INTEGRATED HEALTH CENTRE
KIRIKASAMMA
(SOLVING THE PROBLEM OF TRAFFIC IN HEALTH BUILDINGS)

BY

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DECLARATION

I wish to declare that the content of this thesis is purely the product of my research findings, minus few cases of borrowed literature which are acknowledged by way of footnoting and that the same has not been presented for an academic degree or otherwise anywhere.

NAME: Suleiman Haruna

DATE: November, 1992

SIGN:

DEDICATION

This thesis is dedicated to:

- M. Isah Suleiman (a brother and friend) whose moral and financial support I cannot recount.
- My parents : M. Sule and Hajiya Zainabu who remained undisturbed and untiring for all what this rigorous and expensive training cost them.
- Other relatives and friends inside and outside near and afar who had consiously or subconsiously assisted me in the realization of this goal.
- And most importantly to God Almighty my source of inspiration, courage and strength.

CERTIFICATION

This Thesis entitled "INTEGRATED HEALTH CENTRE KIRIKASAMMA, by Haruna Suleiman, meets the regulations governing the award of Master of Science Degree in Architecture (M. Sc. Arc.) of Ahmadu Bello University, Zaria, and is approved for it's literary presentation and contribution to knowledge.

CHAIRMAN, SUPERVISORY COMMITTEE — DATE

MEMBER, SUPERVISORY COMMITTEE — DATE

MEMBER, SUPERVISORY COMMITTEE — 16-2-93 DATE

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ACKNOWLEDGEMENT

I wish to express my sincere gratitude to God Almighty who has in his utmost mercy and bounty granted me the vigour, initiative and determination to undergo and complete this work.

Very big thanks goes to my (mentor) supervisor Architect A.S. Salisu, who single handedly made me appreciate the benefit derivable from a project like this, small as it is.

Highly important to me in the process of self-realization is our fatherly Head of Department in the person of Ass. Professor Solanke, sir I salute your assistance, May God bless you.

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A B S T R A C T

"Nigerians have perhaps quite rightly always considered their chief asset to be human resources. Planners now acknowledge the importance of human capital and have removed education from its traditional place in the 'social' services and accorded it the pride of place. Now, applying cost benefit analysis to investment in education and agree that education and training are important pre-requisite to development which is much welcome. We should however not overlook the fact that skilled and highly trained man-power cannot contribute fully to development unless it is healthy. We can therefore see that expenditure on health and housing contributes to the growth of the G.N.P. in so far as improved health and housing leads to rising level of productivity and output in the various sectors of the economy without any significant additional investment in these sectors. For " a healthy body, reasonably nourished,is essential before further productive effort can be expected.

We cannot wait until the process of economic development is well advanced before taking simple steps to help improve our environment.

CHAPTER ONE

1.0 INTRODUCTION

In every country, health-care presents different problem since it's organisation is a response to geography.climate, historical and political conditions, plus socio-economic and cultural orientation of the populace.

"In the advanced or developed World there is an established and inherited machinery for medical support and a substantial proportion of national resources devoted to health care.

The many ways in which this is done range from a system of predominantly private enterprise at one end to complete state provision at the other. It is therefore imperative to note this, when dealing with a developing economy like Nigeria, where there exist little inherited machinery of comparable scale and provision of health care in the western context has to be built on almost wholy fresh foundations.

In the developing economics of the world where there are greater problems and usually slighter resources, the deliberate organization of health care is expanding rapidly. It obeys economic and social progress from the expectations generated by education and political presures of the population.

Government authorities are impelled to frame a policy for ' health and to assume either an advisory or executive role in it's implementation.

The availability of an efficient health care/ delivery system to a people ensures its well being as health care share equal importance with food and shelter to man.

Health care is achieved through hospitals which are social institutions utilizing combinations of different scientific equipments and functions manned by trained medical, paramedical and non-medical staff that provide service to patients.

The architect has it as a duty to plan, replan or redevelop (whichever is applicable) a hospital complex so that it utilizes effectively the talents and time of the employees by providing efficient and safe service to the patients in whose interest the hospital is established.

Today, hospitals are classified into a number of categories according to the level of sophistication of services they render. Popular among these categories include: Teaching Hospitals, specialist hospitals, General hospitals and Community hospitals to mention a few.

Although it may be generally argued that the desirable theoretical basis for health care promotion is the primary, secondary and tertiary system, this pattern is more easily described than attained in practice. For it implies a hierachy of increasingly specialized establishments in which there are very many primary units. Immediately available to the individual and the family, with relatively few tertiary units which are more remote. The primary unit however presents the greatest difficulty.

Attainment of the primary unit is (very) difficult even in the economically developed, geographically knit, and demographically relatively stable societies of the U.K. How much more of the larger developing countries of the world, where economic resources are slight, the population more dispersed, distances more formidable for want of adequate roads and lack of transport or because of cultural resistance to travelling outside home ground.

Although many developing countries have embarked on programmes of nationally organized health care delivery, the problem of decentralization of establishments and their administration are such that the rural populace remain out of reach, while the better educated medical personel have chosen to always stay at the relatively few towns that has greater facilities and varied opportunities.

While it is wrong to generalize about the less developed economy of the World, knowing that they have different characteristics and varying degree of development, some measure of health services delivery problem can perhaps be reckoned with, when it is realized that in many regions about three quarters of the population is scattered in rural areas and in spite of immigration to urban centres the number is likely to rise. Many rural districts are widely dispersed, isolated and difficult to reach.

In some developing countries of Asia and Africa e.g. it was estimated in the early 1970s that the average per-capital income was rather less than one forteith of that in France and about one-fiftieth of that in the U.S.A. It has also been said for e.g. that if growth stopped in the USA while that of Bangladesh doubled annually it would take 200 years for Bangladesh to overtake the Wealth of USA.

In this context one would see that most of what the west consider to be modern health facilities is irrelevant for the majority of the people.

In the author's opinion any development policy programme that does not emphasize rural upliftment in the context of developing world is really a hollow pot. Since majority of the population live in these undeveloped but economically important settlements. Attention must be shifted away from our saturated urban centres to the hitherto neglected localities if our bid for balanced growth is not to suffer defeat.

Although there is no universally defined population figure, representative of a rural community or settlement the Nigerian 1952 census described a rural community as one with less than 5,000 inhabitants. Similarly the 1963 census recognized settlements with less than 20,000 inhabitants as rural. Socially however, the rural society is described in terms of certain (characteristic) pattern of relationships.

According to Philip Mbithi (1974), such relationship are characterized by a high degree of interpersonal intimacy. Social order is based on concensus of wills and supported by folkways, mores and religions: High moral commitments, dependency, norms, kinship obligations, neighbourhood ties and high degree of communalism. General income level is below survival margin and neglect in terms of development is self evident.

Definition of Terms

Health Centre:Is usually the 1st point of call/ contact with health service, where patients can be treated so that reference to a more specialized establishment is unnecessary. They are sometimes grouped together with accommodation for some of the social and public health services.

Intergrated health Centre:combines organized preventive services and curative ones, of the general medical practitioners.

This concept only gained wide acceptance after 1945 despite it's earlier discovery in 1920 as contained in the British Ministry of Health's Dawson's report reading '"Preventive and Curative medicine cannot be separated on any sound principle".

The health centre is regretably used to designate something that might more accurately be described as a centre reluctantly visited by people with minor sickness in the hope that they can be restored to health without having to go to hospital. Health centres are of course places for Primary Care.

The functions of the pioneer health Centre was primarily preventive and did not extend to treatment and it's nature was deliberately that of a community centre. Unlike the Health Centre/Medical Centre which as an accommodation, specially built to house a group practice of general practitioners with some ancilliary (facilities) services, secretary, and a nurse to mention a few and social health services. The integrated health centre has close links with the Local Authority.

Although the two are different they share some fundamental planning principles, albeit in a simple form more especially in the arrangements desirable for the reception of patients and for the relationship between reception desk, waiting spaces, patient's records and consulting and treatment rooms.

Functions of a Health Centre

The activities of a health centre may be categorised into three distinct types which can be arranged in sessions on daily basis or frequentlyone of these takes place at anyone time.

(a) Personal Care: That is the case of a patient who visits a general practitioner, a nurse or any other individual worker normally on his own volition/initiative to obtain help or treatment for a personal problem or ailment.

(b) Clinical Session: These consist in clinical sessions attended by a number of people and organized for a particular purpose, such as antenatal supervision or immunization.

(c) Group Activity: Refer to group activities conducted in classes, such as antenatal relaxation, keep-fit exercises, talks and demonstration.

The Health Centre as the general practioners base for home care has the potential to reach out into the community rather than being merely a place to which the community comes for help, as it is also, increasingly a base for teaching and research.

In some communities it serves as a social meeting point for mothers with young children. Particularly if they attend regular sessions and for some young mothers it may provide them easiest opportunity to meet other women, this is the more reason why a relaxed and pleasant atmosphere is crucial.

Health Care Units

"Aid post: this may not necessarily be staffed continously but visited once a week by a para-medical assistant who might see about a hundred patients on each visit and might be assisted by a nurse. With very simple requirement, it's construction will probably be in vernacular, carried out by the local community or by a mixture of indigenous and prefab, imported materials. It could be a big advantage if the building's character follow local tradition. No matter its initiators and motive the aid post may be conceived as the first element of a larger unit".

Developments in small unit will probably anticipate three roles viz: an increase in the curative treatment of out patients, the provision of beds and the co-ordination of public health services in the improvement of general health and preventive action against social diseases.

1.2 SPECIALIST HOSPITAL

Handle specified category of patients: patients with a particular type of ailments e.g skin diseases, gastro-intestinal diseases, opthalmic, E.N.T., and so forth. Such hospitals provide some of the leading centres for post graduate (teaching) education and research in their speciality. They are scarcely bedded due to limitation of services offered.

1.3 TEACHING HOSPITAL

Is a place where medical students are taught to become physicians or surgeons. It is the most sophisticated of all the various categories and invariably contain significant research facilities. Here number of beds does not indicate level of sophistication. Since arrangements for the training of medical hospital staff may differ from one country to another.

1.4 COMMUNITY HOSPITAL

This being the smallest category have provision for usually between 50-150 beds and often staffed by local governments or sometimes the state. They usually cater for patients transfered from village dispensaries. Another name for them is Health Centre. The community hospital as the names implies is concieved as an extensions of general practice and of the primary care team rather than as a devolutionary activity of the general hospital or its decentralization. It is ideally an extension of the health centre functionally and geographically alike. It is non specialized in many ways it resembles the old voluntary cottage hospital run by family practioners. The purpose of which is to provide nursing care for those who may not need the more elaborate facilities of a large hospital.

The nature and amount of accommodation that a community hospital provides will clearly vary from one locality to another and will depend upon local needs and policy. The accommodation is likely to be wards with a small proportion of single rooms supported by normal ward ancillaries with spaces for day room during occupational therapy and physiotherapy, offices, kitchen and rooms for staff including dining and changing. It is important to note that ambulant patients predominate.

Besides, providing beds a community hospital can fulfil the role of a day hospital particularly in the field of non-specialists rehabilitation therapy, this is capable of reducing the burden of long distance travel and the load on large hospital. This explanation may appear extensive but it is necessary, for our subject belongs to this category.

Units range from a centre for a small practice of two or three doctors with a nurse, secretary and a minimum of local authority accommodation probably and office for home help and some space for health education to three practices with in addition dental surgeons, physiotherapists, chiropodists, midwives and increasingly provision for the education in community health of medical students - student nurses and health visitors.

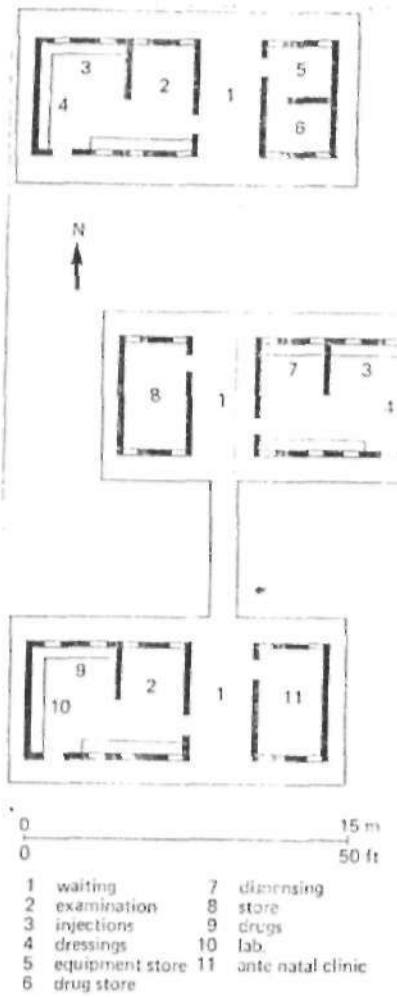
Providing building facilities that encourage integration where a centre is more comprehensive is really brainstorming, but is equally valuable when successful. For a team approach to community care does not automatically follow the assembly of different people/personel with varying responsibilities and employed by different authorities in the same building.

1.5 GENERAL HOSPITALS

These are hospitals that cater for all patients with various illnesses, the term survives because they provide medical services for all but few requiring specialists attention, they sometimes refer patients for completion of treatment at specialist hospitals. Measured in terms of bed number, their sizes range from between 200 beds to well over 1000 beds. Many general hospitals are however planned for 500-800 beds usually phased out for development purpose.

They bring together in a concentrated form most of the specialist services otherwise performed by a number of separate hospitals with more limited functions e.g. hospitals for children, women, accidents, orthopaedic etc and provides care for both in and out patients. Generally patients stay here for relatively short time and the building is normally referred to as general acute hospital.

PLATE ONE



A MODEL PLAN FOR A PRIMARY HEALTH CARE UNIT IN THE 78/84 NATIONAL HEALTH PROGRAMME FOR SUDAN.

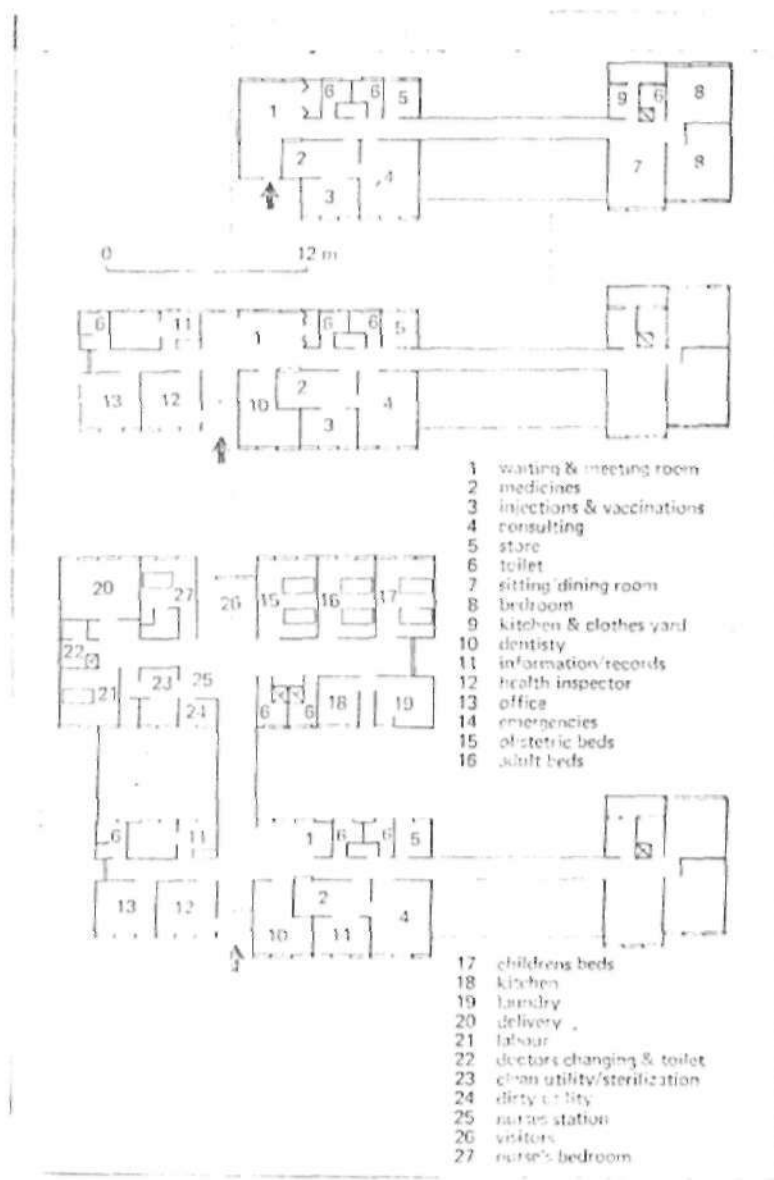
PLATE TWO



A RURAL HEALTH CENTRE TO SERVE A COMMUNITY OF LESS THAN 3500.

ARCHITECT: Abou Zeid Ragab, Cairo. (WITH ACKN-

PLATE THREE



DESIGN FROM COLUMBIA FOR THE NATIONAL HOSPITAL FUND, PRODUCED AS AN AID FOR HEALTH POSTS AND HEALTH CENTRES. STARTING WITH HEALTH POST AT THE TOP TO A HEALTH CENTRE AT THE BOTTOM.

ARCHITECT: Jorge de los Rios Mazure, Bogota.

with ACKNOWNEEDGEMENT TO WHO.

CHAPTER TWO

HISTORICAL DEVELOPMENT OF HOSPITAL THROUGH THE AGES

Hospitals as we have them today are testimonies of our anscestors struggle to remain healthy in the face of numerous ailments, sicknesses and illnesses, the art of healing is infact not a recent one in human history. From time past man has always tried to heal himself and has remained steadfast in doing so. This has resulted into a wonderful development in the field of medicine through technological advancement.

Archeological findings show that man attained a surprisingly high level of medical knowledge at certain periods of his history. For instance, the art of plastic surgery was known to the Hindu societies in ancient India. It was then employed to cover amputated nose, sequel to punishment for adultery.

Known also, was that tradition of ancient Greeks and Egyptians of laying their sick by the roadsides for passers-by to see and give advice as to how to cure the patient. Such advices were however based on experiences of the passers-by.

Gradually the art of healing became linked with gods and godesses, while temples became places for the sick.

Early as 226BC the need for area-wide planning of medical facilities was known to king Ashok of India which ideal was also employed by Duthayamini of Cylon.

King Ashok built 18 institutions and employed attendants to man them. These attendants were instructed to be clean and wear white clothes, they were also asked to provide the patients with food and medicines. Prior to this however, hippocrates - the father of medicine - born 460BC had already written alot on moral obligations of medical team members both to each other and to their patients. His writings were not compiled until 3BC despite their significance. Around that time many temples were made centres for medical practice, temple sites were usually alongside mineral waters or warm healing springs. Added to these were "Iatreia" or medical clinics in which Greek physicians, (free citizens) held consultations and treated their private patients.

These structures marked the beginning of out-patient services common to modern hospitals. In Rome, similar institutions were noted. They were temples to Aesculapius and Iatreia for private physicians and their wealthy patients.

Located on a small Island in the Tiber the temple of Aesculapius was a place where wornout, dying and sick slaves were dispatched to and left there. This practice touched the emperor (Claudius) hence his decreeing that slaves that recovered were henceforth freemen.

The result of this was the temples gradual conversion into infirmary for the sick poor and hence the pioneer in society of the hospital we know today, these infirmaries ""Valetudinaria" as they were called could be military or civilian. The former were built at the frontiers to serve the military while the latter stationed in provincial capitals served imperial civil servants and their families, they take the form of porticoed court into which rooms for the sick opened marking the beginning of a distinct architectural form.

With increasing acceptance of christianity by the people, new concepts of charity and care for the poor and the sick became prevalent in the society. During this epoch; charitable organizations within the roman empire launched what they called "Xenoclochium" where the sick and ill travellers were cared for erected in all the big cities. The excavation at Ostia in 1875 of Xenodochium built in 398A.D. revealed a defined sense of organization in it's planning. There were planned corridors linking the various units of the building. The interior courtyard was made interesting and was bounded one side by basilica and the other by patient rooms.

In Switzerland was built in 820A.D the hospital at Abbey and was then the most up to date one in recorded history. It was followed by Hotel Dieu Paris built in 829A.D. this sixwards hospital utilized four for general cases one for maternity and the sixth for canvalescence.

By 17th century the hospital already contained 5000 patients accommodated in large halls with several patients to one bed. Sanitation hygiene and or ventilation were not given due attention. Attempts were however later made by the science academy to alleviate these problems.

In 1456 the grand hospital of Mulan was built with essentially cruciform plan patients wards were so arrangedd in four segiments that allow view of the central courts, corridors were used to connect these wards to other blocks/ rooms that contain service facilities, treatment and administrative areas.

19th century witnessed a number of developments that contributed the advancement of hospitals and their planning. Writing in her book experienced and world acclaimed nurse Florence Nightingale held that bad nursing situation is not brought about by nurses themselves but by bad Architecture sanitation and bad administrative arrangements. A situation which often makes it impossible to nurse her rule of nursing is to keep the air within as pure as the air without.

The idea that sickest patients be placed in a bed nearest to nurse's station and convalescent patients further away were her introductions and gained acceptance due to their logical pupport, giving rise to what is today known as progressive patient care in hospitals. Revolution in hospital planning follow other discoveries as those of:

i) Anaethesia

ii) Disease spread

iii) Xray

iv) Principle of asepis

v) Introduction of Steam sterilization

Consequently it became necessary to build big hospitals to house large and elaborate equipments for X-ray and accommodate apparatus needed for new therapeautic methods while creating conducive room climate suitable to the therapeutic and diagnostic procedures.

HISTORICAL DEVELOPMENT OF HEALTH CENTRES IN THE U.K.

The UK example which culminated with the introduction of the National Health Service in 1948 is a notable one. The package envisaged a network of integrated Primary Health Centres, the intention then being to provide accommodation for rent by groups of general medical practitioners, nurses and adminstrative staff where they could be housed together with the staff of the preventive services of the local authority. Practitioners were however reluctant to participate in a nationally organized scheme, fearing that the proposed might be a first step towards becoming state employees prefering to safeguard their independent pcsition. But for largely practical reasons, professional partnerships or group practices increased steadily and by the mid 1960s it was estimated that only about a quarter of all general practitioners were still running individual private practices.

Growing concern about the escalating cost of hospital care on the government part made it to give more priority to (the subject) care in the community itself that is to in as much as possible make it unnecessary for patients to be treated in hospital. Here increased emphasis was placed on the importance of trying to integrate the work of general practitioners with the socially based services provided by local government. Thus, there were only ten new health centres by the end of 1958, the number rose to one hundred and ten by 1968, an increase of 100 in a decade and has subsequently continued to increase. Perhaps for financial reasons the pace had not been as rapid as might have been hoped.

Between 1972 and 1977 their number rose from 212 to 731 in England and Wales and a further 200 were planned for the future.

The number of patients a general practitioner has on his list in Britain ranges from about 1000 to 3500 on average practices using health centres comprise four to five practitioners and a group of this size is likely to serve some 15,000 patients but the size of health centres vary considerably, depending in part on their location, the extent of their catchment area, the policy of the local authority and the number and size of the local group practices that wish to be accommodated in the building.

From a rural catchment area of some 10,000 people or less at one end of the scale, the centre may cater for a population of 30,000 or more in an urban area.

HEALTH POLICIES AND PROGRAMMES IN NIGERIA

Health planning in Nigeria started in 1946, with the launching of 1946-56 Ten Year Development Plan. The plan recognized that:

"Permanent improvement in the nation's health cannot be secured by clinical medicine alone and must therefore be a steady advance in all factors contributing to a healthy life-good water supplies, housing sanitation, nutrition and working conditions (Nigeria : A TEN YEAR PLAN OF DEVELOPMENT AND WELFARE FOR NIGERIA, 1946-56, Lagos 1946. pp. 67)."

Hence the plan proposed a number of health programmes which include among others:

(i) Provision of adequate pure water for everyone.
(ii) Progressive building of environmental hygiene.
(iii) Expansion of hospital , maternity, child welfare and dispensary services, coupled with a rigorous campaign of preventive medicine in the field.

Thus, a capital sum of just over six million was earmarked for curative services (new hospitals expansion, maternity units, sanatoria and mental hospitals). Preventive services had approximately one million Naira (epidemic units and rural health centres).

Observation:

In spite of the laudable objectives contained it can be seen that the allocation of resources favoured the curative aspect implementation-wise. Before the end of the Ten-year plan however, important constitutional changes took place in the country. A federal system of government was introduced in 1954 and this brought the plan to premature end.

On the influence of rapid population growth on the provision of welfare services, as distinct from cash benefits, the chief of which are education, health and housing.

With regard to health, it is obvious that the most serious consequences of high fertility are the ill-effects of over-crowding in insanitary homes, of malnutrition and under nutrition and in particular the suffering of children and the strain on the mother of frequent child birth, often when she herself is weak and under-nourished.

Population pressure also agravates sanitation deficiencies outside home, particularly in the overcrowded urban areas, one of the results being a high incidence of communicable disease.

Pedat returns show th t there was only one doctor to approximately 18,000 people in Tanzania, 1:27,000 in Zaire, 1:31,000 in Nigeria 1:40000 in Nepal and 1:60,000 in Ethiopia. In most European (development) world there is a doctor to less than 100 heads of population.

In 1955, the Federal Government as well as each of the regional governments launched new plans. The western region for instance, introduced free medical treatment for persons under the age of 18 years.

The 1962-68 National development plan also contained very laudable objectives. The public actual capital expenditure during the plan period on the health sector amounted to ₦14.92 million. Like the preceeding plan emphasis was on curative medicine as elaborate plans were made for construction of rural health centres, dispensaries and the extension and modernization of existing hospitals. Save the anti-tuberclosis campaign which received a boost during the plan period, other aspects of preventive medicine were neglected.

In the 1970-74 second National development plan, the provision of health services was one of the two social services regarded by planners as most important. A number of health programmes were proposed for implementation during the plan period. These health policies include among other things:-

(i) The implementation of measures to restore health services and facilities damaged or destroyed during the 1967-70 civil war.

(ii) Expansion of programmes for the maintainance of environmental sanitation. To this end, community health education schemes were to be expanded to cover more urban as well as rural communities.

(iii) Development of medical manpower through the provision of appropriate training programme and facilities. The Federal and State governments were committed to schemes involving the training of doctors, nurses and other paramedical personel needed for the efficient operation of health services. The total effects of training programmes for doctors were expected to achieve a minimum of doctor/population ratio of 1:20,000 by 1980.

To achieve the proposed health programmes, government allocated 5.2 percent of its budget to health services as compared to the 2.5% allocated during the 1962-68 plan period. At the end of the plan period - evaluation of the health sector revealed that not much had been achieved. Common indicators of health status showed a deplorable situation. Parasitic and infectious disease accounted for 75% of all recorded illness. The crude death rate was estimated at about 30 per 1,000 population while infant mortality was estimated at about 150 per 1,000 population.

The doctor/population ratio stood at 4:4,200 as against a recommended ratio of 1:2,000. There were also critical shortage of other ancillary personnel that were required for the efficient delivery of health services.

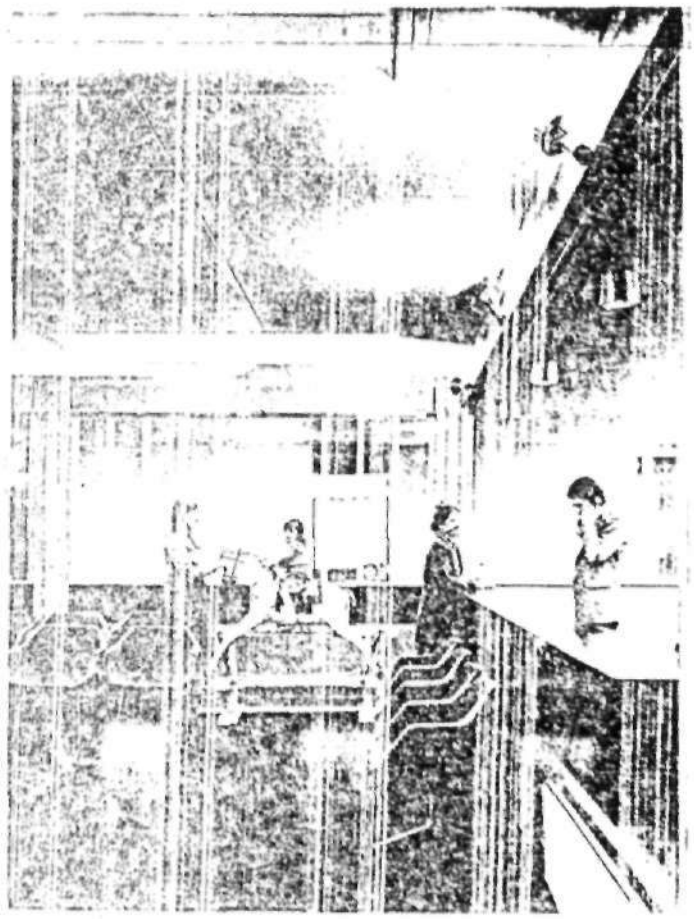
In addition, the problems of inadequate and lopsided distribution of these institutions favoured the urban areas to the detriment of the rural areas where about 75% of the population line. The few health institutions located in the rural areas were not only far away from most of the target population but also lacked the requisite equipment, essential drugs and personel.

The problem of poor management of the available health facilities was also there. This resulted in the inefficient utilization of available health facilities. There was very little communication between health personels and the communities in which they serve. Many people, therefore, were not aware of the facilities available. Health personels were also unable to identify the basic health problem facing much of the communities.

Poor management also manifested itself in the lack of integration of traditional healers who provide health services at the grass-root level into the modern health-care system. Finally private hospital and medical clinics were left to practice without any serious supervision.

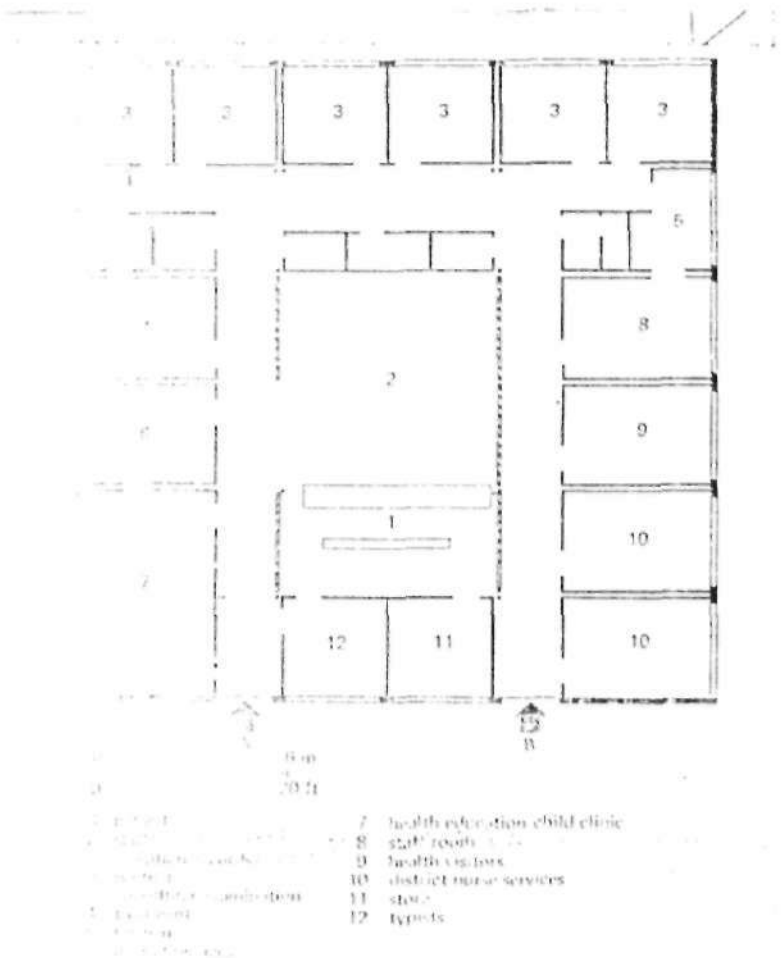
Even though quite a number of the hospitals and clinics were ill-equipped, ill-organized and inefficient, yet the government allowed them to continue to function. No effort was made to evaluate and asses the actual contribution of the private health institutions to the health care delivery system of the country.

PLATE FIVE



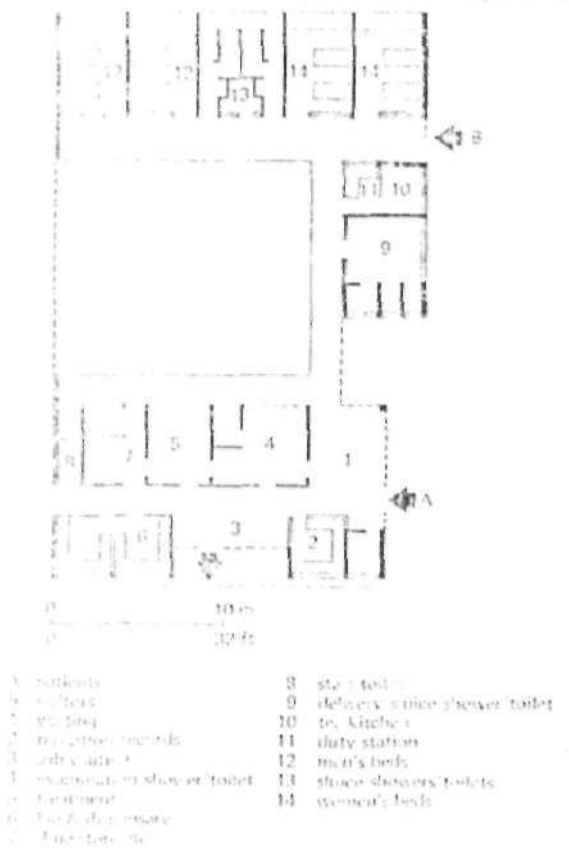
THE WAITING SPACE AND RECEPTION COUNTER AT SOUTH POPLAR.

PLATE SIX



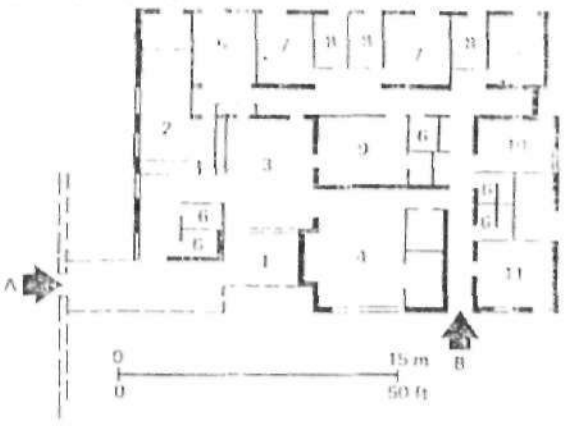
A COMPACT HEALTH CENTRE IN SOUTH POPLAR LONDON.
CONSTRUCTED FROM 16 MODULAR UNITS SURROUDING A TOP-LIT WAITING AREA| ARC: DEREK STOW & Partners.

PLATE SEVEN



A HEALTH CENTRE WITH EIGHT BEDS AND DELIVERY ROOM. WITH AN OUTPATIENT CAPACITY OF UP TO ONE HUNDRED PATIENTS A DAY.

PLATE EIGHT



A main entrance
B staff
1 pram shelter
2 reception/records
3 waiting
4 health education
5 dispensing
6 toilet
7 consulting
8 examination
9 treatment
10 staff room
11 public health nurse

A SMALL HEALTH CENTRE AT BISHOPS LYDEARD, SOMERSET, WITH '3' CONSULTING ROOMS AND SEPARATE EXAMINATION ROOMS.

ARCHITECT: B.C. ADAMS, SOMERSET COUNTY COUNCIL.

3.0 CHAPTER THREE

3.1 POPULATION GROWTH AND HEALTH PLANNING

It has been generally recognized that population is not only a determinant but also a consequence of health planning. Population parameters such as size, structure and distribution (rural-urban) are known to have far reaching implications for health planning and provision of health services. Different age and sex groups in the population have differing probabilities of sickness and recourse to medical attention. Infants and old people are known to have the highest incidence of sickness and hospitalization, therefore they constitute a very significant proportion of the total health demand. Women (on the other hand) in their reproductive years (15-49) also have a high rate of sickness and hospitalization.

The rates of sickness and hospitalization among women, especially those above the reproductive age groups tend to be higher than those for males. This is generally attributed to earlier reproductive activities. The rural-urban distribution of the effect of population also deserves close attention in examining the effect of population trend for health services, the future trends in rural-urban population distribution and the process of migration have implications for planning and provision of health services.

3.2 HEALTH SERVICES

Health, like food, shelter, drinking water, clothing and basic education is a fundamental human need. It is defined as "A state of complete physical mental and social well-being and not merely the absence of disease or infirmity".

Health services vary from one community to the other depending on the ecology, the economic base, belief system and cultural prescriptions, the socio-economic as well as the health status of the people. According to Corsa and Oakley, health services are organized activities intended to decrease the level of human disease and disability.

Health services they hold, involve four main types of activities:

(i) Personal Health Services: those provided for individuals by doctors, nurses, and health technicians to treat illness, prevent disease or disability and facilitate such normal processes as human reproduction.

(ii) Environmental Health activities: those provided on a mass basis by engineers, sanitarians and others to minimize disease and discomfort by controlling the quality of such environmental elements as water food, air and housing.

(iii) Public information and education : those provided by individual and mass media to increase public knowledge of health and of conditions affecting it.

(vi) Vital registration and health surveillance.

This classification is based on orthodox western health services. In most developing countries, however, modernity and traditionalism co-exist, hence vital health services are (also) provided by traditional medical practitioners and religious organisations to complement the services provided by the modern system. Their activities should therefore be considered in the classification of health services in the developing countries.

Health Services are provided at different levels by different agencies and specialists. In Nigeria health services are provided by the government (Federal, State and Local Government), private individuals and organisations who establish and run private medical clinics, missionaries, traditional medical practitioners who serve the majority of the rural population, religious organisations (penti-costal) pharmaceutical and chemist shops, itinerant medicine hawkers who operate mostly in the rural areas and private companies selling scientific and medical equipment. The services provided by these health units range from the prevention and treatment of diseases to research and collection of health statistics, spread of information to increase public knowledge of health and conditions affecting it and the sale of drugs and equipment for the diagnosis and treatment of disease.

3.4 POPULATION GROWTH AND IT'S IMPLICATIONS FOR HEALTH PLANNING

The age and sex structure of the population and it's rural/urban distribution are the major aspects of population that are likely to have direct bearing on health services requirements. Efforts will be made to discuss the health implications of the structure of the various population projections shown in Chapter 1, tables 1.1 and 1.2.

According to the estimates and projections, between 27 and 37 million infants, 0-4 years old are expected to be provided with health care by the year 2000.

TABLE - 1

1979-80 HEALTH FACILITIES - BASIC HEALTH SERVICE SCHEME

STATE	COMPREHENSIVE H.C 79	80	PRIMARY H.C. 79	80	H. CLINICS 79	80
Anambra	-	1	-	5	24	30
Bauchi	1	1	4	4	19	19
Bendel	-	-	-	-	4	9
Benue	-	-	9	1	24	23
Borno	5	5	-	-	24	76
Cross River	1	1	2	2	-	-
Gongola	-	-	-	-	19	19
Imo	-	1	-	4	19	19
Kaduna	1	1	-	4	20	21
Kano	-	-	-	-	20	20
Kwara	-	-	-	-	-	25
Lagos	1	1	-	4	12	17
Ogun	-	-	5	10	-	-
Ondo	-	-	-	-	20	20
Oyo	1	1	4	5	-	20
Plateau	-	-	2	4	18	18
Rivers	-	-	-	-	12	-
Sokoto	-	-	-	-	-	-
TOTAL	10	12	26	43	267	381

TABLE - 2

PROJECTION OF HEALTH SERVICES REQUIRED IN NIGERIA FROM 1985 - 2000.

TYPE OF HEALTH INST.	1985	1990	1995	2000
Comprehensive	2,012	2,390	2,839	3,371
Primary H/C	3,354	3,984	4,731	5,619
Health Clinic	20,126	23,904	28,390	33,719

TABLE - 3

PROJECTED FEDERAL GOVERNMENT AND RECURRENT EXPENDITURE ON HEALTH 1985-2000 MILLION

YEAR	PROJECTION A		PROJECTION-B		PROJECTION-C	
	CAPITAL ₦	RECUR. ₦	CAPITAL ₦	RECUR. ₦	CAPITAL ₦	RECURRENT ₦
1980*	81	91	-	-	-	-
1985	91	105	93	108	95	110
1990	103	119	108	125	113	131
1995	116	134	125	145	134	156
2000	131	152	145	168	166	185

*Actual capital and recurrent expenditure for 1979/80 fiscal year.

Case Study - Niger State

As at December 1979, there were seven general hospitals, three maternity centres, five maternity health centres, forty-three health centres, one leprosarium and two hundred and fifty-four dispensaries/clinics in Niger State. Data are now available on the health parsonels in the state.

A recent report however, gave a doctor/population ratio of 1:43,250 for the state. Progress on the implementation of the Bitss has been very slow in the state. As at the end of 1980, the state had completed only 32 health clinics, little progress was recorded in the construction of comprehensive health centres and primary health centres.

Population

According to the 1963 census, Niger State has a population of about 1.2million. The projected population for 1977 for the state as a whole was about 1.7millions while the 1980 estimate gave 1.8million. The structure of the population reflects the natural pattern in that the state has a youthful populations about 47% of the population was under the age of 15 in 1980. The size of old people is also very small and instituting only 3% of the total figure in 1980. While the working populations Constituted 51% of the population.

Infants (0-4) constituted 20% of the population in 1980, while women in the reproduction ages constituted 22% of the population in the same year.

Under the different projections the size of infant population is expected to rise from 407,900 in 1985 to 717,300 by the year 2000.

The projections also indicate a sharp rise in the number of women in the reproductive areas from 462,453 in 1985 to about one million in the year 2000. Similarly the size of the working population is expected to show a significant increase in the years already by the year 2000, the number of this group is expected to rise to about 1.8million.

The different estimates of the population clearly show that demand for health services by the various groups particularly, infants, women in the reproductive age and the working population in the state will be enormous in the future. Since this group normally constitute a large proportion of the population, adequate provision has to be made for their future health demand.

The state therefore has to intensify its training programmes for health manpower to meet the future health demand of the people of the state. With a population growth rate of 2.5% per annum, the state will need 204 doctors in 1985 and 232 doctors in 1990 to attain a doctor/ population ratio of 1:10,000 by the year 2000, the state will require 296 doctors to maintain the same doctor/ population ratio. Estimates based on 3.0 percent growth rate indicated that the state will need 215 doctors in 1985 and 360 doctors by the year 2000. Though projections have not been made for the other cadres of health personels, it is implied that their number will have to be increased to meet the future health services demand

of the people of the state.

In addition to the training of health personels, more health institutions need be provided. Table 4 show the projected number of health institutions that will be required to cope with the future increase in population.

TABLE - 4

PROJECTED NUMBER OF HEALTH FACILITIES NIGER STATE
1985 - 2000

TYPE OF HEALTH INSTITUTION	1985	1990	1995	2000
Comprehensive Health Centres	43	51	61	72
Primary Health Centre	72	85	101	120
Health Clinic	430	511	606	720

The tendency of individual medical disciplines to merge together with one another or to become interdependent suggests the need for a form that provides close relationships.

It has been well said that the first task of a health service is to reach all the people all the time at the best level of care a country can afford.

TABLE - 5

PROJECTED CAPITAL EXPENDITURE ON HEALTH, NIGER STATE (1985 - 2000) IN MILLION

YEAR	PROJECTION-A	PROJECTION-B	PROJECTION-C
1985	N5.5	₦5.7	₦5.8
1990	6.3	6.6	6.9
1995	7.0	7.6	8.2
2000	8.0	8.8	9.8

The financial implication of the above estimate is shown in Table5 above . The actual public sector capital expenditure on health in Niger during 1979/80 fiscal year was ₦4,930,000 yielding an expenditure of ₦2.72 per person.

3.5 ELEMENTS OF HEALTH

Health as a natural phenomenon vital in it's entirity for any development - concious society, must be approached through its basic elements. viz:

Mass education - consisting in the intensification of campaign on prevailing health problems and the method of preventing and controlling them, as a step toward achieving total health in the society.

Proper Nutrition and Promotion of food supply - this can be realized if people are taught the principles of agricultural practice. The role of various crops produced as foods in the body chemistry. For which full knowledge of problems is necessary.

Adequate water supply and sanitation - this of course is an aspect of preventive medicine. Food clean drinking water basic sanitary considerations and the like are problem - diminishing factors, when viewed with understanding.

Material child health care and family planning - number of children and the provision for their needs is a relationship is a factor that has since deserved serious attention. Family planning eliminates poverty, sickness and undue malnutrition.

Immunization against major infectious diseases.

Prevention of locally endemic diseases.

Appropriate treatment of injuries and common diseases.

Essential drugs promotion, all of which constitute total health.

The principal means for realizing these elements are political will, community involvement, multi-sectoral-action, appropriate technology. Even distribution of health resources and total coverage of the entire population for health is wealth and prevention is better than cure. It is even cheaper.

Most countries expend their hard earned financial resources on the training of new doctors and building hospitals, (general and specialist) which are secondary and tertiary approaches, respectively to health problems which could otherwise be prevented at the primary level.

Safe Drinking Water

For any health campaign programme to attain fruition provision of adequate pure and safe drinking water is necessary. Since a sizable proportion of the diseases prevalent in the developing world and elsewhere are water-bone.

Decent Housing

The emphasis on planned and adequately ventilated houses, is not without reason; cerebro-spinal meningitis among others is a deadly health problem whose known cause is excessive heat; associated with unventilated wrongly planned development that is why people must be concioutized of the need for planning.

Immunization

Here we discuss the essence of E.P.I. which is set to eliminate the carnage of threatening infectious diseases, such as cholera, polio, measles scabies, cerebro-spinal menininingitis etc. Although more of a preventive measure immunization is a necessary obsession for primary health care crusaders.

Health Education

Enlightening the populace on the nature of prevailing health problems, preventive method and the techniques of control is perhaps the most effective way of attaining sucess in health campaign at national and international level alike.

Nutrition and Food Supply

An analytical examination of how food is consumed and subsequently used by the body and or the state of being provided with food is a necessary engagement if health must attend our lives. Here selection of appropriate food types is very important.

There exist four/distinct categories of food each of which has a peculiar role in the human anatomy. These include proteins, vitamins, carbohydrates (starch) fats and oils. Total absence of one, even when the other threeare present in sufficient quantity can be catastrophic. Certain foods are particularly reach in one or two of the above list, hence the necessity for this knowledge at individual level.

Child Health Care

Maternal child care and family planning is a necessary ingredient of good health campaign. This is obviously vital in the upbringing of future leaders for a better tomorrow.

Basic Sanitation

Involves the general cleaning of the immediate environment, provision of adequate drainage channels and gutters to mention a few. They are essential for a thorough health campgain.

Sanitation when organized on a pedantic scale does not only stop at the aforementioned but include the general cleanliness of dishes, spoons and other utensils; hence the need for adequate water supply to meet sanitary requirements.

Essential Drugs Promotion

With the above elements entrenched, promotion of essential drugs for both preventions and control of diseases becomes necessary. Injuries and other matters of emergency are not excluded.

Here erection of health buildings such as health centres, dispensaries and clinics become inevitable and within any of this therapeutic envelopes, the extent of curative services depend on the weight of the unit, the shortcoming of one centre may be the credit of another.

The controversy between curative and preventive medical services is common in most developing countries. At a symposium in Makerere on "Medicare in Developing Countries" this problem was fully examined and an attempt was made to compare the contribution of a health centre and a hospital to general health of the community. For which purpose a health centre was defined as:
"A health unit which provides a family with all the health services it requires other than those which can only be provided in a hospital. An essential aspect of such a centre is that it takes its services and exerts it's influence outside it's own precincts right in the very homes of the prople themselves. Once it fails to do this, and it's staff stop visiting surrounding villages, it is no longer a health centre. It undertakes preventive services like immunization, environmental sanitations, better child care and early diagnosis."

The symposium found that health centre facilities can be provided for 1,000 people for £800 a sum ofthat would only provide them with about a quarter of a hospital bed: that is one that can be used for average of 17 patients a year.

The elements of health care brought together comprises the hospitals and specialized services (at the secondary and tertiary levels), family practitioner services - school health services and personal health which together with environmental health are the responsibility of local government.

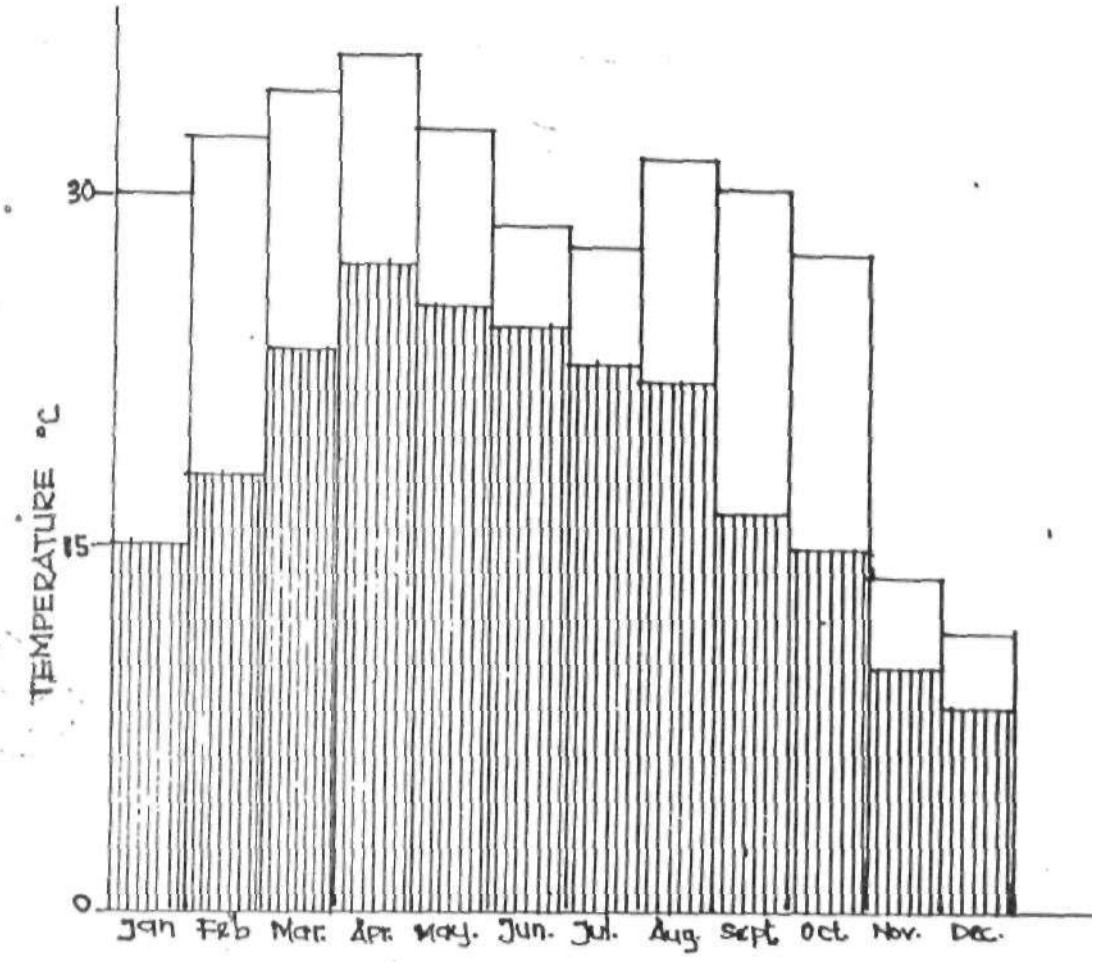
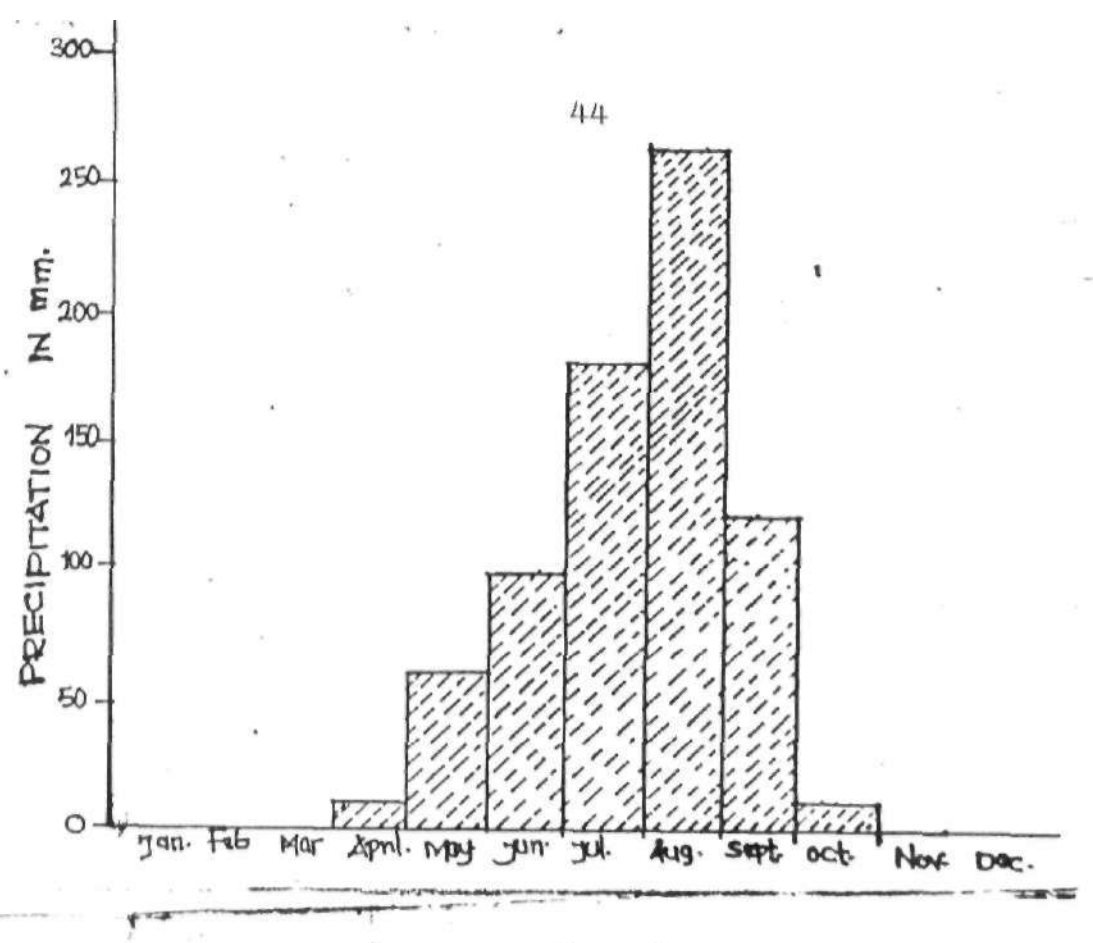
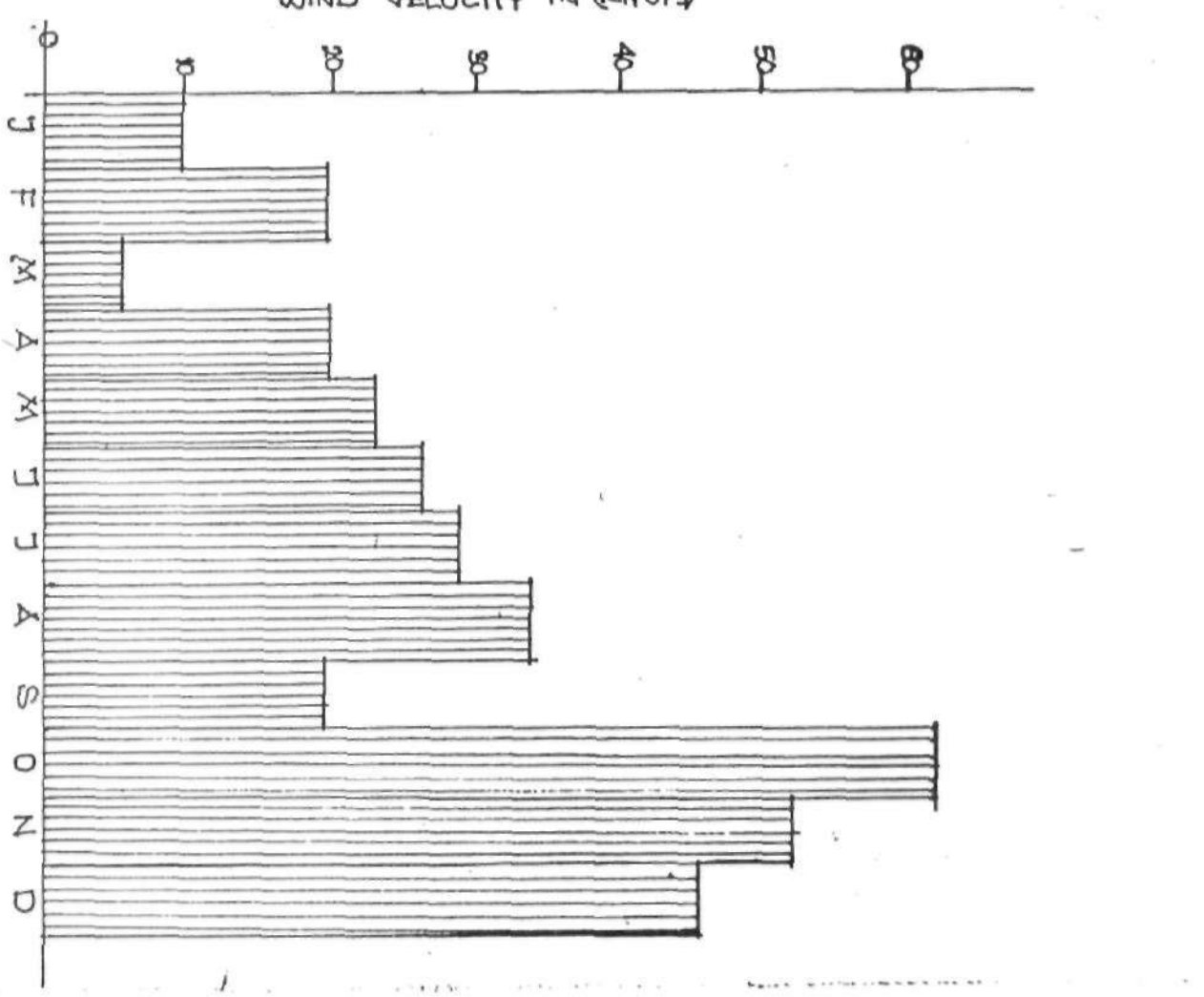
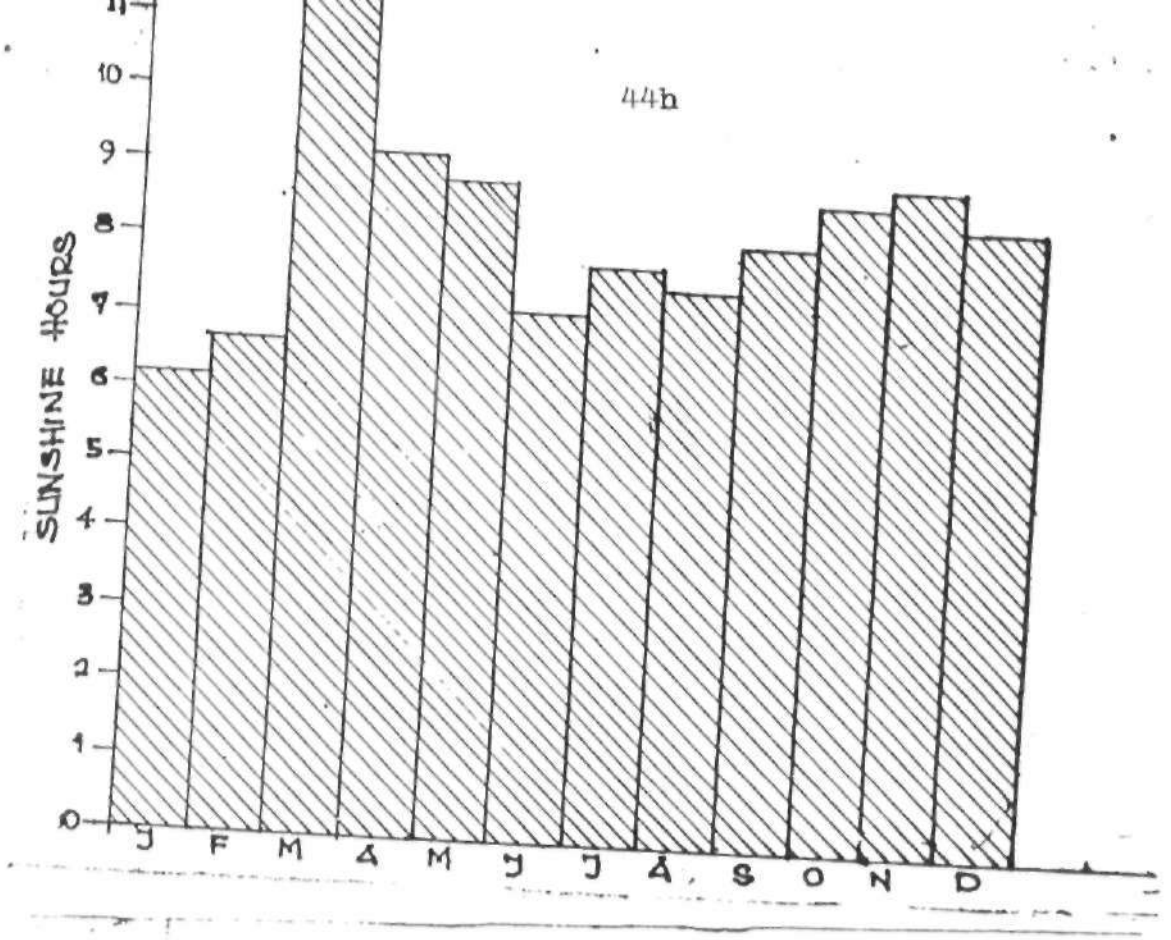
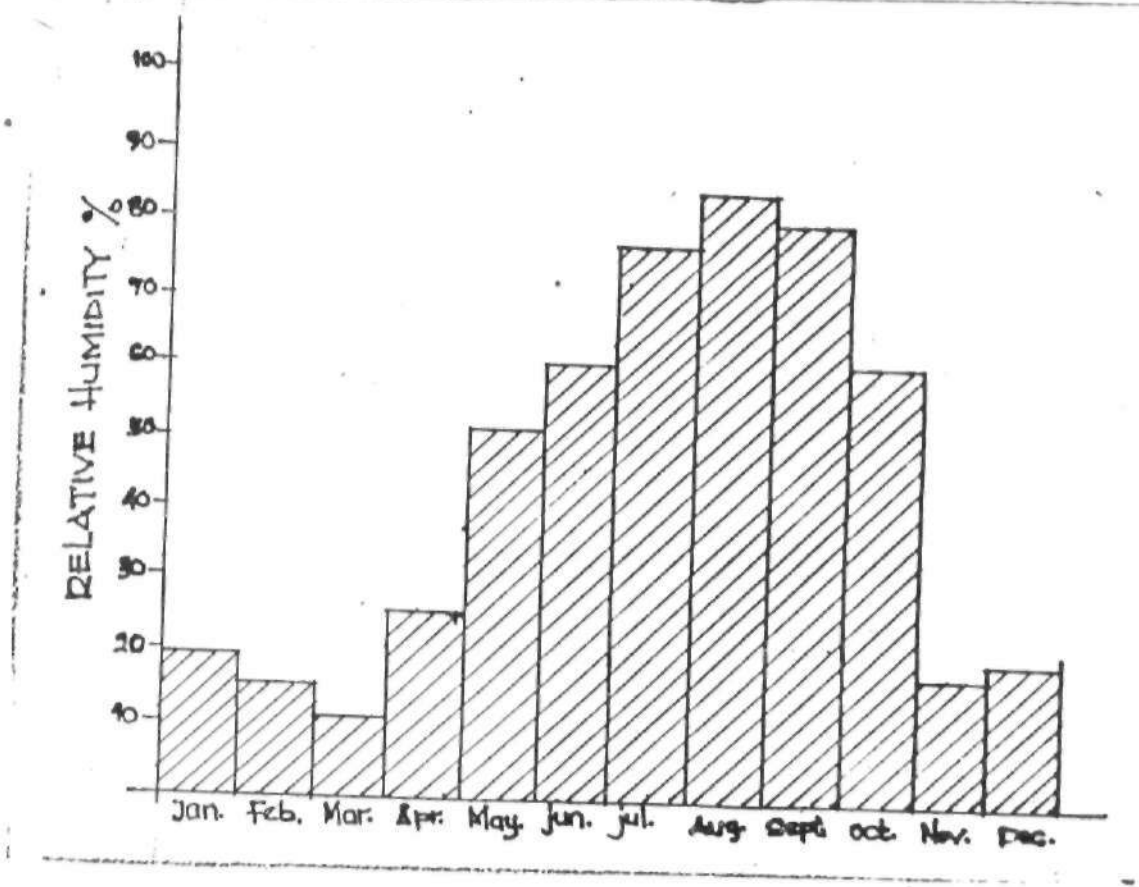


FIG 1 GRAPH OF MEAN AVERAGE TEMPERATURE MAXIMA & MINIMA


PRECIPITATION IN mm.
300
250
200
150
100
50
0
jan. Feb Mar Apnl. May jun. jul. Aug. sept oct. Nov Dec.


WIND VELOCITY IN (KNOTS)
0
10
20
30
40
50
60
J
F
M
A
M
J
J
A
S
O
N
D


SUNSHINE HOURS
0
1
2
3
4
5
6
7
8
9
10
J F M A M J J A S O N D


RELATIVE HUMIDITY %
10
20
30
40
50
60
70
80
90
100
Jan. Feb. Mar. Apr. May. Jun. jul. Aug. Sept. oct. Nov. Dec.

4.0 CHAPTER FOUR

4.1 CASE STUDY I

4.1.1 Comprehensive Health Centre Birniwa

The centre was built by the then Kano State Government through its Health Ministry as part of an organised scheme to extend health care services to every nook and corner of the state by the year 2000 in line with the W.H.O. declaration. It was conceived as solution to the health needs of Birniwa local government citizens residents at primary level. Right from its inception till date growing importance has continued to grace its existence.

This however does not mean that quest for extension or expansion has never been aired.

4.1.2 Architecture

Functionality is the most primary consideration in the design of health centre, next to which comes simplicity in circulation. This of course is the yard stick to measure the excellence or otherwise of a health building.

In the case of comprehensive health centre Birniwa although a converted structure, alot has been acheived in the zonal distribution of functions and flow of activities; much however is left to be done. Below is an itemized list of critism for and against the centre.

Merits

(1) Free and simple circulation pattern

(2) Functional clarity of spaces

(3) Minimized (shortened) walking distances on the part of patients and staff as well.

(4) Sexual segregation in the nursing unit.

(5) Theatre (operating) prominence and centrality vis-avis the wards.

(6) Peripheral location of toilets.

(7) Commendable employ of courtyards as day spaces.

Demerits

(1) Inadequate segregations of the male and female users of the centre.

(2) Insufficient silence and privacy for the theatre.

(3) Location of isolation block inappropriate with regard to risk of cross-infection.

(4) Lack of clear geographical division between the O.P.D. and the in-patient department.

An Appraisal of Individual departments

The O.P.D. - this is as earlier observed not properly and clearly demarcated from other units, certain qualities in it however, deserve commendation:

(1) Like in many a health centre it is situated in the front row of the entire scheme. This eliminates the problem of congestion.

(2) It is served by an ampful waiting area a number of courtyards to thoroughly ventilate rooms, and diffuse traffic.

(3) There is an ingenious segregation of patients at the pharmacy unit, by the disposition of its receiving windows.

(4) Consulting rooms are few in number as patients have to in most cases invade the C.H.O.'s office.

(5) Distribution functions does not seem to obey any established order.

Nursing Units

(1) There exists practical separation of male and female ward.

(2) There is gradual transtition from the female ward at the rear through the maternity and paediatric to the male ward this may enhance flexibility.

(3) The noisy and traffic generating children wards is given partial isolation to minimise noise level in the nucleus.

(4) Centralizations of nurses station in the female ward is meritable as such arrangements facilitates observability of bed fast patients.

(5) End-wall on the other hand hinders even attention for patients as in the male ward.

(6) The nightingale concept of design employed in the wards is commendable and acceptable to the users.

(7) Location of the isolation ward, enclosed by female O.P.D. section, female ward, the operating theatre and the radio-diagnostic department is unhealthy.

Ancillary Services

(1) Other than a laundry/kitchen and central store ancillary services as mortuary maintainance unit, kitchen laundry are lacking. Although it may be argued that the centre is a converted one enough time has elapsed for the introduction of such.

(2) Although, absence of some of the above named facilities may be justified by the need to obey - referal demand, bed capacity in the centre is enough to necessitate their presence.

Lighting and Ventilation

As a tropical design, in a developing country the accommodations are better ventilated and lighted naturally. This has been achieved by on obstructed thorough flow of air and sunpath:

- Almost all rooms in the complex enjoy cross ventilation.
- All openings are glazed, this provide adequate daylighting.

Fenestration

- The arrangement of openings on wards external walls is appealing. Minor few cases of staggered toilet windows.
- While almost all windows are recessed, the advantage is most felt on east and west direction.

Construction and Materials.

- The floors are of concrete finished with cement screed or granolithic floor finish in the wards and theatre.
- Walls are of hollow sandcrete blocks. And bonded in the stretcher system.

- Roofing is of zinc sheets all through, but hidden in most cases by abutement walls at gable ends.
- Roof construction is predominantly of double-pitch system with very few cases of monopitch.

SCOPE

(a) Administration unit, comprising of:
  (i) C.H.O.'s (Community health officer's office)
  (ii) Medical Officer
  (iii) Medical Admin Secretary
  (iv) Supervisor of health
  (v) Seminar room.

(b) Public Health:
  (i) Public lecture hall
  (ii) Class rooms
  (iii) Public health office
  (iv) Field nurses room
  (v) Immunization.

(c) Maternity Unit:
  (i) Reception
  (ii) Waiting area
  (iii) Nurses duty room
  (iv) Sluice
  (v) Labour room (toilet and shower)
  (vi) Sterilization room
  (vii) Delivery room
  (viii) Squat
  (ix) Traditional birth attendants.

(d) Operating Department

(i) Reception

(ii) Patients waiting

(iii) Changing room

(iv) Scrub-up

(v) Anaethesis

(vi) Operating circle

(vii) Sluice

(viii) Sterilizing.

(e) Female Ward:

(i) Surgical ward

(ii) Treatment rooms

(iii) Nurses duty room

(iv) Courtyard

(v) Toilets and lobby

(vi) Sluice

(vii) Medical ward.

(f) Male Ward:

(i) Surgical ward

(ii) Treatment ward

(iii) Nurses duty room

(iv) Courtyard

(v) Toilets and lobby

(vi) Shower

(vii) Sluice

(g) Emergency Unit:

(i) Ambulance walk in

(ii) Consulting

(iii) Treatment/Dressing.

4.1.3 Scope

The centre which has 56 beds on the whole comprises 13 departments/units as under:

(1) General O.P.D.
(2) X-ray department
(3) Pharmacy
(4) Polyclinic
(5) E.P.I./O.R.T. unit
(6) Theatre
(7) Maternity
(8) Male ward
(9) Female ward
(10) Peadiatric ward
(11) Laboratory

4.1.4 Staff Composition

The list of the administrative staff most of who serve as medical or paramedical personels include, in the order of hierarchy:-

(1) C.H.O. (senior, principal etc. community health officer: charged with two broad responsibilities v.s technical and administrative.
(2) Medical Officer, in charge of all medical activities and the head of that section.
(3) 8 community health supervisor ; for wards and clinics.
(4) Community health assistants 16No.
(5) Clinical assistants 8no.

(6) A pharmacist

(7) 1 or 2 pharmacy technicians

(8) X-ray technician 2no.

(9) Laboratory technician 2no.

(10) Medical record officer : who keeps record of statistical data.

(11) 2no drivers.

(12) 40no. ward orderlies

(13) Security guards 15no.

(14) Operators 3no.

TABLE - 6

C.H.C BIRNIWA STATISTICAL DATA ATTENDANCE BY SEX GROUP, 1991

MONTHS	MALE	FEMALE	TOTAL
January	16,200	18,140	34,340
February	12,600	15,212	27,812
March	12,114	14,920	27,034
April	14,210	14,814	29,024
May	13,326	14,014	27,340
June	12,300	14,126	26,426
July	10,204	11,013	21,121
August	10,108	12,138	22,246
September	12,824	13,012	25,836
October	11,191	12,664	23,855
November	10,430	12,122	22,552
December	12,654	14,200	26,854

*Source: The C.H.O. Birniwa Comprehensive health centre.

4.2 CASE STUDY II

4.2.1 Comprehensive Health Centre: Prototype K/Hausa

Location : site for the project is hypothetical, as the idea is to ensure its gradual implementation in all deserving settlements throughout the state; as part of the federal government policy for total health attainment by the year 2000.

Accessibility : depends on the particular project town. It must however in any case not be remote to the major road reaching the community.

Lighting : adequate natural lighting is achieved via glazed openings that face either the total exterior or open air courtyard in the heart of the complex.

Ventilation : combined effect of courtyard and orientation is a quality that solve. ventilation problems. Most rooms have openings on opposing walls. This is in line with building approval standards.

Expansion : a health building is one that must be expansion concious in its planning. As such adequate provision has been made in the form of corridors which can be continued with addition of subsequent units.

Also noticeable is the size of sites, reserved for the development in almost all the sites this author visited in the course of research, most of which are capable of containing projects 3 times the size of this.

Scope : The scheme comprises, an O.P.D., nursing unit, radio diagnostic, administration and accommodation for health education.

Concept : the concept employed is the pavillion spread, which is agreed to be suitable for tropical conditions. Especially if it is aided by courtyard as in this case. The structure consist in two main strips of building that is connected by other strips to form a courtyard.

It is worthy to note that this scheme is the completed form of the prototypical design proposal approved by the Federal Ministry of health which was to be implemented in three phases in line with growth in the host community and it's catchment area.

The development is to start with basic health clinic, which provides only out-patient services. Usually manned by a senior clinical assistants and a team of two or three clinical assitants. Some traditional birth attendants may be included to handle delivery cases that are not complicated.

The second stage - health centre, involves the upgrading of basic health unit by the addition of block C which provides wards of 14-16 beds : comprising male, female, children (paediatric) and maternity ward.

The third stage - comprehensive health centre : Integrates blocks A, B^2 and D into the aforementioned.

Block 'A' - Provides for administration kitchen and store.

Block 'B_2'- Contain the theatre and related services.

Block 'D' - provides additional wards hence some parts of block 'C' is converted to laboratory and X-ray units.

Although this scheme of development is the one approved by Federal Ministry of Health, individual governments, state or local can modify it to suit their peculiarities.

In Kafin Hausa however, despite cultural specificity, every stage had been implemented as designed, and what we have is nothing short of the proposed design with the following accommodations:

(1) Reception 2no.
(2) Main Waiting 2no.
(3) Consultation and exmination rooms 4no.
(4) Subwaiting areas 2no.
(5) 2no. injection and dressing rooms
(6) First stage labour room
(7) Delivery room
(8) Plaster room
(9) Ambulance walk-in
(10) Theatre suit
(11) Wards (male, female, cot and maternity)
(12) X-ray room and dark room
(13) Kitchen
(14) Laundry
(15) Store

(16) Clean utility room

(17) Autoclave pack

(18) Ante-natal consulting and exmination

(19) Family health consulting

(20) Courtyard.

Critique:

Concept : the pavillion spread concept employed to enclose a courtyard makes possible the achievement sufficient daylighting, and natural ventilation thereby saving on energy.

Architecture : the complex comprises two strips of traditionally roofed, single storey buildings connected by two other shorter strips perpendicular to the first ones. It is domestic in out look and appealing in it's exposure of the roof structure.

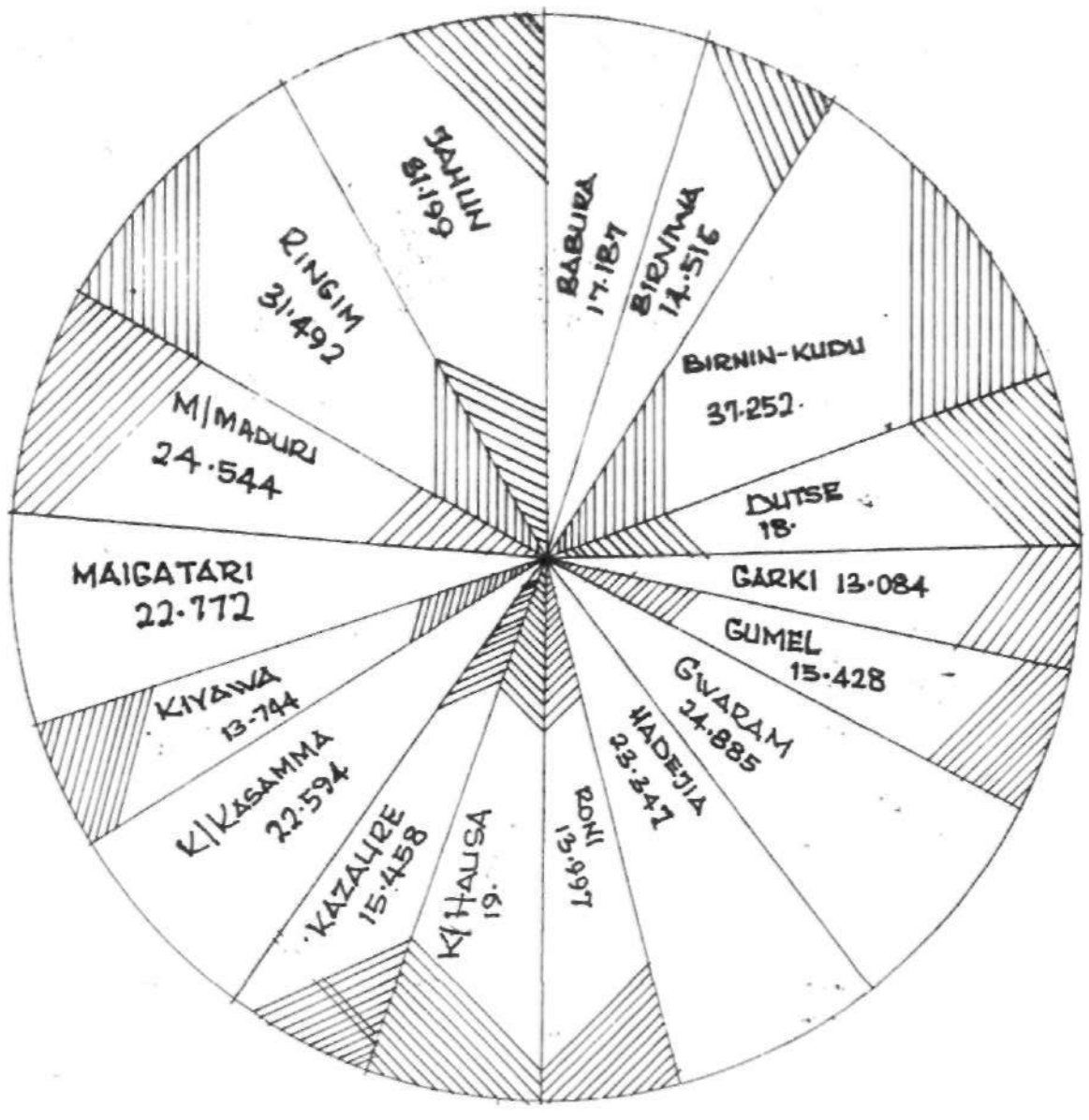
Structure : there exist a noticeable extravagance of columns spaced 3 metres a part all around the building perimetre. This looks awkward, especially where it does not determine the position of main structural walls.

Circulation : there is adequate space for circulation throughout all units. The streets, 2m wide allow for uninterupted flow of 3 at once. Although this is acceptable it fails to distinguish between places needing more circulation space than others.

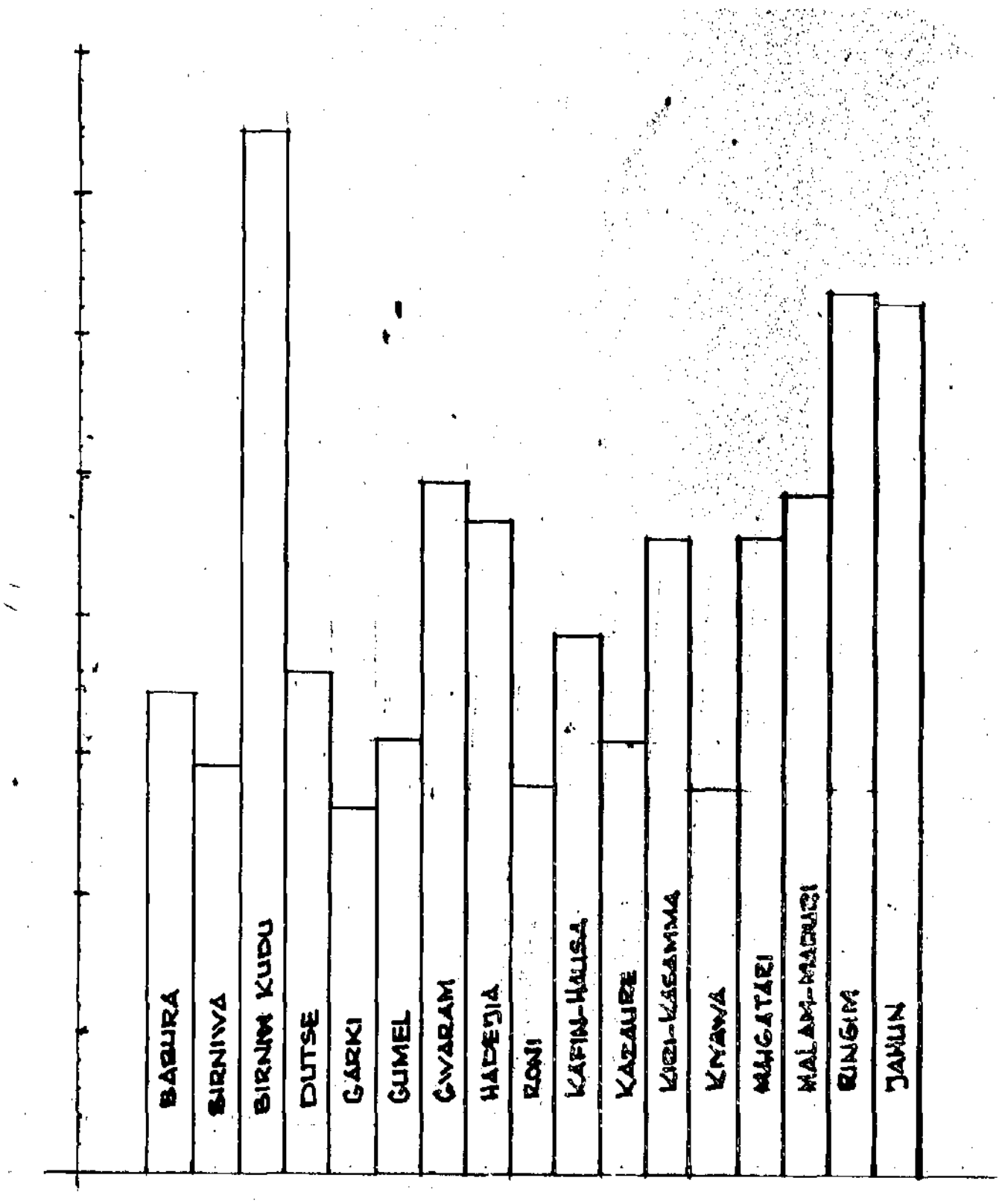
Drainage : this is chanelled via gutters that run along the perimetre of the building.

Segregation : this as observed in the O.P.D. is commendable and acceptable to the users.

In the in-patient unit (wards) however, it is allowed to suffer defeat by adjacent (location) situation of the male and female wards. i.e sharing common wall.



PIE-CHART OF POPULATION DISTRIBUTION



A HISTOGRAM

POPULALATION DISTRIBUTION BY LOCAL GOVT.

IN JIGAWA STATE 1991.

5.0 CHAPTER FIVE

5.1 THE PROJECT TOWN

5.1.1 Socio-economic and Cultural Survey of the Protect Town

Peopling - Kirikassama local government which has Kirikassama as it's headquarters, comprises of five major ethnic/tribal groups. They include the following in order of dominance:-

(1) Kanuri - 40%
(2) Hausa - 20%
(3) Fulani - 20%
(4) Girimawa - 15%
(5) Badawa - 5%

Other tribal groups outside these categories are considered emigrants who came from near and distant destinations, notable among who are the Yorubas, Ibo and northern minorities.

The relative proportion of these group is represented by a pie chart as under.

The current population of Kirikasamma as revealed by the 1991 population census provisional results is as under -

- Male populations = 92,535
- Female " = 85,073
Total " = 177,608

Religion - The indigenes of K/K local government are essentially muslims. There however, exist sizable proportion of the very rural populace that practice Islam alongside other ancestral rituals, which Islam frowns at. This group of people form the bulk

of traditional medicine-men available in this locality.

The practice of traditional medicine in this locality is as old as the society itself. It has for time past remained the primary source of health service which has astonishingly proved effective. Currently however the resurgence of Islam and the wave of reformation sweeping the north, have unleashed serious attack on its patronage.

The main difference between the two are administrative and procedural. From a broader perspective traditional medicine is a harmonious blend (accidental though) of science and magic, otherwise science and magic are supposingly antagonistic and because of it's uninstitutionalized stance it remains gradeless thus no accredited certificate is officially awarded.

Activities

Prominent activities common to this locality are of 2 or 3 kind versus :- economic, social and cultural.

The economic aspect relates mainly to occupational engagements : popular among them are -

- Farming - Arable and livestock
- Fishing
- Pottery.

Farming : this can be further subdivided into rain and dry season farming. The former commences with arrival of rainfall every year usually in the month of May, through June, July, August and September. Almost all the people get involved directly or indirectly, and it can be maintained that nearly 70% or thereabout of the population

participate directly annually. Although the nature of production is basically subsistence it is on record that a sizable proportion of harvested crops find their way into distant markets.

The dry-season farming on the other hand is clearly export-oriented (commercial). This however does not signify that none of the grown crops serve domestic purposes. Proceeds such as what rise, cassava and a host of vegetables come from in this type of excercise. Their role in the economic well-being of the society is very tremendous, as such that it can well be concluded that the financial strength of all waterlogged communities of the locality lies in this aspect.

Fishing: The second main occupation of the indigenes is truely another money making venture for he/she who dares. It's chain of beneficiaries range from the real fishermen, the retailers to consumers.

It is common to find fresh fish being fried along street sides in the main town and other smaller towns, for domestic markets and distant ones, just as it is normal to notice the same fresh-fish being sub-dried or baked for very distant markets and storage purposes. Similarly, consumers who prefer boiling it fresh, enjoy the freedom of meeting their demand.

To some people fishing can become a hobby but here our concern is it's occupational significance. It is of course a major income earner.

Pottery : Another major occupation associated with the riverine areas. It is most commonly done by the womenfolk and has earned a lot of recognition for them. This sector provides job for well over 20% of the populace. Apart from economic advantage, it occupies a very important position in the area of artworks. It is often associated with other indigenous crafts as mat-weaving, knitting, production of sisal containers and local-fans.

Others : Other occupational activities, prevalent in this locality include, retailing, service works, animal-husbandry and a host of others that are not particularly peculiar to the region.

CULTURAL ACTIVITIES

Viewed from a wider perspectives, it embraces almost all aspects of the people's life. In the interest of precisions however we dwell on the issue of dressing, music, relations and spiritual engagement.

The dominant mode of dressing derives its essence from Islamic principles, the main religion of the indigenes. The Arabian oriented caftan and the traditional babbanriga made from what ever material (cotton, silk) is available is ideal to the men-folk. While the females employ gumaji an unusually long magzie and a topping, extended social relations with migrant and distant communities had however saw to the employ of other dressing mode as wrapper and buba : among the Kanuri women.

Fulani men on the other hand use yar'shara a lighter gown, while their womenfolk employ a shinner version of the Gumaji. (A long magzie worn by Kanuri women).

Music/Entertainment

Most of the musical activities and or performances involve participation not only by the producers but also interested spectators. Such musical performances are associated with specific categories of drums:

(1) Kalangu : Comprising of smaller drums, and beaten usually during marriage and naming ceremonies. It is also used to celebrate festivals and occasional dancing performances by teenagers for economic gains on the drummers part.

(2) Ganga : Usually big, and beaten in conjuction with Kanzagi to celebrate and mark the commencement of the annual wrestling bout that follows good harvest season. A known tradition of the kanuri's. This same 'ganga' is employed albeit in another form by the Fulani's during 'sharo/ slaadi' a gut and ego boosting performance characterized by crudely organized application sticks to test endurance.

A seasonal activity, this exercise delivers the adolescent into adulthood within his fellows, and is often speculated that a male adult that is unable to adapt to this tradition may find, encounter difficulties in bid to marry.

TABLE - 7

NATIONAL CENSUS 1991

STATE	TOTAL	FEMALES	MALES
Abia	3,698,144	2,583,063	1,115,081
Adamawa	1,869,911	987,864	882,000
Akwa Ibom	5,432,914	3,866,636	1,566,278
Anambra	4,875,456	2,955,445	1,920,011
Bauchi	1,844,545	1,025,565	818,980
Benue	1,854,991	1,026,102	828,889
Borno	1,633,921	876,746	757,175
Cross-River	4,349,392	2,966,305	1,383,067
Delta	3,453,921	2,030,396	1,421,797
Edo	4,981,675	2,784,970	2,196,705
Enugu	4,453,263	2,696,965	1,756,298
Imo	5,653,104	3,175,565	1,756,298
Jigawa	1,854,295	974,694	879,601
Kaduna	4,244,435	2,346,212	1,898,223
Kano	5,442,433	2,986,243	2,456,190
Katsina	1,999,944	1,047,338	952,606
Kebbi	684,445	987,765	696,680
Kogi	1,876,986	988,765	88,223
Kwara	3,552,335	2,033,995	1,518,340
Lagos	11,324,304	6,255,244	5,119,060
Niger	3,003,791	1,775,594	1,228,107
Ogun	5,659,374	2,999,495	2,659,879
Ondo	6,545,521	3,528,445	3,017,076
Osun	6,672,114	3,433,343	3,238,771
Oyo	7,654,123	4,646,177	3,007,946
Plateau	7,658,969	4,006,924	3,592,645
Rivers	6,323,834	3,654,403	2,669,431
Sokoto	2,442,345	1,455,556	986,789
Taraba	2,765,499	1,855,317	910,462
Yobe	1,435,627	785,656	151,123
Abuja FCT	1,345,447	785,656	649,971
TOTAL	126,635,330	72,991,110	53,644,220

*The Ouardian, Monday, May 11, 1992 p. 27.

TABLE - 8

1991 POPULATION CENSUS PROVISIONAL RESULT
JIGAWA STATE

L.G.A. NAME	MALES	FEMALES	TOTAL
1. Babura	66,790	68,314	135,104
2. Birniwa	55,902	58,205	114,107
3. Birnin Kudu	147,491	145,347	292,838
4. Dutse	73,772	74,602	148,374
5. Garki	51,053	51,796	102,849
6. Gumel (1)	61,466	59,812	121,278
7. Gwaram	99,411	96,207	195,618
8. Hadejia	95,049	88,478	183,527
9. Jahun	120,981	128,834	249,815
10. Kafin Hausa	75, 169	74,544	149,713
11. Kazaure	61,934	59,582	121,516
12. Kinkasamma	92,535	85,013	177,608
13. Kiyawa	53,701	54,343	108,044
14. Maigatari (2)	91,409	87,933	179,006
15. M/Maduri (5)	99,409	93,528	192,937
16. Ringin (4)	119,216	128,337	247,553
17. Roni (5)	54,774	55,268	110,042
TOTAL	1,419,726	1,410,203	2,829,929

(1) Including part of Sule Tankar-kar

(2) Including part of Sule Tankarkar

(3) Including Kangama

(4) Including Tanra

(5) Including Gwiwa.

*Source: Saturday, April 4, New Nigeria Newspaper

Existing Health Facilities

Currently there are two health facilities viz:

- The earlier Dispensary)
- The primary health care centre) Kirikassama
- The primary health care centre) Guni

The above have proved incapable of meeting local demand for health care as such tireless calls have been made by residents and concerned people on the governments local and state to do something.

Presently patients with serious cases had to go to Birniwa or preferably Hadejia, these places are by all standards too distant for a patient who need immediate medical attention. The cost of transportation and it's inconveniences is equally another obstacle that deprive villagers of health services.

TABLE - 9

MEDICAL AND HEALTH - KIRIKASSAMA LOCAL GOVERNMENT

Attendance by sex groups in the year 1990 at the Health Care unit and the dispendary.

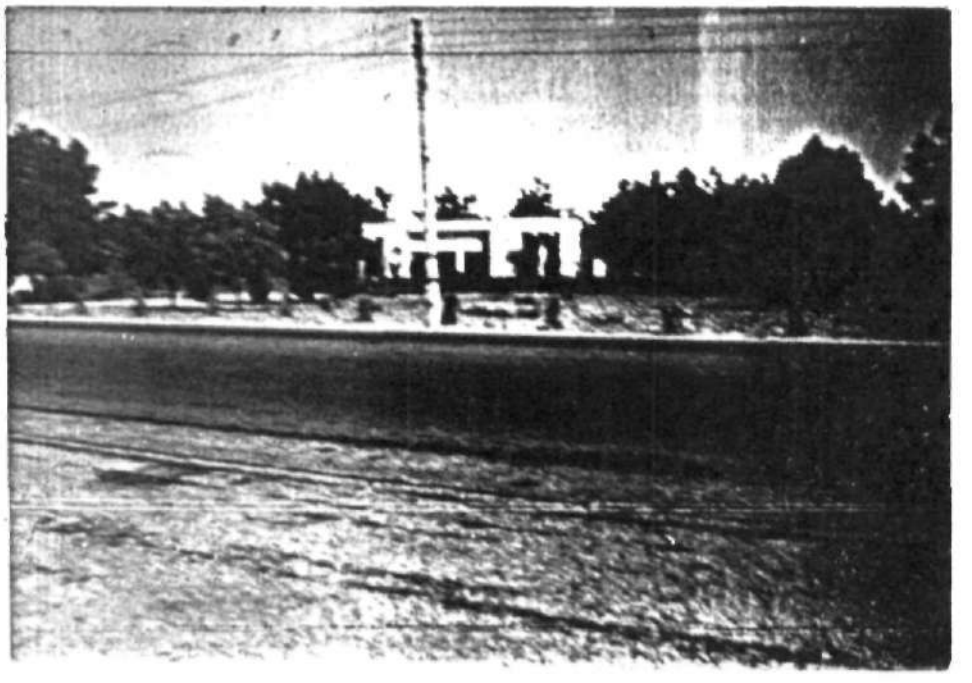
MONTHS	GRAND TOTAL MALE	GRAND TOTAL FEMALE	REMARK
June	5,650	5,845	11,495
July	6,300	5,690	11,990
August	5,000	6,000	11,000
September	5,390	5,710	11,100
October	5,240	5,526	10,766
November	5,185	6,440	11,625
December	5,000	5,400	10,400

ITEM 9



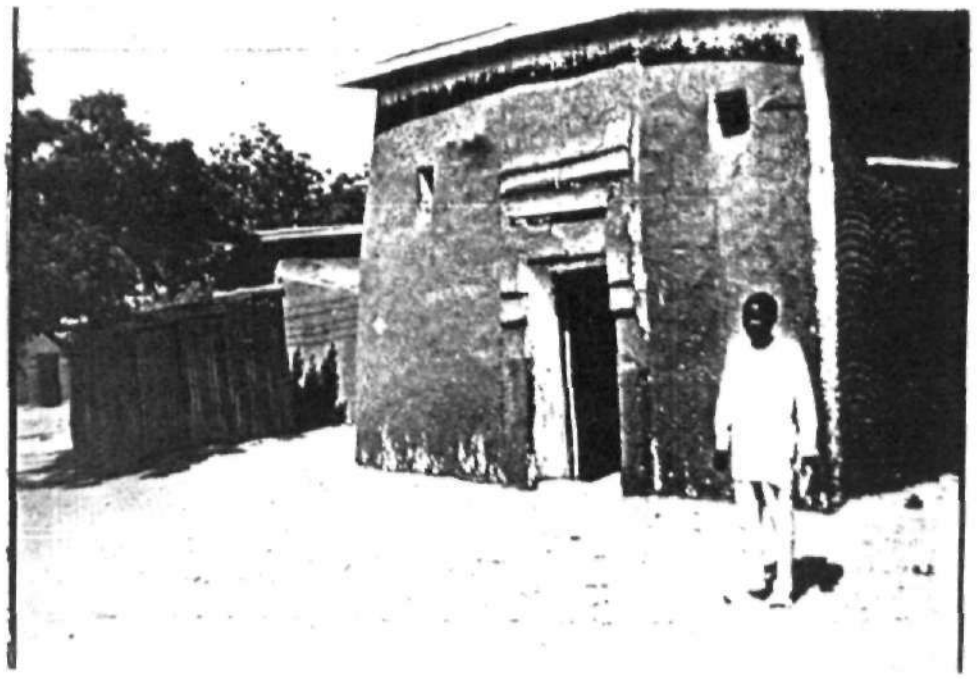
A GROUP PHOTOGRAPH SHOWING THE AUTHOR (MIDDLE) WITH (FROM L-R) THE DISTRICT HEAD'S PA ACE IN THE BACKGROUND

ITEM 10



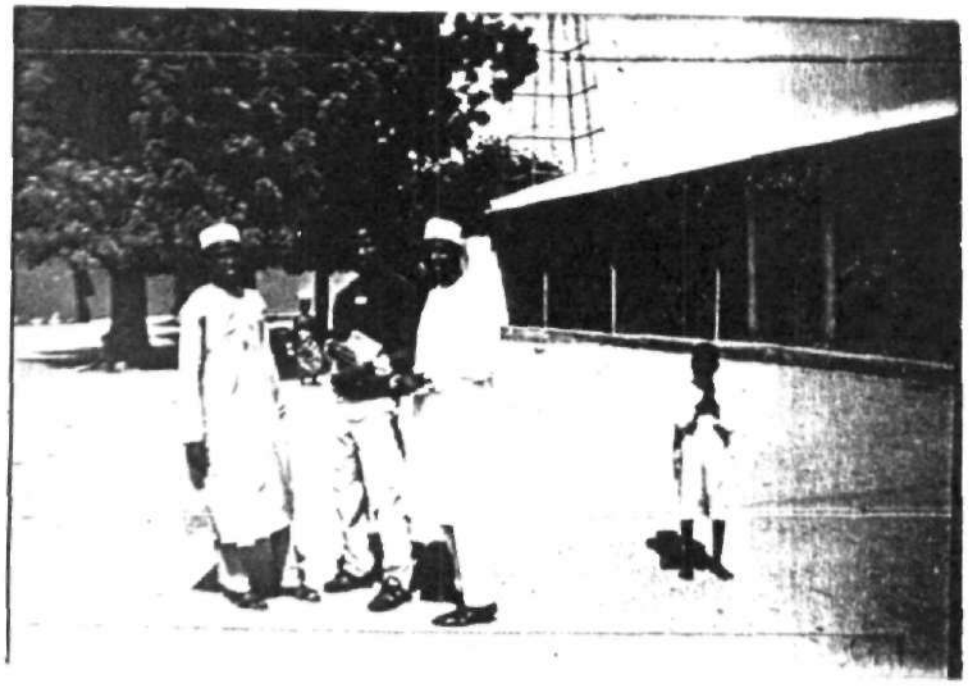
A BRANCH OFFICE OF THE [illegible] INTERNATIONAL PARK [illegible] OPPOSITE PROJECT SITE

PLATE 11



A CLOSE-UP VIEW OF THE DISTRICT HEADS PALACE.

PLATE 12



THE AUTHOR AMONG CHIEFDOM DEPENDENTS.

6.0 CHAPTER SIX

6.1 HEALTH CENTRE DEPARTMENTS

The tripatite call for health attainment, need for economic productivity and the very reason for social satisfaction paved way for health service buildings christened Health Centres operationally a health centre perform promotive preventive and curative functions. Physically it comprises a nucleus that is supported by a shell.

The Nucleus comprises:

(a) Preventive section

(b) Diagnostic "

(c) Treatment "

(d) Nursing units

The functions of which we shall later examine.

The shell on the other hand comprises supporting or ancillary facilities necessary for efficient operation in the nucleus. They include: kitchen, C.S.S.D, laundry, garage toilets, workshop maintainance unit, mortuary, general store and others.

Let us now examine each unit in turns.

(i) Kitchen - which houses facilities for the preparations of food, boiling and storage it supplies the wards and staff dining. Hence access from it to the wards must be simple and clear.

(ii) Laundry - Essentially for in-patients, it could however be put to use by other units of the centre. It should contain facilities for boiling and an outdoor area for washing and drying of linen, depending on the scope of centre.

(iii) C.S.S.D - It is the central sterile supply department which contain and supply all sterile equipments to various sections of the centre. The trend now in the design of health centres is towards it's elimination since the introduction of disposable packs of sterile material usually supplied direct from manufacturers to individual departments needing them.

(iv) General Store - where all clinic's arriving supplies are dumped before they are moved to other units on demand.

(v) Workshop - To handle carpentary work and painting plus some electrical services.

(vi) Incinerator - To be provided for the disposal of dressings exhausted packs and seals etc.

(vii) Day Spaces - Specifically for in-patients, could take the form of open enclosed courtyards with benches, flower beds, provision for children, playing facilities etc.

(viii) Garage with or without workshop but often supported by a store.

(x) Demonstration Farm - consisting in an open space to be used for gardening which will help in nutritional education.

As already intoned, some of the facilities mentioned may not be provided in this centre, especially where possibilities for alternative means exist or where such is deemed unnecessary for the type of users expected.

Let us now observe the nucleus and what obtains in it's various units, as done for the foregoing.

(a) Preventive section : the section checks on antenatal and post natal patients. It handles cases of immunization, general check-ups of children under five and other similar cases. Family planning goes with post natal care, hence treatments such as injections, dressings and issuing of pre-packed, drugs are therefore provided.

Cases considered difficult for this section are immediately referred to the diagnostic section. The section also makes available information on nutrition, sanitation etc. to large groups in waiting areas.

(b) Diagnostic Section - Provides for patient examination by community nurse or clinical officer. Majority of cases are attended by the nurse who leaves serious ones for the clinical officer for further examination and possible treatment in minor surgery. Prescriptions follow diagnosis of diseases in the form of medicines, dressing or injections.

(c) Treatment Department

Comprises of pharmacy or drug store, dressing and injection rooms, usually placed strategically so as not to obstruct flow.

6.2 OUT PATIENT DEPARTMENT

The function of this department is to diagnose and treat home based patients and if necessary accept/Admit them as in-patients.

A great deal of the diagnostic and treatment accommodations of general nature, used at different clinic sessions by different specialists. For too many separate provisions for specialism can be wasteful as most will be under used these procedures are similar to those obtaining in health centre except that techniques and sophistication differs. Such as : Reception, Registration, Waiting and Consultation stand out. Normally followed by collection of prescription and going for injection if any.

Accident and Emergency

All hospitals must be able to deal with casualities and emergencies without mixing them with out-patient. For this minimum required spaces include:-

1. Waiting area (spaces)
2. Consulting room
3. Examination and treatment cubicles
4. Small operating theatre
5. Recovery room (with a few beds).

Here, it must be understood that, where the emergency unit is not too far from the main operating theatre item two, may be unnecessary. Similarly careful flexible planning may allow the use of some ward beds as recovery ones especially in a small establishment like this.

Space Accommodation in the Out-Patient Department

(a) Reception Area:

- This should adjoin the store of patient records.
- Promote confidentiality and rapid retrieval.
- Should stimulate an equiry counter.
- It could be combined with welfare, foods, and medicine.

(b) Waiting Space:

- A large and impersonal waiting area should be avoided.
- Division of the space into bays and wings could be helpful in reducing, the apparent scale of over crowding - especially if more than say 5 consulting rooms are served and also reduces the risk of cross-infection and maintainance of peace.
- Should be easily viewed from the reception point.
- Route from it to consulting rooms should identifiable, shoat and not cross staffcirculation routes.

Consulting Rooms

- It could contain , consulting undressing examination and minor treatment.
- A suite of consulting room allows the doctor use of next room while the patient he is through with is still dressing.

- If separate examination rooms are provided, they should not be on the opposite side of the corridor.

- There is sometimes door between consulting and examination rooms. Such doors must however be sound proof, otherwise it is best not to have them.

Treatment Rooms

- Should be accessible from both waiting and consulting (rooms).

Group Activity Class

Minimum size of which space should allow for about 12 ante-natal patients to lie on matresses atop floor.

It should be near the main entrance to curb people from straying into rest of the building when not in use.

Dental Suites

- To comprise separate waiting rooms, dental surgery, recovery rooms and perhaps dental workshop.

- Architectural character should be as welcoming and domestic in scale as possible.

Though these standards are adapted from those for hospitals, slight modifications here and there will see to their comforming with the requirements of my kind of centre.

Public Health

- A health centre, through the allocation of functional spaces re-emphasizes it's difference to a hospital. It makes provision for public lecture immunization and the like.

- The location of this should be in close proximity to out patient department and should be distinguishable to satisfy the generally accepted hypothesis that main units of a hospital should be distinctly identifiable

Operating Theatre

- It's function is to receive patients after diagnosis anaethesis them before or after being transfered to the operating table to operate and partially supervise their post operative conditioning before returning them to wards.

- For reasons of staffing, engineering gadgets, flexibility of program and common facilities operating suites are usually located together.

- There is need for sufficient floor space to allow a team of surgeons or a surgeon anaethetist and surgical nurses to carry out proper surgical operations.

- It is recommended that minimum sterile circle diametre should be 3m , while space between walls and sterile circle remain 3-5ft minimum or 0.9m-1.5m.

This department could be subdivided into four main zones:

- Protection zone
- Clean zone
- Sterile zone
- Disposal zone.

(i) Protection zone - where all administrative items and reception facilities are located plus changing facilities. Persons in this zone should for the purpose of hygiene not penetrate inner zones until after changing their shoes and clothing.

(ii) Clean zone - in this zone are found the storage facilities for items needed in surgery scrub-up facilities and anaesthetic rooms. This area should be clean and not directly accessible from outside, it should in fact be clean by all standard.

(iii) Sterile zone - which houses the actual operating theatre. Maintainance of highest level of cleanliness and aseptic conditions is very essential in this zone.

(iv) Disposal zone - this portion handles waste used instruments, drapes gowns and dressing. Ganitorial equipments can sometimes be handled here.

Design of Operating Suite

- The aim should always be the avoidance of theatre infection, hence it's siting where limited or no risk of sucking in of contaminated ward air exist.
- It's walls and floors should repel dust and be cleanable by disinfectant solutions.
- Changing and scrub-up rooms should be outside the theatre core as the process of changing and scrubbing may unleash large number of hospital staphylococci.
- The theatre must be properly ventilated so that patients tissues receive clean bacteria-free air.
- It's location should permit easy access to the X-ray department. If not impossible. The C.S.S.D. and laboratory may need to be close.

Maternity:

Unlike most other departments the maternity section is (normally) traditionally concerned with natural rather than a pathological event. It deals with a continous process, starting from pregnancy through delivery to after-care of both mother and child. It is thus not principally concerned with curing a condition but fulfilling it, for which reason it's accommodation requirement differs from other wards. It accommodates the pre-natal women mothers and their new-born babies. This unit is most related to obsterical delivery-suite and surgical operating suite and because it is one of the areas in the hospital where patients are most vulnerable to infection, the nursery should be planned to provide the best mean for the care, safety and welfare of infants: Since cases of diseased infants and sick mothers cannot be ruled out added to this care premature infants who suffer low birth weight of 2.5kg or less.

Whatever it's size this department has two main part, the OUT-PATIENT CLINIC and the accommodation for IN-PATIENT DELIVERY and AFTERCARE. The clinic which may be separated or associate with out-patients' department is primarily ante-natal. It is possible to use same rooms for post-natal examinations, family planning consultations and gynaechological out-patients.

The ante-natal clinic is to have a non-clinical atmosphere, as it in many areas provide a forum for expectant mothers. Ante-natal patients are often seen at looking time i.e about the thirty sixth week of pregnancy

with a weekly follow-up untill admission for delivery, the clinic is better approached separately from the department's ambulance entrance.

Space Accommodation/Functional spaces - these in include: -

(a) Waiting space

(b) Rooms for history taking and examination

(c) Three or four undressing cubicles

(d) Urine testing room and lavatory

(e) A space for offices and records.

It must as an advantage have easy access to the X-ray department and pathology.

In-patient accommodation of the maternity clinic on the other hand consist of two closely related subdivisions. (1) Labour and birth (2) Lying in-wards.

The labour suite consisting of first stage 1 rooms each with a bed and delivery rooms, on a scale of one room to about 10 post-natal bed for both should be accessible without passing through the wards. Pairs of delivery rooms can share wash up and scrub up. In the abscence of operating theatre for the department and nearlessness of the hospital's main operating suite.

The Nursing Unit

This is where the patients are accommodated while undergoing intensive medical care in hospitals. In-patients stay here from the time of addmision to the time of discharge.

It is the unit that determines the size of a hospital in terms of the number of patients a clinic is capable of caring for.

Patients when admitted experience a feeling of confinement. This is because the freedom they enjoy in their various houses is replaced by some restrictions within the hospital premises which is why the ward environment should be comfortable and relaxing.

Underneath are some basic considerations for the design of hospital wards.

Medical Need

(1) Sufficient space to examine and test a patient within a conducive atmosphere.

(2) Adequate facilities for the treatment and comfort of the patients.

(3) Easy passage and accessibility of essential services required in a hospital.

Nursing Needs

(1) There is need for easy supervision and observation of patients from the nursing station.

(2) Provision of facilities that will facilitate the location of medical personel on duty in case of emergency.

Patient Needs

(1) Need for closer communication with nurses on duty. This can be visual or audial.

(2) The need for privacy during medical and nursing care in a hospital.

(3) Provision of washing and sterilizing facilities within or close to the ward.

(4) Patient's toilet facilities to be located in proximity to ward.

(5) Provision of relaxation area for convalescent patient in the form of day - space - room.

In-patient

This section of the health centre as the name implies is where patients are put to bed, fed and provided with all necessary nursing attention from the moment he/she is admitted up to the time of departure. It is usually situated at the rear and approached from the O.P.D.

Ward Design and International Standard

In-patient are categorised according to the particulars of their ailments which include:

- Adult general acute
- Adult surgical
- Children's or pediatric
- The old peoples or geriatric
- Maternity
- The orthopaedic
- Psychiatric.

Other provisions include isolation wards for patients who need to be treated in a bacteria-free environment due to their suppressed immunity or infectious stance. Differences in adult wards could also occur along sex, especially in Islam dominated world - depending on planning and custom.

The maximum number of beds that should be allowed for in a ward unit had since been put at thirty-two by the world acclaimed nurse Florence Nightingale Revolutionary developments in medicine and surgery ward planning have really not resulted in rising number of patients a nursing sister and team could take care of. Hence, today the preferred number of patients to be accommodated the general acute and surgical wards remain some four beds less than Nightingale's thirty-two. This has found acceptance and recognition world over and despite improved medical and surgical skills, centralized supplies and specialist facilities what is known as tender loving care range still form the basis for determining distances in wards. That is why the number of beds under one sister vary from between 28 and thirty (30) in general wards, and 20-24 in children's ward.

These numbers may be affected by nursing team arrangements. Ward units have however remain same in their overall sizes varying only in internal planning this provision which condone possible future change is flexible and equally meets services and structural requirements.

Ward Location

In relation to other departments, the location of wards with the exception of surgical and intensive care all of which must be close to operating theatres is rarely very critical. It is of great advantage if this link does not occur via lifts.

Easy accessibility from the hospital centre's main supply and disposal routes, convenient communication with diagnostic and treatment departments - specifically physiotheraphy which are visited by ambulant in-patients.

Also wards should have simple and coherent routes- that would prevent patients straying into other parts - reaching them. Such routes must not pass through sensitive area, where the risk of cross infection is high.

The wards should be separated from the centres to main communication routes, so as to ensure for it peace and make it rest like. It must be protected from excessive distractions and extraneous traffic. No ward should be used as a principal means of access to another hence strict control must be present at every ward entrance.

The geriatric ward may however be placed adjacent to communication routes since patients. are not in the real sense of it ill.

WARD

Apart from the psychologically important function of providing a reassuring home for the patient that is capable of facilitating his/her recovery, the ward combines clinical and house keeping facilities. This

later role of the ward has however been reduced due to centralization of food supply, linen, drugs and sterilized articles.

Presently, the general ward now contains (1) A treatment room for surgical dressing and operative procedures (2) a clean utility room concerned with the equipment used in treatment room, (3) A dirty utility room for beancleaning and emptying and cleaning bed pans, urine bottles, cleaning other soiled items and disposing of metrials such as dressings, (4) A pantry for preparation of beverages and for washing and drying crockery (5) A small equipment store, (6) One or more nurses stations, (7) An office, (8) Store for patients' clothes (9) A cleaners' base, and (10) A disposal room.

And other facilities as bathing, washing, toilet and day space for ambulant patient.

The treatment room: this is often placed between the clean and dirty utility rooms so that sterilizaed equipment from (CSSD) - central sterile supply department can be received and prepared in the clean utility passed through a hatch into the treatment room and through similar - hatch into the dirty utility room after use where it is washed before return to the (CSSD).

Clinical facility - this has also in some health institutions been centralized. The disadvantages of whicha are impersonalization to patients and impaired training opportunities to student-nurses.

Evolution of Form

The long narrow classic Nightingale, approached from one end, lit and ventilated from opposite sides with two rows of bed arranged to face one another and head rest against window walls mark the beginning of consious and recognized ward from. The lavatories and ancillaries are usually attached at the tail ends of the volume, while the nurses station (ward control) and the patient's day space are islands in the central passage between the feet of beds. The historical origin of this plan went down to the 13th century french religious foundations as a have of beds with an altar at one end. Florence Nightingale rather than invent it only gave it her approval seal in 19th century as recommended way of achieving cross-ventilation alongside nursing efficiency.

Subdivisions

While some single rooms are traditionally regarded essential for clinical reasons in the U.K. The susual number of beds in the general acute ward of about thirty bed, is a minimum of four. Such that two have their own toilet en-suite, to eliminate the risk of cross-infection associated with the transfer of bedplans to dirty utility room. In spite of serious arguments for single bedrooms as best approach to achieving the much needed flexibility and privacy. It is a hard-fact that attainment of efficiency in the dispensation of service the multi-bay system is more ensuring; which incidentally is more significant to majority of patients.

The preference given to four-bed bay in general acute is on account of user-satisfaction. By keeping each occupant/member to corner he/she is opportuned to enjoy visual privacy by simply turning his head in the direction of his/her corner. Spread curtains can equally be employed to create temporary shelter around a patient's bed with ease where necessary, without zeroing the communal feeling (so much cherished). Unlike the two bedded bay which may suffer patients incompatibility problem or the three bedded, bedevilled with the odd factor, the four bedded breeds familiarities and promotes interpersonal communication.

A further development of this approach is to adopt the single bedroom accommodation which is apparently more convenient and adjustable but may prove expensive at the onset and unnatural in the long run; for it denies patient the opportunity of sharing community feeling with fellow patients. Although it provides the best solution for staging-off the problem/risk of) cross-infection; it demands more staff than necessary or overtax the few available ones, this militate against effective supervision and observation.

For this and other reasons a peripheral form of ward planning known as 'banding' which offers some degree of flexibility might be opted for.

Privacy

For universal application, this is not only an illusory goal for any health institution (especially sick-home) but questionable. Research findings and conclusions have comfirmed that both nurses and doctors

prefer the large and open Nightingale wards for ease of supervision, observation and control they give greater job satisfaction to the sisters by using the nurses time more efficiently.

Sequel to a survey conducted in some chosen U.K. hospitals to ascertain the validity of nuffield's report. In view of the rejection of the Nightingale type of ward.

Flexibility

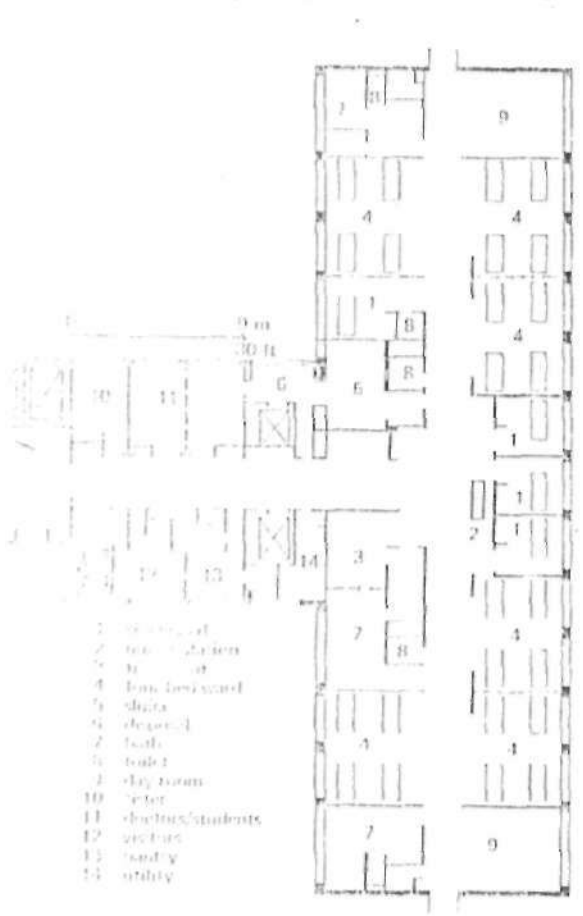
While it is often necessary to extend a health institution some years after it's completion, due to growth in the size of host town/population improved technology functional obsolence and or change in trend of patronization. It is quite possible to offset some of these or others that may appear to demand extension as a solution by carefully though-out flexible planning.

A lot of means exist for achieving flexibility in clinical design which include contiguity of planning between one ward unit and another which offer some degree of nursing flexibility between adjacent units), this makes it easy for the nurses to use some vacant beds belonging to say one sex or age group for another neighbouring class which is incidentally congested or exhausted. This is clearly not only an economic solution but also a workable one considering it's sympathy on nurses; on the area of steps saved.

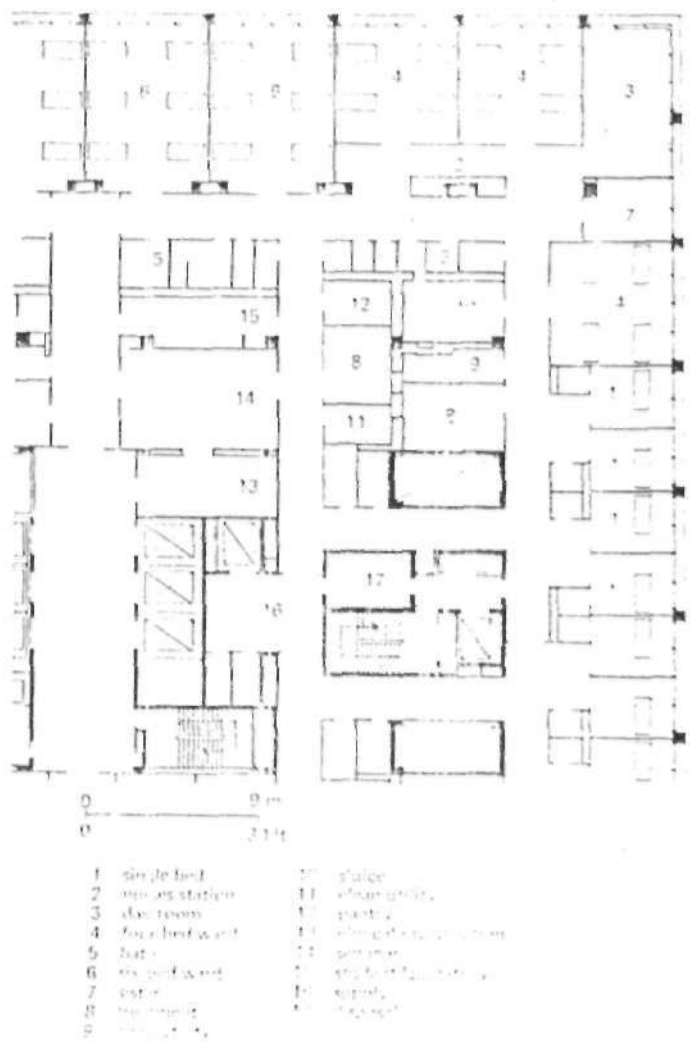
Another approach is to make provision for 'swing beds' (bed that carry no class mark) at the interface between two wards. This is more common with bayed accommodation.

Although visual communication could be tolerated in this form of arrangment cross-infection is to a greater extent minimized. It is also not usually impossible to introduce temporary visual barrier at the point of separation between sexes.

PLATE THIRTEEN



Eight bed Nuffield type ward at St Thomas' Hospital (Basic central nurses' station. Architect: W. F. Hocitt



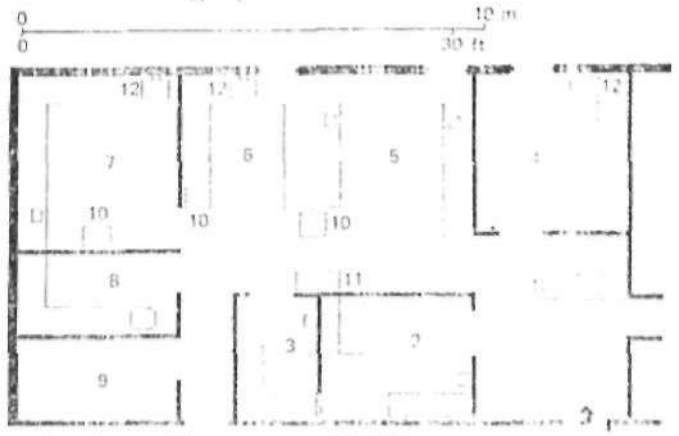
Twenty eight bed ward section, nurses' station at St Thomas' Hospital (1938) comprising one quarter of the ward for the glass air conditioned building. Architect: York Building Manual

PLATE FOURTEEN



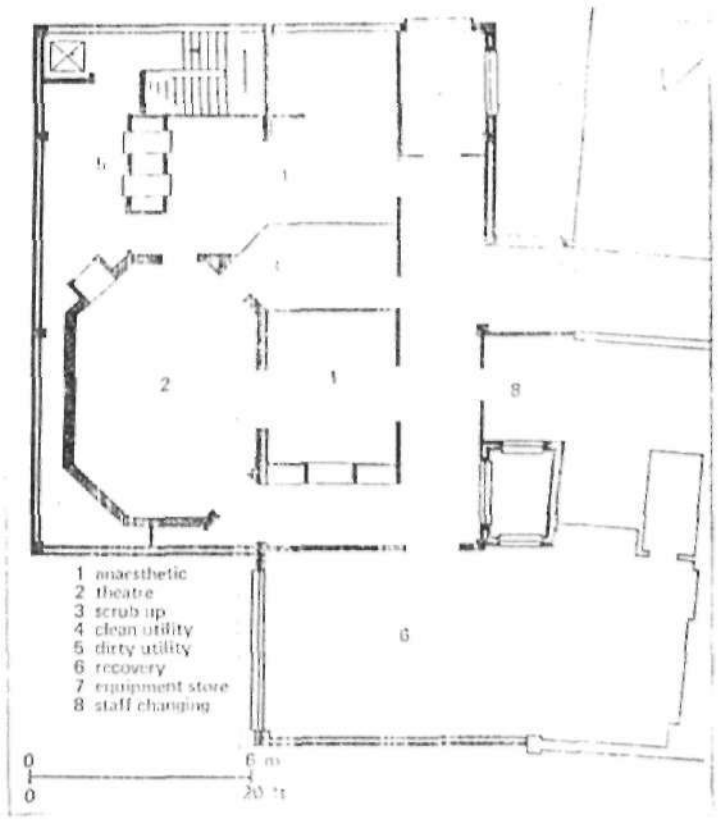
... Greg Memorial Hospital, Epping, Great ... Pharmacy is sited adjacent to the hospital and next to the pharmacy ... with the building. The department is situated next door to ... and has its own sub-waiting space for the collection of ... Architects: John R. Hume.

PLATE FIFTEEN



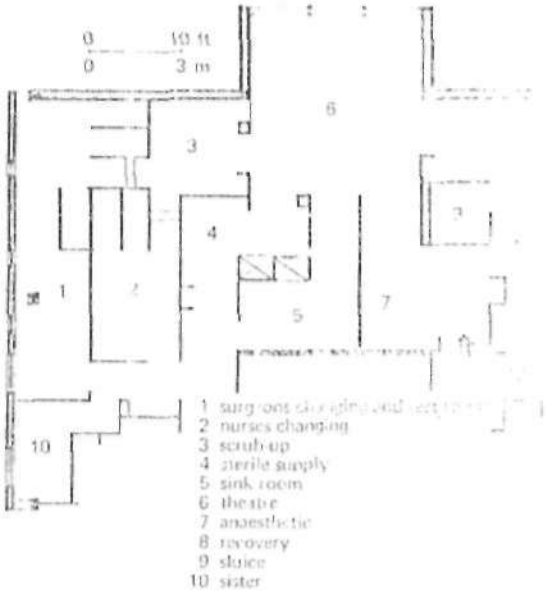
A small pathology laboratory in a private ophthalmic hospital in Saudi Arabia. Architects: Architects' Co-Partnership

PLATE 16



A SINGLE THEATRE ADDITION AT THE LONDON HOSPITAL, MILE-END. Architects: T.P Bennet & son.

PLATE 17



A single theatre suite in the Ophthalmic unit at the Hospital, Reading, served by a central sterile supply elsewhere in the building. Staff enter the theatre rooms via the scrub-up. Supplies reach the theatre from the CSSD and thus direct to the theatre is passed into the sluice and separate lift for central sterile supply directly into the recovery ward, which is entered from the lobby by which they entered. Architects:

7.0 CHAPTER SEVEN

7.1 THE THESIS

7.1.1 Control of Traffic Flow in Health Building

Traffic from the advance learners' dictionary means the movement of people and vehicles along roads and streets. This is what is known to most and its very mention sets the brain working in that direction.

In architecture too the meaning is not far from what is popularly known other than some few technicalities attached to it. Here it is employed to relate the flow of users from one functional zone to the other, from one functional space to the next and or from one unit to another.

It implies the necessary movement of persons and vehicles as a result of operational activities. As a matter of architectural concern it could be categorized and subdivided to allow for academic analysis depending however on the type of situation at hand.

In this particular type of project, the normal traffic patterns are those of staff and patients all of which can be categorized as vehicular and pedestrian within or outside the complex. It must be noted here that the term vehicle is to include more than just motored wheeled trucks. These we shall examine individually with a view to identifying problem areas, before solutions are

suggested as will be reflected in the design proposal. An attempt will also be made to see how social and cultural values influence the same.

7.1.2 Patient Flow

Outside: The normal pattern of patients flow generated by general practitioners during a clinical session are: - arrival at the centre
- disposal of car, bicycle or push chair.

Some of which need covered parking spaces - bicycles and push chairs to be precise. Arrival at the centre could be on foot or by a vehicle. In most cases the two happening simultaneouly though, assume contrasting tempo. While the treking patient is forced by his/her body condition to be sluggish, the vehicular patient is usually rushed to the centre, by an employee, relative, friend or on reference by a lower health post.

This contradictory tempo of persons with similar mission at same destination at the time period (daily session) is capable of generating a conflict for which adequate care must be exercised at the planning stage.

The foregoing is on the pattern of traffic outside the building as distinct from what happens.

Disposal of car, bicycle or push chairs is another form of flow that is site-borne. It consists in the locations of vacant space at the appropriate parking area. It must be noted that while one patient is being helped out of a car another may be arriving in a confused state.

Inside the building : The pattern consist of :

- Reporting at the reception
- Collecting prescriptions or making enquiry
- Waiting until called
- Finding the way to the correct consulting room or group of consulting rooms.
- Waiting again till doctor is called.
- Moving to an examination from consulting
- Visiting the reception point again when going out.

All of which involve the movement of confused and helpless group of people. To some, physical support might be necessary to move far which more space would be required.

The movement of patients inside the building may sometimes demand the use of specialized vehicles, such as trolleys, wheel chairs, and or prams. Here distinction between various types of vehicles must be noted in the determination of travel routes.

Flow Patterns of Staff

The movement of staff to and from different accommodations in a hospital is tremendous and therefore constitute serious traffic problem.

Prominant among such travels are those of attendants, nurses, orderlies, aids and doctors, others do but to a lesser extent. Some are frequent while others are not.

Generally speaking, the most noticeable of all is the movement of cards collector. He or she collect cards in batches, call out names at the general waiting hall, arranges patients before proceeding to drop them at the consultant's desk/table.

This he/she does as many times as necessary to satisfy visitors within the period of a session.

Next to this in the out-patient department is movement of consultant from consulting room to examination room where these are separate. Presently however, the trend is towards the provision of a large consulting room, within which examination can take place.

Other categories of staff traffic is that between nursing units and the ancillary accommodation. They include the flow of staff from (a) Kitchen to wards; (b) Laundry to wards; and (c) Between wards.

Most of these demand regular journey along the hospital street or corridors, and where more than one is to be carried out at any one time. Traffic jam is bound to arise, either as a result of head-on thrust or over-loaded one way stream.

The fourth and probably most complicated of them is that which involves a staff or a number of staff and the patient. By this, we mean cases where a patient is

ambulant. He/she is in a helpless condition, and will necessarily require the aid of hospital staff to get on. Sometimes it may demand the use of vehicles as trolleys, prams or stretchers, in the direction of theatre, from ambulance walk in or to toilets.

It could also be preparatory to the above, that is where the staff draw the carrierto the point of need perhaps from store or their stand.

7.1.3 Subdivisions of Traffic Patterns

For the purpose of academic analysis, traffic flow, can be divided into a number of sub-units as under:

GENERAL TRAFFIC FLOW

PATIENTS								STAFF	
INDEPENDENT PATIENT				ASSISTED PATIENT				INDIVIDUAL	GROUP
								WITHOUT VEHICLE	WITH VECH.
NON-VEHICULAR		VEHICULAR		PEDESTRIAN		VEHICULAR			
M	F	M	F	M	F	M	F	WITH/WITHOUT PATIENT	WITH/WITHOUT PATIENT
								MALE	FEMALE

Other subdivisions of traffic in health buildings are based on purpose of visit, (which can be regular or irregular), age group and so on.

Visits to the Centre

This can be attributed to any of the follwoing:-

(i) Activity Induced and (ii) Socially informed.

(i) Activity Induced: There are three main activities, each or all of which can be taking place at one time or the other. These include:

(a) Personal Care

(b) Clinic session

(c) Group Activities.

Personal Care - Here a patient visits a general practitioners, a nurse or any individual health worker ideally on his own volition to obtain help or treatment for a personal problem or ailment.

Clinic Session - Usually attended by people in numbers and organized for a particular, purpose e.g. ante-natal supervision and or immunization.

Group Activities - These are normally conducted in classes; ante-natal relaxation, keep-fit exercises talks and demonstrations to mention a few.

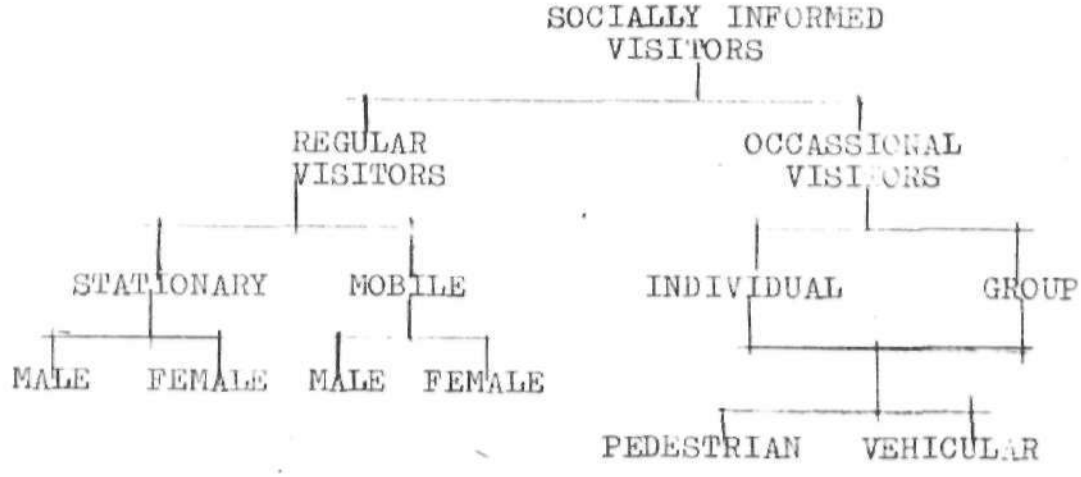
Although these activities do not suggest the need for beds. It is almost necessary to provide some if regular access of general practitioner to a seriously ill patient is to be enhanced. Such a scheme would further reduce the load work on the General hospital.

(ii) Socially informed : As long as a centre provides accommodation for medium or longstay patients another category of seemingly unnecessary traffic is generated. In rural African Socieites where interpersonal relationship is very strong, putting to bed of a member of the community at the centre will surely attract flood of visitors, who come to express sympathy, greet and or offer prayers for the faster recovery the sick.

Some come to stay permanently with view to complementing the assistance given a patient by nurses.

These are people who are themselves not sick but feel touched by the condition of the sick.

Traffic generated by them can be (a) Regular - (b) Occasional. Both of which could be further subdivided as follows:



In any case, care must be taken not to miscontrue their pattern of flow as that of the patients for their conditions are quite dissimilar, while the former is hale and hearty and capable of moving with agility, the latter is sluggish and sometimes helpless.

This is particularly common with the nursing units, which attracts numerous visitors almost daily and at all times.

The maternity ward is equally of special interest, since it's object is fulfilling a condition rather than curing it and naturally, well-wishers are usually anxious to witness it, albeit in a restless mood.

It is logical to assume that such people could collect themselves in one place, while awaiting the outcome, but is it practicable?.

Traffic Problems

The problems of traffic in health building are many and affects different groups of people who have one thing or the other to do in the centre.

The nature of activities at the centre give rise to them yet some degree of interuption is generated, unless careful planning is resorted to flow of patients or staff inside can cause, distraction, delays, rowdiness, generate noise and many more. These we shall examine in turn.

Distraction : This can be as a result of sudden appearance or intrusion of a confused patient or tidal flow of persons attending a group activity. But for the condition of patients this problem may appear negligible.

Distraction in itself causes confusion and creates unsuitable atmosphere for consultation and other similar operations that demand composure.

Delays : Primarily due to alternate flows. In a health centre/hospital where a single minute can cause an individual his/her life, effort must not be spared in seing that staff and patients flow are not inhibited, so as to speed up attention.

Rowdiness : Another common problem associated with traffic in health institutions in rowdiness and is usually caused by ill defined movement routes.

Even where routes are properly and distinctly defined but their widths are incapable of containing the stream of traffic using it at anyone time, rowdiness can ensure.

Noise Generation : The flow of staff and patients in their travels to and from different functional spaces generate noise capable of reaching unbearable level. The use of hilled shoes by female and slippers by males deserve mention as they help in no small way to aggravate the problem.

This is a serious problem to waiting patients who are very sensitive and working staff.

Control Techniques

The control of traffic problem in a health centre, small as it is, demands a lot of planning considerations : this is further compounded by interpersonal ties that exist

between individuals in the rural areas, where the population to be served live. As earlier observed, people go to hospitals for reasons other than receiving treatment.

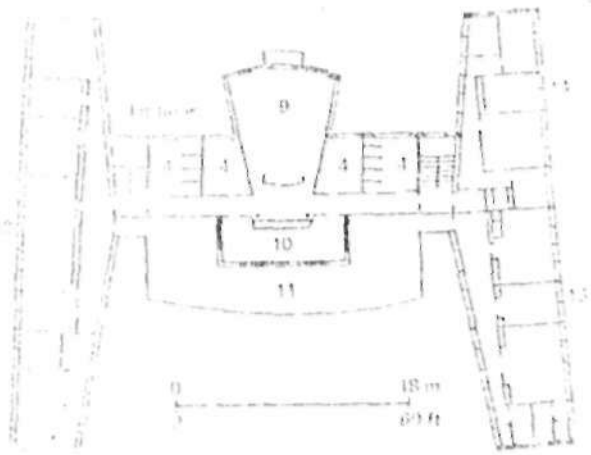
For practical purposes certain design solutions have been found to be useful. These include:

- - Provision of adequate walking space this has to do with the width of corridors, lobbies and hospital streets. If these are made sufficiently wide the risk of traffic jam will be grossly reduced.
- Provision of occassional sidings along corridors. This allow for smooth flow, by giving a tired patient an opportunity to park while others proceed undisturbed.
- Mutilation of waiting areas which minimizes rowdiness another cause of traffic congestion.
- Proper demarcation and definition of travel routes.
- Separation of crowd generating function such as dispensary, consultation and main waiting areas.
- Clear zoning away of vehicle prone areas from high pedestrian zones inside the building.
- Careful separation of vehicular and pedestrian access, right from without.
- Provision of adequate outlet in the building as a whole, thereby eliminating mix-up of staff and patients.
- Avoidance of crossed flow, much as possible. This can be achieved by making sure that functional spaces follow one another in accordance with flow patterns.

- Ensuring uniformity of floor levels throughout the centre as an extension of the standard which forbids steps.
- The employ of interrupted hospital streets and clear corridors.
- Adequate lighting of travel routes, to facilitate clear vision.
- Provision of sufficiently spacious courtyards and open areas to minimize on-street gossiping.

PLATE EIGHTEEN

THE PIONEER CENTRES.



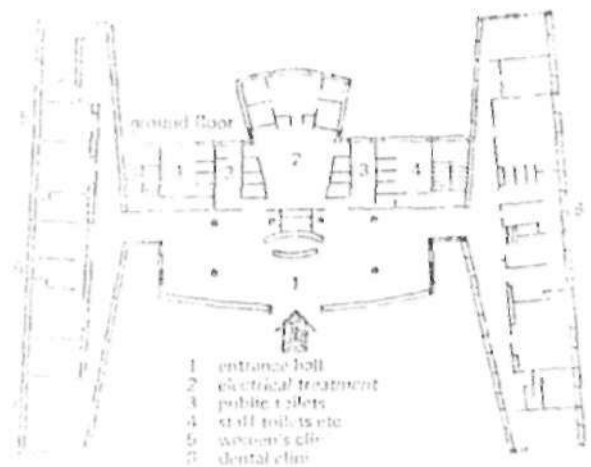
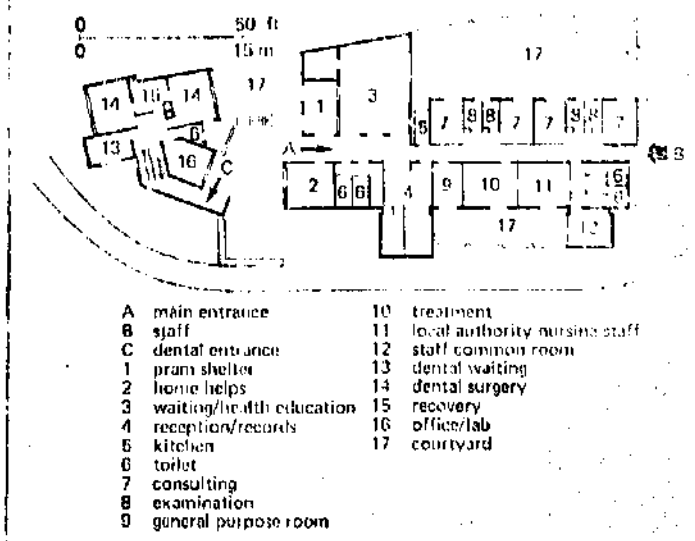


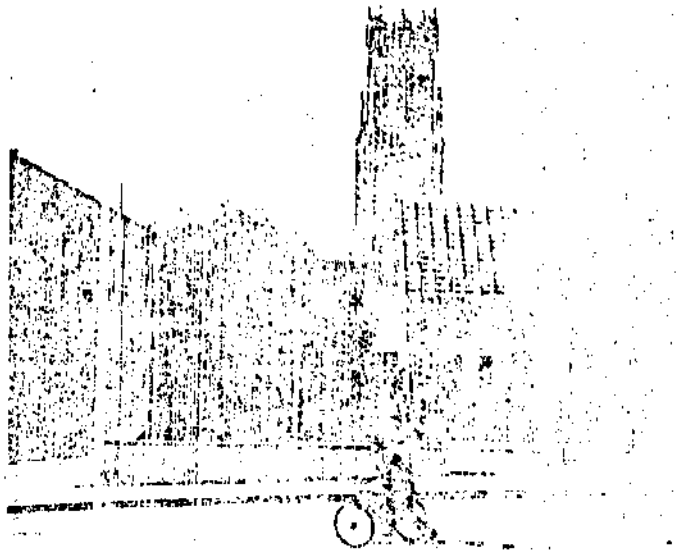
PLATE NINETEEN



A HEALTH CENTRE AT GLASTONBURY, SOMERSET.

ARCHITECT: B.C ADAMS SOMERSET COUNTY COUNCIL.

PLATE TWENTY



THE ENTRANCE TO GLASTONBURY HEALTH CENTRE, WITH THE DENTAL UNIT TO THE RIGHT.

CHAPTER EIGHT

8.0 DESIGN CONSIDERATION

8.1 Standards

Generally, number of beds which determines it's size vary as a result of differences among communities prominent among which are degree of urbanization, sex distribution, age distribution and marital status.

On the basis of these considerations some countries have developed standard to guide planning of health facilities. In Egypt for example the government in 1965 made 3bed/1000 of its population a standard guide, while America uses 10beds/1000 and Nigeria 5beds/1000 population for the 85-90 plan period The Nigeiran Medical Association, after due consideration of local needs and the problems of insufficient medical personel, low technology and people's response to medicare recommend the use of 2beds/1000 population and 3beds/1000 population in urban areas.

The World health organization (WHO) recommends the following bed distribution in hospitals.

- Medical	-	24%
- Surgical	-	33%
- Obstetric	-	19%
- Paediatric	-	15%
- Others	-	9%
Total		100%

Circulation - is a very important factor in hospital planning. There are essentially two types of traffic viz:

(a) Vehicular circulation

(b) Pedestrian circulation

Crossing of each of these within itself and between them should as much as possible be minimized, failing which cross-infection becomes a threat.

Separate all departments yet keep them all close together separate types of traffic, yet save steps for everybody; that is all there is to hospital planning Emerson Goble Hospital planning starts with circulation.

Size of Health Building

Factors determining the size of Health Centres include : (1) location (2) Extent of catchment area (3) Policy of local authority (4) Number and size of local group practices to be accommodated.

The more comprehensive a centre is the more difficult it is to provide a building that encourages integration of a variety of personnel and the more valuable will success in doing so.

The Hierachy of Services

Health centre maximum of 6 beds. C.H.C. 30 up to 60 beds (preventive and curative)

General - Treatment

Specialist)
) hospitals
Teaching)

Standing order - a defined set of health treatment schedules beyond which a facility shall refer to the next level.

Concurrent (Health at local government health clinic and centre.

- Supervisor for health
- Head of Health
- C.H.O.
- C.H.S.
- C.H.A.
- C. Health Aids

State

- Commissioner
- Comprehensive health centre (Medical Officer for Health)
- Chief Consultant (Chief Executive)
- Chief Community Health Officer
- Principal Community health officer
- Senior health officer
- Community health supervisor; Community health Asst.

General Hospital

- Chief Medical Officer
- Principal
- Senior medical officer

Specialist

- Chief Consultant
- Principal consultant
- Senior Consultant
- Consultant

Teaching Hospital

- Chairman - Chief medical Director (Executive head)
- Chairman of Medical Advisory community
- Director of Admin.

Concept in the Design of Health Buildings

Some of the apparently rational and coherent hospital form adopted by designers display more abstract architectural logic than sense of historical reality. These include.

(1) Linear and Enclosed hospital street, labelled the indeterminate approach.

(2) Loose 19th Century concept - both of which can be applied to any or all of the following.

Harness Concept : consists of a linear hospital street to which standard and non-standard units of accommodation with different confirguration, planned on a 15m grid are attached with relative freedom but geometrically consistent (and) in an enclosed courtyard that provide natural ventilation and daylighting.

Best - Buy : A simpler and less costly solution which has in general conception affinities with the Greeniich and Harness but is less solidly packed and relies almost entirely on natural light and ventilation.

Nucleus

(1) Neater and geometrically lucid

(2) Offers opportunity for staged construction

(3) Allows room for expansion via simple addition of units of various combination.

(4) Based on standardized operational policies.

(5) It provides a zoning strategy for the distribution of services from the hospital street and from roof plant rooms.

(6) Offers better opportunity for the contiguity of departments.

(7) Induces natural form of fire compartmentation and easy escape.

(8) It is restrictive on the growth of individual departments.

(9) Allows room addition of wards and departments in two directions.

(10) It is of advantage in the rapid planning and implementation of a programme of new hospitals or of extending old ones.

THE CONCEPT TO BE ADOPTED

Considering the location of this project (a rural setting) and the prevailing economic realities of the Nigerian nation, the need for phased actualization and possibilities of functional alterations, is bound to suggest the Harness/Nucleus concept both of which recognized these facts as a solution to such problems and many more.

HOSPITAL MODERNIZATION AND EXPANSION

Modernization and expansion of the hospital and hence health institutions is a subject often entered through the back door because the entire problem is seldom envisioned at the intial stage. The urge to expand usually arises where there is demand for more beds than are available while the urge to modernize may not be felt until much later when new additions reveal shortcomings of the old buildings.

One aspect often overlooked is that any sizeable increase in the number of beds should be accompanied by an increase in the size of many supporting departments. In fact the needed increase in those departments is usually greater than the need for bed increase becuase of accumulated deficiences in them.

Planning for expansion is carried out in two main phases. First is the longrange plan and second the immediate improvement labelled phase I. Differences between these two lie in their breadth and depth.

The long range plan is usually broad in scope, extended in time and relatively shallow. The latter on the other hand is more limited in scope. Capable of being effected at once and worked out in depth. Both phases - contribute to the process of modernization and expansion the long-range plan provides a comprehensive guide to the directions for growth while the first stage improvements take care of pressing needs. They combine to offer direction and accomplishment.

The long range plan:

(a) Estimate the hospital needs and resources

(b) Evaluate existing facilities

(c) Determine growth directions

(d) Work-out a feasible plan for expansion

(e) Develop time schedules and cost estimates

Stage I : Modernization and Expansion:

(a) Program the immediate needs

(b) Carry out a specific scheme for expansion

(c) Modernize the remaining facilities

(d) Follow the long range plan thereafter

Stage II : Further growth, a second cycle

(a) Review and update the long range plan

(b) Evaluate facilities by their current standards

(c) Determine necessary building replacements.

(d) Proceed with programming, planning and construction as in stage I.

(e) Follow the revised long range plan thereafter.

Stage III : Still further growth - and so on through endless circles.

Fig: Cycles in planning for expansion.

Expansion : It's generating forces.

- Population explosion
- Community plans
- Consolidation proposals
- High occupancy-demand for beds
- Deferred needs for physical improvements changes in
- methods of care.
- Fire safety health requirements
- Obsolence depreciation
- Leadership of trustees and staff
- Offer or potential of capital funds.

First Phase : The long range plan:

(1) Estimate the communities need for more beds in all categories and the hospital's proper share both immediately and for 2 decades thereafter call them stages I, II and III embracing 20-30 years of growth.

(2) Decide upon the size of nursing units (no. of beds) i.e percentage of single rooms in each service provision of toilets and showers and the relative luxury in size of patients rooms lounges and supporting spaces generally.

(3) Measure the gross floor area of existing patients care divisions (nursing units) and estimate the area they should have for the existing number of beds. Project these areas at or near the same standards for number of beds programmed for stages I, II and III. Here use judgemental unit areas per bed.

(4) Go through same process for all other departments. Calculating existing and desirable gross floor areas for the present no. of beds and projecting those areas for the number of beds needed in the future.

(5) Conduct a physical survey of the existing buildings, structure, finishes and engineering.

(6) Collect full information about hospital site existing and adjoining land which may be available for expansion. Record any known limitations.

EXTENSION AND ALTERATION

Many large hospitals in urban areas are becoming obsolete and increasingly inefficient in operation. Yet these hospitals provide specialized services, set standards of quality care, conduct research, apply the latest advances im medical science, and train future health specialist.

Due to their complexity; hospital buildings tend to become obsolete sooner than many other building types this obsolence could either be physical or functional each with a chain of possible causes.

Physical obsolence can be as a result of structure deterioration materials and finishes, over taxing of mechanical and electrical plants and is more accelerated when maintainance is poor. Functional obsolence on the other hand result from changes in (a) medical concepts and practices (b) use and organization of hospital departments (c) neighbourhood served by the hospital which may change from say a residential to commercial.

Physical obsolence: Physical characteristics of existing buildings may today prevent an ideal rearrangement of space for hospital need as is the case with column locations, window arrangement and corridor width.

Functional Obsolence: Drastic changes in the use of hospitals made radicalchanges in the organization of some departments inevitable and most hospitals find it difficult if not impossible to fit the additional services that have become necessary into existing envelopes to accommodate increased functions, that is why even if a hospital has an excellent maintainance provision, functional obsolence can still grip it. The architect should therefore make a detailed feasibility survey that will provide detailed information required to enhance redevelopment process.

CONSIDERATIONS OF CLIMATE ON DESIGN

Day Lighting (natural) : Consultation rooms, injection, dressing surgery and delivery which are clinical need natural lighting of about 400 lux. ward 100-300 lux, nurses stations or duty rooms 300 lux and circulation space 100-200 lux, which are all non-clinical.

The laboratory, pharmacy, sorting, registration and offices require 400 lux, kitchen 200-400 lux, laundry 200 lux, bathroom and toilets 100 lux, as minimum values of liminance for day lighting.

Natural Ventilation : Is necessary for the supply of fresh air, dilution of odoum and gases, control of air-borne infection etc. The amount of air required for respiration is extremely small, but dissipation of odours in general and that of body in particular, demands minimum

ventilation requirement of about 25m^3 of air per hour, per person.

For medical rooms and wards where an aseptic environment is needed, ventilation of say 10air changes per hour might be useful.

Air Flow : In offices and clinical rooms high air velocity may disturb work even in a lot humid climate what more of a hot dry climate; characterized by dustorms. Hence the main air stream should be directed at and above the head level, that is about 1.2m to 1.8m above floor level.

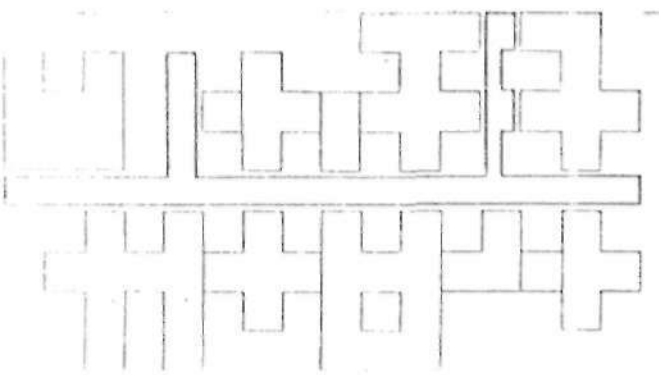
In wards and sleeping rooms, main air flow should be at a height little above bed level that is from about 50 to 80cm above the floor.

Sunlight : Direct sunlight should be discouraged in rooms to prevent overheating.

On the whole, these treatment are considered more critical for clinical rooms, since they are the most crucial in the complex.

PLATE TWENTY ONE

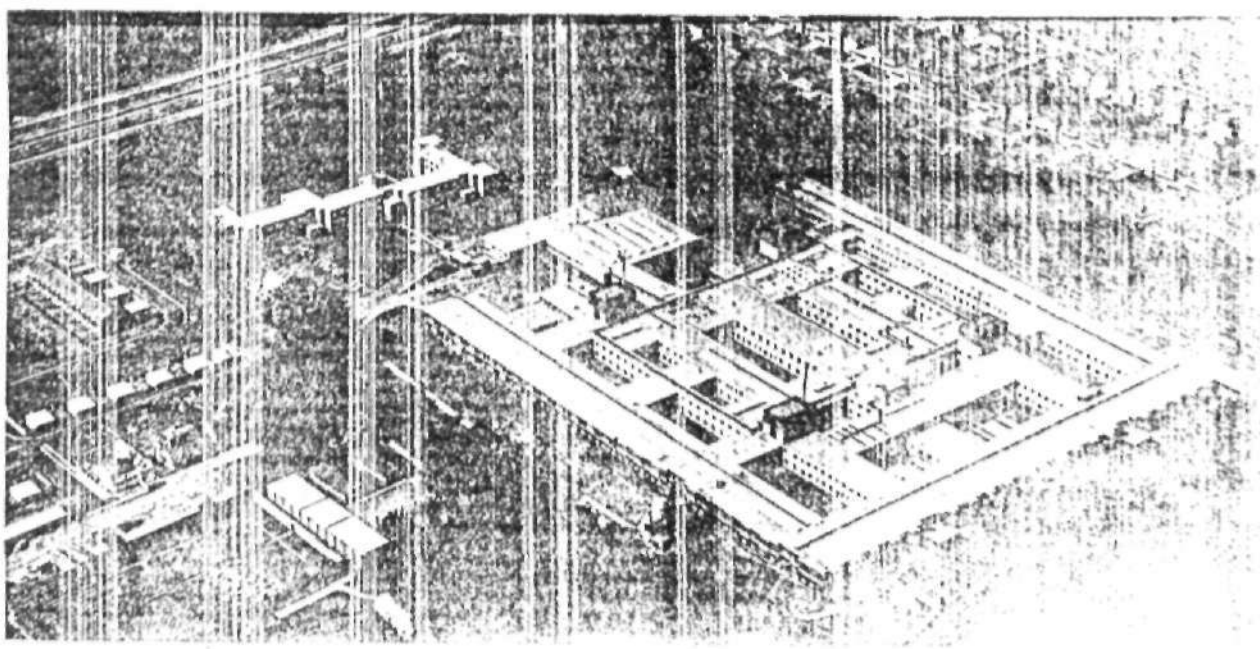
THE HARNESS CONCEPT.



The basic 'Harness' concept is a line of hospital streets with clinical and non-standard units of accommodation with different configurations, planned on a 4 m square grid, are attached with shelter corridors but geometric consistency and enclosed courtyards that receive natural light and ventilation.

PLATE TWENTY TWO

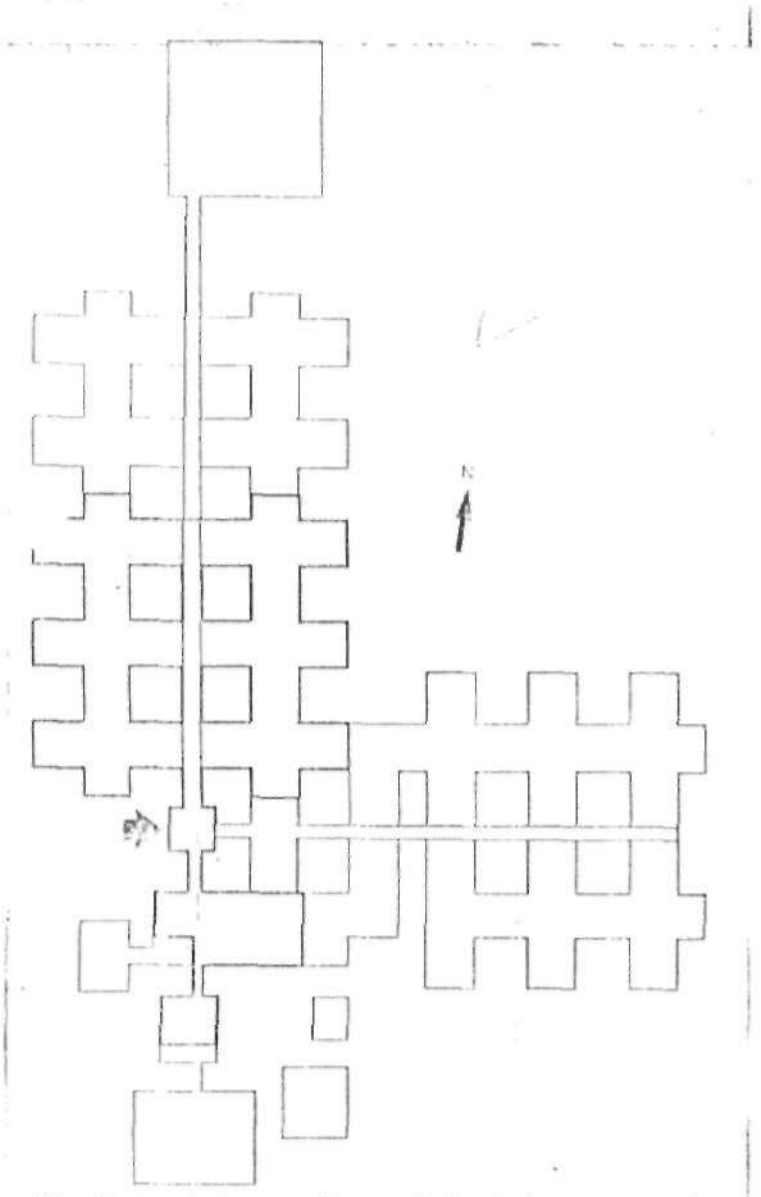
BEST-BUY CONCEPT.



Air view of the 'Best Buy' hospital at Frimley Park, Surrey. Architects: Hospital Design Partnership, with the DHSS Hospital Design Unit. (Photo: Handford Photography, by courtesy of Holland, Hannen & Cubitts Ltd)

PLATE TWENTY THREE

THE NUCLEUS CONCEPT



Plan showing the first stage (heavy outline) and subsequent stages of Maidstone District General Hospital, a two storey 'Nucleus' arrangement. Wards, operating, accidents, x-ray, pharmacy, rehabilitation and administration are in the northern clusters; on the southerly extension to the hospital street are the main entrance and education, then pathology, mortuary, medical records, stores and sterile supplies, and lastly the boiler house. Plant rooms rise above the general level of the roofs at the intersections with the hospital street. The first stage provides 300 beds and later extensions northwards and eastwards can increase this to 800, including accommodation for geriatric patients and radiotherapy to the north and psychiatric day patients to the east. Architects: Powell, Maya and Partners

9. CHAPTER NINE

9.1 D E S I G N

The most important rd requirements in the design of health centre is simplicity in the flow of patients and general circulation. They arrive and wait undergo some form of sorting such as into those for preventive medical care, diagnostic medical care etc. At the first instance.

Next is examination (consultation) of the patient who may then proceed for further examination on consultant's order at the laboratory or another medical personnel. From where he/she return to the consultant and may be referred for some sort of treatment such as treatment or injection.

Patient then, goes to pharmacy department collects prescription, proceed to injection room if need be and leaves the centre for home. He/she may have to some back the following day or some other prescribed time to complete the cycle. This is the case of an out-patient, for an in-patient the cycle is different.

When the in-patient is examined by the doctor, he is immediately directed to the ward after some injections and collection of medicine from the pharmacist. There may be no need for he/she to come to the O.P.D. the next day, since treatment rooms are available in the wards.

FUNCTIONS

General Waiting : These are equipped with wooden benches, and not chairs which are easily removable.

Consultation and Examination rooms

Ideally consultation rooms and what they comprise of represent the quality of service dispensable in a centre. Hence, there should be separate way in and out at one end of the room so that the examiner could have his territory at the other if resource permits.

Doors should open into the room not outside, while a connecting door between adjacent rooms is desirable to facilitate consultation between colleagues.

A desk, chair, a small book case for hand books, a lockable cupboard, a wash and basin, a chair for patient and bench for accompanying children or other relatives are needed inside.

Children should be allowed to come to the centre with their mothers so that they become familiar with the centre and discouraged from disturbing and distracting others as they cry outside examination rooms - helplessly. An examination couch screenable from the rest of the room should be provided.

DESIGN PROPOSAL

General Design Principles

Demographic Survey :- For health centre design to be complete and faultless, a demographic survey of the catchment area (area expected to be patrons of the centre on completion) is necessary, the size of a hospital or health centre we know is dependent on the number of beds.

The standard number of beds for a health building vary along geographical location of the site. The WHO (World Health Organization) advocates about 3 beds per 1000 head of population resident in the catchment area for urban centres and 2 beds per 1000 heads of population for rural areas.

DESIGN PRINCIPLES

In the words of Grooves (1981) "by principles we do not have in mind anything abstruse or remote from daily practice. We propose simply to discuss how to put the hospital together so that it will be more than a mere collection of functions and departments needed in the practice of medicine. How to put it together so that as a whole and in itself the hospital plant is a stool that serves the therapeutic process."

Primary considerations in the design of health centres include the following.

(1) Simplicity and clarity in the flow of patients.

(2) Avoiding it's confusion with that of staff.

(3) Humanization of the environment i.e (therapeutic).

Before we go on to elaborate on this let us review the kind of visitors a health centre receives and the nature of activities.

(a) First Timers - comprising those that had never for any reason visited the centre.

(b) Visiting for diagnosis - coming for detection of course for an abnormality, could be first timers or otherwise.

(c) Treatment - Persons on routine or at times call for injection or dressing.

(d) Renewing of prescription - Where the earlier prescribed drugs have failed in solving the problem or are hard to come by or sluggish disaapearance of symptoms.

(e) Signing of certificates - Consisting of visitors not really ill, or those that have recovered fully in need of a written testimony to avoid embarassment at work place, home, school or elsewhere.

(f) Disabled or infirm - People incapable of supporting themselves while in motion or those on wheel chairs.

(g) Old or confused

(h) Bearing children or relatives

Some Useful Calculations

Against the background of 3 per thousand and 2 per thousand hospital bed/population of catchment area, ratio endorsed by World Health Organization (WHO) for hospitals in urban and rural areas respectively. It is deemed rational to assume a ratio of this in the case of health centres while bearing in mind that recognition must be accorded need for referal system.

For a population of 177,608 in our catchment area; a ratio of 1/1000 is adopted considering the explanation made above.

$$\frac{1}{1000} \times \frac{177,608}{1} = 178 \text{ beds.}$$

This figure obviously is too big for a health centre and therefore 60.40% ratio is applied to accommodate the need for referal treatment.

This implies $\frac{40}{100} \times \frac{178}{1} = 71.2 = 71$ beds

but the allowable number of beds in a health centre is 60 hence our choice of 60 bed in-patient accommodation.

Using the proportionate distribution schedule established by World Health Organization, we obtain the following.

- Medical ward = 15beds
- Surgical ward 33% = 20beds
- Obstetric ward 19% = 11.4
- Pediatric ward = 9.0
- Other = 5beds

Consultation Room

$y = m \times t$ where y = critical no. of sessions

m = Average consulting time in minutes

s = Total length of each session

if r = number of sessions held weekly

c = critical no. of consultation rooms required.

Given $m = 2520$ for the centre in general

$T = 5$mins

$S = 420$mins.

$\therefore \quad y = \frac{2520 \times 5}{420} = 30$

if $r = 6.3$

where $c = y/r - \frac{30}{6.3} = 4.76 = 5$

No. of consulting rooms = 5

Todd Wheeler suggested 2 examination/treatment rooms per a consulting room. 10no. examination/treatment rooms

Operating rooms factors

Total number and kinds of surgical operations to be performed, given a 5 day average stay and 100% maximum occupancy of a 60 bed health centre, 20 beds of which are surgical.

$$\frac{20 \times 60 \times 365}{5} = 1460 \text{ operations/year.}$$

$$= \frac{1460}{287 \times 3.5 \text{ per room/day}} \quad 1.45 \text{ rooms}$$

$$= 2 \text{ rooms.}$$

NAME OF HEALTH INSTITUTION : Kirikasamma Local Government Health Units

LOCAL GOVERNMENT AREA : K/Kasamma Local Government

STATE : Jigawa ANNUAL MEDICAL REPORT : YEAR 1990

DISEASE	MALE					FEMALE					G/TOTAL
	UNDER 1yr	1-4 yrs	4-15 yrs	15 and Above	TOTAL	UNDER 1yr	1-4 yrs	4-15 yrs	15 and Above	TOTAL	
Diarrhoea sample without blood	627	879	605	667	2781	490	682	516	211	1899	4680
Diarrhoea with blood	436	479	499	334	1968	279	368	394	386	1427	3395
Diptheria	1	1	-	-	2	-	-	-	-	-	2
Dracunculiasis	-	3	2	1	6	-	-	2	2	4	10
Filariasis	-	-	-	-	-	-	-	-	-	-	-
Poisoning	-	41	76	74	191	20	58	61	59	198	389
Gonorrhoea	-	-	36	251	287	-	-	15	150	165	452
Hepatitis	-	-	20	-	20	-	-	-	5	5	25
Lassa Fever	-	-	- -	-	-	-	-	-	-	-	-
Leprosy	-	-	2	4	6	-	-	-	-	-	6
Malaria	1141	1770	1611	1763	6285	1114	1494	1403	1639	5630	11939
Measles	91	254	121	42	508	114	263	116	72	562	1073
Pestoisis	20	33	20	8	81	29	27	26	11	93	174
Pneumonia	48	111	122	152	433	43	85	105	72	305	738
Schistosonia	-	15	42	82	144	-	14	15	99	118	262
Syphilis	-	2	7	49	58	-	-	-	11	11	69
Other Sex diseases	-	-	-	2	2	-	-	4	4	8	10
Trachoma	3	5	5	24	37	1	3	2	6	12	49
Typhoid & paratyphoid fever	2	3	4	3	12	8	7	3	-	18	30
Number of Deaths	3	4	1	-	8	4	3	3	2	12	

TABLE : 11 MONTHLY MEDICAL REPORT : MARCH 1990

KIRIKASAMMA LOCAL GOVERNMENT AREA, JIGAWA STATE.

NUMBER OF CASES

DISEASE	MALE					FEMALE					G/TOTAL
	UNDER 1yr	1-4 yrs	5-14 yrs	15 and Above	TOTAL	UNDER 1yr	1-4 yrs	5-14 yrs	15 and Above	TOTAL	
Diarrhoea simple without blood	61	84	47	63	255	62	79	74	72	287	542
Diarrhoea comp. with bllod	38	51	47	46	182	30	42	33	36	141	323
Gonorrhoea	-	-	2	38	40	-	-	2	11	13	53
Malaria	104	160	123	141	378	133	119	150	140	542	1,130
Measles	25	30	19	8	82	27	38	27	19	111	193
Pneumonia	-	12	7	7	26	3	13	8	10	34	60
Schistosomiasis	-	15	10	7	32	-	-	8	7	15	47
Syphilis	-	-	-	13	13	-	-	-	8	8	21
Trachoma	-	-	1	1	2	-	-	1	3	4	6
No. of Deaths as result of Measles	-	2	-	-	2	1	1	3	-	4	6

TABLE : 12 MONTHLY IMMUNIZATION ACTIVITY REPORT

STATE : Jigawa MONTH 8 - 12 October

L.G.A. : Kirikasamma YEAR : 1990

REPORTING : VID's

TYPE OF IMMUNIZATION	PROCEDURE		NO. OF IMMUNIZATION UNDER 1yr	12-24 Month	2-4 yrs	5-14 yrs	14 & Above	TOTAL
BCG	Primary Vaccination	859	670	-	-	-	1,529
BCG								
D.P.T.	1st dose	808	754	-	-	-	-	1,562
	2nd "	754	775	-	-	-	-	1,520
	3rd "	79	172	-	-	-	-	251
Polio	1st dose	808	754	-	-	-	-	1,529
	2nd "	754	775	-	-	-	-	1,529
	3rd "	79	172	-	-	-	-	251
		545	1,425	-	-	-	-	1,970

THE SITE

Location : - The site is located in Kirikasamma town, headquarters of K/K Local government in Jigawa State. The area falls between latitudes 8^{o}.00E to 10^{o}.35EE 4km along Hadejia - Nguru road on longitudes 11^{o}.00N to 13^{o}.00'N

Topography : - The site is relatively flat in line with gentle terrain charactristic of the surroundings, Lying in a regional plain of about above sea level. Direction of fall is toward the north with slight indication to the west. There is exuberance of grass cover interspersed by shrubs and occassional trees of the sudan savanah. When judged against the access road that borders it to the east it occupies a depressed position altitude wise.

Vegetation : - As earlier mentioned the area falls within Sudan-Savanah vegetational zone. Characterized by luxuriant grass cover, prevalent shrubs and rare trees. The heights of which hardly reach 15m. Grass types include hay, elephant grass and due to climatic conditions, trees such as Neem and Dhalbejia are the only ones.

Geology : - The underlying rocks, that cut across most part of the state from south to north is precambrian schist, granite and gneis of the basement complex potash is the chief mineral deposit, existing in commercial quantity.

Soil : - Beneath an agriculturally formed sedimentary rocks often waterlogged are laterites that provide good foundation for construction works.

Accessibility : - The site is accessible via branch off from the Hadejia - Nguru road which borders it to the east and several other footpaths from neighbouring villages e.g. Diladige to the west, kasabur to north-west etc.

Electricity : - The project town has recently being connected to the national grid via a medium size transformer which supply the site as well.

This however is to be complemented by a standby considering the cogency of power in any Health institution, a responsibility which the .L.G.A. would be willing to shoulder.

Water Supply : - The town enjoys pipe-borne water, pumped through a central storage tank. This has already being extended to the clinic this has however not nullified the need for a pump well to guard against failure and meet the ever increasing demand for water in a hospital.

Hydrology : - Concentration of trees and shrubs towards the northern boundary of the site and it's southern wind is an indication of high soil water. When it is realized that the trees remain green for most part of the year.

THE PROBLEM

As a result of population explosion which lacked corresponding increase in the area of food production and affluence the average individual (Nigerian citizen) has become more gullible to diseased growth.

This is more so in an area where the level of western education is regretably very low if one considers the tremendous role played by school hygiene.

Kirikasamma local government, although blessed with abundant natural resources (fertile land, waterbodies, economic trees etc.) to mention a few, and manpower as revealed by the recent population figures has for years remained deficient in health care delivery (facilities) effort. Apart from the small dispensary (old), the Basic health care unit constructed in 1986, and a similar one in Guri town, nothing has so far been done to arrest the unfortunate development. It is in the light of this that the local government council found it necessary to make a move that will ensure the establishment of a health centre in the headquarter as obtains in other local government headquarters near and afar within the state.

According to them duplication of the erstwhile available health building designs in the state Ministry of health would be improper, as such may not necessarily meet socio-cultural requirements of the people, majority of who constitute the Users and workers alike.

A centre which integrates modern curative and preventive medicines plus a bit of traditional one and designed after due considerations of the local norms and specificity, will surely be more acceptable and therefore more effective in tackling health problems in the area.

Like any other health centre, it is demanded that this one too, incorporates curative, preventive and promotive services, hence provisions, should be made for the following units:

(a) The out-patient department to comprise of

i) General/main waiting (ii) Reception

iii) Card room (iv) Consultation rooms (M & F)

v) Dispensaries (Male & Female) + waiting spaces

vi) Treatment rooms (male and female)

vii) X-ray unit (x-ray room, dark room and reception)

viii) Staff and patients toilets (male and female).

SCOPE OF THE THESIS

i) Macro-scope : Since this project is for a site within the boundary of the Local Government head-quarter. Kirikasamma it's architectural quality should be of a standard befitting a modern town in the making, this assertion does not lack credence in the development statements of towns in the making. For it will be unwise for one to propose a project that will suffer obsolence even before it is completed.

ii) Micro-scope - This consist in the design of a health centre that will incorporate, the out-patient development, radio-dignostic department nursing units, administration ancilliary services and public health section.

iii) Academic scope - For a Master of Science Degree thesis, the need to delimit study area, within the reign of standard requirements has induced the author to select traffic flow as a socio-cultural problem from a number of academic challenges characteristic of health buildings. Others as fire protection, noise control etc. do not receive emphasis in this submission.

iv) Research Interest - An area of interest is chosen to allow for an indepth study. Here our concern is traffic flow in it's response to socio- cultural influences. The objective being to distinguish - various types of traffic generated within health building of this level and the need to segregate these while giving due attention to socio-cultural values.

Traffic flow we already know is a problem that deserve serious consideration from the architect.

MOTIVATION

The reasons below gave birth to this scheme:

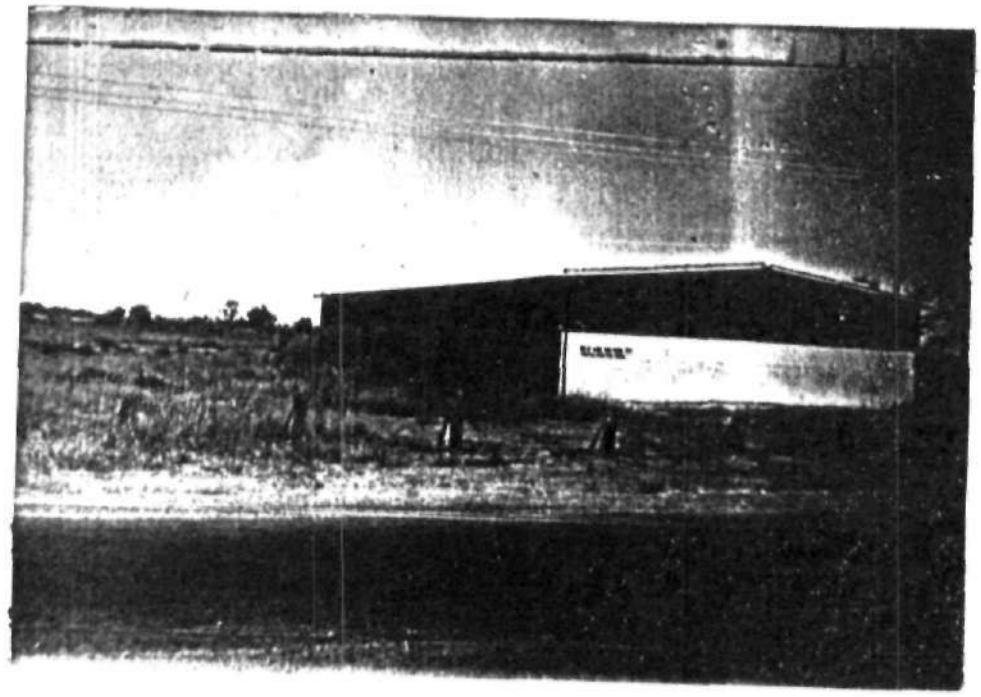
- Absence of provision similar to this in the area.
- Need of a means for offsetting the economic embroglio hindering the national drive towards attainment of health by the year 2000.
- The problem of patronage due to lack of confidence and unsuitable provision in the centre.
- The desire to satisfy socio-cultural conditions in the design of communal buildings.

PLATE 24



THE AUTHOR IN COMPANY OF
THE CHAIRMAN - KIEHLA'S
DEVELOPMENT CLUB

PLATE 25



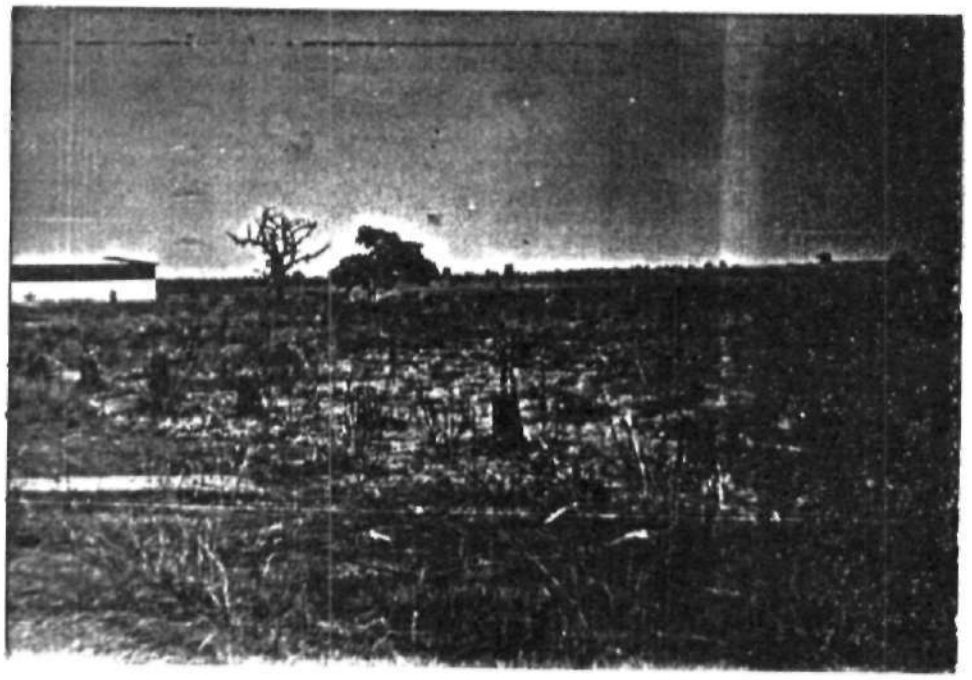
EMERGENCY RELIEF
REPAIRING PEOPLE'S

PHOTO 26



TYPICAL VEGETATION
SEEN TO THE SOUTH OF THE
PROJECT SITE.

PHOTO 27



THE PROJECT SITE SEEN FROM
ACROSS THE ROAD

DESIGN REPORT

Plan

After careful evaluation of the available information as presented in the analysis stage, the pavillion spread concept with slight modification was opted for. This is best described the Hamess concept as prerequisite to planning. Circulation, simplicity and services are the basic ingredients of hospital planning.

"Here it is important to note that a health building or complex is more than just a building with bedrooms. It is a complicated, highly specialized functional structure which must be designed for the various facilities, instead of having the facilities forced into certain areas because of a desire to produce some particular architectural appearance. Such errors result in nothing but regrets and censure of the planners and builders with dissatisfied patients, staff, employees and excessive operating or remodelling costs".

Bearing in mind the nature of the project and it's site, a rectangular form was adopted this comprise of two separate blocks that are connected by two narrow strips of accommodations perpendicular to the former and thereby enclosing a courtyard giving it the domestic posture required of a health centre.

Two other courtyards to serve as nutrition gardens and demonstration farms are created behind the link blocks.

In the scheme entrance is via a spacious porch, supported at its periphery by four concrete piers to the general waiting area, which is subdivided into male and female wings by a light partition with the card room centrally disposes at the end wall, (adjoining the central courtyard).

From the general waiting hall four corridors lead through waiting spaces to other functions. Of these two lead directlyahead to the nursing unit via emergency section, male day room etc. on one side and X-ray, delivery ward, labour room and delivery on the other.

The remaining two sideways of the general waiting lead through male, consultation rooms, dispensary to male staff and patients toilets sandwitched by clinical laboratory and serves as offices on the right, while it on the left lead through female consultations rooms, female dispensary to female staff and patients toilets, wedged between admin offices and public health section.

At the end of the two corridors that lead ahead from the general waiting area is operating theatre unit flanged on it's sides by male surgical and female surgical wards, to the right and left respectively. Both are accessible via a 3m wide corridor/verandah running along the theatre entrance/reception and forming a T junction with the two corridors that empty into it.

Adjacent to the male surgical ward on it's right end and and separated by a 2m wide corridor is the male medical ward and ancillary accommodations, this block also forms a T with the male surgical ward.

Similarly, adjacent to the female surgical ward at it's left end and separated by another 2m wide corridor is a block housing the female medical ward, duty room sisters room and female day room.

The courtyards provide waiting spaces for escorts, open air lectures, demonstrations, and relaxation. They process ventilation and enhance day lighting.

Elevation : The facades of health buildings need not express too much aesthetics or grandeur since functionality and circulation are the most over-riding consideration. As such major facades face north/south desirable directions although the approach faces east as it exists, here it will be noticed that openings on this and the west sides are grooved this will not only trap the effect of sun, but will also create some cooling effect in the interior.

Vertical shading columns and overhanging roofs are evenly employed to minimize exposure of wall surfaces to excessive solar radiation characteristic of this area.

Structure : Consist in simple structural system made to obey 6m grid (module), double-pitched roofs of simple trusses and drainage via gutters by the sides.

Services : Little or no problems can be expected of a building which has most of its exterior walls unengaged. The land is relatively flat, sloping gently in the north west direction, where most of the drainage channel is directed.

Materials and Finishes : Materials employed are basically concrete hallow blocks (225mm) for structural walls and (150mm) for partition walls.

Timber steel and aluminium sheets are used in the roof and other relevant areas. While anodized louvers and casement doors are used to secure openings.

Finishes include terrazo and granolithic cement screed for floors, spatter dash and eggvolk paint on walls. Other include cork tiles, linoleum and carpets.

SCHEDULE OF ACCOMMODATION

Out-Patient Department

FUNCTION	NUMBER	AREA m^2
Card Room	1	33
Store		
General Waiting	1	180
Consultation/Examination room (male)	2	72
" " " (female)	2	72
Under-five clinic	1	36
Dispensary	2	36
X-ray room	1	36
Dark room	1	8
Waiting space	1	18
Changing space	1	9
Treatment (Male)	1	18
Treatment (Female)	1	18
Pharmacy	1	36
Store	1	18
Laboratory	1	48
Patients toilet (Male)	1	13.5
Patients toilet (Female)	1	13.5
Public Health		
Lecture hall	1	45
Offices	2	36
Couryard and garden	1	90

FUNCTION	NUMBER	AREA m^2
<u>Administration</u>		
Community health officer	1	24
Secretary of health	1	21
Medical Officer	1	24
Supervisor	1	24
Health superintendent	1	24
Sister	1	18
Seminar room	1	34
Toilet for staff (male)	1	13.5
Female staff toilet	1	13.5
<u>Ante-natal Clinic</u>		
Labour room and toilet	1	36
Delivery room	1	30
Sluice room	1	1.5
<u>Post-natal</u>		
Treatment room	1	36
<u>Operating Suite</u>		
Reception	1	9
Patients waiting	1	24
Changing room	2	24
Toilet	2	6
Scrub-up and store	7	6
Anaethesia	1	12
Lobby	1	5
Operating theatres	2	61
Sluice room	1	5
Sterilizing	1	8

FUNCTION	NUMBER	AREA m^2
Male Ward		
Surgical ward	1	72
Treatment rooms	2	18
Nurses duty room	2	24
Courtyard	1	132
Toilets and lobby	4	12
Shower and lobby	2	6
Sluice	1	6
Nurses change	1	6
Day Space	1	36
Medical wards	1	54
Female Ward		
Surgical ward	1	72
Treatment rooms	2	24
Nurses duby room	2	
Courtyard	1	132
Sluice	1	6
Toilets and lobby	4	24
Nurses changing	1	6
Shower and lobby	2	6
Medical ward	1	72
Ancillary Services		
Kitchen	1	18
Store	1	9
Servery	1	9
Laundry	1	18
Ironing space	1	18
Dining	1	26
General store	1	18
Maintainance Unit	1	24

CONCLUSION

Traffic problems in health institutions can be controlled by the provision of adequate circulation space, that is raising the proportion of circulation area vis-avis designed functional spaces, offsets/recesses along corridors, streets or direct circulation routes. Separation of routes between staff and patients and among different visitors.

Prevention of crossed flow, subdivision of waiting areas and sufficient lighting of major traffic zones are also considered tenable solutions.

To facilitate uninhibited flow of hospital vehicles, achieving of much as possible an even ly finished floor level is equally important and acceptable as a design solution to hospital traffic.

Similarly doors must not open onto waiting areas, while crowd generating/attracting functions must not be situated close to one another to curtail rowdiness, which is a mistake often made by designers and access to them should not lead from same direction.

Although much has been said about traffic problems in health institutions, little has been achieved at the level of health centres, thus my motive for contributing the little I know and learnt from observations.

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QUESTIONAIRE

OUT AND IN PATIENTS - A HOSPITAL SURVEY

INSTRUCTION

The purpose of this questionaire is to find out what impact has ward environment and that of the clinic in general got on the recovery of a patient. Your identify is not required.

SECTION I : General Information on Hospitalization

Please answer the following questions.

(1) Your Admission/Card number .....

(2) Your age at last birthday .....

(3) Sex : Male..... Female .....

(4) Name of birth place or residence .....

(5) Address .....

(6) Occupation .....

(7) For how many days have you been in the hospital and how many times have you been here .....

(8) List the type of drugs you have used so far .....

SECTION 2 : General Information on your Ward.

(1) How many beds are there in your ward .....

(2) How many beds are occupied .....

(3) Do you find the atmosphere uncomfortable? .....

(4) What are the major source of discomfort as far as you are concerned? .....

(5) How would you like to have a snack bear within easy reach .....

(6) What and when was your worst experience in a hospital .....

(7) Indicate your current medical problem .....

.....

(8) Do the location of conveniences upset you? .....

(9) What would you say about the general distribution of facilities in your (domain/ward) .....

.....

(10) Do you consider the number of staff attending you adequate .....

SECTION 3

(1) Just before you are admitted into this hospital and even before your illness became serious/acute you may thought of going to some other clinics or resort to some other means. Indicate by a way of ticking the most appropriate (responses/line of action) intention.

(a) Not to come to clinic at all

(b) Go to a dispensary

(c) Expect miracles

(d) Opt for traditional approach.

(2) Indicate your confidence in the operation of hospital services.

(a) Not confident at all

(b) Slightly confident

(c) Fairly confident

(d) Very confident.

(3) How do you find ward environment

(a) Conducive

(b) Comfortable

(c) Uncomfortable

(d) Hostile

Following is a list of factors which influences people's choice of a particular hospital, distance immaterial.

REASON	NONE	LITTLE	MUCH INFLUEN-CING	VERY MUCH	A GREAT DEAL
Established loyality	1	2	3	4	5

PART B

Underneath are some possibles reasons why people come to hospital. How important are these reasons in your opinion.

REASON	NONE	LITTLE	MUCH INFLUENCE	VERY MUCH	A GREAT DEAL
a) My family like it	1	2	3	4	5
b) My friends prefer it.	1	2	3	4	5
c) Most people go to hospital	1	2	3	4	5
d) I was encouraged to go to hospital	1	2	3	4	5
e) Have read a lot about hospital in books.	1	2	3	4	5
f) Have seen many people go there and regain their health	1	2	3	4	5

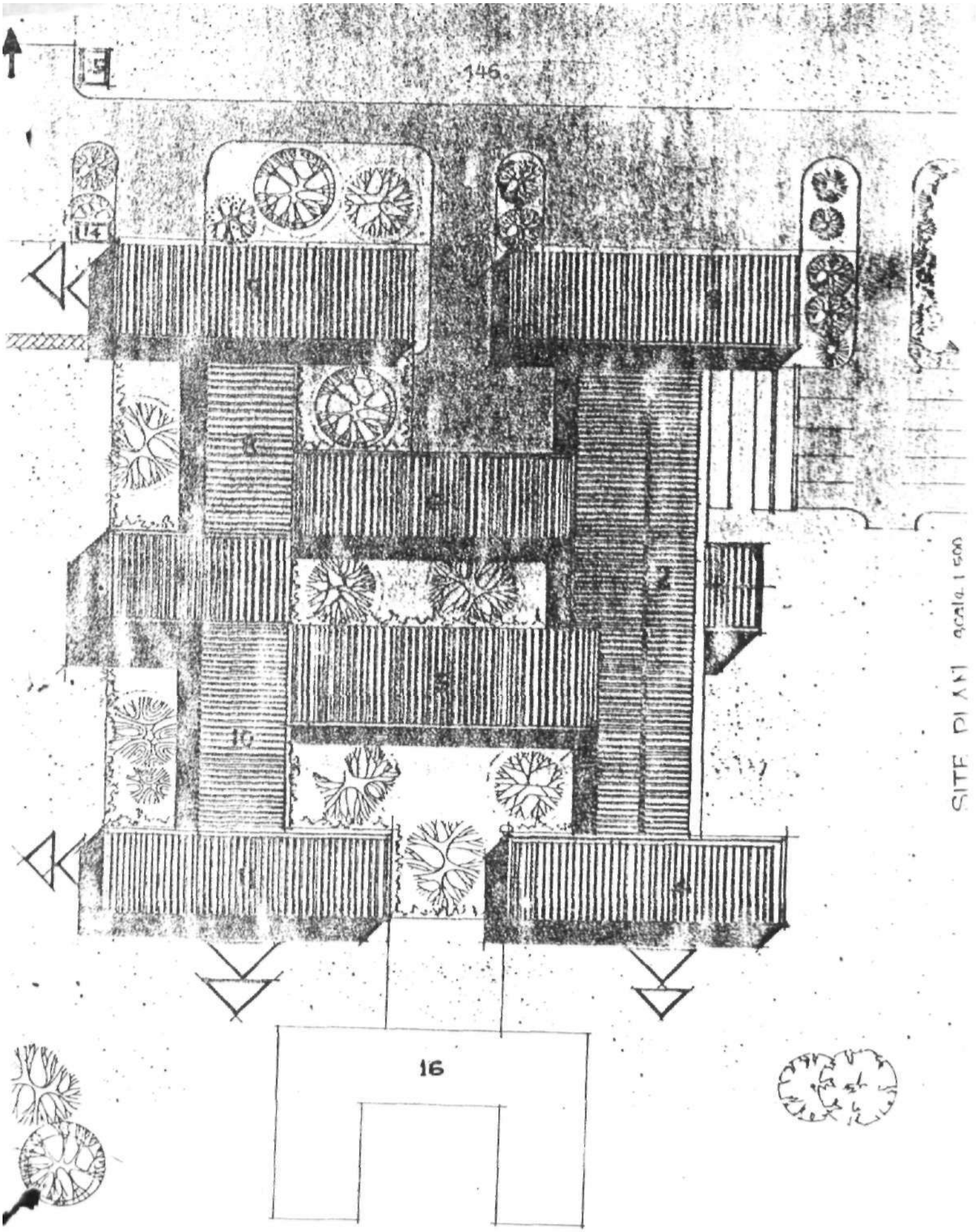


Fig. 7

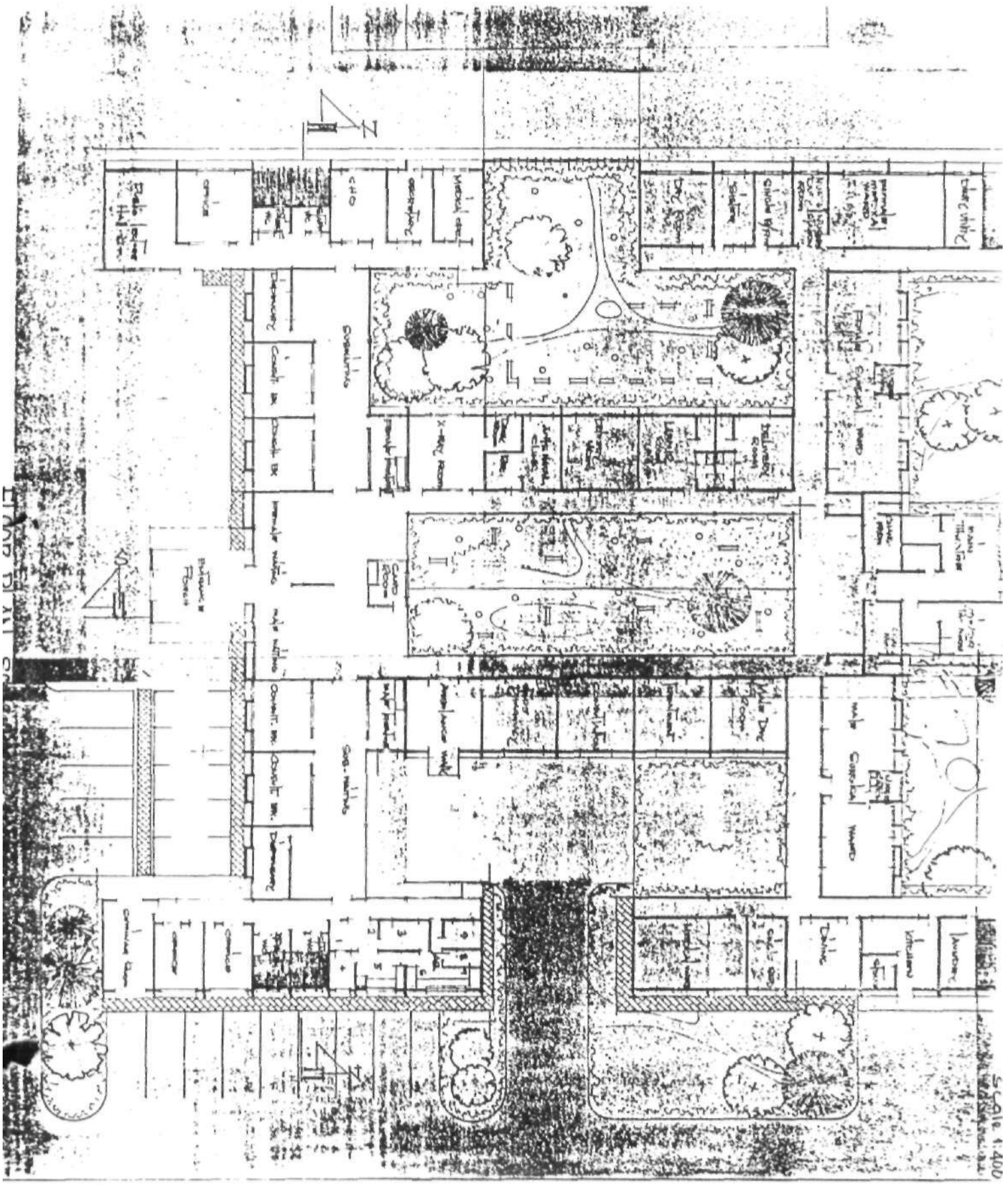
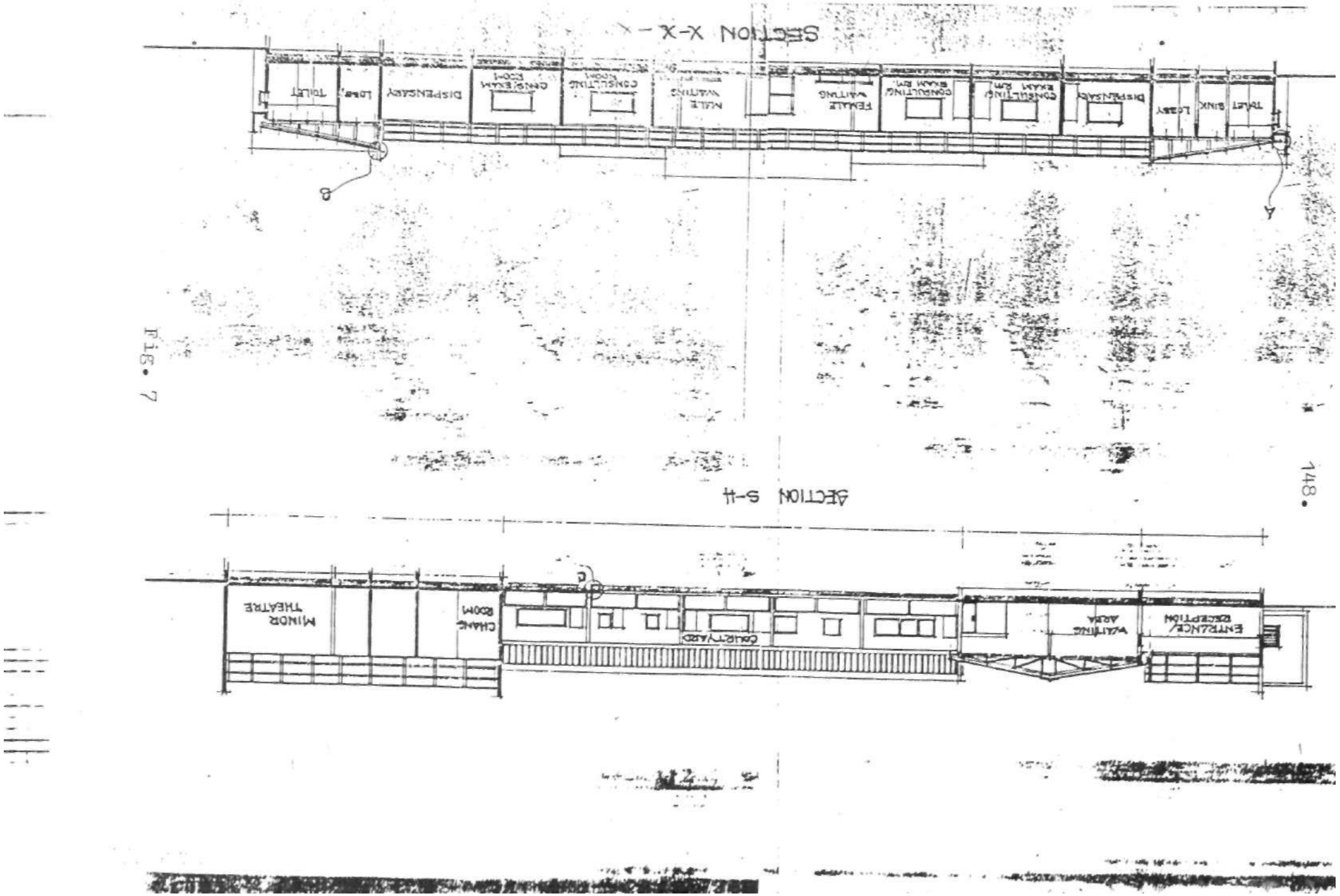
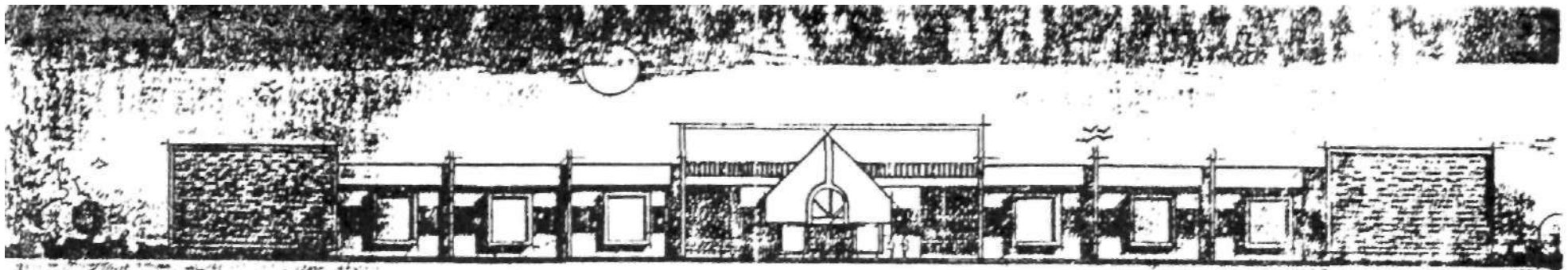


Fig. 7

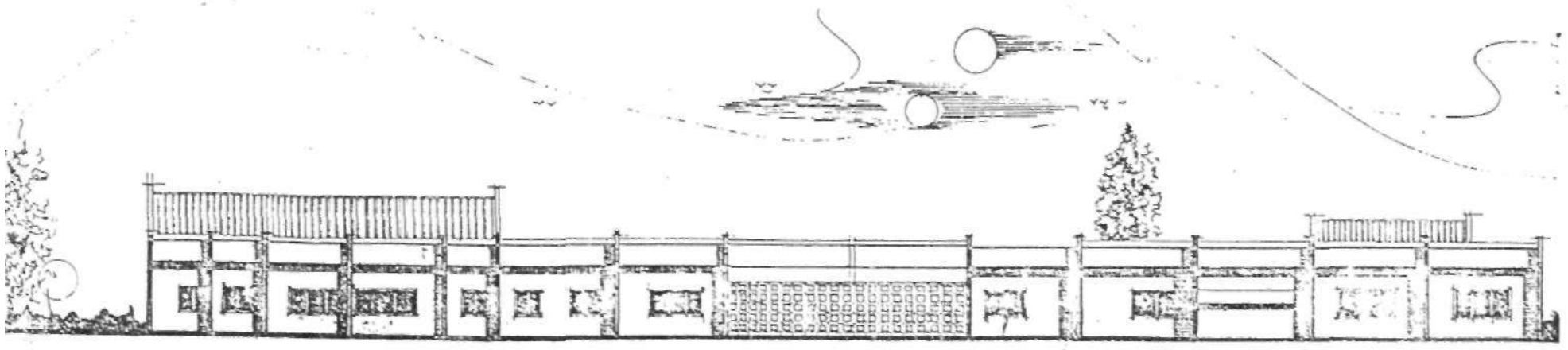


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Fig. 7



APPROACH ELEVATION (EAST)

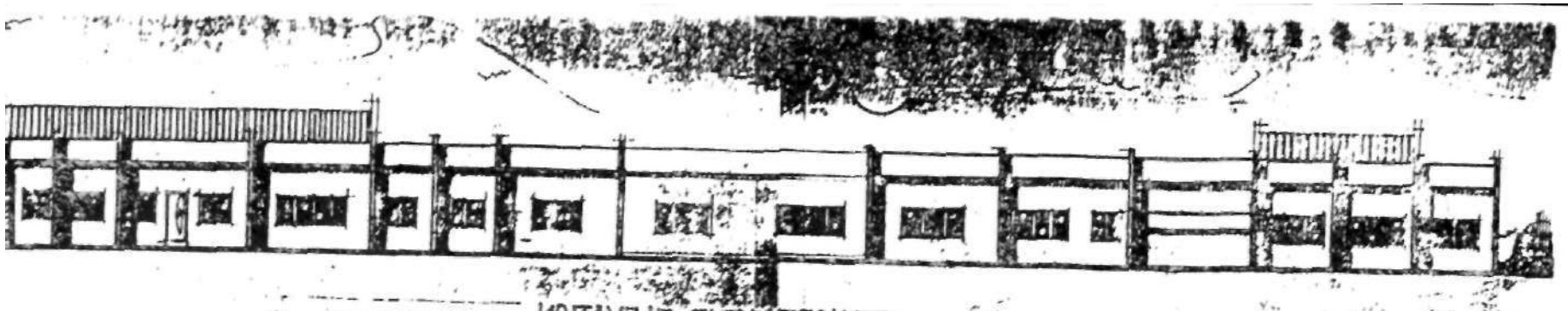


SOUTH-END ELEVATION

SCALE 1:400

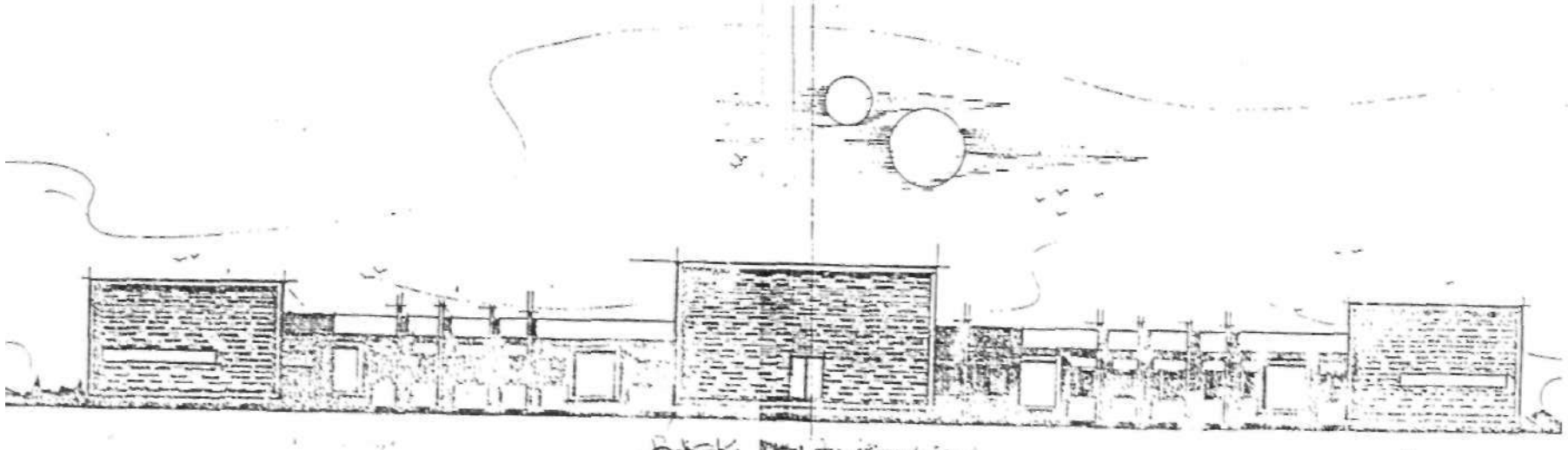
Fig. 7

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NORTH END ELEVATION

Fig. 9



BACK ELEVATION

Scale 1:400