by C. Bompas (Natal Archives).
 2. CE 1690/1889. (N. Arch)
 3. Minute Colonial Engineer 1458/89. (N. Arch)
 4. Blue Book, 1889.

ALTERATIONS AND ADDITIONS, 1889-1896

In his report, the official visitor to the Asylum, Surgeon J. Robinson drew attention to the necessity for hospital accommodation within the asylum:

"The necessity for Hospital accommodation for the inmates is apparent in this direction. The well being of the lunatics - among whom there are always some sick - seems to require immediate attention."¹

The Colonial Engineer, Barnes pointed out in his letter to the Colonial Secretary:

"Dr. Hyslop states: that he will endeavour to do without the hospital for the present but is most anxious that one set of isolated strong rooms be erected. Its cost would at £500.

It is no doubt, that the hospital shown on the general plan is much required, but Dr. Hyslop proposed not to include it in the present contract. There is, however, the most urgent need of two strong rooms, isolated, as shown, but not included in the present contract.

At present, noisy patients are heard around the whole building, disturbing the rest of the Asylum at night, and likely to produce very dangerous excitements inside for other patients. Dr. Hyslop has several times mentioned to me the required necessity for those isolated rooms, and asked me how to represent it."²

Tenders were called for, and the tender of Mr. Bullen was successful.

The same Contractor now proceeded with all the building operations carried out, on the site.

Work on the isolated rooms was commenced in January and completed in November 1891 at a cost of £600.3

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1. Letter from Robinson to Colonial Secretary, dated 11 July 1889. (N. Arch)
 2. Letter from Colonial Engineer to Colonial Secretary, dated 12 August 1889. (N. Arch)
 3. Natal Blue Book 1891.

REPAIRS, 1890-1896

In 1890, the roofs of the side wings were retiled and repaired and the pitch of the roof of the Medical Superintendent's house heightened at a cost of £910.¹

In 1892-3 defective floors all through the building were renewed.

During the following two years, 1894-96, an external veranda on the north wing and two on the south wing were constructed. The wooden columns with ornamental brackets and railings between them supported the tiled veranda roof.²

1. When Bullen started laying down water pipes in order to draw a water supply from the main pipe, Dr. Hyslop was concerned. When enquiries were made, Bullen stated that he did not expect to pay for the water for the following reasons:

"Before signing the Contract I made enquiries from Mr. Bompas if the water was laid on and was informed it was, but no mention was made about my paying for same. Had I any idea that I should be required to pay for water, I should have allowed for same in my tender, which I did not do. If the Government still think I ought to pay for water used, I may state as a precedence that I paid the Corporation £3 per annum for water on the Legislative Council Building, but the price charged in England by a Local Water Company is about 6d. per Rod on the Brickwork."

After much deliberation it was decided to charge £6 to be taken off one of the vouchers. (Letter Bullen to Colonial Engineer, 12 November 1891.)

2. Bullen was not satisfied with the bill of extras. He took up issue on the following items: (Letter Bullen to Colonial Engineer, 12 December 1891):

"He charged the sum of £5..10. for casting 11 concrete chimney heads but was only allowed £2..10. They were specified to be built in brick. These were not available from the Government Brickyard and he was ordered to cast them in concrete and plaster them with cement.

- Raising foundations 14" higher than shown on the plans had been omitted.

- taking down door jambs and rebuilding with splayed bricks had been omitted. (Minute Colonial Engineer 265/93, Letter Bullen to Government, 18 May 1892).

The floors of the strong rooms were replaced with timber. The wards in the central wing were replastered with cement and the roofs generally overhauled. This was done at a total cost of £465..13..2.

cont.

The Assistant Colonial Engineer insisted that these claims had been carefully gone into and the Colonial Engineer declined to alter the decisions then arrived at (Letter Bullen to Government, 18 May 1892).

Bullen refused to accept that the items discussed at the meeting mentioned were settled (Minute Colonial Engineer 265/93. Letter dated 23 May 1892). He added, that they had also discussed this issue subsequent to the meeting mentioned. He heard nothing about the matter until he received the list of items to be charged. Finally, he suggested that the matter be referred to arbitration, with both an independent arbitrator each and one umpire and that they bind themselves to accept the award. The Government was not prepared to entertain this thought (Letter Hime to Bullen, dated 28 May 1892), and Bullen then instructed solicitors Bale and Green to apply for payment of £505..8. on his behalf (Letter Bale and Green to Colonial Engineer, 8 June 1892). Failing payment they were to take proceedings against the Government. Hime stated that £150 of this could be paid at any time provided Bullen gave them a receipt. The £328..10. for raising the foundations among other things, could not be paid for the following reasons:

Bullen never obtained nor applied for authority to execute such foundation work as that to which he refers. According to the Conditions of Contract, the Colonial Engineer was empowered to make any deviations from the Contract, but they must be ordered in writing by him or his authorised deputy. The decision of the Colonial Engineer as to the price to be allowed for additions or omissions was final (CE 265/93).

Bullen never did execute one cubic yard of such foundation work extra to his contract. Other extra foundations were dealt with as they came along.

Subsequent to the interview of 1 June, Bullen demonstrated to the Assistant Colonial Engineer through his books and other documents that when tendering for the contract, he had allowed too small a sum for foundation work. It was pointed out to him that such an omission could not be claimed on.

Hime thought these claims had been settled at the earlier date as Bullen did not bring it up then, and it was nearly three years since the foundation work in question was commenced. He found it strange, that Bullen had not pressed the claim earlier (Ce 265/93, Minute to Accountant, 5 May 1892).

THE LAUNDRY PROPOSAL, (1896) (FIG. 283-4 Chapter
"Services")

In 1896, Dr. Hyslop complained about the shortage of space at the Asylum and stated that the erection of a laundry was essential.¹ When this was referred to the Minister of Lands and Works, he requested the Colonial Secretary's opinion on the matter in view of the fact that the Government had already spent a considerable sum of money on the Asylum.²

The Colonial Secretary, Bird, was in no doubt that further accommodation and improvements to existing services were necessary, but suggested a personal inspection of the premises so that a fairer opinion could be formed.³

Having inspected the building, the Minister agreed that action should be taken.

Hyslop submitted the plan of the existing Wash House at Fort England Asylum, to the Colonial Engineer (Fig. 281-2, Chapter "Services") but it was rejected as the cost of £3 500 was far greater than the above estimate of £2,800.

The £25 claimed for asbestos paint was not admitted as no direct orders had been given for this, but as there was no doubt that the use of the paint was suggested by E. Dainton, the P.W.D. Architect, and that its use involved the Contractor in some extra expenditure, he was prepared to allow a sum of £15 which was not to be regarded as a "special concession" (Letter CE 265/93. Minute to Colonial Engineer 13 April 1892).

The solicitors said they would receive the payment of £176..18. but contended that the claim should be referred to architects for final approval and settlement (CE 265/93 . Letter to Government 24 June 1892). Hime would pay the £150 but not the balance as this was owing to Messrs Dunn and Co. (CE 265/93 Letter to Bale and Green, 27 June 1892). The Government was not prepared to enter arbitration and the payment was accepted "...with prejudice to the balance..." of the claim (CE 265/93. Letter Bale and Green to Hime, 28 June 1892).

1. P.H.D. 586/98 Minute to Colonial Engineer, 8 December 1890. (N. Arch)
2. P.W.D. 586/98 Minute, 10 December 1896. (N. Arch)
3. P.W.D. 586/98 Minute to Minister : Lands and Works, 12 December 1896. (N. Arch)

The Colonial Engineer, Barnes authorized a modified plan for £1 750 and tenders were called for. The plan on the H-shaped layout consisted of the following rooms: an Ironing Room, a Distribution Room, and a Washing Room. The block of lavatories was to be attached to the building. The Foul Linen Tank was to be provided externally.

Tenders for erection of this building were received on 20 December 1897,¹ but the Contractor did not commence the work on site. (See Appendix B).

ADDITIONS 1897 - NEW KITCHEN AND DINING ROOMS (FIG. 265 -
Chapter "Services")
(FIG. 108, 109)
(PHOT. 53)

In 1897, Dr. Hyslop complained about the insufficiency of the Contractor.² No work had been started on the additions (laundry), but the estimate of £3 500 was allocated for the following year.

In March 1898 Dr. Hyslop submitted a rough sketch showing what he thought would be the most suitable arrangement.³

Various plans had previously been submitted for Dr. Hyslop's approval, but none of them had a suitable design.

The proposal drawn up by Dr. Hyslop was later transformed into working drawings with only small changes by C. Bompas, the Colonial Architect, with only small changes. (See Appendix "C" - Present plans)

1. P.W.D. 586/98. Minute from Minister Lands and Works, 23 December 1897. (N. Arch)
2. P.W.D. 3860/97. Letter to Colonial Engineer, 29 September 1897. (N. Arch)
3. P.W.D. 586/98. Minute to Colonial Engineer, 16 February 1898. (N. Arch)

As far as the General Dining Room was concerned, the major alteration he suggested was the placing of the building parallel to the main block instead of at right angles to it which would allow for a better grouping of the accessory buildings. The details of the storeroom and mortuary he promised to forward later.

His sketch was of the additional wing of the building placed as a continuation of the existing kitchen block in the back yard of the Asylum.

In the place of the existing kitchen block, he proposed to put a Dining Room for Private Patients.

This rough sketch was the base for future design. Bompas did not change it much altering only the back kitchen block, and both dining halls were erected as planned by Dr. Hyslop. The greatest emphasis in this design was on the finish of the double-storeyed Dining and Recreation Block.

Planned to be built of brick, it had a hammer beam construction roof covered with tiles. Internally the plaster ceiling with cornice mouldings was supported by two Tuscan columns and 4 half-columns, dividing the proscenium from the rest of the room. Two flights of side steps led to it, and the whole was enclosed by a cement balustrade with decorative balusters, plinth and coping lines. A fourteen inch risen floor was surrounded by pitch pine skirting

Double sliding sash windows of wooden frames had casement fanlights above them. Four panelled doors together with the proscenium created an interesting, colourful composition.

The entrance to the recreation room led through a wide folding door from which the exits to external staircases were placed. The general Dining Room,

placed on the ground floor, had its walls covered with wooden boarding below the cell level. Three big sash sliding windows on the northern and southern sides adequately cross-ventilated this space. The cornice, below the ceiling was beautifully profiled in plaster. The private patients dining room had finishes similar to the above with Tuscan columns supporting the plastered ceiling. The double storeyed section was connected to the existing main building by a covered link. As the height of the new part was about one-third of the floor height greater than the height of the floor in the existing building, the passage linking the two parts had to be solved as the three-storeyed one, to create a convenient approach to the Recreation and Dining Rooms from both floors of the existing building.

From the other side, the new Dining Halls were attached to the kitchen block with a passage inbetween.

Replacing the old kitchen by a spacious Dining Hall block vastly improved the whole complex functionally, as the patients now had convenient access to it.

The new additions to the Asylum were very innovative architecturally. The roofs over the kitchen and stores were of polygonal shape with picturesque roof ventilators on the rectangular plan with four louvre side panels. (See Appendix "C" - present plans).

The ventilators were covered by tiled roofs finished with ornamental iron finials. The eaves of the roof were supported by timber cut brackets put on the projecting brickwork. Six-panelled external doors fluted by plaster architraves and rectangular big sash type windows with decorative architrave and cut mouldings articulated all the elevations. This type of king-post polygonal roof construction was later repeated in the central part and side ends of the main block.

ALTERATIONS TO THE MAIN BUILDING, 1900 (FIG. 110),
(PHOT. 54-56)

The new works included alterations to the roofs over the old Asylum Block.

The double-storeyed parts of the old building received new shapes, with polygonal tiled roofs, repeating those of the newly erected kitchen block.

The eaves were supported by wooden cut brackets, an interesting feature of the elevations. (See Appendix "C" - present plans)

Different in shape roof ventilators and lanterns now topped the new roofs. Over the central part a big lantern laid on a square base was fitted. It consisted of three arcades on each side, supported by small delicate Tuscan columns.

The whole feature was topped by an ornamental cast-iron finial. Similar roofs with big louvre ventilators were put on the tops of the side ends. They had the same finishes as the central lantern.

Gabled roofs were provided over the side entrances and their barge boards were enriched by the introduction of ornamental carpenter's laces and apex finials.

Arched louvre ventilators were installed in the gable walls above the entrances. The roofs over the single-storeyed parts remained unchanged. Long shaft brick chimneys projected high above the ridge line and had ornamental concrete stack finishes. The interesting new roofs enriched the external appearance of the old block.

INDIAN QUARTERS

On 15 April 1899, Dr. Hyslop complained about the shortage of accommodation in the Asylum in a letter to the Colonial Secretary.

This time he requested further temporary accommodation. The Native and Indian Female Quarters were overcrowded to such an extent as to constitute a very serious danger. He suggested that six temporary single rooms be erected pending the provision of future permanent accommodation:

"The rooms may be constructed of wood and iron and may be put up in the most inexpensive manner as possible - I think rooms 10' x 9' would suffice, two to be lined with 1" wood, the remainder with $\frac{1}{2}$ " material".¹

The work done by Mr. Hardy was completed the same year at a cost of £96.

These temporary Quarters erected as wood and iron structures in 1899 proved inadequate and the need for proper accommodation for Indian patients was constantly growing. The completed drawings were submitted for final approval to Dr. Hyslop on 13 May 1902 and returned to Dainton, the P.W.D. Architect on 16 May 1902 with various notes.

DAINTON A.E. - THE ARCHITECT

In 1888-92, Dainton, A.E. N.I.A., attended classes at the Science and Art Department in South Kensington. He left for South Africa in 1893 and was temporarily employed under Mr. Parker of Cape Town, and then under William Leck of Johannesburg.

1. P.W.D. 2133/99. Minute Hyslop to Chief Engineer P.W.D. (N. Arch)

After leaving Leck he settled in Pietermaritzburg and in 1897 was appointed assistant draughtsman P.W.D.¹

In 1899 Dainton was engaged as Clerk of Works on the new Legislative Council Buildings. In 1901, he was promoted to the post of Architect, P.W.D., which he held until 1908, when the department was abolished because of the depression.²

His works include: the new Legislative Council Buildings, Pietermaritzburg (1898-1902); King's House, Durban (1901-9); additions to Government House, Pietermaritzburg (1901); the Museum, Loop Street, Pietermaritzburg (1902-3); Longmarket Street Girls' School, Pietermaritzburg (1905),³ Indian Quarters for Natal Government Asylum (1902); Alterations to the main Natal Government Asylum building (1902-3); a Home for Private Patients of the Natal Government Asylum (1907-9).

INDIAN QUARTERS - PLAN (FIG. 111)

The design consisted of a number of blocks, attached to one another, consisting of dormitories and small bedrooms.

An interesting feature of this design was the use of the natural slope, with the result that all the blocks faced north having a continuous veranda on that side the entire length of the building. The abolition blocks were attached to the southern side, all being well cross-ventilated.

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1. P.W.D. 3886/01. (N. Arch)
 2. "S.A. Master Builders Federation Journal" February 1908.
 3. Hillebrand, M. "Aspects of Architecture in Natal", 1975.

The attendants' block was placed in front of the Native and Indian Dormitories. A large Dining Hall separated the Male and Female sections of the establishment. All wards were lofty and well ventilated, mostly from three sides. The quarters were built a good distance away from the main Asylum, and at first food was served by the main hospital and carried to these quarters by Attendants.

This building was to be placed in close proximity to the Town Bush Road.

This type of design solution was suggested by Dr. Hyslop.

EXTERIOR (FIG. 112-13)

The structure was built of bricks and covered by tiled roofs. The veranda, which was attached to the building on the northern side, was of wooden construction with round poles on cement bases decorated by ornamental wooden brackets.

The entrances to the blocks were all from the veranda and were marked by gables erected in the veranda roofs.

The front block, containing the attendants' rooms was designed as a double-storeyed structure with a veranda surrounding it on the ground floor only.

This building was planned as a self-sufficient structure, containing the attendants' rooms, kitchen, lavatories. It had its entrance on the medial axis of the symmetrical building. The entrance was continued into the central passage, terminating with an exit on the opposite side of the building. The Dining Hall erected for the Quarters was connected to the back of the building by a covered walkway.

The spacious Dining Hall had an interesting hammer beam roof construction and wooden finishes on the walls and floor.

All the dormitories had wooden block floors, and all the walls were plastered and painted white. The floors in the bathrooms were tiled and the bath was fitted below floor level with a cement finish.

The windows all round the complex had an arched finish with additional arched plaster achitraves and double sliding sash windows, and all the entrance doors to the dormitory's blocks were four-panelled timber ones. The entrance door to the attendant's house was six-panelled with a cement arch finish. The wooden roof was well ventilated everywhere by double timber louvres fitted into gable walls.

The whole design was practical, functional, and architecturally interesting.

The garden was to be established on the slope of the hill in front of the building.

THE SITE WORKS

When the drawings were completed on 18 August 1902, tenders were called for for these new additions. The notice of acceptance of tender was signed on 6 October 1902, with the time allowed for the completion of the works at 8 months:

"the expiration of which period therefore, falls on the 6th of June, 1903."¹

The successful tender of £9 785 was that of Messrs Jesse Smith & Sons. The contract was signed on 12 of November 1902, and work on the site commenced

1. Natal Blue Book, 1902.

on the same day. Due to various changes to the original plans, the contractors claimed an extension of time of 45 weeks and extra costs amounting to £635..9..8.¹

In 1903 the architect reported that the work was progressing favourably with the covered in roof.²

In August 1903, the architect on behalf of the contractors asked Dr. Hyslop for his opinion on the following:

1. what kind of kitchen equipment was required;
2. what forms and tables were needed in the Dining Room;
3. what showers were needed in the bathroom for women;
4. whether any special form of ventilation to rooms and corridors other than ordinary, was needed;
5. whether shutters were required for the windows and doors, and if so, what kind.³

In reply, Dr. Hyslop put the greatest stress on the roof ventilators, for which he submitted a sketch plan. The Minister of Land and Works refused to authorize the extra amount of £19..2. for the additional ventilators asked for, and the design originally containing four ventilators remained unchanged.

1. "The Contractors maintained that on account for the reversing of the building, for which they did not receive the revised plans until the 29th December 1902, that they had a right to claim an extension of contract time of about eleven weeks. That having to obtain water from the source of supply to the Asylum, they claimed an extension of six weeks. Having to wait for a decision as regards extra vents, they claimed 4 weeks, and seeing that the buildings could not be utilised until the drainage works had been completed, for reasons set forth above, they claimed 24 weeks. The total of these claims amounted to 45 weeks. The contract time was exceeded by 44 weeks. This did not take into account the extension of time of 13 weeks granted to them for the extras amounting to £635..9..6."
(P.W.D. Letter Clerk of Works to Chief Engineer, dated 12 February 1903).
2. Natal Blue Book 11, 1903.
3. P.W.D. Minute Dainton to Hyslop, 7 August 1903. (N. Arch)

In April 1904, the work on site was practically completed subject to some items requiring attendance including:

Lead flashing over roof; Flashing at the ends of barge boards adjoining the veranda roofs; leaks to veranda roof; defective drainage, defective doors in Block 7."¹

EXTENSIONS TO INDIAN QUARTERS

In the meantime, Dainton prepared a design for extensions to the Indian and Native Quarters, which featured another 4 blocks, two male and two female, as a continuation of the row of newly built blocks. The new ones had exactly the same layouts as the existing one, and increased the accommodation for patients by forty. The contract was carried out by the same contractor, Messrs. Jesse Smith & Son, and the buildings were completed by the end of 1905. The summarized cost of the original Quarters and later additions was £12 450.

ALTERATIONS TO THE MAIN BUILDING, 1902-3

The same Contractor, Messrs. Jesse Smith & Son, submitted his tender of £2 169 for "Natal Government Asylum Veranda Contract", and was successful.

This contract included the erection of a Veranda and Porch.

"in connection with the North Wing of the Main Buildings."²

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1. P.W.D. Minute Dainton to Hyslop, 7 August 1903. (N. Arch)
 2. Natal Blue Book, 1903.

The tender was accepted on 18 December 1902, the work was commenced on 6 January 1903, and was completed with the exception of the tiling of floors by 17 February 1903. These tiles were not received until the beginning of October, and the laying of these was completed by the 14th of the same month.

The Contractor claimed an extra amount of £122..6. for additional drainage, which had not been specified on the drawings.¹

HOME FOR PRIVATE PATIENTS

BACKGROUND

When the Indian Quarters were erected, the Black and Indian patients were moved out of the main building which remained the accommodation for White patients.

Soon the Old Asylum became inadequate for all classes of patients. The need for the separation of poor patients who could not afford better accommodation, and rich patients, who were prepared to pay more and required private wards, was evident.

There was no possibility of extending the old building further, so the decision to erect a "Home for Private Patients" was taken in June 1907.

The task of preparing the design was given to E. Dainton, Chief Architect of the P.W.D.

In March 1909, the completed plans were submitted to Dr. Hyslop for approval, and were accepted.²

1. Letter from Jessy Smith & Son to Dainton, 24 June 1903. (N. Arch)

2. Letter from Hyslop to Chief Engineer P.W.D., 17 March 1910. (N. Arch)

PLAN (FIG. 114, 115)

The new building was designed to accommodate fifty-two patients in twenty-six wards which were housed on the two floors of this double-storeyed structure.

The general layout was on the rectangular plan with two open internal patios. The additional block was placed in the centre, dividing the establishment into two equal parts. Females were to occupy the left side, males the right one. Each part had its own internal court, with wards and service rooms attached on each side.

The idea was probably borrowed from the European Renaissance hospitals e.g. Ospedale Maggiore in Milano, where the wards were arranged around the courts. (Fig. 17)

Two single-storeyed wings, pavilions, placed on either side of the main block, flanked the whole structure. They provided the space for hospital wards - the facilities required by Dr. Hyslop since the opening of the Asylum.

Symmetrical in its layout, the building had a central entrance - porch, into which access was gained by a half circular flight of steps. From the entrance lobby, the door on either side led into a spacious dining hall, for common use by men and women. From there, two doors opened to a wide loggia on the eastern, frontal part of the building. From the dining hall, entrances were created into the corridors leading to patients' rooms. The wards were placed on the eastern side all having a view over the city and exits onto the loggia.

The central dining hall continued into a block containing the service rooms: kitchen and stores.

The rear sides of the quadrangles housed the attendants' dining hall and the internal side was surrounded by a veranda.

The communication system in this building was a very good one. The wards could be approached from the internal passage, and the system of verandas and corridors allowed for easy and convenient access to all parts of the establishment.

The rooms were ventilated by big windows and French doors with fanlights above them.

Functionally, the structure was well designed. The centrally placed kitchen block and dining hall served both the male and female patients and assured convenient access. In addition the "living area" in the building was of adequate size, providing patients with private and common spaces.

The upper storey was built only above the part occupied by patients and consisted of facilities similar to those on the ground floor.

EXTERIOR (FIG. 116-120), (PHOT. 57-59)

Externally, the building represented a mixture of styles.

In the main block, the classical components were composed together with Victorian elements, while the single-storeyed side wings were finished in late Victorian Style.

The whole structure was built of bricks, but only the parts which bore the classical influence were plastered. This gave an impression of the architect's intention to underline their importance.

The central entrance on the facade had a Classical appearance with a touch of Baroque overdecoration.

A pair of Pseudo-Ionic columns flanked the arched entrance door placed in a niche and these supported the curved tympanon above.

On the ground floor the arched windows terminated the facade of the central block, while above the circular ones were fitted into rectangular decorative timber panels.

The hipped roof above this block was the highest, and in addition, a big, decorative roof lantern was put on the axial line, marking the importance of the symmetry of the structure.

The loggias on either side of the centre were erected in the form of arcades with stilted arches supported by Doric pilasters and with an elegant, white plastered balustrade inbetween.

But above it, the Victorian double sliding sash windows were fitted with a balustrade of a different character to that of the ground floor.

The entrances to the loggias and the side blocks were marked by the gables in the roof decorated by "Bull's eye" circular windows with decorative mouldings around, the whole being plastered and painted white.

The central part dominated the wings with its size, composition of forms, materials, and colours. The big roof lantern in the centre of the establishment multiplied this effect. It was composed together with high shaft brick chimneys topped with decorative concrete stacks. A double-pitched roof was flanked by chimney shafts carrying flues from the fireplaces in the sitting rooms.

The verticality of the elements on the facade was compensated for by the use of horizontal plaster cornices around the building, and the coping and plinth lines of elegant balustrades.

Hillebrand says that:

"...on account of its mixed style it stands in a stange stylistic isolation."¹

The building was completed in 1914 at a cost of £20 000.

(See Appendix "C" - Present plans)

THE STAFF

Dr. James Hyslop was the first full-time Resident Surgeon and Medical Superintendent of the Asylum since 1882, with a salary of £500 a year.

He brought into practice ideas then little recognised, which required pleasant surroundings for the treatment of the mentally ill, and he worked with untiring energy and unflinching tact to obtain the best possible conditions for his patients.

"The beautification of Town Hill Hospital was his life's hobby - he was two-thirds gardener and one-third physician."²

Dr. Hyslop also worked towards updating the Natal Lunacy Code which had been changed by an Act of 1891, and which contained clauses permitting the detention of the "dangerously insane", and recognized the need for "mental observation" in certain cases. This Law was eight years in advance of that of the Cape Colony which was then regarded as being the most advanced in mental care matters.

In addition to the Nursing and Medical Staff, there was a Farm Manager who supervised the hospital's growing agricultural activities, the hospital became almost self-sufficient in terms of its needs for milk and vegetables,

1. "Natal Witness", 11 March 1972.

2. Ibid.

and the patients enjoyed helping out when necessary. During the 19th Century, Town Hill was faced with difficulties in obtaining qualified nursing staff. At first soldiers were employed as male attendants and Black Attendants were used to care for Black female patients. In 1882 The Keeper (Head Nurse) was Mr. T. Smithwich and the Matron was Miss. S. Williams. In 1889 it was decided to bring a Matron from England to take charge of the nursing services at the Asylum and Miss Steward joined the staff with five experienced nurses from England.

Dr. Hyslop became convinced that the only means of overcoming the staff shortage was to provide local training facilities and began to hold lectures for a few of his nurses and attendants in 1891. The Asylum remained not only a centre for the treatment of mentally ill patients for more than a century, but it also developed an excellent reputation as a training centre.

In 1889 concerts and dances were begun and in 1891 cricket was played.

In 1897, tennis, croquet and bowls were available.

The hospital was first called the Pietermaritzburg Lunatic Asylum, then in 1890 it was called the Natal Government Asylum; in 1916 it was the Pietermaritzburg Mental Hospital and in 1946 was renamed Town Hill Hospital. (See Appendix "C")

COMMENTS

From the beginning of its existence, the Natal Government Asylum was continually extended and altered (see Table 1 in Appendix "C"), as the need for more accommodation for patients and service spaces was of constant concern to its Medical Superintendent, Dr. Hyslop.

Three architects were involved in the design: A Singleton, A.E. Dainton, and C. Bompas, and these three contributed equally to the final appearance of the complex. In fact, Dr. Hyslop seems to be the main author of the Institution, as he himself produced various proposals of extensions and alterations, which were transformed later into working drawings and realized.

Together with the development of the space for inmates, the services went through different phases of evolution and improvements. The original, primitive services, grew into a fully adequate complex of well designed and modern equipped kitchen, laundry, lavatories etc. Very basic in their original form, in years they improved functionally and aesthetically.

In comparison with the Lunatic Asylums in other countries e.g. Australia (Benevolent Lunatic Asylum in Sydney built in about the same period of time), the Natal Government Asylum represented a major advance in hospital planning being built as a pavilion type structure considered to be the best by Victorian reformers in the following respects:

1. the wards - segregation of patients:
 - diseases segregation ("quiet" and "nervous" patients erection of Isolation rooms);
 - sex segregation;
 - age segregation (adult wards and childrens' wards);
 - race segregation (White, Black and Indian Quarters);
 - private and common wards.

2. adequate services - in convenient locales, with modern equipment:
 - kitchen complex with dining space;
 - laundry block (an example of a Laundry in Fort England Asylum was carefully studied, and the idea of the laundry in Pietermaritzburg was borrowed partially from this).

3. circulation system - connecting all the parts of the establishment (enclosed passages, verandas, covered walkways).
4. environmental control conditions:
 - ventilation (all wards were well cross-ventilated, and additional roof ventilators were provided in all buildings);
 - water supply (provided right from the beginning);
 - lighting (provision of roof lanterns).

There was a steady increase in the number of patients, when new buildings were added. Between 1885-1916 the number of patients rose steadily from 93 - 746. In 1898, there were eight children, accommodated in the special ward provided for them.

The Natal Government Asylum represents an example of an institution which developed from a single building erected in 1880 into a fully organized complex of buildings. Since 1915 it has remained almost unchanged. The buildings are well preserved and are still in operation today. (See set of drawings in Appendix "C").

IV. COTTAGE HOSPITALS

"With reference to the Book "Cottage Hospitals" by E. Burdett, referred to me I have had an opportunity of looking through it. The designs for Cottage hospitals therein contained, and as carried out in England, are altogether too expensive for adoption as Government hospitals here. Moreover it should be noted that all such buildings in England were erected chiefly by private enterprise, or Philanthropic Societies, and I think that the matter should be looked upon as a step in the right direction.

Heretofore there has been nothing of the sort, and rooms wherein to treat Europeans, Native and Indians.

Further, as requested, I beg to offer suggestions re: proposed hospital.

It would not do to erect rooms on either side of Entrance gate, as all authorities lay down "through ventilation" from side to side of the wards, as an absolute essential. For this reason a lean-to building would be unsuitable, and the open roof form is easily extended.

The walls are suggested to be in cement concrete, rendered with cement and cement floors. The ceiling follows the shape of roof, and the ties are iron, principal rafters and ceiling being of wood. It could be easily extended from the gable end if required.

Any suggested plan should make allowances for future additions if necessary."

C. Barnes, Chief Engineer
of the P.W.D.

In Natal, the only Government medical institutions erected in the rural areas were so called "cottage hospitals". They usually took the form of simple small structures, their size dependent on the accommodation required and the financial situation of the Natal Government.

They started to be popular in the 1890's when it became necessary to provide an organized medical system in small towns and villages. The Natal Government Health Department decided to allocate £500 for the erection of each of such institutions.

The Newcastle Cottage Hospital initiated the series of rural institutions. In 1889, the "Newcastle Advertiser" reported:

...it was resolved, that the time has arrived when the question of the establishment of a Hospital in Newcastle be urgently pressed upon the Government."¹

At one stage, it was proposed, that hospital accommodation be erected within or attached to the gaol.

The Council objected to:

"...the hospital being erected in the gaol."

but did not object:

"...if attached thereto."²

Fortunately these suggestions did not materialise as there were numerous objections from town citizens.

R. King, the District Engineer, P.W.D., visited Newcastle in July 1898 and chose a site four acres in extent:

"...above the town drain in Erskine Street and immediately opposite erf 21 Patterson Street."³

The model design was proposed by the Architect of P.W.D. in 1899. (Fig. 121), and his plan considered to be the most suitable one was repeated at about the same time in Dundee, Ixopo, Port Shepstone and Newcastle. The tenders for the Newcastle Hospital were received on 28 November, 1901, and Mr. Ross' tender of £926, for completion of the building was accepted.

Notes and references:

1. Baylis, B.C. "A History of Newcastle"; The Newcastle Advertiser (Pty) Ltd., 1951.
2. "Newcastle Advertiser", 20 February 1894.
3. "Newcastle Advertiser", 5 May 1898.

Approval of this tender was not without discussion as the amount of money required seemed to be too high:

"Contractors prices are so erratic, for instance the Dundee Hospital which has practically the same plan, as that for Newcastle contains 22010 cubic feet and cost £431.15.9., whilst the Newcastle plan contains 29075 cubic feet, but the tender for this work is £926, and please also note, that the Dundee Hospital included three latrines, which are not in the Newcastle Contract."¹

The Architect used a small existing cottage incorporating it into his design as a bar of the H-letter. The hospital was planned as a double pavilion structure, laid on an H-shaped layout, and one wing was simply added to the cottage on each side. (Fig. 124-5)

Dr. E. Carte, the District Surgeon of Richmond criticized the Newcastle Hospital layout in his letter to the Richmond Magistrate concerning the design for the Richmond Cottage Hospital:

...the Newcastle Natal Hospital seems a conveniently designed building, it however must have cost more than £500. I note also that there seems to be no provision for separation of the sexes, or for the staff. There is no mortuary, which is regarded as an "indispensable adjunct to an efficient and properly equipped cottage hospital". The whole question so bristles with difficulties that I am reluctant to pronounce myself satisfied with plans which are very incomplete for the intended purpose. It is utterly absurd to think that an efficient building, be it ever so small can be constructed for £500. Such being the case I must decline, though with regret to even attempt to suggest the adoption of a definite plan. The book on "Cottage Hospitals" is again offered to Government if they wish to consult it."²

Various "cheaper and more suitable" proposals were submitted to the P.W.D. for consideration. One of them was a rough sketch produced by Dr. Platt, the Ixopo District Surgeon. (Fig. 122)

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1. Letter from Chief Engineer, P.W.D. to The Colonial Secretary, dated 3 December 1901. (N. Arch)
 2. Letter from Dr. Carte to Richmond Magistrate. (N. Arch)

The plan was criticized by the P.W.D. Engineer, Barnes:

"In my opinion, plan unsuited for additions and will make a poor Hospital Building."¹

The design was rejected.

Dr. Carte was also consulted as to the proposed model design, and he replied:

"Government having asked my opinion as to the most suitable plan for all Cottage Hospitals such a hospital not to cost more than the sum of £500, I have the honour to reply, that I am not able to suggest any definite plan for such a small sum. I would merely advise the erection of a three or four roomed cottage, built in full compliance with modern sanitary requirements for Hospital use."²

Finally, the sum of £500 allocated for the Richmond Hospital was cut due to necessity for urgent additions to the Dundee Hospital, and half of the H-shaped layout then had to be adopted.

It took a long time to choose a site. Finally two suitable places were chosen, and the District Surgeon was consulted as to the choice between them. Lot No. 8 in extent of four acres situated on the outskirts of the town was chosen. The road, which was supposed to serve as the access to the building, had not yet been laid, but the Magistrate promised that in the nearest future the work on it would commence. (Fig. 127)

In Ixopo, the sum of £500 was voted for the building.

1. Letter from Barnes to Dr. Carte, dated 30 November 1901. (N. Arch)
2. Ibid.

The Magistrate in Ixopo objected to establishing the Hospital within a village and advised:

"... what the Government should do is to purchase about ten acres of land near to the main road and erect a Cottage Hospital at the further end from the road and put up at the other end a building or shed to be used as a Shelter by the Travelling Natives, as it is quite time that Natives returning from work should receive in my opinion some protection, and not less than ten acres should be purchased as a portion of the land could be planted with wattles, which would supply the Hospital with fuel."¹

Finally, the site chosen was a portion of the Residency ground divided by the main road from "the piece on which the Residency actually stands."²

The site was considered very suitable for the purpose of building a hospital.

In 1900, the Minister of Lands and Works approved the funds for the Port Shepstone Cottage Hospital also.

Several sites were considered, and on 14 October 1900 W. Barns Kinsley, the Inspector of the P.W.D. reported to the Chief Engineer, P.W.D.:

"The site submitted for approval is situated to the north of 250 feet in front of the Government Mule Stable Port Shepstone, in sight of the parade ground at back of Goal. The ground is flat and at once available for building purposes, and has a wooded slope at the north and west sides running down to the valley bordering the Alicedale property.

It does not interfere with building sites, is on Government land, can be easily isolated if necessary, and has been shown to, and approved by the District Surveyor..

The site chosen is dry, convenient and airy."³

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1. Letter from Magistrate to Ass. Engineer, P.W.D., dated 11 July 1900. (N. Arch)
 2. Letter from Barns Kinsley to Asst. Engineer, P.W.D., dated 10 October 1900. (N. Arch)
 2. Letter from Barns Kinsley to Asst. Engineer, P.W.D.; dated 14 October 1900. (N. Arch)

In Dundee the site was chosen by R. King, a District Engineer, at the outskirts of the town on the Road to Ladysmith:

"The papers were sent to Mr. King at the beginning of this week asking him to arrange for a site for the Building. A copy of the plan of the Newcastle Hospital, as it will appear when complete, was sent at the time asking what portion of the building could be erected for £500."¹

THE EXECUTED BUILDINGS

The Model for Natal Cottage Hospitals was prepared by the Architect of the P.W.D. in co-operation with the Colonial Health Department. It was to serve as a standard plan for all such institutions erected in Natal.

The layout was in accordance with the recent requirements of hospital reformers, where the natural cross-ventilation seemed to be the most essential matter.

The layout represented a pavilion type of structure, and was made on the H-shape, the plan widely popularised in England for medium size hospitals.

The design of English Cottage Hospitals could not be adopted here for two main reasons:

1. It was too expensive for South African conditions.
2. It did not provide the separate accommodation for Whites, Blacks and Indians.

A special plan had to be prepared here to comply with the Health Department's demands:

1. It was to cost a maximum of £500 (this idea was departed from in the majority of cases), but generally it was to be a small structure with cheap finishes.
2. It was to contain sexually and racially segregated wards.

1. Letter from Dr. E. Carte to the Magistrate, Upper Umkomanzi Division, dated 2 February 1900. (N. Arch)

3. It was to contain adequate services and sanitary facilities, a kitchen, laundry and mortuary.
4. It was to ensure provision of proper internal environmental control conditions (lighting and ventilation).
5. It was to be built in such a way as to make sufficient for allowance for future extensions.
6. It was to introduce verandas as a climatic component of design.

Barnes wrote:

"This was an excellent idea to build these verandas, as now these shady cool areas could be used for sitting and resting in outdoor, when the summer internal temperature became too high and winter too low."¹

The exemplary plan (Fig. 121) , consisted of seven rooms, six being allocated for male and female, White, Black and Indian patients, and one room serving as a nurses and doctors' room. Additionally sanitary facilities were to be provided. The plan did not originally include a kitchen and as this is essential in the proper operation of a hospital, the function of one of the rooms had to be changed to allow for these facilities.

When the hospital in Newcastle was completed in June 1901, its layout differed materially from the approved proposal.

The Health Officer for the Colony reported to the Colonial Secretary:
as follows:

"The main difference is that in the other plan, which was understood to be that upon which all the cottage hospitals were being constructed, two rooms are shown in addition to the rooms in the present plan - making seven in all instead of five as in this. Because of necessity of accommodation of doctor and matron, only one room would be left for patients. As the hospital at present stands it can only be used for coloured persons. There is, however, considerable need for some degree of hospital accommodation for Europeans at Newcastle, and I would suggest, that, with the view to making use of these buildings for that purpose for which it was originally in part designed. There should also be a closet in a situation convenient for these buildings.

1. Letter from L. Narns Kinsley to Assistant Engineer, P.W.D.; dated 14 October 1900. (N. Arch)

In the meantime, pending the construction of such building, if approved, arrangements can be made for the treatment of Coloured persons only, in a portion of the hospital."¹

The authority for expenditure on additional accommodation was obtained and in February 1902, the tenders were called for, for the new work at Newcastle Hospital. The new additions included the erection of separate Indian Quarters, a detached kitchen and new sanitary facilities. The present arrangements of latrines seemed to be the worst deficiency of the newly erected Hospital.

The Assistant Engineer of the P.W.D. wrote to the Colonial Secretary:

"At the present time, there are only two wood and iron latrines. Possibly the Health Officer would wish new ones erected in brickwork, if so, I would suggest building a block of three with a screen wall, the cost of which may be put at £60."²

The contract for completion of these additions was signed on 14 April 1902. Mr. Ross, whose tender for the amount of £187 was accepted did the whole job and the building was completed in November 1902. Now it contained accommodation for all races, kitchen, ablution block, and doctor's and nurses' rooms, but still the wards did not provide accommodation for separation of the sexes. (Fig. 126)

The surrounding garden had now been fully organized. Two hundred ornamental trees were provided:

"...to beautify the grounds, only such should be sent as will grow at a 9 000 feet altitude."³

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1. Letter from Colonial Health Officer to the Colonial Secretary, dated 5 July 1901. (N. Arch)
 2. Letter from Assistant Engineer, P.W.D. to Colonial Secretary, dated 6 December 1901. (N. Arch)
 3. Letter from R. King to Mr. Ross, dated 3rd December, 1902. (N. Arch)

In 1903, the hospital, which soon became known as the "Cottage Hospital", was still standing empty and unfurnished.

On 31 January, 1903, the "Newcastle Advertiser" wrote:

"Why should this very necessary institution remain in its unused state?

From past experience we know too well that our Government will do nothing until from very shame they are compelled to do so."¹

and on 28 February 1903:

"No satisfactory communication has yet been received from our Rhinoceros-hide Government to the urgent appeals for help in the matter of hospital accommodation, although the need for such is constantly increasing."²

Eventually, the hospital was occupied. Dr. Nolan was installed as the first Superintendent and Miss Brockshaw as the first Matron. In addition a staff nurse and a probationer nurse were employed.

Dundee Cottage Hospital was completed by a local contractor, Mr. Gordon and was ready for occupation in April 1901. (Fig. 129-31)

In this case, the building was erected in accordance with the "Model Design" and it provided the accommodation for males and females of all races. The sanitary facilities were as primitive as in the Newcastle Hospital, and two latrines, erected 30 m. apart from the main building, served this purpose.

1. Baylis, B.B. op. cit, p. 55.

2. Ibid, p. 63.

In Ixopo, tenders were called for on November 1900 and on 10 January 1901 they were received. Mr. Gordon, the Local Contractor who had completed building work for the Government was previously elected. His tender amounted to £597.

The work on site commenced immediately and on 19 September 1901, F. Lindsay, the Foreman of Works of the P.W.D. announced:

"Ixopo Hospital was inspected on the 13th and was then progressing well towards completion."¹

In December 1901, the hospital was completed and in January 1902 the first patient was admitted.

The building was erected in accordance with the "Model design for Natal Cottage Hospitals". It provided for sexual and racial segregation right from the beginning. (Fig. 132)

Half a year later, the authorities decided upon the erection of Indian Attendant's quarters. The plans were prepared by the P.W.D. Architect and Mr. Gordon's tender of £180.15.0. was accepted. The work was put in hand and completed in four months, "during the current financial year".²

The amount spent on this addition was deducted from the estimates for the Cottage Hospital in Greytown, which was never built. The total cost of the Ixopo Cottage Hospital was £954.15.0., including the "extras" paid to the contractor "for foundations".

The institution did not operate for long, for three years later, in 1905, it was closed down due to lack of funds. It was then temporarily occupied by an Ixopo resident, Mr. Bennett, and was demolished in 1909, after Mr. Bennett found better accommodation.

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1. Letter from F. Lindsay to Asst. Engineer dated 15 October 1901. (N. Arch)
 2. Letter from F. Lindsay to Asst. Engineer dated 22 October 1901. (N. Arch)

In Richmond, the work on site started in April, 1901, and was completed in the middle of the next year, with an excess of the original tendered sum of £54.8.3., due to extra items in the foundations.

Mr. F. Lindsay, the Foreman of Works of the P.W.D., inspected the site at the same time as he did the site in Ixopo and reported:

"Hospital was inspected on the 11th and was found to be in size shown on plan and according to specifications and finished in a satisfactory manner."¹

When completed, it took the form of half of an H-shaped plan. It was placed on the left half of the premises, was 4 acres in extent, and faced in a north-eastern direction. The approach road was from the future Elden Street.

The Hospital consisted of only two wards: (Fig. 128).

1. A European Ward - two bedded.
2. A Native Ward - six bedded.

There was also a Nurses' Room. In all the rooms the fireplaces were built into internal walls in such a way that the common air duct could be used.

There was no main entrance to the institution. All the doors were of equal importance and access to all rooms was gained from the veranda.

The plan was simple, and the erection cheap, but the hospital had many deficiencies:

1. it did not provide for sexual segregation;
2. no accommodation for Indians was included;

1. Letter from F. Lindsay to Assistant Engineer, P.W.D., dated 15 September 1901. (N. Arch)

3. the hospital did not contain the basic services of kitchen, kitchen, mortuary, and operating room.

The only services were the primitive wood and iron latrines erected away from the building.

In 1902, at the same time as in Ixopo, tenders were called upon for the erection of Indian Attendants Quarters in Richmond.

Mr. Gordon's tender for the amount of £120.12.6. was accepted, and the building was erected in four months. It consisted of two rooms and kitchen facilities and was placed at a distance from the hospital block.

In Port Shepstone, the tenders were called for the erection of the hospital in April 1901, and in June 1902, the building was completed.

"The building now being put up is small, it consists of three wards, surgery, kitchen and verandas, and will cost approximately £500. It is being erected on a site between the Post Office and the Government Stables. There is every prospect of completing the works soon."¹

The hospital was erected partially in accordance with the "Model design for Natal Cottage Hospitals" and was similar to the Newcastle Cottage Hospital. It contained only five rooms, three of them being used as Wards (not sexually segregated), one as a kitchen, one as a doctor's and nurses' room, and one surgery.

A block of privies was erected at a distance from the main block, as had been done in the other cottage hospitals. This institution did not serve for long, and was demolished ten years later.

1. Letter from Barnes to Minister of Lands & Works, dated 15th April 1902. (N. Arch)

ESHOWE COTTAGE HOSPITAL

The Queen Victoria Memorial Hospital in Eshowe, which was built before the introduction of the "Model design for Natal Cottage Hospitals", deserves special mention.

It originated in 1897, when donations from both Europeans and Natives were received to commemorate the Jubilee of H.M. Queen Victoria. £800 was raised and the Natal Government, to which Zululand had recently been annexed, contributed the same amount of money.

The plans were prepared by the Architect of the P.W.D. and approved by the Eshowe District Surgeon, Dr. C. Henderson in April 1898. Tenders were called for in May 1898, and were received on 23 June. The estimate for the planned building was £1 400, but the lowest tender amounted to £1 520.

Land three acres in extent, located on the outskirts of the town was purchased by the Natal Government at the beginning of 1898. It was extended to the hill with a northern aspect on the Southern part of the town.

The Contractor started his work on site immediately after signing the contract documents, in July 1898.

Except for the main building estimate of £1 400 included:

"...a wood and iron kaffir house provided for in the Specification, though not shown on the drawings."¹

and

"the underground tank, provided for on the drawings, but not counted in the specification."²

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1. Letter from Dr. Henderson to Barnes, dated 20 April 1898. (N. Arch)
 2. Ibid.

The Minister of Lands and Works, commented in his letter to Barnes:

"The estimate for the building as shown on the plans is £1 400.

I cannot say definitely what out-offices may be required. There will of course be servant's quarters and some storage room necessary, besides an underground tank - but the conditions may render other accommodation needful."¹

The building operations took six months and by the end of January 1898, the hospital was completed.²

It consisted of two separate buildings:

1. The main block containing, a European Male Ward, a European Female ward and two wards slightly larger for Black Females and Males. The design did not include accommodation for Indians.
2. The service block, in the form of wood and iron latrines, were erected at a distance from the wards.

The main block was laid on a rectangular plan, representing a corridor-type of structure, with the communications solved on a Greek-cross plan. (Fig.136).

Each ward had direct connection with an external veranda through French doors.

Although, all internal and external doors had fanlights fitted above, the cross-ventilation in the wards was not sufficient.

Except for the latrines, there were no other service buildings in the hospital. There was not even a kitchen, so the building could not function properly as a medical institution.

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1. Letter from Minister of Lands & Works to Barnes, dated 5 May 1898. (N. Arch)
 2. Letter from Barnes to Dr. Henderson, dated 15 January 1899. (N. Arch)

The building was built of brick as a single-storeyed structure, and was topped by a wooden roof, covered by galvanized, corrugated iron sheeting. The veranda roof, supported by wooden columns, was not incorporated into the main roof. This fine element was the most interesting feature of the whole establishment, being profiled in a delicate ogee shape. (Fig. 137-40)

White painted veranda elements together with red walls and roof, created a colourful composition of elements and materials.

The building was officially opened on 21 February 1899 by Sir Hely Hutchinson, Governor of Natal.

The "Zululand Times" reported that in the hospital:

"...everything is very neat and clean."

and

"The building looks beautiful in surrounding park and is quite enticing, the grounds also have been very well cleared up and laid out under the Superintendence of the Public Works Department."¹

ADDITIONS TO COTTAGE HOSPITALS, 1909

In the year 1909 there were great changes in all the cottage hospitals. The existing structures were carefully examined and a report on their condition submitted to the Public Works Department.

Two Architects: P. Eagle and J.S. Cleland were involved in the preparation of plans for extensions, alterations, and renovations.

1. "Zululand Times", 23 February 1899.

J.S. Cleland, the Architect of the P.W.D. was the author of the design for the Newcastle Cottage Hospital extensions. (Fig. 134).

The proposal prepared by him included converting the multiracial hospital into one for Whites only. Wards for Indians and Blacks were put into a separate building situated about 30 metres away from the main block and connected with it by a covered walkway.

The new kitchen, laundry and Indian Quarters placed in two parallel buildings, enclosed the service yard and were attached to the main walkway linking the Hospitals for Whites, Indians, and Blacks.

The service rooms were removed from the main block, and their space was occupied by a White Female Ward.

J.S. Cleland also prepared the design for the New Nurses' Home. It was laid on an H-shaped plan placed in close proximity to the main hospital block (see APPENDIX - "NURSES' HOMES").

The changes for the Dundee Cottage Hospital were proposed by P. Eagle an architect of the P.W.D.

This design included alterations to the old building, the erection of New Nurses' Quarters (see APPENDIX "NURSES' HOMES"), a Special Ward, a kitchen, laundry, and Indian Quarters, (Fig. 142). The old building was renovated, and a nurses' room and all the services were removed to the newly erected facilities. The quarters previously occupied by nurses, now became the proper Operating theatre. (Fig. 143)

The hospital remained as a multiracial one, providing sex segregated wards.

A new separate Special Ward was erected as a brick and iron structure at behind the main building. It was designed to accommodate infectious diseases cases during outbreaks of epidemic.

The new service rooms included a new kitchen block, laundry, and Indian Quarters.

The new additions were linked by a covered walkway with the old building.

The general concept of the changes was similar to the one in the Newcastle Hospital. The main building was left as a ward block, and all the services were placed in separate buildings. From a single-block the hospital developed into a fully organized complex of buildings, all connected together and efficiently serving their purposes.

At the same time, alterations and additions were made to the Richmond Cottage Hospital.

In 1909, a Native Hospital comprising a Native Ward and Native Quarters was erected in close proximity to the main building. (Fig. 128).

A brick and iron building was put on to serve as a mortuary. A garden was established on the hospital premises to supply the hospital with vegetables.

In the Eshowe Cottage Hospital, by 1909 it became evident that proper service rooms had to be provided in order to improve the institution functionally.

In 1904, after the erection of the original building, the temporary wood and iron kitchen block had been put at the back of the building.

In 1909, the proposal of adding an operating theatre, ablutions, a Nurses' Home, and a kitchen was approved by the authorities, and the Government allocated funds for this purpose.

The original hospital block remained practically the same except for the erection of ablutions on the partially enclosed veranda. This change

improved the old building functionally, as the patients now had these facilities at a convenient distance from their wards. But the purity of the circulation system was marred by enclosing the veranda which served as a through-passage.

An Operating Theatre was erected as a separate structure behind the main block. It matched the old building in external appearance, and was linked to it by a covered walkway. (Fig. 288, Chapter Services), (Phot. 60).

Lack of staff accommodation resulted in the erection of a Nurses' Residence, situated right next to the hospital block, giving the impression of a hospital extension. (See APPENDIX "A" "NURSES HOMES").

The building was designed on a rectangular layout with similar design principles as the hospital building.

A separate kitchen block was erected behind the Nurses' Home and consisted of a kitchen, pantry, store room, and additional bathroom.

COTTAGE HOSPITALS IN THE 1920'S

(FIG. 254.4 in Chapter "Materials and Methods of Construction")

In the Newcastle Cottage Hospital, further extensions and alterations were put in hand and completed in 1924. An additional block containing an X-Ray Department was attached to the left wing of the main building. (Fig. 137).

The old hospital had now been improved functionally. New verandas were erected on the side wings and new internal passages created. The building had been redecorated externally, receiving a small gable with plaster embellishments in the central section.

The following year a block of bathrooms and a dispensary were attached to the covered walkway between the White and Black Wards.

In 1921 improvements were made to the Dundee Cottage Hospital. The Female Wing now received a block of toilets and bathrooms (Fig. 131). A new ward was erected by enclosing part of the veranda on the "female" side, and a new ablution block for men was built as a separate brick and iron structure connected with the main block by a covered walkway.

By 1928, the building was badly damaged by white ants and had to be demolished.

A new design for a hospital in Dundee was prepared by J.S. Cleland an Architect of the P.W.D.

The complex of hospital buildings was to be built on the same premises, as the old hospital, surrounded by the garden. (Fig. 145). The whole establishment was to be symmetrical in its layout and to consist of a main Administration Block, a General Hospital block, Maternity Block, and Nurses' Home. (Fig. 139-142)

The Eshowe Cottage Hospital remained unchanged until 1929, when it became necessary to provide structural and sanitary improvements. All the wards and bathrooms were refurnished with new furniture and fittings. New Native Quarters were erected, leaving the main block for Whites only. A new Laundry Block was built. (Fig. 287, Chapter "Services")

In 1932, extensions to the Mortuary were put in hand. (Fig. 294, Chapter "Services")

By 1940, the nurses received their New Nurses' Home and Night Quarters, and their previous accommodation now became an extension of the main block. New

additions to the kitchen block were executed, and the Non-European section was further extended. (See APPENDIX "A" 'NURSES HOMES')

COMMENTS

Cottage hospitals represent an interesting group of Natal Government hospitals all being erected according to the same design. Small changes differentiate the hospitals, and these were dictated by the local requirements and the different amounts of money allocated for their erection.

The Architect of the P.W.D. prepared the "Model Design" for them and all of them conform to the H-shaped layout.

The H-shaped plan proved to be the most satisfactory and economical one for these institutions. It provided adequate accommodation for patients and sufficient internal environmental control conditions which was the most essential matter in the hospital.

This double-pavilion type of structure represented the design principles considered by the Victorian era hospital reformers as the most suitable for medical institutions.

Sex and race segregation of patients was introduced into the "Model Design", but not all the cottage hospitals were able to adopt it, mainly for economic reasons.

In only some of the hospitals was there race segregation. In many of them there were wards common to men and women.

An interesting fact to note is that race segregation was more important to the authorities than sex segregation.

In the original buildings, the plan provided for wards together with services. At the time that available accommodation had to be increased, the services were moved out of the main block and usually put in the back yard, which served as a "dirty area".

All these outbuildings were connected with the main block by covered walkways which provided a convenient access to them.

In the early days, the sanitary facilities were poor. No drainage or water supply was laid on and primitive privies, erected at a distance from the main building, served as the toilets.

At that time the buildings did not have properly equipped operating theatres, and a small room placed in the bar of the H-plan served as an administration room and a surgery.

The Matron and Nurses were also accommodated in the hospital, and this situation only changed in 1909, when all Cottage hospitals received proper Nurses' Quarters.

According to the "Model Design", all the Cottage hospitals were built in such a way as to make allowance for future additions. The Architect was quite right as after a few years it became necessary to make various extensions and alterations to the original buildings. The main reason for this was the need for more accommodation and improved services.

The buildings went through two main phases of evolution before becoming modern, well organised hospitals.

PHASE 1: 1909 - Changes by P. Eagle, and J.S. Cleland, the Architects of the P.W.D. - All the services moved out of the main block to be accommodated in separate buildings.

Nurses' Quarters were built in Newcastle, Dundee and Eshowe and the Matron and Nurses moved out of the main blocks. Better medical attention was provided. The main building now became a Ward Block (Multi-racial in Eshowe and Dundee, and for Whites only in Newcastle).

Additional Ward Blocks and Isolation Wards were erected. Sanitary facilities were improved.

PHASE II: 1920s Under the Supervision of the Natal Provincial Administration, Indian Attendants' Quarters were provided. The buildings were renovated and improved functionally, and modern medical technology was introduced.

X-Ray Departments and Operating Theatres were provided and kitchen and laundries were equipped with modern facilities.

The Dundee Cottage Hospital was demolished due to its dilapidated condition. A new hospital was erected on the same site. (Design prepared by J.S. Cleland.)

Externally, all the Hospitals appeared to have similar structures, more of a cottage than a public institution character. Eshowe Hospital which was built before the introduction of the model design for Cottage Hospitals, showed a different approach in its design. They were all built as cheap structures with an open roof form, easy to extend when necessary. The building materials used were:

- stone for foundations,
- bricks for walls,
- timber for roof construction and verandas,
- galvanised corrugated iron roof sheeting.

In the early days the veranda was introduced only on the facade of the hospital, where it fitted naturally between the projecting wings. It served as a sheltered entrance to the institution, a communication link, and an outdoor space for inmates. In more advanced form, the veranda surrounded the whole structure, and French doors were fitted in the wards to allow for direct access to it.

V. INDIAN HOSPITALSINTRODUCTION

A joint stock sugar company was established in Natal, issuing 2 000 shares at £5 each. Land on the Natal Coast was fruitful, but labour was a problem because the African remained self-sufficient and was unwilling to work for sugar planters. So Law 14 of 1859 allowed the introduction of Indian labour into Natal at the public's expense, and provided for their regulation and government.¹

Planters paid African Labourers five shillings to six shillings a month but were prepared to pay Indians ten shillings and provide food and clothing. Recruiting of Indians under contract for five years took place in India under the direction of approved emigration agents appointed by the Colony.

These Indians were not subject to the ordinary Masters and Servants Ordinance, but came under special regulations and medical attendance, food, lodging, and clothing were provided.

When the first five years' industrial service was over, the Indian was to be subject to the normal laws of the Colony.

The first shipload of two hundred and three adults arrived on the "Truro" on 17 November 1860, at a cost of £9 per adult. During 1860 and up to February 1861, one thousand and twenty-nine adult males had arrived. No more were introduced for years.

Notes and references:

1. Palmer, M. op. cit, p. 61.

The first hospital for them was a lazaretto (an infectious diseases hospital) hastily erected on Durban Bluff after the outbreak of Cholera on the "Belvedere" in 1862.

The difference between life in India and life in Natal strikingly affected the health of the immigrants. On arrival their physical condition was poor but within a few years they had acquired health and vigour. On two estates proprietors built hospitals for their labour force, but the other Indians who were seriously ill were sent to Durban to a temporary hospital attached to the "Coolie Barracks". Later they went direct to the General Hospital - Addington.

As the Colony became aware of the commercial advantage of retaining Indians, inducements of land and money were offered, and half of the Indian population remained on the estates, while the rest spread throughout the Colony after ten years residence had been completed.

They were emancipated and following this, the renewed Agitation Law 12 of 1872 was passed, laying down the terms for further Indian immigration.¹

The free Indian population within the Colony increased year by year and by 1885 the Indians in Natal almost equalled the Europeans in number.

Under Government-issued regulations the employer was required to provide medical care for their employees and the Government could appoint medical practitioners to attend to Indians on any estate. In time medical attention was increased. Natal was divided into fifteen centres to each of which a doctor was appointed by the Indian Immigration Trust Board.

1. Burrows, E.H. op. cit, p. 315.

Many hospitals were established from the 1880's onward. The main Immigration Bureau Hospital in Durban was the first general hospital for Indians in Natal.

The sugar company, Tongaat Group, established hospitals on the plantations in Tongaat, Stanger, Verulam and Avoca and Isipingo soon followed.

As the hospitals for Indians were built by Europeans, they did not usually bear Indian cultural influences in their architecture.

Most of the medical institutions were erected as simple, cheap, barrack-like buildings, but some of them represent an interesting contribution to hospital planning in Natal. The most interesting and valuable example is the early Tongaat hospital, the only one in Natal in which the wards were grouped around the internal patio in the form of a quadrangle.

THE POINT HOSPITAL - DURBAN

ORIGINAL HOSPITAL (FIG. 150)

The Point Hospital in Durban was established in 1885 by the Indian Immigration Bureau as a first general hospital for the Indian population in Natal.¹

When erected it took the form of a single storeyed building laid on the U-shape plan, as a cheap, barrack-like structure with a primitive finish - the only standard which could be afforded at that time.

1. O' Regain, M. op. cit, p. 7.

It was built of bricks and covered by a malthoid roof with a layer of sand. There was no main entrance to the building and access to the wards and service rooms was gained from the internal yard.

It consisted of four wards; one female and three male. An additional isolation room (for epidemic cases) was provided at the end of the right wing. The office, which served as the Nurses and Doctor's room as well, was placed in the front.

The left wing served as a service space and comprised an operating theatre, laboratory, and dispensary and a separate entrance to these facilities was provided.

Sanitary conditions were poor for no water was supplied to the building and primitive privies were erected apart from the main block.

Internally, the elevations were articulated by double sliding sash windows of a rectangular shape. The walls and all exposed woodwork were painted white.

The hospital wards were spacious but always overcrowded. Functionally, the institution had many deficiencies as the majority of necessary facilities were not provided. Ablutions, kitchen, store rooms, and mortuary were to be non-existent for a long time.

ADDITIONS (FIG. 151)

As the hospital served the Indian population for the whole of the Durban area, it soon became necessary to extend and improve it. Due to the shortage of space, some of the patients had to be sent to Addington Hospital,

where two Indian wards were provided. This of course could not solve the problem.

By the turn of the century, an additional Ward Block and new Kitchen Block were built in close proximity to the main hospital. The new Ward Block, built on a square layout, consisted of four wards, each one accommodating four patients.

Similar to the main hospital, the roof here was of a mono-pitched construction, covered with malthoid. Two water closets were erected near the building.

An interesting feature of this design was the use of a central ventilating shaft. Sufficient natural ventilation was not possible in this type of structure, so the architect decided to introduce mechanical ventilation.

Externally, the building appeared to be similar to the main hospital block being a cheap, economical construction.

The Kitchen Block, which was erected at the same time, consisted of a single room with primitive fittings. A few years later it proved to be inadequate in size and equipment, and had to be improved and extended. An "open" kitchen yard was provided externally where the water tank and boilers were installed.

The critical situation with hospital storage was now partially resolved, as four store rooms were built. A separate ablution block, consisting of bathrooms and lavatories, was built a year later.

NEW WARD BLOCKS, 1918-1922 (FIG. 152)

In 1918, the erection of a new Ward Block comprising ten wards improved the general situation of the hospital and the majority of patients were moved there.

One side of the building catered for women, the other for men.

This did not remain part of the hospital for long as a new, bigger, and better-equipped ward block was built in 1922, the old one being converted into a depot barrack.

The new block, which soon became the main part of the hospital was laid on a rectangular plan and was erected as a double storeyed structure. It consisted of four wards, two on each floor, all of them being lofty and well-ventilated.

The central entrance put on the central line of the building led to the hall, from where, on either side, doors opened onto the wards. Four doors in each ward led onto verandas, two onto the service veranda with an access to the ablution blocks, and two onto the veranda provided for recreational purposes.

Ablution blocks, one for each sex, were placed at two ends of the building on the opposite side of the service veranda, this being a convenient distance from the wards.

The internal, 9" thick walls were plastered and painted, and the floors were constructed of wooden blocks. The hipped roof with ventilating gables on its ends was covered with malthoid.

Originally, the wooden columns supported the balcony slab and the roof eaves. Two years later, they were replaced by brick piers, and the timber balustrade by a wire mesh, which spoiled the external appearance of the building.

At the time when this building was completed, the original hospital block was converted into an Isolation Part, and in 1957 it was demolished due to its delapidated condition.

TONGAAT HOSPITAL (FIG. 155)

In the late 19th century the first indentured labour was brought to Tongaat from India.

Among the early hardships endured by the indentured workers was the complete absence of medical services. In 1904, however, the Tongaat Medical Circle of the Indian Immigration Bureau purchased land from the Company to build a sixty-six bedded hospital.¹ In the beginning the simple wards were established. The hospital was ill-run with poor medical supervision, irregular water supplies, and elementary sanitation. These conditions persisted and during the next quarter-century there was little improvement. Apart from being generally unsatisfactory, the situation invited the outbreak of a major epidemic.

In a mild form, malaria had always been endemic to the region. In 1930 a new virulent form broke out in the coastal districts, and the inadequate hospital was swamped. Overcrowding, the lack of the simplest forms

1. Watson, R.G.T. "Tongatti - an African Experiment"; Hutchinson, 1960.

of nursing, and the increasing number of deaths caused a panic in the field worker. Seriously ill men deserted from the hospital, and died at home.

Alarmed at these desertions, the Company sent an official to the Hospital to investigate. He found the conditions to be appalling and this was reported to the Board of Directors. It was decided that there was no alternative but to build the Estate's own hospital. The Minister of Health was informed and a suggestion was made that, should the Minister consider selling the Immigration Hospital, the Company would be prepared to purchase it and to continue to run it as a service to the area. After some negotiation the hospital was purchased and became the Tongaat Central Hospital.

This name was used until 1971 when, in keeping with the new title of the Company and its Subsidiaries, the hospital became the Tongaat Group Hospital.

It was with the purchase of the hospital in 1930 that the Company appointed its first Medical Officer, Dr. Paul N. Labuschagne.

The hospital was erected in the 1910's with an original layout.

It enclosed the internal patio, with the wards grouped around it. Two wings were attached to the patio group which remained central, and the whole establishment formed a T-shaped plan.

Later on, two frontal blocks were raised on both sides of the central line of the building, and they housed a dispensary on the left and two private wards on the right side.

Generally, the hospital consisted of four wards, two for men on the left side of the patio and two for women on the right side. These wards were

divided from one another by a small dining hall for common use by both sexes and a nurse's duty room in front. The plan was simple and convenient - it assured easy control over the patients by nurses and convenient access to the dining room.

The entrance to the establishment led through two wide flights of steps enclosed by a brick wall in the centre and two buildings on the sides.

From the entrance hall, the door opened to two private wards on either side, the operating theatre complex on the left, and the doctor's room on the right. Bathrooms and lavatories were put at the ends of the side wings.

The circulation system in the building was achieved by the corridors turning at right angles and continuing on to the external verandas.

The wards grouped around the patio were well cross-ventilated, but the private wards in the front suffered from lack of proper airing and lighting for no artificial ventilation system was installed.

The kitchen block was built as a separate structure at the back of the building and was connected by a covered walkway with a dining room.

For a long time, the plan had the disadvantage that no mortuary was provided.

Externally, the building appeared to be a handsome and well-proportional structure, elevated on a terrace in a palm garden. The walls, plastered and painted white, created an elegant contrast with the surrounding green.

DEVELOPMENT (PHOT. 105)

From the initial purchase by the Company of the Government Immigration Hospital, various changes and additions were made.

As the Company grew, so did the number of employees and their dependants.

With the recent inclusion of subsidiary companies, the existing hospital buildings became hopelessly inadequate to the needs of the population.

In 1969 it was recognized by the Board of Directors that the Company had outgrown the facilities at the hospital and the whole aspect of health services required new thinking and reassessing.

In view of the considerable capital outlay involved and upon consideration of the large domestic population catered for, it was considered desirable that the Provincial Administration be approached for financial aid.

VERULAM HOSPITALORIGINAL HOSPITAL (FIG. 153)

Verulam Hospital was one of few medical institutions established by the Tongaat Medical Circle of the Indian Immigration Bureau in the first decade of the 20th century. It illustrates the type of buildings erected by Indian Authorities in various centres of Natal: at Pomeroy, Isipingo, Howick, Estcourt.

The plans for these buildings were borrowed from the Natal Cottage Hospitals which had proved to be efficient and economical.

Verulam Hospital was built in 1909 on the Sugar Company's premises in close proximity to the plantations and provided accommodation for local labourers and their families.

The building was situated on a plain terrace elevated above the surroundings and it faced in a north-eastern direction. Its approach was created from the road leading to the Company Headquarters.

The institution, raised on an H-shaped layout in a cottage style, had a simple and convenient plan.

Its symmetrical, two-pavilion plan comprised the wards placed in the side wings and services in the central part, the waist of the H-shape. The voids formed by projecting wings contained the front and back verandas. Access was gained through the door placed on the central line of the facade. The left wing was occupied by two female wards, and the right one by two male general wards. The bigger wards could accommodate eight patients and the smaller one, four patients.

Internally the environmental control conditions were adequate, the wards being sufficiently cross-ventilated, and windows and door openings being placed in opposite walls.

The design however had a meaningful disadvantage, since poor hygienic conditions were caused by the lack of bathrooms and lavatories. Instead, small wood and iron privies were erected apart from the main hospital block. There was also no provision for a water supply, and water had to be transported from the spring well.

Externally, the building was built in a cottage-like style. Gable roofs, suitable for possible extensions, were also introduced in this case. Roof ridges decorated by wooden finials, enriched the simple outlook of the structure. The louvre ventilators, rectangular in shape, were built into the gable walls on the facade and back elevations.

The veranda roof was not incorporated into the main roof, and the space between the eaves and veranda roof, was filled by ventilation openings. The veranda roof was supported by simple wooden poles of circular section, which were decorated by ornamental wooden brackets.

ADDITIONS, 1915-1929

In 1915 the wood and iron store building was added at the back of the hospital, but money was still not available for the provision of a kitchen, ablutions, and a mortuary. The institution served in this form until 1929, when some additions and alterations improved its function.

The wards were left unchanged as new extensions were dictated by the need for adequate services.

A new part was added onto the right side of the building, and it created a space for a small operating room with access through the male ward, and a store room with entrance from a newly erected veranda. The old veranda on the facade was removed and a new, wider one provided with a flight of steps leading onto it. A new approach path was laid connecting the entrance with the road.

Externally, the building did not change much.

New roofs were erected to match existing ones in shape and materials used.

At the same time, a new service block was raised in place of the demolished privies. It contained a convenient sized kitchen, scullery, store, and bathrooms. Water pipes were laid and electricity installed, so the general situation of the institution underwent a great improvement.

Verulam Hospital belonged to the group of hospitals built in the cottage style and it repeated the economical and practical layout of Natal Government Controlled Cottage Hospitals.

As in all other Cottage hospitals in the rural areas, the beginnings were difficult and the hygienic conditions primitive. In time, when funds became available, the hospital developed into an efficient medical institution, providing all the required facilities on an acceptable standard.

This simple structure had the advantage of being economical through its entire existence.

The building was demolished in the 1950's.

COMMENTS

The Indian hospitals founded by the Indian Immigration Government represent an interesting contribution to the development of hospital planning in Natal. Especially interesting is the Tongaat Hospital, which illustrated the new approach to the solving of functional problems and proved to be both innovative and architecturally sound. In the majority of cases plans for hospitals were borrowed from already existing hospitals (mainly Cottage) which

over the years proved to be economical and sufficient. As with all hospitals presented in this research, the Indian hospitals, were initially quite primitive e.g. (Verulam and Point), and grew into fully organized medical institutions, fulfilling the latest requirements of hospital planning in space and equipment.

Slow development was also due to the lack of funds available - the majority of Indian Government funds were allocated towards the development of sugar estates and housing for the labourers.

In a memorandum of 1875 the Protector of Indian Immigrants referred to:

"the very inadequate accommodation offered by the Durban hospital to the increasing number of patients resorting to it of all classes they are now kept in a miserable delapidated building which is scarcely weatherproof."¹

By the time of Union there were fourteen Indian hospitals functioning effectively. In 1928 all these hospitals were still operating, but by 1940 their number had fallen to three, at Durban, Stanger, and Esperanza. These hospitals were acquired by the Natal Provincial Administration when the Indian immigration laws were amended in 1949.²

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1. Palmer, M. op. cit, p. 40.
 2. O'Regain, M. op. cit, p. 27.

VI. ADDINGTON CHILDRENS' HOSPITALBACKGROUND

Children were formerly accommodated in a ward in the general hospital, but there was neither sufficient space here nor was the ward suitable for children.

In 1923, Mrs. M. Siedle, then a member of the Town Council, conceived the idea of erecting a separate Childrens' Hospital to be attached to the main Hospital, but the financial situation was such that there was no prospect of getting the necessary money granted from ordinary official funds.

Mrs. M. Siedle was instrumental in getting the Town Council to give a grant of $3\frac{1}{2}$ acres of land adjacent to the General Hospital, for a childrens' hospital and the Provincial Government purchased an additional $\frac{1}{2}$ acre of private land necessary to round off the block.¹

The Provincial authorities then made a resolution that the Town Council should contribute one-third of the cost of building a new Hospital up to a maximum of £14 000, provided that the Provincial Government agreed to contribute one-third and the public the remaining third.

After both official bodies had agreed in principle to the scheme, Mrs. Siedle set about her task of raising £14 000.

Notes and references:

1. Local History Museum, Durban.

THE ARCHITECT

The building was designed by J.S. Cleland, Chief Architect of the Public of Works Department of the Union:

".....who took a real and definite personal interest in every detail appertaining to the construction of the Hospital."¹

The plans were completed in April 1926 and immediately afterwards tenders were called for for the erection of the building. The lowest tender that of Messrs. W. Cornelius & Sons, was accepted and building works commenced in January 1927. All the building operations were carried out by the main contractor and a completed building was handed over to the Government and officially opened by Her Excellency, Lady Clarendon, on 7 July 1931.

The total cost of the building amounted to £51 312, and the equipment to another sum of approximately £18 000.

THE SITE (FIG. 156)

After a public inspection of the building after the official opening, the "Natal Mercury" editor reported:

"The situation commands a superb and uninterrupted view of the sea, with a gorgeous stretch of ground before it, fringed by the sea shore."²

The entrance to the hospital premises was from Princess Road.

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1. Addington Chronicle, March 1973.
 2. "Natal Mercury", 8 July, 1931.

THE LAYOUT (FIG. 157-7)

The design of the hospital was in accordance with the latest principles of hospital planning and achieved experience in operating hospitals in Natal and other countries. The plan represented a mixed, quadrangular-corridor type.

The architect concentrated his attention on the ventilation and lighting in the building, considering it to be the major aspect of this design. The result was that the structure was spacious and airy and the wards large in size and lit and ventilated by numerous windows and doors.

The building was raised basically on a T-shape and comprised a long corridor, a continuation of the entrance hall which attached it to four open courts and transverse corridors serving duty rooms and the wards. (Fig. 156). There were six large wards in the hospital, and each of the four main wards had two small ones attached in which special cases could be nursed apart from the rest. In addition a special ward was built on the cubicle system with the object of isolating children on admission and thus preventing the risk of infection. Another ward was planned with the idea of accommodating under-nourished children for a few days of dietetic treatment, and two small rooms were provided to accommodate the mothers so that they could be taught how to carry on nursing their children after treatment.

The four main wards which fronted the sea had ample balcony space, and these were provided with special folding doors which:

"....could be thrown entirely open on calm days, thus allowing the children to be treated practically in the open-air."¹

1. Addington Chronicle, March 1973.

SERVICES

An X-Ray and Electrical Department was provided with all the:

"...necessary electrical and other apparatus required for the treatment of orthopaedic cases."¹

An open-air bath was connected to it, and this was planned for therapeutic purposes:

"as the early movements of paralysed limbs could be more effectively carried out in water."²

The bath was heated by hot water pipes modelled on one in use at Queen Mary's Hospital Carshalton, England, where it had proved to be a most effective therapeutic method. An extra "Cardiographic Unit" was supplied and it was operated by one of the physicians employed. A "Continuous Flow Bath" was fitted in a special room. The water was kept at a constant temperature by special thermostatic valves, and a warning whistle or buzzer sounded should the water fall or rise above certain degrees in temperature. This idea was taken from baths in use during the Anglo-Boer War for septic wounds at the South African Military Hospital in Richmond. A Central Milk Laboratory was provided and was modelled on that of the Children's Hospital in Toronto. Various equipment for cleaning and sterilizing bottles and appliances for testing milk and cream were supplied and the intricate feeds could be prepared under the care of a sister especially trained for the purpose.

There were two operating theatres together with the adjoining service rooms in the hospital and they were furnished with all the latest equipment.

1. Addington Chronicle, March 1973.

2. Ibid, p. 5.

The lockers and other surgical equipment were made of "nickeloid", a stainless material, as enamel was found to be unsuitable in the Durban climate.

An open-air sunbath was erected so that the children could have the benefit of direct sun-rays.

EXTERIOR (FIG. 158-162)
(PHOT. 106-7)

The hospital was raised as a double-storeyed structure handsome in its proportions with classical elements freely treated in the composition.

The entrance was created as a large, sheltered porch, supported by Doric columns and piers under which vehicles could pass.

Above the porch, a plaque containing a "life sized" figure in the centre and children clustering around it was installed. The entrance was also marked by a large French door on the upper floor with two Doric columns on either side, supporting a hipped roof. The rows of sash windows on either side of the porch articulated the entire length of the facade. A horizontal line of plinth below the roof of the central part continued on the elevations of the back wings unifying the whole structure.

Well proportioned roofs were put symmetrically onto all parts of the building. On the back elevation facing the sea, the clear symmetry and elegance could also be observed.

The entire sea frontage of the hospital consisted of windows and doors which were in reality veranda enclosures and which had the advantage of not banging on windy days.

A dominating central tower raised on the octagonal plan served internally as a view room. It was topped by a lead dome, supported by eight Doric columns creating a "tempietto", an original feature in this type of building.

Heavy, arched windows on the ground floor and rectangular, lighter ones above, together with the plinth lines inbetween them, constituted a well proportioned composition of elements on this elevation.

The highest point was the roof behind the tower which then sloped down towards the side ends, terminating in a hipped shape.

The vertical articulation created by windows was also composed together with the horizontal line of a balcony cantilever and delicate iron balustrade.

Side elevations illustrated the composition of roofs echoing the single-storeyed part of the establishment. The kitchen block, raised as a single-storeyed structure, was attached to the main building with an entrance from the northern side. An additional porch supported by two piers and two Doric columns was provided on the southern side of the building, creating a shelter above the doctor's entrance.

It was Mary Siedle's idea to erect the clock tower to hide an unsightly steam pipe between the Childrens' Hospital and the main Addington Hospital block.

INTERNAL FINISHES

The internal finishes introduced in the wards took the form of unusual features, and were not merely for ornamental purposes but to make the wards as cheerful and interesting as possible for the little patients as it was generally recognized that the psychological effect of such surroundings played an important part in hastening the childrens' recovery.

generally recognized that the psychological effect of such surroundings played an important part in hastening the childrens' recovery.

The "Natal Mercury" reported:

"Frieses by well-known artists are painted on the walls of the wards, while beautiful stained glass windows executed by Miss Van Hall depict the fairy folk known to us in our childhood days, such as Old Mother Hubbard, Jack and Jill and so on.

The electrical and X-Ray Ward is a magnificent gift, the name being handsomely engraved on a panel of granite; the Lukin Brigade Memorial Ward, donated by South African Infantry Brigade, has a panel containing four regimental badges and a springbok head, whilst the ten cots are named after ten battles: The Somme 1916, Delville Wood, Menim Road, Kemmel, Cambrai 1918, Orras 1917, Messines 1918, Selle and Egypt 1916.

The subject of the friese in this ward represents "Noah's Ark" and is the work of Mr. Ian MacDougall.

In another ward the hand-painted friese is by Mr. Nils Anderson and the subject - "Peter Pan". The dietetic and observation wards each have a friese across the end of the ward, one by Mr. Alfred Palmer, who has carried out a vigorous beach sketch of children making merry by the sea, the other is the work of Miss Van Hall, and is also a playful scene of children and their nurses, introducing a large dog and a red pointsettia bush in one corner.

Another interesting ward is the convalescent ward donated by the Durban Turf Club. folding glass door occupy two sides, commanding lovely views of the Bluff and ocean. Mr. Ian MacDougall is responsible for the stirring historical friese, on which appear such heroes as William the Conqueror, Nelson and Haig, to take a few at random, above is an inspiring quotation telling of great deeds. Let into the floor is a quaint mosaic of rubber, showing fishes swimming around, while on one wall is a fine piece of Della Robbia representing a jockey on his horse, carried out in cream, with "Durban Turf Club" in blue lettering."¹

The entire hospital was provided with teak furniture and large marble-topped tables.

1. "Natal Mercury", 8 July, 1931.

COMMENTS

The architect designed the institution in such a way that it could be easily extended at a later stage if necessary. For this reason the kitchen, theatres, and laboratories, were made larger than necessary for the accommodation of sixty-six patients at that time.

The type of layout used in this case had the advantage of providing adequate internal environmental control conditions which, together with the possibility of further extension, fulfilled the requirements of modern hospital planning. The institution also proved to be functional, providing all the necessary facilities and equipment. Built sixty years after Addington Hospital was built, it bore some of the design of the old Institution. In both buildings, the well designed wards were of primary importance in the plan.

The internal circulation systems were different in both cases but in each one they served their purpose efficiently.

These sixty years marked great progress in the moderization of services and hospital equipment, but old Victorian rules concerning hospital planning and especially its ventilation remained almost the same.

I. SANATORIA

BACKGROUND

The Augustinian Sisters entitled Canonesses Regular Hospitallers of the Mercy of Jesus of the Order of St. Augustine, "were born of the needs of the Church."¹

They originate from the ancient "Hotel Dieu" of Dieppe in France of the 12th Century, instituted for the care of the poor and the sick, for wayfarers and pilgrims.

Owing to wars and other disturbances of the time, Dieppe was sacked on different occasions and all its records lost or destroyed.

The Augustinian sisters in Dieppe dedicated themselves to alleviate the sufferings of the sick and the destitute and the many miseries that abounded. They were seen passing through the streets, begging dauntlessly on behalf of the poor and the ailing whom they were pledged to care for. In 1629, complying with the decree of the Council of Trent (1545-1563) which "set the whole church on the path to reform", the Augustinian Sisters of Dieppe drew up a new Constitution formulating directives for community living according to the rule of St. Augustine based on the two main principles of love of God and of neighbour. This also included the imposed law of seclusion on religious women professing solemn vows of poverty, chastity and obedience. The black "habit" was replaced by a white one.

Notes and references:

1. Sister Paul, R.M. "Augustinian Sisters", Pietermaritzburg 1987.

From 1635 onwards, the Community of Dieppe began establishing foundations in other parts of France, especially in Brittany, and in 1639 sisters were sent to Canada, and to this day the descendants of these nursing sisters still flourish in the province of Quebec.

BEGINNINGS IN NATAL

Bishop Jolivet, who became the second Bishop in Natal, was born in Pont L' Abbe, Brittany, and grew up in the shadow of the walls of the Augustinian Monastery of sisters in that town. When nursing sisters were urgently needed in Natal, he turned to the monastery in his home town to look for them. In answer to his appeal, nine Augustinian sisters arrived on the "Inanda" on 31st October 1891. Originally they were meant to remain in Durban but circumstances altered matters, so they proceeded to Estcourt which then became the cradle of the Augustinian Order in Natal. The accommodation for them at Estcourt was an empty old house, but soon the sisters had a vegetable garden organized. A school was opened in a very short time and in 1892 "a piano was procured and music lessons were under way."¹

Teachers were urgently required for the school as the majority of sisters were nurses and also the English language was unfamiliar to them. Through the intervention of Bishop Jolivet, two teachers arrived from Cape Town in March 1892, to assume teaching posts.

SANATORIA

Early in 1892 a hospital was inaugurated at Estcourt, and was known as the Sanatorium. (Phot. 66-70 - ESTCOURT CONVENT)

1. Sister Paul, R.M. op. cit, p. 3.

No records exist as to the contractor and building operations on the site, but it is known that the hospital building was completed in early 1893.

While work was in progress at Estcourt, plans were afoot for a hospital in Durban. In November 1892, from a humble homestead the future renowned St. Augustine's Hospital emerged.

Four sisters were sent from Estcourt to form a community there and to manage the hospital or the "Sanatorium" as it was then termed. In 1895 the community established a home and school for destitute Coloured girls called St. Philomena's on the same property, which began as a place of care for children of the domestic workers employed at the Sanatorium.

In Ladysmith, after the persistent appeal of the Municipality for institutions similar to those existing in Estcourt, the sisters inaugurated a school in January 1895. A group of six sisters from Estcourt formed a temporary community here.

The communities of Estcourt and Ladysmith separated, subsequently forming two independent communities, each with its own Superior. Plans for a hospital at Ladsmith went ahead and in 1897 the Ladysmith Sanatorium was opened.

Encouraged by the sisters' achievements, Bishop Jolivet also envisaged a hospital for Pietermaritzburg. As the newly formed community here was unable to undertake such a venture, Bishop Jolivet again appealed to the Augustinian communities in France. In response three sisters from Vitré arrived together with two sisters from the Durban Community to undertake this project.

At the beginning of 1897, the Pietermaritzburg Sanatorium, later known as St. Anne's Hospital, came into being.

Within six years of their arrival, the pioneer Augustinian Sisters had established foundations in Estcourt, Durban, Ladysmith and Pietermaritzburg.

To assist these new foundations a number of sisters arrived from France and Canada. Once established, these communities became independent as autonomous units.

THE ORIGIN OF PLANS

The plans for the Sanatoria in four centres in Natal derive from the same origin. Probably, the design for the Estcourt Sanatorium was initially suggested by Bishop Jolivet himself and was later repeated in other centres with only small changes dependent on different site formations or accommodation required for a different number of patients.

During the period 1885-1898, Bishop Jolivet recorded the erection of several new Catholic buildings. These included: the priory at Oakford (1885), a new Academy at Newcastle (1892), designed by J.P. Mumford, a small chapel and a crypt to the memory of the pioneer Father Sabon (1886), and four Sanatoria.

The Bishop himself carefully supervised each of these new buildings.¹

All the Sanatoria represent the conservative corridor-type of buildings. This method of hospital planning, was derived from the mediaeval period and was adopted by the Augustinian Order in the 17th century when the Order started to establish Sanatoria. This form of plan was repeated through the centuries in different places and countries. The Sanatorium

1. Kearney, B. op. cit, p. 65.

erected in France in 1839 "Montsarrac en Sene" (Phot. 61) show the same design principles: the corridor type plan - where all the wards and service rooms are attached on both sides to the central corridor.

The Natal Sanatoria were built on the same pattern, with the innovation of the veranda introduced here as a climatic component of the design.

Externally, the buildings differed from their French predecessors in the architectural style used. In Canada however, the Victorian style was widely popularised, and the institutions erected there have a similar appearance to the Natal ones.

THE ARCHITECT

Bishop Jolivet commissioned William Street-Wilson, a Durban Architect, to prepare the designs for the Sanatoria.

William Street-Wilson (1856-1928) was born and educated in Surrey and at the University College, London. He was articled to W.D. Ghyther of the Strand, London, afterwards to T. McVicar Anderson, of Picadilly, then to Robert Hesketh, Architect to the Goldsmith's Co.¹

In 1881, he started his own practice in New Bridge Street, London.

In 1886 he came to Natal and set up a practice in Durban. His first partner was P.M. Barr. In 1894, after Barr's death, he was joined by Arthur Fyfe. Fyfe left the firm in 1899, and Wallace Paton became his partner.²

1. Hillebrand, M. op. cit. p. 204.

2. Ibid, p. 204.

Street-Wilson died in 1928 at the age of 73, after practising for over 40 years in Natal.

The practices which he had set up with his partners were described by the Colonial Secretary as being the best in the colony.¹

His works include: House 276, Davenport Road, Durban (1893)
 Addington Hospital Durban (Additions 1892)
 Royal Hotel, Durban (1894, reconstruction)
 Public Baths, Pietermaritzburg (1895-6)
 Railway Station, Durban (1895-8)

 Augustinian Order Sanatoria in Estcourt, Durban,
 Ladysmith, Pietermaritzburg (1893-1897).

1. Kearney, B. op. cit, p. 55.

1. ESTCOURT SANATORIUM 1893ORIGINAL BUILDING, 1893

In 1893, the plans for the Sanatorium in Estcourt were prepared by W. Street-Wilson in co-operation with Percy M. Barr who was a partner in his practice at that time.

The Estcourt Institution initiated the erection of a series of Sanatoria in Natal.

The Estcourt Sanatorium was the only hospital in the area, so not long after the erection of the original part, the extension of and increase in available accommodation for patients became necessary.

PLAN (FIG. 164, 165)

The original building was laid on a rectangular plan with the problem of circulation solved by the greek-cross plan.

Pairs of wards were arranged in each quarter of the building providing accommodation for 16 patients.

A separate lavatory for each sex was built as sexual segregation was introduced into the plan. They were terminations of the transverse passage, being a convenient distance from the wards. Women occupied four wards on the left side of the main entrance, and men four wards on the right side.

The entrance, placed on the central line of this symmetrical structure, was gained through the veranda.

The rear of the building was constructed in the same way.

The plan of the hospital was simple and functional. An interesting feature of the design was the central point of the establishment, an intersection of two internal passages, where four arches were erected.

A fire-place was fitted in each ward as the only source of heating.

SERVICES

The only services put into the building were the toilets and lavatories, separate for men and women. Cooking and washing was done in the convent kitchen and laundry located in close proximity to the nuns' residence. There was no operating theatre as such, and the District Surgeon had to perform operations in primitive conditions in the wards.

CONSTRUCTION AND EXTERIOR (FIG. 166), (PHOT. 64-5)

The building was constructed of bricks and topped by a gabled wooden roof, covered with galvanised corrugated iron sheeting. A veranda surrounded the building on two sides and consisted of wooden elements: pairs of columns with decorative brackets and simple balustrades.

The veranda roof was designed in the same character as the main roof, and below the main roof eaves, small windows were provided serving as an additional source of light and ventilation.

The building, small in size was elegant in its proportions and general aesthetics, and represented the style of the late Victorian days. A

decorative gable over the entrance (Fig. 244) together with a roof ventilator placed directly above it dominated the whole structure. The use of different materials created the colourful and interesting composition on the elevations.

ADDITIONS 1899-1900 (FIG. 167-8)
(PHOT. 65)

This small building served in its unchanged form as a local hospital for six years, and in 1899 it became necessary to extend it. The Anglo-Boer War's wounded occupied all the beds even in the Convent building, and there was no space at all for civilian patients.

At the end of 1899, work on site commenced, and in May 1900 it was completed,¹ resulting in an L-shaped structure. According to the design of W. Street-Wilson a wing measuring 105' 5" x 47' 10" was added to the existing building on the eastern side.

Several new wards were provided increasing the available accommodation to 40 beds. New service rooms were provided: a lavatory, bath and laboratory, were arranged next to the wards.

The operating theatre complex, which was erected on the western side of the building consisted of an operating room, with an anaesthetic room attached to it, the sluice room, and doctors' room.

1. Augustinian Order Archives.

CIRCULATION

The hospital circulation system was now much improved.

Verandas, surrounding the building on all sides, together with internal passages served as communication links between service rooms and wards. All wards had exits through the French doors onto verandas of the same character as existing ones. The internal floors were laid in concrete.

CONSTRUCTION

The building was extended in the same way as the original structure. The main entrance to the Sanatorium remained in the same position.

FURTHER ADDITIONS, 1928 (PHOT. 62)

The building remained in this shape until 1928, when the new Maternity Block was added to the old part from the other side.¹

The main entrance to the Maternity Block now became the main entrance to the whole establishment.

The new wing comprised four wards and necessary service rooms.

The elevations of the old building were redecorated. Wooden columns supporting the veranda roof were replaced by brick piers, and wooden balustrades by brick ones.

1. Augustinian Order Archives.

The main entrance was marked by a "Mutton Leg" Dutch gable, supported by a brick pier and Tuscan column in the prostyle, on either side of the entrance. A flight of steps led to it.

These alterations and additions were done after the Sanatorium came under the supervision of the Natal Provincial Administration and became "Our Lady of Grace" Hospital.

2. DURBAN SANATORIUMBACKGROUND

During November, 1892, five Augustinian Sisters arrived in Durban from France and bought a 10 acre-plot of land from the Town Council, which:

"... was an orange grove, where trees and shrubs were plentiful."¹

The sale included three cottages with open verandas, the total cost being £3 000.²

One cottage was used as a Convent, while the others provided accommodation for twenty patients and became known as the "Sanatoria".

Shortly afterwards, several Sisters from France and Canada arrived and together with three local Sisters joined the pioneers to produce an ever enlarging Private Nursing Home.

THE FIRST SANATORIUM, 1893 (FIG. 169)

W. Street-Wilson and M. Barr were commissioned by Bishop Jolivet to prepare the plans for a new Sanatorium on the Berea.

The plans were presented to the Town Council and approved in October 1893.

In January 1894, the foundation stone with the inscription:

"Primarium Lapidem
Ponebat Carolus Ep. Bell
Die 18th January, 1894"³

was laid under the new Sanatorium building.

Notes and references:

1 - 3 . Augustinian Order Archives.

In November of the same year, the building was completed and handed over to the Convent.

The site, situated in Berea on the hill, commanded a beautiful view of the Indian Ocean and the Bluff. The building elevated on a terrace, faced an eastern aspect and overlooked the City of Durban. The entrance to its premises was from Chelmsford Road.

THE PLAN (FIG. 170)

The newly established double-storeyed Sanatorium was large enough to accommodate sixty patients.

The building was laid on an H-shaped plan, representing a corridor-type structure. It was connected with a cloister by a covered walkway, a continuation of the passage in the right wing.

Private wards were arranged in the bar of the H-letter and in the frontal part of the side wings, the back parts of the wings being occupied by big, common wards.

The architect designed the sanitary facilities in the same place as in the Estcourt Sanatorium, on both terminations of the transverse passage. He also introduced sexual segregation of the patients.

The internal circulation was on the Greek-cross plan, and the veranda surrounding the whole building served as additional, semi-enclosed passage.

The wards on the ground floor had the exits through the French doors.

The first floor echoed the plan of the floor below with one exception - there were no verandas around the side wings.

In this building, as in the designing of the Estcourt Sanatorium, W. Street-Wilson chose a corridor-type of layout, making the design similar to any other public institution. Natural cross-ventilation of wards was poor, so he introduced additional roof ventilators to improve it.

EXTERIOR (FIG. 171-2)
(PHOT. 71-2)

This double-storeyed structure was built of brick and topped by a wooden hipped roof, covered with corrugated iron sheeting.

Decorative wooden brackets on the veranda pairs of columns together with wooden balustrades created an interesting feature of the external appearance.

W. Street-Wilson repeated this detail of the Estcourt Sanatorium.

Similar types of columns, recently used in the newly erected Cloister buildings in Estcourt, were also built here.

In the Berea Sanatorium, he composed white painted veranda elements with brick, red walls that created a colourful and elegant view of the building. Double sliding sash windows and French doors articulated all the elevations.

The entrance, placed on the central line of the facade, was gained from a flight of steps and veranda.

The Cloister building connected with the Sanatorium was designed around an internal patio and was finished in the same way.

SERVICES

The position of service rooms was similar to the those Estcourt. The only service facilities provided in the hospital were the bathrooms and toilets, separate for each sex, arranged as a block linked to the main building.

The Convent facilities were used for the cooking and laundry, and the food and linen had to be transported to the Sanatorium.

The Institution did not have a dining hall, and all the meals were served in the wards.

NURSES TRAINING IN SANATORIUM

The year 1912 made history when the first secular women were admitted for training as nurses.

The training of nurses did not last for long, as in 1920 the Medical Council closed down training schools for nurses in private institutions,¹ and it was not until 1954 that the Nursing Council permitted training once more.

By that time the Durban Sanatorium was recognized as a first-class training hospital.

SANATORIUM, 1912-1914 (PHOT. 73-4)

Because of a shortage of accommodation in Addington Hospital since its opening, some patients were sent to the Berea Sanatorium.

In 1912, the decision was taken to add a Maternity section to the existing building, and this was completed in 1914 with a capacity of twenty beds.²

The L-shaped wing was linked to the old building, with the entrance from the same side as the old one. This double-storeyed structure was built in a classical, freely treated style, entirely different from that of the old Sanatorium.

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1. "Natal Mercury", 20 May 1920.
 2. "Natal Mercury", 12 March 1914.

Internal circulation was solved on an L-shaped plan with wards and service rooms attached to the central passage. The upper storey was a repetition of the floor below.

This brick plastered and white painted structure was topped by a wooden tiled roof. The roof over the shorter wing was in a hipped shape and dominated the whole structure.

The veranda on the facade was designed in the form of arcades on the ground floor. Side elevations of this wing comprised the colonnades erected on both storeys, consisting of four pairs of Doric columns on each floor.

The horizontal line of the cement-plastered white balustrades in between the columns was composed together with vertical articulation of windows and colonnades.

All the wards had exits onto the veranda where the female patients could rest, enjoying the beautiful view onto the Durban City and the Ocean.

ADDITIONS, 1917 (PHOT. 77)

By this time, electricity had been installed and other services followed rapidly. In 1917, the X-Ray Department was opened in the old building.

The Nurses' Residence, a double-storeyed building, now situated at the corner of Chelmsford Road and Clark Road, was built in 1917 in the same architectural style as the new Maternity Section.

It had a quadrangular layout with an internal patio. The Nurses rooms were placed on the external side of the building, and the entrance to them

was gained from an internal colonnaded veranda.

This type of design for the Nurses' Home was later repeated in the Pietermaritzburg Sanatorium, when, in the 1920's, one was erected based on the same principles.

NEW SANATORIUM, 1939 (FIG. 173-78),
(PHOT. 75-6)

By 1939, the old Sanatorium was badly damaged by white ants and had to be demolished.¹ A new three-storeyed modern building was erected on the same site, with the external appearance matching the existing Maternity Section.

The main entrance to the Maternity Section now became the main entrance to the whole establishment.

The plan introduced in this version was the composition of corridor-type blocks connected at right angles with the central spine, also of a corridor-type.

All the wards in the building were ventilated by windows and French doors but the internal environmental conditions were not adequate. The only means of ventilation (other than windows) were the fire-places in the wards, but this source of fresh air was insufficient.

Duty and service rooms were placed in close proximity to the wards to assure convenience of service.

1. Augustinian Order Archives.

Externally, all the finish of the new building was designed to match the existing Maternity Block. (Phot. 78-9). White-painted concrete Doric columns supported a balcony cantilever above and the roof all round the building on the top floor. (Phot. 114-15)

Arched doors and windows, very elegant in appearance, decorated this proportional structure. The Doric colonnades, together with white-painted walls were kept in the same elegant character.

The first lift was installed and three operating theatres were provided in the same year.

The New Durban Sanatorium building did not represent any innovative method of hospital planning, being laid on the conservative corridor-type plan.

3. LADYSMITH SANATORIUMBACKGROUND

In 1893 the Municipal Council of Ladysmith asked Bishop Jolivet for teaching and nursing nuns for the opening of a Hospital and School in Ladysmith.

In 1894, "His Lordship, Bishop Jolivet, gave Rev. F. Matthiew the charge of visiting Ladysmith."¹

The Father chose the hill as "the only suitable spot for the foundation of a Mission."²

Shortly after, the Sisters bought twenty one acres of ground for the sum of £200.² They rented a house in town, Pine Lodge in Merchison Street, until the Community was built.

The nuns arrived in Ladysmith on 24 January, 1895, and shortly after that, on 2 February, 1895, the school for six pupils was opened in town.

LOCALIZATION

The editor of the "Ladysmith Gazette" wrote in July 1904:

"This Sanatorium established some times ago is delightfully situated on the high ridge behind the Town Hall at Ladysmith, and commands an extensive view of the Berg, 30 miles distant. From it, can be seen many of the new historic places, the scenes of the glorious struggle of 'Britain's sons to uphold the flag of their country. In fact, during the siege it was often used by officers as a post of observation and the captive balloon at one time was sent up just outside the grounds of the Convent."³

Notes and references:

- 1, 2. Augustinian Order Archives.
3. "Ladysmith Gazette", 3 April 1894.

SITE WORKS

On 9 February 1896 the "Ladysmith Gazette" editor reported:

"The workmen begin to clear the site on the hill, where the buildings will be erected."¹

and on 13 June 1896, he wrote:

"His Lordship, Bishop Jolivet lays the foundation stone of the Chapel and Sanatorium."²

On 28 August 1896, he wrote:

"For the first time the constructions on the hill can be seen from the town."³

In January 1897, the nuns left Pine Lodge to take possession of the new Convent on the hill, which was still not quite finished.

The Sanatorium was completed in June 1897, and on 12 July:

"...the first patient admitted in the Sanatorium dies".⁴

PLAN (FIG. 179)

The completed Sanatorium was erected as a small structure, on a rectangular, corridor-type layout. W. Street-Wilson repeated here his design for the Estcourt Sanatorium.

The building faced the eastern aspect and comprized eight two-bedded wards arranged in pairs on the sides of internal corridors laid on the Greek-cross plan.

1 - 4 "Ladysmith Gazette", 9 February 1896, 13 June 1896, 28 August 1896, 13 July 1897.

The entrance, put in the centre of the facade, led through the veranda into the passage which continued to the exit on the western side.

The sanitary facilities comprised separate mens' and womens' bathrooms and toilets, and were placed in low, mono-pitched blocks, attached on both sides to the main building. They were arranged at a convenient distance from the wards.

Internal environmental control conditions were poor, especially cross ventilation, and the architect introduced a roof ventilator into the design to remedy the situation.

The "Ladysmith Gazette" editor reported:

"The position is delightful, the air pure and invigorating, the building vast and spacious, offering all the comfort, that the sick and invalid can wish.

Every care has been taken to make the place up-to-date hospital and Sanatorium in every respect.

The building is one of the finest and largest in Ladysmith. The cuisine is excellent, and for those who have lost appetite, I can confidently recommend it."¹

EXTERIOR (PHOT. 80)

As in the case of the Estcourt and Berea Sanatoria, W. Street-Wilson proposed the erection of the building on a terrace. Access to it was gained by a flight of steps.

Externally, it repeated the design of the Estcourt Institution, with the difference in the form of veranda elements.

1. "Ladysmith Gazette", 6 November 1908.

Here, the single wooden columns with decorative brackets were placed on either side of the main entrance, while in Estcourt and Berea, the architect designed the pairs of more decorative columns. Ornamentally finished balustrade railings, simple decoration of posts (all painted white), together with the brick walls and iron roof formed a fine composition of materials and colours on the facade. The construction of the back veranda echoed the front one for additional ventilation and lighting of the wards.

INTERIOR

Internally, the walls were plastered and painted and everywhere, except for the bathrooms and toilets (where the cement was laid on the floors), wooden floors were introduced. The concept of arches in the intersections of internal passages was also repeated from the Estcourt Sanatorium.

THE SERVICES

The Sanatorium was erected in close proximity to the Convent Buildings, and the nuns accommodated there had easy access to it in case of emergency.

The Convent kitchen and laundry served both the hospital and the School.

Up until 1903, the Sanatorium had its own underground water tanks and received water from the town only in 1903.¹

Electricity was installed by the end of that year. The funds for this purpose were granted by the Government.

1. Augustinian Order Archives.

SANATORIUM DURING THE ANGLO-BOER WAR

The editor of the "Ladysmith Gazette" wrote in July 1904:

"Sanatorium was one of the first hospitals under the Red Cross at the beginning of the war, and for some time after the siege the Red Cross still waved over it, until it was found too risky to jeopardise the lives of the sick and wounded, as the building lay in the line of fire of the Boer guns in their attempts to silence the guns. In fact the building suffered rather severely during the bombardment at various times, no less than five shells having struck it. During the latter part of the siege a portion of the building was turned into a convalescent home for the volunteers, the authorities recognizing the suitability of the place for such.

On the arrival of General Buller in Ladysmith he made it his headquarters. It has since been repaired and thoroughly renovated."¹

SANATORIUM AS THE AUGUSTINIAN INSTITUTION

The "Ladysmith Gazette" reported again:

"The Sanatorium is served by nuns of the Augustinian Order, those in attendance at the hospital being specially trained as nurses. They were early ordered away from the establishment owing to the dangerous position in regard to the fire from the Boer guns. They were then sent to live in tents at Intomia Spruit, and there they remained throughout the whole length of the siege, sharing the hardships of those out there. They have nobly and modestly done their part of work in tending to the sick and wounded, though themselves crippled by fatigue, illness, want of proper nourishment, and exposure to the inclemency of the weather.

We have heard of the good works of nurses, doctors, etc, but nothing of the work of these good and charitable Sisters though performing their duties like the rest of them, doing their utmost to alleviate the sufferings of sick and wounded."²

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1. "Ladysmith Gazette", 2 July 1904.
 2. "Ladysmith Gazette", 3 June 1908.

EXTENSIONS AND ALTERATIONS, 1920-1922

By 1915 the building was full to capacity and in 1918, the children's dormitory at the school was used as a hospital. The need for more accommodation in the Sanatorium was increasing year by year.

There was an especially critical situation in 1918 with the outbreak of an epidemic of "La Gryppe Espagnole", when all the schools had to close down and the buildings were used as a temporary hospital.

The plans for the new Sanatorium were prepared by the Ladysmith Architect D. Shearer, and were approved by the Order Authorities and Ladysmith Municipal Council on 29 October, 1920.

In January 1921 the work on the site commenced and the process of building operations took over a year. Finally, the new Sanatorium was officially opened on 26 January, 1922, at 3 p.m. by Senator W. Cochrane:

"...His Lordship, the Mayor, the Municipal Councillors, the Doctors and Ministers are all invited to a royal banquet in the big School Hall."¹

The old Sanatorium served the Augustinian Community for 25 years after which it had to be demolished due to its delapidated condition caused by white ants. A similar situation arose in the case of the Berea Sanatorium, which was to face the same future.

THE NEW APPEARANCE (FIG. 180-1)

The new Sanatorium also represented a corridor-type structure with the wards attached on both sides to the central passage.

1. "Ladysmith Gazette", 25 January 1922.

The building was designed as a double-storeyed structure. The ground floor comprized seven wards, ablutions, and Nurse's Duty Room. All the wards were of the same size, providing accommodation for two patients. The beds in the wards were arranged parallel to the external walls, which assured better provision of daylight and sun for the inmates.

The veranda surrounding the building on three sides could be approached from every ward through French doors.

The layout of the second floor echoed the layout of the floor below.

The problem of heating the wards in the chilly Ladysmith climate was solved by placing fire-places in each of them.

SERVICES

The service rooms were put at the back of the building, and were adequate in size and equipment to the required standards of hospitals at that time.

The kitchen block was erected as a separate structure, and it was later also used by nuns for the preparation of food for the Convent and School.

Access to sanitary facilities was fairly inconvenient as it was gained from the central passage, the most exposed and used circulation link in the establishment.

EXTERIOR (FIG. 181a, 182, 184),
(PHOT. 81-3)

The new Sanatorium received a totally different external appearance from the old building. In fact, it was similar to the second Sanatorium erected in

Berea, and the redecorated Sanatorium in Pietermaritzburg. All of them were built at the same period of time, and all of them bore the influences of the European Classical Style.

On the ground floor, the Architect designed classical arcades, and brick plastered piers on the floor above.

The entrance door in the centre of the facade was flanked by big, rectangular windows of the casement type. Access to the building was gained by a flight of steps, a feature similar to that as used in the Old Sanatorium as its position on the elevated terrace remained unchanged.

The structure was built of brick, plastered, and painted white. It was topped by a hipped roof, covered with galvanised corrugated iron sheeting.

The veranda roof on the second floor was incorporated into the main roof. Vertical divisions created by arcades were composed together with horizontal lines of brick balustrades plastered and painted white.

The Sanatorium built in freely treated classical style was elegant in its proportions and had a dominating position in its surroundings.

Functionally it was well organised with the exception of the position of the sanitary facilities.

FIRE, 1925

On the 26th October, 1925 the "Ladysmith Gazette" reported:

"...the fire broke out in the scholastic portion of the Roman Catholic Convent, and notwithstanding the most strenuous efforts of the Borough and Railway Fire Brigades, assisted by a host of townspeople, the whole of the older educational block and the new two-storeyed block, nearing completion, were destroyed. Owing to the absence of wind, the Convent property and the Sanatorium buildings escaped severe damage."¹

1. "Ladysmith Gazette", 26 October 1925.

The estimate of the damage was £10 000. Some of the patients in the Sanatorium were removed from the building as a precaution, but were soon returned to their quarters.

The newly-erected building did not suffer much, and the necessary repairs to the laundry and kitchen block were completed in 1927.

FURTHER ALTERATIONS AND ADDITIONS, 1930'S (FIG. 185)

In 1930 the Sanatorium was linked to the Convent buildings by the ward block, increasing the available accommodation of patients by eight beds.

The new addition was built in a style matching the existing building.

In 1932, the Sanatorium became the subsidiary of the Natal Provincial Administration and was known for years as "La Verna" hospital.¹ In 1933 it became both a specialized institution for maternity cases and the general hospital.

The Maternity wards occupied the upper floor, the ground floor being left for the general diseases wards.

An extension erected in 1930 now became the administration section with the main entrance created there.

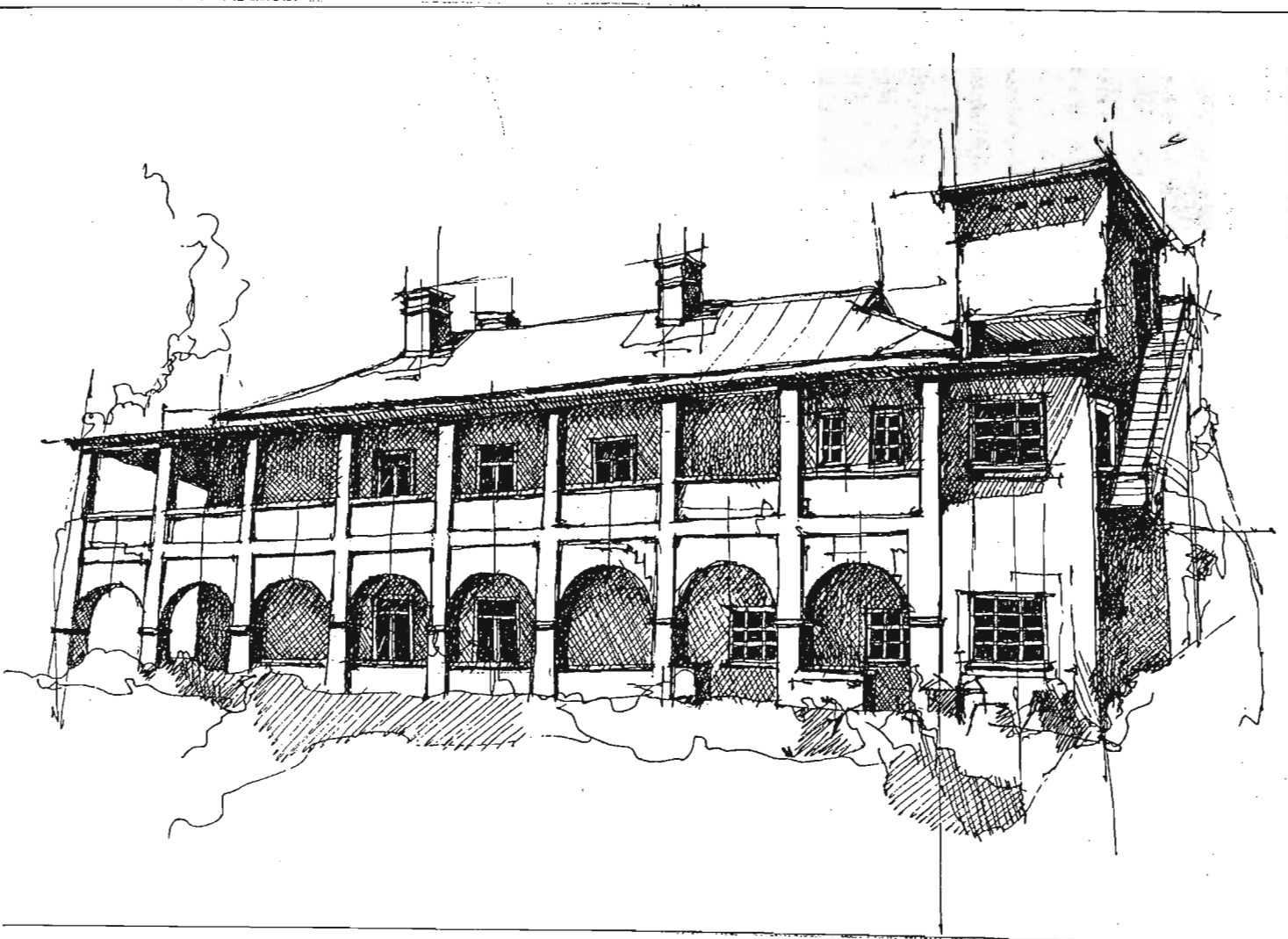
French doors around the building were replaced by casement windows, and the whole idea of "veranda as an outdoor space for the patients" failed.

The Institution received its X-Ray equipment and a lift was fitted in 1935.

1. Hospital Services Department Archives.

In this form it served for many years. In the 60's, when the Ladysmith Provincial Hospital was able to accommodate all the general diseases and maternity cases, La Verna became the Geriatric Institution.

It finally closed its doors in 1985, as a result of a lack of funds necessary to keep it going.



4. PIETERMARITZBURG SANATORIUMBACKGROUND

The Pietermaritzburg Sanatorium followed the ones in Estcourt, Durban and Ladysmith. Founded in 1897 by the Right Reverend Bishop Jolivet O.M.T., the hospital was opened in 1898.¹ The design was commissioned to W. Street-Wilson, and Arthur Fyfe, who was his partner at that time.

Until that time Grey's Hospital was the only hospital where private patients were admitted, but private practitioners were not allowed to visit and attend patients.

The Pietermaritzburg doctors then approached Bishop Jolivet and asked him to institute a sanatorium, similar to the one in Durban.

At first, patients in the Sanatorium were admitted free of charge, but later a charge was made for those who could afford to pay. All the work was done by the Augustinian Order Sisters, who acted as nurses, cooks, and laundry maids.

The foundation stone was laid on the chosen site which cost £2 000 by Bishop Jolivet, O.M.T., on 14 September 1897.²

The "Natal Witness" opinion was optimistic:

"...It will prove a boom to the sick of the City and neighbourhood."³

The work on the site had begun, and in October 1898, the institution opened its doors to patients.

Notes and references:

1. Augustinian Order Archives.
2. "Natal Witness", 3 October 1897.
3. "Natal Witness", 20 September 1897.

THE SITE

The building was situated at the upper end of Loop Street on a site:

"...unrivalled in the City for healthiness and beauty of prospect"¹

It faced the north and embraced a magnificent view of the surrounding country:

"...To the left lies the range of hills crowned by "Cape Folly". All in front sweeps the gentle slope of the town lands, with Table Mountain rising grandly in the distance beyond, and the College, the Park and the Umsindusi River filling in the foreground.

The occasional strains of martial music stealing up from the Park add an additional spell to the prospect; and prove grateful to the ears of the sufferers within."²

DESIGN IPLAN (FIG. 186)

The plans for the first design for the Loop Street Sanatorium were completed by W. Street-Wilson and A. Fyfe in October 1896.

The project was not realised as Bishop Jolivet changed his mind later as to the accommodation for patients and required that few rooms for nurses as well as a church be included.

The original design comprized a three-storeyed main building and one-storeyed block of operating room and lavatories.

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1. "Natal Witness", 20 September 1897.
 2. "Natal Witness", 12 December 1898.

The ground floor of the main Sanatorium contained the following service rooms: a kitchen complex and dining hall, and the two floors above served as space for patients.

The lavatory block was to be detached from the main building and linked to it by an enclosed passage. Entrance to the operating room was gained from a veranda placed on the facade of the building.

The first and second floor plans were identical in their layouts and consisted of nine wards each.

The whole complex was laid on an almost square plan with the main entrance placed in the centre of the main block.

THE SERVICES

The service rooms in the Loop Street Sanatorium were well advanced in comparison with those of previous buildings of that type.

In contrast to the Sanatoria in Berea, Estcourt and Ladysmith, an operating room, kitchen complex, and dining halls for nurses and convalescents were provided in the hospital building.

The placing of bathrooms and toilets (separate for each sex) on the ground floor seemed to be the only disadvantage of this design. Patients who were to be accommodated on the upper floors would have no convenient access to them, and would have to climb up and down the stairs to get there.

CONSTRUCTION AND EXTERIOR (FIG. 187-9)

The building was to be built of bricks with wooden verandas and topped by a hipped roof covered with galvanized corrugated iron sheeting.

Gables with additional louvre ventilators were to be provided in the roof.

Carpenter's laces, as marked on the drawings were introduced on the veranda and balconies, and took the form of delicate ornamental pattern brackets and balustrade railings. Four imposing chimneys, each carrying six flues, articulated the side elevations of the structure.

The internal staircase was lit by a big, arched window in the centre of the side elevation.

DESIGN II (FIG. 190-98)

The new design, completed by W. Street-Wilson and Arthur Fyfe in May 1897 showed generally the same planning principles as the previous one with the following modifications:

1. the design included erection of the Church connected with the Sanatorium by an enclosed walkway;
2. the Operating room was placed separately;
3. accommodation for nurses was provided in attics;
4. a lift was installed to make the internal communication more convenient.

The newly erected building, which cost £6 000, consisted of three floors and attics and had accommodation for over 30 patients.

Dr. Campbell Watt, the resident doctor of Grey's Hospital, wrote:

"The wards were 20 in number, eight 18' x 12' double-bedded, the rest being intended for the use of one patient only, 15' x 12' in size.

On the ground floor was the dining room, sitting room, two wards, bathroom (with hot and cold water and a shower), kitchen and offices. There are seven wards on the first floor and two nurses' rooms.

The second floor was devoted to wards; while the attics formed the bedrooms for the nurses."¹

EXTERIOR

Externally the proposed building did not depart much in its appearance from the original proposal (1896).

The main difference was created by adding a church which was connected with the hospital by the introduction of split levels due to the ground formation in the link between it and the Sanatorium building.

On the facade and back elevation the attic windows were arranged below the gable louvre ventilators.

The verandas' carpenter's laces were generally simplified.

1. "Natal Witness", 8 December 1898.

INTERIOR

After the Sanatorium opening ceremony, the "Natal Witness" editor wrote:

"...In the corridor of each flat (attics) is a washstand with hot and cold water. An elevator runs from basement to attic. The whole building is fitted with electric light, and electric bells are everywhere. Two wide balconies overlook the Park, and, with the corridors, form splendid promenades. All the furniture is of a high class, combining usefulness with elegance.

The wards, particularly, are beautifully furnished with complete bedroom suites and appliances. Each ward possesses a fireplace, and fanlights are fitted above all doors and windows to assist the ventilators when necessary.

On an average the small wards measure 15 feet by 12; and the ceilings are lofty.

All the walls in the building are painted, in order to secure perfect cleanliness."¹

Also:

"The ventilation and drainage are excellent. The operating room stands apart from the main building, and is well lighted from the roof and sides.

The grounds attached to the Sanatorium will be laid out in a tasteful style with walls and garden houses."²

MANAGEMENT

The management was in the hands of the Augustinian Sisterhood of the Mercy of Jesus.

"The Reverend Mother Superior and Sisters form the nursing staff, and are all nurses of high training and long experience."³

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1. "Natal Witness", 20 October 1898.
 2. Ingram, T.F. "The Story of an African City"; Maritzburg 1898, p. 80.
 3. "Natal Witness", 8 December 1898, article by Dr. Campbell Watt.

One commendable feature of this well-equipped institution was that each patient selected his own medical attendant:

"....there being no regular medical staff attached, the clergymen of all denominations are at liberty to visit their side-convalescents may be admitted in the event of there being room to spare, the sick having the preference.

The charges have a wide range - from 5s. to 12s.6d. per day; while the poor are admitted at reduced rates, or free"¹

ALTERATIONS AND ADDITIONS, 1902-3 (FIG. 199-200)

By the end of 1901 it was felt that the Sanatorium should have been enlarged, as the Anglo-Boer war wounded, being accommodated at Grey's left not much space for civilian patients.

Plans prepared by W. Street-Wilson and Wallace Paton, a partner who joined him in 1899, went ahead in December 1902.

In November 1903, the additional ward block was completed. It was attached on one side to the corridor linking the main Sanatorium with the church.

The additions consisted of four new wards, and increased available accommodation by twelve beds.

Various Convent building's improvements were carried out at the same time. These included new bathroom fittings and modern kitchen equipment.

1. "Natal Witness", 8 December 1898.

EXTENSION, 1906 (FIG. 201-3)

In 1906, new building works took place in the Sanatorium. An additional floor was put over the ward block erected in 1903.

The new extension provided five new wards and accommodation for ten inmates.

Externally, the new section matched the existing building in materials and architectural style.

This addition was not very satisfactory, and the Sanatorium remained in this shape for six years only.

CHANGES, 1912-20 (FIG. 204-7),
(PHOT. 84-5)

In 1910, major extensions were made to the Convent buildings and these included the Sanatorium.

A three-storeyed block was erected at right angles to the main hospital where the operating room had been demolished.

The new building provided several new wards and a modern equipped Operating Theatre Complex.

All the wards faced east and overlooked the Umsinduzi River and Alexandra Park. They were provided with French doors leading to the veranada.

The new block was built in neo-classical style with an appearance similar to the New Maternity Section in the Berea Sanatorium.

The Nurses Residence was erected in the year 1920, on the plan of a quadrangle, echoing the recently erected Berea Sanatorium Nurses Home.

While adding the new buildings to the Sanatorium in 1920, the old building was completely redecorated. The walls were plastered and painted, and the finish of the veranda and balconies on the facade were completely changed from wood to plaster brick. Two pilasters with pseudo-Corynthian capitels flanked the wide entrance door.

The balcony on the second floor was supported by simple brick piers with a brick balustrade, the balustrade of the top floor being manufactured partially of cast-iron.

The total cost of these additions was £23 000.

The Sanatorium served for 74 years under the Augustinian Sisterhood patronage, and in 1972 it was taken over by the Natal Provincial Administration and is known as St. Anne's Hospital. (Fig. 206-7)

COMMENTS

All four Sanatoria were designed and erected at about the same period of time. W. Street-Wilson and his partners, P.M. Barr, A. Fyfe, and Paton were commissioned by Bishop Jolivet to prepare the plans for the original buildings and further extensions and alterations.

In each of the four centres, Bishop Jolivet selected a dominating position for the Convent buildings.

In Estcourt and Ladysmith, the convents were founded on the outskirts of the towns, in Durban, on the Berea hills commanding a beautiful view over the sea and Bluff, and in Pietermaritzburg on the banks of the Umsinduzi River, overlooking the newly established Alexandra Park.

W. Street-Wilson felt the importance of additional elevation of the Sanatoria above surroundings, and placed them on terraces.

All four designs bear the same planning principles, and represent corridor-types of structures.

As the natural cross-ventilation and lighting in the wards was not sufficient, the architect introduced the following additional sources of ventilation:

roof ventilators, wall openings between veranda and main roofs, and fire places built into internal walls which served as ventilators as well as for heating purposes.

All these buildings were well-planned functionally - the wards, usually two-bedded were put on both sides of the central passage and outdoor spaces were provided in the form of a veranda. The beds were arranged parallel to external walls, ensuring the provision of sunlight on the beds.

The majority of service facilities like kitchen, laundry and store rooms were placed in the Cloister buildings, for common use by the Convent and Hospital.

The exception was the Pietermaritzburg Sanatorium, built as the last one of a series and representing a major advance in hospital planning. All the necessary service facilities were provided there in the hospital building. A modern equipped Operating room was erected as a separate structure, linked to the main block.

In the Estcourt, Durban and Ladysmith Sanatoria, the only service rooms within the hospital were the bathrooms and toilets, arranged in all these buildings in the same way - as blocks attached to the sides of the main building, easily accessible by patients.

All the Sanatoria were continuously extended and altered over the years and the main reason for this was a need for more accommodation. The Estcourt and Ladysmith Sanatoria were the only medical institutions in their area at that time. In Pietermaritzburg and Durban, from their inception, the Sanatoria admitted patients from Grey's and Addington Hospitals. The situation became more acute during the Anglo-Boer War and Bambata Rebellion, when the war wounded had to be accommodated.

In the 1920's all the Sanatoria became specialized institutions for Maternity cases.

The Durban and Ladysmith original Sanatoria had to be demolished due to their delapidated condition. New buildings were erected there, and the Sanatoria in Estcourt and Pietermaritzburg were redecorated externally in such a way that all four Institutions have a similar external appearance. They are all finished in a freely treated classical style, and everywhere verandas and balconies are provided, serving also as communication links.

All these Sanatoria represent examples of institutions which developed and adapted to the conditions of continuous demand for more accommodation.

The Durban Sanatorium is now being altered and extended.

II. MISSION HOSPITALS

"Let us build hospitals alongside our many churches and treat the indispositions of the Bantu in a recognized professional manner. Let us establish dispensaries at our schools and distribute medicines and give first aid to all that come to us for help. Let medical assistance be brought to the door of people, and let us keep the Divine example before our eyes and before the eyes of our patients and do all in the spirit in which He was healing the people. Jesus Christ, our King and Master, gave freely of His power in healing the sick and relieving distress, and we cannot go far wrong if we imitate Him in so doing. But let us remember, and let us impress it on our medical helpers, that the sense of our unquestioning reliance upon the power and wisdom of the Eternal Father must show through all our work if it is to be a faithful representation of that First Missionary Healer."¹

BACKGROUND

The 19th Century witnessed a tremendous surge in missionary activity among pagans throughout the world. While the ancient mission-fields of America and Asia sprang to new life, new mission societies undertook the christianization of Africa.

The great missionary of negroes, Fr. Libermann, sent his "Fathers of the Holy Ghost" into the coastal regions and interior of West-Africa. The "White Fathers" advanced from the north and from the east.

Once missionary bodies came into being, the service of doctors was accepted to help sick Africans, whose only medical aid was the so-called "witchdoctor".

In the 19th century, the church did not adopt the concept of medical missionaries or medical missions with any degree of enthusiasm. At that

Notes and references:

1. Brain, J.B. "Catholic Beginnings in Natal and Beyond"; Cape Town : T.W. Griggs, & Co., 1975.

time many Christian leaders and missionaries considered prayer at the time of sickness more beneficial than treating the patient medically as well. They believed that spreading the Gospel through the evangelist and setting up schools to educate the population were more important than providing them with a health service.

James McCord wrote: "Many missionaries then believed that faith and prayer were sufficient to ensure native health - a statement that may today cause a sceptical lift of brows. Medical missionaries were expected in that day to be first preachers, then medical men, if time remained for that." ¹

The missionaries entered Africa as "Christian Soldiers" to bring light to the "ignorant backward".²

Their arrival in South Africa closely followed the establishment of a Colonial power, mainly that of Britain. The Church had centres in London, Edinburgh, Galsgow, Dublin and other towns in the United Kingdom. Later in the 19th Century there arrived on the scene other Christian bodies, such as the Lutheran, Swiss, American and the Dutch Reformed Churches. The Colonial Administration supported the missions, providing the funds for keeping them alive from their own budgets.

Characteristically almost all missions depended entirely on funds from overseas for their existence and for many years most of their medical and trained nursing staff were recruited from there too.

In some instances no doctor was appointed to the station or it was merely visited at regular intervals by the District Surgeon of that area. In other cases the mission started with a doctor and nurses and, as the station grew, more nurses were appointed. They originated predominantly from Britain and other European countries and the United States of America.

1 & 2. Brain, J.B. op. cit, p. 68.

An increasing number of accounts of the African witchdoctor was reaching in Europe in the 19th Century. He was described as an evil type of medical practitioner who practised magic and witchcraft. It was believed that the only way to curb his dangerous practices would be to provide Western medicine and reduce his influence by spreading the Christian faith.

Jane Furse wrote in her brochure "A Light in the Darkness":

"Heathenism is very strong, and the chief and people hold fast to their ancient customs which in many cases are slowly destroying their people. Belief in magic and witchcraft holds the people in bondage of fear and often they only come to hospital for treatment when native doctors and divines have done their worst."¹

Only in the sixties did the Church discover that the witchdoctor was not the dangerous person he was believed to be, but that he was helpful to the African population in his use of herbal medicine.

THE FIRST MISSIONARIES IN NATAL

Natal was one of the earliest places to attract the missionary and evangelist, and the first missionaries qualified as medical men arrived here in the first half of the 19th Century. In contrast to the missionaries at the Cape Colony, these came to a land which was far from settled, and resistance from the Zulus was growing.

In December 1834 Allan Francis Gardiner, an Anglican, reached Natal after riding through the Cape and Kaffraria hoping to start mission work among the Zulus, but Dingaan was not willing to see him. In March 1835 the traders invited Gardiner to begin missionary work at Port Natal where he chose a mission site which he called Berea and began a small school for Zulu children.

1. Furse, J. "A Light in the Darkness"; Cape Town, 1978.

When the American missionaries - Newton Adams, M.D., Aldin Grant, and George Champion reached Port Natal they started a mission south of Port Natal, which later became the Adams Mission and College. Adam's Mission grew rapidly and by 1837 there were 300 pupils and 250 adults taking spiritual instruction there.

A feature of the medical missionary in this period was that while he practised medicine he was also a priest and a teacher, and took an equal part in preaching. The Umlazi station, was built a few miles from Durban on land awarded by the Town Committee in 1836 and contained the first hospital in Natal, which consisted of one wattle-and-daub hut, where the sick Natives were treated.

The Reverend James Dalzell began the Gordon Memorial at Msinga in the Greytown district, under the auspices of the Free Church of Scotland in 1864.¹

In keeping with the characteristics of his period, he was a minister, a teacher, and a doctor. He never had a hospital but accommodated patients on the veranda of his house or in huts of African design.

MISSION DEVELOPMENT

In this spiritual pioneering period commencing with the twentieth century, the foundations of the mission health services were set up. The Indian Mission Hospital, St. Aidan's, was opened by the Anglican Church and James McCord created his Zulu hospital in Durban. Lutheran missionaries

1. Gelfand, M. "Christian Doctor and Nurse"; Marianhill Mission Press, 1984.

(nurses and doctors) from Scandinavia established themselves in Zululand and made an impressive contribution to health. The Catholics started important health centres during this era.

At the beginning of the twentieth century a few medical missions were already in existence and in them the medical man was beginning to assume more the position of a doctor than of an evangelist even though he might be responsible for prayers and holy services for the patients.

Reviewing the early attempts at medical work in the missions, Pope Pius XI at the great Vatican Mission Exhibition in 1925 said:

"We are living in times when unenlightened heroism is not enough".

From then onwards the duties of the medical missionary and nurse were more related to their profession and their growing number of patients. More and more of the doctor's time began to be taken up with the running of his hospital, the direction of the increasing nursing staff, and later with the training of African nurses. Doctors and nurses were becoming more and more pre-occupied with their professional duties.

Most of the mission doctors started practice without a hospital, building them later on when the need for hospitalization arose and funds were available. In pioneering times he had to treat the sick in his house or in the dispensary.

At first the nurses were white, most of them coming from overseas as missionaries of their particular denomination. Sometimes the wife of the doctor at the mission was a nurse and she worked at the clinic or hospital.

The setting up of a medical mission by the doctor seemed to follow the same pattern throughout South Africa and the experiences of the various doctors

were of a similar type until from about 1900 to the 1940's when the character of the hospitals changed because of the advances in medical science.

The site chosen for the mission was almost always in a territory largely cut off from the outside world where communications were difficult and transport primitive and slow.

The doctor had his rival practitioner, the witchdoctor, whom he never actively opposed or tried to belittle before the local population.

These medical missions took two or three decades to become efficient institutions achieving this step by step as better buildings were added and more qualified staff appointed.

ANGLICAN MISSION HOSPITALS

The Anglican Church had a definite plan for providing for the spiritual, educational and physical needs of the people. The work of the Church grew steadily, especially between 1918 and 1928, the diocese endeavouring to establish in each of the magisterial districts of Zululand proper and Northern Natal, a central mission station with its dependent outstations, a central school with district schools, and a central hospital with district clinics. This was achieved in the Nqutu, Nkandhla and Mtonjaneni districts.¹

Not all the Anglican hospitals in Zululand survived.

1. Gelfand, M. op cit, p. 113.

The small hospital at Etalaneni was built in 1907 and a larger institution was founded in 1925 as a memorial to the Bishop Roach who had served it for a long time.

When the Provincial Government became responsible for financing hospitals in the tribal lands in 1936, it was not prepared to make a grant to the Etalaneni hospital. At the same time the Benedictines built a larger hospital at Nkandhla nearby, drawing away many of the patients from Etalaneni Hospital. Despite this, the Etalaneni hospital managed to hold on for several years until it was obliged to close down in 1947, leaving a small clinic with a Zulu nurse for the sick.

Apart from the mission hospitals in Zululand, the Anglicans established an institution for Indian patients in Durban - St. Aidan's Hospital.

(See Appendix "E" - Mission Hospitals)

CHURCH OF SCOTLAND (PRESBYTERIAN) MISSIONS

1. TUGELA FERRY MISSION (MSINGA) HOSPITAL

This mission was founded by the family of Lord Aberdeen in memory of the Honourable James Henry Hamilton-Gordon. He had planned to devote his life to mission work but while at Cambridge he accidentally shot himself in February 1868, and members of the family decided to found a mission in his memory. In this way the Gordon Memorial Mission was founded under the auspices of the Free Church of Scotland. James Henry Hamilton-Gordon wrote in November 1864:

"there is at present a large tract of land in Africa about to be annexed to British territory ... a piece half as big as Scotland might be got for some few thousand pounds. By these means the Kaffirs might be elevated and Christianized, and the truth of God extended".¹

1. A Memoir of Lord Haddo - 5th Earl of Aberdeen 1869 - Quoted in a letter from the Marquess of Aberdeen to M. Gelfand, 3rd September 1980.

The Reverend James Dalzell, who was also a qualified doctor, began the mission in about 1875.

In 1876 the Governor of Natal awarded a grant of £20 to the mission. Dalzell, however, was finding the absence of a dispensary and a hospital a great hardship and in 1877 he wrote:

"Our medical and surgical work continues to attract patients from enormous distances, 36,60 and even 90 miles."¹

He accommodated patients on the veranda of his house or in African rondavels.

In his report for 1876 he mentioned that:

"His Excellency the Lieutenant Governor showed his appreciation of the Medical Mission Department by ordering a grant of £20 which was thoughtfully received"

and added:

"We still labour under the great disadvantage of having neither hospital nor dispensary."²

In 1880 he recorded two donations, one of £11 and one of £10, "for a hospital" Dalzell had not got his hospital when he died in 1902.

The dispensary was opened by George Gale, the local surgeon, only in September 1928 in a mud hut with a Zulu girl as a nurse. He took over a large empty house, previously a hostel for schoolgirls, and by the end of his first year he had collected enough from out-patient fees to purchase a few iron bedsteads, the simplest kitchen equipment, and some oil lamps. The hospital was officially opened by Mr. Conyngham, the Magistrate of Msinga.

1. & 2. Dalzell, J. "Tugela Ferry Mission - Report, 1876-7".

Later on, Gale found the only possible site for a permanent hospital 18 miles South from the mission at Tugela Ferry, and he erected one of the "cheapest and quickest kind of building"¹ made of prefabricated "wood and iron"², containing a single 12 bedded ward (a movable curtain separated male from female patients), a small theatre, a kitchen and a garage.

All the material for the hospital was transported to the Ferry from Pietermaritzburg. With the help of a couple of young European men assisted by Africans, he erected the building and painted it, all within a period of only one month. Gale, supervised the building of several rondavels at a constant price of £5 per rondavel. This included thatching with grass cut and carried to the site by the women.

Gale laid the cement floors himself. The rondavels provided accommodation for the nursing and kitchen staff and for his consultation room and dispensary. With the extra money he purchased material for installing a waterborne sewage system. From Lord Maclay came the gift of an electric lighting installation for the hospital.

This mission hospital represents the example of simple, cheap barrack-like hospitals with rondavels where Natives could feel like at home.

THE LUTHERAN/SCANDANAVIAN MISSIONS

Hans Paludan Smith Schreuder from Norway, a qualified doctor, arrived in Durban at the beginning of 1844 where he met Dr. Adams of the American Board Mission.¹

1 - 2. Gelfand, M. op. cit, p. 114.

At the time, Zululand was an independent state under Mpande, Dingaan's brother, and he rejected Schreuder's application to settle there. Thus Schreuder founded a mission station in 1849 called "Umpumulo" close to the Zululand frontier. Later on, Schreuder successfully treated the ill Mpande and was allowed to set up his missions, first at Empangeni (1851), and then at Entumeni (1853).

The German Lutheran Hermannsburg Mission was established in Zululand in 1856 by Louis Harms of Hermannsburg in Germany.

The Berlin Mission sent five missionaries out to Natal in 1835, and they founded Emmaus, their first station in Natal, under the Drakensberg.

1. BETANIA MISSION HOSPITAL

BACKGROUND

Betania Mission Hospital was the first hospital built in Northern Natal in the late nineteenth century, and also one of few mission hospitals representing interesting functional planning and external appearance.

In July 1889 a Conference of the Missionaries of the Church of Sweden Mission in South Africa (CSM) was held in Appelsbosch.¹ One of the more important decisions taken here was that, the CSM should begin work at Dundee, which at that time was only a small village. A number of coal mines had been opened in the district. The Revs. Lars Peter Norenus, Witt, and Walberg were delegated to make the necessary preparations.

1. Materials obtained from Talana Museum in Dundee.

In 1891 two acres of land were purchased at the Dundee coalfields and a simple dwelling was erected there for missionaries.

In the next two years a small chapel and a school-house were built and the mission work began.

By the end of 1893 it became necessary to move the mission station from the Dundee coalfields to Dundee itself because the grounds at the coalfields were being undermined by mining activities. The new Mission Station in Dundee was erected in the next few years by the Reverend L.P. Norenus. In 1897 it consisted of a chapel, school, and dwelling, but did not have a hospital, the need for which was constantly growing.

FIRST BETANIA HOSPITAL (FIG. 208),
(PHOT. 87)

In 1898 Countess A. Posse, who was employed by the Church of Sweden Mission, donated a site, and funds for building the hospital. The small institution was completed in 1899 and officially opened on 12 January 1899.¹ It consisted of two small buildings designed by Reverend Lars Peter Norenus.

The main building comprised a single room for operations, another for medicines, two sick wards and one room and a kitchen for a male servant. In the smaller building "Imbewana" nurses accommodation was provided. (See Appendix "A" - Nurses Homes) The buildings were poorly equipped, as funds for furnishing the erected structure were not sufficient.

1. Material obtained from Talana Museum, Dundee

The main block was built on an L-shaped layout, with a wooden veranda erected on its facade. It faced a north-eastern direction and could be approached through a wide veranda to the central corridor, also on the L-shaped plan.

Primitive privies were erected apart from the main block. Two fire-places were provided in the wards and externally, they took the form of long shaft brick chimneys with ornamental brick stacks.

The structure was built of bricks and covered by a gabled roof. An interesting feature of the design was the introduction of three Gothic windows on the facade, undoubtedly the influence of the architecture of the designer's native country.

A wooden veranda roof was supported by four simple columns of round section, decorated by wooden brackets cut in an ornamental pattern. The apex of the gable ridge was topped by a finial. This type of wooden decoration was widely popularized in Scandinavian Countries a long time before it was introduced into South Africa.

The first Matron of the hospital was Miss Posse, a position which she held from 1899-1901. The first doctors were Dr. Mate and Dr. Abraham. Most of the patients treated at Betania came from the Dundee Coalfields and other newly opened coalmines. The first real test of the institution took place on 18 January 1899, when a mine disaster occurred near Dundee. Several European and Zulu miners were killed and many severely burnt. Many of the wounded were treated at the hospital.

The Anglo-Boer War broke out on 12 October 1899 and a week later, on 20 October the Battle of Talana took place. Dundee was right in the firing line, and the wounded on both sides were brought to the hospital and received treatment.

The Swedish Sisters then had to evacuate their own rooms as a temporary measure and British doctors in the forces helped in the hospital.

In the beginning, the institution was used by Europeans as well as by Asiatic and Black patients. When the Dundee Cottage Hospital was opened, Whites and Indians were transferred into it, and Betania became the only hospital for Black patients.

SECOND BETANIA HOSPITAL

By 1930 the hospital building was badly damaged and had to be demolished. It was replaced by a larger and more modern hospital.

The editor of the "Natal Witness" reported:

"The official opening ceremony of the Betania hospital took place in beautiful weather on a Saturday afternoon, before a large gathering of specially invited guests...The old had given way to the handsome new structure. Dr. Talande had drawn up the original scheme, and the Architect E. Magni had prepared the plans, upon which Messrs. Johnston and Keith had built a fine and solid structure, costing £4 518.

Mr. Kempe paid a tribute to the work of Messrs Johnston and Keith, and to the straightforward manner in which they had carried it out. Their workmen, too, had been good.

There had been extras, of course, and a good deal of new furniture and fittings had been donated, while some friends in Sweden had donated £90 towards the extra work.

An Architect from Johannesburg had complimented the contractors upon the efficient manner in which they had done their work. The mission had obtained great value for their money."¹

1. "Natal Witness", 8 June, 1933.

The "Natal Witness" next referred to the design of the central position of the building:¹

"...it contains the theatre, surgery (or additional theatre), dispensary, office, eye-testing room and subsidiary rooms. The right block contains the general and private male wards, while the left block contains the female general and private wards, with a maternity suite at the end of the block (consisting of wards, labour room and other conveniences).

It might be said that the hospital had been equipped and built too extravagantly for Natives. All what could be replied is that, where the suffering were concerned it was no question about race or colour. The hospital also met the needs of the small nursing staff in being convenient and well equipped, with the object of saving the nurses time and trouble, so that their work would be as easy as possible.

..... the majority of guests agreed that there were few European hospitals that could compare with this new native hospital in many respects. Principal amongst these are the ideal lay-out, permitting a small nursing staff to supervise the whole hospital with a minimum of trouble, and the great advantage afforded in having wide, airy verandas on three sides of the wards. The new operating table is of the most modern type, and superior to many to be found in even the bigger hospitals of the Province, while the central heating, hot and cold water system, lighting and sewerage systems are features, some or all of which are unfortunately absent in quite a number of European hospitals."

and further:

"...It is a handsome building, with general wards for Native Men and Women, and also a number of private wards. There are two operating theatres, both fitted with the very latest equipment and more modern apparatus. For years it was a well known fact, that doctors practising at the European Government hospital often had to go to the Swedish Native Hospital for special instruments."

THE PLAN (FIG. 209)

Betania Hospital was designed on an H-shaped, pavilion type plan, according to the new method of hospital planning and it provided good internal ventilation, lighting and a communication system. Symmetrical in its layout,

1. "Natal Witness", 8 June, 1933.

the building had a central entrance leading through the porch to the hall, from where the door opened on either side to the functionally different rooms - operating theatre on the left and the Administration offices on the right. Each wing was terminated by the ablution block, a layout identical to that introduced in the majority of Government-controlled hospitals, e.g. Addington Hospital in Durban. There was no kitchen provided in the building, and meals had to be prepared in the Mission kitchen and transported to the wards.

A centrally situated operating theatre and consulting rooms served both wings.

EXTERIOR (FIG. 209),
(PHOT. 88-91)

Externally, the building appeared to be a handsome structure in its proportions and situation in garden surroundings.

The use of neo-classical, together with Dutch and English elements resulted in an interesting composition of architectural styles, characteristic of Colonial buildings. The building was constructed of brick, with a king-post iron roof. The central entrance took the form of a porch with a "Mutton Leg" gable of Dutch origin. In front it was supported by two piers with pseudo-Corinthian capitals, and at the back by two pilasters of the same character.

At the top a big louvred ventilator was installed on the roof ridge and this dominated the whole establishment and emphasized its symmetry.

The building materials created a colourful composition on the facade. There was a red roof, white walls, columns and door and window frames which contrasted with the green of the surrounding garden.

ALTERATIONS AND ADDITIONS (FIG. 210)

The hospital operated in this form until 1947, when it enlarged its capacity to 80 beds. All verandas were enclosed and their space was partially used for the newly created rooms or ablution blocks. The facade did not change, retaining its gable and flanking wings with hipped roofs.

The Childrens' Ward and the kitchen block were built at the back of the yard created by wings.

Swedish Sisters served at the hospital from the beginning. In 1940 the training of African nurses was started both at Betania and Ceza.

In November 1960, owing to the Group Areas Act, Betania was threatened with closure, but there was such strong opposition to its closing that this did not take place until 1970.

"Betania Hospital from its very beginning has been a Mission Hospital, the emphasis being laid on the word "mission". The Ministry of Healing both body and soul has been the the very centre of all the activities of our hospital."¹

In the pioneering years it was vital to be able to lay the foundations of mission hospitals, and the resources of Betania, Appelsbosch and Ceza were extremely strained until Government grants became available.

Personnel and money had to be sent out from Sweden and there was never enough of either. Often when something was needed the Sisters had to pay for it themselves.

2. ST. MARY'S HOSPITAL, KWAMAGWAZA

Kwa Magwaza Mission grew and developed on land which in 1860 King Mpande gave to the Reverend Robert Robertson, the great missionary known as "Nzimela".

1. Material obtained from Talana Museum, Dundee.

In this place, Thomas Wilkinson, the first Bishop of Zululand and Swaziland, was consecrated in 1870, and here also a stone church was built in 1873 and destroyed in 1879 by the Zulu Impi sweeping through the land.¹

With evangelism came education which included teacher and clergy training, a trade school, and then a high school for boys and girls. Medical work followed education, starting in small centres noticeably in the wake of the Reverend W. Lee, later sixth Bishop of Zululand and Swaziland.

The vision of a hospital at Kwamagwaza "to show for the full Gospel of God"¹ was in the forefront of his mind when he came to Kwamagwaza from Isandlwana in 1913.

With the permission of Bishop Vyvyan and £4 000, a double-storeyed building arose, and the Bishop laid its foundation stone on 4th October, 1913, blessing it on Easter day the following year. He wrote in his report of that year that "it seems still a dream that in so short a time such a creation should have been realized" and that "this is evidence of the power of prayer and of the generosity of Christian people... Many patients arrive daily."²

Bishop Vyvyan said:

"We are told that half a million bricks were laid for the building which consisted of kitchen, dispensary, theatre, storeroom, staff bedrooms and two large upstairs. Two-storey buildings were not common in those days, and this may account for the position of the staircase which, we understand, was forgotten until too late, and had to go outside. The alternative theory may be that Monty, the foreman, returned with many drunken friends from Durban while halfway through the building, and we are told "there was no peace until it was finished." The advantage of the outside staircase is that it provides a good space under it, which Johnson Mpungose, our excellent gardener, uses for his spades and forks for safety when he does off-duty. The stairs also provide a convenient exit for patients right to the garden."³

1. Gelfand, M. op. cit, p. 119.

2 - 3. Bishop Vyvyan "Report on Kwamagwaza Hospital, 1913".

THE PLAN (FIG. 211)

The hospital was built on a square plan with the internal passages in the T-shape and three entrances, the main one being on the north-eastern side.

The ground floor consisted of a duty room, dispensary, doctor's room, operating theatre with sterilizing area, store room, kitchen and ablution block. The external staircase at the back made of wood, led to the upper storey comprizing large wards on either side of the main passage and two bedrooms for resident nurses. The structure was surrounded on four sides by a wide wooden veranda.

EXTERIOR (FIG. 211)

The hospital was a small structure of cottage character.

The veranda roof incorporated into the main roof was supported by six wooden columns round in section on each elevation, creating a regular composition together with horizontal lines of balustrades. The building was covered by a pyramidal, wooden roof, covered by corrugated iron sheeting. The red walls contrasted with the exposed woodwork which was painted white.

Kwa Magwaza St. Mary's Hospital represents an example of an Institution designed on a corridor-type layout, similar functionally to the Government controlled Eshowe Cottage Hospital. This method, did not, however, assure good internal ventilation or lighting, as the windows and French doors were put on only one side of the room.

The internal circulation on a T-shape, provided a convenient approach to all parts of the building. Additionally, the veranda was used as a semi-enclosed passage, connecting functionally different spaces.

A big disadvantage of this design was the position of a staircase which was very inconvenient for use by the patients. The separate ablutions should have been put next to the wards on the upper storey.

The building was erected in the cheapest possible way because of the lack of funds, and the designer did not have in mind, the planning of a modern, functionally advanced and well-equipped building.

A simple shelter for the sick was needed in the area, and the new building proved to be sufficient and economical.

ALTERATIONS AND ADDITIONS

From 1927, this double-storeyed building began shedding its hospital functions as a new Female Ward was built in 1928 some distance away. Many rondavels made up the Male Wards and by 1936 the building of a new Male ward commenced. Because of various difficulties on site, the building was only completed in 1940, and the male patients in the rondavels were happy to move into a new ward called "The City of London." The dispensary and theatre also went to the new hospital and for medical and nursing matters, only a classroom remained in the staff house.

The African probationers now took the place of the patients who had been accommodated in what is now the centre of the nurses' home. European patients were few, and the staff house was often occupied only by the Matron and one sister.

During the 1914-18 war the nursing staff left for war service and the hospital was closed, only re-opening in 1920 when it was named St. Mary's hospital.¹

From the beginning of its existence the hospital was subsidized mainly by the United Society for the Propagation of the Gospel, while the remainder of the income came from donors both in South Africa and overseas.

CATHOLIC MISSIONS

BACKGROUND

The fact that Catholic missionaries came rather later to South Africa to start missionary work was due to certain historical circumstances.

Since 1652, the Calvinistic Boers had established themselves in the southern coastal regions of Africa and thence penetrated deeper into the interior of the country. On principle the Boers tolerated no Catholic priests in their colonies. It was only after the occupation by English troops in 1804, completed in 1815, that a few priests were allowed to attend to the spiritual needs of a smaller number of Catholics in Cape Town and its vicinity. Only in 1837 did South Africa become a Vicariate Apostolic of its own, one which, ten years later, was divided into a Western and an Eastern Vicariate.

1. Brain, J.B. op. cit, p. 213.

In the first half of the 19th Century the Bantu tribes were so occupied with war-like activity and migrations, that missionary work among the negro population could not have been undertaken. In the year 1850 the Vicariate Apostolic of Natal was erected and entrusted to the Oblates.

In 1851 Bishop Allorei accompanied by five Oblate Fathers entered his new territory of Natal and attempted missionary work among the Zulu tribe, but had little success. It was not until 1862 that the first mission station could be opened. This was St. Michael's, which continues to be an important mission centre to this day.

After the Trappists had failed in their attempt to settle at Dunbrady in the mission district of Bishop Ricardo of Port Elizabeth, they moved into Natal and arrived at their new destination by Christmas 1882. At that time, the Trappists had no clear idea as to the method and extent of mission work. The first concern of the Founder of Mariannahill was the construction of the monastery and clearing and cultivation of land, the conditions necessary to the Trappist way of life.

In 1883 missionary activity began gradually in the immediate neighbourhood of the monastery. On 28 December 1884, the first Baptisms took place. In 1884 the first school for boys, Europeans and Africans, was opened. In the following year Abbot Francis opened the first school for girls.¹

The expansion of missionary activity begun at Mariannahill was not long in coming. The first important out-station was Reichenau on the Polela River, which was opened at the end of October 1886.

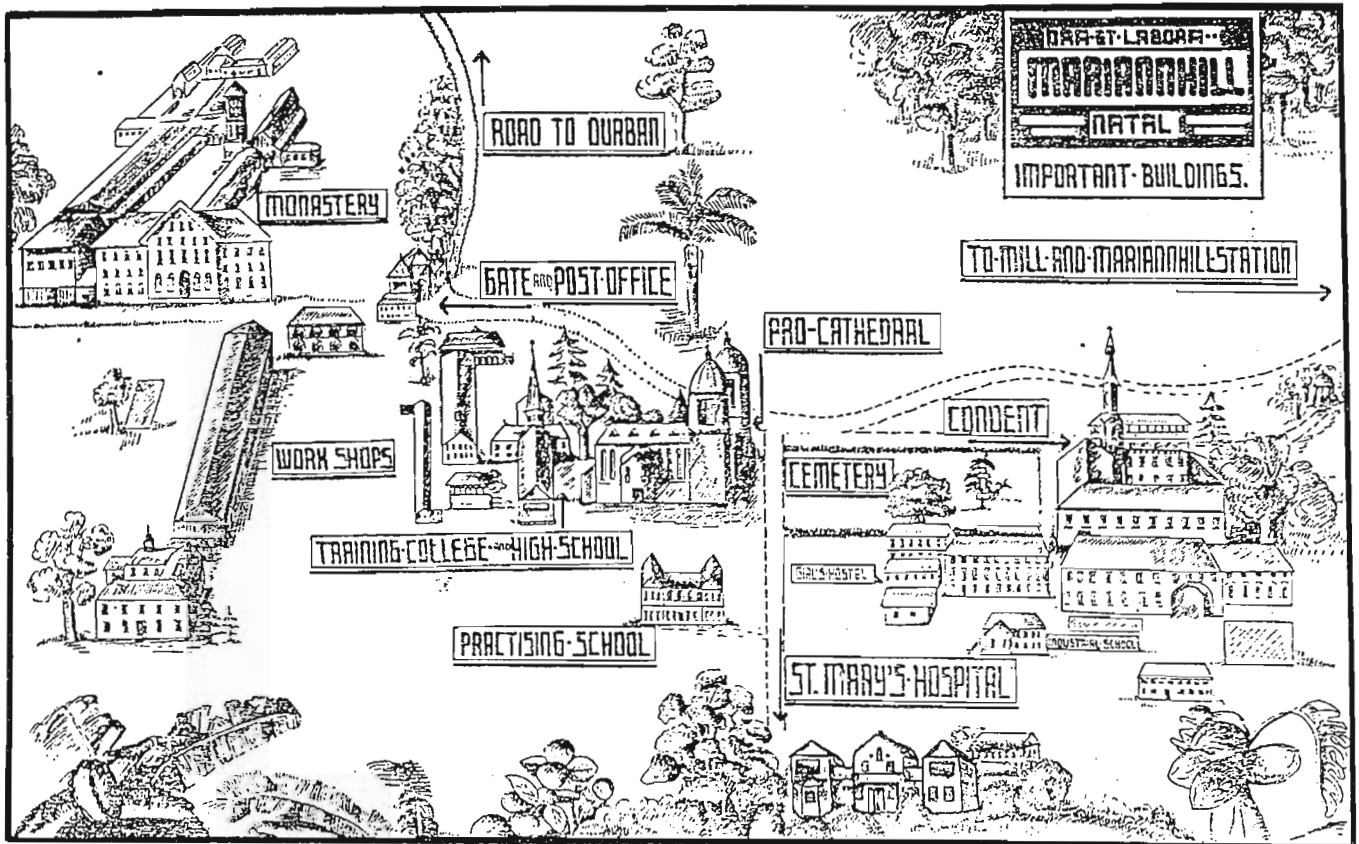
1. Gelfand, M. op. cit, p. 125.

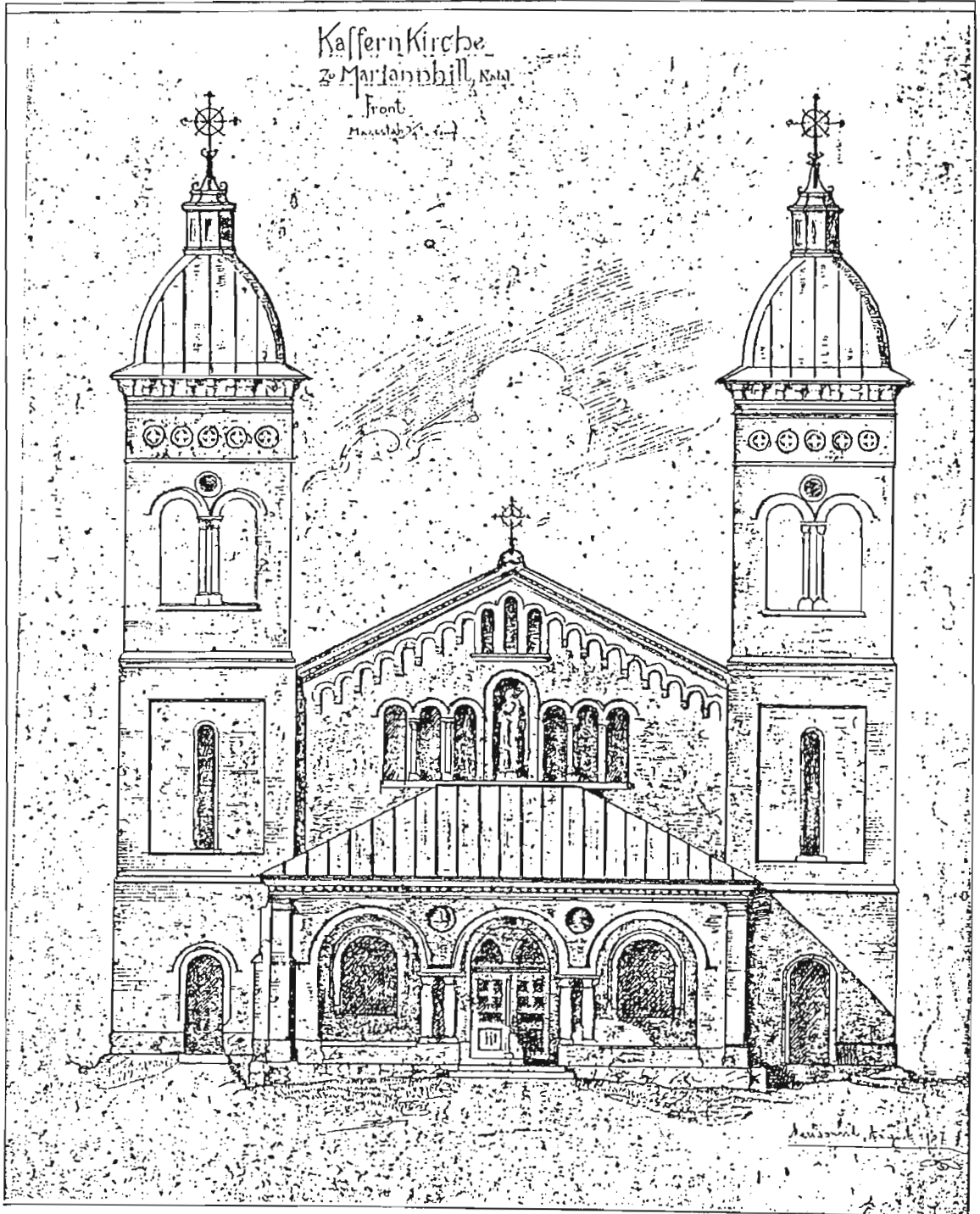
Since the station Reichenau was so far from Mariannhill, Abbot Francis made plans to provide an outspan for the teams of oxen and this stop was named "Einsiedel". In the same year another mission station was founded in the vicinity of Ixopo at the intersection of two important roads, Mariathal. From there the untiring Abbot explored the deep green valley of the Hlokosi River, where he established the mission station of "Otting" (1887). The next year saw the foundation of Kvelaer near Donnybrook, halfway between Mariathal and Reichenau. In addition, the foundations were laid for two large mission centres, Lourdes and Centocow, south of Mariathal. In 1890 the old mission of the Oblates, St. Michael's was taken over. Abbot Francis was looking even further. In the vicinity of Ladysmith, located in a rich coal mining district, he founded the Mission of Marie Ratschitz in 1890. Within the next six years, eight new dependencies of Mariannhill were opened in the interior of Natal.

The reason for the success of these mission stations in establishing christianity in a pagan land was the use of schools and hospitals in the first place.

In 1909 the first Teachers' Training College opened its doors to Catholic Bantu at Mariannhill.¹ Another factor in the rapid expansion of Christianity was the application of a proven missionary method. It consisted simply in the implementation of the ancient, Benedictine maxim "Ora et Labora" - the living combination of the Christian religion with manual labour.

1. Brain, J.B. op. cit, p. 214.





1. MARIANHILL HOSPITALPROPOSED PLAN I - 1905PLAN (FIG. 212)

The plans for the first "krankenhaus" in Mariannahill were prepared by one of the missionaries, Brother Francis, in 1905.

The proposed hospital was innovative in its layout and represented a three-pavilion structure, with the pavilions radiating from the central core of the building.

Each wing contained functionally different spaces.

The approach to the establishment was to be through the wide veranda to the spacious hall from where the doors opened to the pavilions. On the left the door led to the chapel, where the altar was placed in a specially provided bay. Two general diseases wards, separate for women and men, could be entered from the chapel and from the external veranda.

Continuing straight from the entrance hall, one could enter the second pavilion consisting of a spacious infectious diseases ward divided into eight isolation boxes, all well lit and ventilated. The third pavilion, comprised service rooms and a big maternity ward in its end.

The position of bathrooms and lavatories seemed to be a disadvantage of this design. They were put in the centre of the establishment at a convenient distance from the wards but they had to be approached from the entrance hall, the most exposed part of the hospital.

EXTERIOR

The building was to be erected in Italian Romanesque style, except for the wooden veranda. The veranda on the facade was designed to have a wooden

construction with delicate columns decorated by ornamental brackets.

The infectious diseases ward was to be provided with a big ventilator above the timber trussed roof. Additional ventilation openings were to be fitted between the eaves of the main roof and the veranda roof.

The chapel's roof was designed as a hammer beam type with exposed trusses which suited the internal composition of arched openings perfectly.

The hospital was to be constructed of bricks with the horizontal plinth lines executed in brickwork on its elevations.

Though the hospital according to the plans was never built, it represented an interesting contribution to the development of hospital planning in Natal. It provided sufficient functional solutions, adequate internal environmental conditions. lighting and ventilation, sufficient circulation services, and the separation of patients by disease and sex.

FIRST HOSPITAL BUILT (FIG. 223)

When the matter of providing a hospital within Mariannahill Mission became very urgent, the decision to erect one was taken in July 1919 at a Conference of Trappist Missionaries.

The plans were drawn by Brother Cyprian, who also personally supervised the erection of the building in 1918.

The first hospital had a temporary character, as the funds for a proper building were not available. It was completed in November 1918, and all materials and labour were organized within the Mission.

The new complex consisted of three buildings. The main one placed in the centre, contained an office in which medicine was stored and a small operating theatre, and the two others built on either side of the central one served as the male and female wards.

The main building was erected as a brick and iron structure, its entrance portico being supported by six Doric columns. The walls were plastered and painted white.

The two wards were identical in plan and took the a form of native rondavels with thatched roofs and mud, whitewashed walls.

The three small huts, which had shown their value during the influenza epidemic, continued for several years to be the only refuge of Bantu patients who preferred European medicine to that of their own medicine-man. But as long as there was no resident doctor, there was not much chance of influencing the people very much with regard to matters of health.

When the complex was completed, a great tragedy befell the Bantu people. The Spanish Influenza, which had decimated the armies in Europe, had found its way to South Africa. People died in their hundreds of thousands, in their fields and in their homes. The tribal medicine-men were powerless against this plague and it was said that this new disease was a device of the Europeans to finish off the Bantu races of South Africa. When European doctors and nurses came to assist the suffering, the Bantu refused to take the pills offered to them but not a single European member of the missionary staff succumbed to this new disease. The medical Mission had come into being at a decisive moment in a Bantu emergency, and the African people at once took with trust and confidence to this new establishment.

In 1920, because of the shortage of space in the huts, the old house of a local artist was turned into a twelve-bedded hospital of two wards. The staff consisted of two nursing sisters (Nuns of the Precious Blood Order) and two brothers from the adjacent monastery, who acted as part-time "doctors".

ST. MARY'S HOSPITAL

In 1924, Mariannahill began to build the St. Mary's Hospital, and in the same year a resident doctor arrived and took over the medical service. But conditions were still primitive and the doctor had to resort to strange "makeshift" arrangements.¹

THE ARCHITECT

The plans for the new hospital were prepared by Brother Nivard, (born in 1854 in Germany) in 1924. Together with Brother Siegfried, he was the author of almost the whole Monastery establishment.

Having travelled extensively in Italy, he was impressed by the Italian Romanesque style, and the influence of this can be seen everywhere in the Mariannahill establishment.

1. Gelfand, M. op. cit, p. 136.

THE PLAN (FIG. 213)

For St. Mary's Hospital, he proposed a single-storeyed structure of conservative corridor type with side wings at both ends, the whole creating an H-shaped layout enclosed in a rectangle measuring 127' 6" x 89' 9".

The longest part of the building was to consist of the wards and service rooms on both sides of the central corridor. The second storey was designed to be put above the frontal part only and its plan was to echo that of the floor below.

The later Renaissance and Baroque principles of hospital planning prevailed in this proposal. The hierarchy of functions (chapel placed centrally) and the symmetry of the whole establishment was to be exposed on the elevations.

The position of the main entrance was however planned in quite an unusual way - asymmetrically on the shorter elevation.

The pharmacy, dental suite, and operating theatre complex were located in the front. The three-bedded wards, all entered from the balcony, were to occupy the floor above.

EXTERIOR (FIG. 213-17)

The hospital was to be approached through a wide veranda formed by the stilted arches arcades built of brick. The back veranda, of wooden construction, had simple columns supporting the roof.

The hipped roofs above, were to be constructed of timber and covered with tiles.

The whole was designed in Romanesque style with some Gothic features including a buttress supporting the wall on the right side of the building.

The horizontal line of the roof eaves and balcony balustrades was planned to be co-exist with vertical brick chimneys of high shafts decorated by ornamental stacks and caps, and the articulation by columns.

This design was strongly criticized by the Monastery Authorities¹ for the lack of functionality, and especially for the atypical position of the entrance.

REALIZED PROPOSAL (FIG. 218-24),
(PHOT. 94)

In the same year, another proposal for St. Mary's hospital was presented by Brother Siegfried, and the building in accordance with his plans, was finally erected.

This plan did not depart much from the design produced by Brother Nivard in general. The major difference was affected by placing the main entrance in the centre of the long elevation of the rectangular. This entirely changed the building functionally. The main entrance now continued into the corridor, terminating with the door to the chapel.

1. Gelfand, M. op. cit, p. 141.

Like the previous design, the building was laid out on an H-shaped plan, with the central part as a corridor type, but now the central line was placed vertical to the previous one.

Another difference was created by placing the upper storey above the central part and left wing. The approach to the institution now led through the porch to the narrow entrance hall and was continued beyond the transverse passage and chapel at the end. This passage led to the wards and service rooms placed on both its sides, and to the side wings consisting of an operating theatre complex, pharmacy, and dental suite in the right end, and spacious wards in the left. The upper storeys echoed the layouts below, giving space for more wards. The maternity wing was placed in the left wing, the infectious diseases ward was in the right wing, and in the centre were the general wards. A conservative way of hospital planning of the corridor type was also adopted in this case. The building was however, very interesting architecturally. Few Gothic elements introduced on the elevations were unique in the Monastery, but most of the erected building bore the Italian Romanesque type influence.

The corbie steps with the cast-iron cross installed on its top, masked a pitched roof over the central block. This type of stepped edge originated in the 14th century in Northern Europe and also in Germany, the native country of the architect. In this case, the corbie step served to emphasize the importance of the central entrance and the hierarchy of internal functions for the chapel placed centrally was the most important space in the building. Arched window openings in the gable surrounded on the top with the hoods, together with a central arched niche containing St. Mary's statue, and two round plaster embellishments on either side of it, derived from the Renaissance period. Below, the porch supported by Tuscan columns in prostyle marked the entrance to the building through an arched panelled door fitted with Gothic hosing mouldings.

Above the porch, a balcony was erected with an internal passage.

The apexes of the side gables were decorated by ornamental wooden finials, and right below them cast-iron crosses were fixed to the brickwork.

The chapel, in the centre, dominated the whole structure.

Due to the position of the hospital being on the hill slope, the structure was double-storeyed in front and single storeyed at the back, with a cellar underneath which served as a hospital storage space.

The temporary hospital built by Brother Cyprian in 1918 was destroyed, and a new building was erected in its place. The hospital was partially completed in 1927 and the resident doctor and the nursing staff occupied some of the rooms in the central part of the new building.

EXTENSIONS AND ALTERATIONS (FIG. 225-7),
(PHOT. 95)

The original St. Mary's hospital was extended and renovated in the 1960's. Its internal organization of functions and external appearance were totally changed. More wards were created and a passage added at the back of the building in such a way that the central row of rooms did not get any light or ventilation.

The central block was redecorated completely. The entrance porch was enclosed, an ornamental door was changed to ordinary flush one, and wards were built in place of the chapel. Externally, the interesting corbie step gable was removed and a dull gable wall erected. The same happened to the side wings, where all the Gothic and Renaissance features disappeared and were replaced by modern elements.

Notes and references:

A sister of the Mariannhill Convent had been trained to take charge of the hospital as a Matron. Things were now somewhat easier for medical work and Mariannhill realized that the money for the hospital and its equipment and upkeep in the early days of its existence could not have been raised without help from the great missionary institutions of Rome, the United States of America, England and Germany, especially the Sodality of St. Peter Claver and the Catholic Medical Mission Board in New York. Now that the new hospital was in full working order, the members of the medical mission realized that the work of healing was not enough. The more difficult task ahead of them was to change the attitude of the Bantu towards problems of health in general. The Africans' belief in witchcraft as the cause of disease is part of the ancient traditional faith. The Christian faith was undoubtedly the strongest force in the struggle against witchcraft.

The National Health Service Commission gave the medical missionaries full credit when it said that it must be recognized that the missionaries had broken new ground and had taken a leading part in showing that hospitals were not only needed but wanted by the Native people. The people at Marianhill knew that in the struggle between orthodox medical service and the trade of the witch-doctors, Bantu nurses and African medical practitioners would be the strongest factors, and this was the reason that at the beginning of its history St. Mary's Hospital undertook the training of Zulu girls for the nursing profession.

Before 1903 there was not a single trained Native hospital nurse in South Africa. About that time, a doctor, in giving evidence before a Government Commission, stated "It is impossible for a Native girl to be a hospital nurse."

The pioneer of African nurses' training is Dr. Ned MacVicar, who from the very beginning urged that this work should be undertaken. In 1902 he took charge of the Victoria Hospital at Lovedale, and in the following year the hospital was recognized by the South African Medical Council as a maternity training centre. The first trained Bantu nurse at Mariannhill was Bernadette Vilakazi, the sister of Dr. Vilakazi, the great Zulu poet. She was perhaps the first Catholic Bantu nurse.

2. IXOPO HOSPITALSSANATORIUM (FIG. 229)

Ixopo Mission was one of the subsidiaries of the Mariannhill Monastery. As in the case of Mariannhill, the decision of erecting a hospital in Ixopo was taken at a Conference of Trappist Missionaries in 1914.

The plans for the Hospital-Sanatorium were prepared by Brother Siegfried in 1920, and the building was erected in 1923.

THE PLAN

When completed the hospital took a form of a double-storeyed structure on a rectangular, 267' x 76' in size. The central part erected on the H-shaped pavilion-type layout contained a front veranda between two projecting wings. The chapel was attached on the left and on the right was the service block, consisting of kitchen, scullery, pantry, laundry, and store rooms.

The waist of the H-shape was planned on a corridor type layout with wards on both sides of the central passage.

The main entrance to the building was placed on the central line and led to the small hall, whence doors on both sides opened to the offices. The spacious staircase was put straight ahead, and on the left was the Chapter and Working Room for Nuns and on the right the staff accommodation.

Each ward could accommodate three patients and the total accommodation provided in the hospital was for twenty patients.

The layout of the upper floor echoed that of the ground floor plan.

Due to its position on the hill slope, part of the building had a lower ground level which served as an additional storage space.

The layout of the Ixopo Sanatorium conformed to the later Renaissance and Baroque principles of hospital planning, with major emphasis on the symmetry of establishment and the hierarchy of internal functions, all echoed on the elevations.

Internal environmental control was not of great concern to the architect.

EXTERIOR (FIG. 230-2)

The architect was concerned about the external appearance of the building, emphasizing the Chapel as the most important part of the whole complex. In fact, the detailed design for a chapel was prepared by Brother Nivard. He proposed a King post trussed roof over the three isles and an original spire topped by a cast-iron cross.

All window and door openings were arched in shape with brick architraves above.

The hospital was a structure of regular proportions, erected in Italian Romanesque style. The front veranda took the form of arcades supported by brick piers on the ground floor. Above it a balcony was provided, where two small columns supported every segmental arch. The differentiation of these forms appeared to be structurally explained, as the stronger ground floor arches had to carry the whole weight of the building above. The balustrade enclosing the first floor balcony appeared in the form of simple balusters supporting the plaster coping, and the whole was painted white.

The roofs were of hipped construction and those on the side wings had cast-iron finials installed on their ridges.

The back veranda, designed in a different way, took the form of a wooden structure with circular poles decorated by brackets of curved profile and eaves laces in between them.

CHRIST THE KING HOSPITAL (FIG. 233)

The hospital served its purpose for fourteen years and in 1936 it was converted into a Nurses' Residence. The new Christ the King Hospital was built in 1937, providing accommodation for sixty beds for both Black and White patients.

It was built in a very similar way to the old hospital, on a long, rectangular plan. The modern elements of lifts and X-Ray equipment were included in the new design.

The building was almost symmetrical in its layout, but the main entrance was placed on the side of the facade which was very unusual for this type of building. A great improvement in this design was the introduction of a veranda for use by patients as a recreational space. Now all the wards and offices had direct access to it.

The ground floor was almost entirely occupied by service rooms, an X-Ray Department, and administration offices. The wards were placed on the floor above.

The kitchen block was erected separately behind the hospital and was connected with it by the covered walkway.

The building belonged to the group of conservatively designed hospitals of the traditional old-fashioned corridor type which proved to be practical in many of the institutions. Space for patients and the services were sufficient in size and equipment.

Externally, the hospital departed entirely from the architectural style used in the Mariannahill Mission hospitals (Italian Romanesque style). It was erected as a "modern", brick and iron building.

ALTERATIONS AND ADDITIONS

In the 1950's a large wing was added, bringing the bed capacity to one hundred. Certain wards were set aside for the care of pulmonary tuberculosis cases. A maximum of fifty-four pulmonary tuberculosis cases could be accommodated.

The hospital is unlikely to expand because it is situated in a "White area" and was erected after 1936.

3. CENTOCOW HOSPITALS

ST. ANTHONY'S HOSPITAL

BACKGROUND:

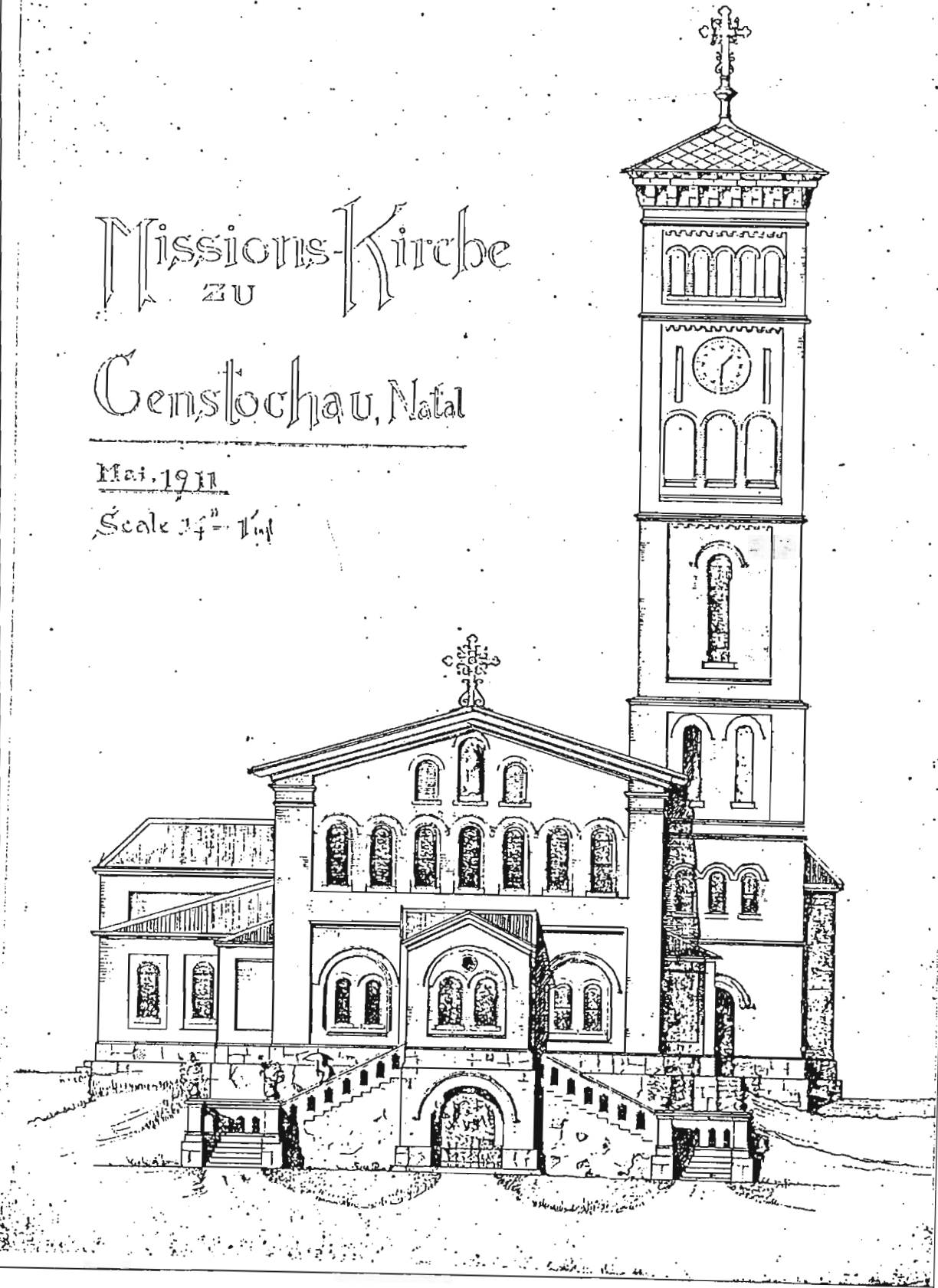
In about 1920, Dr. Kohler, a German Mission doctor, joined the mission and opened an out-patient department. He then began to admit African in-patients into a small two room shack with only six beds attached to the Centocow Mission.

Missions-Kirche
zu

Genstochau, Natal

Mai, 1911

Scale 1/4" = 1' 1/2"



Two years later it was decided to erect a proper hospital within the Mission to provide medical help for a growing number of people. Although there appeared to be some opposition from the Zulu midwives to their people entering the hospital, the decision to erect a building was taken.

St. Anthony's Hospital was drawn from Brother Francis from Mariannhill in 1922.

All the materials and labour were organized within the Mission, and the building operations took one year. The hospital was completed in 1923 and it provided accommodation for 15 general diseases patients, and a Birth Room, Dispensary, and Consulting Room. Segregation of patients by sexes was also introduced into this plan.

THE PLAN (FIG. 234)

The building took the form of a three-wing structure of mixed pavilion and corridor-type layout, symmetrical in its plan. A central block built on a rectangular plan contained mainly the services.

The side wings placed on either side of a central block comprised spacious well ventilated wards with ablution blocks adjacent to them.

The facade of the building was enclosed by a veranda 8' wide and its total length was 105' 6".

EXTERIOR (FIG. 235)

Externally, the building was a handsome structure built in Italian Romanesque style.

The walls were constructed of bricks and the wooden roof covered by tiles.

The front veranda took the form of arcades with stilted arches supported by brick piers. The gable roof over the central part dominated the whole structure and a "Bulls eye" ventilator was fitted into it.

The central roof continued into the side, lower roofs which terminated with the hips.

All door and window openings were built in arched shape with architraves executed in brick.

The hospital represented an interesting contribution to the development of hospital planning, especially in the case of mission hospitals.

Its layout can be classified as belonging to the group of advanced pavilion type hospitals. The central, corridor type block contained service rooms, for which cross-ventilation was not an essential matter.

ST. APPOLLINAIRE'S HOSPITAL (FIG. 23),
(PHOT. 96-8)

The above hospital did not serve its purpose for long. After Dr. Kohler left in 1935, the missionaries of Centocow found that there was a great need for a bigger hospital.

In 1936 the foundation stone for a new hospital was laid under St. Appollinaire's Hospital, and the old building was converted into a school.

The new institution was opened in 1938 with twenty-two beds for non-European and six for Europeans.

When completed it took the form of a double-storeyed structure of mixed corridor and pavilion type layout. Generally, it consisted of three well-ventilated pavilions connected by a long block of the corridor-type.

The entrance, placed on the central axis of the building, led through a wide veranda to the hall containing a spacious staircase.

The transverse narrow passage on the right opened to a double row of offices and nurses duty rooms. The main wards were placed in the pavilions and only the isolation rooms were contained in the frontal block.

Kitchen, laundry and storage space was provided in a separate building with a direct approach from the hospital central passage.

Functionally, the building was well planned, providing adequate space for patients and services, but externally it was a dull brick structure of small aesthetic appeal.

For the next few years after the official opening of this institution difficulty was experienced in employing a resident doctor for longer than a short period at a time,

In 1949 the operating theatre was furnished with better equipment and a lighting plant was installed.

The hospital was enlarged in 1950 to hold fifty-four beds for non-Europeans and owing to the increase of in-patients and the prevalence of tuberculosis in the area, an X-Ray plant was installed in 1950.

ZULU McCORD HOSPITALBACKGROUND

In 1835, sixty-three years before the arrival of the McCord's, Dr. and Mrs. Newton Adams arrived with three other missionary families to spread the Light of the Gospel among the "Zoolas;". The massacre of Piet Retief and his Voortrekker followers shattered the hopes of this little party for they had earlier seen their first attempts at missionary work smashed as Msilekatsi and the White men fought for existence in Bechuanaland.

Retreating from the blood-soaked Royal kraal of Dingaan in 1838, Adams settled to practice medicine at Adams mission station, while Daniel Lindley went to the Boer Capital at Pietermaritzburg in 1841, where he first ministered to the congregation of the Church of the Vow.

Following the death of Dr. Adams in 1851, the medical work of the American Board of Missions languished until the arrival of Dr. Burt Bridgeman at Adams Station in 1890. His retirement, forced by his wife's illness, opened the way for the arrival of Mrs. McCord, the daughter of missionary parents, and her husband, Dr. McCord in 1899.¹

McCord built up a large practice in his hospital, and he decided to move it to Durban, twenty-five miles north of the Adams Mission, for the convenience of his patients who were coming from all over Natal.

He saw how much needed his hospital would be for ill Zulus in the city of Durban. He also realized that water, fuel, and food, as well as professional assistance were more readily available in Durban.

1. Dr. Taylor, A.B. "McCord's 50 Years of Service" in "Natal Mercury", September 1959.

His decision to establish a hospital on the Berea met with strong opposition, but he eventually won a court battle and built a small primitive one of temporary character, first. (Phot. 102)

A piece of ground 16,05 ha in extent was purchased on 29 August 1905 from J. Jenings.

The hospital was to be a wattle and daub structure with a dirt floor and a thatched roof. It was to consist of three rooms with a veranda running on three sides of it.

The hospital had to wait, however, as he used half the sum available to build a large and more modern dispensary.

His first cottage hospital, twenty-four feet square, consisted of three small rooms, the largest fortunately being divided by a partition to make four small cubicles. One cubicle was immediately made into an examination room and surgery.

This place played an important role in filling a medical gap as the first Native hospital in Natal, teaching the Zulus that a hospital was not a place they need fear.

A year after McCord had started his dispensary, his parents visited him and they were so impressed with what they saw in Beatrice Road, that they presented him with £10 000 to build an African Hospital.

The fees ranged from £2 10s. for an ordinary delivery or minor surgery up to £6 for a major operation or a confinement involving complications. This place, originally intended as a temporary expedient was to serve the Zulus for five years. During those years it was so crowded that it was usually necessary to discharge one patient before another could be admitted.

All the medical equipment was brought there from Adams Mission. At this stage hospital equipment, like beds and blankets, and appointment of nurses were a refinement he could not provide. The relatives or friends of the patient had to give the medicine, nurse the patient, and prepare food in the kitchen. McCord's wife acted as Head Nurse.

2. THE HOSPITAL, 1909 (FIG. 237)
(PHOT. 103)

When the cottage hospital proved too small for Zulu needs, McCord decided to build a proper, bigger hospital on the site close to the Berea Nursing Home for Whites.

Numerous objections were raised against his idea. The opposition claimed, that the hospital would:

"obstruct the view; block the cool ocean breeze; jeopardise the health of the community (the patients in the white nursing home up the hill presumably subjecting it to no such risk); be a nuisance because of noisy native patients; spread contagion because Dr. McCord had no water connection and could not keep patients or hospital clean; and menance health, because of inadequate sewage disposal."¹

There was a court case which McCord finally won and construction work commenced. The hospital was opened on 1 May 1909, with twelve patients transferred from his tiny cottage hospital.

It was erected as a double-storeyed structure of the combined pavilion and corridor type, laid on a U-shaped plan, and facing in a north-south direction.

The front of the building was raised as a corridor-type block consisting of a central passage with service and administration rooms attached to it on both sides.

In the back two wings pavilions were added, enclosing a yard. The pavilions comprised well lit and ventilated wards with sanitary facilities adjacent to them.

1. Dr. McCord, J.B. "My Patients were Zulus"; London, Willox, 1951.

The structure was entirely symmetrical in its layout with the main entrance placed in the centre of the facade. A flight of steps led to it through a wide veranda. The entrance door opened into the hall from which the office and spacious dispensary could be approached.

The corridor had an exit onto a back veranda, from where access was provided to the male ward on the left, and the kitchen and storage complex on the right. The ablutions placed next to the wards assured the convenience of use by the patients.

The upper storey contained two female wards, a general diseases male ward, and a Maternity Ward. The frontal part contained the nurses' duty room and their dormitory, and an operating theatre complex.

The unusual position of these facilities was dictated by the lack of space on the ground floor. Dr. McCord considered the placing of a dispensary on the ground floor essential.

The hospital communication system included internal enclosed corridors, semi-enclosed passages, and verandas, which also served as "an open-air wards".

The hospital was erected in the Colonial style as a brick structure topped by a hipped iron roof. The walls, columns and balustrades were all plastered and painted white.

The arrangement of the veranda elements in a composition of Tuscan columns in singles or pairs, emphasized the right proportions and general harmony of the elevations.

After moving his hospital to the newly erected building, Dr. McCord wrote:

"As soon as they were settled, Margaret and I walked along the corridors, once more inspecting the hospital.

The large and well-equipped kitchen, we viewed with particular enthusiasm. There, food suitable for invalids could be prepared. Something we could never be too sure of when it was cooked by a patient's relatives or friends. These relatives or friends would no longer be needed for that or any other duty. Margaret planned to train native girls as nurses, to dress wounds, give medicines and attend patients' needs. We stopped to admire and talk about improvements we might later make in the operating-room for missionary patients and the sizable matron's and nurses room. And then we passed on to look into the smaller rooms - a nurses' dormitory and their dining room, an office and a drug-room. Afterwards we went outside to walk over the verandas and balconies, which held a dozen beds and would be a fine place for recuperating patients to lie enjoying the fresh air and sunshine."¹

Shortly after the opening, the institution was closed while the McCords went on furlough.

McCord's hospital work was expanding and he himself was still attending to patients at the dispensary in Beatrice Road. A dormitory and a classroom were erected close to the hospital for the training of nurses.

Another surgeon, Dr. Taylor was appointed as the number of cases requiring surgical treatment increased and it became necessary to enlarge the hospital.

1. Dr. McCord, J.B. op. cit, p. 211.

The hospital was re-opened in 1911 and the first class of nurses for training was enrolled. The recruitment of pupil nurses was not easy. The attitude of Zulu parents was reflected in the statement of one father regarding his daughter, "Oh! She hasn't brains enough to be a teacher - let Dr. McCord make a nurse of her!" Again, in 1918 the hospital was closed for another furlough of the McCords in America.

In 1921, there was a chronic need for more space in the Mission Nursing Home, and the reason for this was easily explained. No beds were provided for Natives in the Government Hospital at the beginning of the twentieth century, and when the Zulus were brought there, they were placed on the floors of closets and other out-of-the-way places. By 1920 there were only twenty-five beds for Zulus in the Addington Hospital, and they were the only beds provided for natives in the outlying districts, for 20 000 native industrial workers in Durban, and for thousands of household servants.

In part, the shortage of accommodation was met by the McCord Hospital, but it was so small, that it sometimes held double the number of patients for which it was designed.

In the years that followed the first World War, the McCords enlarged the hospital repeatedly though never enough:

"Each time, wards were added, more nurses were needed. Additional facilities in the way of bathrooms, rooms for storing equipment, drugs, linen and other supplies were also required. And after the nurses and new facilities were installed, the hospital was as crowded as before

Meeting one need always appeared to create new ones. The original Mission Nurses Home, built to accommodate fifteen to twenty patients, held on occasions as many as thirty or forty, and it took all the time I could spare from the dispensary. Enlargement in many ways was desirable, but not to increase the number of patients and to reduce the inefficiency that always results from overcrowding. An adequate operating theatre was needed. So were maternity and baby wards, to prevent the scattering of mothers and babies throughout the hospital.

Government health officers conceded that most of the native tubercular patients entering the Government hospital died of the disease, while many of our T.B. patients returned home either cured or arrested cases. But the good we could do in treating such cases was severely limited by the smallness of our "outside ward", the veranda, which needed widening and additional supports. These additions would cost between £1 750 and £2 000.

The funds raised by us built a large operating-room, with a separate anaesthetic room, a maternity ward was enlarged enough to accommodate a dozen confinement cases, and a baby ward was erected.

The porch was also widened by two feet, and additional columns supporting it were put, so that it was strong enough and spacious enough to take twelve to fifteen patients - as many as we had expected to accommodate in the original hospital. These additions doubled the capacity of the hospital and appeared to answer our needs for years to come."¹

Recognition by the Government of the Mission Nursing Home's training programme for the nurses and its graduates came in 1923 and then Native nurses could take the same examinations as White ones and so become registered nurses.

EXTENSIONS AND ALTERATIONS (FIG. 238)

In 1930-31 with malaria epidemics sweeping from Zululand throughout coastal Natal, the demand for hospital accommodation was tripled.

The year 1935 marked a change in the responsibility for the hospital. Prior to that, the ownership and responsibility for the Administration was that of the American Board of Missions. The financial depression of the early thirties drastically cut the financial support from America. The hospital became the subsidiary of the Natal Provincial Administration. A new three-storeyed building, called Alan Taylor's wing, was erected and it took the form of an L-shaped building of the corridor-type.

Two wings were linked together by a boiler house, and passages between the blocks were provided.

One of the wings, built vertically to Beatrice Road, consisted of an Outpatients Department on the ground floor. The other wing contained the

1. Dr. McCord, J.B. op. cit, p. 258.

kitchen and storage complex. The kitchen was removed from the main hospital block and the vacant space in the old building was converted into an additional male's ward.

The operating theatre complex was also transferred from the old building to the new Taylor's wing, and in its place the new, spacious female general diseases ward was established.

The opening of this modern hospital wing was a landmark in the area of medical service to the Zulu nation.

No less than 1 000 people assembled on the day of the opening in November 1937. Jan T. Hofmeyr announced its official opening and Sir Edward Thanton was the principal speaker - both these men had put a great effort into the development of medical education for Africans.

COMMENTS

With the notable exception of the McCord Zulu Hospital in Durban, the pioneer mission hospitals were established in rural areas as an integral part of the religious and educational uplifting of the Bantu.

They played a part in gaining the confidence of the Bantu in the use of western medicine and in pioneering the training of Bantu nurses.

The majority of mission hospitals were initiated as poor institutions with inadequate accommodation and equipment and were always grossly overloaded and constantly under-staffed.

Their complete dependence for many years upon irregular mission funds from overseas resulted in the basic and often primitive conditions of the buildings.

The Mission hospitals were finally given official recognition and financial assistance by the provincial authorities and the State Health Department.

The first mission hospitals took the form of small, cheap structures, often barrack-like and often built in the form of native design rondavels, where the patients were able to feel like at home.

In time, when funds permitted, these institutions were extended and altered to suit the latest hospital planning requirements, but they could never equal the Government controlled hospitals in size, equipment and number of employed staff.

In small towns and villages often a rented house served for years as a hospital until the funds became available for the erection of the proper institution.

From 1920 there was a marked increase in the number of mission hospitals in Natal.

Living monuments to the progress achieved by years of untiring effort were the Catholic Mission Hospitals established in Mariannhill, Ixopo and Centocow.

The Mariannhill Hospital started as the poor 'rondavel' institution, and the new building was designed and erected by the missionaries themselves. The mission could afford the big, architecturally interesting (mainly Italian Romanesque style) institutions, as the mission funds from Germany were sent regularly. In fact the Catholic Mission seemed to be the best-developed and the richest one in Natal.

The big mission institutions represented a notable contribution to the development of hospital planning in Natal, often being innovative functionally and architecturally.

part III

**analysis &
evaluation**

In Natal, the hospitals were built on the following four different types of layouts, all of them originally derived from Europe.

1. the pavilion type, in which modern design principles were introduced;
2. the corridor type, representing a traditional, conservative way of planning;
3. the quadrangle in which the rooms were grouped around the internal patio;
4. the mixed type where two or three of these forms were combined in one structure.

DESIGN COMPONENTS OF NATAL ORIGIN

Some of the hospitals had racially segregated wards provided right from the beginning. Usually, separate wards for White, Indian and Black patients were built, though in some cases Indians and Blacks were put together in the same ward. Provision of racially segregated wards was dependent on the financial ability of the Government, which was to finance parallelly the erection of hospitals in different centres of Natal at the same time.

Sometimes the problem of accommodation for Whites became so urgent, that the essential hospital services had to be omitted from the original design, giving space for wards for Whites.

In the Natal hospitals the inmates were classified into three categories according to sex, race, and kind of disease.

The building was usually divided into male and female sections, separated by the administrative section or service rooms.

Each of these parts contained the accommodation for all races of one sex, but this rule applied only to the wards. The lavatories (if they were provided at all) were multi-racial.

The other type of segregation introduced in the Natal Hospitals was the separation of different diseases patients. Initially, due to the lack of space, all the sick - general diseases, infectious diseases and lunatics were grouped together in the same ward.

When the Lunatic Asylum was erected in 1878 all lunatics were transferred there. The erection of Special Wards for infectious diseases in hospitals followed closely. They were usually built a great distance away from the main hospital block to avoid the risk of infection.

With the growing need for more accommodation, extensions to the hospitals became necessary. The main building had to be enlarged or new wardblocks and service buildings had to be provided. Often existing service facilities had to serve newly erected wards.

The erection of separate maternity wards became popular at the beginning of the 20th century. This was initiated in the Cottage Hospitals where the wards took the form of a separate structure.

1. PAVILION LAYOUT

As the density of population in Natal was not comparable with European Countries, the local pavilion hospitals took the form of much smaller structures, accommodating a maximum of one hundred patients.

The quantity and locality of the Institutions were of much greater importance than their size.

In Natal, the Hospitals of the pavilion type were built according to the new standards of design advocated by reformers of the Victorian era.

The newly adopted principles were as follows:

1. The hospital was to be arranged in the form of pavilions, preferably single-storeyed, as in such a case additional ventilation through the roof could be provided. If the accommodation was not sufficient, a second storey could be added on top of the existing building.
2. The pavilions were to be connected by open, semi-enclosed, or enclosed passages.
3. The lavatories were to be placed next to the wards for the convenience of the patients and were to be sufficiently cross-ventilated.
4. Nurses' Duty Rooms were to be put in close proximity to the wards to allow for better attention for patients.
5. Natural ventilation was to be used in the Natal hospitals, as the artificial ventilation system could not be installed due to its high cost. Sufficient natural cross-ventilation had to be ensured by means of the provision of window and door openings of the right size and position.
6. The arrangement of beds was to be carefully planned. The beds were to be placed in the space between the windows in such a way as to avoid the draughts and glare of the sun.
7. The service rooms were to be located centrally, preferably at an equal distance from all parts of the hospital for convenience and economy.

When erected as separate buildings, they were to be connected with the main hospital block by covered walkways to ensure the convenience of service in difficult weather.

8. Big wards were considered to be much better than smaller ones, as a bigger cubic volume per patient could be achieved. The standard, big ward was to provide 1 000 cubic feet per patient, and the one - or two-bedded ward, 1 500 cubic feet per head. Twenty-five to thirty-bed wards were considered ideal in the big hospitals. In smaller hospitals (Cottage Hospitals) the most economical ward accommodated 10-12 patients.

TYPES OF PAVILION LAYOUT

The pavilion hospitals in Natal took the form of an H-shaped and U-shaped layouts of the pavilions and radiating from the core of the building (3-pavilion layout).

The double-pavilion structure (H-shaped, U-shaped) proved to be the most satisfactory and economical and was adopted in the majority of hospitals.

A. H-SHAPED LAYOUT

The H-shaped layout became very popular at the end of the 19th century, when the Cottage Hospitals were erected on such a plan.

The H-shaped plan was not a Victorian discovery. Its origin went back to the 17th century Italian Renaissance palace - planning, when the main principles of the design were:

1. a pleasant merging into the environment;
2. symmetry of layout;
3. a hierarchy of internal functions, exposed on the elevations.

This type of plan was brought to South Africa by both the Dutch and English Settlers, and by the 18th century it was well-known in Cape-Dutch architecture. Its evolution is possibly best seen in examples like Rhone and Boschendal residences, both in the Franschhoek valley.

The most striking difference between the Dutch and English H-shaped establishment was in the relationship of each building's mass to the major approach.¹

Both were symmetrical, but the entrance symmetry of the Cape Dutch house was centered about the bar of the H, whilst the entrance to the English house was axial around its waist, so that it was at right angles to that of the Cape Dutch building.

In Natal, the English H-shaped plan was adopted as the most fashionable method of hospital planning. The entry led into a void contained between two solid pavilions or wings. This void nearly always contained a veranda, which acted as an intermediate zone between the interior and the exterior.

1. "Restorica", April 1984.

The front door was often marked by a gable or some similar prominent feature. All the rooms, placed on either side of the front door, also opened onto the veranda through French doors, another indication of a more informal style of living. This, of course, was a direct result of the then prevailing Romantic movement which strongly advocated the desirability of being closer to nature even in public buildings. The chronological evolution of this plan can be observed in the example of the Natal hospitals which, with the increased need for accommodation, were extended in size by adding new parts to the existing wings.

The hospital building went through the various stages of improvements in function (mainly services), internal circulation, and external appearance.

During the years, however it still retained its basic features which were as follows:

1. The plan always maintained its administration offices and service rooms in the central part, equally approachable from both wings (in the bar of the H-shape or in the centre of the back yard).
2. The wards were always racially-segregated and in the majority of cases there was sexual-segregation in the side wings.
3. The ablution blocks were always placed at the ends of the wings to ensure proper ventilation and convenience. Exceptions were first establishments when the privies were erected apart from the main hospital block.

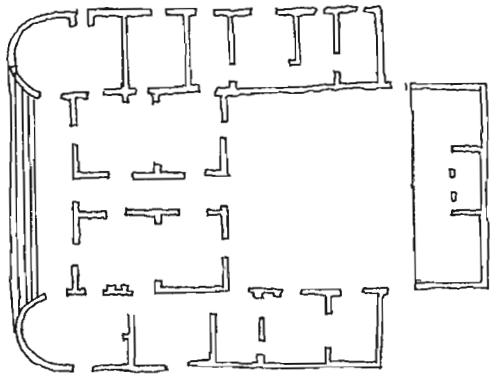
4. The massing, epitomized by the double pitched roofs echoing the plan from below always remained the same.
5. The concept of axuality and symmetry was never departed from.
6. The distinction between a pleasant frontal approach, often with decorative lawns, and the back of the building containing all the "dirty" service rooms was continuously observed.
7. The importance of the veranda, introduced as a design element almost from the beginning and its integration into the building, both in the plan and in the massing was always taken into account by the architect.

The evolution of H-shaped hospitals illustrated the importance of the introduction of the transverse passage which allowed for greater internal convenience and resulted in putting side entrances to the building.

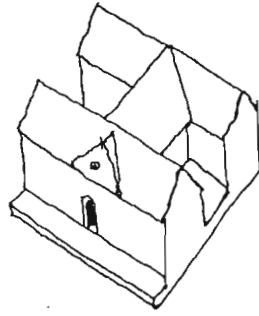
The side entrance indicated a growing awareness of the greater value that was to be placed on the sides of the building, something which was initiated by the use of side verandas. This ultimately led to the building being completely enclosed by an encircling veranda (see diagrams of development of the H-shaped hospital layout).

The evolution of this plan resulted in the great improvement of hospital function, mainly in the circulation system.

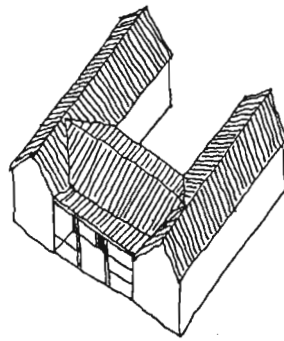
The circulation system which initially consisted only of a central passage with the exit to the back yard of the building developed into a sophisticated range of internal corridors and external verandas.



WOLMUNSTER, ROSEBANK, CAPE TOWN,
c.1835. PLAN.



1.



2.

DIAGRAM OF CAPE DUTCH H-SHAPED
HOUSE AND 19th CENTURY H-SHAPED
ENGLISH HOUSE.

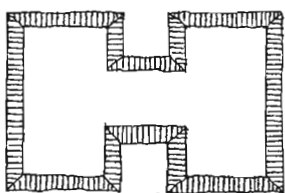
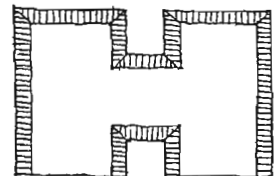
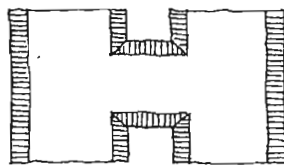
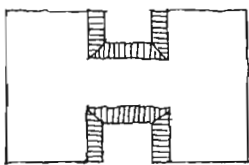
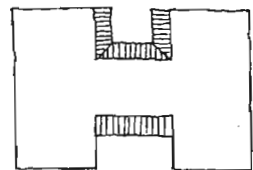
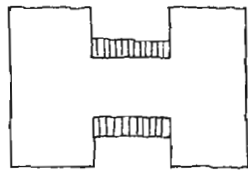
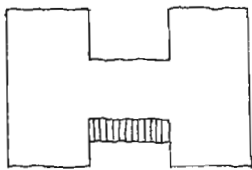
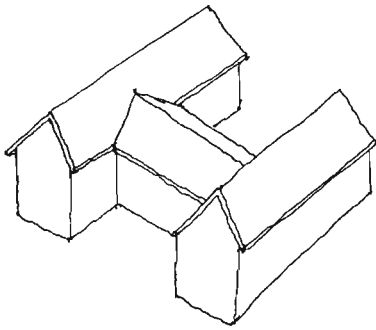
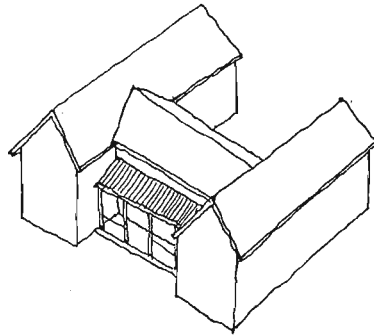


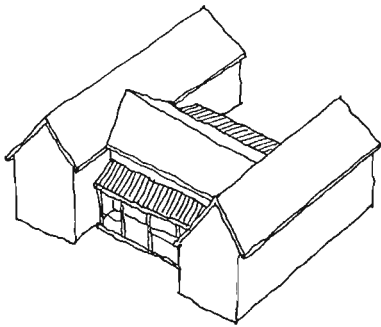
DIAGRAM ILLUSTRATING THE MAJOR STAGES IN THE GROWTH AND DEVELOPMENT OF THE
H-SHAPED HOSPITAL.



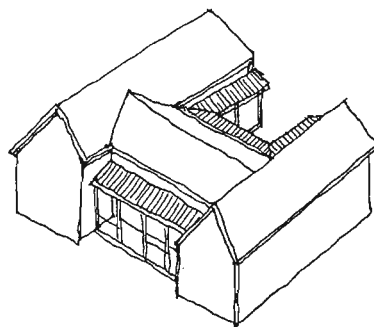
no veranda



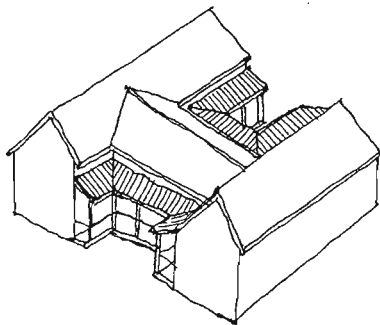
front veranda



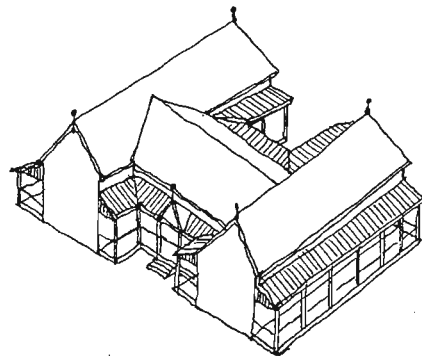
front and back verandas



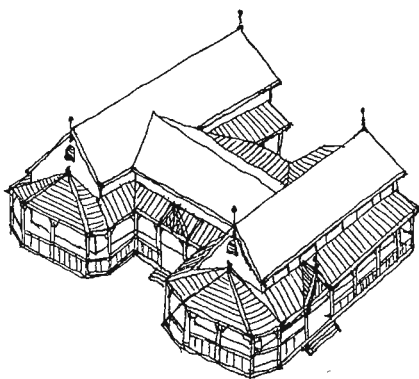
front and back verandas
side back verandas



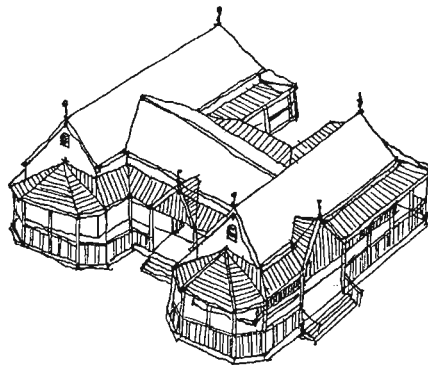
front and back verandas
front and back side verandas



entire building except front
and back gables.



entire building except back
gables



entire building

DIAGRAM ILLUSTRATING DÉVELOPMENT OF VERANDA IN H- SHAPED HOSPITAL.

Originally, the wards were completely enclosed in the building, but in time they opened through French doors onto the veranda which provided protection from the sun and rain and a resting space for patients. The veranda suited not only the hot summers but also the chilly winters and served as isolation of the buildings.

Through the years the H-shaped plan evolved in the following ways : increase in size and improvements in functions and circulation which illustrated its universality and easy adaptation to new requirements without changing its general character.

B. U-SHAPED LAYOUT

Similar design principles were adopted in the U-shaped hospital. This plan was considered to be more elegant than the H-shaped one and was introduced in big town hospitals where the aesthetics of external appearance together with the internal functions were the prominent aims of the architect.

This layout originated in Palladian Renaissance and Baroque palace architecture bearing the following principles of design:

1. A pleasant merging into the environment : the front of the establishment was to take the form of elegant approach through an organized garden and the back was to contain all the "dirty services".
2. Symmetry of layout : the central entrance marked by a prominent feature was to be placed on the central line of the building.

3. The hierarchy of functions : the central part was usually occupied by administration or services, the wards were put in side wings.

The U-shape layout represented the double-pavilion type, where adequate environmental control conditions were achieved.

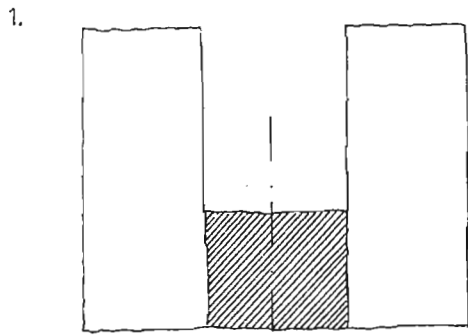
The main entrance usually led to the administrative part, while in the Renaissance of the Baroque hospital it led to the chapel.

In fact, in the Lunatic Asylum, the chapel was also erected on the central line of the establishment, but at the back of the building.

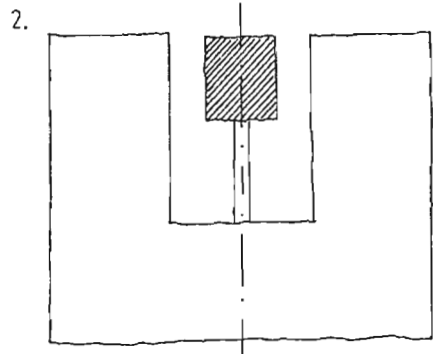
The service rooms were placed centrally, either in the bar of the U-shape or in the centre of the back yard, being equally approachable from all parts of the building. The same applied to the lavatories in the Lunatic Asylum, where the sexually segregated lavatories were placed in the back yard on either side of the kitchen block.

This situation vastly simplified the communication system and resulted in better functionality of the institution.

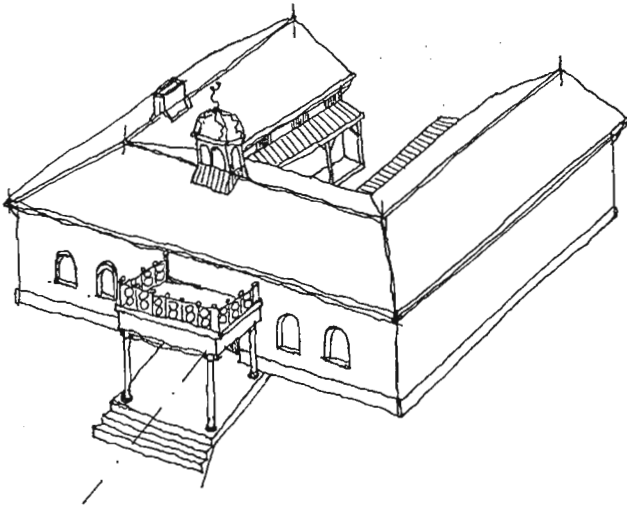
Transverse passages were introduced into the design of the more advanced hospitals. The main difference in planning between the U-shaped and the H-shaped layout, was the lack of verandas on the facade of the U-shaped hospital. Instead, a decorative porch was often erected, marking the importance of the main entrance and providing protection from the sun and rain in the approach to the building.



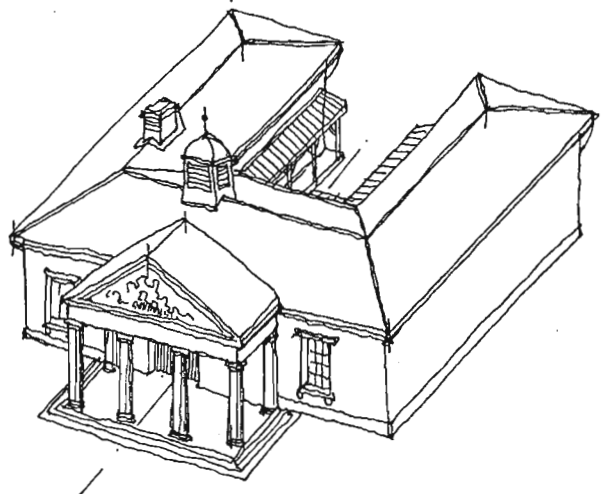
in the bar of U-shape



in the back yard



entrance to the building through the porch



entrance to the building through the portico

DIAGRAM ILLUSTRATING THE POSITION OF THE SERVICES AND TWO TYPES OF ENTRANCE TO THE U-SHAPED HOSPITAL.

This type of plan had the advantage of being simple and economical, fulfilling all the requirements of the functioning of the hospital.

(see diagrams).

C. RADIATING PAVILION LAYOUT

The triple-pavilion layout was planned in the form of three wings radiating from the core of the building containing the service rooms and the entrance hall.

Adequate environmental control was also ensured in this type of layout, the wards being well lit and cross-ventilated.

Disease segregation could be easily introduced in this case as the wings were separated.

This type of plan provided the possibility of the erection of the veranda as a climatic component of the design and an additional circulation link.

The lavatories could be located in two different places:

1. at the end of each wing,
2. in the core of the building.

The position at the end of each wing was, of course, much better as it ensured the convenience of use by the patients, adequate ventilation, and it provided the possibility of segregation of the lavatories of different diseases patients.

(See diagrams)

2. CORRIDOR-TYPE LAYOUT

A corridor-type hospital in fact did not differ at all from other public buildings. It represented the oldest traditional type of hospital planning and the most conservative one.

The environmental control conditions, cross-ventilation, lighting of wards and provision of adequate sanitary facilities were not considered as important in this type of design.

The corridor-type layout resulted in a simple block with a central corridor and rows of wards and service rooms on either side of it, all of equal importance. The building could easily be converted into any type of public institution.

This method of planning was brought to Natal mainly by the Missionaries who arrived here for the purpose of the christianization of the Black people. Originating in different countries, they undertook the difficult task of building their missions, including hospitals, and facing the difficult conditions of unknown territory and lack of funds. They were not aware of the new method of hospital planning and even if they were, the missions could not have afforded this.

All these conditions gave rise to the fact that cheap and simple establishments, capable of treating the sick but not adequate functionally, had to be erected.

Characteristic of the Zululand Mission Hospitals was the occurrence of Native design rondavels, erected with an eye to the Zulu patient who felt more at home in such a building, so that he was not afraid to come to the Mission doctor with his complaint.

A corridor-type hospital building could be raised on different layouts, but the most popular were rectangular and L-shaped plans.

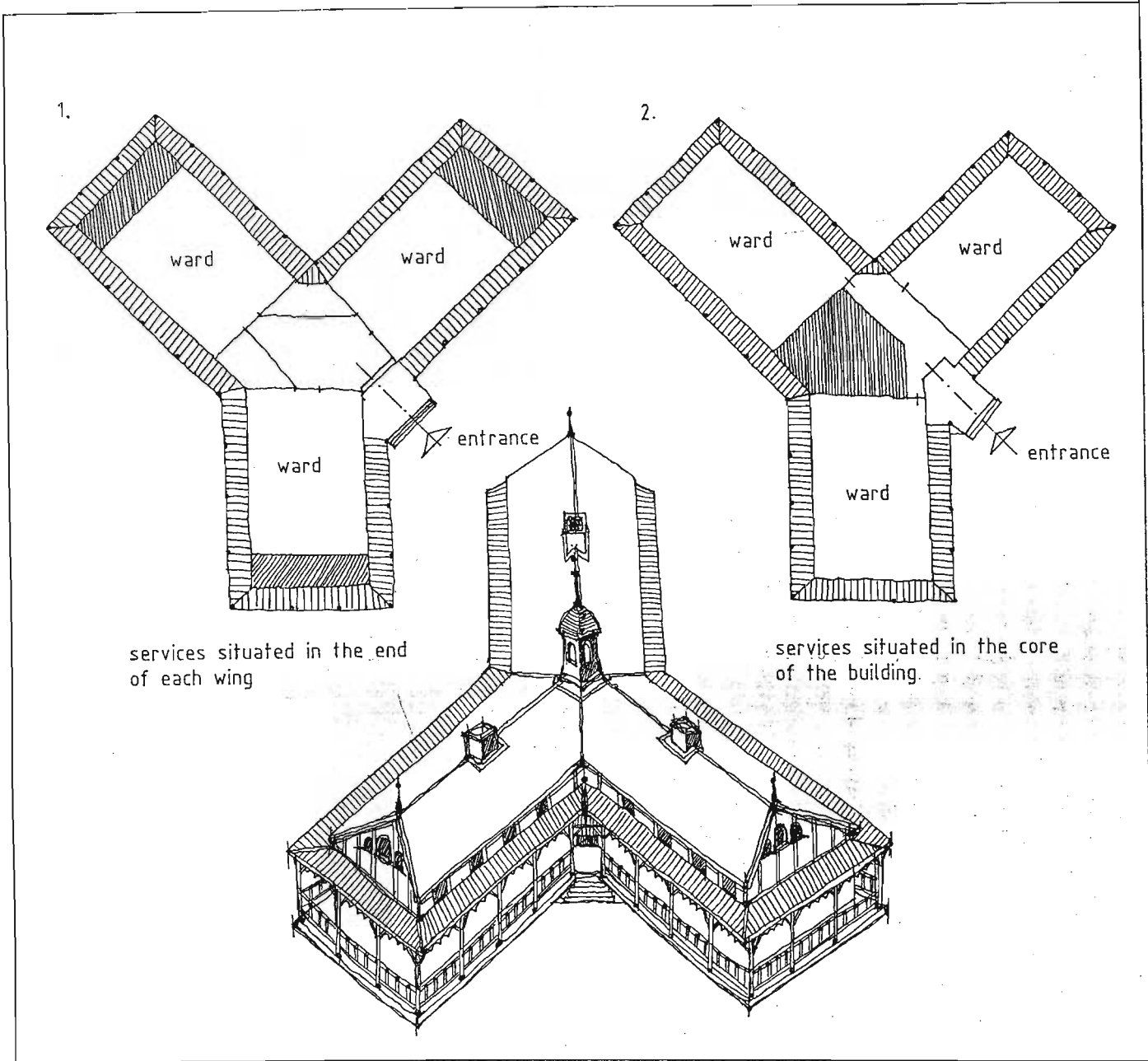


DIAGRAM SHOWING THE POSITION OF SERVICES IN RADIATING PAVILION TYPE.

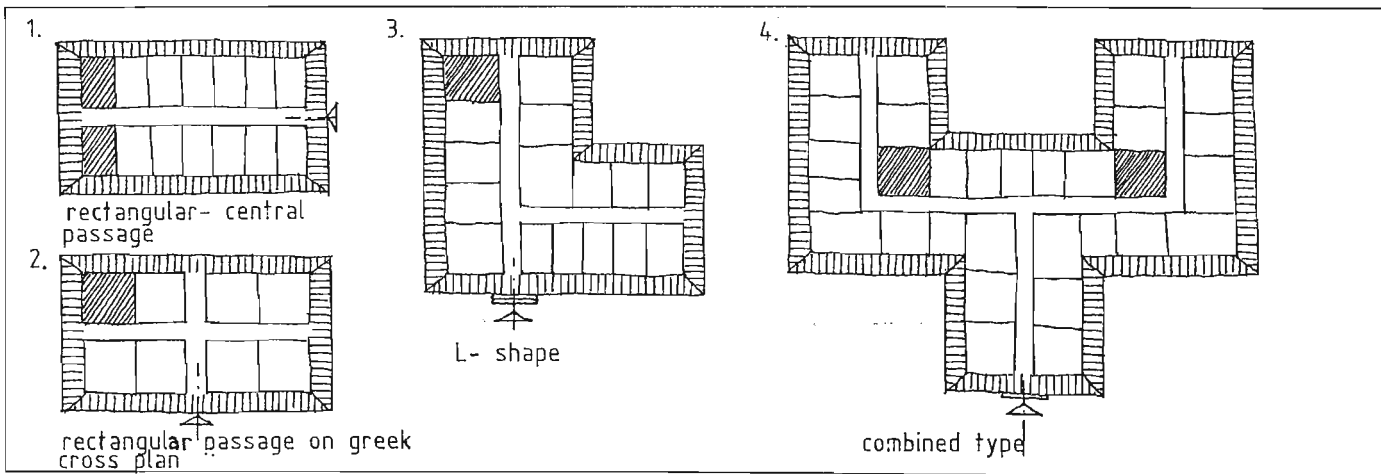


DIAGRAM SHOWING THE TYPES OF CORRIDOR BUILDING.

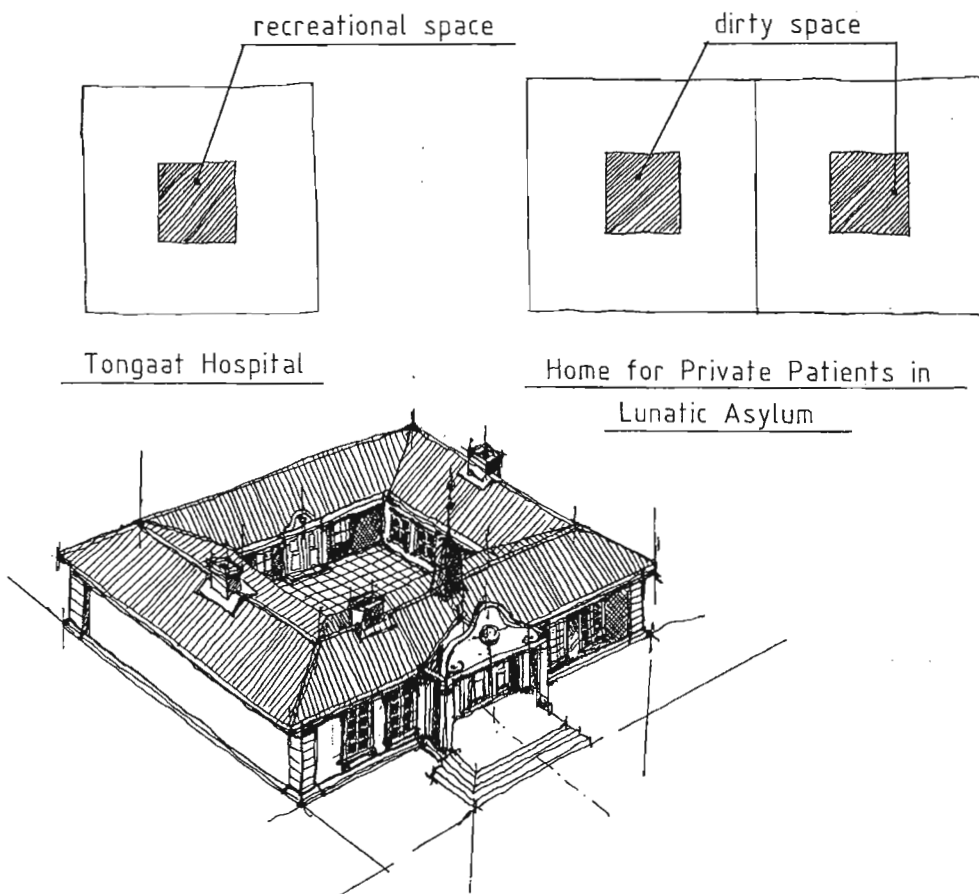
3. QUADRANGLE LAYOUT

This type of layout originated in the Italian Renaissance period, when palaces and public buildings, including hospitals, were built on quadrangle plans.

It was also introduced in Natal hospitals, as the least popular type. (In the Tongaat Indian Hospital, the Home for Private Patients in the Lunatic Asylum, the latest form of Grey's and Addington Hospitals).

It consisted of rooms grouped around an internal patio which could serve either as a recreational space (Tongaat) or "dirty" service space (Lunatic Asylum). Usually one patio was provided, but a composition of two or more patios was also possible (Asylum - Home for Private Patients).

The internal environmental control conditions were much better than in the corridor-type structure, but the risk of infection by foul air was also present especially in the case of a small patio.

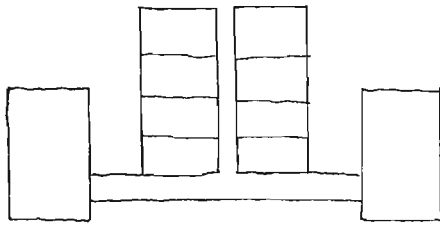


4. MIXED-TYPE LAYOUT

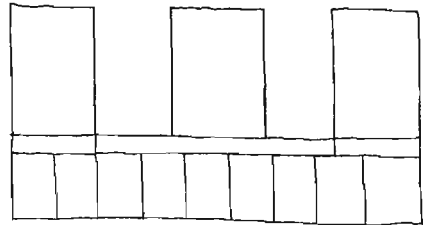
The mixed-type of hospital layout combined two or three forms of:

1. the pavilion layout;
2. the corridor layout;
3. the quadrangle layout.

1.

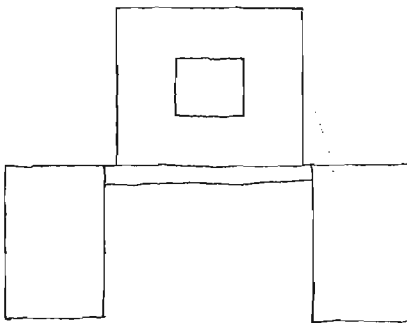


pavilion-corridor type

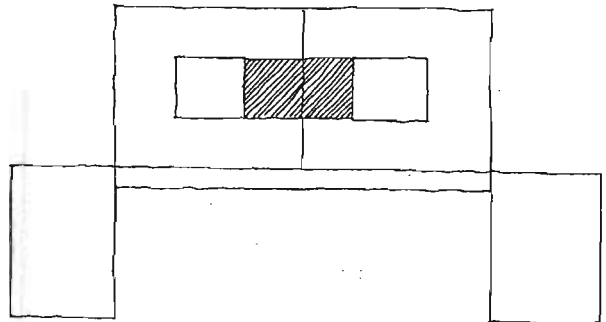


pavilion-corridor type

2.

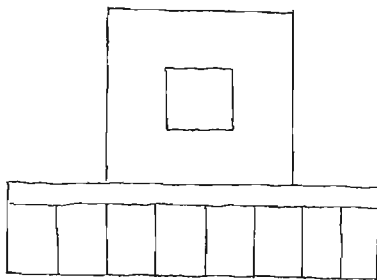


pavilion-quadrangle type



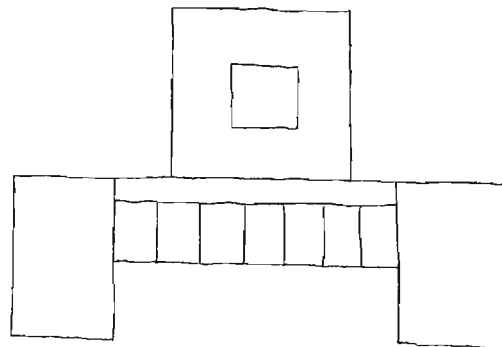
pavilion-quadrangle type

3.



corridor-quadrangle type

4.



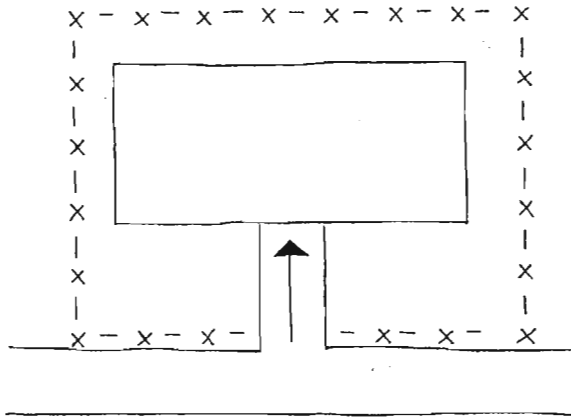
pavilion-corridor-quadrangle type

DIAGRAM SHOWING MIXED TYPE HOSPITAL LAYOUTS.

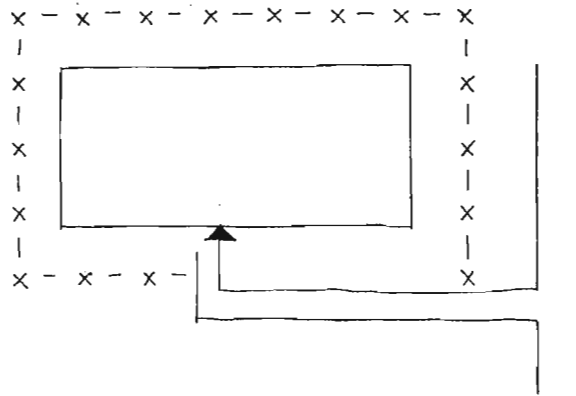
I. APPROACH TO THE BUILDING

The approach to the hospital building generally took two forms:

1. Frontal approach - from the main road leading to the hospital.



2. Side approach - from the main road leading to the hospital.



3. The visual goal that terminated the approach was always clear:

- an entire facade of the building
- elaborated entrance within it.

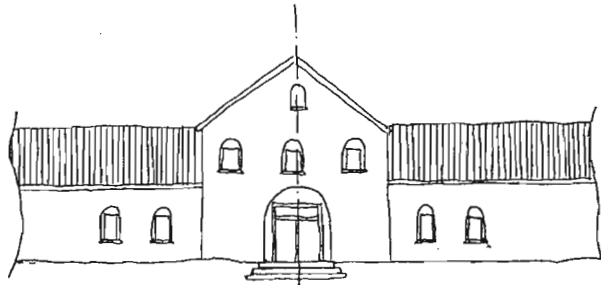


II. ENTRANCE

The entrance was formed in two ways:

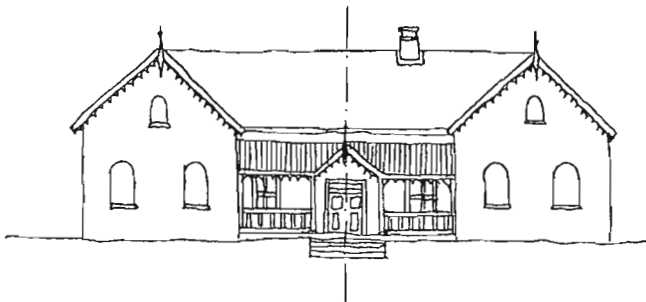
- in the face of the building
- projected out of the facade, announcing the function to the approach and providing shelter overhead:
 - in the form of a veranda
 - porch
 - portico

1.

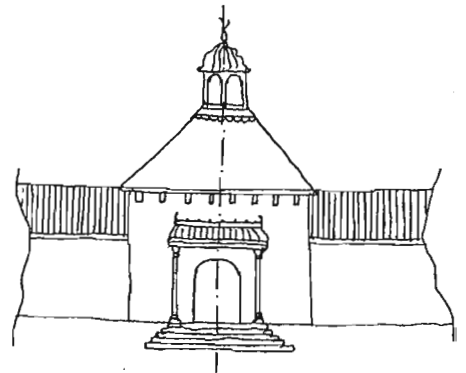


Lunatic Asylum
entrance in the face of elevations

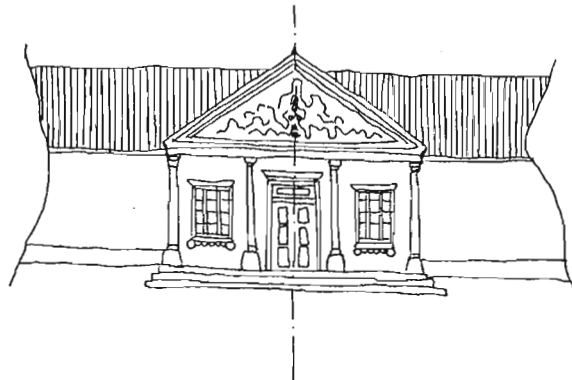
2.



through veranda



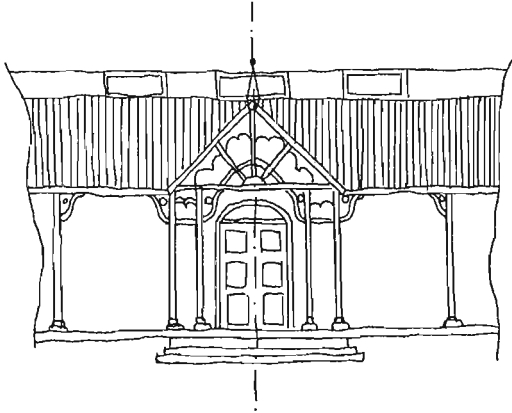
through porch



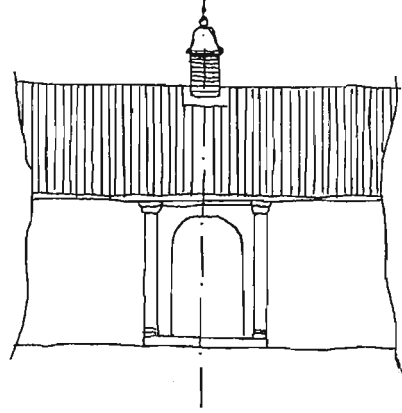
through portico

ARTICULATION OF ENTRANCE

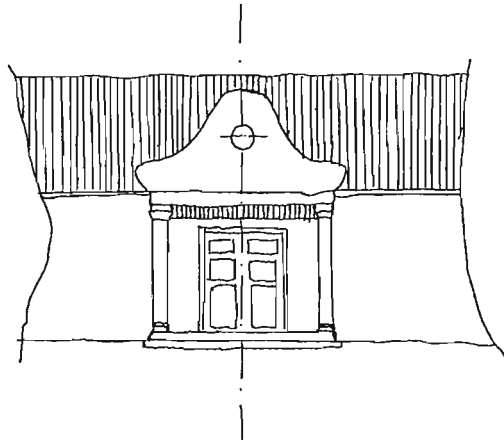
The entrance was always put centrally within the frontal plane of a building and was usually articulated by a dominative element above or by a bigger more decorative door often decorated by architraves.



gable in veranda



lantern on the roof



dutch gable above the porch

III. INTERNAL CIRCULATION

Internal circulation spaces formed an integral part of the hospital building organization and occupied a significant amount of space within the building's volume.

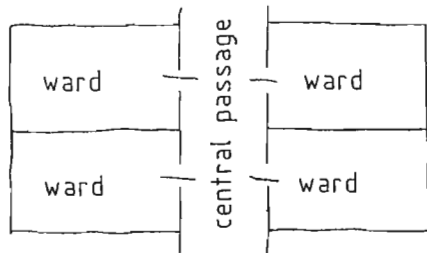
The form and scale of internal circulation had to accommodate the movement of:

- hospital staff
- services
- patients

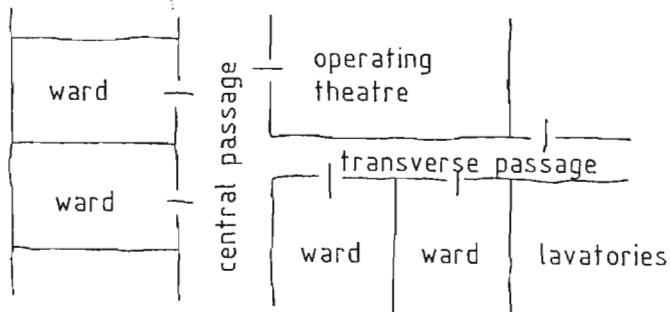
Internal circulation in the hospitals was provided by the following methods:

- (a) a corridor enclosed on both sides - a main corridor with all the entrances opening onto it.
- (b) a transverse passage - linking the main corridor with the entrances to the rooms.

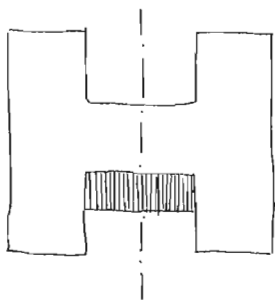
1. (a).



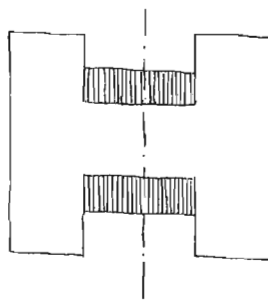
(b).



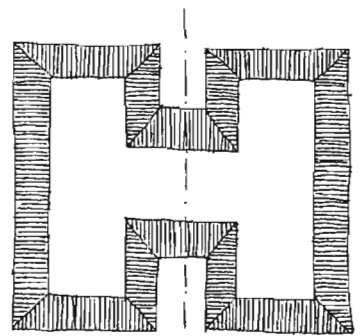
2. Semi-enclosed corridor - veranda, balcony (front, back or surrounding)



front veranda



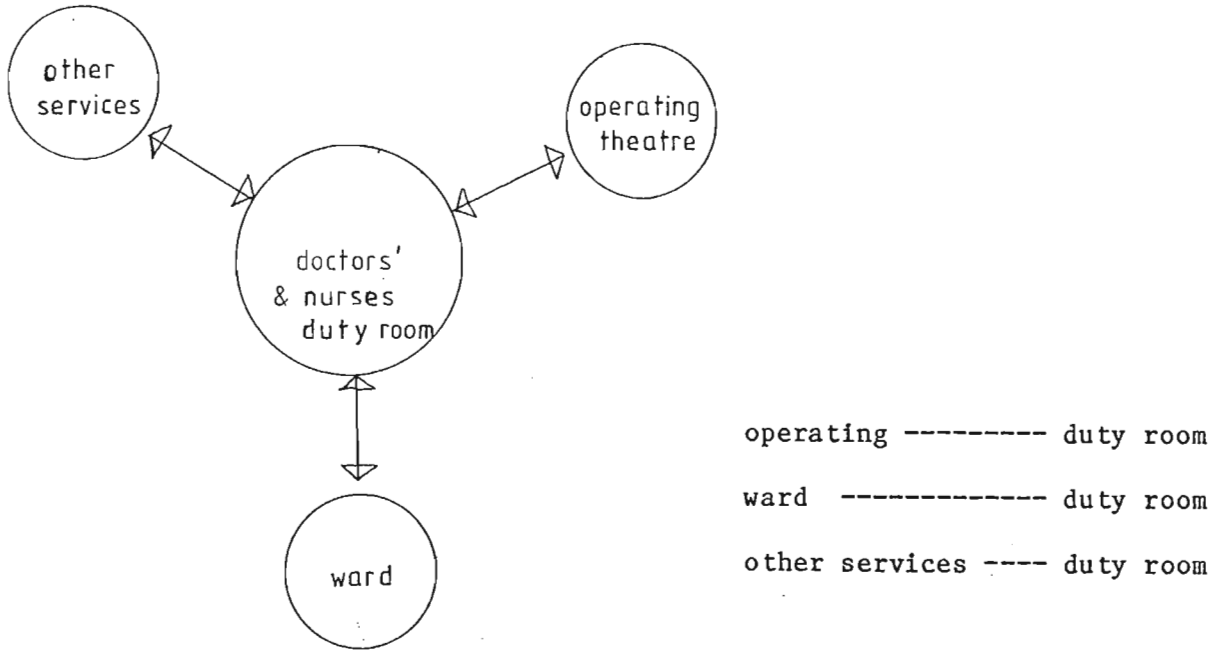
front and back verandas



veranda surrounding entire building

HOSPITAL STAFF MOVEMENT.

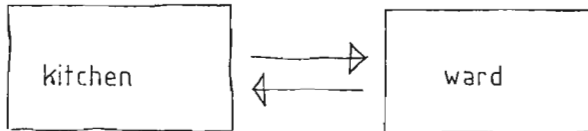
Hospital Staff movement included the attending of patients by doctors and nurses and in the original hospitals where the nurses were accommodated in hospitals - their daily occupations.



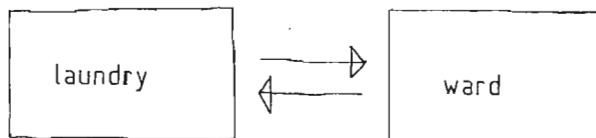
SERVICES MOVEMENT

Services movement included:

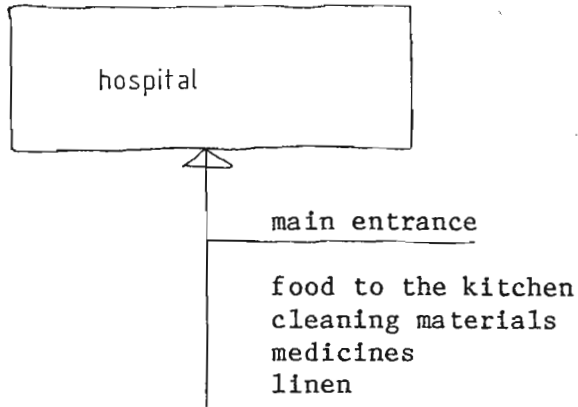
- food distribution and dirty dish removal;



- linen supply and dirty linen removal;

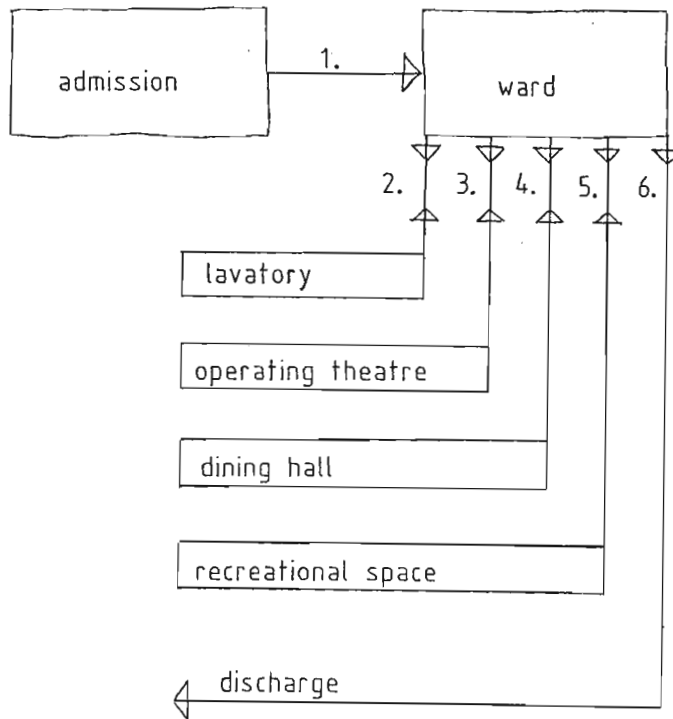


- the cleaning of wards, lavatories etc.;
- the supply of necessary medicines, food and other materials to the hospital.



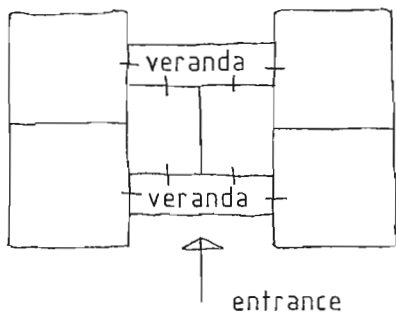
PATIENTS MOVEMENT

1. Admission of patient

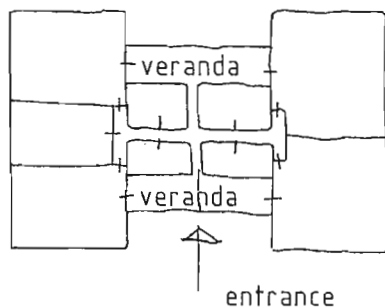


A veranda very often served as the only means of communication with all the entrances opening onto it.

Sometimes it took a form of an additional circulation link.

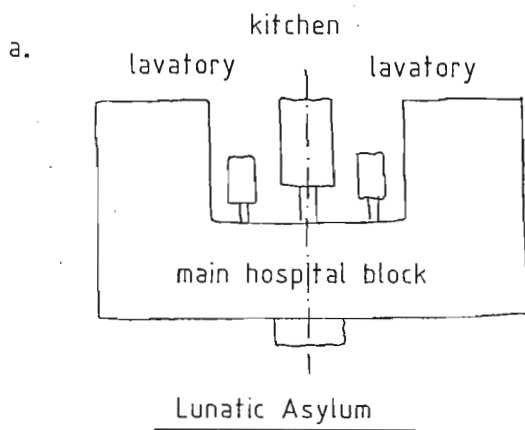


veranda serving as main communication link

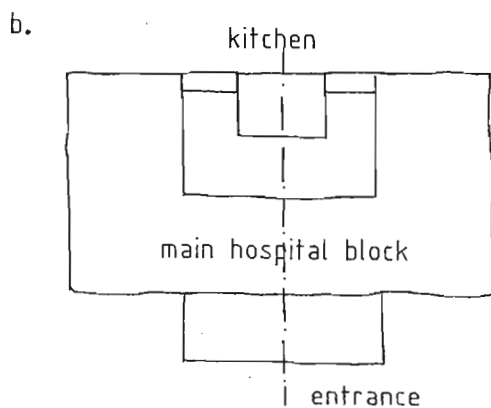


veranda as additional communication link

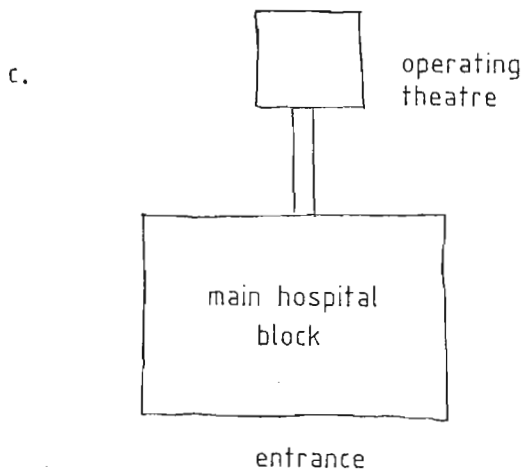
3. The covered walkway connecting functionally different spaces:



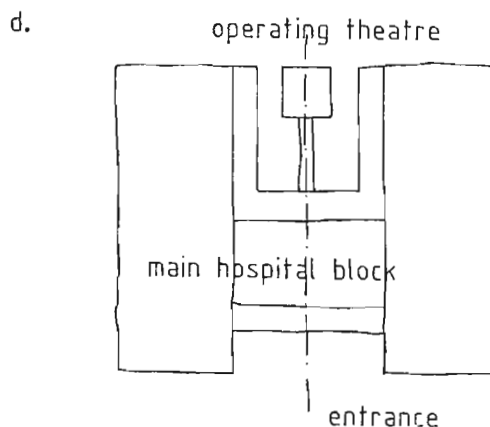
Lunatic Asylum



Addington Hospital

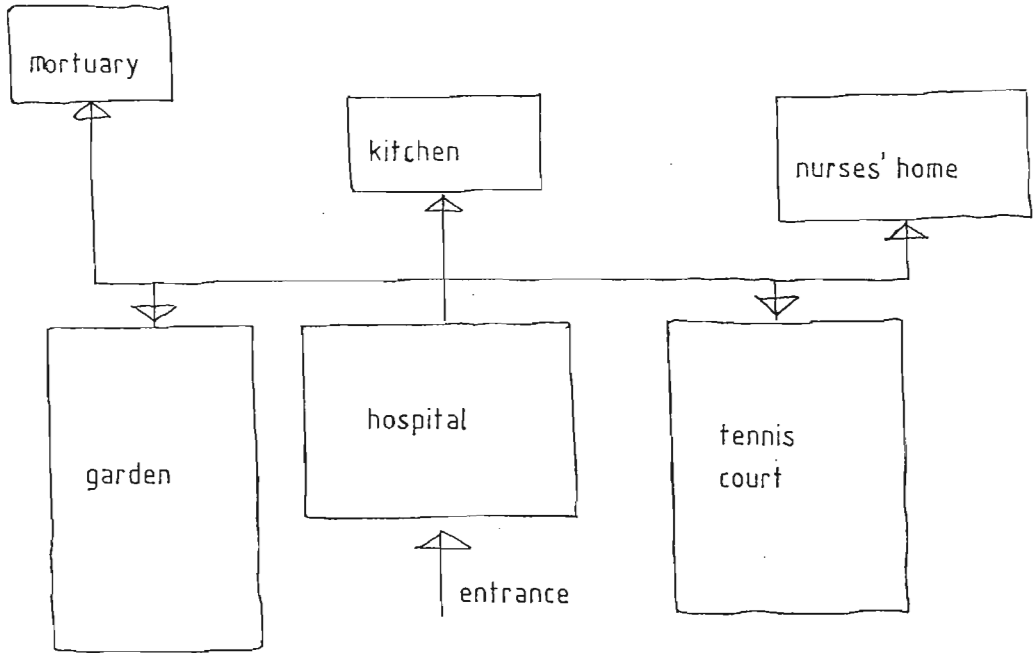


Eshowe Cottage Hospital

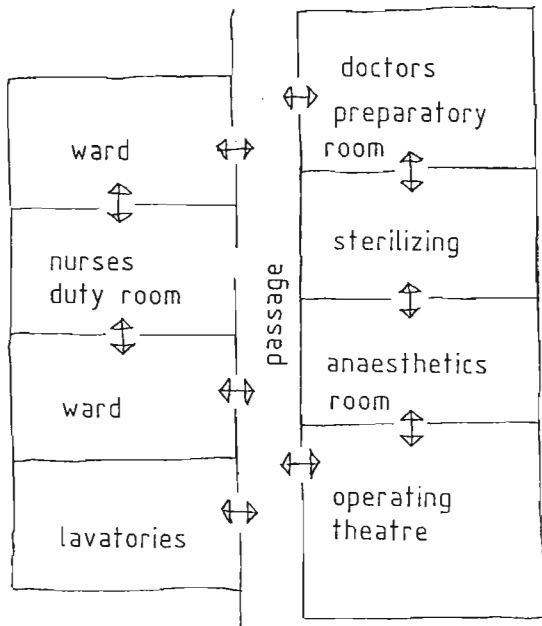


Grey's Hospital

4. An open passage between main hospital block and other hospital buildings e.g. wards, kitchen, laundry, mortuary, kitchen yard, recreational space (tennis courts, gardens, etc.).



5. Inter-room communication, apart from passages.



The width and height of a circulation space was always proportionate with the type and amount of traffic it had to handle.

The standard width of the internal corridor was 5 feet.

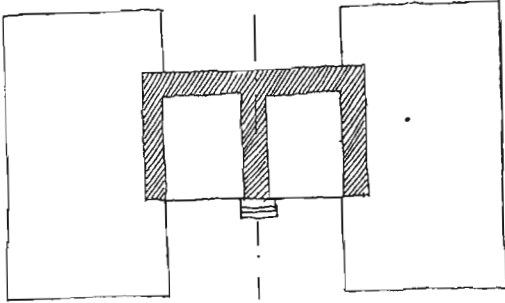
The standard width of a veranda was 5 feet.

The long internal passages were often optically divided by the use of wall pilasters or archways.

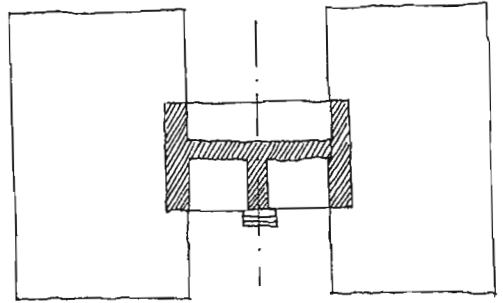
The ceiling often with decorative embellishments executed in plaster served as the spatial enclosure of circulation space.

1. INTERNAL PASSAGES

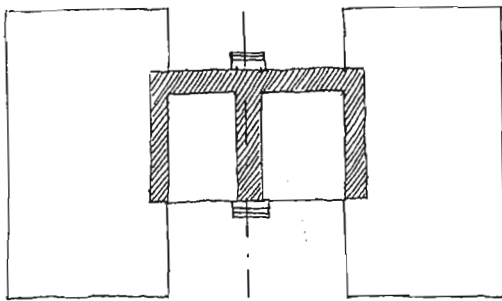
a.



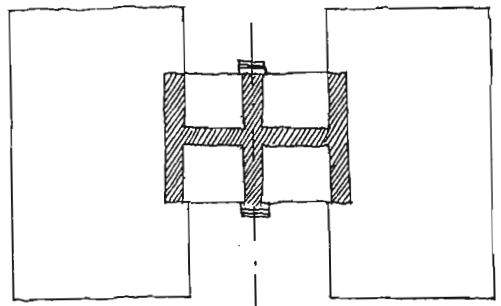
b.



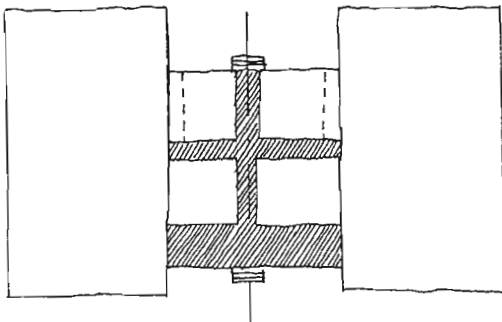
c.



d.

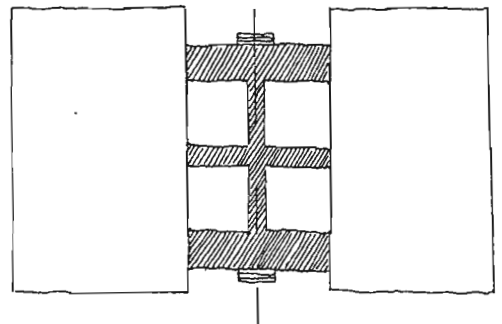


2. FRONT VERANDA

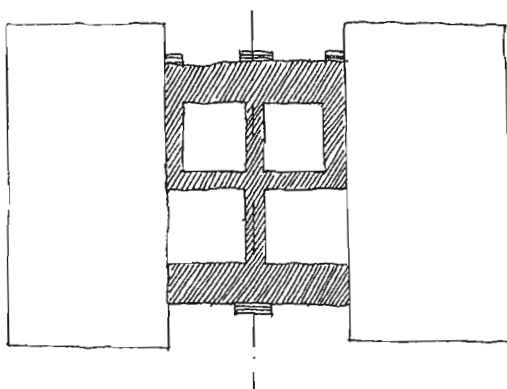


3. FRONT AND BACK VERANDAS

a.



b.



4. SIDE VERANDAS ADDED

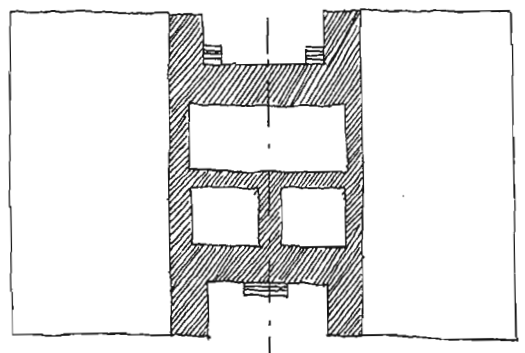


DIAGRAM ILLUSTRATING THE CIRCULATION IN H-SHAPED HOSPITAL.

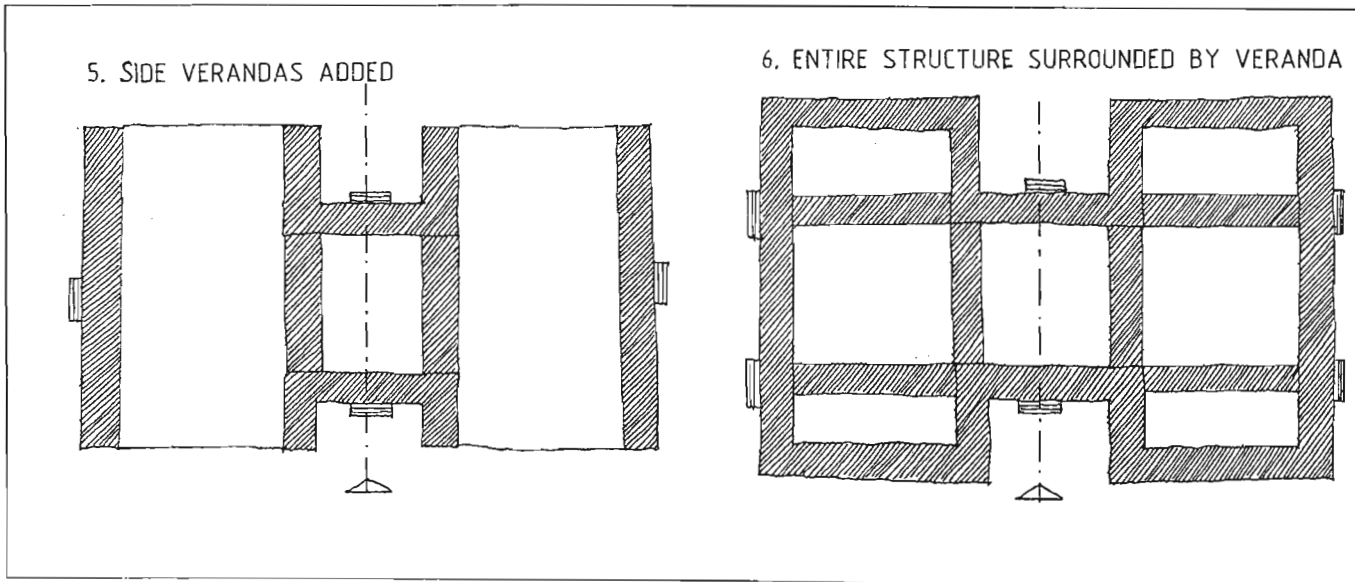


DIAGRAM ILLUSTRATING THE CIRCULATION IN H-SHAPED HOSPITAL.

1. WALLS

The type of material used for the walls in hospital buildings differed dependent upon the type of the hospital, the place where the building was to be erected, and the funds available. In the case of a government hospital the bricks produced in the local brickyards could be used mainly for construction. If a poor mission hospital was to be erected, often other building materials were specified. In the rural areas located at great distance from the town centres, stone, mud and wood were the only available materials on site. Because of the urgency in providing hospital buildings and the shortage of funds for more expensive bricks and their transport, often these more primitive materials and the labour of the natives and missionaries were used.

The walls of the oldest hospital in Natal, Grey's Hospital in Pietermaritzburg, were built of stone quarried by convicts in the local quarry. At that time the thickness of the stone walls varied from 21 inches to 30 inches, getting gradually thinner as more improved mortars were used. In this case the walls were of 30 inch thick shale painted with cement mortar.

By the middle of 19th century, building with stone was common. Dwelling houses and sometimes also public institutions were built mostly of granite, shale or sandstone. Dry stone walls were common in outbuildings but when more "serious" structures were involved, painting with lime or cement mortar was used, and the walls were white-washed or often plastered. Internally the stone walls in most of the cases were finished with plaster, which served as an additional isolation. Thick walls of mud, stone or brick, white-washed or plastered on the outside made for coolness in summer and warmth in winter. Mainly a clay plaster or lime were used in construction and

clay-plaster or lime were used in construction and sometimes dung was added to the mixture to increase its resistance to cracking and crazing.

The walls of the Estcourt Convent building, of an M-roof construction, were constructed of sandstone, 28 inches thick, painted with cement mortar. Internally the walls were plastered and water-colour painted.

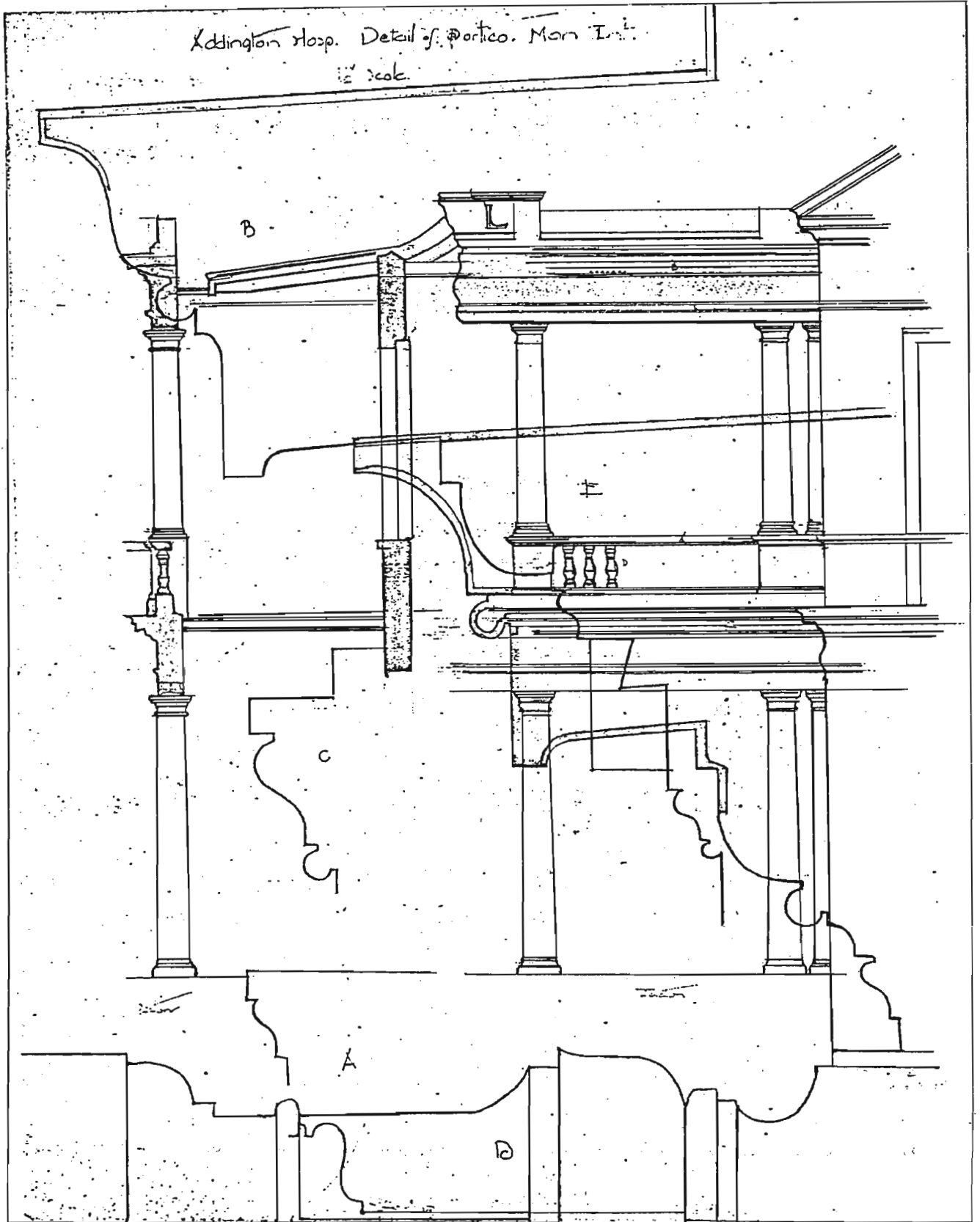
In some cases, the stone was used for erecting a building's brickwork bases, about 2-3 feet in height. This method is represented in Newcastle, Dundee, Ixopo and Richmond Government Cottage Hospitals. In all these buildings, the sandstone quarried in local quarries was used for this purpose.

The most popular building material was brick, and two kinds were in use:

- a raw brick - usually manufactured by the contractor on the building site (the method first introduced in Cape Town)
- hard-burnt brick - "English brick", which could be bought from a brickyard. At first, the English hard-burnt bricks were imported from England, but soon tax and shipping costs became too high and they began to be produced from local clay.

Raw bricks were commonly used for single-storeyed buildings in country districts, or for internal walls in town buildings. When used for external walls, they had to be plastered and painted and were very thick (two feet) in dimension.

At first, two feet thickness for outer walls (two and a half bricks) was the common dimension, the walls of the upper storeys being a half-brick



W. STREET-WILSON. ADDINGTON HOSPITAL, DETAIL OF PORTICO, 1892.

thinner. By the end of the 19th century an 18 inch brick wall was the standard one¹.

2. FOUNDATIONS

In the first buildings, the foundations generally consisted of a layer of rubble and rock laid directly on the top-soil or excavated six inches into it. Later stonework was taken to a height of two or three feet above ground level (stone bases discussed above).

At the time when the first hospitals were built the substructure became more elaborate. The foundations were 3 feet 6 inches wide and the depth was dependent upon the condition of the soil and the size of the building.

From the very beginning damp-proofing posed a serious problem and cement mortar proved to be the most efficient waterproof material. Portland cement was the most successful of all cements and was imported here from England (it was introduced in England in 1824) from the beginning.

Grey's Hospital walls were laid on stone foundations but in the structures which followed later, concrete was used for this purpose.

3. EXTERNAL MOULDINGS

The cornices on the elevations were executed in stone, brickwork or plastered brickwork. Similarly, the plasters were trowelled on a brickwork core in plaster.

The free standing columns or half-columns attached to the building walls were built of hard-burnt brick, plastered and painted, their capitals being formed in plaster. (Fig. 239)

1. Lewcock, R. "Early Nineteenth Century Architecture in South Africa", Cape Town, 1963.

The Tuscan and Doric columns planned in Bayside and Addington Hospitals were built of brick and later plastered and painted. (Fig. 88, 91).

The latest facade of Pietermaritzburg Sanatorium, the stone imitation finish was executed in plaster.

The horizontal line of plinth used in Addington Children's Hospital serving to emphasize the scale of storey height was built of plaster, using Portland cement as a component. All the neo-classical architraves decorating window openings on the facade of this hospital were formed with this material. Plaster ceilings were also used under verandas and porticoes. In the colonnaded front of Addington Hospital the fine ornamental coffered ceiling was erected with egg and dart mouldings.

In the late Georgian design in double storeyed buildings, there was usually a moderate eaves overhang to act as a cornice to the facade, in which case the soffit of the eaves was moulded either in plaster, brick or stone to achieve something approaching the profile of a classical cornice, or simply boxed in with painted flush boarding.

4. WINDOW AND DOOR OPENINGS

The openings in external walls were usually strengthened by building hard-burnt brick or stone arches above them. In the original Grey's Hospital stone arches were erected while in the rural cottage hospital bricks were used for the purpose. Often in addition to a brick or stone arch a hardwood lintel was fitted above the opening to ensure the required strength. (Fig. 239-42), (Phot. 119)

In Addington Hospital architraves of deal were fixed round all windows and doors those in the main building were 8 inches wide with double face moulded and stopped to be 5 inches wide moulded single face.

In Newcastle Cottage Hospital, wood lintels over all square headed openings were provided in external walls. No lintels less than 3 inches deep were specified.

5. WOODWORK

External.

For external woodwork in hospitals, mainly for veranda construction: rafters, columns, brackets, laces, balustrades and for fascias, barge board and rainwater goods, hardwood was specified. White and red pitch pine (Lunatic Asylum, Addington Hospital), a wood of the same strength as teak, was widely used. It proved to be exceptionally durable in exposed conditions, and for these reasons was quickly adopted in the Northern Republics and in Natal.

"Baltic fir" brought to the Cape by American traders was another timber often used for external construction - in Newcastle and Dundee Cottage Hospitals. In Grey's Hospital the verandas were made of yellowwood. For window frames and doors red pitch pine, stinkwood and yellowwood were used. All exposed woodwork was to be well seasoned and have three coats of oil paint.

Internal

Yellowwood was regarded as the most durable local wood for interior carpentry and joinery. All the furniture was made mainly of this.

1. Lewcock, R. op. cit, p. 316.

For floors constructed of suspended boards red pitch pine, more durable than white pine, was often used e.g. in Addington Hospital, and the Lunatic Asylum.

In the cottage hospital 'Baltic fir' was considered sufficient for the purpose. Skirtings, cornices, door and window architraves, were sometimes manufactured of yellowwood or pine.

6. WINDOWS

Three kinds of windows were in common use in Natal, and all of them were represented in hospital buildings. There were double sliding sash window of English origin, small casement windows, and french casements.

Double sliding sash windows, were at first shipped here from England and from the start they were introduced into the buildings.

Almost every hospital had this type of window fitted, especially in their original forms, when the verandas were not in common use. Later on, when the romantic movement was in fashion, there was a strong tendency to bring the in- and outdoor together as much as possible, which resulted in the introduction of the balcony and veranda. They became the components of almost all buildings, including hospitals. The French doors-casements were fitted in hospitals to allow for more convenient use by the patients who could now easily get out of their wards to the outdoor airy, sheltered space. French doors become an integrated part of the building connecting the veranda with the interior. The small casement window, a mediaeval feature, was still in use by architects, particularly with the other types of windows to create more aesthetically pleasing, articulated elevations. Sometimes this type of window was also fitted as a fan-light in composition with French or panelled doors.

In Addington Hospital the window frames were of red pitch pine prepared for 2 inch sashes with double rebated sills. The sash frames of bathrooms,

kitchen wing, attendant's room and mortuary had $1\frac{1}{2}$ inch sashes. In Newcastle Cottage Hospital the windows had proper deal cased frames throated and grooved sill with 2 inch sashes fitted with stout sash bars, moulded horns, strong flex lines, brass axle pulleys, iron weights and strong approved sash fasteners complete.

6 inches by $2\frac{1}{2}$ inches transome and frame fitted with 2 inches hinged transome light with proper logged opener and cord were provided.

The sills were mainly of yellowwood or white pitch pine which were in common use, but often the sill was left as a cement one (in cheaper construction works). Sometimes louvred shutters, generally made in one piece, running from sill to head were installed in the windows (Newcastle Nurses' Home).

The frames were painted with 3 coats of oil, and the colour was mainly white.

The Greek revival in Victorian architecture introduced a fashion for architrave mouldings in plaster on the face of the wall around each window. This was introduced in Addington Children's Hospital.

7. DOORS

External doors were panelled, the number of panels depending on the funds available. Panelling was a mark of splendour and elegance, but it was expensive. (Fig. 246)

In Natal, the English practice of panelling was introduced, and it took the form of very restrained mouldings with the lowest panels, and sometimes all of them, flush with the styles and separated from them by a simple shadow line of grooved-out beading. 4-panelled doors were in common use in external doors in all the hospitals. Internal doors were mainly of

the single panelled type and painted with oil, and for outbuildings the doors were ledged and battened, sometimes in diagonal patterns but generally vertically. In Addington Hospital, all door frames were done of timber and varnished. All internal doors of the main building were of 2½ inch red pine moulded and panelled on both sides. All external door frames were put together with white lead and were set back 9 inches from the wall face.

In Newcastle Cottage Hospital, the internal doors were 1½ inches thick, 2 feet 10 inches by 6 feet 10 inches, of the four panelled type, and imported from England. Internal doors were hung to 1½ inches double rebated linings fixed to rough backing. External doors were 3 feet by 6 feet 10 inches in dimension, hung to a 5½ inches by 3 inches rebated frame secured with fish-tail cramps built into the brickwork. The doors were fitted with proper rim lock and brass furniture with through pin.

8. ROOFING

For the construction of roofs mostly pitch pine, Baltic fir and yellowwood were in common use. In Grey's Hospital yellowwood planks were bought for construction of trusses, in Addington Hospital and the Lunatic Asylum, pitch pine was used, and in Newcastle Cottage Hospital and other Cottage Hospitals, Baltic fir was used.

Gable and hipped roofs were commonly put on the buildings, and always the proper trusses, king-posts or queen-posts with heavy sections were installed. In the Lunatic Asylum, Indian Dining Hall and in St. Mary's Mission, the hammer beam trusses were introduced and as a result spacious rooms were achieved, as the ceiling partially followed the roof shape. A double pitch roof was put on the Pietermaritzburg Sanatorium,

and in its space attics were provided as the rooms for staff. Also externally it enriched the appearance of the building by introducing dormers.

By the turn of the century, the hipped roof with gables serving as ventilators became very popular, these being placed at two ends of the roof. Single pitched roofs were very rarely used, and in Indian Point Hospital in Durban, this type of roof was covered by malthoid with a layer of sand as a waterproof insulation. On the facade the roof was surrounded on the higher side with a plastered parapet wall.

In the British way of construction, thin boards carried on closely spaced small ceiling joists, which were supported by main grider beams at right angles. The ceiling or upper floor joists were placed 18 inches to 20 inches apart and beaded on the lower corners. Generally they ranged in size from 5 inches by 2½ inches to 4 inches by 2 inches. Main beams were usually of the order of 7 inches by 5 inches.

Ceiling boarding was commonly made of yellowwood, the boards being generally 1 inch or 1½ inches thick, and 12 inches or 9 inches in width. Roofing rafters were seldom less than 4 inches by 4 inches or 5 inches by 3 inches.¹

In the Newcastle Cottage Hospital the roof plates were 4½ inches by 3 inches in size, the principal rafters and tie beams 5½ inches by 2 inches, king post 4½ inches by 2 inches, the purling 4½ inches by 2 inches, the ridge 3 inches by 3 inches, the hips 11 inches by 2 inches, and the valley boards 9 inches by 1 inch. These dimensions became the standard ones in cottage hospitals, and were repeated in all of them where similar construction was involved.

1 Lewcock, R. op. cit, p. 317.

Roofing materials were a field for constant experiment. The advent of corrugated cast-iron in the 1850's opened a new era in roof construction. The galvanised corrugated iron sheeting began to be shipped to Natal from England, and became the main material for roof covering. It was so popular that it was used even in the rural areas where it had to be transported at a high cost. It was first put on the roof of Bayside Hospital, Durban. Hospitals like: Addington, Bayside, Lunatic Asylum, all cottage hospitals, and some of the mission hospitals were given this type of roofing.

In the gable form, often the ridge of the roof was decorated by laces and the apexes on each side by timber finials of different character. The timber barge board and fascia board were finished in the same manner.

Where the veranda was introduced, its roof was not often incorporated under the main roof of the building, but it was always covered to match the main roof. The gable marking the main entrance to the hospital was often finished with decorative laces and apex finials.

In places where corrugated iron sheeting was not available, the roofs were covered with thatch or tiles. The thatch was usually about 9 inches thick and projected about 9 inches from the walls. It was held together with leather thongs or tarred hemp, or wired to laths 2 inches by 1 inch roughed out of yellowwood or pine. It was capped by a ridge made of burnt brick chipped and plastered and often lead, zinc and copper were also used.

The original Grey's Hospital had a hipped thatched roof made of reeds by arrangement with the local natives.

When fire broke out in Grey's Hospital in the 1870's the damaged thatch roof had to be replaced. Tiles were chosen by the architect as a suitable

material for the purpose. At that time they were widely produced locally and were distributed by a Pietermaritzburg tileyard.

Tiles were later repeated in many structures becoming especially fashionable at the beginning of the 20th century since they provided better climatic insulation than iron. They were even considered more elegant and were used in such handsome structures as Addington Children's Hospital, Grey's Nurses' Home, Pietermaritzburg Sanatorium Nurses' Home, Ladysmith Sanatorium, Durban Sanatorium and Marianhill Mission Establishment etc. Because of the high cost of tiles in rural places where cottage and mission hospitals were erected, corrugated iron sheeting was still in use.

Roofs covered with tiles were mostly designed as hipped ones, and there is no doubt that the English fashion in Georgian taste contributed to the spread of this type of roof.

The quality of the tiles was dependent on the kind of clay used, and sometimes the tiles were not wholly impervious to water and had to be painted with oil paint. (This happened in Grey's Nurses Home - "B") (Phot. 124). Later on, this problem disappeared.

The pantiles overlapped one another by $2\frac{1}{2}$ inches to 3 inches and were wired to wooden laths of about 2 inches by $1\frac{1}{4}$ inches. Specially shaped tiles were made for ridges and for the hips of hipped roofs.

In the 1850's many different types of tiles, including Broseley, were imported from England.

The guttering was either of wood, pitched and tarred inside to make tiles waterproof, or, later was lined with lead or zinc or entirely replaced by tinned copper goods. The gutters were directly fixed to the walls.

9. ROOF FEATURES (FIG. 243-4)

Different elements usually articulated the roof line, the features being used as a decoration or serving the purpose of lighting, ventilation, a bell container or clock tower.

With more attention given to hygienic conditions in the hospital (after 1864 the Governors had to report on the conditions of all Colonial Hospitals to the especially created Commission in England), lighting and ventilation became the most important problems to solve. As proper natural cross-ventilation was not always provided in the wards by the usage of big windows in the right places, other types of ventilation had to be introduced. The one commonly used was the fire-place, which also served as a source of heat in the winter.

The chimney shaft often projected high above the ridge line, and was even elongated by the use of a fireclay or terra-cotta terminal, a so-called pot, to prevent down-draught. Chimney pots were used in Betania Mission Hospital, Dundee. Often caps were used as the ornamental finishes to chimney tops. The chimney stacks for grouped flues were constructed of bricks or concrete or both of these materials. Mainly bricks were used for this purpose in all cottage hospitals, but in the Lunatic Asylum brickwork would not have constituted suitable construction, so concrete, which was much more expensive, had to be used.

Special ventilation openings were provided in roofs or gable walls. In the gable type, there was the rectangular or round "Bull eye" (in Addington Hospital's laundry) (Fig. 286). Timber louvres were fitted to ventilate the roof. They were of the standard shape and dimensions. In the Newcastle Cottage Hospital the louvre ventilators consisted of $5\frac{1}{2}$ inches by 2 inches wrot frame weathered sill, all grooved and fitted with 1 inch wrot louvre boards.

Often the space between the main roof eave and the veranda roof contained the same feature, that of air gratings 9 inches by 6 inches built into the walls.

The hipped roof had its louvre ventilator fitted into specially created gables or gablets on the ridges. (Pietermaritzburg Sanatorium, Ladysmith original Sanatorium). The ventilator could also take the form of small iron turrets covered with ornamental caps containing the outlet of the flue, or a bigger turret with some louvre panels around it, covered with a dome or pyramidal spire (Fig.243). The domes or other top finishes were mainly of zinc, lead or copper. Copper was used on the domes of central ventilators in Betania Mission Hospital. At the Pietermaritzburg Lunatic Asylum, E. Dainton designed lead pyramidal shaped roof ventilators.

In Addington Hospital, the roof ventilators were constructed of timber and covered with lead. The lantern put on the roof above the main entrance was framed with pitch pine with provision for pitch louvres 1 inch thick. (Fig.93)

In most of the Cottage Hospitals ceiling openings and ventilators were often provided. Usually over each opening a pyramidal trunk of $\frac{1}{2}$ " rough boarding was provided to prevent a down draught. The ventilators were built into the ceiling in the angles of 9" x 1" wrot deal to a height of 6 feet above floor level, finished with moulding and beading (Newcastle, Dundee, Ixopo). (Fig.261.3)

In the Pietermaritzburg Lunatic Asylum different types of roof ventilators were used. In the main building on the pyramidal roof over the double storeyed parts, ventilating turrets of square section were installed. They consisted of 8 arched timber louvre panels fitted into 4 walls, all covered with a lead roof, finished with finial. In the single storeyed

parts of the building, iron ventilating tubes containing flues and covered with pyramidal caps were installed.

On the central part a big lantern of squarer layout which consisted of 10 small columns supporting the arches in between was put. This was covered with a lead pyramidal roof with domed top and finial, the structure being very original and aesthetically pleasing.

In the Home for Private Patients E. Dainton designed a big lantern and ventilator over the central entrance (Fig.252). This interesting feature consisted of 4 Tuscan columns supporting the 4 simple pediments and covered with a lead dome topped with a finial in a form of turning ball. All joints were secured with 3" x $\frac{1}{2}$ " wrought iron angle plates with $\frac{1}{2}$ " bolts to each plate. All exposed portions of fleche were covered with lead.

An architecturally interesting tower marked the centre of the elevation facing the sea in Addington Children's Hospital (Fig.253.3). This unusual structure, octagonal in its layout internally served as a view room. 8 Tuscan columns plastered and white painted supported the copper dome topped with an ornamental finial. The horizontal lines of plinths and roofs optically divided the great height of the tower. The ground floor elevation contained an arched architrave window flanked with two small casements on its sides on a background of stone imitation executed in plaster. The upper floor had a rectangular sash window with plaster architrave above. The differentiation of forms, materials, colours and textures created a fine and interesting composition.

The fireplaces, as the other means of natural ventilation, were usually executed in cement in the form of 9" arches on wrought iron $2\frac{1}{2}$ " x $\frac{1}{2}$ " cambered chimney bars bearing 9" at each end with the ends turned up and down. The back of the fireplace was usually built of cement (Newcastle, Dundee, Ixopo and Port Shepstone).

Separate smoke flues were provided for each fireplace turn and the standard dimension 14" x 9" was used. The chimney cap in Newcastle Cottage Hospital was built of bricks with cement weathering.

10. INTERIOR WORK

The internal walls were most commonly finished in plaster. Usually Portland Cement was used for this purpose but in the rural areas where it was not available, a clay plaster was popularised. The plaster on the walls was usually painted in 3 coats of oil paint in pale tints. Ceilings were normally painted white with a coat of flatting in addition.

For ornamental plasterwork, cornices and ceilings, a special resistant plaster was used. Sometimes dung was added to the mixture to increase its resistance to cracking and crazing.

Plaster ceilings were introduced by the British. Where boarding was used it was generally yellowwood, teak, Baltic fir or pitch pine.

For floors the same types of wood were used. Floorboards were either dowelled together or "ploughed and tongued". It was always kept clear of the ground, with a minimum of one-foot ventilation space. The joists were seldom less than 4 inches by 3 inches.

In corridors, verandas, service rooms and outbuildings, floors continued to be laid with tiles or bricks, or straight cement floors were left. In cottage hospitals the floor joists were specified to be no more than 15" apart in the clear. The floor plates 4½" x 3" in size were framed, and the joists 5½" x 2" trimmed for hearths with joists 1" thicker than those adjoining.

In Addington Hospital, the wooden floors, raised by 2" above ground level were laid in the wards and staff accommodation rooms. These floors were ploughed, tongued and edge nailed in 5" widths, 1 1/8" thick, laid with a straight joint.

The floors on verandas and porticos were paved with hard, well burnt bricks laid on edge in mortar, and the mortuary, kitchen building and ablutions were finished with paving tiles laid in mortar and joined in cement. On the stables floor, clinkers laid flat and joined in cement were put.

The operating theatre, dispensary and waiting rooms had tiled floors.

Interior mouldings consisted generally of a cornice of wood or moulded plaster around the edge of the ceiling, and a wooden or cement skirting around the walls. In the Dundee Cottage Hospital all wards had 3½" x 2¼" cornice mould plugged to walls and neatly mitred at angles.

Other mouldings were the architraves of doors and windows which sometimes took the form of fluted classical pilasters extending right down to the ground. (Addington Children's Hospital).

In Addington Hospital, architraves of deal were fixed round all windows and doors in the main building, being 8" wide with double face moulding.

The fireplace surrounds were finished in the same character to match in pattern the door and window architraves and possibly also the skirtings.

To emphasize a corner, a "flush bead" a recessed semi-circular moulding was generally used. For a projecting edge the flush bead was sometimes taken to three quarters of a circle. If the bead was projecting, it was generally called "astragal". The type of moulding usually specified

its basic shape - half round, quadrant, ogee, ovals. The internal mouldings of small cottage hospitals were mostly finished in the cheapest half-round profile.

In institutions like Addington Hospital, Addington Children's Hospital and Lunatic Asylum, where the funds were available a large amount of decorative elements was used and the internal plaster work was executed in different ornamental patterns.

BACKGROUND.

The veranda - a roofed gallery or portico is considered to be of European origin. It originated in mediaeval times in the vernacular architecture of the Mediterranean, Portugal and Spain, from where it was taken to the East by the early Portuguese and Dutch navigators. Early examples of its use as a building element occurred in the 18th century, also in Brazil and West Indies, most probably by Spanish Colonisators.¹ From the West Indies, the veranda was imported into the North American Continent, where it went through different stages of development during the 18th century. The first veranda houses generally had them built in front or at the back, but by 1740 buildings in Georgia were erected with verandas all round. This prototype spread all over the North American Continent and other British Empire Colonies like Australia, India and South Africa. The fact that the veranda in its mature form was brought to the Mother Country, England, back from the Colonies is surprising.

One of the earliest recorded instances of the veranda in England was a house of this form called an "American Cottage".²

The adoption of the veranda in Europe followed rapidly.

In South Africa, at the Cape, the earliest type of veranda dated from the 18th century, when it was a fashion for classical porticoes. The Dutch

Notes and references:

- 1 Oberholster, J.J. "Historical Monuments of South Africa", Cape Town, 1965.
2. Pearse, G.E. "Eighteenth Century Architecture in South Africa", Cape Town, 1968.

Society did not appear to have considered the climate sufficiently in their domestic and public architecture, but it is recorded that at an earlier date, covered walkways had existed in Cape Town.

The first verandas in the true sense were erected during the first British Occupation. By the early years of the Second Occupation it was becoming common for stoeps to be enclosed under low-pitched boarded or metal roofs and thus converted into colonnades, porches or verandas.

From the Cape Province the method of surrounding houses with verandas spread all over South Africa. In Natal, the Colony founded by both Voortrekkers and English Settlers, this tradition developed quickly in early towns and settlements.

In the Natal Coast climate, verandas suited not only the hot summers but also cool winter days, providing the sun and storm control and additional isolation on chilly days.

The veranda, which acted as an intermediate zone between house interior and exterior was an indication of a more informal style of living, which was the result of the then prevailing Romantic movement with its strong desire to be closer to nature.

The veranda played an important role, especially in linking the living rooms of the house to the garden. To allow for convenient movement between the garden and the house, the low-silled double sliding sash windows were soon transformed into French windows which served to incorporate the garden into a room. The lawn became a more important feature than before, extending right up to the veranda, replacing the gravel drives and paths which formerly encircled the house.

The space of the veranda now became a new shaded room for reading and resting.

The variety of forms of the veranda were dependent mainly upon the architectural style of the building. Designed to harmonise with garden scenery it was to afford a degree of embellishment and variety of shadow, producing a picturesque effect with its overhanging eaves.

Initially, the veranda roof was incorporated under the main roof of the building. In later built houses, other modes were adopted, considering mainly the alternative methods of allowing light to reach the interior.

The conservative method was the erection of a gable over the centre of the facade, an adoption of the 18th century pattern, with neo-classicist or Gothic embellishment.

The other method, the introduction of a row of attic windows above the veranda roof, gave the building a lighter outlook and served as an additional loft ventilation.

Different types of interesting and colourful materials were used for the construction of veranda roofs. In the case of flat roofs, the first used method - plaster on boarding - had proved inadequate for waterproofing.

The problem of waterproofing continued up until 1850, when the importation of the revolutionary new material, corrugated galvanised iron, solved it. Previous use of expensive zinc, lead or copper roofing on almost flat roofs, the method adopted from countries and colonies with low rainfall, was the source of continual trouble.¹

When the steeper veranda roofs were designed, cheaper materials like thatch, shingle or slate could be used without the problems of leakage or deterioration.

1. Pearse, G.E. op. cit, p.197.

The columns or poles supporting the veranda roof could be made of different materials and in various styles. Often heavy Tuscan columns created the classical colonnades with plastered balustrades; sometimes light verandas with elegant Ionic or Corinthian columns made of wood or cast-iron with a light timber entablature did this. The simplest way of quick erection of veranda houses was the manufacturing of a light iron framework for canvas which gave the characteristic tentlike shape.

With the introduction of cast-iron into the building industry, the flowered veranda, the trellised balustrade, and colonnades with filigree tracery with ivy and climbing creepers hanging between them were becoming more popular.

In 1798, James Malton in his "Essay on the British Cottage" explained the origin of arched shapes such as often used on the flattened ogee arch and the patterning of bargeboards as an Indian influence.

Some Moorish, Turkish and Gothic elements also appeared sometimes in veranda design. Later woodwork patterns were based on the traditional timber architecture of Scandinavia, Bavaria and Switzerland. This method of finish was brought to South Africa by British immigrants who travelled extensively on the Continent in the 19th century.

True fretwork began to make its appearance only after the machine for cutting was invented in America in the late 1840's.¹ It was mass-produced according to standard patterns which could be chosen from published pattern books. The most elaborate were imported into South Africa from America and Scandinavia. The paving ceramic tiles or slate were also made in ornamental patterns.

1. Pearse, G.E. op. cit, p.201.

In keeping with the taste of the time, most of the rooms opened onto the verandas communicating with them by French casements and when on the western side they were protected from the afternoon sun by "Venetian Shutter Blinds". As the Victorian era approached, verandas provided the ideal subject for decoration, which was at first a triumph of controlled pattern, but later sometimes became ostentatious and unnecessary.

THE VERANDA IN NATAL HOSPITALS

Together with the introduction of the veranda in the domestic architecture of town and village, public buildings started to develop in the same way. Verandas, which suited the Natal climate perfectly, began to appear in non-residential buildings like shops, schools, and hospitals, providing them with a plasticity of architectural effect and protection against the summer sun and storms. Various types of verandas used in hospitals were dependent upon the architectural style of the building and the function to be fulfilled by them.

In the earliest Durban hospital - Bay Hospital, designed by Robert Sellers Upton in classical style - an entrance portico with Tuscan columns in prostyle served as a front veranda. (Fig.88)

J.S. Cleland produced a similar design about 70 years later in Addington Children's Hospital in Durban, designing a large sheltered porch as the front entrance (Fig.242.1). In addition, he introduced the veranda as an entire sea frontage, but enclosed it by windows and sliding doors to protect the little patients against draughts.

According to the plans prepared by P.M. Dudgeon, Addington Hospital, built in 1878, contained a classical, spacious portico supported by eight Doric columns (Fig.91). The use of side verandas as ways of access and as a

means of detaching rooms for lunatics and patients with infectious fevers was an interesting feature of the planning. The classical colonnade used on the facade and wooden poles supporting side veranda roofs in the original version did not seem congruous in the appearance of the building, as representing as they did entirely different styles. Light side columns replaced in 1892 (W. Street-Wilson) by classical arcades appeared to be much more suitable. (Fig. 245)

Elegant and proportional verandas around the Durban Sanatorium (W. Street-Wilson) raised by the end of the 19th century represented a delicate Victorian style pattern (Fig. 171). In a new Sanatorium, erected about 30 years later, the heavy classical colonnade was introduced. (Fig.250)

Verandas connecting by french doors with wards, indicated their importance as a circulation link and as a sheltered space to rest in the fresh air. Beautifully shaped arcades supporting balconies in the altered Ladysmith Sanatorium (A. Shester) enhanced an attractive elegance of the building (Fig.182). The patients who rested on the verandas possibly enjoyed a wide view over the town, as the building was situated on the dominating hill.

A similar composition of verandas was illustrated in the new Pietermaritzburg Sanatorium overlooking Alexandra Park and Umsindusi River, where the advantage of incorporating surrounding landscape into the building to improve its atmosphere was evident. In this case, the rectangular piers were designed to support the veranda roof, and the ornamental iron balustrades enriched the aesthetics of this simple but elegant structure.

The first hospital in Natal, Grey's Hospital in Pietermaritzburg, perhaps exemplified the importance of verandas as a functional and aesthetical element in the best way. (Fig.74)

It was erected in 1855 in the form of a shale structure with a thatched roof and without a veranda in its original version.

Initially a veranda put only on the facade, filled a void between two projecting wings and acted as an intermediate zone between the approach to the building and the entrance door. In years to come, back verandas were added, providing the possibility of better circulation and functional solutions.

When the entire structure was surrounded by verandas by the end of the 19th century, the hospital reached had the peak of its development creating maximal convenience of services for medical staff by the introduction of additional transverse passages, a pleasant atmosphere for patients, and plasticity in external appearance. The universality of the H-shaped plan, enriched by the veranda could be observed later, in the 1920's, when the main entrance to the hospital from Prince Alfred Street was made. Previous side verandas now became the main one on the facade, and the hospital could still operate perfectly without major changes.

The roof supporting elements could also be constructed in different forms and from different materials dependent upon the type of building required and the funds allocated for its erection (Fig.258), (Phot. 118, 121).

In Cottage Hospitals a wooden construction prevailed as the cheapest one. Then simple poles of round or square section fixed to cement bases were introduced. Cast iron elements, as more expensive were used in big Government Hospitals which could afford that type of construction. In both Addington Hospital Nurses' Quarters and the altered Lunatic Asylum entrance, E. Dainton designed cast iron columns with Corinthian capitals (Phot. 120). When Classical structure was involved, Doric or Tuscan colonnades or arcades were in use. An interesting example is St. Mary's Hospital at Mariannahill Mission, where the architect intermingled

Italian Romanesque, German and Gothic features on the elevations (Fig.256-7). Eshowe Queen Victoria Hospital illustrated the use of the ogee shaped veranda roof profile with ornamentally decorated wooden columns - the composition enhancing the delicate construction of the building.

In the 19th century, verandas became an integral part of the Natal building and the traditional provision of it in most domestic buildings and public institutions, including hospitals proved its functional and aesthetic suitability.

The fulfilment of the requirements for protection from the climate elements in the form of the introduction of the veranda consisting of interesting, colourful elements and materials resulted in fine examples of hospitals, often of high aesthetic value and well-developed function.

EUROPEAN RESEARCH ON VENTILATION

The Victorian era hospital reformer was concerned about every aspect of sanitary conditions, insufficient ventilation, inadequate drains and sewerage, polluted water supplies, and the position of the hospital on a site where no natural ventilation could be achieved and the impurity of the air was evident.

The editorship of "The Builder" which was founded in 1842, was taken over in 1844 George Godwin. In the years following Edwin Chadwick's "Report on the Sanitary Condition of the Labouring Population", Godwin conducted a personal investigation into the London and provincial hospitals and used "The Builder" for issuing the reports on existing hospitals.¹

The President of the Royal Institute of British Architects, Alfred Waterhouse, said:

"...probably the cause of Sanitary science owes more to him than to any other man."²

The importance of good ventilation, had featured prominently in "The Builder's" columns. In a discussion over the merits of natural and mechanical ventilation especially the ventilation introduced at Guy's Hospital in 1853, the efficiency of the natural ventilation was strongly criticized.³

Notes and references:

1. King, A. "Hospital Planning : Revised Thoughts on the Origin of the Pavilion Principle in England", London, 1925.
2. Royal Institute of British Architects, "Proceedings", Vol. 4, new Series, February 9, 1888.
3. "The Builder", 19 February, 1853, p. 116.

The principal controversy over ventilation in hospitals, for Godwin, for Florence Nightingale, and for the medical world was prompted by the beginning of the Victoria Military Hospital at Netley, Southampton, in May 1856.

The hospital, built on the old system of a corridor from which the wards opened off, was immediately condemned by Florence Nightingale, who urged that the French Pavilion System should be used.¹

The views of John Robertson, a Scottish-born surgeon on hospital construction were given to the Manchester Statistical Society on 20 March 1856, in a paper entitled "On the Defects, with reference to the Plan of Construction and Ventilation, of most of our Hospitals for the reception of the Sick and Wounded."² The paper describes the importance of ventilation and its critical state in English hospitals.

The aim of ventilation was to prevent a "hospital atmosphere ... which arises from the wards communicating with one another by passages and stairs."²

Robertson had visited some hospitals viz: St. John's Hospital Brussels, the new Lariboisiere Hospital in Paris, the Beaujon Hospital in Paris and the Bordeaux Hospital, which he thought was the most successful.³ Here each ward had thirty-eight beds, nurses' offices were at one end, and lavatory and closet at the opposite end. He admired tremendously, the ventilation apertures above the ward windows, covered with perforated zinc plates which allowed a free circulation of outside air.

1. Bishop, W.J. and Goloties, S. "A 'Bio - Bibliography of Florence Nightingale"; London, Lawsons, 1962, p. 31.
2. Manchester Statistical Society, "Transactions", 1855-6, p.p. 133-148
3. Manchester Statistical Society, "Transaction", 1857-8, p.p. 49-50.

He had "little faith in scientific ventilation..." and was very impressed with the ventilation system used at the Middlesex Hospital in May 1855.¹

As for heating, apart from the open fire-place or stove, artificial modes of heating were injurious; patients were surrounded by an unnaturally dry, hot atmosphere "which increased their discomfort."² Ceilings and walls were to be highly varnished to prevent "inhibition of effluria"³ by the plaster. The site was to be on an elevation to the windward side of the city, was to be large enough to include gardens, and the soil was to be naturally dry. Accident rooms should exist in each of the larger municipal wards of a city, as was the case in Paris.

Soon afterwards, the paper containing a plan of Bordeaux Hospital was published as a pamphlet, and widely distributed to all persons concerned. Godwin stressed that:

"one of the most important facts, if not the most important, is a plentiful supply of fresh air."⁴

His knowledge of the new hospital at Malines constructed in July 1854, with its lawns between pavilions twice as wide as the height of the wards, with a small ante-room between wards and latrines; "a much more important matter than some in England seem to think"⁵, had come from the "Journal Belge de l'Architecture". Godwin was confirmed in his belief that "the French plan was the correct plan".⁶ This provided for detached wards, windows on both sides, opening from the ceilings, latrines divided from the wards and under a separate roof, and corridors between the wards, open at the top.⁷

Between October 1856 and January 1857, "The Builder" published a series of articles about the new ventilation systems.

1 - 3. Manchester Statistical Society, "Transactions", 1857-8, p. 23

4 - 7. "The Builder", 20 September, 1856, p.p. 509-10.

The Hospital at Netley was again criticized thus: "all the wards will communicate with one common corridor which will serve as a pipe to conduct the contaminated atmosphere of one ward to the comparatively pure air of its neighbour. The new military hospital at Aldershol was considered the right one, as the wards communicating with each other by external staircases, prevented the circulation of impure air from one floor to the other."¹

Whilst the subject of hospitals was being discussed by Robertson and Godwin, Florence Nightingale was preparing her "Report for the Royal Commission on Barracks and Hospitals."² This stated:

"In the construction of new hospitals, we recommend the plan of separate pavilions, with cathedral windows on opposite sides, and natural ventilation."³

Other recommendations made by Florence Nightingale referred to the use of Parian cement or other impervious material for walls and ceilings instead of bare brick and plaster, the need for efficient sewerage which did not pass under the buildings, the need for the removal of all cesspools in the immediate vicinity of the hospital, and the isolation of the closet and sink facilities from the main building by a ventilated lobby.

When all these reforms and improvements took place in Europe, the Natal Colony was still a pretty primitive place.

In 1860 the Editor of the "Natal Mercury" wrote about Durban:

"The sanitary condition of this town has been disgracefully neglected of late; and now the rains have set in with no provision for preserving the health of the place.

1. "The Builder", 17 January, 1857, p.p. 36-8.

2-3. Cook, E.T., the article to "The Builder", 18 February 1857.

..... no attention has been paid to the state of our drains, which are mostly choked up, fallen in, and utterly useless, or worse than useless, for they have become cesspools of stagnant filth, and hot-beds of disease."¹

VENTILATION - VICTORIAN STANDARDS

In the Victorian Era, ventilation was considered one of the most important services in the hospital building, and its task was basically to remove all the impurities which could collect in the air of inhabited wards, mainly carbonic acid and the impurities caused by burning coal within the ward to provide lighting. The ventilation was dependent upon the following requirements:

- the quantity of fresh air per patient per hour; in general diseases ward;
- the quantity of fresh air per patient per hour in the infectious diseases ward.

These were were also dependent upon the volume of the ward and the number of patients accommodated in it.

Edmund A. Parkers, M.D. F.R.S., the professor of Military Hygiene in the Army Medical School in his "A Manual of Practical Hygiene" advocated that hospitals have eighty cubic metres per head per hour in temperate climates, day and night, and in epidemics, the quantity of fresh air supplied to the ward should be doubled i.e. 160 cubic metres.

At the Hospital Beaujon in Paris, in 1847, it was shown that 60 cubic metres per head per hour did not remove all odour from the surgical wards after dressings.

1. "The Natal Mercury", 15 March 1860.

G. Grassi, in his "Etude Comparative des Deux Systèmes de Chauffage et de Ventilation", mentions that a perceptible odour diffused from a case of an ulcer in a ward in the Hôpital Necker at Paris, although the ventilation at the time was 3 600 cubic feet per head per hour.

The wards in the London Fever Hospital were found not free from odour when 3 720 cubic feet of air per head per hour were passing in.

In the new Hôtel Dieu at Paris, it was intended to give at least 100 cubic metres per head per hour, but even that amount was considered insufficient.

Dr. Sutherland advised that at least 4 500 cubic feet per head per hour must be allowed, especially in surgical cases with open wounds, and during epidemics at least 6 000 cubic feet must be supplied.¹

METHODS OF VENTILATION

The frequency of the renewal of the air depended to a large extent on the size of the space ventilated. The larger the air space, the less frequently the air needs to be renewed, and the smaller is the possibilities of draughts.

The type of ventilating equipment was the next important facet of the ventilation process. In the 19th century, when the more advanced mechanical ventilation system was involved, the air of even a small air space could be changed properly without causing a dangerous air movement or draught.

1. Parkers, E.A. op. cit, p. 516.

Professor Parkers in his book mentions that in the Pettenkofer's experimental room at Munich the air was changed six times per hour by a steam engine. This should be achieved in places with a tropical climate.

Admitting that on an average 4 000 cubic feet of fresh air per head per hour should be supplied, and the change of air to be four or three times per hour (as considered the rate of movement), the cubic space of the ward should be 1 000 or 1 300 cubic feet.

The minimum floor space for convenient nursing was calculated as being two square feet per bed (Report of the Committee appointed to inquire into the cubic space of Metropolitan Workhouses, 1867).

Further experiments showed that for proper ventilation 100 to 120 square feet per one bed with the height of the ward as 12 feet, giving a cubic space of 1 500 to 2 000 cubic feet, should be provided for each patient.¹

But, even the largest space can only provide fresh air for a limited time, after which the same amount of fresh air must be supplied again. The air may require to be warmed or cooled according to the season or locality. Also the distribution of air in the rooms should be perfectly achieved by the careful positioning of diffusion openings. It was found, that the foul air should be discharged through pipes above the patients' beds.

1. Parkers, E.A. op. cit, p. 516.

1. NATURAL VENTILATION (FIG. 264)

Natural ventilation in hospitals is caused by diffusion, winds, and the difference in the weight of the air of different temperatures.

It was proved by Pettenkofer and Roscoe, that diffusion occurs through brick and stone, except in newly built, damp buildings. Ordinary plastered walls reduce diffusion to a minimal, practically to an insignificant amount.

Diffusion, however is inadequate as a general ventilator. The most adequate natural ventilation is provided by the power of the wind, which passes through a ward with open doors and windows on both sides.

The wind also passes through walls of wood, brick or stone. In some systems of ventilation the power of the wind has been used as an essential agent. The wind is allowed to blow in at the top of the house through large funnels.

In his book Professor Parkers mentions Mr. Sylvester's plan of ventilation used in the 1820's at Darby and Leicester.¹ A large cowl, turning towards the wind was placed a little above the ground in a convenient spot near the building. The wind blowing down the cowl passed through an underground channel to the basement of the house and entered a chamber, where the air was warmed by the use of colorifere, or water or steam pipes. Then it was pushed through tubes into the rooms above, and later was discharged through a tube in the roof. The tubes were covered by cowls turning from the wind.

Dr. Ritchie employed a similar plan of ventilation. According to his design, every room had a longitudinal opening above each door, and through

1. Parkers, E.A. op. cit, p. 517.

this warmed air from the corridor entered the rooms and then passed up the chimney, and outlets placed in the walls under the roof. In using the wind in this way, the difficulty was to distribute the air so that it would not cause draughts. This was done by bending the tubes at right angles two or three times to lessen the velocity, by enlarging the channel towards the opening in the interior of the room, and by inserting valves to partially close the tubes, if necessary.

If the air in the room was heated by fire it would be lighter than the cooler air outside.

The outer air would diffuse through the walls or would be brought inside by the system of ventilation, until equality of weight outside and inside was re-established, and the hot air was discharged through the outlets. This was a continuous natural process.

Professor Parkers advised that to obtain proper ventilation by wind, windows should be placed at opposite sides of the room. They should be open at the top and, in the case of strong wind, the air should be quickly distributed. This could be done by sloping the window inwards when it opened, or a board could be placed from the top sash of the window, directing the air towards the ceiling.

Besides windows, special openings could be provided for the wind to blow through, especially in tropical climates.

To obtain the full effect of the power of the wind, chimneys or ventilating tubes should be fitted with cowls turning away from the wind. The cowl should be large, and should expand greatly towards its end.

The louvred openings were not as efficient as cowls, the ventilation effect was much less, down-draughts were common, and water could get in.

Mr. Ritchie prepared a design for a situation in which a louvre was used. A movable cylinder was put inside the louvre, which turned with the wind; on the side opposite the direction of the wind was an opening through which the air escaped.

Movement through open windows, doors and the roof ventilators or additional wall outlets was produced by the difference of the weight of the outer and inner air.

The size and position of all the special openings, inlets or outlets were to be specified. The size was dependent upon the climatic conditions and size of the room to be ventilated.

The inlet tubes should preferably be short, rather numerous, and small to assure the purity of air and proper air distribution. Internally, they were to be conical or trumpet-shaped where they entered the room, and externally they should be partly protected from the wind, with fitted valves.

As far as the position of the inlet was concerned, it should not be fitted in close proximity to the outlet, as the fresh air could escape at once. Theoretically, their proper place of entrance was at the bottom of the room.

The outlets were to be placed preferably at the top of the room. The outlet tubes without artificial heating were to be put at the highest point of the room. They were to be straight and covered with the cowl, to prevent the passage of rain. Louvred openings were not the best.

Valves would also have to be fixed to lessen the area of outlet when necessary.

Simple ridge openings could be used on one-storeyed buildings with a pitched roof, for they ventilated most efficiently. In the case of outlets

with artificial warmth such as by a fireplace, the chimney created the best solution. No additional outlet was necessary, except for a very large or crowded building, and then outlet was provided at the top of the room.

It was proved that in hot climates, when outlet shafts were run up above the general level of the building, they would have to be made of brick and painted black to absorb and retain heat.

2. ARTIFICIAL VENTILATION

This could be provided in two ways:

1. the method of extraction;
2. the method of propulsion.

The method of extraction:

- Extraction by heat.

The chimney is the best known example of this. When the air enters the room and is well distributed, its movement is from the inlet towards the fireplace.

As the current up the chimney is so great when the fire is lit, all other openings in a room become inlets. In a room without openings, so that no air can reach the fire, air is drawn down the chimney, and a double current occurs by which the fire is fed.

Large buildings were ventilated by a shaft where the fire was lit at the bottom of the upcase or return shaft. The air was then drawn down the shaft, being directed to the inlets.

The size of the shaft can vary, dependent upon the size of the ventilated area. The principle was to give to the shaft the greatest height and the largest section, thus controlling the temperature of the air.

A chimney was heated by a fire at the bottom and into the bottom of this shaft, close to the fire, ran a number of tubes coming from the different rooms. This system of ventilation was used in several French and English hospitals.

Frequently, in addition to a fire, heat was obtained in the shaft by means of hot water or steam pipes. Warming, was introduced at the Lariboisiere and Beaujon Hospitals, both in Paris, together with ventilation.

In the Lariboisiere Hospital an extracting shaft contained a boiler in its lower part from which two spiral hot-water tubes ran up to the requisite height in the shaft, and then, leaving it, passed downwards and entered the wards, in which they were coiled so as to form hot-water stoves. Then leaving the wards, they passed down and re-entered the boiler. There was a continual circulation of hot water, and in the shaft there was an upward current of air. However, as the air was continually increasing in temperature towards the point of discharge, there was a loss of power. From the bottom of the wards air conduits or tubes ran into the extracting shaft, and the vitiated air was drawn out of the wards. Fresh air was admitted directly from the outside into the wards.

Ventilation by this method was irregular, as a much greater quantity of air passed through the extracting shaft than entered through the hot-water stoves.

In some cases oil was used instead of water. Though this system had many advantages, it was also criticized for:

- inequality of the draught as it was almost impossible to keep the fire at a constant height;
- possibility of reflux of smoke;
- impossibility of controlling the places where fresh air entered;

Neither of these methods were adopted in the hospital buildings.

VENTILATION BY PROPULSION

This plan was introduced by Desaguliers in 1734, when he invented a fan or wheel enclosed in a box. The air passed in at the centre of the fan, and was thrown by the revolving vanes into a conduit leading from the box. The fan could be operated by hand, or if big by horse, water, or steam power.

At the Lariborsiere Hospital in Paris, it was stated that 150 cubic metres had been delivered per head per hour in the wards ventilated by the propelling fan of M.M. Thomas et Laurens.¹

At the Necker Hôpital in Paris, and many other hospitals the plan of Van Hecke was used.² A fan, worked by an engine, drove the air into small chambers in the basement, where it was warmed by stoves, then sent into the rooms above, and then passed out by outlet shafts constructed in the walls.

In addition to the fan, other methods were used. Dr. Arnott fitted a gasometer pump which was used in the York County Hospital.

The advantage of ventilation by propulsion was the easy control of the amount of air thrown into the building. The stream of air could be washed

1. Parkes, E.A. op. cit, p. 520.

2. Ibid, p. 520.

by passing through water or a thin screen of moistened cotton and could be warmed or cooled.

The disadvantage was the great cost and some difficulties in distribution.

The mechanical innovations and originality of the plan can be seen in the example of the Royal Victoria Hospital in Belfast - by Henman and Cooper.

The Birmingham General Hospital designed on the traditional pavilion plan had mechanical ventilation - William Kay's Plenum type.¹ This proved to be an illogical and uneconomical method, because the use of the pavillion system was motivated by the possibility of good natural ventilation between windows and other openings placed on opposite sides of the ward. While introducing the other system of ventilation this type of planning became wasteful and unnecessary. The large external surface resulted in a great loss of heat. Compactness of design was achieved in the Royal Victoria Hospital in Belfast. In fact, without mechanical ventilation, the Royal Victoria Hospital in Belfast could have been considered as of totally inappropriate design.

The system of ventilation was a masterpiece. Air entered through the inlets in the walls in the engine house and was pulled through the curtains of coconut fibre robes, kept moist by sprinklers in the roof of the filter chamber. Cleansed of all impurities, the air passed through batteries of heating coils and entered the fans, which propelled it up the duct. In winter, the air received extra heat from a booster pipe.

1. "The Builder", September 1879.

This system had an additional benefit - humidity control (by the sprinklers). It represented the first air-conditioning system. From the giant duct - a brick tunnel with a concrete floor, over five hundred feet long and nine feet wide, twenty feet deep at the input end, tapering upwards to only six feet deep at the downstream end the air was fed into distributor channels, opening high under its ceiling. From the distributors, the air rose in the walls of the wards and came through the openings placed on opposite sides of the wards above head level.

The Royal Victoria Hospital in Belfast was the first air-conditioned "hospital", where the air delivered to the wards was humidified, clean, and heated when necessary. (Fig. 259-60)

VENTILATION IN NATAL HOSPITALS

The ventilation space of 1 000 cubic feet in associated wards or 1 500 in single wards was considered to be a standard one, but was often departed from.

In the original Grey's Hospital the patients poisoned themselves and one another in an average or less than 400 cubic feet space per head. After alterations to the building, when the bigger wards were created 850 cubic feet of air per head was achieved.

The first Lunatic Asylum at 525 Longmarket Street, Pietermaritzburg, had a gross cubic space of 9 180, which amounted to an average of 510 cubic feet per patient.

After additions an average space per patient of up to 691,5 cubic feet (total 19 350 cubic feet) was achieved.

In cottage hospitals, 800 cubic feet per head became the standard measure. This was introduced in the Dundee Cottage Hospital where the total space was 22 010 cubic feet, which amounted to 733,6 cubic feet per patient.

In the Newcastle Hospital 969,1 cubic feet of air per patient was provided, with a total space of 29 075 cubic feet. (Fig. 261.2,3)

In the Addington Hospital an average of 1 052 cubic feet per patient was provided, and in the Childrens' Hospital, erected 60 years later, 1 200 cubic feet per child was introduced.

The change of the air in the wards occurred by natural ventilation, artificial air caused by the diffusion, winds, the different weight of the air in the wards, or by the use of fire-places. The most adequate natural ventilation was provided by the winds cross-ventilating the wards through large window and door openings on opposite sides.

The big ventilators in the form of funnels or louvred ponds were commonly installed on the roofs, and this method allowed for wind blowing into the building. Louvre ventilators were not as sufficient as ventilating tubes.

Besides windows, special openings were often provided for the wind to blow through, and these were usually placed in the space between the veranda roof and the main roof eaves. This method was commonly repeated in all hospitals where verandas were erected. The louvre ventilator panels were put on top of the gable walls, or in the specially built gablets in the roof.

Fire-places with chimneys were introduced into the hospitals for a twofold purpose - heating and ventilating. The extraction by heat used in this case

was the method of artificial ventilation. When the air entering the room was properly distributed, it moved towards the fire place, and the air current up the chimney became so powerful that all the room openings became the inlets. To prevent down-draughts, long chimney shafts were usually erected often topped with ornamental brick or concrete stacks.

In the Betania Mission Hospital a terra-cotta chimney pot which topped the shaft to increase its height was erected for this purpose.

Another means of ventilation was diffusion which occurred through brick and stone walls. When the walls were externally plastered, the diffusion was reduced to a minimal amount and practically ceased to exist.

In the Indian Immigration Bureau Hospital, where natural ventilation through the wall openings could not occur, big, central shafts were installed, in which case, a fire was lit at the bottom, and then the air was drawn down the shaft straight to the inlets into the wards.

WARMING OF WARDS

This problem was also investigated by Victorian reformers. The general rule was that the temperature of the air in the hospital should be about 60°F or 15°C.

In French hospitals, artificially ventilated and warmed by hot air, the amount of air was lessened and its temperature heightened to keep up the constant temperature of 15°C.

The safest way was never to sacrifice fresh air to temperature, except in the most extreme cases.

The Austrian experiments on tent hospitals showed that cold air is well tolerated in the case of serious diseases. For convalescents, however, warm air was supplied.

DIFFERENT TYPES OF WARMTH

Heat was distributed by - radiation
 - conduction
 - convection

In Europe, radiant was considered the best means of warming, but only square rooms could be economically heated by this method. A long room could never be warmed properly by radiation.

The great disadvantage of radiant heat was its cost. It was not applied in Natal because it was not necessary to provide such a heater in a subtropical climate, and this installation was too expensive for the institutions which could not afford even the provision of proper lavatories and bathrooms.

In the convection and conduction methods the air was heated by passing over hot stones, earthenware, iron or copper plates, hot water, steam, or gas pipes. The air was not to be heated above 75° or 80° Fahr. Of the various means of heating, water was considered the best, as it was more controllable and could be carried everywhere.

Steam piping was also much used in English hospitals, and in some cases it was even more convenient than water.

Mr. George devised a gas stove (called the Calorigen) which was an improvement on the common gas stove. Gas was burnt in a small iron box and the products of combustion were carried to the open air by a tube.

None of these methods was adopted in the Natal hospitals. The proper way of heating the ward, and the only one, adopted in almost every hospital in Natal, was the fire-place, which provided great economy of heat. The advantages of fire-place grates was that they combined a good amount of open fire, radiant heat, and chimney ventilation, with supplementary warming by hot air so that more value was obtained from the fuel, and large spaces could be warmed. Often a fire-place served an additional purpose - that of a kitchen stove. Heating sufficiency, low cost, simple construction and maintenance resulted in the popularity of these features in Natal hospitals. (Fig. 263)

The service rooms in the hospitals formed an important group of functionally different spaces with the purpose of the provision of an efficient service to the patients.

Except for properly arranged and environmentally well-tempered wards, the service rooms constituted the most essential part of the medical institution.

Service rooms included:

- a kitchen
- a laundry
- an operating theatre
- a storage spaces
- sanitary facilities
- a mortuary.

Water supply, drainage systems and excreta removals were the basic services, provision of which was necessary in obtaining the required standard of hygiene and functional efficiency of the institution.

WATER SUPPLY

The supply of water in sufficient quantities and of good quality to hospital buildings was considered a fundamental sanitary necessity. According to Victorian requirements, a much larger quantity than for housing should be provided in hospitals. The standard for hospitals of the Victorian Era was 40 to 50 gallons per head daily.

	<u>Gallons daily</u>
For drinking and cooking	2 to 4
For personal washing and general baths	18 to 20
For the washing of laundry	5 to 6
For washing hospital utensils	3 to 6
For water-closets	<u>10</u>
	<u>38 to 46</u>

In Natal, water to the hospitals could be collected in the form of :

- surface water by drainage pipes,
- below surface water, by wells, shallow, deep, and artesian, or by boring.

In Grey's Hospital, the water was initially carried from the sluit running down Commercial Road. In 1874, a covered well with pump was erected behind the building. It was supplied by a spring, and this was then utilised for drinking purposes in preference to using the running stream. In the original cottage hospitals, similar means of water supply were provided in the beginning but later on surface water by drainage pipes was delivered to these institutions. In Addington Hospital, a proper drainage system was laid on, and connected to the building.

In addition each of the Natal Hospitals had a water tank attached to the building in which the water supplied mainly by rain was stored. The tanks had to be covered and ventilated. They were constructed of stone, cement, brick, slate, tiles, lead, zinc or iron and always covered and protected as much as possible from both heat and light.

Cisterns supplying water-closets were not used to supply cooking and drinking water as the pipes leading to the closet could conduct foul air to the cistern.

Underwater tanks were installed in all the hospitals, and they had to be regularly cleaned and inspected. Objections to storage on the premises, except on a limited scale for closets and boilers, were based on the chances of contamination in cisterns and the poor standard of tanks. Constant supply was provided in bigger places. Addington Hospital had a water supply from its inception, but rain water was most commonly used for all purposes, and in addition two underground emergency tanks were installed.

The lack of sufficient water for each patient resulted in poor hygienic conditions in some Natal Hospitals, especially those situated in rural areas far away from the large centres.

Where storage reservoirs were provided, the water was conducted in pipes composed of iron, masonry, or earthenware for the larger pipes or mains. For the smaller ones, iron, lead, tin, zinc, tinned copper were used. The most popular material for this purpose was lead.

METHODS OF REMOVAL OF EXCRETA IN HOSPITALS

This could be achieved in two ways:

- water method;
- dry method.

Removal by water through sewers was considered to be the cleanest, quickest but more expensive method, so it became popular in the hospitals which could afford it. In small places the dry method was in use. The following conditions had to be met to ensure the success of the water system:

- a good supply of water,
- properly constructed sewers,
- ventilation,
- proper outfall,
- proper disposal of the sewer water.

In the first Natal hospitals the methods of excreta removal were primitive and far from acceptable standards. In the original Grey's Hospital insanitary privies were erected and they were found to answer better than the dry earth system. The excreta was washed down to the Umsinduzi River, and the water for this purpose was taken from a covered well at the rear of the building, which was supplied by a spring. A pump was attached to this well in 1874.

At the first Durban Hospital, there were no sewerage or sanitary services at all. Holes were dug and privies set up over them. When the holes filled up, new ones were dug, and the privies moved to the new position. A running stream of water was diverted to wash the soil down to a nearby rivulet, which emptied itself into the swamp fringing the Bay.

In the rural areas, the impossibility of getting water necessitated the employment of dry removal especially in the cottage or mission hospitals, where the expense of good sewers and water supply was so great as to render it impossible to adopt the method of removal by water. In such situations, dry removal was adopted as the only possible method.

In the big town hospitals like Addington or Lunatic Asylum, proper drainage systems were laid from the start, and the sanitary conditions of these institutions were of a comparatively high standard.

Sewers were also not without their critics. They were often criticised for the following reasons:

- the use of underground channels allowed transference of "effluvia" from place to place,
- the pipes burst and contaminated the ground,
- the water supply was constantly in danger of contamination.

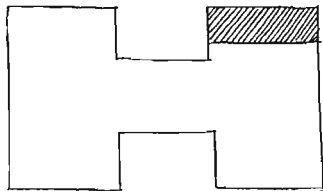
Still, the method of removal of excreta by water was considered safer and more efficient than dry disposal.

1. KITCHEN

Position

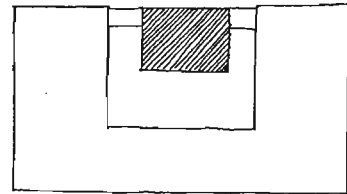
1. In the main hospital building. In the case of Cottage hospitals the kitchen was usually placed in the end of the wing adjoining other service rooms.
2. In a separate block situated in the back yard of the hospital building or in the other place, but always in close proximity to the hospital with convenient access to it.

Ad. 1.

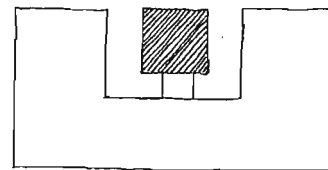


H-shaped cottage hospital
- standard positioning.

Ad. 2.



(a) in a separate block, connected with the hospital building by the covered walkways (Addington Hospital)



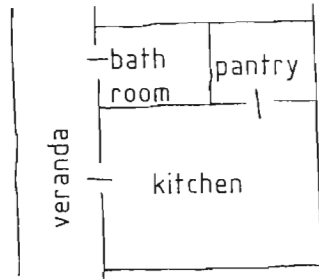
(b) Lunatic Asylum



(c) other positioning

Size

Initially, the kitchen placed in the main building was very small with only a pantry attached to it. The standard size for the kitchen in cottage hospitals was: 15'-18' x 10'-15'



In time, the kitchen developed into a proper complex consisting of a cooking space, a washing area, a storage room and preparation rooms.

Often an enclosed yard serving as a "dirty area" was attached to it.

The size of the kitchen depended upon the number of patients accommodated in the hospital and the funds allocated by the Government or a private sponsor for this purpose.

The kitchen block in Lunatic Asylum proposed by Dr. Hyslop in 1898 was to be located in the back yard of the building and be connected with the hospital by general and private patients' dining halls.

When erected, it consisted of:

- a main kitchen, equipped with hot plates, steam pots and worktops - 50'x23' in size,
- a scullery and washing area with wash-tank and sink,
- a pantry,
- a laundry,
- a vegetable store,
- a pack room - dry storage space,
- a preparatory room.

All these rooms were grouped around the kitchen yard. In addition, a coal store and a boiler house were provided in close proximity.

The kitchen block was connected with a Dining Hall by the service area with a service window.

The Lunatic Asylum kitchen represented an advanced form in its plan, well executed functionally and effective in practical use.

In Grey's Hospital, the kitchen was placed at the end of the right wing of its H-shaped layout. (Fig.270)

A small scullery was provided within the kitchen space, and a store was attached to this.

The kitchen remained in this position during the entire period of the hospital's existence, but went through a few stages of improvements:

1. a proper scullery space was created and a new sink fitted,
2. a modern oven was installed in the centre of the kitchen,
3. an additional small sink was fitted in the kitchen,
4. the original storeroom was converted into a bathroom, and a new, much bigger store, 12' x 12'6", with shelving on two walls was erected on the other side,
5. a coal store was provided to supply the kitchen with fuel.

The kitchen in Grey's Hospital proved to be functional and economical in use being located at a convenient distance from the wards. It remained in this shape (it was built at the end of 19th century) until the closing down of the institution in 1984.

Initially, in the Queen Victoria Hospital in Eshowe a proper kitchen was not provided. A small room in the Nurses' Home served as a kitchen,

for both the nurses and the hospital. This situation was very unsatisfactory, as the size and location of this kitchen did not allow for proper service. Also no scullery or storage place was provided. The decision to erect an adequate kitchen block was taken only a few years later. A new block was to be linked to a covered walkway linking the Nurses' Home with the Isolation and Dispensary block.

When built it consisted of the main kitchen 22' x 18' in size with a pantry 6' x 9'1" attached to it and a store 7' x 9'10' in size. An underground tank was built outside this building. New additions and alterations made to the hospital building included the erection of a new kitchen block which, due to its larger size and better equipment, would serve the hospital more adequately. (Fig.276)

The new complex consisted of a kitchen with a service yard, pantry, a servery area with a new dining hall for patients, and a nurses' lounge. The whole was linked to the altered Nurses' Home and placed at a convenient distance from the hospital block.

The kitchen in the original Newcastle Cottage Hospital had a standard position and size for such institution and was situated at the end of the right wing with the entrance from the veranda.

A small pantry was provided with access from the kitchen space, and the only fittings in it were a sink, a stove and a table.

In a later stage of the development of the hospital, the kitchen was moved to a newly erected block in the back yard of the building, its previous space being occupied by a ward.

The new kitchen block consisted of the main kitchen 28' 3" x 12" in size into which a scullery, and preparation and cooking areas were fitted. An enclosed yard in which water tanks were placed was attached to the block. (Fig.273)

A small pantry was provided at the end of the side wing in a hospital block, with convenient access to the kitchen.

Sanatoria and small mission hospitals did not have their own kitchens. Usually the one serving the Convent or Monastery served the hospital as well. The food was prepared there and carried to the hospital block. In the Ladysmith Sanatorium, the kitchen attached to the Convent building was spacious and was equipped with a stove, sink and worktop, and adjoining it was a pantry and scullery. It was directly connected with Nuns' dining hall. (Fig.277)

In the first Ixopo Catholic Mission Hospital, a big and convenient kitchen complex occupied a large part of the right wing of the building (Fig.269).

It consisted of all the necessary spaces viz:

- a kitchen with hot plates and boilers,
- a scullery - directly connected with the kitchen,
- a pantry,
- an additional store room,
- a bakery,
- a servant's room,
- a kitchen yard, where the "dirty" dishes were washed,
- a firewood storage space.

All these rooms had their entrances from the back veranda. The spacious dining hall was connected with the kitchen and had a separate entrance for patients from the central corridor. A great disadvantage however, was the position of the laundry which was adjacent to the kitchen.

In the Betania Mission Hospital, the kitchen block was erected separately behind the hospital block, and it served the missionaries, the school pupils and hospital patients. It consisted of a large kitchen space with some store rooms attached. (Fig.210)

In the Addington Children's Hospital, the kitchen complex designed by J.S. Cleland had a more sophisticated character due to the largeness of the hospital and the type of patients treated there. In its centre a main kitchen 23' x 27' 6" in size was placed and entrances to a cook's pantry (8' 8" x 16' 3"), a scullery (12' x 15' 3"), and a servery area were provided. (Fig.268)

Two separate entrances led to the kitchen complex from outside, and one of them served as a delivery (clean) space and the other as a removal (dirty) space.

The kitchen was well lit and cross-ventilated through window openings placed on the opposite walls.

The food was distributed to the wards on two floors by a special service lift installed close by.

This kitchen complex was amongst the most advanced in planning and equipment.

2. LAUNDRY

The function of this service was not as directly connected with the hospital operation as, for example, the function of the kitchen.

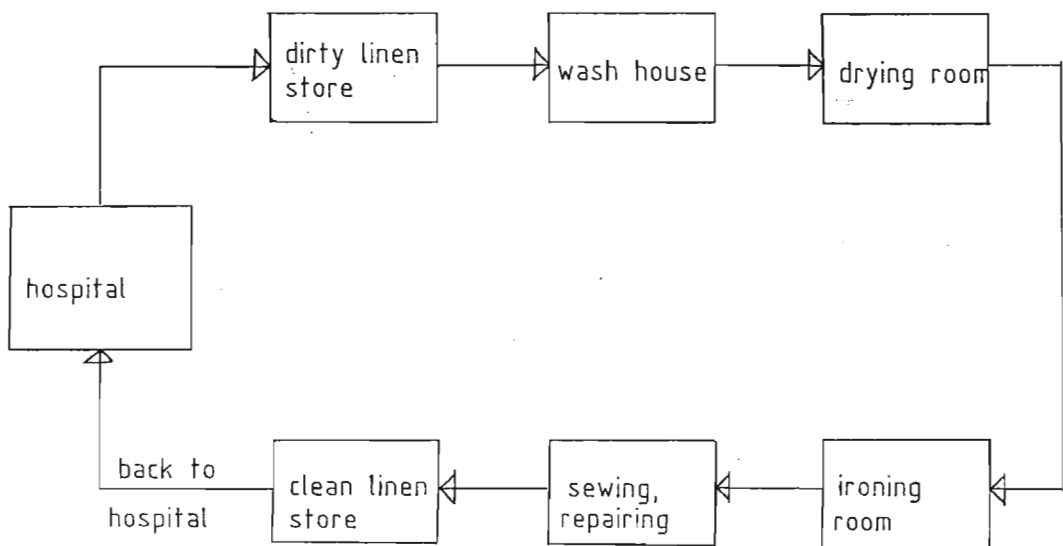
Due to the high risk of contamination, the laundry was usually placed separately at a fair distance from the hospital block.

Initially, the laundry took the form of a single room, in which the space was divided into:

1. a wash-house,
2. an ironing room.

Space for the storage of clean linen was usually also provided here. The more advanced laundry plans included a separate dirty clothes store room, a wash-house, a drying room, an ironing room, a serving room and a clean clothes store from which the clean clothing was taken back to the hospital

The Boiler room and a water tank were usually linked to the laundry building.



The diagram shows the laundry operation.

In big, Government hospitals e.g. Addington Hospital and the Lunatic Asylum, advanced laundries were erected in separate buildings.

In small hospitals, the laundry was usually placed in a service block together with lavatories and store rooms.

In all four Sanatoria founded by the Augustinian Order, the laundries were placed in the Convent buildings. The same situation could be observed in the majority of mission hospitals, where the common laundry served both the hospital and the missionaries.

The exception was the Ixopo Sanatorium founded by a Catholic Mission, where a large convenient laundry was provided within the hospital building.

Its position was not suitable (it was attached to the kitchen block and bakery) because of the high risk of contamination of food. (Fig.269)

In the Newcastle Cottage Hospital, the situation was much better. The laundry block was erected as a separate building at a distance from the other parts of the hospital. (Fig.273). It consisted of two parts:

1. a wash-house, 22' 6" x 14' in size, where the dirty linen was stored and the washing was done,
2. an ironing-room, 14' x 14' in size, where the laundry was dried, ironed, repaired and redistributed to the hospital.

This type of laundry became the standard one in all cottage hospitals, as it had the advantage of being economical. It was erected in the Eshowe Cottage hospital (Fig.287) and the Dundee Cottage Hospital.

The standard laundry equipment included:

- a boiler in a boiler room or wash-house,
- concrete or iron wash troughs and slabs,
- soiled linen bins,
- foul linen tanks (iron or brick),
- a system of drains,
- an ironing table and stove.

The plan of the laundry erected in 1897 in the Fort England Lunatic Asylum and presented to the Medical Superintendent of Addington Hospital served as an example of laundry design for Addington Hospital and the Lunatic Asylum (Fig.281).

Erected on the U-shaped layout, it consisted of:

1. a receiving and distributing room 12' x 22'6" in size,
2. laundries,
3. a lobby,
4. a sewing (repairing) room, 19' 2" x 22' 6",
5. a folding and ironing room, 30' 6" x 22' 6",
6. a wash-house, 29' 11" x 22' 6",
7. a dirty linen wash-house, 12' x 22' 6",
8. an externally installed dirty linen tank,
9. 6 rain water tanks,
10. 3 lavatories.

A big louvre ventilator was installed in the roof above the wash-house and dirty linen wash-house (Fig.282). A channel fitted in the concrete floor ran across these rooms and the dirty water was discharged to the hospital soil pipes.

In Addington Hospital, the laundry was erected in 1898, on a T-shaped layout with 6' wide verandas on two sides. (Fig.285-6)

It consisted of:

1. a dirty clothes store, 10' 11" x 21',
2. a wash-house, 37' 10" x 21',
3. a drying room 10' x 12',
4. an ironing room 31' x 20',
5. a boiler room 10' x 12',

A big louvre ventilator was put on the roof over the wash-house and four drains were laid in the floor for the purpose of discharging the dirty water.

The plans for the Lunatic Asylum laundry were prepared by E. Dainton, the Architect of the P.W.D., in 1898. (Fig.283-4). The building, erected only a few years later was designed on an H-shaped layout with a front veranda.

It consisted of:

1. a dirty linen wash-house 12'x 21',
2. a receiving room 10' x 21',
3. a wash-house 25' x 21',
4. a drying room 10' x 15',
5. an ironing room 22' 6" x 30',
6. a sewing room 21' x 18',
7. a distributing room 11' x 21',
8. a boiler room 10' x 8',
9. two blocks of lavatories, attached to the back of the building (each 12' x 10' in size, containing two W.C's, 6' x 2' in size),
10. a 1600 gallon tank,
11. a dirty linen tank.

The three laundries discussed above were designed according to the same design principles which were adequate at that time and in this type of building. These laundries exemplified the great progress achieved after years of experience in other hospitals in other provinces. Similar functional methods can be observed in the laundries erected now, and this fact constitutes evidence that the old planning rules are still extant today.

3. OPERATING THEATRE

The operating theatre complex could take the form of :

- a space provided within the main hospital block, or
- a separate building, usually erected behind a hospital and connected to it by a covered walkway.

Initially, in primitive rural institutions, the operating theatre was usually placed in a small room called a surgery. Often, even this was not provided and the operations were performed in the wards.

At a later stage of development of cottage hospitals, the surgery became an additional ward, office, or dispensary room, and a proper operating theatre was erected.

In the original Newcastle Cottage Hospital, the surgery was placed centrally in the bar of the H-shaped layout. After alterations to the building, the surgery was converted into a dispensary, and a spacious room, 24' 6" x 17' 0" in size, was added to the left wing with the purpose of serving as an operating theatre.

The Grey's Hospital operating theatre block was erected in 1911 in the centre of the back yard, and connected with the hospital by a covered walkway (Fig. 289).

It consisted of:

- an operating theatre 18' x 16' in size,
- 2 sterilising rooms 9' 5" x 5" 5" and 6' x 15' in sizes,
- an anaesthetic room 11' 2" x 15' 11" in size.

In addition a small instrument room was provided and was attached to the covered walkway.

At the Queen Victoria Hospital, Eshowe, the situation was the same. An Operating theatre block was erected in a separate building at the back of the hospital, and was linked to it by a covered walkway (Fig.288). In this case, the block consisted of only a single room, where the sterilising, and operations had to take place.

In the first Dundee Cottage Hospital the surgery served as an operating theatre (Fig.129). Later on, an operating room was provided within the building (Fig.274.1). When further additions to the hospital took place, the proper operating theatre complex was erected.

It consisted of:

- an operating theatre 18' x 13' 8½",
- a sterilising room 8' 3" x 6' 9½",
- an anaesthetic room 10' x 13' 8½".

The internal walls were plastered and painted white, and all the floors were tiled with Vitreous tiles. In addition, the X-Ray Department adjoined the operating theatre complex of the hospital and was functionally convenient.

In Addington Hospital, the architect designed a proper operating theatre from the start. It was placed in the centre of the whole establishment and remained in this position throughout the hospital's existence.)

It consisted of:

- an operating room,
- a sterilising and anaesthetics room,
- a doctor's preparatory room.

All four Sanatoria were provided with operating theatres from the inception. Initially they consisted mainly of single rooms. Later on when new buildings were erected, or the existing buildings extended, the sterilising and anaesthetic rooms adjoined the operating room. There was no rule governing the position of such a complex, but usually it was placed at the end of the building (Phot.114-15).

In Verulam Indian Hospital, the operating theatre took the form of a small 8' x 9' 9" room added to the side of the right wing. No adjoining service rooms were provided in this case.

In the Indian Immigration Bureau Hospital, an operating theatre room 16' x 17' in size was placed at the end of U-wing, and a small laboratory was attached to it.

The same situation as that of the Sanatoria characterised the Catholic Mission Hospitals, where the operating theatres were always in the main hospital block. Their positions were as follows:

- Ixopo Sanatorium - end of the building, single room,
- first Mariannhill Hospital - end of the pavilion - single room,
- second Mariannhill Hospital - end of the building - operating theatre and sterilising room,
- St. Anthony's Hospital Centocow - end of the central block - operating theatre and sterilising room.

In Betania Mission Hospital the operating theatre complex was provided in the centre of the main building in the bar of the H-shaped plan (Fig.209).

It consisted of:

- an operating theatre,
- a sterilising room,
- an anaesthetic room.

In Christ the King Mission Hospital in Ixopo the advanced form of operating theatre complex was introduced and all the necessary facilities according to the latest requirements were provided (Fig.290).

It consisted of:

- a major theatre,
- a minor theatre,
- a setting room,
- a scrubbing up room,
- a laboratory,
- a medical store,
- a sterilising room,
- a recovery room.

4. STORAGE SPACES

The size and location of the hospital store rooms depended upon the type of product to be stored and the general size of the hospital.

The Victorian standard size for a storage room in a hospital accommodating 100 patients was:

Bedding	- 200 square feet
Clothing store	- 100 square feet
Utensil stores	- 160-200 square feet
Provisiiong store	- 100 square feet
Fuel store	- 250 square feet
Dirty linen store	- 120 square feet
Pack store	- 200 square feet

5. SANITARY FACILITIES

Initially, when water was not supplied to the hospital building, primitive privies, erected apart from the main block, served as the only sanitary facilities.

In the first hospitals, which were already provided with racially-segregated wards, the lavatories were never racially-segregated, and often also not sexually segregated. The reason for such a situation was that there was a shortage of hospital funds even for the erection of more essential facilities like operating theatres or kitchens.

Usually only one block was provided for both sexes, all races, patients and staff.

The size of lavatories depended upon the number of patients accommodated in the hospital. The standard size for the W.C. in a block was 2' 6', and separately erected it was 4' x 9' 3". The bathroom was to be 5' x 9' in size.

In the Eshowe Cottage Hospital, the W.C. block for European Females made of wood and iron complied with these dimensions. (Fig.293)

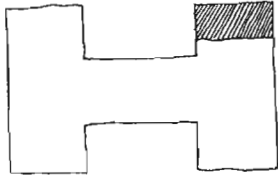
Positioning

There were two different positions for sanitary facilities:

1. within a main hospital block at a convenient distance from the wards
2. in a separate, specially provided building, usually connected with the hospital block by a covered walkway.

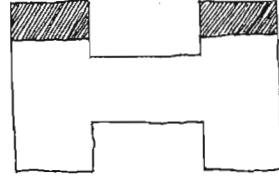
Ad.1. within the main building:

a.



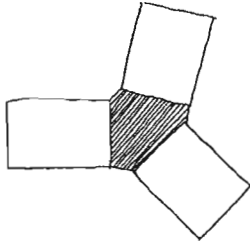
H-shaped layout,
non sexually-segregated,
access from veranda.
(Newcastle Cottage Hosp.)

b.



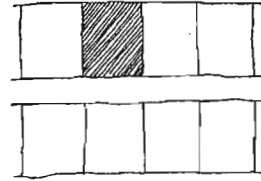
H-shaped layout,
sexually-segregated,
access from veranda.

c.



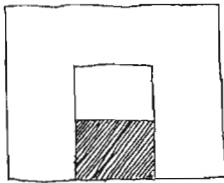
in a core of 3-pavilion
hospital, sexually-segregated,
(access from central hall
proposed Mariannahill Hosp.)

d.



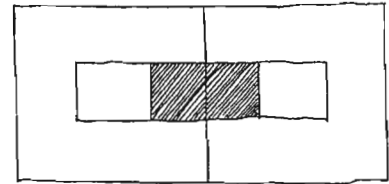
in a corridor-type building,
access from central
corridor, sexually segregated.
(Sanatoria).

e.



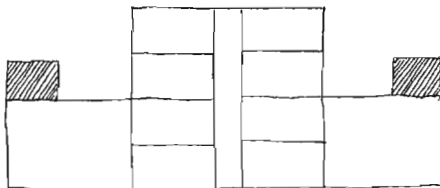
in a quadrangle layout,
access from patio
sexually-segregated,
(Tongaat Indian Hospital).

f.



in 2-quadrangle layout in
the centre,
access for each sex from
separate patio, sexually
segregated,
(Lunatic Asylum - Home for
Private patients).

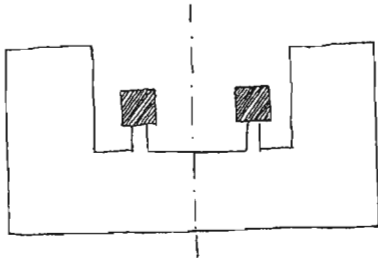
g.



in mixed: pavilion-corridor
type of layout,
sexually-segregated,
(St. Anthony's Hospital in
Centocow Catholic Mission).

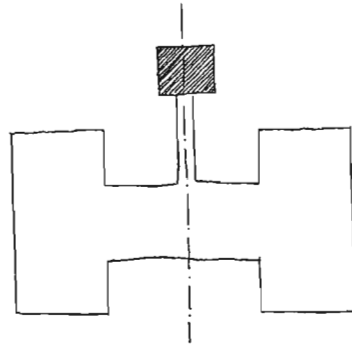
Ad. 2. erected separately.

a.



erected in a back yard,
sexually-segregated,
connected with hospital
building by covered walkways
(Lunatic Asylum - Main block)

b.



erected in a back yard,
non sexually-segregated,
connected with hospital
building by covered walkway
(Verulam Indian Hospital)

In Addington Hospital, the water was provided from the outset, and M. Dudgeon designed sexually segregated ablution blocks in each of the male and female wings.

In conformity with the new design principles, they were placed at a convenient distance from the wards and were well cross-ventilated.

Separate sanitary facilities were provided for the hospital staff.

In the Lunatic Asylum, the sanitary facilities were placed in separate buildings in the back yard of the establishment and were connected directly with the wards by covered walkways.

Two sexually-segregated blocks were put on either side of the kitchen block. When the native patients were transferred to the new building, these toilets, lavatories and bathrooms were designated for European patients only.

In 1898 these facilities were found by Government Inspectors to be in a critical condition. There were only 2 W.C's for 60 female patients.

Extensions were proposed, and seven new W.C's for women, each 2' 6' in size, were provided adjoining existing ones. Two additional bathrooms were also erected.

In addition to these extensions, a new general bathroom for use by the nurses was erected - it was attached to the nurses' room and new kitchen block. Its fittings included 6 cast-iron baths 5' 6" x 2' 2" each, 4 earthenware hand basins, and a 200 gallon iron tank attached externally.

In the original Grey's Hospital, which was not supplied with water, the privies were erected apart from the hospital building. In the 1920's, proper lavatories were added to the building in the form of separate male and female blocks placed in a right wing, between the ward and the kitchen scullery. These served only White patients. The sanitary facilities for Blacks were provided in a "Kaffir Ward".

In the Newcastle Cottage Hospital, 2 bathrooms were put at the end of the right wing, each one fitted with a cast-iron 5' 6" bath with roll edge and ornamental feet. A glazed earthenware sink was also provided in each of the bathrooms, and 1½" lead washes from baths and sinks were installed beneath them, taken through the wall, and discharged over 45 feet long open brick drains.

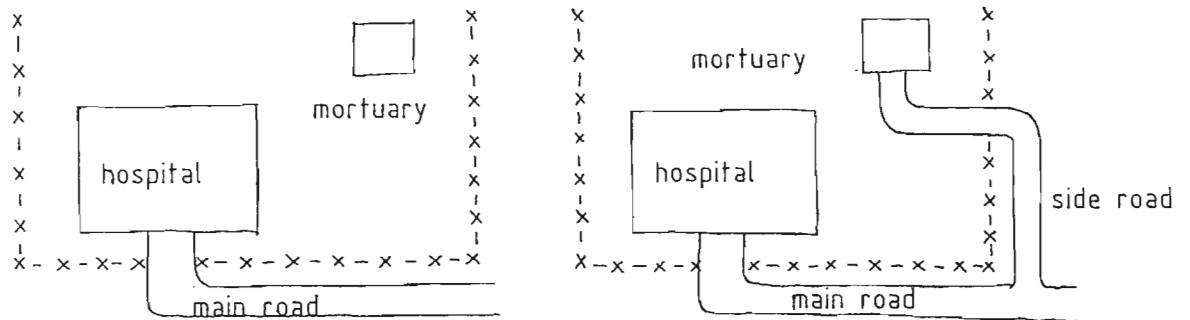
St. Anthony's Hospital in Centocow represents an interesting example of the positioning of lavatories. They were attached to the pavilions containing the wards on either side of the central corridor-type structure.

In the first proposal for the Mariannahill Mission Hospital, Brother Francis proposed an unusual position for sanitary facilities - in the core of the building with access from the entrance hall.

6. MORTUARY

The mortuary building was always erected at a distance from the hospital ward. It took the form of a separate single or double room structure.

Initially the mortuary was approached from the main gate to the hospital premises where a service back road was usually provided.



In Addington Hospital, the mortuary was built at a distance from the hospital block. This brick and iron structure consisted of a single room 15' x 15' in size with plastered and painted walls, and a concrete floor with a concrete channel.

In the Eshowe Cottage Hospital the original mortuary took the form of a single room 9' x 9' in size with a concrete floor and a 6" grano channel (Fig.294). Louvred ventilators were fitted into the wall to improve the ventilation. In 1932 extensions were made to the building, and a room of the same size as the existing one was linked to it.

I. THE GENERAL REQUIREMENTS1. Patients' needs

- most patients like the company of others, but there are times when privacy is required - privacy to talk to the doctor, nurse or relatives without being overheard and privacy for medical treatment and dressings being applied.
- the need to get out of bed for short periods within the bed area.
- the need of space for personal possessions within easy reach of the bed.
- the need to be able to see and speak to nursing staff working in the ward.
- the need for change of environment which can be obtained by providing a day room and dining area.

2. Nursing needs

- easy supervision of and easy access to patients.
- space in lavatories and bathrooms to attend to a patient.
- short walking distances between patient groups (wards) and service rooms.
- space in the ward or adjoining the ward (nurses duty stations) and preferably separate sanitary facilities.
- accommodation in a Nurses' Home or other place close to the hospital.

3. Doctor's needs

- sufficient space to examine and treat patients in privacy in the bed areas and the treatment room,
- facilities for isolating patients whose condition demanded this (provision of Isolation Wards),
- ease of access to patients' files and reports (in the Administration room or in the doctor's consulting room),
- a proper sized and adequately equipped operating theatre complex.
- a doctor's room, which could serve as a consulting room.

II. FLORENCE NIGHTINGALE WARD (FIG. 295-8)

The following aspects were taken into consideration:

- size, number of patients accommodated, cubic capacity and superficial area for each patient,
- perfect environmental control conditions,
- adequate sanitary facilities,
- nurses' control point allowing for easy supervision and attendance to the patient,
- ward equipment,
- ward finishes.

SIZE

The pavilions containing wards had to be detached from one another, and linked by the corridor. Cross-infection was prevented by a large space for each patient.

The number of patients to be accommodated in one ward was to be 25-30, with 12-15 beds on either side arranged in two rows only.

The ward was to be 24-26 feet wide and the height of the ceilings 12-15 feet.

The space required for one patient was:

- 100-120 square feet superficial area,
- 1500-2000 cubic feet space.

These conditions were met in Addington Hospital, where 15-bedded wards were provided, each one 35' x 24' in size, and 13' high.

ENVIRONMENTAL CONDITIONS

The provision of natural ventilation, dependent on the movement of the outer air, was to be ensured by putting:

- opposite windows, reaching nearly to the ceiling on the sides of a ward, and a large end window,
- additional openings to secure a vertical movement of the air.

The fresh air was to be warmed if necessary.

The additional requirement was that the ward had to be emptied for two or three weeks every year and exposed to the ventilation.

Dirty linen, dirty dressings and excreta had to be immediately removed from the wards.

These conditions were met in most of the wards of pavilion type Natal hospitals.

SANITARY CONDITIONS

Water closets were to be arranged in detached lobbies at one end of the ward and separated from it by thorough cross ventilation. One W.C. for 10 patients was considered a standard measure.

A separate lavatory block had to be provided. There was to be one wash basin for ten patients, and one bath for twenty patients.

In addition, every ward had to have a urinal fitted. The best arrangement for closets was not the handle and plug system but a self-acting water supply connected with the door, which flowed when the door was opened.

These conditions were met in Addington Hospital, where properly ventilated and equipped sanitary facilities were provided.

THE FURNITURE (PHOT. 112-13)

The furniture in a ward was to be reduced to the minimum, and if possible, everything was to be made of iron.

Bedding was reduced in size, and thin mattresses placed on springs were introduced.

Horse-hair or coir fibre, as least absorbent, were used as the material for mattresses.

The blankets and coverlets were white or light yellowish in colour and had to be frequently aired, fumigated and washed.

WARD FINISHES

- the walls had to be of impermeable material; cement, especially Parian or ceramic coloured tiles joined by a good cement were to be used,

In Natal hospitals the walls were finished with Portland cement plaster and paint;

- the ceilings had to be plastered or frequently limewashed;

- in building the floors, oak laid on concrete was considered the best material, but the joinings had to be perfect, so that no fluid might pass through and collect below the floor;

The wood was to be waxed and dry-rubbed and frequently washed. In the Natal hospitals hardwood, yellowwood, beach, pitch pine, and Baltic Fir were used for this purpose.

COMMENTS

1. Organization

The allocation of patients to nurses was difficult - the wards were too big and many nurses had to attend patients in the same wards. There was a lack of storage facilities in the wards which made the internal ward organization very complicated.

When nurses' stations were provided in the wards, proper supervision was ensured. The situation became more difficult when the nurses' duty room was sited externally.

2. Control

The control of these wards was easy, as everything that was going on inside could be seen. Anybody entering or leaving the ward could be noticed and even if there were screens around a bed, a nurse could control a patient.

Mealtimes were also easy to control and such an arrangement of the ward allowed for the quick distribution of meals and the collection of dishes to take back to the kitchen.

3. Observation

Observation of patients was extremely efficient when the nurses' station was sited internally. The highest dependency patients were placed in the centre of the ward nearest to the nurses' station, and an emergency could be dealt with quickly. The general condition of patients and their needs could be seen immediately as nurses frequently passed the beds, and at night any change in the breathing pattern of a patient could be detected immediately by the night nurse.

4. Facilities

The facilities for nursing care were limited, as were ancillary rooms and space, although nursing care was carried out according to the principles of the Nightingale School of Nursing.

All procedures were carried out at the bedside and there were often complaints as to the lack of sound, privacy, and sterile conditions for dressings, particularly with regard to their disposal.

The provision of a treatment room would have been a big advantage.

5. The Physical Comfort of the Patient

The physical comfort of the patient was easy to achieve, although the following problems which might occur:

- too great a distance to the washing facilities and closets,
- draughts in the ward or lavatory block from open windows on both sides,
- noise in the general ward,

- lack of privacy, especially during medical treatment or visits by relatives - only curtains were provided as an isolation screen,
- lack of storage facilities which were unhygienic but convenient for the patient.

The advantage of such a ward was:

- a constant passage of nurses - sufficient control and supervision,
- good relationship between patients,
- a satisfactory "social life" in the ward.

6. Communication

The communication between patient and nurse was satisfactory. The patients could see how much nursing was going on, and did not have a feeling of neglect. They could complain about their problems knowing that they would be understood. Each patient and nurse could appreciate the community spirit of the ward, and it had a positive therapeutic effect on patients, all of whom were aware of and supportive of one another.

7. Flexibility

Flexibility in coping with the varying conditions of patients had to be achieved by moving beds around the ward so that the highest dependency patients were placed nearest the nurses' stations. Facilities for isolating patients in cases of infection were limited. The situation was improved when Special Isolation Wards were erected. Privacy could be partially ensured by the constant background noise of the ward, but this was not always satisfactory.

8. Working conditions for Nurses

Working conditions for nurses were in some ways unsatisfactory.

There was nowhere to change (unless a nurses' duty room was provided), and no WCs or lavatories for nurses were provided. They had to leave the wards to use facilities or they had to use those supplied for the patients.

When Nurses' Homes and Nurses' duty rooms were not provided in the hospitals, the nurses were forced to reside with the patients in the wards, which was very unhygienic and inconvenient.

III. THE WARD IN A CORRIDOR TYPE OF HOSPITAL LAYOUT

THE SIZE AND NUMBER OF PATIENTS ACCOMMODATED:

The wards were usually single, four, or six-bedded, opening off a corridor with the beds in most cases placed parallel with the windows.

They provided 100 square feet of superficial area and 800 cubic feet space per patient, with the ceiling height 10-12 feet - lower than in the pavilion type ward.

ENVIRONMENTAL CONTROL CONDITIONS:

- ventilation - sufficient natural cross-ventilation could not be achieved in the ward, as the window openings were only placed on one side of the ward.

No artificial means of ventilation was introduced in the Natal hospitals.

- lighting - there was insufficient lighting in the wards because of the position of the windows on one side only. The size of the windows was much smaller than the Florence Nightingale standards required.

SANITARY FACILITIES:

Bathrooms and toilets in such hospitals were usually provided at the end of the building so the patient had to walk long distances through the corridor, which also served as a service one.

The standard size of the sanitary facility rooms was similar to those in the pavilion type hospitals. There were:

- 1 WC per 10 patients;
- 1 w.h.b. per 10 patients.

Urinals had to be provided in closets, and bed-pan facilities in the wards

COMMENTS

Control by nurses was much more difficult in this case. There were no nurses' stations provided in such small wards, so the nurses were placed in a common duty room and sometimes had to walk long distances to get to the ward. The distribution of meals during mealtimes and the collection of dirty dishes was more difficult and took more time than in the pavilion type layout of a ward.

1. Observation

Observation of the patient was difficult, as it was impossible to watch the patient constantly, and matters concerning the patients' condition might not have been noticed by the nurses. During the nights, especially, the situation became complicated, because there was usually only one nurse to supervise all the wards.

2. Facilities

Similar to those in the pavilion type ward, the ancillary rooms and facilities for nursing care were very limited, sometimes even primitive, and all procedures were carried out at the bedside. In the case of a private, single ward privacy was ensured, but where the 2, 4, 6-bedded wards were involved, the situation was even worse than in the large wards, as the neighbouring patient or patients carefully watched and listened to the doctors' and nurses' conversation with the patient they were attending to.

3. The Physical Comfort of the Patient

There were many deficiencies viz:

- inconvenient access to bathrooms and closets,
- lack of storage facilities,
- lack of proper lighting and ventilation which affected the recovery and comfort of the patient,
- compulsory sharing of a bedroom with a total stranger which could be greater invasion of privacy than being in a big ward where the "background noise" was always present,
- often a lack of sufficient supervision which created a negative feeling in the patient and which affected his/her physical condition adversely.

4. Communications

The communication between patient and nurse was much worse than in the case of bigger wards. Small wards were very often spread at great distances from one another in the hospitals, and not many nurses were available in

Natal hospitals at that time, so the patients were visited less frequently and did not have much opportunity of conversing with the nurse.

5. Flexibility

Flexibility of dealing with patients being in varying conditions in smaller wards was possible to a larger degree than in the big wards. Generally, there was space and the ability to effect changes within a ward.

The ideal situation was in a single-isolation ward, where the patient's bed could be easily moved from place to place, dependent upon the condition and need of the patient.

6. Working Conditions for Nurses

Working conditions for nurses were less satisfactory than in the bigger wards as, besides the lack of separate sanitary facilities and often also a nurses' duty room (especially in the early hospitals), the observation and control of a patient was difficult and also great difficulty was experienced where services were involved, due to greater distances and more wards.

IV. COMPARISON OF TWO FORMS OF WARD

1. Nursing care

Because of the design, the nursing process in the Nightingale ward tended to be task-orientated, so more economical use of qualified staff was involved. Each nurse had an allocated task, which could be the changing of beds, serving of meals, distribution of medicines etc.

In a small ward, the same nurse usually had to attend to all the needs and medical treatment of the patient or patients and because of the number of hospital wards, more qualified staff had to be appointed (which, in the last century, was a problem in Natal).

The observation of, supervision of and attendance to the patients was much easier in the big wards.

In an acute ward of 20-30 patients, 6-8 would need constant observation at any one time.

2. Economy

The big Nightingale ward proved to be more economical than the small ward for the following reasons:

- less qualified staff was required,
- the cost of the building was lower,
- no artificial ventilation was necessary.

3. Environmental Control Conditions

- Ventilation

Sufficient natural ventilation was provided in the pavilion-type wards, but in a corridor-type hospital, artificial ventilation was to be installed. Not one of the Natal hospitals of the corridor layout had such an installation as a result of which the patients suffered from the lack of ventilation and were exposed to a high cross-infection risk.

- Sunlight, daylight

In the Nightingale ward there were objections to a tall window facing a patient as he lay in bed as there was the problem of glare. With the traditional pattern of beds at right angles to

the external wall the patients received the minimum of sunshine on their bodies and a scanty maximum on their feet, whereas twice the amount of sunshine would fall onto a patient in a bed put parallel to the wall.

With this arrangement of windows the patient was confronted with the maximum brightness of the sky and unless the areas of the wall on either side were very light in colour so as to reflect the light entering from the windows opposite, the contrast caused discomfort.

- Noise

The health standard in the modern ward is 15-20 phons. The big, old ward received 35-40 phons.

Florence Nightingale advocated in "her" wards that patients be given what they were used to at home as far as possible. A certain amount of background noise was considered an advantage as it would mask obtruding sounds and give a degree of privacy in a public ward.

4. Patient Comfort - Privacy

The arbitrary division of patients into groups of four or six could lead to "greater social cohesion", or it might produce an "odd-man-out" situation, with one patient more ill, more noisy, or less able to fit in than the others.

The greater anonymity of the big ward afforded a better choice of companions and the possibility of moving around without embarrassment.

In a small ward one might be put in the position of intruder.

Single rooms could, of course, provide greater privacy, but apart from the expense and the real difficulties of supervision, there were objections to single rooms for the run-of-the-mill patient.

Left alone, he was likely to suffer from boredom and anxiety.

Florence Nightingale in her "Notes on Nursing", published in 1859 said:

"Apprehension, uncertainty, waiting, expectation, exertion. Remember, he is face to face with his enemy all the time, internally wrestling with him, having long imaginary conversations with him. It is commonly supposed a nurse is there to save physical exertion. She ought to be there to save (the patient) taking thought."

In addition, a patient in a single room was robbed of the support of the constant stream of nurses passing up and down the public ward, ready to intervene if necessary. There were, no doubt, occasions when a single room was necessary or in the interest of the patient, but this was not often the case and if patients had a choice, they would certainly choose a big ward, where in addition to the reassurance given by the nurses, there was the influence and encouragement of the other patients. Fortitude and good human relations were the best medicine.

SUMMARY1. INTRODUCTION

This research investigates the aspects of origin and evolution of hospital form in Natal during the period 1860-1920. In order to achieve the aim of the research, a brief history of the development of hospital layout from the European Medieval period to the Modern Era is included. The hospital, which started as a "hospice" attached to the Monastery, developed through the ages into a perfectly designed public institution, fulfilling all that was necessary for the patient's health and the service given by the medical staff. The reason for such inclusion is that the main principles of modern hospital design thus established were adopted as the basis for hospital planning in the developing countries including South Africa. Furthermore, a number of the 19th century hospitals in former British Colonies were introduced in order to compare them with Natal institutions.

Until Victorian times the traditional hospital, often quite large and stately, did not differ in any specific way from other large public buildings. Insufficient light and air seemed to be the greatest deficiencies, so were considered the major problems to be solved by the Victorians. Of the many domestic reforms hastened by the Crimean War, the rethinking of hospital design was one which most concerned the mid-Victorian architect.

Prior to 1861, there had been a considerable variety of different architectural designs for hospitals in England, but in the 1870's and 1880's the vast majority of new hospitals and rebuilt hospitals conformed to one basic plan - a series of separate pavilions placed parallel to one another.

This change, as well as other aspects of hospital reform is attributed to Florence Nightingale. Her "Notes on Hospitals" of 1859 revolutionised the whole theory of hospital management and hospital construction. The "pavilion system" consisted preferably of single storey, or double storey ward blocks, usually placed at right angles to a linking corridor, which was either straight or enclosed a large central square. The pavilions were widely separated usually by lawns or gardens. In the wards, complete cross-ventilation was achieved by opposite rows of tall, narrow windows reaching from floor to ceiling. Natural ventilation from doors, windows and fireplaces was the rule. The uniformity of design among the late Victorian hospitals, with its emphasis on spaciousness and natural ventilation, was the logical outcome of the general acceptance of the aerial conduction of disease.

From Europe the new method of hospital planning was transplanted into developing countries including the Colony of Natal.

2. HOSPITALS IN NATAL

In the early days of Queen Victoria's reign, when the Cape of Good Hope was "the old Colony", well known in Europe as being on the sea route to India, the new Colony of Port Natal was virtually unknown in the United Kingdom. For many years after the first settlement at Port Natal in 1824, the sick were dependant upon household remedies, but with the rapid growth of new towns and settlements the necessity of creating a system of hospitalization became apparent. While rural medicine remained isolated and primitive, the erection of fairly substantial hospitals in Pietermaritzburg and Durban proved a welcome stimulus to the medical fraternities of these rapidly growing towns. The magisterial officials believed that the rural hospitals would have a

salutory effect in combating witchcraft, in affording correct treatment for the natives and in reducing the mortality rate among them. The number and scope of these outlying institutions increased steadily during the 1890's and in 1897 there were already nine cottage hospitals.

The hospitals discussed in this study are divided into two main groups:

1. Government controlled hospitals (major hospitals erected in towns, minor or "cottage" hospitals, established mainly in rural areas, a Lunatic Asylum, the only specialized institution for the mentally ill in Natal, and Indian Government Hospitals).
2. Private hospitals (Sanatoria, founded and controlled by the Augustinian Order of French origin and Mission hospitals, established either by the Church missionaries or by private persons).

3. LOCAL DESIGN COMPONENTS

Numerous hospitals representing both groups were investigated. A detailed analysis of their layouts led to the introduction of the classification of their plans.

As shown in research, in Natal the adoption of plans of European hospitals in their original forms was impossible, as design factors of local origin had to be considered: climate, segregation of patients, and limited funds allocated for the erection. This situation resulted in the erection of hospitals with a characteristic plan, where the major design principles were adopted from Europe, but the minor elements were of purely local origin. It was found that in some of the hospitals racially segregated wards were provided right from the beginning. Usually, separate wards for White, Indian and Black patients were built, though in some cases

Indians and Blacks were put together in the same ward. Provision of racially segregated wards was dependent on the financial ability of the Government, which was to finance the erection of hospitals in different centres of Natal at the same time.

In the Natal hospitals, where possible, the patients were classified into three categories according to sex, race and kind of disease. The building was usually divided into male and female sections separated by the administrative section or service rooms. Each of these parts contained the accommodation for all races of one sex, but this rule applied only to the wards. The lavatories (if they were provided at all) were multi-racial. The other type of segregation introduced in the Natal hospitals was the separation of patients with different diseases. Initially, due to the lack of space, all the sick - general diseases, infectious diseases and lunatics - were grouped together in the same ward. When the Lunatic Asylum was erected in 1878, all lunatics were transferred there. The erection of Special wards for infectious diseases in hospitals followed closely. They were usually built at some distance away from the main hospital block to avoid the risk of infection. With the growing need for more accommodation, extensions to the hospitals became necessary. The institution, which in the majority of cases started as a small building, had to be enlarged, or new wardblocks and service buildings had to be provided (all the Cottage Hospitals). Often existing service facilities had to serve newly erected wards.

4. CLASSIFICATION OF HOSPITAL LAYOUTS

The institutions discussed in this research were built on four different types of layouts, all of them originally derived from Europe. There

were: the pavilion type, in which modern design principles were introduced; the corridor type, representing a traditional, conservative way of planning; the quadrangle in which the rooms were grouped around the internal patio; and the mixed type, where two or three of these forms were combined in one structure.

As the density of population in Natal was not comparable with European countries, the local pavilion hospitals took the form of much smaller structures, accommodating a maximum of one hundred patients. In fact the number and locality of the institutions were of much greater importance than their size.

In Natal, the hospitals of the pavilion type were built according to the new standards of design, advocated by reformers of the Victorian era, taking into consideration the factors of climate and racial segregation.

The pavilion hospitals took the form of H-shaped and U-shaped layouts of the blocks and radiating from the core of the building (3-pavilion layout).

The (H-shaped, U-shaped) double pavilion structure proved to be the most satisfactory and economical and was adopted in the majority of hospitals. The origin of the H-shaped plan went back to the 17th century Italian Renaissance palace planning, where symmetry of layout and hierarchy of internal functions were introduced.

The chronological evolution of this plan is observed in Natal hospitals (Newcastle, Dundee, Ixopo, Bulwer Cottage Hospitals; Grey's Hospital, Pietermaritzburg) which, with the increased need for accommodation, were extended in size by adding new parts to the existing wings.

This illustrated its universality and easy adaptation to new requirements without changing its general character.

Similar design principles were adopted in the U-shaped hospital (Addington Hospital, Durban; Lunatic Asylum, Pietermaritzburg).

This plan was considered to be more representative than the H-shaped one and was introduced in big town hospitals where the aesthetics of external appearance together with the internal functions were the prominent aims of the architect. This type of plan had the advantage of being simple and economical, fulfilling all the requirements of the functioning of the hospital institution.

A triple-pavilion layout was planned in the form of three wings radiating from the core of the building containing the service rooms and the entrance hall.

The second big group of hospital layouts is represented by a corridor-type plan. As found in research it was the oldest, traditional type of hospital planning, the most conservative one and did not in fact differ at all from the plans of other public buildings. The environmental control conditions: cross-ventilation, lighting of wards and provision of adequate sanitary facilities, were not considered important in this type of design. The building could be easily converted into any type of public institution. All four Sanatoria and the majority of the Mission hospitals were built on this type of layout.

The third group of hospital types is created by a quadrangular layout, which originated in the Italian Renaissance period, when palaces and public buildings, including hospitals, were built on such a plan. It was introduced in Natal hospitals as the least popular type (in the Tongaat Indian Hospital, the Home for Private Patients in the Lunatic Asylum, the latest form of Grey's and Addington Hospitals).

The last group - mixed type layout - combined two or three forms of the above.

5. CIRCULATION

Together with the classification of hospital layouts, the classification of internal circulation was conducted, as the internal circulation spaces formed an integral part of the hospital building organization and occupied a significant amount of space within the building's volume.

As shown in the research, the following methods of circulation were applied in hospital buildings: a corridor enclosed on both sides, a transverse passage linking the main corridor with the entrances to the rooms, semi-enclosed corridor (veranda, balcony) and covered walkways linking the buildings together. A veranda very often served as the only means of communication with all the entrances opening onto it.

6. CONSTRUCTION

The other aspect of this research is the architectural style of hospitals and materials used for their construction. It was found that the types of materials used for construction differed depending upon the type of the hospital, the place where the building was erected and the funds available. In the case of Government-controlled hospitals erected in towns (Grey's, Addington, Lunatic Asylum), more elaborate and expensive materials were used, as the hospitals, apart from their medical function, also had a representative purpose. The provision of low maintenance constructional materials was considered essential.

In the rural areas located at great distances from the town centres, stone, mud and wood were the only materials available on site. Because

of the urgency of providing hospital buildings and the shortage of funds for more expensive building products and their transport, these traditional constructional materials and local labour were often used.

7. VERANDAS, ENVIRONMENTAL CONTROL CONDITIONS

Special mention in research is devoted to the veranda as a climatic component of the Natal hospital design.

In the 19th century, verandas became an integral part of Natal building and the traditional provision of it in most domestic buildings and public institutions including hospitals, proved its climatic and aesthetic suitability.

Environmental control conditions of the hospital were considered the most essential matters in designing the building. Inadequate natural cross-ventilation was often remedied by the introduction of artificial ventilation caused by diffusion, winds, the different weight of the air in the wards, or by the use of a fire-place.

The problem of the heating of wards during winter also forms a part of this study. The conclusion is that the way of heating the ward adopted in almost every hospital was the fire-place, which provided economic heat.

8. SERVICES, WARD DESIGN

The next stage contains the description of hospital services: water supply, drainage systems and excreta removals, which were basic services, provision of which was necessary to obtain the required standard of hygiene and functional efficiency of the institution.

In the first hospitals built, the provision of racially-segregated wards was often more important than the provision of service rooms (mainly Cottage Hospitals). Such a situation resulted in the poor functional and hygienic standards of these institutions.

The last stage of analysis comprises the ward design. Here, two types of wards, in the pavilion-type and the corridor-type hospitals, are compared in order to assess their efficiency, economy and humanity.

The conclusion is that the general wards in the pavilion-type hospital were undoubtedly better organized, afforded greater anonymity, better supervision by nurses and were generally more comfortable for patients.

CONCLUSIONS

Some of the hospitals discussed in this study are still operating in good condition today eg. the Lunatic Asylum, Pietermaritzburg; Zulu McCord Hospital, Durban; St. Aidans Hospital, Durban; Durban Sanatorium; Pietermaritzburg Sanatorium; St. Mary's Hospital, Mariannhill; St. Mary's Hospital, KwaMagwaza; St. Appolinaire's Hospital, Centocow. Over the years they have developed from small structures to functionally adequate medical institutions, equipped with modern facilities.

Some of the hospitals were abandoned, not because of their functional deficiencies, but because of their small size or dilapidated condition.

Grey's Hospital in Pietermaritzburg closed its door in 1984 after the erection of the New Grey's Hospital. The old building, still in good condition, today serves as the Natal Provincial Administration library. The Ladysmith Sanatorium stands on the hill outside the town as a historical

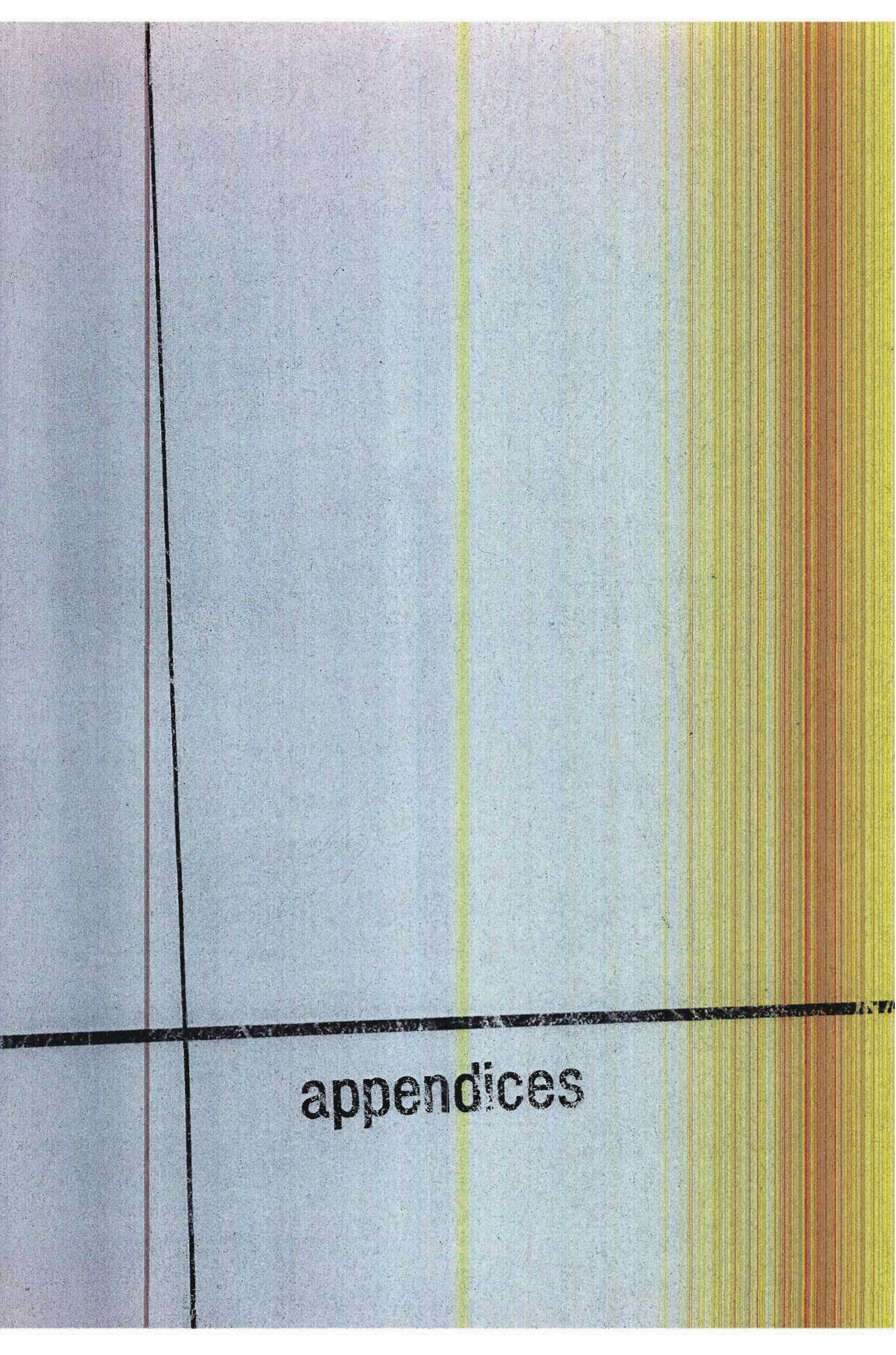
monument, empty now because of its distance from the new hospital built in another part of the town. There are plans to organize a museum there.

The Betania Mission Hospital building changed its function and now serves the charitable purpose of providing a shelter for the homeless and the destitute. The Old Eshowe Cottage Hospital is still retained in part, now accommodating medical staff. But for how long? There are plans to expand a new hospital and then the historic place will undoubtedly be demolished. Such a situation occurred two years ago, when the only remaining part of the Newcastle Cottage Hospital, the old Nurses' Home, was demolished to provide space for a new hospital creche.

The Old Addington Hospital, Dundee, Newcastle, Bulwer and Port Shepstone Cottage hospitals no longer exist and their historical value is lost forever.

The Natal hospitals built in the period 1860-1920 form a beautiful and valuable page of Natal medical history. Their value as medical institutions can now be objectively assessed. Much research has been done in the medical field in order to synthesize the major design principles of local hospitals. That period of time can be described as a period of trials for the many architects and doctors involved in hospital design. Initially the hospitals were built with many functional mistakes but with time and experience local design priorities were clarified and later on a number of hospitals were built as fairly ideal structures functionally. The idea of Florence Nightingale's pavilion hospital outlived the difficult period of 1930-1970 during which it was completely abandoned again giving place to the corridor-type hospital.

The present situation shows the hope of a return to the old principles. The private architects involved in the design of the New Academic Hospital for Natal, have adopted the pavilion-type of layout.

The background features a light blue-grey color with a fine, woven texture. A vertical black line runs down the left side, and a horizontal black line runs across the bottom. On the right side, there are several vertical stripes in shades of yellow, green, and brown. The word "appendices" is printed in a bold, black, sans-serif font, positioned in the lower-left quadrant of the page.

appendices

APPENDIX "A" - NURSES HOMESBACKGROUND

Originally, the hospitals in Natal were founded without any provision for accommodation of the staff. When nurses were employed on a permanent basis and especially when their training was officially recognised, the need for living space for them became evident.

Initially, they were granted a place in the hospital wards, but this proved to be inadequate as the hospitals suffered from lack of accommodation even for patients. Soon, it became necessary to provide a separate building for the purpose. The principal rule in establishing the Nurses' Quarters was that they were to be built on the hospital premises in close proximity to the hospital block.

Such a position assured convenient access for nurses on night duty especially in the early times, when the duty rooms were not included into the hospital design. Later on, in more advanced hospital planning where the nurses' stations were part of the building, the separate Quarters served solely as a place of rest and could be erected at a greater distance from the hospital and in better positions away from the hospital atmosphere.

FIRST ADDINGTON NURSES' HOME (FIG.A1)
(PHOT.125)

The first nurses' home erected in Natal was the one at Addington Hospital built in 1899. According to the drawings prepared by E. Dainton, the architect of the P.W.D., the tenders were called for on 10 December 1898, and the building was completed in November 1899.

The matter of providing space for nurses became so urgent, that additional draughtsmen were appointed and paid overtime to complete the drawings earlier.

"For the current week I have authorised payment for overtime in the Drawing Office, Durban, upon the Addington Hospital Nurses' Quarters plans."¹

When erected, the building stood on the right side of the hospital block and was connected with it by a covered walkway.

It was built on a rectangular layout with internal passages on the Greek-cross plan. The main passage continued through the entire length of the building and terminated at the exit on the other side.

This double-storeyed building had a characteristically Victorian appearance. Cast iron verandas on each floor surrounded the whole structure enhancing its delicate and well-proportioned shape. Simple columns of round section and Corinthian capitals were decorated by ornamental iron brackets with iron balustrades and decorative cove laces inbetween them.

The roof consisted of 3 parts, each being planned as an independent hipped roof containing eight louvre ventilators in the form of gablets.

Elevations were articulated by a row of double sliding sash windows and veranda columns, and by the horizontal line of roof and balustrade railings.

This handsome building, constructed of brick with cast iron verandas and galvanised corrugated iron sheeting over a timber roof, made for an interesting composition of different materials, colours and textures.

¹ Letter from Chief Engineer, P.W.D. to Minister of Lands and Works dated 10 October 1898.

Addington Hospital Nurses' Quarters represented an architecturally interesting example of this type of building. Its layout differed entirely from the hospital layout but the exterior matched the side wings of the hospital. The functional success of this building initiated the rapid erection of other Nurses' Homes in Natal.

FIRST - "A" GREY'S NURSES' HOME (FIG.A2),
(PHOT.123)

A few years later, Grey's Hospital in Pietermaritzburg received its new Nurses' Home.

The drawings were prepared by E. Dainton, the architect of the P.W.D., in 1903 and tenders were called for on 6 May 1903. A tender of the local contractor amounting to £5 500 was accepted and the work on site was completed in July 1905.

This double-storeyed building was designed on an H-shaped layout matching the shape of the main hospital block. The central part was occupied by the space of common use and contained sitting- and dining-rooms.

The nurses' bedrooms and Matron's flat were put into the side wings where more privacy could be achieved. The circulation system followed the H-shaped plan with 2 exits onto the back veranda.

The building was erected in close proximity to the hospital and was linked to it by a covered walkway. It faced Prince Alfred Street with the approach through the veranda.

Externally it was a beautiful Victorian structure with balconies decorated with graceful wrought-iron railings.

The H-shaped layout proved its suitability to this type of public building being efficient in its function and communication system, and providing sufficient internal lighting and ventilation.

This layout was later repeated in numerous Nurses' Homes in Natal hospitals.

NEWCASTLE COTTAGE HOSPITAL NURSES' HOME (FIG.A3, A4)

In the Newcastle Cottage Hospital, one of the oldest of this type in Natal, the Nurses' Home was erected in 1905. It was designed by J.S. Cleland, the architect of the P.W.D., and constructed by the local contractor Mr. Ross. Erection of this building was included in the contract for alterations and additions to the hospital block, signed on 14 April 1902.

The building, placed on the right side of the main hospital block, faced Hospital Road. Originally it was designed on an H-shaped layout with front and back verandas. Small in size it provided accommodation for a Matron and three nurses.

Functionally, it was well designed, containing all the necessary facilities such as kitchen, sitting room and dining room. The rooms were lofty and well-ventilated. Built of brick with wooden verandas and an iron roof it had a neat, cottage-like appearance.

The building was later altered and extended due to the new requirements of hospital authorities. Finally, it took the form of a quadrangle with an internal patio surrounded by veranda on 3 sides.

It stood in this form until the 1960's when its function was changed to that of a crèche and the appeal of the building was completely spoiled.

It was demolished in 1987 and part of a historical hospital, was lost. A new crèche is now on its way, being built on the site.

DUNDEE COTTAGE HOSPITAL NURSES' HOME (FIG.A5)

As in all other hospitals, the Nurses' Quarters in Dundee were also erected in close proximity to the hospital block. They took the form of a corridor-type building of similar architectural character to that of the hospital.

It provided accommodation for a Matron and 2 nurses and all facilities necessary for them.

In 1909, when new additions to the hospital were put in hand, the plans also included extensions proposed by P.E. Eagle, the architect of the P.W.D. to the Nurses' Quarters. The building was extended by additional living space and a bathroom, but its general character did not change.

The structure was very small in size, built of brick and covered by an iron roof of an interesting shape.

The building was demolished in 1928 together with the old hospital block because of the damage caused by white ants.

ESHOWE COTTAGE HOSPITAL NURSES' HOME (FIG. A6-A13)

In Eshowe Queen Victoria Hospital, the Nurses' Quarters were erected in 1902 in such a way that the building was attached to the hospital block by its side veranda. It was built as a small cottage, accommodating a Matron's flat and 3 nurses' bedrooms, and architecturally matching the

hospital block. The office was erected on the side facing the hospital and served as hospital administration space. The access from there to the hospital was designed in a convenient way through the veranda. Similar to the hospital, the Nurses' Home building appeared to be a small and economical structure.

FORT NAPIER HOSPITAL NURSES' HOME (FIG.A14 - A17)

Fort Napier Hospital has not been included in this research as the establishment was not originally built as a hospital but as a military camp, consisting of barracks.

During the Anglo-Boer war, Fort Napier became a military hospital and afterwards changed its function to that of a Mental Hospital. Native patients were moved here from the Town Hill Lunatic Asylum.

The old buildings do not represent any architecturally interesting examples, and the only one deserving attention is the beautiful Nurses' Dining Hall which originally served as St. George's Theatre. The history of this building is quite fascinating. It was erected in 1860 in England and shipped to India, where it remained for 4 years. Then it was dismantled and brought by ship to Durban. It was again rebuilt in Pietermaritzburg at Fort Napier to serve as a theatre for the soldiers, and the first performance was in 1882. When the Fort Napier establishment became a Mental hospital, the building was converted into the Nurses' Dining Hall without its external appearance being changed.

It was designed on a square layout with an internal patio surrounded on each side by a wide veranda. Externally, the veranda enclosed the structure on the sides, the back and partially on the facade. The symmetry in

layout was echoed in its external appearance, with the dominating clock tower above the central entrance. The building was proclaimed a National Monument and restored in the 1970's.

BETANIA MISSION HOSPITAL NURSES' HOME (FIG. A18)

The Nurses' Quarters (called "Imbevana") of the Betania Mission Hospital, erected in Dundee in 1899 were erected at the same time as and in close proximity to the hospital.

It was designed by the Missionary Rev. Lars Peter Norenus, the author of the hospital plan, so it bore similar principles of design - on an L-shaped layout structure. The building had front and back wooden verandas, and a corridor-type structure with simple wooden, circular poles, brackets and railings. The ridged gable roof was of wooden construction and covered with tiles, and the walls were built of bricks with a stone base.

Initially, it consisted of rooms for 3 nurses, a kitchen, a dining room, a sitting room, a bathroom, and lavatories. Bedrooms were heated by fireplaces built into the internal walls.

There was an inter-room circulation system. Some of the rooms however, had entrances only from the veranda.

The design was prepared by an unprofessional man and there was no concern for proper functional or internal environmental control conditions.

The old hospital building has been demolished to give place to a new one, but the old "Imbewana" served for many years as Nurses' Quarters, and was closed at the same time as Betania Mission Hospital in 1920. The building now stands unoccupied.

SANATORIA NURSES' HOMES

Different in layout and size from the presented Nurses' Homes are the Nurses' Quarters erected in the Durban and Pietermaritzburg Sanatoria.

In the Ladysmith and Escourt Sanatoria the nuns, who also acted as the nurses, were accommodated in the main Convent building. Durban and Pietermaritzburg Sanatoria, being in the larger centres, were extended and the erection of separate Nurses' Homes became necessary.

These Nurses' Quarters were very similar in their layout - on a quadrangle around a central patio.

This type of plan was derived from the Renaissance period and was adopted mainly in religious institutions. The composition of classical building elements, including proportional arcades enclosing loggias together with the symmetry of the whole establishment, resulted in the palace-like appearance of these buildings.

DURBAN SANATORIUM NURSES' HOME (FIG.A19 - A22)
(PHOT.130)

The Durban Sanatorium Nurses' Home, built in 1917, was attached to the existing Maternity block. This double-storeyed building could accommodate 30 nurses and provided all the necessary facilities for them. The rooms were grouped in a row around the central patio, with a passage running parallel to them. On two internal sides, the places of common use were situated and commanded a view onto the patio.

Arched door openings, with plaster architraves above them marked all the entrances in the structure. The main entrance to the building was from the Sanatorium, but there was also a small entrance provided on the side of the

building. The whole establishment was designed very conveniently for nuns with a clear internal communication system consisting of wide semi-enclosed passages, archways, and some staircases.

PIETERMARITZBURG SANATORIUM NURSES' HOME (FIG. A23-A24)
(PHOT.127-9)

The Pietermaritzburg Sanatorium Nurses' Quarters were erected in 1925 with the same design principles as that of Durban.

The rooms of common use including Library, Community Room, Dining Room, Superior's Room, Reception Room and 3 stores were erected on the ground floor. The two floors above contained bedrooms, each floor accommodating 22 nurses. The rooms were grouped around the central patio in the centre of which the marble statue of St. Mary was placed.

The spacious Community Room facing Alexandra Park had a large balcony with 3 French doors leading onto it. Internally, the ground floor loggia was created by arcades supported by Doric columns, and on the floors above, the piers were used for the same purpose. The building was very handsome in appearance. Built of brick, plastered, and painted white, it had a roof covered with tiles.

The facade was articulated by a row of windows, different on each floor. On the ground floor arched windows with architraves above them, on the second floor big casement type rectangular windows, and on the highest level smaller casement windows were used. The method of differentiating the height of the storeys and types and sizes of the windows to achieve the right proportions was known already in the 15th century, and the palace building was first used in Florence by Fillippe Brunelleschi.

SECOND ADDINGTON NURSES' HOME (FIG.A25)
(PHOT.126)

The plans for the new Nurses' Quarters at Addington Hospital were produced by the P.W.D. Architect J.S. Cleland in 1927. The old building containing accommodation for Nurses was demolished in 1926, because of its bad condition. Cleland proposed a 3-storeyed structure of the corridor type, on an H-shaped layout. The rooms were put on both sides of the central passage with no provision of balconies.

The structure was built of brick, all walls being plastered and painted white, and was covered with tiled hipped roofs. The whole structure was massive in its appearance but elegance was achieved by elevation articulation achieved by rows of casement windows.

SECOND - "B" GREYS NURSES' HOME (FIG.A26-A29)
(PHOT.124)

At about the same time Cleland designed the new "B" Nurses' Home for Grey's Hospital, Pietermaritzburg, similar to that at Addington. The H-shaped layout was also used but here front and back balconies were placed in the void created by side wings.

The building was erected on the site of the old Nurses' Quarters which had been demolished. The main entrance to the building was from the side of the hospital, which was connected by a covered walkway. An additional one was from the back leading to Alexandra Park.

The lower ground floor contained all the spaces for common use by the nurses: dining hall, sitting rooms, lounge, kitchen, and stores. The matron and nurses were accommodated on the two floors above.

The upper ground floor consisted of a Matron's flat and 17 bedrooms for nurses. All rooms had the exit through French doors onto the front and back balconies.

The floor above had a layout identical to this, except for the provision of 2 additional nurses' bedrooms in the place of the Matron's flat below.

Externally, the building was well-proportioned and elegant (neo-classical structure). According to the plans the facade, facing Prince Alfred Street, was to have a Doric Colonnade only on the medial floor. In reality they were erected on the 2 top floors.

The back elevation balcony was supported by pairs of Doric columns.

APPENDIX "B" - DURBAN HOSPITALSADDINGTON HOSPITAL

In 1902 Bantu wards were erected in a separate building, a long way from the main building. There was no wall round the buildings which were still surrounded by dense bush. At this time no telephones were installed and no resident doctors appointed, so Zulu runners had to summon medical aid when an emergency arose.

A Natal Medical Committee, later the Natal Medical Board, had already been formed in 1856, but it was not till 1898 that the hospital got its first Hospital Advisory Board. By this time some improvements had been made in Durban as far as water and milk supplies, sanitation, and refuse disposal were concerned. In due course infectious diseases were also made notifiable, and patients in this category were kept separate from the other patients. These measures caused a marked decrease in the death rate.

By 1905 conditions for the training of nurses were much improved. It was seldom that they worked for a period longer than ten hours at a time.

The proper Nurses' Home was erected in 1905, and it was connected to the hospital by a covered walkway. The building was demolished in 1927 and replaced by another one.

Addington Hospital got its first X-Ray machine in 1905, and the first patient to be X-rayed was Mr. Turner, who developed cancer in his right knee.

It was not till 1912 that the sand dunes on the South Beach were levelled and grass planted on the stretch east of Addington Hospital. Erskine Terrace was constructed the following year.

The Ladies' Hospital Society, run on a voluntary basis by Durban ladies, was started in 1902 by Mrs. George Payne, and has been an itegral part of the hospital services ever since.

The Anglo-Boer War of 1899-1902, the Bambata Rebellion of 1906, and two world wars have each in turn necessitated immediate expansion of accomodation at the hospital, so army huts and additional buildings kept springing up on the hospital site. But in spite of this, overcrowding continued, and eventually separate hospitals were established at Wentworth and Springfield for infectious diseases and tuberculosis. The chronically sick were moved to Hillcrest, and Indian and African patients were transferred to King Edward VIII Hospital.

APPENDIX "C" - NATAL GOVERNMENT ASYLUM(NATAL GOVERNMENT ASYLUM)ADDITIONS, 1896-1899

The question of plans was under consideration. Barnes felt that the laundry should be erected first for the following reasons:

1. the laundry was a small part of the additions;
2. its plans and specification were ready for the calling of tenders;
3. if tenders were called, the Government would be in a position to command better terms;
4. the laundry site was detached from the main building.

The Minister of Lands and Works agreed to the erection of a laundry for an amount of £1 750 in August 1897:

"....on the clear understanding that the Medical Superintendent will ask for nothing more this year and he will provide him with a block plan of the Asylum buildings, showing the site proposed for this building"¹

On 10 December 1896 the Minister: Lands and Works wrote to the Colonial Secretary:

"I again submit details of a very large expenditure asked for in connection with the Asylum. The Colony has already expended a large sum of money in connection with this Asylum. Do you consider these new works really necessary?"²

Notes and references:

1. P.W.D. Minute dated 23 December 1896. Minister of Lands and Works to Chief Engineer P.W.D. (N. Arch)
2. P.W.D. Minute Minister of Lands and Works to Colonial Secretary, dated 10 December 1896. (N. Arch)

The Colonial Secretary replied:

"In answer to your minute I consider the additions to Asylum necessary.

A plain dining room of dimensions stated on plan, together with Offices, Store room, Pantry, Scullery and Boiler House would cost £3 575.

If verandas on either side of Dining Room are added this amount would be increased by £150.

If the Boiler house is omitted the amount would be decreased by £150.

Wash house, Laundry, Distribution and Store room would cost another £400."¹

Robert King, the District Superintendent of Works found the erection of the Boiler house necessary.

1. P.W.D. Minute dated 15 December 1898. Letter Colonial Secretary to Minister of Lands and Works. (N. Arch)

monument, empty now because of its distance from the new hospital built in another part of the town. There are plans to organize a museum there.

The Betania Mission Hospital building changed its function and now serves the charitable purpose of providing a shelter for the homeless and the destitute. The Old Eshowe Cottage Hospital is still retained in part, now accommodating medical staff. But for how long? There are plans to expand a new hospital and then the historic place will undoubtedly be demolished. Such a situation occurred two years ago, when the only remaining part of the Newcastle Cottage Hospital, the old Nurses' Home, was demolished to provide space for a new hospital creche.

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NATAL GOVERNMENT ASYLUM (ESTIMATES)

New Works and Repairs required during the financial year, 1897-98.

NEW WORKS

Central Dining hall, Recreation room etc.	£3 384
Kitchen	1 212
Store rooms, General Bathrooms	785
Laundry	1 600
Mortuary, post-mortem room	151
Dining room for Private Patients (New)	400
Steam boiler, cooking appliances	<u>500</u>
	£8 032
Electric - Lighting Installation	<u>985</u>
	£9 017
	=====

REPAIRS

New pitch pine and asphalt floors to rooms	£ 108
Re-plastering rooms in lime plaster	77
Ordinary incidental repairs	120
Enclosing Grounds (Corporation lease, No. 10)	<u>15</u>
	£ 320
	=====

FURNITURE

Probable amount required for furniture	£ 200
	=====

Dr. Hyslop submitted the Estimates of the new works and repairs required during the year 1897-98:

"As I have previously pointed out, the new works again suggested were sanctioned some seven years ago. They were admittedly necessary then, and I presume I need hardly urge upon the Government how much more they are required now.

It is a simple impossibility to manage the Asylum as a place of this kind ought to be conducted without such buildings as I have enumerated.

The official visitors have also repeatedly called attention to the necessity for these buildings, and given it as their opinion that the works should be proceeded with at the very earliest opportunity.

With regard to the suggested installation of the electric light, I need hardly say that if it is at all practicable, the present system of lighting the building by means of paraffin should be superceded as soon as possible. To show how unsuitable such a light is regarded for an Asylum, and to give some idea as to its danger I may mention that it is an offence against the rules of most home Asylums to take a paraffin lamp into the building."¹

Tenders for these additions were called for in March 1897 and John Hardy's tender for £2 850 was successful.

In April 1897 work on the site was begun. In that year £481.11.8 was spent on building operations. The complex was completed in August 1899.

In August 1898 the Minister of Lands and Works personally visited the Asylum to check the progress on the site and the conditions of the old building, and he then reported to the Engineer of the P.W.D., that:

"....the Latrine for women is wholly insufficient and a disgrace to the Asylum."

1. P.W.D. 5147/98. (N. Arch)

and that there are:

"only two latrines for over sixty females."¹

The Assistant Engineer of the P.W.D. suggested in this regard:

"...an extension of the present building, that will give seven latrines, and the present two can thus be given up for the use of attendants only."²

The Chief Engineer of the P.W.D. pointed out that:

"...there are a few other matters which I should like you to look at:

1st: The drain pipes from the old block were evidently never well laid and have become completely choked, when being relaid a regular gradient should, as far as possible, be obtained.

2nd: The gable end of the Old Building on the weather side badly needs painting; possibly this painting work can be done by one of the inmates."³

The Clerk of Works reported on 21 November 1898 that the item of Female Latrines would be the first to put in hand under Mr. Hardy's 2nd contract.

When the work under the 2nd contract commenced, he reported:

"Through some misunderstanding the surface drain had been given too much fall, causing a deep step from the veranda curb. As already verbally reported, I arranged this matter to Dr. Hyslop's satisfaction, altering the fall by connecting the drain from each end to the centre.

The additional cost will be £20, making the total expenditure £75..0..0.

Mr. Hardy states that he cannot give a lump tender for repairs to painting Native blocks. He offers to do the work for 12½% on actual cost of labour and material."⁴

1. P.W.D. 5153/98 Minute Assistant Engineer P.W.D. to Colonial Secretary. (N. Arch)
2. P.W.D. 5161/98 Minute Chief Engineer P.W.D. to Clerk of Works. (N. Arch)
3. P.W.D. 5172/98 Minute Clerk of Works to Chief Engineer P.W.D. (N. Arch)
4. P.W.D. 5273/98 Minute Clerk of Works to Chief Engineer P.W.D. (N. Arch)

This was approved and the work was put in hand.

In April 1899, Dr. Hyslop submitted other requirements in connection with the Alterations to the contract.

Mr. Hardy, the Contractor asked the Government for additional funds for realization of these requirements:

"You now ask for £8..6..1. for alteration of roof, and £25 for the alteration to chimney, - a total of £33..6..1., but as you obtained credit on the Contract for £17..6..3., the excess as an extra to the Contract will be £15..19..10., I see no help for it but to authorise the alterations."¹

The tender of £3 500 for further alterations received from Mr. Hardy was accepted, and the work was carried out together with that of his first contract. The expenditure in 1898 was £10 500 and in 1899, an additional £6 500.

1. P.W.D. 123, Minute Hyslop to Chief Engineer P.W.D. (N. Arch)

ALTERATIONS AND ADDITIONS, 1900

By 1900 further additions and alterations to the building were necessary.

On 1 November 1900 tenders were called for, for the erection of the new work consisting of alterations to existing external staircases located by the dining halls, and various internal alterations including:

"steel girders instead of wood beams, wood ceilings instead of steel, wood block flooring, apaglypte covering to wood ceilings."¹

By 21 November 1900 the eight tenders had been received and the successful one was the lowest tender from Fairhurst & Ordish:

"...who appear to have but recently arrived in Natal from New Zealand and amount to £5 419, £1 154 below the average and £1 876 below the highest tenders. It is evident on the face of it that this tender is too low. Therefore, if there be any idea of accepting it, the Contractors should be afforded an opportunity of looking through their figures and saying definitely whether they are still prepared to carry out the work on those terms should the tender be accepted.

To save time, Messrs. Mowat & Still, tender of £5 950, might also be approached on the same lines. Their tender, though not as low as that of Messrs. Fairhurst & Ordish, is yet more reasonable than could have been expected, and the firm as Contractors are satisfactory."²

Finally the tender of Messrs. Fairhurst & Ordish, Contractors, was accepted.

There were a number of alteration to the design during the building operations such as additional provision for ventilation and fire protection and changes to the design of the portico below the bathroom.³

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1. P.W.D. Blue Book, 1900.
 2. Letter from Chief Engineer P.W.D., E. Barnes to the Minister of Lands and Works. (N. Arch)
 3. Letter from E. Barnes to District Engineer, Pietermaritzburg. (N. Arch)

In 1900 Barnes reported:

"With regard to the staircases leading up to the Recreation Room; I have seen Dr. Hyslop and in view of the fact that they are now to be of stone, instead of wood as originally intended, he considers that they should be re-arranged somewhat. He submitted the rough sketch of new proposal. The sketch shows an economical and efficient method of planning. This arrangement would then obviate the necessity of forming the long landing half way up on concrete.

Should this be approved, this will necessitate some alteration to the drawing and specification for which I fear I shall be unable to find time.

"The lights suggested a short time ago to the acting Clerk of Works evidently was not provided for. It was suggested that there should be a light in the veranda opposite the windows of the Steward's office and waiting room furthest from the centre of the Building - also a skylight on the zinc flat opposite the second windows of these rooms, otherwise I fear they will be badly lighted."¹

For the wooden work, pitch pine was suggested as:

"not likely to be attacked by white ants."²

A pattern for the wooden ceiling was to be chosen rather than asbestos Salamander. All the furniture for the Dining Rooms, Kitchen and Chapel was to be supplied by the Government.

All the wards were to be furnished with electric fans in pyramidal ventilators.

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1. P.W.D. 1821/1900 - Letter Barnes to Government Secretary. (N. Arch)
 2. P.W.D. 3718-1900. (N. Arch)

The external staircases, entrance lobbies, bathrooms, and W.C.'s were to be tiled:

"The stairs on either side to be opposite to each other, and a door to be fixed on either side of the proscenium leading to them. The two doors leading from downstairs lobbies to the general dining room, the two from upstairs lobbies to the Recreation room, the door from the entrance lobby to the Private Dining room and from the upper lobby to the Drawing room to have fan lights when possible. The ventilators to be carried through the roof of service room and Bathroom block. The £500 to be allowed for Electric light fitting, and accumulators. The wood clads of private dining room to be stained (green suggested) as well as varnished. The skylight to be covered with fine wire netting as a precaution against hail. The walls of present bathroom in main building are to be removed where required so as to make entrance to drawing room from present building. The area to be erected in wall opposite Medical Superintendents office."¹

Electric light fittings were provided in the old building at the end of 1900, and a battery was fitted. In connection with erecting the new additions the larger battery was necessary. The installation was done by Hubert Davies and Spain:

"I attach a draft Indent of what we shall be likely to require for the maintenance of the Asylum Plant. I do not think that we shall require much else than Incandescent lamps for renewals. I think that the Battery Spares, that we shall obtain from Collins and Munroe, will carry us through especially as it is likely that we shall be obtaining a larger Battery from Home to meet the increased demand for light that will come with the new extension at the Asylum. In connection with the question of a larger Battery, I would point out that the present Battery is so small that it would not maintain the lighting of one hundred lamps for more than three hours and that only if in first class condition. As there are over 350 lamps installed at the Asylum, it can be readily seen that the Battery as a reserve of power is far and away too small and in case of a breakdown of the Engine, would be practically useless for lighting. Also there are to be considerable additions to the number of lamps when the new Building is erected and we ought to provide for this by at once increasing our storage capacity. I would

1. P.W.D., Letter from Dr. Hyslop to Chief Engineer P.W.D., dated 11 August 1900. (N. Arch)

suggest that an Indent be at once prepared for a complete new Battery and would advise that the Battery should consist of fifty four chloride cells. Such a Battery complete would cost about £290."¹

This application was rejected:

"We could not pay for the Battery from our Vote for Installation of Electric Light, but I think you will find that the Specification for the New Buildings provides an amount of £500 or thereabouts for the requisite Electric Lighting Plant. Please satisfy yourself as to the facts."²

Instead, the proposal of reducing the number of lights in the Asylum was approved.

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1. P.W.D. Letter from Electrical Engineer to Chief Engineer. (N. Arch)
 2. P.W.D. letter from Chief Engineer to Electrical Engineer. (N. Arch)

THE ASYLUM, 1905

At the beginning of 1905, Dr. Hyslop submitted the following requirement: fencing the Asylum property and dividing it from Mr. Griffin's, Mr. Turner's and Mr. Symons' farms.

E.G. Griffin objected to this proposal, claiming:

"The fencing on the road through his farm will decrease the width of the road from 100 feet to 78 feet." ¹

On 30 November 1905, Dr. Hyslop stated:

"By erecting the fences to give a 100 feet roadway, Mr. Griffin would not be the loser in any way, but he wishes to be allowed more land for cultivation. In my opinion we should insist upon the 100 feet width, and that the fences near the plantation should be removed to give that width. If we grant privileges, both Mr. Turner and Mr. Symons will expect to be met in the same way." ²

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1. Letter from Griffin to Hyslop, 15 January 1905. (N. Arch)
 2. Letter from Hyslop to Chief Engineer P.W.D., 30 November 1905. (N. Arch)

NEW BUILDINGS AND ALTERATIONS IN ASYLUM

YEAR	NATURE	EST. EXP.	COMMENCED	EXP. TO DATE	COMPLETED
1867	Temp. Lunatic Asylum	£ 1 085	Jan. 1867		£ 354. 6. 6
1868	Enlarged	£ 180	Oct. 1867		£ 189.15. 1
1871	Additions	£ 220	Nov. 1871	£ 39.10. 6	
1872	Additions				£ 120.11. 6
1873	Erection	£ 2 000	Jan. 1873	£ 274. 1. 4	
1874	Erection	£ 2 000	Jan. 1873	£ 931. 1. 2	
1876	Erection	£ 2 000	Jan. 1873	£ 2 932.16. 3	
1878	Erection	£22 000	April 1877	£ 1 482. 0.11	
1879	Erection	£22 000	April 1877	£16 979.13.10	
1880	Completion of part	£20 000	April 1877		£2 749.18. 5
1883	House of Res. Surgeon	£ 1 270	March 1882		£1 269.18. 8
1884	Alterations and additions	£ 500	June 1884	£ 446.15. 2	
1885	Alterations and additions				£ 500. 0. 0
1886	House for keeper	£ 750	Feb. 1886	£ 687. 5. 9	
1889	Completion	£11 500	Sept. 1889	£ 903. 6.10	
1890-91	Construction Isolated Strong Rooms	£ 600	Jan. 1891		£ 600. 0. 0
1890-91	Completion Asylum	-			£8 251. 4.11
1890-91	Additions	£ 5 500		£ 2 189. 2. 1	
1891-92	Additions	£ 5 500		£ 4 008. 7. 3	
1892-93	Renewal floors	£ 175	Sept. 1892		£ 109.13. 4
1894-95	Repairs old buildings	£ 500	July 1894	£ 465.13. 2	
1896	Repairs	£ 450.0.6	July 1895	£ 319. 9. 0	
1897	Additions	£ 500	April 1897		£ 481.11. 8
1898	Additions	£ 4 000	May 1896	£ 876.19. 1	
1898	Additions	£10 500	May 1896	£ 2 347. 7. 6	
1899	Additions	£ 6 500	May 1896	£ 6 500. 0. 0	
1900	New Buildings	£ 9 000	July 1899		£2 974.16. 6
1901	New Buildings	£ 7 600	Dec. 1900	£ 3 979.10. 9	
1902	New Buildings				£7 433. 1. 5
1902	Temporary Addition		May 1902		£ 369. 0.11
1903	Temporary Addition		July 1902		£ 62.13. 0
1904	Alterations and additions	£ 500	July 1903	£ 274. 6. 1	
1905	Additions and Improvements	£ 250		£ 125. 2. 2	
1905	Laundry and other plant	£ 600	July 1903	£ 23.18. 6	
1910	Home for Private Patients				£20 000

APPENDIX "E" - MISSION HOSPITALSST. AIDAN'S HOSPITALORIGIN

From 1876 when it was found that sugar could be profitably cultivated in Natal, the Government imported labourers from India in large numbers to work on the sugar plantations. When their term of indenture expired, many settled in Durban.

Lancelot Parker Booth arrived in Natal from England in 1876, and joined the Natal Indian Immigration Department as District Surgeon at Umzinto.¹

He was appalled by the conditions of the Indian labouring classes, particularly the poverty, the illiteracy, the low standard of living, and the lack of medical facilities, and he felt the urgent need for their spiritual upliftment. To achieve his great vision of alleviating human suffering, he needed the support of a large Christian organization.

His immediate objectives were the foundations of Evaneglist, Education and Social services for the Indian community.

In 1886 Booth's "Mission Schools" were established in Durban where, subsequently thousands of the poorer Indian children could receive the rudiments of education.

In the following year the St. Aidan's Church in Alice Street was completed.

Booth undertook three visits to India to recruit missionaries and staff.

As the Diocesan Superintendent of Indian Missions in Natal, he perceived that the greatest need lay in medical services for the underprivileged

1. "St. Aidan's Mission 1883-1983", Centenary Brochure, Durban 1983.

classes. Consequently, in the back-yard of the Mission House, he opened a dispensary where he could attend to the medical needs of thousands of the poorest citizens of Durban. Until then, neither the State nor the Municipality had made any effort to provide hospital facilities for the Indian population.

Dr. Booth was also a pioneer in introducing nursing and first aid to Indian men. The Indian stretcher-Bearer Corps, which he trained for service in the Anglo-Boer War, is a unique contribution to South African medical history.¹

1ST HOSPITAL, 1916-1923

In October 1915, the Reverend C.M.C. Bone M.A. was appointed priest-in-charge of St. Aidan's Mission. Bone had come from India where he had been in charge of a large mission district which had included extensive medical work. When he arrived in Durban he was dismayed to discover that there was no hospital for Indians anywhere in Natal. Addington Hospital had a ward for Africans where a few Indians were also treated and on the Berea the American Mission had a flourishing African hospital under Dr. T.B. McCord, but it did not touch Indian work. With Miss Cole's help, he determined to establish a mission hospital for Indians in the town.

They were able to find a house conveniently situated at the corner of Cross and Leopold Streets directly opposite the house where Reverend Booth had lived and run his clinic. The mission rented the house on an annual lease

1. Gelfand, M. op. cit, p. 195.

at £9 per month. It consisted of three large rooms which allowed four beds in each, as well as three smaller rooms.

The hospital was officially opened in July 1916 by the Earl of Buxton, second Governor-General of the new Union of South Africa.¹

At first it was an uphill struggle to maintain the little hospital there was no money to help get it started. Thanks to the financial donation of Olive Cole, the institution was able to start operating.

With World War I in progress, the founders of the hospital made a determined effort to augment their funds. The Durban Medical Council meanwhile insisted that Dr. McCord of the American Board Mission Hospital should visit the hospital on the basis of a £200 honorarium per annum. Dr. McCord distributed money equally between his own hospital and St. Aidan's Hospital.

In September 1923 the hospital temporarily closed its doors as the lease of the building had expired and new premises were urgently required.

2ND HOSPITAL, 1924-1935

When the first hospital was closed, it was decided to occupy Dr. Booth's old Mission House at Cross Street. By enclosing the veranda, accommodation was available for twenty-one beds and four cots. Fortunately the Durban public gave the institution their support and contributed to its Annual Street Collection.

1. "St. Aidan's Mission 1883-1983"; Centenary Brochure, Durban 1983.

By the 1930's the Indian population of Natal had increased to about 141 000 and this small hospital could no longer cope with the increasing demand. By this time the need for a new modern building became a matter of urgency and fortunately the occasion brought together three men - Bishop Ferguson-Davie, the Reverend W.H. Satchell, and Dr. K.M. Seedat, who devoted all their energies towards achieving this new goal.

3RD HOSPITAL, 1935

In 1932 a Hospital Building Committee was established and a piece of land just over an acre in extent in Centenary Road was purchased from the Durban Corporation.

On 16 January 1935, the foundation stone of the present hospital was laid by the Kunwarani Lady Maharaj Singh, wife of the then Agent-General for the Government of India.

On July 4 the hospital was formally opened by the Countess of Clarendon. The building was designed by W.B. Oxley and erected by Messrs Tedder and Brown. The initial stages of the building programme had cost approximately £20 000 and by 1940 the hospital had accommodation for sixty patients.

From this date onwards, the history of the hospital is a continuous record of expansion, increasing staff, the introduction of up-to-date medical equipment, and, very important, the acquisition of additional funds.

St. Aidan's Mission Hospital, which was initially housed in leased buildings and only in the 1930's received its own designed one, does not represent any particularly interesting architecturally example.

APPELSBOSCH LUTHERAN HOSPITAL

In 1896, the farm Appelsbosch was leased to the Church of Sweden for three years and the Reverend T.F. Ljungqvist began what was later to be its hospital where in a small way sick people were cared for, but it was not until 1931, that Appelsbosch could be accepted as a permanent hospital station.

CEZA MISSION HOSPITAL

The Ceza Mission Station, situated fifty-two miles from Vryheid, was founded by the Reverend T. Sandström and his wife, who started caring for the sick in 1903. At that time St. Mary's hospital in Kwa Magwaza was the only hospital in the whole of Zululand.

In 1911, Sister Anna Sandberg was stationed at Ceza and from 1915 a beginning was made in a more organized form.¹

The patients who came to the "hospital" had to be examined in the garden or on the veranda of the clergyman's home because no houses were available for this purpose. But instruction regarding health care and advice, and treatment was given when needed.

At first, two huts were erected at Ceza, so that the Zulu would feel more at home, one as a consulting room, the other one for patients who needed to stay overnight or for a few days. More rondavels for patients were erected when the number of in-patients increased year by year.

1. Adolfsson, M., Berntsson, A. "Ceza, a Roundabout Way to the Goal"; Orebro, Sweden, 1975.

In 1922 Sister Sandberg was joined by Anna Sharin, a midwife. A loan was obtained to build a small hospital of three rooms with sufficient space for two to four beds in each. This building was completed in 1926.

In her annual reports Anna Sandberg writes about severe epidemics which spread rapidly and widely and in which a great number of people died every year. Lack of knowledge as to the cause, contagion etc., was one reason for the rapid spread of diseases as well as the religious belief that diseases were sent by spirits and had to be treated accordingly.

Up to 1926 the number of huts for patients had increased to seven. Two small brick buildings for patients had been built early in the twenties, one for a consulting room and a delivery room, one for twelve beds, mainly for mothers and babies.

When the number of patients increased, the need for a separate operating room was felt and this was erected in the early 1930's.

In 1940 the training of African nurses began at Ceza. The hospital was enlarged and modernised in 1956.

As the number of tuberculosis patients increased, it was considered that a special hospital should be built for them.

Not far from Ceza, the Church of Sweden Mission had bought a small farm, called Ngalonde situated in a high and healthy place, where later the Thulesizwe Hospital was built and given the African name of Dr. Adolfsson.¹

1. Adolfsson, M., Berntsson, A. op. cit, p. 65.

ENDHLOZANA ANGLICAN MISSION HOSPITAL

In 1906, a small hospital at Endhlozana was started by Canon and Mrs. Mercer, with the title of "Dispensary and Side Room".

The estimated cost of the building was £60 for a dispensary and two sick rooms put into one building surrounded by a veranda. This brick and iron structure did not comprize service rooms or an operating theatre. The entrances to all these rooms were from the veranda.

In 1921, Sister Muriel Balmain arrived to help at the small hospital, which had grown into the Holy Rood Cottage.¹

ISANDHLWANA ANGLICAN MISSION HOSPITAL

This hospital building was erected in 1893 at Isandhlwana.

When the Reverend W.D. Smyth arrived at Isandhlwane he was primarily a mission priest but he was also medically qualified. Four years later, the Reverend F.W. Walters, also a priest qualified in medicine, joined the mission. As a boy he had heard of Zululand and he later became interested in serving there as a missionary. He qualified as a doctor in London in 1893 and by the end of the year he was ready to go to Zululand to work with Smith.

Not long after, he became District Surgeon of Ndwandwe (Nongoma), a position he held throughout his ministry. As he received a Government salary, he refused any payment from the Mission.²

1. Gelfand, M. op. cit, p. 201.

2. Ibid, p. 202.

This simple building, was architecturally not interesting and was demolished after 1931.

CHARLES JOHNSON MEMORIAL HOSPITAL (ANGLICAN MISSION)

In 1927, after the death of Archdeacon Charles Johnson, Archdeacon Lee was appointed in the Nqutu District.

He established his headquarters at St. Augustine's Mission station, which did not have a hospital. However, he saw the need for a health service for the people stating:

"One of the greatest calls upon my wife's and my own time was the continual and never-ceasing dribble of sick folk who came to the Mission Station for help and advice, we were never free from them. Every morning there assembled outside my office door a huddle of pathetic-looking men, women and children, some of them very ill, others not so ill. Difficult confinement cases which had defeated the knowledge of the old women of the kraals were borne in to us at the very last moment. With these my wife coped. There were teeth to be extracted, broken bones to be set, all the various and often mysterious ills which beset African flesh to be doctored, and accidents, especially bad cases of burns, to be dealt with."¹

He decided to establish a hospital in the district and because he had no money, altered two spare rooms in an outside building on the mission station into which he put a couple of beds.

A Zulu girl, who had trained at KwaMagwaza Hospital was appointed as a Matron of the hospital. A few years later, Sister Olive Cole volunteered her services.

After a few years of service, Lee realized, that the hospital was badly situated as a medical centre and that a move to Nqutu was necessary.

1. Gelfand, M. op. cit, p. 205.

Here in 1931 with the help of grants and donations from England, the Native Affairs Department and the Natal Provincial Administration, an empty stone trading store was converted into a little hospital of several rooms. It could accommodate seventy patients and was named the Charles Johnson Hospital.

These hospitals do not have any architectural value, as they were not built for this purpose, but were adopted into existing buildings.

ST. ANNE'S HOSPITAL (UMLAZI HOSPITAL - ANGLICAN MISSION)

When Bishop Gray spent six weeks in Natal in about 1846, he was concerned about the spiritual needs of the Colony and attempted to set up one of his missions here.

With the help of the Society for the Propagation of the Gospel, he sent out the Reverend H.H. Methuen with a party of two catechists and an agriculturalist.

In 1855 the Natal Government granted them five hundred acres of land near the Umlazi River and the Reverend and Mrs. R. Robertson set out to begin their first mission overlooking the river. By 1859 there was a temporary chapel and a school for African children and a little village of wattle and daub buildings.

In 1926, Mrs. Steele, who was a nurse at St. John's, started the hospital in the Mission in the kitchen of her house, where she treated the sick.

Next, small wood and iron buildings were erected, and an African nurse, Gladys Kumalo, was appointed.

This situation continued for the next eight years and in 1935 the hospital was transferred to a new position on a hilltop, still with a view of the river. Here a new, two-roomed brick and iron building, surrounded by a veranda was erected. It could accommodate fourteen in-patients and African nurses could be trained for the Hospital Certificate.

In 1838, Dr. B.A. Dormer, the Tuberculosis Officer for South Africa, considered the Umlazi site ideal for African children infected with tuberculosis and in 1940, the first open-air ward of twenty beds was constructed at a cost of £20 per bed. A three-bedded maternity ward was also completed. The next development was the erection in 1943 of a block of two more open-air wards for crippled African children.

At present, Umlazi Mission Hospital (St. Anne's Hospital) can accommodate two hundred and fifty patients.

Architecturally, the hospital does not represent an interesting example of hospital planning.

HOSPITAL	ORIGIN	TYPE OF LAYOUT	ARCHITECTURAL STYLE	INTERNAL ORGANIZATION SEGREGATION OF PATIENTS
St. Mary's Hospital KwaMagwaza	Anglican Church	Corridor-type	Cottage character	Black Hospital; sexual segregation
Rorkes Drift Hospital	Presbyterian Church	Corridor-type	Cottage character	Black Hospital; sexual segregation
St. Aidon's Hospital, Durban	Anglican Church	Two hospitals in rented cottages, third built on a corridor type	Cottage character; modern, brick and iron building	Indian Hospital sexual and disease segregation
Ceza Hospital	Lutheran Church	Corridor-type	Cottage character	Black Hospital sexual segregation
Appelsbosch Hospital	Lutheran Church	Rondavels	Rondavels	Black Hospital sexual segregation
Betania	Lutheran Church	1. Corridor-type	Cottage character with influences of Gothic Style and Scandinavian wood-work	Black Hospital sexual segregation
		2. Mixed: pavilion-type wards. Corridor-type administration and services	Colonial Style, with Dutch "Mutton Leg" Gable.	Multi-racial racial, sexual and diseases segregation, later only Black Hospital
St. Mary's Hospital Mariannahill	Catholic Church	1. 3-pavilion structure (non-realised)	Italian Romanesque	Black Hospital sexual and disease segregation
		2. Corridor-type (non-realised)	Italian Romanesque	Black Hospital sexual and disease segregation
		3. Corridor-type (realised)	German Gothic and Renaissance	Black Hospital sexual and disease segregation
Ixopo Hospital	Catholic Church	1. Corridor-type	Italian Romanesque	Black Hospital sexual and disease segregation
		2. Corridor-type	Modern, brick and iron building	Multi-racial Hospital, sexual and disease segregation.
Centocow Hospital	Catholic Church	1. Mixed : pavilion type wards, corridor-type, administration and services	Italian Romanesque	Black Hospital sexual and disease segregation
		2. Mixed : corridor-pavilion type	Modern, brick and iron building	Multi-racial Hospital, racial and disease segregation.
Zulu McCord Hospital	Established by American Missionary, Dr. McCord	1. Rented cottage of corridor-type	Cottage character	Black Hospital sexual segregation
		2. Mixed : pavilion-type wards, corridor-type services and administration	Colonial	Black Hospital sexual and disease segregation

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