PSYCHIATRIC HOSPITAL MAIDUGURI

BY

APAGU, ALI ABBAS

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ABSTRACT

It is evident that, there ore many Nigerians suffering from confirmed or unconfirmed mental problems. Those people require psychiatric consultation, treatment, and rehabilitation facilities. It is also evident that there are very little or no such facilities, at both Federal and State levels, in the country.

The Federal government of Nigeria proposes to construct and furnish each State with a Psychiatric Hospital. The States are expected to meet the running and maintenance costs of these institutions.

This thesis is intended to express how architectural planning, can help para-medical professionals in controlling mental health, by properly designing the hospital - milieu.

The research scope includes; medical science, particularly in mental health, building technology, and psychiatric easthetic values.

Medical science in mental health is expected to provide the Architect with the indepth trends in psychiatry (sort of get him mad). Building technology and easthetic values in psychiatry, will help to initiate the design concepts, and control the evolution of building systems and building forms.

Patient's needs, Staff needs and patient's relatives or friends needs are the most significant design requirements. Also paramount is the proposal for a schedule of accommodation. Most important design considerations and

solutions include; location of site, effects of building forms (building heights, structural systems, etc.) on patients and staff, and the use of colour, light, (artificial and natural), ventilation and noise control.

In designing for the mentally ill, architectural concepts have been evolved to obtain a succession of a gradation of social milieus both at micro and macro levels, within the hospital site.

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INTRODUCTION

PSYCHIATRIC TRENDS

SUBJECT MOTIVATION AND GOALS

RESEARCH METHODOLOGY

MANNER OF REPORT STRUCTURE

PSYCHIATRIC TRENDS

Psychiatry is a special branch of human medicine that de ls with proper consultation, diagnoses and treatment of the human psychic structure that shows signs of deviating from a normal behaviour. The treatment of abnormal behaviour is controlled by a psychiatrist in a specialist (psychiatric) hospital[1]. All factors (hospital location, building design, staff, facilities etc.) pertaining to psychiatry, must be carefully analysed and structured. A great deal of care and time are prerequisite in the treatment of the human psyche.

The concept of abnormal behaviour is an age old * phenomenon. It started in the beginning of civilization[2], when man started forming communities. Because insanity deals with what it is that makes people human, religion, culture, philosophy, astrology, medicine etc. have been and are still being used to explain its mechanism. The various methods have their merits and demerits. In any method chosen to understand abnormal phenomenon, one encounters what Kuhn (1962) called 'paradigm clash'. "Paradigm clash" exist in the history of scientific field when the prevailing view of the problem is challenged by one or more new conceptual schemes, that is, a variety of fundamentally different view points competing for accendency[3]. In modern day psychiatry, 'paradigm clash' can be observed in the emphases, by behavioural scientist,

on factors considered more relevant in the causes and various methods of treatment.

The various conceptual anologies used to understand and control abnormal behaviour, too seldom cure it[4]. The story of psychiatry began, in the ancient period, when one man attempted to relieve another man's suffering by influencing him[5]. At one time, magic, witch craft and religious cults used the spirit and demon 'model'[6] to explain and treat abnormal behaviour. Their efforts were always directed towards a mighty super human power, outside the patient, that influenced the disturbance.

The modern day social scientist considers 'social factors' as the main causes of insanity. David (1978) in his book "The language of Madness" wrote that "there is no radical need to go mad, but madness is one desperate expression of a radical need for change"[7]. Roger (1972) in his book "Sociology of Mental Disorder" quoted Audiffrend, a disciple of Comte, saying;

> Insanity is characterised by a two fold subjectivity, both logical and social.
>
> Logically, insanity, like the dream and day dream is a process without object, where-as the scientific or positive approach is dependent on object.
>
> From the social view point, insanity, again like the dream and day-dream, represents the mind which has broken away from collective control and given over ot itself[8].

> Marxist dialectics prove that all phenomena in any natural sphere (and consequently the sphare of abnormality) must necessarily be observed in their environmental context. Pathogenic conflicts in the individual are the repercusion or reflection of the general conflicts of a capitalist society. Therefore the first task of psychotherapy is to change the social environment and to improve the conditions of life[9].

A significant medical approach started in the classical era, when the chronological order of the development of scientific thought from cosmological speculation to the study of man started. Man first discovers the stars, then his immediate physical environment, then his body, and only last his personality and the society in which he lives"[10]. This understanding of personality and the effects of the society around it, revolutionalised the approach to human medicine. Hippocrates (460-377 BC) was the first to apply "the speculation of philosophers to medicine and combine them with bedside observations"[11]. He evolved the hippocratic 'tenet' that says "it is nature that heals the patient and the doctor is merely nature's assistant"[12].

It was in the Frendian age (1800s) that Sigmund Freud[13] contributed immensely to the understanding of man's nature. "His principles of 'psychological apparoch in psychiatry' was responsible for the emergence of the first comprehensive

theory of personality based on observation and not merely on speculation"[14]. The pioneers of this concept used the psychological perspective and related abnormal phenomenon with the human mind and its associated mechanisms of thinking, feeling and relating*. Not surprising, today, abnormal behaviour is still a misery. It is "still feared, marvelled at, pitied, and tortured"[15]. More professional fields (law, architecture, etc.) are contributing in the very extensive research on abnormal behaviour today.

SUBJECT MOTIVATION

Industrialization and urbanisation encourage over population and lead to joblessness as a result of a declining economic situations. These produce high crime rates, drug dependence, alcoholism (as noted among most youths) and prostitution. These are forms of stresses which may bear on the psyche of the individual and may result in abnormal behaviour. "As Nigeria strives for industrialization, it is generally believed that mental illness will be on the increase"[16].

Observation shows an overwhelming number of mad people in Nigeria, that roam the streets of most of her cities without any proper attention, in terms of control and cure, offered to them. There are many others that suffer simple

---

* Present day psychiatric treatment considers apart from the psychonemotic origin, biochemical biomagnetic, physiological, environmental, spiritual and social factors.

and undifferenciated psychological disturbances, who try to cope with the tolls of a normal life. These people need the services of localized psychiatric facilities all over the country. A large number of affected persons have been conveniently kept away in 'mental' hospitals.

> It is well known that the so called mental 'hospitals' are not hospitals, but primary places of detention contrived for the primary purpose of keeping the patients from harming themselves and from getting loose and possibly harming others. Little attention has been paid to the humanisation of these institutions and a humane environment is one of the few reasonably sure tools in the treatment of the mentally ill as well as the mentally retarded[17].

There is a great social change and value, that "today the emphasis is no longer on getting the emotionally sick out of sight and out of mind, but on treating them in the community and returning them to its activities as soon as possible"[18].

GOALS

The goal of this theses research, among other things, include:-

1. The design of a humane hospital environment "pervaded 'by' a strong, therapeutic atmosphere

which would encourage interaction with the surrounding community"[19].

2. The author wishes to satisfy a growing curiosity concerning the psyche phenomenon and how architecture can contribute to its therapeutic process.

RESEARCH METHODOLOGY

Both primary and secondary information were collected and analysed. Although prepared questionnaires were used to collect most primary information, it was necessary to maintain a physical rapport with the information source. These sources include psychiatric doctors, psychiatric nurses, psychiatric patients, psychologist, social welfare workers, government officials, News media etc.

It is not easy to obtain relative information from psychiatric doctors particularly. One of their apparent handicap may be attributed to their work schedule, which requires a lot of time and effort. It may be said that dealing with so many mad people rubbs on them. They cannot be blamed for that. Another setback most psychiatric doctors show is their inability to appreciate the relevance and signficance of architecture in the treatment of their patients. All these withstanding, once their interest is kindled, they are very good sources of information.

Secondary information source is in the form of printed matter. Apart from various private contributions, Kashim Ibrahim Library is a very good source of psychiatric literature. The main problem of secondary information is, lots of material were to be synthesised to obtain relevant facts of architectural significance.

The basic trend of the research is as follows:-

1. "Conceptions of disease and what constitutes health.
2. Medical and building technologies.
3. Social factors and easthetics attitudes"[20].

MANNER OF REPORT STRUCTURE

What are the types and characteristics of psychoneurotic disorders as exhibited by mad people? The architect should be well informed on this question. This is to enable the designer provide adequate spaces and facilities required by the patient, the treatment teams, and the patient's relatives at various stages of the patients' disorders. This question is also important at the stage of evolving a design concept to avoid a catastrophic design solution.

In order to familiarise the designer with medical technologies of psychiatry, a chapter has been included about the major types of psychiatric treatments practiced in Nigeria. There is a detailed discussion of modern treatments and the types of personnal required.

A Chapter deals with Maidugiri, the setting of the design thesis. Various psychiatric hospital locations are shown and the chapter will conclude by discussing the site th author choses.

A section of the write-up is devoted to the reports of case studies. The various departments and schedule of accommodation of the intended design theses. It will also discuss the design concept, problem synthesis and the f inal design.

NOTES:

1. ISADORE ROSENFIELD (1969): Hospital Architecture and ---- Beyond. 310 Pages, p. 133.

   "A specialist hospital is one which is devoted to someone or of related diseases, that treatment of which requires protracted periods" and may require an individual setting.

2. FRANZ, G. ALEXANDER and SHELDON T. SELESNICK (1967): The history of psychiatry. 471 Pages, p. 3.

3. RICHARD H. PRICE, (1972): Abnormal behaviour perspectives in conflict. 278 Pages; p.4.

4. FRANZ, G. A. and SHELDON, T. S. (1967): ap. at. p. 3.

5. Ibid., p. 17.

6. RICHARD, H. P. (1972(: op. at. p. 11.

   "a model may be described as any conceptual analogue which is used to initiate emperical research".

7. DAVID COOPER (1978): The language of madness. 182 Pages. Cover Sleeve.

8. ROGER BASTIDE (1972): The sociology of mental disorder. 251 Pages. p. 13-14.

9. ROGER, B. (1972): op. at. p. 19.

10. ...Op. at. p. 28.

11. Ibid. p. 30.

12. Ibid. p. 31.

13. Sigmun prend is considered by many behavioural scientists and psychiatrists, as the father of psychiatry. He developed the principles of psychoanalysis.

14. op. at. p. 181.

15. Ibid. p. 3.

16. N.T.A. Network programme (3/1/83) 8.30 p.m.

17. ISADORE, R. (1969): op. at. p. 136.

18. Ibid. p. 136.

19. A. BAKER, R. L. DAVIES and P. SEVADGI (1969): (World Health Organization Geneva) Psychiatric Services and Architecture. 58 Pages. p. 7.

20. op. at. p. viii.

CHAPTER ONE

ABNORMAL BEHAVIOUR, TYPES

SUMMARY

A normal human behaviour is, in general, quite predictable, and can be explained by reason, and changes with time. When a behaviour is unpredictable, unconventiona, ca ..ot be explained by reason and does not change with time, it is regarded as abnormal. Classification of abnormal behaviour, using the illness perspective, can take the form of causal factors. Some causal factors are predisposing while others are precipitating.

1:100 PREDISPOSING FACTORS

"These are events or conditions that occur long before any abnormal behaviour is observed and yet may predispose the individual to later difficulties. Causes can b. a consequence of previous experience of some genetic and physiological events or both"[1]. Predisposing causal factors may take any of the following forms.

1:110 THE GENETIC CODE

Abnormal behaviour can be inherited by a child from a parent over generations, through the genes. When there is an abnormal property in a propagating cell of an individual, the gene may biologically adopt and propagate these tracts to a new cell. The chances of the new cell pressuring these tracts are 8% and 16% if one of the parent or both parents, respectively grosses abnormal tracts. A good example of

genetically inherited abnormal behaviour is shizorenia.

1:120 INFECTIONS SUSTAINED AT PREGNANCY AND INFANCY

This is associated with disease and conditions due to infection. For example, german measles, occurring during the first three months of pregnancy and a number of infectious diseases of infancy at childhood which may cause brain damage. It is also associated with disease and conditions due to poisoning from a variety of sources.

"All instances of cerebral damage due to serums, drugs, other toxic agents either taken by or produced by the mother during pregancy" or by the child at infancy[2].

1:130 INJURIES SUSTAINED AT BIRTH

Physical accidents and respiratory problems as a result of improper delivery. These can lead to a pressure on the brain and can produce abnormal behaviour.

1:140 EXAMPLES

Examples of predisposed abnormal behaviour are the idiot, mongol, emesicle and the mentally subnormal. Some of these abnormalities can be effectively treated at a very early stage of development. But because of lack of proper per know-how and concern by parents/guardians, and because these traits are not very apparent at an early stage of

development, the situation may continue to degenerate or remain dormant. Degeneration may lead to mental retardation. "Mental retardation refers to sub-average intellectual functioning which originates during the developmental period and is associated with impairement in adoptive behaviour"[3]. Mental retardation may be effectively managed through preventive, diagnostic and clinical services, residential care, special education, rehabilitation facilities, etc.

1:150 DORMANT CHARACTER

Some predisposed abnormal character may be dormant within the individual. This may successfully pass through generations without being noticed, but could precipitate under some strains in any generation. This is important in the psychohistory of the patient at his early consultations.

1:200 PRECIPITATING CONDITIONS

These are events which serve as a 'trigger' for the disorder. A precipitating life event could be a suddent loss of a loved one, a disaster, a major failure in life, or a suddent psychological change. The ingestion of LSD for example, can sometimes precipitate severe reactions in individuals who are predisposed to react in this manner[4].

Precipitating factors are classified into two groups. Th: psychoses and the neuroses conditions.

1:210 PSYCHOSES CONDITIONS

A psychotic does not usually possess any insight and may claim to be mentally or otherwise fit. Psychoses is characterised by the problem of thinking, feeling, and relating, usually accompanied by hallucinations, depressions with drawal syndromes and anti-social behaviour. They could, occasionally be violent. Psychotic conditions may have any of the following origins.

1:211 PHYSIOLOGICAL ORGIN

Many acute diseases of physiological origin may precipitate into abnormal behaviour. Such diseases as veneral diseases (e.g. sypillis, gonorea, etc., because of the psychological effect), malaria, high fever, typoid fever, tuberculosis, epilepsy etc.

1:212 PSYCHE ORIGIN

Types are manic-depressive illnessess, examples include:-

(1) Depressive illness

(2) Psychoses

Schizophrenic reactions, which may take any of the following

stages in a sequence or all stages can occur all at once. The stages are:-

(1) Simple

(2) Catatonic

(3) Paranoid (delusional)

(4) Undifferentiated.

1:220 NEUROSIS CONDITION

Neurosis is an emotional disturbance characterized by severe anxiety or exagerated defense attempts to war off anxiety. It is a disturbance of opposites and overreactions: phobic persons who cannot touch door knobs and those who must obsersively touch it six times before turning it, persons who cannot leave the house while others cannot tolerate a shut-in feeling, and those who shun water while others cannot stop bathing. These persons are not sick in a medical sense. There is no disease present to account for their disturbances. The neurotic individual's personality is not grossly disorganised and he does not usually require hospitalization[5]. Examples - obsessional neurosis, anxiety neurosis, phobic anciety.

1:300 SUMMARY

Abnormal behaviour is generally the extention of a normal behaviour, either too much in the negative (retardation)

or too much in the positive direction (undifferentiated thoughts, hallucinations, etc.).

1:310 MENTALLY RETARDED PERSONS

These group require special rehabilitation centres which will provide for long term and short term training, educating and re-educating of affected persons. The programme will not function properly with the treatment of mentally sick patients. One reason is, it makes the size of the hospital (which should be kept small) unnecessarily large. Antother related reason is, rehabilitation of either mentally retarded or mentally treated patients, which could be done in sheltered workshops, working settlemtns, after care homes etc, requires a different setting from the hospital. This is mainly because it gives the patient a sence of changing spaces i.e. exposing him to new environments.

1:320 PSYCHIATRIC PATIENTS WITH ANTI-SOCIAL TENDENCIES

Psychophatic patients, permanently violent patients, border-line patients, etc. require an institution for patients with anti-social tendencies where maximum security is provided and extra special staff and treatment programmes are employed. When their conditions improve, they may be absorbed into the normal psychiatric hospital.

1:330 LENGTH OF STAY OF PATIENTS

This should be maintained within a maxium range of one to two years. This is because a patient who stays too long may be resigned from any possibility of cure and may not benefit from any form of treatment. It is therefore suggested that such patients be either discharged or treated in the rehabilitation centres.

1:340 AGE LIMIT OF PATIENTS

This should be in the range of 5-15 and 16-50 years. Abnormal behaviours observed beyond this age is called senile dementia and is probably due to old age. They are taken care of in a special programme for the aged.

1:350 DEPRESSIVE AND VIOLENT PATIENTS

Attention must be taken in accommodating the depressive patient. Most cases of suicide are among depressive patients. Seclusion rooms should be provided for violent patients within wards and at out patient department.

NOTES

1. RICHARD H. PRICE (1972): Abnormal behaviour, perspectives in conflict. 278 pages. p. 92.

2. ANTHONY J. CELEBKEZZE and WILBUR J. COHEN (1965): (U.S. Department of Health, Education and Welfare, Washington, D.C. 20201): An Introduction to mental retardation, problems, plans and programmes. 62 pages. p. 7.

3. ANTHONY, J. C. and WILBUR, J. C. (1965): p. 1.

4. RICHARD, H. P. (1972): p. 92.

5. ELTON B. MCNEIL (1970): Neuroses and personality disorders. 175 pages. p. 4.

CHAPTER TWO

TYPES OF TREATMENT

RELIGIOUS METHODS

TRADITIONAL METHODS

ORTHODOX HOSPITAL METHOD

2:000 TYPES OF TREATMENT

In Nigeria today, there are various methods of treating insanity. Most notable methods include, religious, traditional and orthodox hospital treatment.

2:100 RELIGIOUS METHOD

Religion regards insanity as an act of punishment or possession by evil spirits. Treatment is therefore directed towards a mighty super-human being outside the patient. One form of such a treatment is to pray, seeking for forgiveness from the committed sin. Another method is to exercise the spirit causing the abnormality.

Religious treatment can best take place in the house of worship. However, if the patient's condition does not allow him to be moved, treatment can be arranged in the patient's environment.

2.200 TRADITIONAL METHOD

There are various types of traditonal treatments practiced in Nigeria. They range from semi-permanent types i.e. a situation where the practioner moves from place to place dispensing his services along, to a permanent type where traditional hospitals are erected.

The traditionalist regard insanity as an act of vengence by some people, punishment by the gods, etc.

Treatment is usually directed towards the causal factors and may involve the use of traditionally prepared medication, the use of incantations, and even occasionally beating the patient.

There is some degree of success in the traditional method of treatment, but more often there are many disadvantages. One very apparent disadvantage is the usually poor operating conditions, i.e. standardisation of dosage and sanitation of environment. Another disadvantage is the behaviour of practioners. That is, most of them do not like revealing the foundamental principles of traditional medicine and very few of them (practioners) successfully propagate their knowledge to a next generation. Consequently there is improper public enlightenment and little or no documentation. These make the traditional method look suspicious and very questionable.

2:300 ORTHODOX HOSPITAL METHOD

Modern day psychiatry regards insanity as an in-balance of the psychic structure and established the causal factors as psychological, physiological, genetic, environmental and social. Treatments are therefore aimed towards these factors. Initially, treatment is directed within the disturbed individual. When the disturbance is arrested and properly corrected, attention is further directed towards the patient's close associates, for example the family, group

of friends, etc. and finally the society, particularly where the patient belongs.

Treatment usually require a hospital setting. Depending on the environmental, social and political atmosphere, the setting can either be part of a general hospital complex or it could be designed as an individual specialist hospital. Both settings have their merits and demerits.

Method of treatment range from the use of psychoactive drugs, psychoanalysis, surgery and the use of electronic devices and computers. All methods have been both critised and accepted. Generally more than one method is applied in treating a patient. These treatments, to be effective are immediately followed by various non-medical therapies (e.g. psychotherapy, sociotherapy, occupational therapy etc).

2:310 PSYCHOPHARMACOLOGICAL DRUGS

These are chemical mixtures of psychic energisers, stimulants or tranquilizers which if taken into the body produces a change in the psychodynamics. That is "they have an effect on the brain and the peripheral and autonomic nervous system, and through effects on target organs (heart, liver, kidneys and various glands), have an effect on total body action as well"[1]. There is a variety of such drugs. Examples are alcohol (ethyl) barbiturates and barbiturate-like drugs, minor tranquilizers (valium, librium, miltoun, etc.)

major tranquilizers (thorazine, stelazine, compazine, etc.), caffeine (coffee, tea, cola, etc.), nicotines, amphitamines (speed), cocaine, narcotics (opium, herion, codeine, morphine, etc.), antidepressants (monamine oxidese, ritalin, etc.), marijuana, etc. Most of these drugs are manufactured for medical purposes, but because of their psychidelic effect people easily become tolerant to them and either physical or psychological dependence or both may result.

The drugs that have been used in medicinal therapy for disturbed emotional states can be categorized into five very general classes.

i) Drugs that do not act upon the central nervous system and do not produce changes in behaviour, but that do act through suggestion - otherwise called "placebo effect".

ii) Drugs that correct a deficiency or combat an infection that has led to disease of the central nervours system. Thyroxin, for example, helps the mental retardation occuring in myxedem and cresteninism; and states of severe confusion caused by a vitamin B deficiency have been corrected by proper administration of vitamins.

iii) Sedatives administered to convert excited states into quiescent ones and stimulants used to produce increased activity in depressed patient.

iv) Drugs that facilitate verbal expression of emotions often called narcotherapy. World War II patients suffering from traumatic neuroses were given intravenous injections of barbiturates to help them relate the sensation they had experienced during combt.

v) Drugs used to test theories about mental illness.

The general aim of drug treatment in psychiatry is to influence neurotransmitters in the brain. Neurotransmitters are chemicals which bring about transmition of electrical impulses between nerve cells; (some examples of neurotransmitters are serotonin, norepinephrine, dopamine, and acetylcholine). There is evidence for example, that thorazine and other major tranquilizers affect the metabolism of serotonin, one of the neurotransmitters believed to be a factor in schizohrenia.[2]

Minor tranquilizers, along with the major tranquilizers and the antidepressants, are the most popular psychiatric agents used today. In fact, valium (diazepan) reportedly is the most commonly used prescription drug in the western world.

The minor tranquilizers are primarily anoxiolytic ("dissolve" or dissipiate anxiety) and have secondary effects of muscle relaxation as well as anticonvulsant properties. High doses of valium, librium and miltown produce sleep.

Compared to barbiturates or alcohol, these drugs appear to have less potential for abuse, perhaps because they produce

less euphoria. However, prolonged use of larger-than-usual doses can produce physical dependence with a full withdrawal syndrome (convlusions, stomach and muscle cramps, vomiting, and sweating).

One "advantage" of these drugs is that they are virtually "suicide proof". It takes enormous quantities to produce comma. It is a double-edged "benefit" however, since it lulls physicians into a fable sence of security while they may be unwitting agents of starting a patient on the road to drug dependence[3].

Major tranquilizers all have the property of controlling agitation, effecting profound sedation, and to varying degrees, appear either to alleviate or abolish hallucinations and delusional thinking.

Most of these drugs, if not all, have side effects which are troublesome and require close medical supervision. Chief among these side effects is the production of a variety of involuntary muscle tremous and movements (parkinson-like syndrome). This can be controlled by reducing dosage, switching to another drug, or administering anti-perkinson drugs (congentin, artane, or bendryl).

In a small number of people they may also cause some suppression of the bone marrow so that certain blood cells are not produced (agranulocytosis). The major tranquilizers, can also cause jaundice, dermatitis, and eye problems.

The potential for psychological dependence is very low, presumably because of the unplesant sedative effects of these drugs on normal people. Physical tolerance does not develope[4].

Amphetamines (speed) are drugs which stimulate the central nervous system and the sympathetic nervous system. Overall effects of the amphetamins at low "therapeutic" doses include increased wake-fullness, alertness, physical activity, talkativeness, restlessness, reduced appetite and insomnia.

At higher levels of dosage they may produce irritability aggressiveness, excitement, and suspeciousness marging into paranoid fears (hallucinations and delusions).

These drugs have a high potential for rapid development of physical and psychological tolerance and for strong withdrawal effects after high doses.

Constant heavy use, especially by intravenous injection, often leads to psychotic-like behaviour which is hard to distinquish from "paranoid schizophrenia"[5].

A number of antidepressant drugs have been developed, within the past twenty years, which have effects on some forms of depression. Based on the finding that some depressed people seem to have low levels of neurotransmitters in their central nervous system, these chemicals were developed to block the breakdown, or turnover, of the transmitters. The net effect is increased concentrations of transmitters and increased nervous system activity.

The first group of drugs developed was "MAO" (mono-amine oxidese) inhibitors, now the second choice of drugs in depression. Developed more recently, the "tricyclics" are most popular now. Many of these drugs have trouble-some side effects, and in high doses they can cause convlusions an' heartbeat irregularities. Properly managed, however, they have been shown to lessen depression in most patients.

Ritalin was a popular antidepressant and energizer until its tendency to evoke dependency and habituation became clear. The element lithium, when given as lithium carbonate, is the recommended treatment for the manic phase of manic-depressive illness (also called bipolar depression). It tends to blint the acute mami-phase attacks and reduces the chances of further recurrences when given as maintainance thereapy. Lithium carbonate does not appear to work in other forms of "manic" problems, that is hyperactivity due to other causes, or in depression alone. Lithium must be taken under close supervision because of its possible toxicity above certain levels[6].

MDA (3, 4 methylenedioxy amphetamine) also known as the "love drug", is increasingly popular in the drug subculture because of its tendency to induce calm and loving feelings in groups of people. It appears to have a remarkable effect on anxiety and depression, inducing a sense of physical well-being, relaxation, and "centering".

Users report that wories, compulsions, and habits such as smoking disappear in the MDA induced state. No

hallucinations, illusions, or distortions are reported.

Adverse effects, which are largely dose related, include involuntary griding of the teeth, and in women activation of latent infections in the genitourinary tract. There is a characteristic physical and mental let down after use similar to that with cocaine, which introduces the possibility of psychological dependence in some invidiuals.

A curious and medically interesting side effect of MDA is that people with allergies do not manifest (temporarily disappear) when under its influence.

Narango reports a remarkable increase in the case of vivid recall of early memories in subjects during psychotherapeutic sessions using MDA ("psycholytic therapy")[7].

A wide variety of vitamins are used in the treatment of insanity. Recently, the attempt to treat schizophrenic and num rous other emotional and physical disorders with large doses of various vitamins has received wide publicity. The assumption underlying this strategy is that schizophremics convert epinephrine one of the neurotransmitters, into toxic substances that produce hallucinations. This abnormal process is presumed to be due to the presence of a certain protein ingredient, called traxein, which is thought to synthesize the schizophremic's brain to the hallucinogenic substances. Some researchers believe that vitamins B_3, known as niacin, or nicotinic acid, blocks the production of

taraxein, thereby alleviating the symptoms. Other vitamins, such as vitamin C and vitamin E, are thought to further suppress the schizophremic's production of hallucinogenic substances. Therapy consist of administration of massive doses of vitamins. For patients who do not respond, a four-day period of fasting precedes a second trail, on the assumption that many schizophremics may be highly allergic to substances found in many foods[8].

2:320 PSYCHOANALYSIS

Psychoanalysis is a diagnostic process in which the history of the patient, usually under a trance or trance-like atmosphere (e.g. hyponosis) is observed. "In a psychoanalytic interview the analyst seeks to discover the cause of the patients present conditions. Generally speaking he assumes that the patients difficulties are as a result of internal conflicts which have in them been produced by repressed wishes"[9].

This principle, first expressed by Sigmund Freud and Breuer (1893), was established on the discovery of the unconscious ("the portion of the psychological structure of the individual where repressed or forgotten memories or desires are not directly available to the conscious but can be made available through psychoanalysis or hypnosis")[10].

Psychoanalysis is not a single perspective but really a group of perspectives, forcussing on three general areas.

First, there is a group of ideas concerned with the nature of thinking and perception, second, Freud formulated a series of propositions concerned with human development. And finally, a portion of Freud's thinking was devoted to the nature of psychopathology and its treatment. Together these assumptions are often referred to as the "metapsychology"[11].

Psychoanalysis is based on a number of fundamental assumptions about human behaviour. It was assumed that an unconscious psychological process (slip of tongue, sudden memory lapses, symbolic events in dream etc.) exists within the human being and it operates outside the conscious awareness. Freud established a graduation of inter-relationship within the psychological structure. That is the conscious process, the pre-conscious process, and the unconscious process.

"Conscious mental activity refers to immediate experience. Although this experience is the most easily accessible, it also comprises the smallest amount of mental life"[12].

The pre-conscious mental dormain include all those events, thoughts, ideas, and memories outside immediate awareness, but which are available to an individual. Thus, although you remember a friend's telephone number or the colour of a sweater, it is pre-conscious, not always in the awareness.

Primarily, the largest dormain of mental activity is the unconscious. The unconscious is a vast reservoir of childhood and current memories, fears, hopes, wishes, impulses and thoughts that are seldom if ever available to the conscious mind. In fact Freud believed that these thoughts are kept out of awareness by a sensory process that protects the person from the treats of unacceptable unconscious wishes or threatening impulses. Freud, unlike previous writers gave the unconscious a primary role as determinants of behaviour, and perhaps due to his unique experiences with hypnosis and neurotic patients, was convinced that the unconscious process played a dorminant role in determining behaviour[12].

Other assumptions Frend made were; all behaviour, both neurotic and normal was seen as motivated or caused. He believed that people were continually struggling with conflicts within themselves. These conflicts are occuring between opposing motives or drives. He also stressed that the past persist in the present. That is, the behaviour or symptom under consideration is understandable only in terms of the behaviour or previous events from which it has developed.

Frend also assumed that drives or need may differ in their intensity or quantity. The variations in the apparent intensity of suffering among his patients and the marked differences in their concern with themselves or the world around them led Frend to postulate his quantitative aspect of behaviour.

For Frend this was a crucial assumption since he regarded "abnormal" behaviour as only quantitatively different from normal behaviour. Thus, the distinction between what we call abnormal and normal behaviour was a matter of degree, not kind.

Freud postulated that all behaviour has an adoptation. Despite the fact that the psychoanalytic perspective is to a very large degree is intrapsychic, Frend did not ignore the influence of the external environment on behaviour. Instead he argued that human behaviour must be understood as a response to the demands placed on the person by both the physical and social environment[13].

Primarily Frend repeatedly emphasized the idea that the trends and conflicts he discovered were not the specific "cause" of neurosis. Neurosis results from the quantitative distribution of energies, not from the mere existence of conflict..... Pathology developes as one or another aspect of the problem becomes quantitatively unmanageable by the techniques.

Psychoanalysis requires little facilities in the way of special building or department. Being a diagnostic procedure, it could be done in the consultation rooms where a couch and space for analyst and assistants are available. The application of the method is not very extensive in Nigeria.

2:330 PSYCHOTHERAPY

Psychotherapy is a non-medical (biochemical, physical, or electrical treatment) form of treatment. It is a process of educating or readucating the patient about his goals and values, and the means whereby he might best be harmonized, realized or relinquished. It is assumed that talking about one's self, with insight and suggestions offered by a trained and competent therapist, can increase one's ability to adjust successfully to life's demands. Psychotherapy involves talking with the therapist at regular intervals. Generally, psychotherapy helps the patients regain or gain his esteem, self confidence, and inter-personal competence. The following are some examples of psychotherapy:-

i) Expressive psychotherapy is designed to facilitate the exploration of feelings by the patient. The assumption is about awareness of one's feelings and understanding of the effects of feelings on perception and behaviour help the patient to become more competent in dealing with the realities of his or her life. The therapist attempts to provide a link to unconscious conflicts, often based on childhood experiences, which interfere with the patient's ability to function efficiently. In order to help the patient explore feelings, the therapist is often quite passive and the patient carries responsibility for structuring

the sessions. In psychoanalytic psychotherapy, one kind of expressive therapy, the patient may lie on a Coach, facing away from the therapist, in order to minimise the distractions that impede awareness of internal processes. When the expressive therapist comments, it is usually by way of reflecting or interpreting what the patient is feeling[14].

ii) Supportive psychotherapy is quite different. Here, the goal is to help the patient cope with the real requirements of the present situation by learning and relearning certain skills. The focus is largely on the behaviour rather than on the exploration of feelings. Thus, the supportive psychotherapist provides a link to reality rather than a link to the unconscious. In order to do so, he or she is active, structuring, personally, engaging, and instructive. Supportive psychotherapy more nearly resembles two-way conversation than expressive psychotherapy, in which the patient does most of the listening. Supportive psychotherapy tries to remove the difficulty in modulating behaviour, thoughts, and feelings rather than in coping with conflicting desires[15].

iii) Logotherapy teaches the basic principle of existentialism. This form of psychotherapy was

extensively used after the second world war on prisoners of war and concentration camp inmates. It was believed that existential vacuum was created in such people.

iv) Group therapy (encounter group). The schizophrenic often has deficient social skills. This person tends to be frightened of interpersonal relationships and lacks confidence in the ability to interact with others. Often, group therapy can help with these problems once the psychotic episode has abated somewhat and the individual has regained a sense of his physical boundaries.

The group usually meets at regular intervals and is composed of one or more therapist and some number of patients (usually between four and ten). Topics of conversation include problems that members may be encountering outside of the group situations as well as the effect that each participant's behaviour has on the other members. The leaders may give advice, suggest exercises, or make observations about what any member or the group as a whole is doing.

The group situation may be a useful stimulus to the frightened, withdrawn patient who observes other patients learning and practicing social

skills. In effect, less disturbed patients model appropriate behaviour for more disturbed patients. As it is true of individual psychotherapy, support and structure are the most important ingredients for successful group therapy.

v) Occupational therapy provides the patient with useful activities to accommodate his time. There are two types of occupational therapy.

The first type is recreational therapy. These are physical exercises (e.g. football, gymnasium, etc.) and passive recreations (e.g. picknicking, ludo games, movie shows etc.).

The second type of occupational therapy is called work therapy. The patient is engaged in some skilled job (e.g. carpentry, gardening and farming, weaving, painting etc.). This provides the patient some little capital, but most significantly it provides him with useful trade which he can trive on when he finally leaves the hospital.

In occupational therapy definite areas should be provided for games, workshops, etc. and offices for instructors and stores for their equipment is also necessary.

vi) Other form of psychotherapy are activities therapy, child therapy, socio therapy and family therapy.

2:340 PSYCHOSURGERY

In 1935, a Portuguese neurologist developed a surgical procedure in which the connection between two adjacent sections of the brain, the frontal lobes and the thalamus, could be severed. Patients who under-went the operation were often less tense and more manageable as a result. Pre-occupation with symptoms, hallucinations, and delusions appeared to diminish. However, symptoms such as isolation and withdrawal were not decreased. Further, the operation often impaired the patients' sense of responsibility and feeling for others. Typically, the patient exhibit a lack of self-criticism after surgery[16].

Skull drilling and other forms of surgery are used when there is a physical agent causing the abnormal syndrome.

2:350 COMPUTERS AND ELECTRONIC DEVICES

A variety of diagnostic and therapeutic computers and electrical devices are used in psychiatry. The following are the main ones used in Nigeria.

Electro-encephalography Computer (Plates I and II), is a diagnostic machine that records electrical discharges inside various parts of the brain. The principle underlying this phenomena is that a normal brain discharges a certain magnetude of electrical impulses and an impulse of higher or lower magnetude is associated with mental problems. These machines show the magnetude and area of discharge in form of

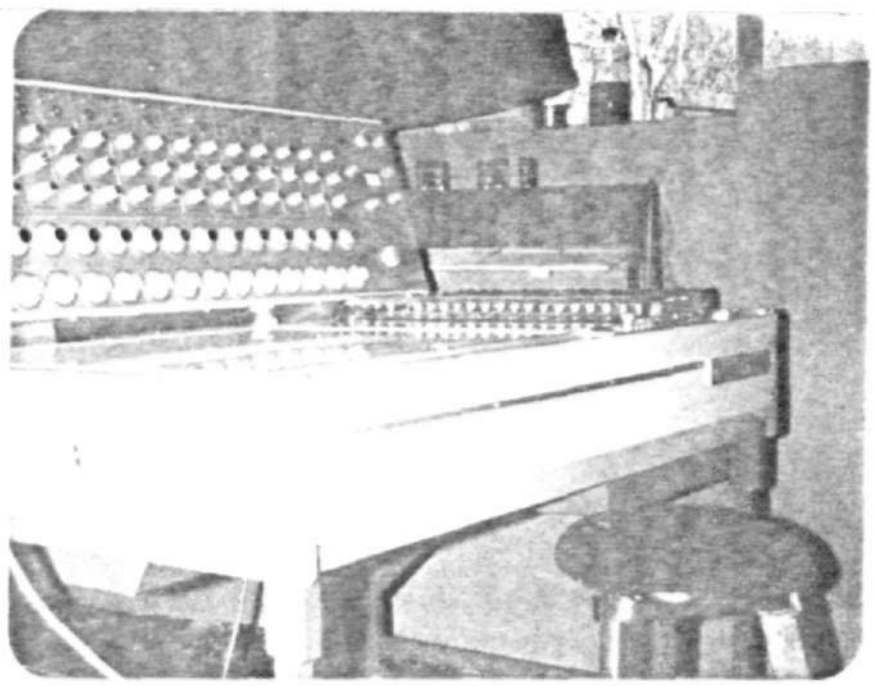


PLATE i: ELECTROENCEPHALOGRAPHIC RECORDING MACHINE.

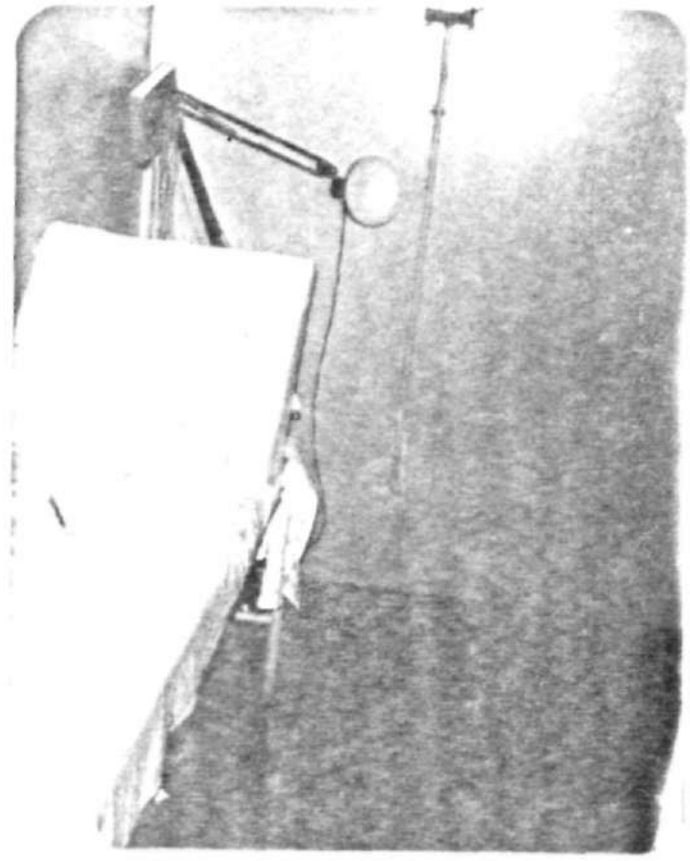


PLATE ii: ELECTROENCEPHALOGRAPHIC PATIENT COUCH.

computer print outs.

Electro-Convulsive Therapy is a therapeutic process where electrical currents are passed into the brain, mostly of depressed patients. The working principle of these machines (Plates III and iv) is not yet understood, but it is assumed that the electrical current shakes the brain t..oroughly. Usually the patient will immediately loss conscious. After some time (0.5-6.0 hours) the patient will start to recollect his memory apparently on a better ground.

Radiology: There is both diagnostic and therapeutic radiology. Diagnostic radiology is mostly used on patients with physical illness. Radiotherapy is a process in which X-rays are passed through the brain.

2:400 SUMMARY

Religious and traditional methods are not extensively incorporated into the design thesis. One main reason is, both methods lack good documentation to enable academic research. However, minimum consideration has been given to them. That is, religious worship places are provided to accommodate religous treatments as well. While multi-functional buildings in the medical centre will be temporarily used by traditional practioners. This is because efforts to standardise traditional psychiatric treatment in Nigeria, and incorporate it into the orthodox psychiatric hospital system, have not been very successful. These were

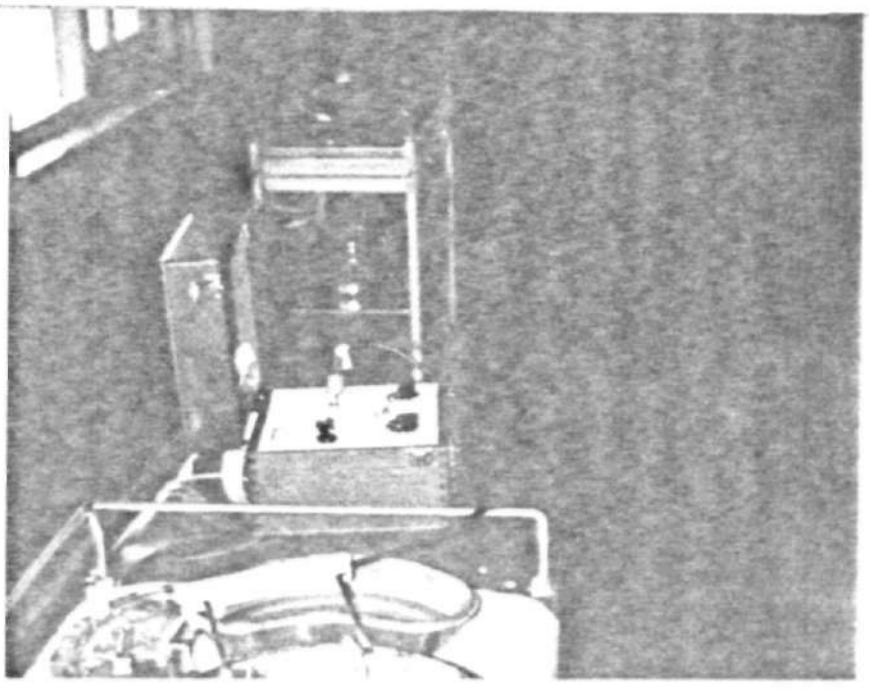


PLATE iii: ELECTRO-CONVULSIVE THERAPY MACHINE

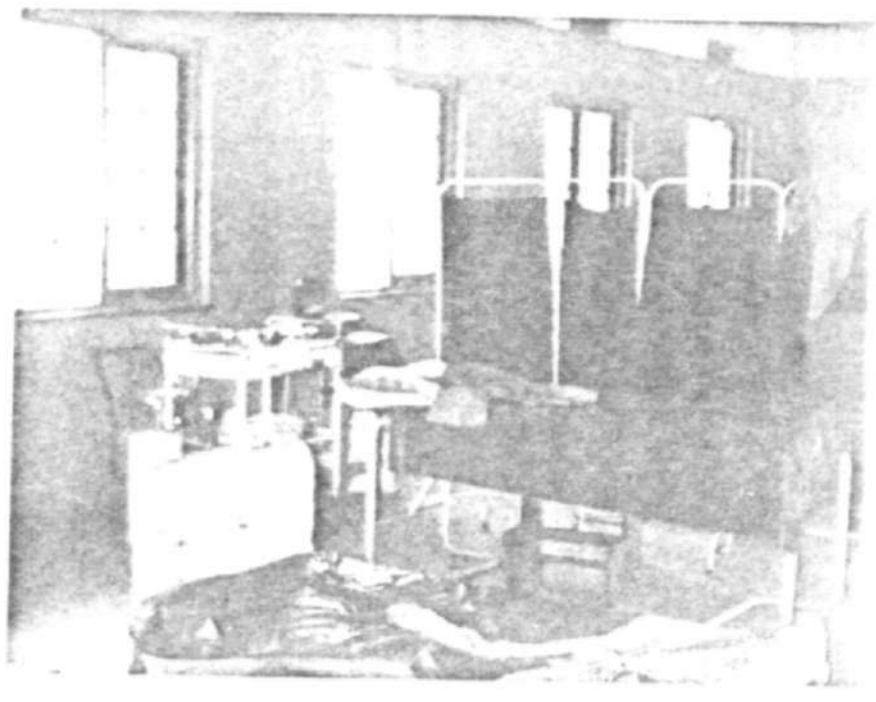


PLATE iv: ELECTRO-CONVULSIVE THERAPY PATIENT COUCHES.

being noted in Neuro-psychiatric institute, Aro, Abeokuta. Also by their professional behaviour, it is suggested that traditional practice in psychiatry, should be autonomous.

The orthodox psychiatric hospital treatment (theme of this thesis) will have an individual setting. That is, the hospital is designed as a specialist hospital with its r in supporting facilities. All forms of morden psychiatric treatment (except advanced computers) could be used in the hospital. Advanced diagnostic, therapeutic and data processing computers have not ben considered simply becaus. their use in Nigerian hospitals have not been standardised The author concentrated on currently available forms of therapies in the country.

All forms of patient emergencies (agitations, violence, withdrawal syndromes, etc.) can be effectively be managed and controlled by either psychiatrist or psychiatric nurses, who are specially trained in these matters. Most practical method of control is sedation in psychopharmacology. The apparent break through in psychopharmacology and other forms of psychic treatment, made the traditional method of restraining the patient (Plate v) out of fashion. This means that, the design of the hospital (especially the wards), could be relaxed (i.e. provide minimum padded cells, remove burglar proof bars from windows, etc.).

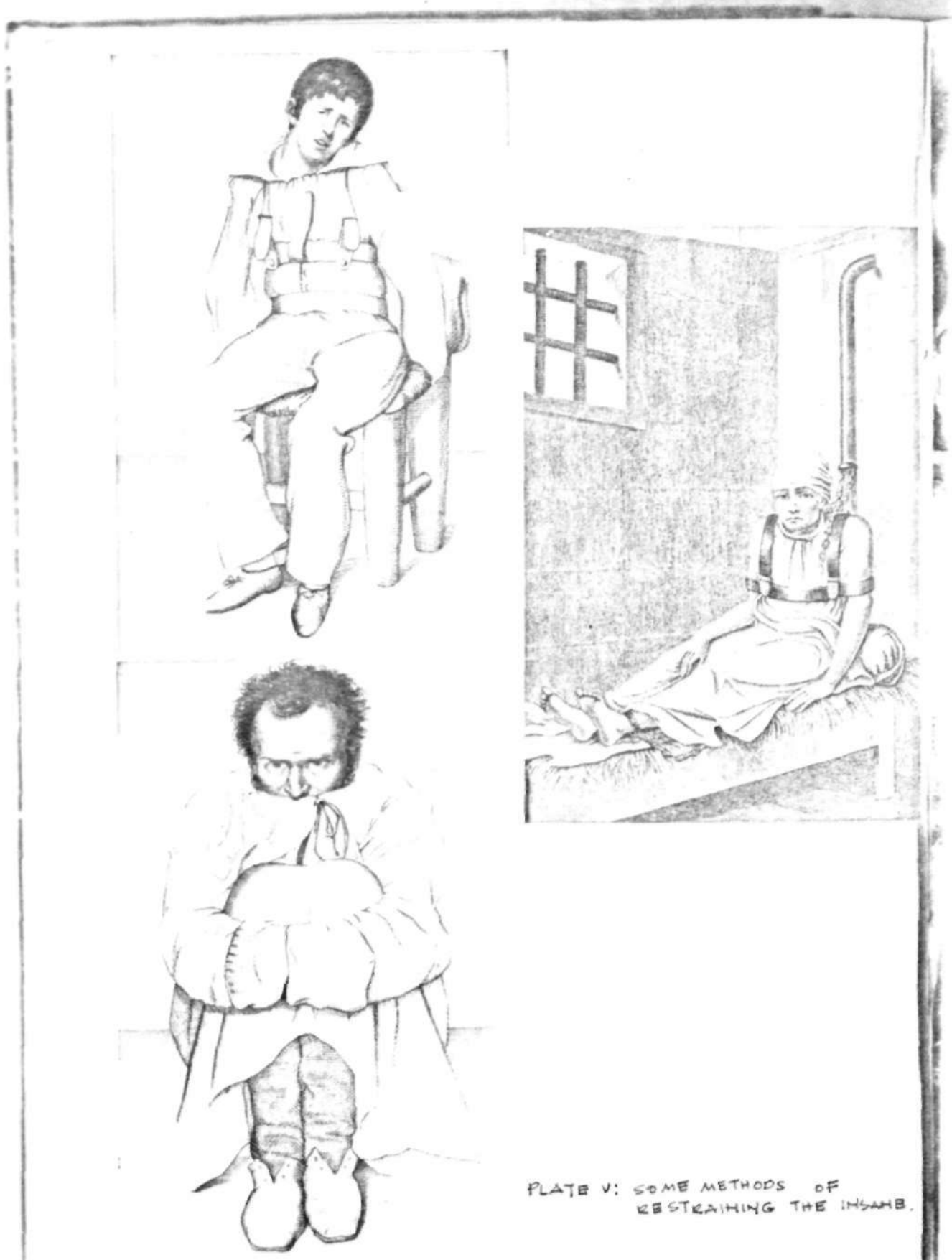


PLATE V: SOME METHODS OF RESTRAINING THE INSANE.

NOTES

1. VINCENT, S. D'ANDREA, (1977): Psychoactive Drugs. 75 pages. Page 2.

2. VINCENT, J. D. (1977): op. at. page 3.

3. Ibid. page 13.

4. Ibid. page 15.

5. Ibid. page 24.

6. Ibid. page 29.

7. Ibid. page 35.

8. KAYLA F. BERNHEIM and RICHARD R. J. LEWINE (1976): Schizophrenia symptoms, causes, treatments. 256 pages. Page 135.

9. RICHARD H. PRICE (1978): Abnormal behaviour perspectives in conflict. 278 pages. Page 60.

10. RICHARD, H. P. (1978): Page. 31.

11. Ibid. page 30.

12. Ibid. page 33.

13. Ibid. page 34-36.

14. KAYLA, F. B. and RICHARD, R. J. (1976): op. at. page. 138.

15. Ibid. page 139.

16. Ibid. page 134.

CHAPTER THREE

LOCATION

MAIDUGURI

THE SITE

3:100 MAIDUGURI

3:110 LOCATION

Maiduguri the capital of Borno State, is located on latitude $11^{o}5'N$ and longitude $13^{o}5'E$. It has an altitude of 348 meters above sea level. Fig. 3:1 shows the United Republic of Cameroun, the Chad and Niger Republic as the boundries of the State on the East, North-East and North respectively. Kano, Bauchi and Gongola (anti-clockwise from the north) are the immediate neighbouring States. Maiduguri is accessed by road, air and rail only.

3:120 GEOLOGY

Maiduguri is part of a large plain which slopes gently towards the Lake Chad at the north-east. This plain, known as the Chad formation, is flat, undulating and devoid of rock. The plain is characterized by three water bearing zones. The upper, the middle and the lower zones. The upper zones consists of widely spaced series of inter-bedded sand and clay which streches from the surface to a depth of about 60 metres. Water in the upper zone occurs under both the confined and unconfined conditions and the most concentrated water area comes from this zone. The underground speage of water is related by the clay surface below, despite the upper surface covered by sand.

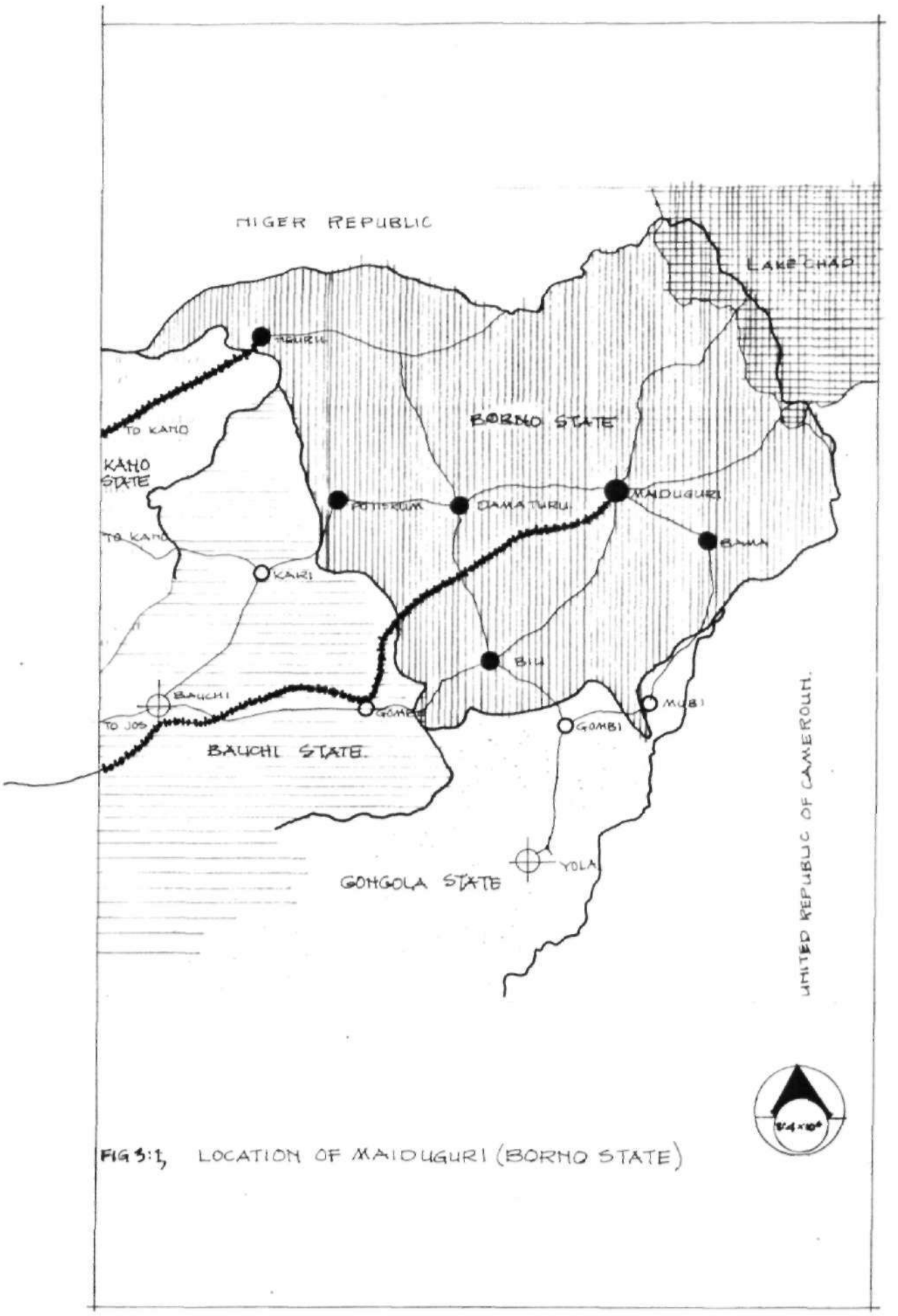


FIG 3:1, LOCATION OF MAIDUGURI (BORNO STATE)

3:130 CLIMATE

The climate of the State has diversity over time and geographical coverage.

3:131 RAINFALL

The rainfall starts around May and ends around S_ptember. It reaches a peak in the months of July and August, when a rainfall of 7" to 8" respectively, have been recorded. These mean annual records do not explain the periodical heavy down pour characterized by thunderstorms and shapr showers observed throughout the rainy season. 50% of the rain is about 0.25" to 1.49".

3:132 TEMPERATURE

The temperature ranges from excessive heat around April to excessive cold during the harmatan period (November to February). During the harmatan, day and night temperature ranges from 85-95^{O}F and 41-50^{O}F respectively. The relative humidity is low (about 20%). Sand and dust particles blown from the Sahara desert makes visibility very poor.

3:133 WINDS

The nort-east trade winds bring the harmatan. They dorminate the months of November to April. These winds are highly distructive with an average speed of 30 knots. The

south-west winds which bring the rain dominate the months of May to August. They bring a lot of cool breezes and they have an average speed of 10 knots.

3:134 VEGETATION

The most common trees in the Maiduguri metropolitan area are neem trees (70-80%), baobabs and dump palms. Thorny species are also common. The neem trees have an average height of 12 to 18 metres with ever-green foilage. These are the common trees used for the aforestation of the desert encrouched areas.

3:140 POPULATION

The available sources of population data are the 1963 population census and the house hold survey of 1975. Based on these sources and assuming an increase rate of 7-10%, the social survey conducted by Maxlock group of Nigeria (1976), estimated the population of Maiduguri to be 340,000 by the year 1980.

3:150 SOCIO-ECONOMY

The Borno State directory of business establishment (1980) registered 40.76% of the population involved in rental trading and 4.45% in whole sale trading. Manufacturing industry takes 22.03%. The remaining 33.74% are involved in other socio-economic activities - see Table 3:1.

3:151 TABLE 3:1: SUMMARY OF BUSINESS ACTIVITIES

	NATURE OF ACTIVITY	%
1.	Mining and quarrying.	0.25
2.	Manufacture of vegetable oils and animal fats.	0.08
3.	Grain mills products.	2.30
4.	Bakery products.	9.10
5.	Manufacture of soft drinks and tobacco.	0.08
6.	Manufacture of foot-wear.	0.17
7.	Wooden fixtures and furniture.	2.85
8.	Printing and publishing industries.	0.68
9.	Manufacture of soap, cosmetics and other cleaning preparations.	0.08
10.	Plastic products.	0.25
11.	Manufacture of brick and tiles.	5.44
12.	Manufacture of curtlery, hand-tool and general hardwear.	0.08
13.	Metal furniture fixtures.	0.92
14.	Electricity.	0.34
15.	Construction.	3.60
16.	Whole sale trade.	4.45
17.	Rental trade	40.76
18.	Restaurants, cafes, & other eating & drinking places.	12.83
19.	Hotels, rooming, housing camps & other lodging places.	0.84
20.	Sub-urban & inter-urban highway passenger Transport	0.92
21.	Services incedental to transports.	0.17
22.	Monetary instructions.	1.60
23.	Insurance.	2.07
24.	Legal service.	0.25
25.	Engineering, Architecture & technical services.	0.84
26.	Motion picture; distribution & projection.	0.50
27.	Medical, Dental & other health services.	0.50
28.	Repair of motor vehicles.	1.51
29.	Barber and beauty shops.	2.18
30.	Photographic Studio including Commercial photo.	4.45
	Total	100%

3:160 TRENDS OF PSYCHIATRIC HOSPITAL IN MAIDUGURI

In the early 1970s a psychiatric ward was provided in the General Hospital for psyche treatment and rehabilitation. There was an average of seven patients, mostly drug addicts, at that period. The increase in number of psychiatric patients and the threat these patients pose to other (non-psychiatric) patients, rendered the general hospital ward inappropriate and inadequate. A temporary psychiatric unit was proposed by the State Health Mangement Board and is currently located near the new temporary Maiduguri "Monday market". This location within the community, is good and convenient because of its accessibility by patients and their relatives, the hospital staff, and by infrastructure. The main problem of the site is its size, which considerably reduced a much needed optimum schedule of accommodation. There is no possible expansion, poor drainage, security and inadequate facilities. These factors and such others led the State health management board to propose a 150 bed psychiatric hospital with a new planned permanent site.

3:200 SITING OF PSYCHIATRIC HOSPITAL IN MAIDUGURI

3:210 THE HOME (Fig. 3:2).

The best place to treat psychiatric illness is at "the home" within the community. The patient should remain in his environment, independent and self supporting. Other members of the family will need support and guidance and the success of the treatment will be partly determined by the degree of security the home could provide"[1]. Another alternative is to provide out-patient department facilities in the form of a day hospital, in the proximity of the neighbourhood so that patients and their relatives can obtain consultations and treatment on a daily basis. The patient still stays at home. The problems with this method are many. The abnormal behavious of the patient can only be tolerated for some related length of time, after which it gets

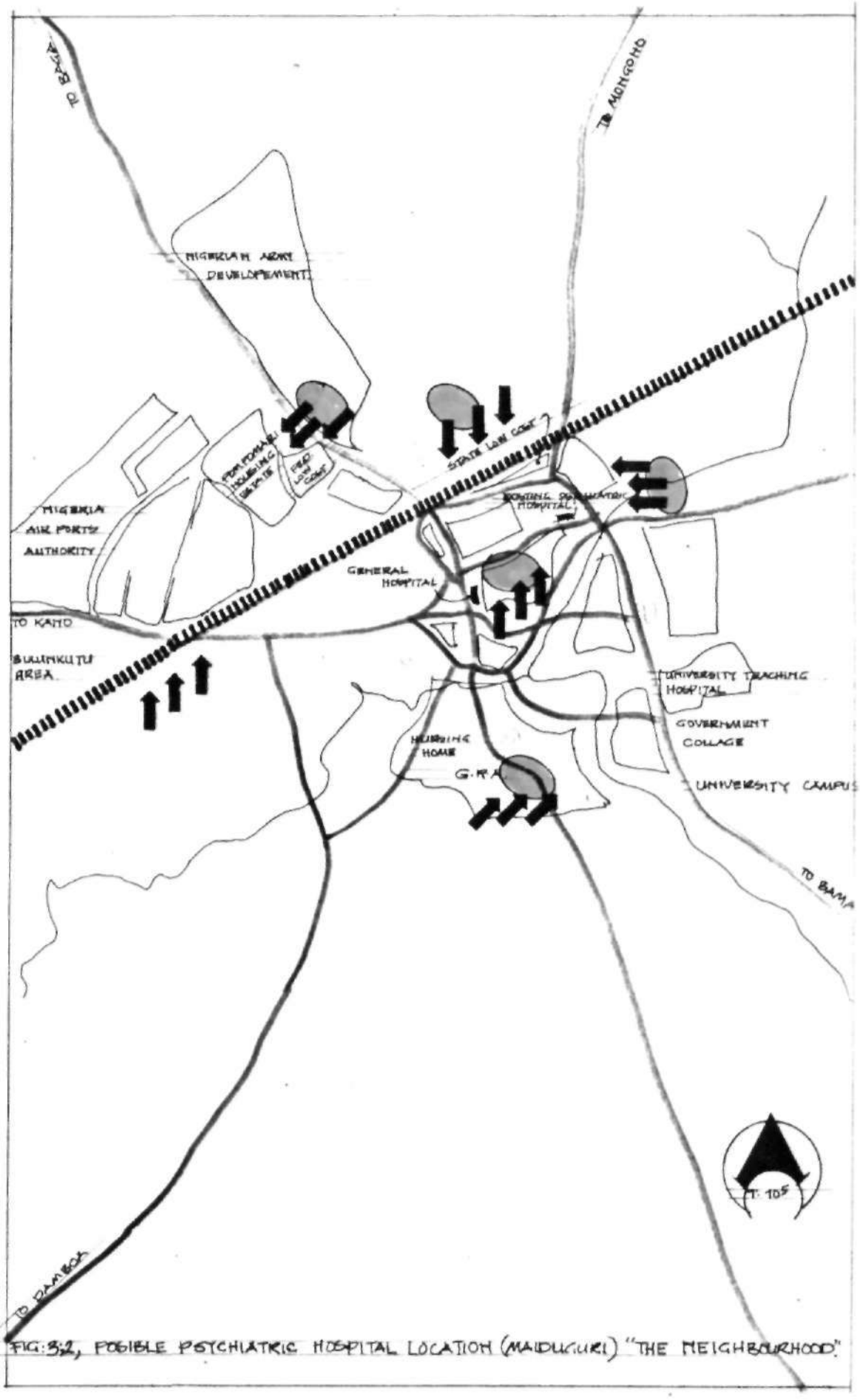


FIG: 3.2, POSIBLE PSYCHIATRIC HOSPITAL LOCATION (MAIDUGURI) "THE NEIGHBOURHOOD"

on the relatives nerves. The family generally lack the knowledge of coping with insanity. Another problem is in providing fragment psychiatric treatment facilities. This is very difficult to control and costly to maintain. "The increase in number of mental patients and changing social values means that treatment cannot take place at the home but instead in institutions"[2].

3:220 THE EXISTING SITE (Fig. 3:3)

The existing site is an ideal location of an institutional type of treatment centre, i.e. within the community. This location allows for easy accessibility, makes the patients feel belonging and improve the mechanisms of recovery. The existing land use, around the present site, as in most community centres, is already over developed. So it is not possible to obtain open spaces required for therapeutic design concepts, for farm lands in occupation therapy department and play grounds required in the social centre. The lack of space encourages over crowding, with poor sanitation and inadequate site layout as seen in the existing psychiatric hospital.

3:230 THE GENERAL HOSPITAL (Fig. 3; 4)

The provision of a good psychiatric unit in a general hospital has a number of merits. It deminishes the prejudices concerning mental illness. Both units (psychiatric and general)

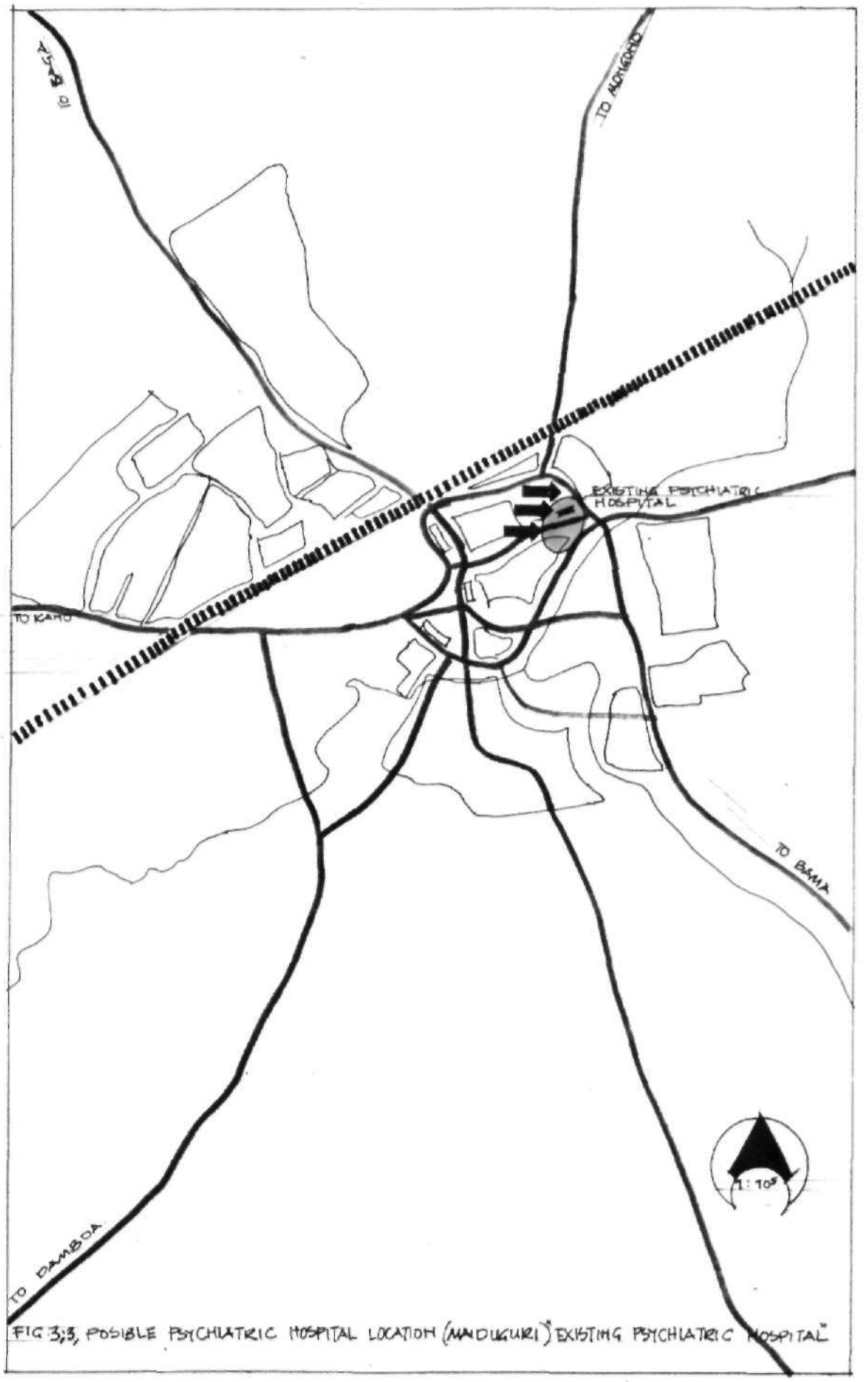


FIG 3;3, POSIBLE PSYCHIATRIC HOSPITAL LOCATION (MANDUKURI) EXISTING PSYCHIATRIC HOSPITAL

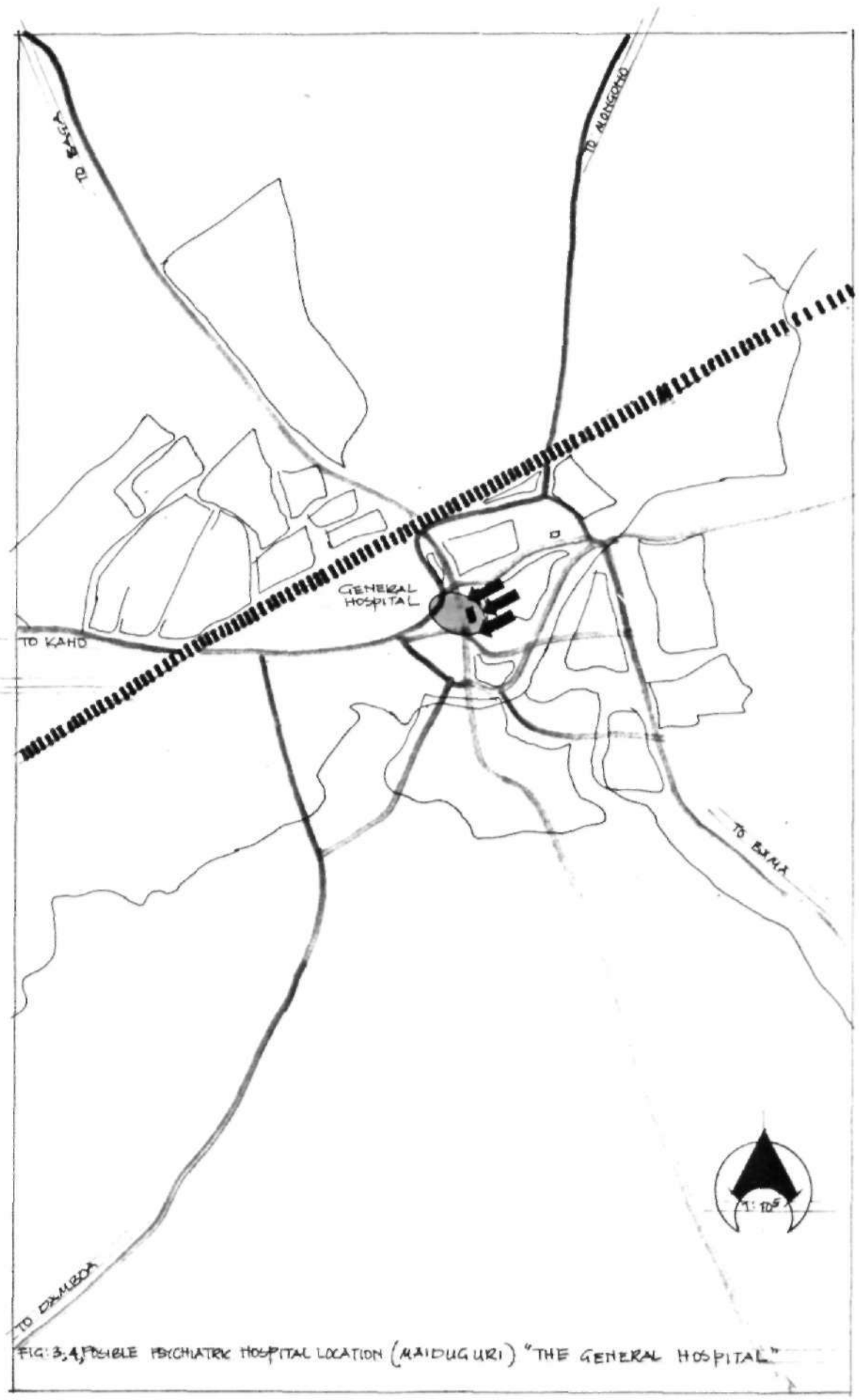


FIG: 3.4, POSSIBLE PSYCHIATRIC HOSPITAL LOCATION (MAIDUGURI) "THE GENERAL HOSPITAL"

can share essential domestic services and close collaboration between psychiatrist and practitioners of other branches of medicine. It may also be possible to develop a joint training schme for the nurses so that they can easily obtain both medical and psychiatric experience[3]. It should be noted here that, the psychiatric services will need to be autonomous, both clinically and administratively. C the other hand a badly organised psychiatric unit, among other things, will have a tendency of aggrevating the prejudices concerning mental illness and affect recovery. the General Hospital in Maiduguri is already over developed and a sizeable site is impossible to comeby within its perimeter.

3:240 THE UNIVERSITY TEACHING HOSPITAL (Fig. 3:5)

Locating a psychiatric unit in a teaching hospital will share the same merits and demerits with the general hospital. However, locating the unit in a teaching hospital has a relative demerit. The Maiduguri University Teaching Hospital, like most Nigerian Teaching Hospitals, is planned primarily for teaching and research purposes and the psychiatric unit provided is in accordance with this purpose. It is interesting to know that "a great deal of research is possible in psychiatry with minimum facilities in the way of buildings, except that some provision must be made for the research teams and their equipment"[4]. Both teaching and general hospitals share the following disadvantages.

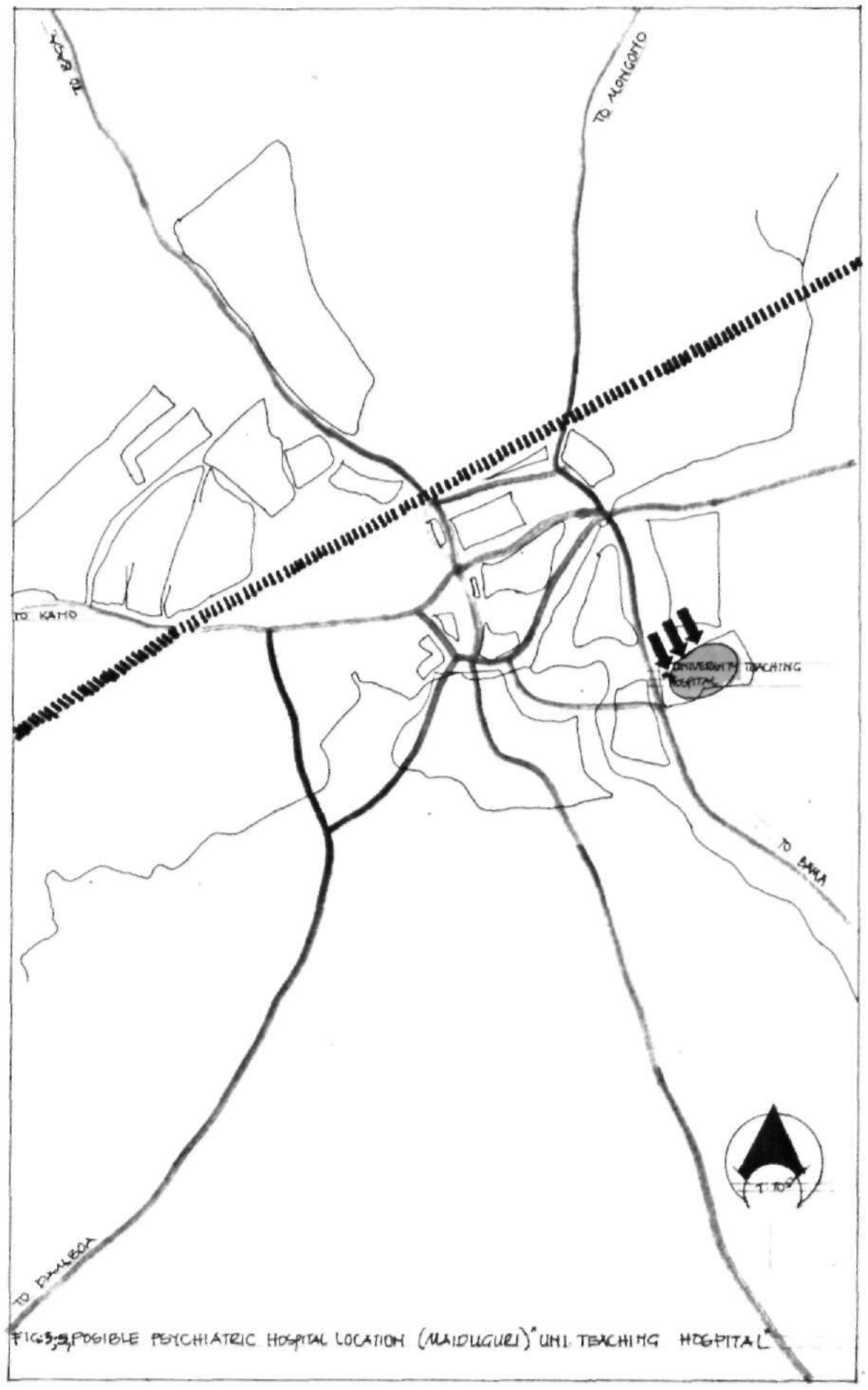


FIG 5.3 POSSIBLE PSYCHIATRIC HOSPITAL LOCATION (MAIDUGURI) UNI. TEACHING HOSPITAL

Joint sites produce a large 'hospital town' which runs the risk of becoming detached from the community. Designed on the basis of close integration with the society it serves, it should be kept small. Also the social and architectural requirements of a psychiatric hospital are essentially different from that of a teaching or general hospital, and the two may not be easy to march[5].

3:250 AWAY FROM THE TOWN (Fig. 3:6)

"If a psychiatric hospital is located at a distance, forbidding and outside normal community life, early treatment will not be sought by the patient or his friends". Out-patients and relatives of in-patients will find it difficult to have access to the hospital on a daily basis. It will not be easy to service the hospital in the way of infrastructures. The location will encourage the institutionalization of psychiatric hospitals and hence aggrevate the public prejucies against mental sickness.

3:300 SELECTION OF A SITE

The most significant factors considered in selecting the site are size and accessibility. Accessibility by patients, and their relatives and friends, by hospital staff and services and infrastructure. Other factors considered are possibility of a neighbourhood which will serve a variety

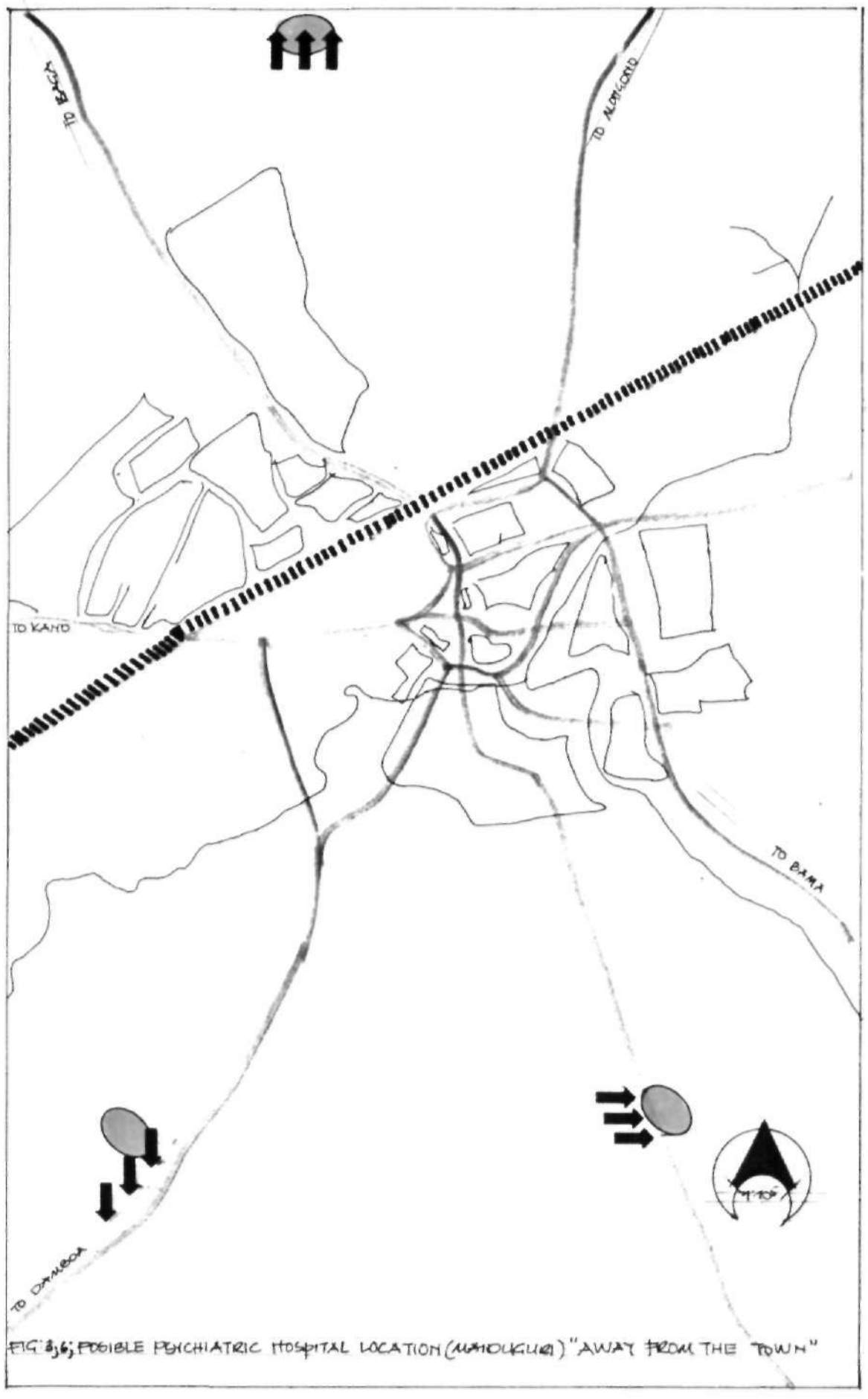


FIG 3,6; POSSIBLE PSYCHIATRIC HOSPITAL LOCATION (MANDUGURI) "AWAY FROM THE TOWN"

of functions among which is to provide hospital village for patients and relatives that come from distant areas. It should be stressed that "everyone in Maiduguri; the area served, and particularly the Police Welfare workers, Teachers etc. should know the location of the hospital, which should have excellent public transport facilities. Fig. 3:7 is the map of Maiduguri indicating all major bus routes. These are the cheapest public transport system. Spear heads represents passengers and black circles present the various bus stations. This means that all major community centres housing the low and medium income group have a bus stop and can use the buses to reach the psychiatric hospital (shaded circle).

3:310 LOCATION OF SELECTED SITE (Fig. 3:8)

The site is located along Maiduguri-Kano high way, immediately after the railway crossing, on the right hand-side (opposite bulunkutu area).

3:320 SITE ANALYSIS (Fig. 3:9)

The site is bounded on its southern face by the Maiduguri-Kano highway, on the south-east by the railway line from Gombe (Bauchi State). A proposed residential layout is on the western side. A direct road exists between the site and the proposed residential area. Presently no physical boundries exist for at least two

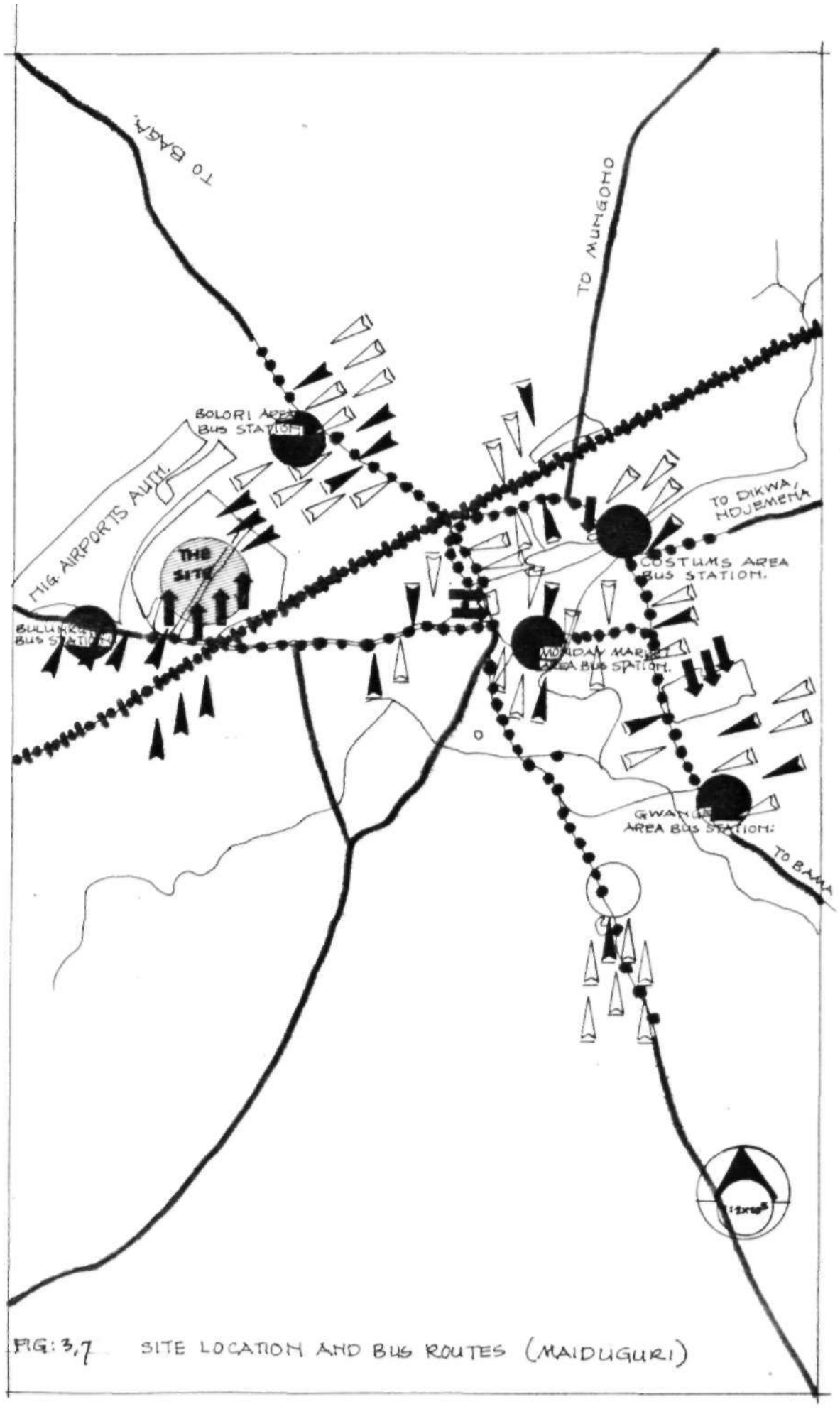


FIG: 3,7 SITE LOCATION AND BUS ROUTES (MAIDUGURI)

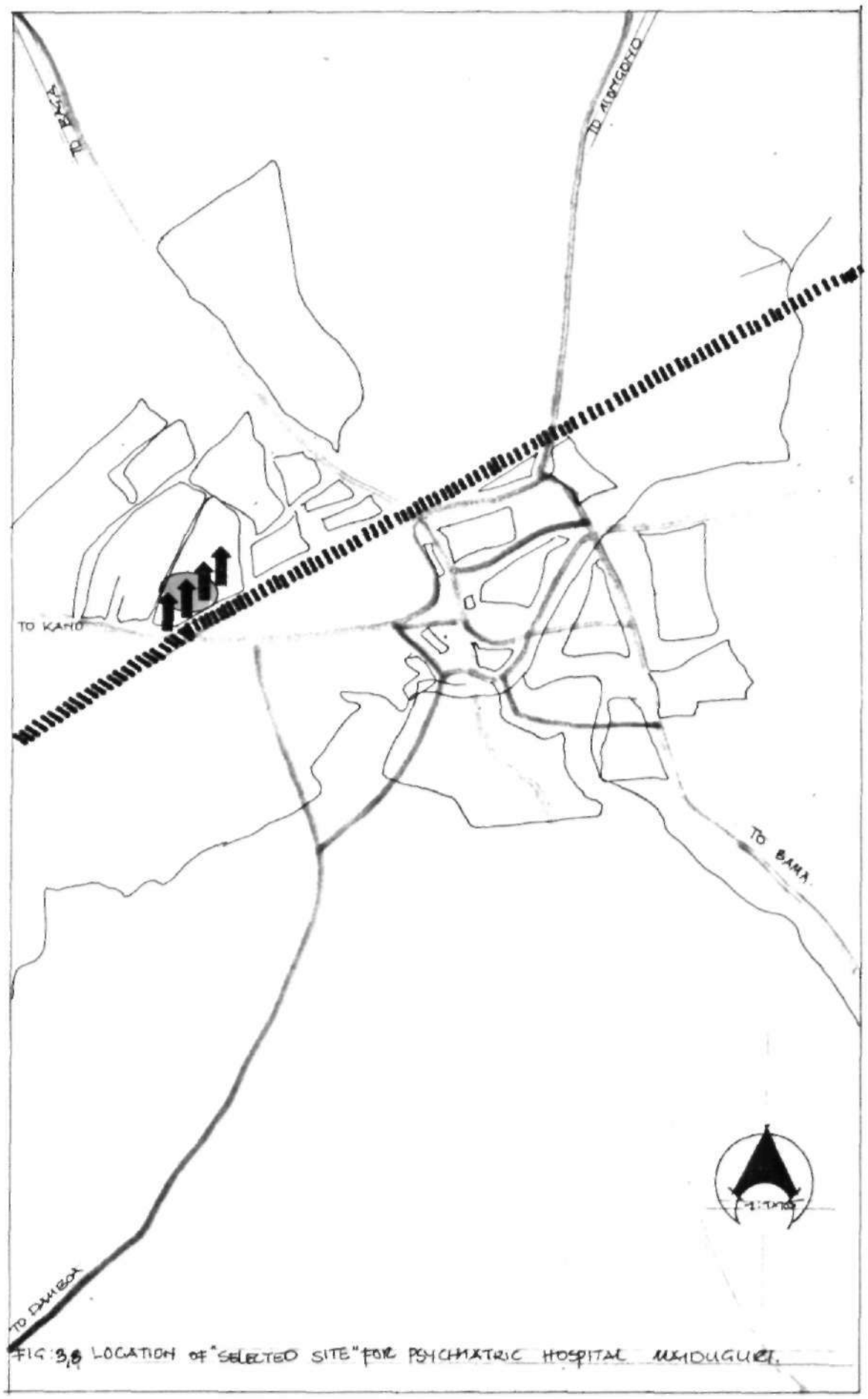


FIG: 3,8 LOCATION OF "SELECTED SITE" FOR PSYCHIATRIC HOSPITAL MAIDUGURI.

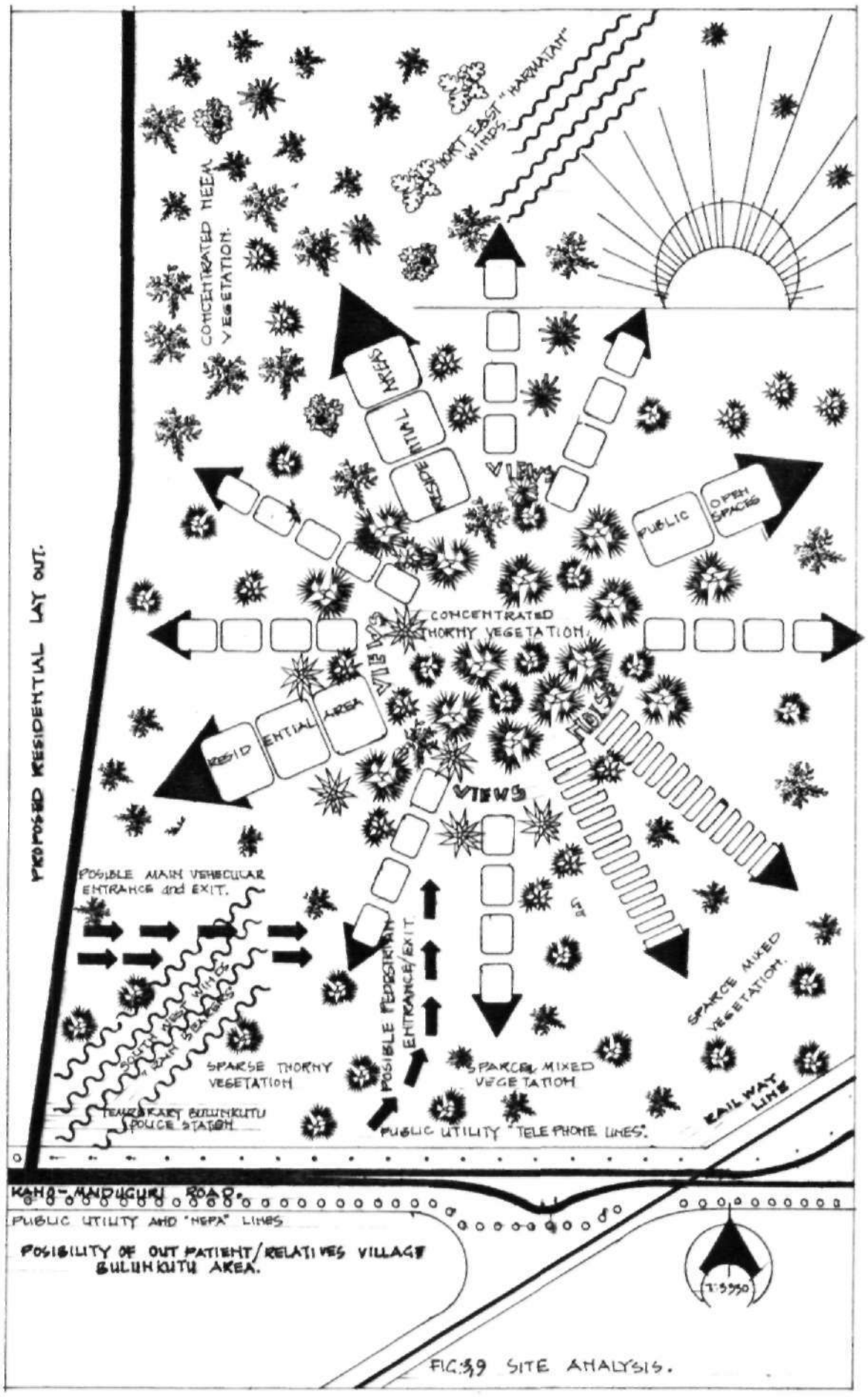


FIG:3.9 SITE ANALYSIS.

kilometrs radius on the north and eastern sides.

Possibility of main vehicle entrance and exit is along the dirt road between the site and the residential area. This road could be used by the people from Bolori and federal low-cost areas to reach the site. Possible pedestrian main entrance could be directly from the Maiduguri-Kano road. The point is, most patients coming by public transport will be dropped by the road-side (near the hospital). These patients can just walk into the hospital directly.

The landscape section has a slope of about 1%. This means that the site is roughly flat. The vegetation, as indicated on Fig. 3:9 is characteristically neem and some thorny bush.

Sun orientation, wind direction, views, noise, etc. are self explanatory on Fig. 3:9.

Some public utilities; underground water pipes, overhead NEPA (National Electric Power Authority) and telephone lines etc. run along the Maiduguri-Kano road. These could be tapped directly into the site.

The undeveloped bulunkutu housing area and the proposed residential layout both opposite the site on the south and west respectively could provide adequate housing for out-patients and relatives that come from distant places.

NOTES

1. A BAKER, R. L. DAVIES and P. SIVADON (Public Health papers, World Health Organisation, Geneva): Psychiatric services and architecture (1959). 59 papgers. Page 11.

2. ROGER BASTIDE: The sociology of mental disorder (1972): 251 pages. Page. 2.

3. BAKER, A., DAVIES, R. L. and SIVADON, P. (1959): op. at. page 20-21.

4. Ibid. page 12-13.

5. Ibid. page 23.

CHAPTER FOUR

CASE STUDIES

PSYCHIATRIC HOSPITAL, ARO, ABEOKUTA

PONCE HOSPITAL CENTRE, PONCE, PUERTO RICO

BLOCK PLAN FOR A PSYCHIATRIC HOSPITAL OF 280 BEDS

4:100 PSYCHIATRIC HOSPITAL, ARO, ABEOKUTA (Fig.4:1)

Neuro-psychiatric hospital, Aro, Abeokuta, was officially designated on the 9th of August, 1979, by Professor Gordon A. A. Quenum (Regional Director for Africa, World Health Organisation). The hospital is a World Health Organisation Collaborating Centre for research and training in mental health (Plate vi).

The original medical concept evolved by Professor T. A. Lambo (Deputy Director, World Health Organisation, Geneva), employed both traditional and modern orthodox treatment methods with the view of standardising the traditional methods. The traditional treatment method was not successful. One main reason is, most traditional practioners are reluctant to cooperate with their orthodox counterparts. For instance they (traditional practioners) will not document their prescription and dosage, so as to enable research and possibly standradise dosage. It was later discovered that some of the traditional practioners secretly use modern tablets and injections (e.g. tranquilizers). This is very dangerous, since they have minimum or no training in modern treatment methods. But generally the traditional concept failed in Aro psychiatric hospital because those traditional practioners wanted autonomy in sitting and administration of their practice.

The modern treatment method is, however, successful. The most widely used therapy is psychopharmacological.



PLATE VI: PSYCHIATRIC HOSPITAL, ARO, ABEOKUTA. "LOGO."



PLATE VII: MAIN ENTRANCE AND GATE HOUSE. "FROM INSIDE HOSPITAL"

Simple computers and electronic devices, surgery, psychotherapy and occupational therapy are also available.

4:110 THE HOSPITAL LAYOUT AND DEPARTMENTS

The site is located in Aro village, along the old Lagos-Ibadan highway. The hospital is authomous both clinically and administratively.

Opposite the hospital, in Aro village, the public are encouraged to develop hostel accommodations. These will house out-patients that come from distance areas. It will also accommodate the relatives of in-patients.

The hospital is accessed through only one main gate which is directly off the old Lagos-Ibadan highway (Fig. 4:1). Immediately at the entrance is a gate house (Plate vii), emergency block, chapel and a mosque.

The gate house and the emergency block are appropriatly located. They are manned 24 hours. The emergency block handles all forms of emergency from outside the hospital, both during and after office hours. The principle is, when a violent or disturbed patient to be brought to the hospital, he or she should not be allowed to mix with the other non-violent patients in the medical centre so as not to excite them. therefore a separate unit, preferably at the entrance, is designed to arrest such violent states. This also helps to express the efficiency and organisation of the psychiatric centre and therefore modulate the patients.

The Chapel and the Mosque are appropriatly located. This enables all ambulent patients, staff (medical and non-medical), relatives, etc. to congregate around the entrance of the hospital. The patients will particularly benefit from this planning because it gives them the sense of time and orientation of space. However, siting these places of worship near emergency units may lead to ambiguous situations. Take the Mosque for instance, a violent patient may be brought in during prayers and he or she may be making some noise (if let lose, could even run a mock), and commotions will surely be generated in controlling such incidences. This will affect the quiet process of prayers. It will also have psychological effect on the people praying. It is therefore recommended that, if such functions should be located at the entrance area, the designer should properly zone them apart and treat them quite separately.

Students hostels (Plate viii-ix) and teaching facilities are located immediately after the gate house zone. The classrooms, and two blocks of students hostels (male and female each) are made of temporary structures. These are shabby designed and serviced. The location in functional due to its priximity to the in-patient wards, adminstrative area, the gate and the proposed medical centre. A properly designed students hostels and teaching facilities are currently under construction in the same area.

Attached to the students hostels (Plate viii far left) is the hospital's matron's house and office.



PLATE VIII: STUDENTS HOSTEL, AND MATRON'S OFFICE AND HOUSE.

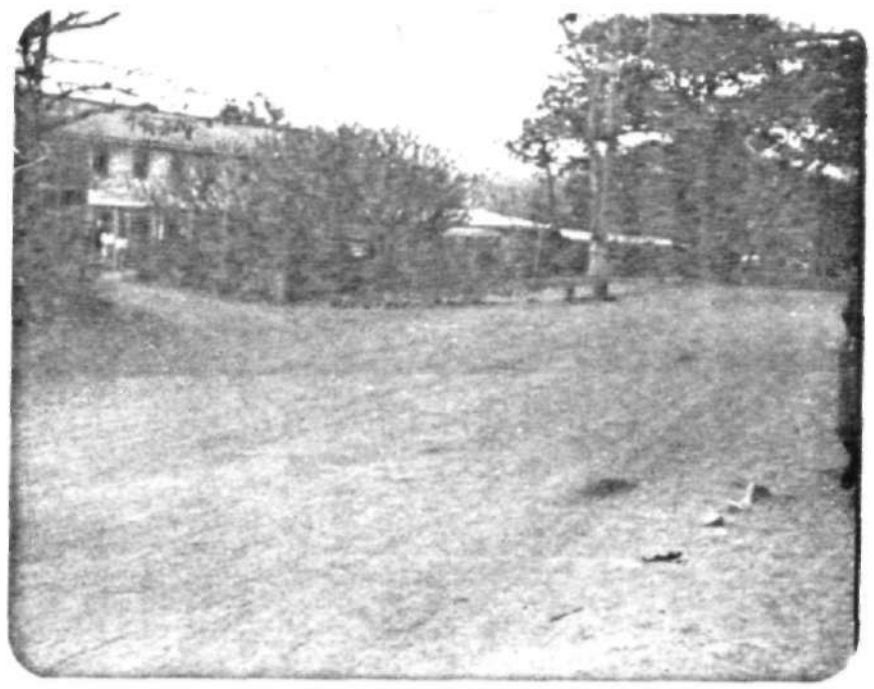


PLATE IX: STUDENTS HOSTELS AND TEACHING FACILITIES.

The games centre has been designed to offer various games, among which are lawn tennis, football, volley ball etc. The location is acceptable. The games area can be used by both patients and students.

The existing out-patient department is wrongly located. Out-patients are forced to pass through the whole length of the hospital daily. This leads to heavy traffic within the hospital premises and may affect a much needed tranquility of quiet areas. Most patients treated in the medical centre do not need other hospital services. Therefore they could be restricted around the main entrance, as indicated in the proposed medical centre.

The existing out-patient department has not been properly designed. The patients should have been grouped at least by sex. Their (patients) movement should be simple and as straight as possible right from the reception to consultation and finally treatment. A graduation of systematic waiting areas is paramount. No refreshment buffets have been provided at waiting areas, no considerations have been shown (in design) for proper flow of patients and little attention was given to the patient's relatives in the out-patient department.

The out-patient department, which should form part of a medical centre of a psychiatric hospital should house all necessary and major medical and clinical facilities. What is presently seen in Aro, psychiatric hospital is different.

Some diagnostic and therapeutic facilities are located within the wards. They are X-ray and pathological laboratories, electro-cardiography and electro-encephalography department, theatre and the dispensary. This type of zoning should be avoided. The out-patients are again unnecessarily brought into the in-patient village and this can cause un-fore-told psychological and social situations.

The medical records department (Plates x-xii) should be placed near both the medical centre, and the teaching and research centre. This is to enable both centres use them in consultation and research respectively.

Occupational therapy department (Plate xii) provides a set of workshops. The location seems distant from the patient wards. How will patients communicate between this department and their wards during heavy rain, a characteristic of that region of the country ? It is recommended that occupational therapy workshops be decentralized within the patient village and occupational therapy farms could be centralized.

The planning aspect of this department is good. The schedule of accommodation is adequate.

Boiler house, laundry (Plate xiii) and the generator plant have been properly grouped and located.

Cafetaria should be as close to the patients wards as possible. This is to ensure service of food promptly at all



PLATE X: MEDICAL RECORDS DEPARTMENT.

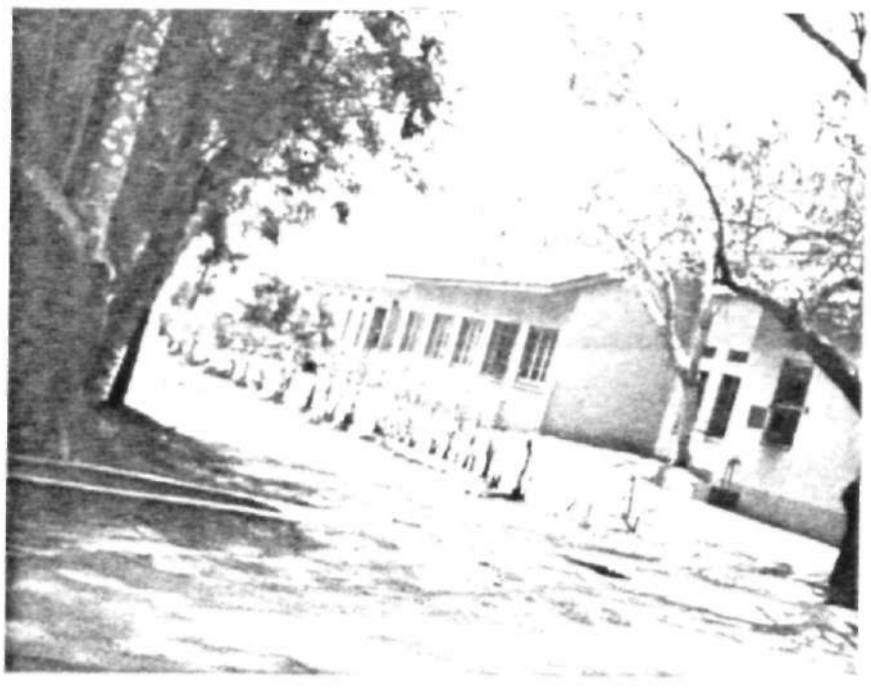


PLATE XI. MEDICAL RECORDS, MULTIPURPOSE HALL, ■



PLATE XII: OCCUPATIONAL THERAPY DEPARTMENT.

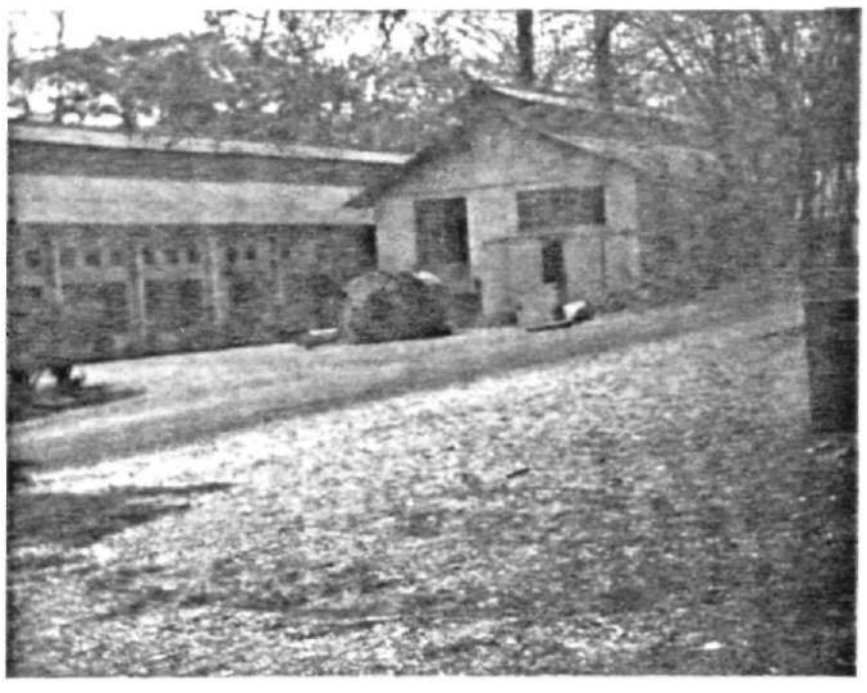


PLATE XIII: LAUNDRY AND BOILER HOUSE.

sessions. Therefore covered corridors should link the proposed Cafeteria to at least one main corridor in the in-patient wards. The situation in the existing Cafeteria (Plate xiv) should not be encouraged.

There is good grouping of patients in the wards. The patients have been grouped as male and female and a courtyard boundry exist to mark them apart. Substance abuse patients have been given a separate ward. Acute and converlesent patients are grouped separately in the same ward.

A typical ward (Plate xv) has been properly zoned into staff areas, acute patient observation areas, violent patients seclution rooms, convarlesent patients single room and a central patient sanitary facilities. Other functions available include consultation rooms, clinical rooms for treatment of physical illness, nurses station, medication store and patient dinning room.

The consultation rooms and nursing station have been poorly designed. The nursing station in a psychiatric hospital as a matter of principle, should not be inclosed. It should be open, decentralised around the patients areas so that physical mingle is possible. Medication store must be very close to the station and should be inclosed.

The number of beds in the observation wards is at the maximum. In a good design these beds should be broken down to a maximum of 8 beds. The day space for patients which has not been designed should be located around the Nurses



PLATE XIV: EXISTING CENTRAL CAFETARIA.

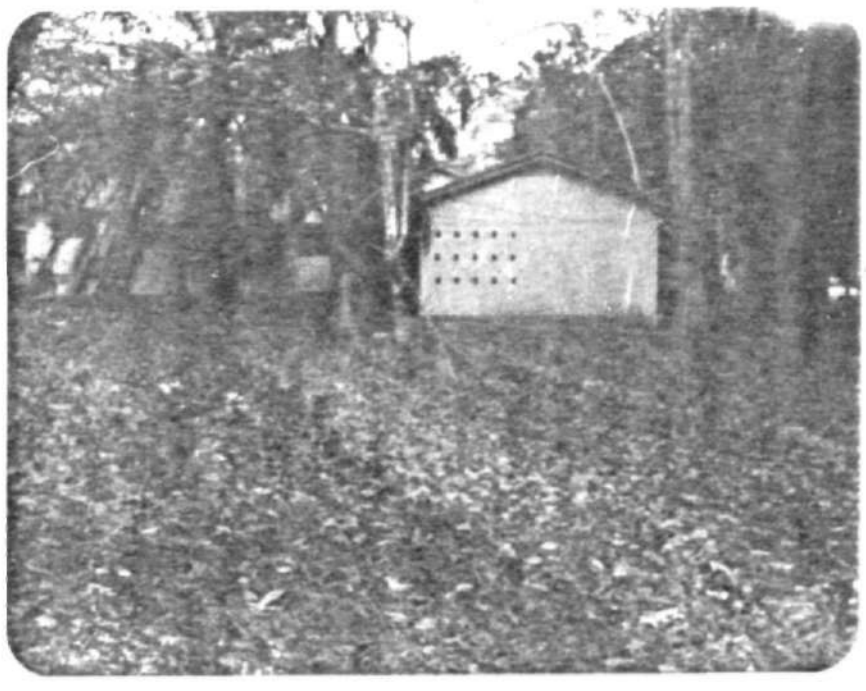


PLATE XV: TYPICAL WARD.

Station. Closets for keeping personal belongings (patients) are not properly provided.

The design of the wards is too rigid to accommodate children. In situations where mothers and their babies are admitted the ward design is not flexible to accommodate them properly. It is recommended that a section of a typical ward be flexible to accommodate such patients.

The hospital administration block (Plate xvi) have been conveniently located near the teaching and research centre.

A section of the hospital premises has been designed to accommodate all hospital staff, (senior staff, intermediate staff and junior staff). A Staff Club and guest charlets have been provided.

The circulation situation have not been properly solved (Plate xvii). Both vehicles and pedestrians use the same entrance and the same road. Efforts should be made to separate the two.

4120 STRUCTURAL SYSTEMS

Simple load bearing block work have been used in most buildings (the in-patient wards, staff houses, etc.). Single floor systems with simply supported beams and columns have been employed in other buildings (administration students hostels). The solutions are appropriate. The roofing system (Plates viii-xviii) are designed in close reflection of existing roofs in that community.



PLATE XVI: ADMINISTRATIVE BLOCK



PLATE XVII: MAIN PEDESTRAIN AND VEHECULAR ROAD.

These building systems are aimed at providing a therapeutic atmosphere in close liaison with the building systems of the surrounding community. The arguement is, if the hospital structural system (asthetics) is far removed from that observed in the immediate community, the patients and the general public may think it is an attempt to deceive the patient and therefore institutionalise or confine them. A highly complex design, on the other hand, makes it difficult for the patients to comprehend their immediate environment.

The use of brittle glass, as observed in this hospital should be avoided. Heat tempered glasses and mirrors are recommended. Squate type water closets should not be encouraged especially in in-patient wards.

4:200 PONCE HOSPITAL CENTRE, PONCE, PEURTO RICO[-1-]

A recent hopeful not is that there is value of planning new institutions in close physical proximity to medical teaching centres, regardless of whether these centres are voluntary, state of federal. The assumption is that these proximity will facilitate and encourage research and promote the education of psychiatrists and paramedical professionals and technicians who are absolutely necessary if a change in the mode of treating the mentally ill from a custodial basis to a modern, humane, enlightened scientific basis is expected. Of course, proximity itself is not a

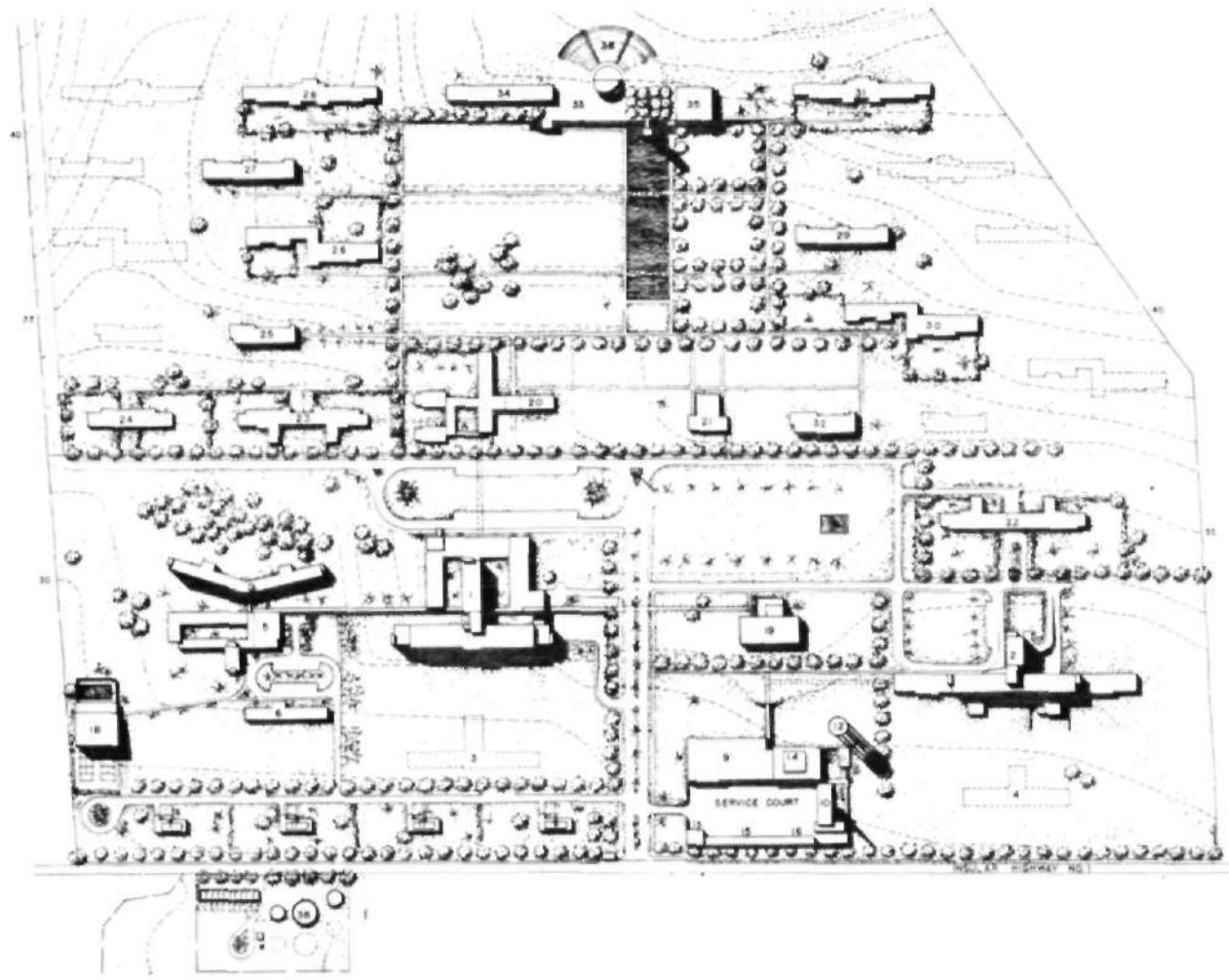
guarantee that these things will happen. We know of a large state institution which was deliberately placed next door to a shinning new medical teaching centre, but so far the two are hardly aware of each other's existence.

In the case of the Puerto Rico Medical Centre, the 2,000 bed psychiatric hospital which existed before the medical centre came into being, lies across the road from the medical centre and is an integral part of the medical centre.

Figures 4:2:-4;3: of the Ponce Hospital Centre show an example of how a mental hospital could fit into an integrated hospital centre. It is not being presented for its intramural arrangement (its planning is now about '34' years old), but is meant to demonstrate that in the absence of complicated jurisdictional barriers, integration of a wide scope is indeed possible[-2-].

4:300 BLOCK PLAN FOR A PSYCHIATRIC HOSPITAL OF 280 BEDS[3].

As a natural reaction against the very compressed, prison-like mental hospitals of the past, there has been a tendency in recent years to separate the various buildings on mental hospital sites very widely and plan in which all the buildings are dotted round the edge of the site are common. Such a layout gives a centrifugal



LEGEND

1 general hospital
2 tuberculosis hospital
3 future chronic district hospital
4 future children's pavillion
5 nurses' school and residence
6 interns' dormitory
7 general medical superintendent residence
8 superintendent of buildings and grounds residence
9 central stores
10 boiler house
11 electric generator house
12 water tower
13 garage
14 laundry
15 animal quarters
16 shops
17 executives' residences
18 gymnasium and swimming pool
19 employees' dining hall

MENTAL HOSPITAL GROUP

20 administration and infirmary
21 dining hall
22 tuberculosis
23 receiving
24 chronic disease
25 convalescent male
26 continued treatment male
27 industrial male
28 chronic disturbed male
29 industrial female
30 continued treatment female
31 chronic disturbed female
32 convalescent female
33 bandstand and dance area
34 recreation and occupational therapy
35 chapel
36 ampitheater
37 reflecting pool

FIGURE 4;2: PONCE HOSPITAL CENTRE, PONCE, PUERTO RICO. "SITUATION."

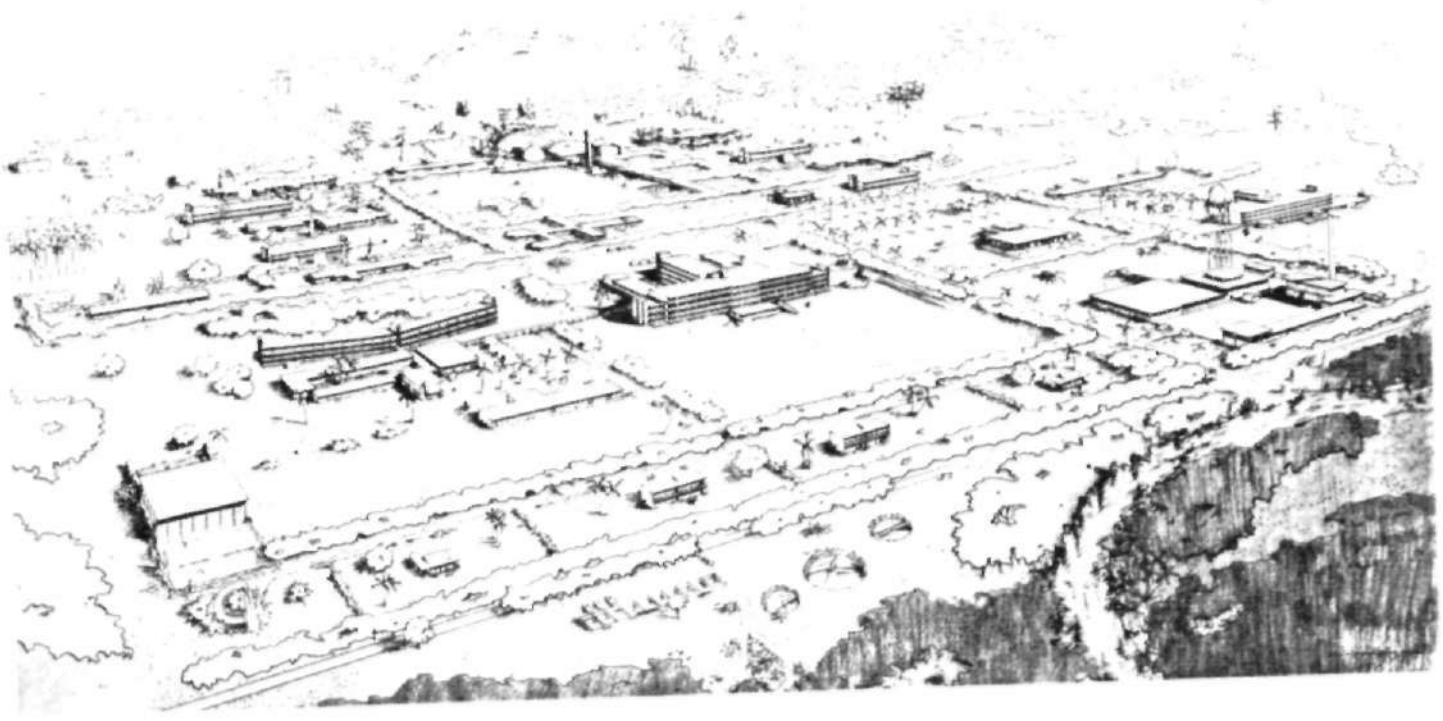


FIGURE 4;3 PONCE HOSPITAL CENTRE, PONCE, PUERTO RICO. "PERSPECTIVE VIEW"

character to the hospital which is not good. A better approach is to group the buildings so as to create communities with centres and subcentres at various levels. For example, two or three ward buildings can be grouped around a joint building containing workshops, and several such "villages" can then be grouped about the main social centre while it serves them all. Such an arrangement reflects normal parrterns of town and village planning, and facilitates the resocialization of the individual patient by giving him a series of gradually increasing groups to which he may belong. It also facilitates the development of the hospital in a series of stages as each "village" forms a self-contained entitity.

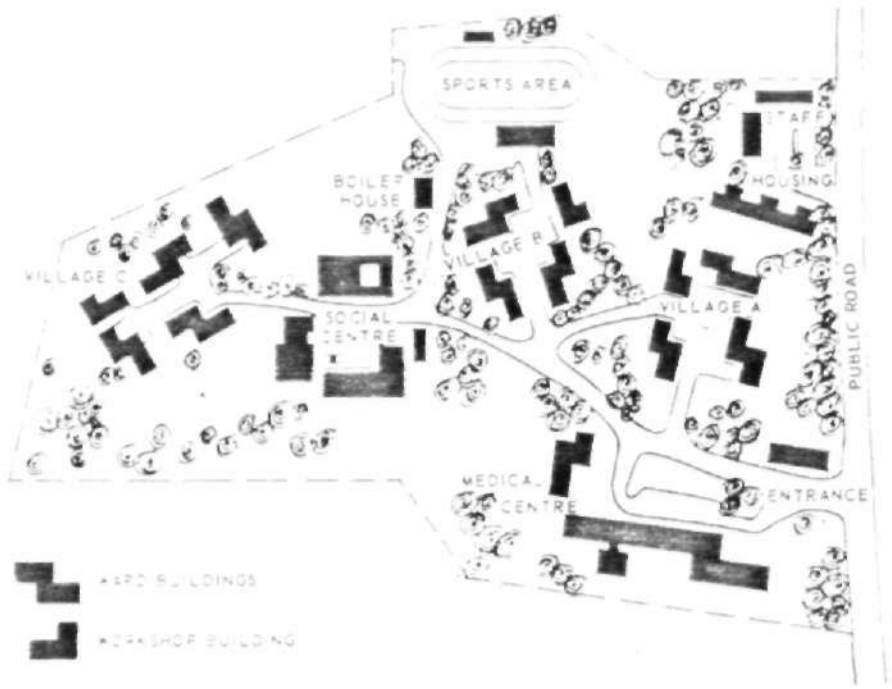
The architectural disposition of the buildings on the site is of considerable importance. It is possible by placing the building in careful relationship to each other to create a variety of spaces; some large, some small, some very inclosed, and some open. If this is done immaginatively, it can help in re-educating the patient to understand space. The precise arrangement will vary from country to country and will reflect local traditions in the city and village planning. In general it may be said that rather closer groupings of buildings than at present customary, would have many positive advantages, both in the character of the hospital and in economy of construction and operation.

Fig. 4:4 (block plan for a projected hospital) illustrates the ideas discussed above. This project is for a hospital of 280 beds in 10 ward units of 28 beds each, together with the other necessary buildings. The site is bordered, on one of its narrower sides, by a public road. The focal point in the hospital is the social centre. Here are grouped the refactory, Club, meeting rooms, and workshops for the most advanced and specialized work. The social centre is deliberately placed some distance from the actual centre of the site, towards the side farthest from the road. This gives the remoter part of the site additional value, otherwise any wards or other buildings placed there are felt to be at a disadvantage.

The patient's living quarters are grouped into three "villages", each with its own workshop. In each village the buildings are fairly close together, and surround a small partially enclosed square. Two of the villages have three wards (i.e. 84 patients), and the third village has four wards (112 patients). The largest village is placed in the remote corner of the site, again with the object of preventing this from becoming a "depressed area".

The Staff housing is grouped, as another village unit, on the edge of the hospital area, and close to the public road.

FIG: 4;4 BLOCK PLAN FOR A PSYCHIATRIC HOSPITAL OF 280 BEDS.



The hospital presents the patient with a gradual succession of spaces from the individual room of the ward to the ward buildings, to the village unit, and eventually to the total hospital.

The plan shown in Fig. 4:4 is appropriate to a country site in a country of temperate climate. The same principles could be applied under other circumstances with somewhat different architectural results. For example on a restricted urban site, or in a harsh climate, the various buildings might be brought much closer together and could be connected if necessary[-4-].

NOTES

1. ISADORE ROSENFIELD, HOSPITAL ARCHITECTURE and BEYOND (1969): 310 pages. Page 192 and 193.

2. ISADORE, R. (1969): Op. at. p. 137.

3. A. BAKER, R. L. DAVIES and P. SIVADON (Public Health papers, World Health Organisation, Geneva) Psychiatric Services and Architecture (1959): 59 pages. Fig. 3.

4. BAKER, A., DAVIES, R. L. and SIVADON, P. (1959): Op. at. page 40-49.

CHAPTER FIVE

DESIGN

DESIGN PRINCIPLES

COMPONENTS OF PSYCHIATRIC HOSPITAL

DESIGN CONSIDERATIONS

SITE CONCEPT

DESIGN BRIEF

DESIGN PRINCIPLES

The architecture of psychiatric hospitals is being revolutionized by the changing character of their function. The implications of these changes have not always been recognised even in recent years. It is most important for architects to appreciate that the environment of mental health building is no longer principally designed for convenience of supervision and control by a minimum of Staff. Our object must now be to provide an environment designed to help the doctors and nurses to bring the patients back to health. The hospital Staff are trying to create a therapeutic environment, and hospital architecture must also be directed to this end, in which it can play a most valuable part.

The environment needed by the patient varies from time to time during his stay in the hospital according to the treatment he is undergoing and the progress he makes. Sometimes he needs seclusion and privacy, sometimes he needs to be in a group with other patients. These groups will vary in size. There will be groups for sleeping in dormitories, groups for eating and recreation, groups for working, and so on. Hence the buildings should provide a gradation of spaces, and some measure of flexibility in the arrangement of spaces.

The general architectural flavour best suited to a psychiatric hospital requires consideration. Most of our existing buildings are heavily institutional in character, and very unlike the domestic environment to which the patient is accumstomed. It is therefore often stressed that we should aim today to make mental health buildings as much like ordinary domestic architecture as possible. While generally true, this arguement can be pressed too far. A hospital is not a home and a building to house 30 people cannot be the same as an ordinary home designed for a family of 4 or 5. Further it is not really desirable or helpful to the patient to dress up the mental hospital to look like something it is not. It has a social purpose, and the patient will appreciate a certain sense of purpose in the architecture as well as the comfort and friendliness of a semi-domestic environment. It is not very easy to strike the right balance, but a balance is what the architect must keep. Perhaps the nearest anology to a psychiatric hospital in size, scale and purpose is a residential college. Such buildings include simple living quarters, communal rooms such as refectories, meeting rooms, etc.[-1-].

5:000 COMPONENT PARTS OF A PSYCHIATRIC HOSPITAL

These are as follows:

Medical Centre; where consultation, diagnostic and therapeutic facilities are located; offices for medical staff, consultation rooms, offices for visiting consultants (social welfare workers, psychologist, etc.) staff common rooms, radiology departments, pathological laboratories, electro-encephalography departments, sick bay for patients with pysical illness, etc.

Patient Wards, this will be the patient living quarters. It will also contain some nurses facilities, consultation rooms for doctors on rounds, common rooms, etc.

Occupational therapy workshops and other facilities for group therapy.

Social centre will house a central cafetaria, sports rooms, shops, religious buildings etc.

Administrative, Teaching and Research Department. Offices for administrative and clerical staff, board rooms for meetings, offices for teaching staff, research staff, clssrooms for student nurses etc.

Auxiliary services. These will include laundry services, central sterile supply department, boiler house, maintainance section, generator plant etc.

5:100 MEDICAL CENTRE

"The medical requirements of the psychiatric hospital should be housed in a separate building or a group of buildings"[2]. The centre should be given adequate consideration because this is where the patient is first

seen by a specialist. The architecture can take the form of general hospital design.

5:110 GATE HOUSE

The entrance of psychiatric hospital should be designed to accommodate any form of emergency at all periods. The "house" should not be too imposing and will consist of the following units.

5:111 INFORMATION POST

This will take the form of enquiry room. When a patient or relatives arrive at the hospital for the first time, an immediate attention must be provided at the gate. It may be necessary to register the patient, if consultation is feasible. For example during emergencies. The patient or relatives can then be properly directed to where an appropriate attention will be provided. These processes are aimed at impressing the patient and the public so that their confidence could be obtained, before they reach the out-patient department. All possible information, e.g. doctors whereabout, available ambulances etc. should always be availlable at this post which will be manned by more than one staff for twenty four (24) hours a day.

5:112 CONSULTATION AND SECLUTION ROOMS

During emergency periods, disturbed patients may need

immediate consultant's attention. Occasionally, uncooperative and violent patients are brought to the hospital during or after working hours. These patients will need immediate consultation and can be attended to by a Consultant in the Consultations room. This room will look like the normal Consultation rooms provided in the out-patient department and the patients wards. Here the patients' situation can temporarily be arrested and he can then be referred to the appropriate department for further consultation and treatment. In the absence of a Consultant, acutely disturbed patients will require a seculation room. A seculation room is a sound proof and padded room, completely free of harmful objects, where a patient can be briefly kept before being attended to.

5:113 AMBULANCE BAY

A transit ambulance bay will serve both the information and the consultations room. This should also temporarily accommodate private vehicles.

5:120 OUT PATIENT DEPARTMENT (OPD)

All new and ambulent patients will be properly diagnosed and treated in the O.P.D., mainly on a daily basis. Some patients, e.g. the neurotics, may be cured in this department and may not need further hospital facilities. A day hospital will be required to serve these patients. The day hospital

will take the form of night/daily sanitary i.e. a patient stays at home and comes to hospital for treatment during the night, if the patient works during the day, and if he does not work during the day may come for treatment during that time. After treatment the patient returns home.

CONSULTATION FACILITIES

5:121 RECEPTION AND WAITING AREA

Patients and relatives or friends, directed to the OPD will have access to the unit through an entrance hall where they will be met by a receptionist who will properly register the patient. During this process the patient and relatives will require a waiting area which will also link to the history taking, consultation and other diagnostic facilities. This will ensure that the patient moves to few waiting areas. The waiting area should be essentially kept simple with easy row of sitting arrangement. In order to keep the number of people here small, it may be necessary to subdivide it by temporary means.

5:122 HISTORY TAKING

By means of a clear gradation of organised space (not necessarily a form of totally closed space) the history of the patient will be recorded with some amount of accostic privacy, yet keeping the environment generally open to the waiting area.

5:123 CONSULTATION ROOM

Two rooms for psychiatrist, one for psychologist and one for the social welfare worker, are required for consultation services in the OPD. The design of the consultation rooms require careful consideration.

The room should not be too large or it may overawe and frighten the patient. It should look like a doctors' consultation room, but without the symbols of surgery or other potentially alarming apparatus. Physical examination may be carried out, and a couch behind a screen or curtain may be provided. This is preferable to sending the patient to another room and thereby breaking of contact with him. The consulting room should not have a communicating door to another room, as this suggests a possible interuption of confidential discussions. Consultation rooms should be reasonably sound proof and should not be overlooked.

DIAGNOSTIC AND THERAPEUTIC FACILITIES

5:130 ELECTRO-ENCEPHALOGRAPHY (EGG) DEPARTMENT

EEG is a computerised process of measuring and recording electrical discharge in the brain. The discharges are recorded in form of computer print-outs indicating the magnitude and area of the disturbance in the brain. Functions like electro-cardiography, i.e., the measuring and

recording of electrical discharges in the heart can be accommodated in this department.

5:131 E. E. G. ROOM

The EEG machine (Plate i) is sensitive to electro-magnetic interference, as such it should not be located near X-ray departments, telephone switch boards, etc. Where separation is not possible, the EEG room can be screened by cooper screen. This room must be properly airconditioned since the EEG machines have not been tropicalized and heat inhibits their performance. In many cases patients undergoing the EEG effect need to be put to sleep, because most abnormal discharges are optimally recorded during this state. This means that the patient's attention should not be distracted. It is therefore necessary to place this room away from busy and noisy corridors. Hard glare and strong winds should be avoided. Subdued lighting is required. The accommodation required for this room is simple. A space for the recording machine which is about 22" x 36" and 36" high, and a couch where the patient can lay down. Big rooms are better but microphones and headphones etc.must be used to communicate with the patient and between the attendant staff (this may scare the patient). To avoid this the room should be kept small, i.e. communication spaces must be minimised to accommodate only the patient and at least two attendants. Any audience expected in the form of research

team, medical students, etc. could be arranged in a separate room and they may view through closed circuite scanners or through a special partition made of one way glass. Two EEG rooms are required and all should be directly connected to a consultant's office. The two rooms should have attached to them a separate waiting area where there is an attendant who checks the patient and organises their circulation. The patients relatives or friends can also wait in this room.

5:132 ECG ROOM

Since only few psychiatric patients need ECG, only one machine (approx. 12" x 12" x 12") is required. A waist level shelf to keep the machine and a space for a couch will be adequate. Some privacy is required in this room since the patient will normally be half dressed from the waist downwards. The room could be accessed through the waiting room in EEG unit or can have a separate waiting for patients and relatives. The room should also be directly accessible from the consultant's office.

5:133 CONSULTANT'S OFFICE

A standard consultation room is required for a Consultant with additional special training in the science of electro-encephalography, electro-cardiography etc. (the Consultant should of course, been trained in psychiatric

matters). The Consultant recommends either EEG or ECG or both, and supervises, where necessary, any of the process. He will coordinate all the attendant staff in this department. This consultation room should be more spacious to accommodate bookshelves, where computer print-outs charts could be kept for immediate references.

5:140 LABORATORY FACILITIES

Basic X-ray and photology test facilities are required. These units should not be elaborate and two detailed since most psychiatric patients do not frequently need them. Occasionally complicated cases should be referred to the general hospital.

5:141: X-RAY UNIT

An enclosed space to house a small mobile X-ray machine is adequate. A small waiting area with space for attendant can serve the patients and their relatives. Printing or dark-room is required with equipment for film records filing.

5:142 PATHOLOGICAL LABORATORY (LAB.) UNIT

For basic blood tests, urine and stool analysis, smear tests, etc. A small office and records room to accommodate a chair, desk, stationery and file cabinets and a work room with

adeqyate work tops and sinks are necessary. A small waiting area (sitting capacity up to 5) will be sufficient.

5:150 ELECTRO-CONVULSIVE THERAPY (ECT) DEPARTMENT

ECT is simply an electrical process of thoroughly shaking the brain. Patient taking ECT are advised not to eat the previous night and the next day before the therapy. This is to avoid vomiting and possible sufforcation during the process.

5:151 WAITING AREA

Patients can wait in the main waiting space in the reception area. Other arrangements are made for the relatives or friends since they may stay for sometime (0.5-6.0 hours), while the patient is resting (after ECT) in the ward. Some type of amusement could be provided for the relatives or friends.

5:152 ECT TREATMENT ROOM

Idealy two machines are required. These machines are small (about 12" x 12" x 6") (Plate iii) and a platform of about 36" high is required. The machines could be kept next to each other. Each machine requires a normal bed where the patient will get the therapy which last for about 0.05 seconds. A circulation space is required around the bed for attendants and nurses who control the patient.

5:153 RECOVERY WARD

Immediately after electrocommulsive therapy the patient may lose consciousness and will require a resting space where he can sleep for sometime (ranging from 0.5 to 6.0 hrs.). Twenty beds will adequately meet the optimum requirements of this unit. However, these beds must be specially constructed to have a very minimum height. This is because the patients have a tendency of being very restless during their sleep - and may fall off the bed.

5:154 NURSE'S STATION

A nurse observation station should be placed with good view of all the beds in the unit. Number of nurses varies from 8-10 depending on the number of patients handled that day and their individual length of sleep.

5:160 PHARMACY DEPARTMENT

This department will deal with general collection, bulk storage and dispensing of drugs. Most patients expected here are out-patients, since small dispensaries are provided in the in-patient wards.

5:161 WAITING AREA AND DISPENSARY

A waiting space for patients and relatives should be provided so as to enable patients queue and collect their

prescriptions. One dispensary room will be adequate. The dispensary will be serviced in the way of drugs, by an adjacent medical store.

5:162 PHARMACIST ROOM

An office is required for a pharmacist. This could be the size of a normal Consultation office.

5:170 MEDICAL RECORDS DEPARTMENT

This should be well placed to facilitate for both research and consultation purposes. The unit is sub-divided into two sections.

5:171 ENTRANCE AND REGISTRATION

The area serves for registration of all incoming patients records. A cataloque station should also be provided for references. The staff facilities will include a desk, and chairs and can be grouped organically. A small area for waiting will be required.

5:172 FILING SHELVES

All registered records need to be properly shelved for future references. This may be conveniently arranged by year, month etc. of registration, using a prefered serial numbering. Expansion on at least one side of the building should be possible.

5:180 SICK BAY

This unit will treat ambulent and less disturbed patients with simple cases of physical illness. A small sitting arrangement (up to 10) should be provided outside the treatment room. A small space as nursing station, medical cabinets, wash basins, two couches and two suites (for patients) can effectively handle any simple situation. The usual recommended practice (considering cost and personnel) is to refer all complicated situations to the general hospital. Acutely disturbed patients having some physical illness should be treated in their wards.

5:190 SUMMARY

A small conference hall should be provided in the out-patient department for group and music therapy, family discussions, meeting room for medical staff and a medical library can be attached. It can also serve a number of assorted functions.

5:200 THE IN-PATIENT VILLAGES

In the psychiatric hospital as we envisage it, living quarters and essential areas are designed as a community not unlike a village[2]. Treatment in a psychiatric hospital should enable the patient to make use of his abilities to integrate with the environment. As these abilities are re-established the hospital should

favour their development, and encourage development by providing varied tiring conditions; varied both as to the material, environment and as to human relationship. At first the patient needs a secure base an individual room or cubicle, of limited size, where the arrangement of personal possession and familiar objects are allowed. The patient must be encouraged to establish inter-personal relations, first with small groups, and later with larger ones. The limited group which is most accepted is from 4-8 people. Later integration can occur in groups of 10-15 people, and later still in a group of people up to 30. These five ward units should be divisible patially into areas appropriate for such groups and sub-groups[3].

5:210 THE WARDS

The ward must be such that the patient will feel secure. This feeling of security is the first prerequisite for the re-establishment of the patient's normal relation with his environment. Insecurity engenders anxiety, which is the cause of much disturbed behaviour.

There are two essential and inseparable conditions for the establishment of this atmosphere of security; reasuring living conditions for each patient, and reasuring working conditions for the staff. If the patients material and social environment corresponds

to his residual powers of adoptation, his anxiety will be kept to a minimum and his pathological reaction will be considerably reduced. Similarly, the task of the attendant staff will be lighter with the result that their attitude towards the patients will promote his material and emotional well-being[4].

'In-patients are normally divided as acute and converlescent patients. Acute patients need close attention because they may be uncooperative and very disturbed. A good hyrachy of social integration will neccessitate a gradual segregation or integration of both acute and conversent patients. For example, an acute patient on admission may occationally be very disturbed he or she should be allocated to a seclusion room. When a patient becomes less disturbed, it should be possible to move him to the general bed area without necessarily changing the immediate environment. On the other hand a converlescent patient who suddenly becomes very disturbed should be removed from the general bed space, to a seclusion room'.

'Some converlescent patients may need privacy, and single' rooms may be needed for 'such' patients who do work and participate in social activities outside the hospital unit, and who need each evening to return to their private corner in order to offset the effects of collective life they live during the day. 'Single and

seclusion' rooms should be easily accessible to the staff as the patients in them have need for protection and surveillance[4].

The internal architecture of the wards should be such as to assist patients in orientation, i.e. the available space should not be broken up into too many zones, and the separate zones should be of simple design. It will enhance the patients sense of security if he is able to easily envisage the whole area of the ward unit, and for this reason it is preferable that the overall length of the building should not be more than about 50 metres[5].

5:211 THE MALE WARD

As practiced in most general hospitals, the male patients should be kept away from the female patients.

5:212 THE FEMALE WARD

Special consideration should be given to the female ward so as to possibly accommodate a mother and her baby. This is because the psychology involved in completely separating a sick mother from her child can lead to unwanted serious side effects on both the mother and the child. The main problem the child's presence will create is if the mother is acutely very disturbed. This situation is arrested by providing a nursery where a

separate set of nurses and attendants will handle the child. The mother and other female patients will be handled by a separate set of nurses. As soon as the mothers' condition improves, her baby should be returned to her care. The age of the child will vary from 0-1½ years when he can sleep with the mother on a bigger bed. All mothers should be grouped together within a unit.

5:213 SUBSTANCE ABUSE WARD

A separate ward is required for substance abuse patients. This ward will be further divided into male and female sections. It should have a multipurpose hall for therapeutic purposes.

5:220 TYPICAL WARD

Apart from some special consideration needed by some specific wards, a typical ward should have, at least, the following facilities.

5:221 BED SPACES AND GROUPING

Most psychotic patients will be best in groups of 4-8 cubicles, so as to reconcile the need for independence with the need for security. A small group (4 or less) makes for the establishment of good personal relationship, but it is upset wherever one patient is replaced by another, and it is not possible for any

member of the group to have much privacy. On the other-hand, a large group (over 8) while allowing more independence, makes isolation too easy. Rooms with two beds are liable to stimulate too strong emotional reactions. Groups of three often lead to ambiguous situations, any drawing together of the 2 members 'makes' the third feel rejected. In most cases groups of 5, 6, or 7 will be found the best. A small dormitory group of 6 patients may, therefore, be considered as particularly recommended.

It is a good thing to distinguish each cubicle by some different arrangements, some distructive decoration (e.g. painting). Each patient should have a cupboard, which can be locked, for his exclusive use. Patients are given insufficient facilities for the arrangement of their belongings, in the hope of discoraging the tendency on the part of others to accumulate innumerable articles. But the urge to accumulate is often a means of defense against a feeling of lack of personal belongings.

5:222 SINGLE ROOMS AND SECLUTION ROOMS

These are self contained private rooms. A seclution room differs from a single room because it needs a special consideration in design, for example, padding of all harmful surfaces so that the patient who wishes to inflict himself

will not be impaired. Accoustic barriers are required to control the usual noise accompanied with disturbed and violent behaviour. The behaviour of these patients require strict control. The doors of single rooms must be such as to permit easy surveillence. The best method is to fit them with a normal glazed (heat tempered) panel, such as is often seen on domestic doors. It should be possible to cover the panel by means of a curtain either from the inside or the outside. With regards to locks, the best system is that used in public places where a certain amount of security must be ensured (railway trains, hotels, etc.). As a general rule, the patient should himself manage the door closing device, but it should be possible for the staff to open or make fast a door at any moment by means of special key. The essential point is that the system adopted should be simple and un-ambiguous. Water-closets and wash-basisns, in single rooms should be arranged so that they can be left entirely at the disposal of the patient or slunt off by a door from his sight.

5:223 NURSES STATION AND MEDICATION ROOM

A de-centralized nurses station commanding the best view of patients' activities is recommended. A defined inclosed space should be strongly avoided. Close to the nurses station, a medication room should be provided to dispense drugs and treatment to patients with simple physical illness.

5:224 NURSES TOILET FACILITIES

Two separate small water-closet and wash-basin rooms are required. One for the female and the other for the male nurses.

5:225 ONSULTATION ROOM

Each ward should posses a normal consultationroom. This could be used by the physician, psychiatrist, psychologist or the social welfare worker.

5:226 DAY SPACE

A central common day space for all the patients within a ward should be provided. This should not be necessarily around the nursing station as the ambulent patients expected to use them are screened by nurses. The day space helps the patients to integrate in larger numbers. The environment should be relaxed and it should be possible to link the day space with the central common room facility within the in-patient village by means of covered corridors.

5:227 SLUICE ROOM

"The dirty utility room will combine the functions of soiled linen sluice and collection, bed pan flush and cleansing, used instrument cleansing and collection, trash and waste disposal. The details of typical equipment and furniture to be accommodated is the same as in any other hospital[6].

5:228 PATIENT SANITORY FACILITIES

Essential sanitary facilities for the patients should be adequate. One water-closet, one wash-basin and one shower room is generally recommended for six patients. Sit type water closet generally used in Nigerian institutional buildings will be discouraged in this project. Squat water closet is recommended. Special safety feature is required for doors. A door type with double acting hinges with removal stops, to permit the staff to open the door either inwards or outwards in an emergency, to release a patient who cannot or will not permit the door to open inwards, is recommended. The showers could be the standard, 1.2 meters x 1.2 meters. Institutional type shower heads are recommended and can be set in the concrete work. Mirrors provided, should be made of heat tempered glass and they should be placed such that multiple reflections are not possible, because this may disturb the patient.

5:230 COMMON ROOMS

Day spaces within each ward unit should be connected to the common room facilities within the in-patient village, by means of corridors. Group art and music therapy, televisions shows, buffects, table tennis games etc. are the type of recreation provided.

Patients suffering a severe functional regression, should have a small work room inside the ward itself. At this stage they need to stay near the nurse who is caring for them and whom they know well. They will usually occupy themselves with art therapy, painting, modelling, drawing, etc. The number of patients needing this 'undifferenciated' activity inside the ward has been estimated under present condition at 20% of the total. A room for 6 patients and their nurse could thus serve a ward of thrity patients, and could be one of the day areas of the ward. The work done at this stage does not require any elaborate equipment[7].

5:300 OCCUPATIONAL THERAPY DEPARTMENT

In different countries and according to doctrines held by different psychiatrist, emphasis is placed either on art therapy, play therapy, therapeutic work, or industrial or social therapy. 'The importance of occupational therapy in psychiatric treatment is tremendous. It helps engage the patient in useful work, interesting amusement or open the patient to inter-personal relationship. This removes anxiety which is produced by unwanted seclusion. The activities of occupational therapy department cannot be centralized'. Social adoptation developes from the undifferenciated to the differenciated from simple to complex. This growth implies the development of integration in space

and time. Thus the patient must be given a scale of 'occupational therapy ranging' from the simplest activities (expressive) in a restricted and not differentiated environment - to complext activities (creative), in an unrestricted and differentiated environment[7].

As soon as possible, the patient should be encouraged towards more differentiated activities. This implies that they must go to work in a different centre from that in which they eat and sleep. Thus other workshops must be provided, outside the ward but not too far away. These workshops should be able to take patients from several wards. In them the working groups should be bigger (6-10) on an average. The work will involve the use of tools and of materials which are more difficult to handle (wood, iron, etc.). At this level, the workshop will be of fair size. Certain patients will go in teams to work in the open air at gardening, farming, building, etc. These patients will need places for assembling and storing their tools.

Finally some patients can be employed on work of an industrial character. Large workshops, will be designated for work permitting a range of manufacturers, destined either to be used in the hospital or sold. In these workshops the two sexes can be mixed.

The same principles can be applied to physical activities. They are aimed at re-education in external

relationships on the psychomotor and psychosensory level. The practice of these principles also promotes the development of psychosocial functions[8].

5:310 THE SOCIAL CENTRE

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5:311 SHOPPING CENTRE

'There should be a small shopping area in the social centre where patients can buy essential materials (cigarettes, soft drinks, etc.).

5:312 CAFETARIA

There should also be a central 'cafeteria which will be comprised of three sections. Food preparation and serving section. This will include a kitchen service, yard, kitchen stores (cold and dry stores), kitchen and out-door cooking space, and serving area. The second section of the cafetaria is the dinning' where patients from different wards can come for meals, if their conditions permits. Finally there should be a kitchen staff room to serve for changing and should have toilet facilities, etc.

5:313 A PLACE OF WORSHIP

A small Mosque and a Chapel should be provided for religious services.

5:314 SPORTS AREA

The sporting activities will include games like football, badminton, volley ball and any traditional game that can be organically organised. Relaxation parks and sitting arrangements will be provided around the sports fields.

5:400 ADMINISTRATION AND TEACHING CENTRE

"The administration and teaching centre will house offices for the administrative, clerical and teaching staff, board rooms and committee rooms, stores, teaching classrooms for nurses and other central services of non-academic character. It may well adjoin the medical centre.

5:410 RESEARCH INFORMATION DEPARTMENT

Information necessary for research and offices for research teams may be located in the administration and teaching centre. The reader is remidiated that, a great deal of research is possible in psychiatry with minimum requirement in the way of byildings.

5:420 THE MATRON'S OFFICE

An office is required for the matron who is the head of all the nursing staff of the hospital. Her or his duty is generally administrative and it may also include the various hospital departments.

5:500 AUXILIARY SERVICES

5:510 LAUNDRY

The laundry service should be located near the boiler house because it uses a lot of steam. This area should be accessed by a side road on the site. The planning solution

should provide a clear floor area free of structural support and expansion should be possible on at least one face of the building.

5:511 BASIS FOR DESIGN

The design of the laundry is based on the following criteria:-

- Number of beds 150
- Linen use rate 5lb/bed/day, including staff linen.
- Laundry operation 40 hrs of effective production per week.
- Wash work 100%
- Flat work 65%
- Flofly day 30%
- Garment finishing 5%
- Based on these data, the lenin to be processed per hour is 150 lb. will be washed and extracted 98 lb. will go to ironing, 45 lb. will be fluff dried and 8 lb. will be garment finished[9].

5:520 MAINTENANCE YARD

A maintenance unit comprising of workshops and work-shades, etc. and manned by technical staff is required to service and maintain all mechanical, electrical, and building appliances and structure. Examples, hospital vehicles, mechanical equipments, electro-mechanical installations, furniture, sanitory facilties, etc.

5:527 SECTIONS

The unit will contain the following sections:-

- Painting.
- Carpentry.
- General maintenance and plumbing.
- Electrical.
- General store for garden tools and miscellaneous supplies.
- Petrol filling station.

5:600 DESIGN CONSIDERATIONS

The physical environment within a building is established not only by the shape of the spaces but also by the lighting, colour, accoustics, ventilation and heating. Until comparatively recently, day lighting, colour and the control of sound were dealt with by architects in an empirical manner on the basis of personal experience. Heating and ventilation and sometimes artificial lighting, were generally put into the hands of consulting engineers. In recent years, important reserach has been conducted in these fields psychologist studying the effects of the building environment on human beings, and psychiatrist developing new methods for measuring and controlling environmental conditions. It is important that the architect should consider the requirements for physical environment at

the earliest possible stage in design. He must think out the kind of lighting he wants, how he is going to use colour and control noise, while he is making his first plans.

5:610 DAY LIGHTING AND COLOUR

Research carried on in Great Britain and Sweden over the last ten years has greatly extended our knowledge as to the effect of daylight conditions and colour on human beings. Up to date these studies have been focused mainly on the lighting and colour problems of factories, schools, and general hospitals, but similar work could and should be applied to psychiatric hospital design.

So far as the patient quarters in psychiatric hospitals are concerned, light and colour should be used to provide a certain amount of variety and contrast. Variety and contrast are stimulating, where uniform lighting and pastel colour schemes are not. On the other hand, if contrast is excessive, lighting and colour conditions can set up glare (glare is principally due to violent contrast and not to total intensity of light or colour).

5:620 ARTIFICIAL LIGHTING

Artificial lighting has been the subject of precise study for rather longer than day lighting or colour.

However, until recently, research has been principally concerned with the technical means of achieving a given level of overall illumination. Only recently have subjective studies been undertaken into the effect of the quality of artificial illumination on human beings. These studies have shown us once again the need to achieve a balance between the stimulating effect of contrast and risk of discomfort and glare.

Following this work new types of light fittings have been designed. These fittings have been used in experimental ward-rooms to give condition in which the local light is under the patients control and can be either bright or not as required, and provides a considerable amount of variety and contrast without glare. Subdued night lighting can be provided by lights situated near the floor level. This gives light where it is needed for the patient who needs to go to the toilet, without light at a level to interfere with sleep.

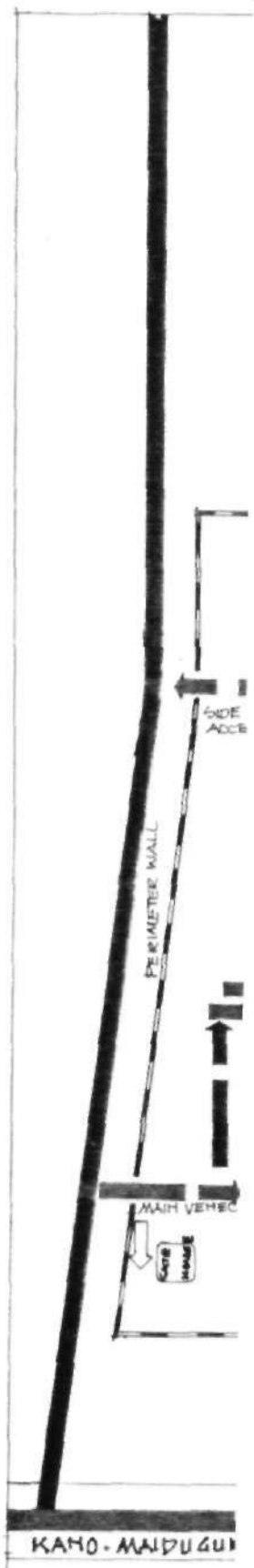
5:630 NOISE

Noise levels are extremely high in most psychiatric hospitals. Conditions are usually worse the more modern the hospital is. Older hospitals were often constructed with thick walls of brick or masonry which acted as sound insulators and were not very reverberant. Modern

buildings are often constructed with steel or reinforced concrete frame and comperatively light partitions. The structural frames can pick up the sounds and reverberate them all over the building. It has been found that very high noise levels are often continuous throughout the day in modern hospital buildings.

The use of very hard materials such as tiles and hard plaster which are highly reflective, accentuates the noise problems. Further, the deplorable absence in some psychiatric hospitals of solft furnishings such as curtains, carpets, and uphosterred furniture, makes matters still worse.

In the design of new byildings, considerations should be given to noise control in planning. Sources of noise as, for example, the workshops should be kept away from sleeping quarters or other rooms where quiet is needed. In determining the structure of the building, consideration should be given to noise, bearing in mind that the sound insulation of a wall or a floor is proportional to its weight, and that light partitions and floors are therefore very transparent to sound (of course, light partitions may be desirable from the point of view of flexibility). From the point of view of noise control, a single-storey building with traditional load-bearing walls is the most satisfactory.



IN PATIENT VILLAGE.

VIOLENT PATIENT.
ACCUTE PATIENT.
CONVERLESCENT PATIENT.
PERSONAL REQUIREMENTS:
SLEEPING.
DRESSING.
TOILET FACILITIES
DOMESTIC REQUIREMENTS:
LAUNDRY SPACE/LENIN ROOM
KITCHENNETTE.
SOCIAL REQUIREMENTS:
DAY SPACE.
VISITING ROOMS.
CENTRAL COMMON ROOMS.
CENTRAL GREEN.
PHYSICAL EXERCISE.
OCCUPATIONAL REQUIREMENTS:
CENTRAL WORK SHOPS.
CENTRAL FARM AREA.
STAFF REQUIREMENTS:
NURSES STATION
LOUNGE AREA.
STAFF TOILET.
DRUG STORAGE.
CONSULTATION ROOMS.

AUXILARY SERVICES.

BOILER HOUSE
LAUNDRY SERVICE
CENTRAL STERILE SUPPLY DEPAT.
STAND BY GENERATOR STATION.
MAINTAINANCE YARD.

ORGANISATION OF PSYCHIATRIC SERVICES.

1. PREVENTIVE;
PUBLIC ENLIGHTENMENT.
FAMILY PLANNING.
CLINICAL DEVELOPEMENT.
INDUSTRIAL PSYCHIATRY ETC.
"COMMUNITY HEALTH CENTRES,
GENERAL HOSPITALS, SOCIAL WELFARE,
PSYCHIATRIC HOSPITALS, SCHOOLS, ETC"

2. CURATIVE;
- PSYCHIATRIC HOSPITALS
- GENERAL/TEACHING HOSPITALS.
CONSULTATION SERVICES = OPD
ADMITION TREATMENT AND
REHABILITATION = PSYCHIATRIC WARD

3. REHABILITATION;

DOMICIALIARY SERVICES
EMPLOYEMENT FOR DISCHARGED PATIENTS.
SHELTERED WORKSHOPS.
WORKING SETTLEMENTS
AFTER CARE HOMES.
OLD PEOPLES HOMES
FACILITIES FOR MENTALLY RETARDED

roads are tapped from this main road in form of cul-de-sac. Parking spaces are deliberately removed from the entrance of the buildings. These concepts are necessary in order to separate pedestrians from vehicles.

Pedestrians can access the site from all entrances. But, the main pedestrian access is from the southern face of the site, that facing Maiduguri-Kano road. This is because most pedestrians will be coming by public transport and are dropped by the road-side. They can walk straight into the site from there.

Pedestrians walk ways are restricted to the central portion of the site and along some vehecular roads. All the departments (medical, teaching/administration, patient wards etc.) are all linked to the central recreational area by means of walk-ways.

5:720 SITE (DESIGN) FOCUS

In an attempt to improve the succession of integrating social groups and introducing a variety of personalities, the hospital is arranged around a milieu with activities that attract people from all parts of the hospital, if their condition allows. This milieu is the social centre (central recreational facilities).

A central cafetaria where you pay to eat is proposed in the centre. It is envisaged that, during meal hours, staff from all departments and patients from the medical centre and ward (if the patients' condition allows and he or she can

afford), congregate at the social centre for meals.

Religious areas (Chapel, Mosque) are proposed, so that during prayer periods, another congregation is formed.

Other activities in the social centre include; relaxation, parks, gymnasium, shopping, a multifunctional hall, etc.

This planning concept is essential in the design of a psychiatric hospital. The main purpose is to help the patient. The therapeutic process of psychic disorders require a variety of group inter-relationship in a succession of a variety of group capacities (Number). The resultant mingling is supposed to improve the psychology and social tendencies of the patient. (It should be noted that mingling milieus should be provided at various sub-levels for the same reason).

5:730 GROUPING OF BUILDINGS

Buildings are grouped on the site relative to their functions and are located according to the user. For example, the medical centre is located near the main entrances, because the principal users are the out-patients, who may require the services of the centre on a daily basis.

5:800 DESIGN BRIEF

5:810 MEDICAL CENTRE

The facilities in the medical centre have been grouped

into; medical facilities, facilities for patients and their relatives or friends, and paramedical staff facilities. The first design consideration is to separate male patients from the female patients, and adults from children and provide them with joint medical facilities. This has been achieved by providing separate waiting areas for male and female patients throughout the medical centre. Entrances and receptions are shared. The children have been provided with child therapy department.

The second planning consideration is to properly group the medical facilities functionally or otherwise. Broadly, these groups are consultation services, diagnostic, and therapeutic facilties.

5:811 CONSULTATION FACILITIES

On arrival the patients and their relatives or friends are met by a receptionist, who will properly guide them. There are two reception counters at the two entrances. The first reception handles new and unregistered patients. Specially the reception counter leads directly into the registration booth and over looks both male and female waiting areas (during registration). Through a clear gradation of space with little visual and accoustic barriers, the registration waiting leads to the 'history recording' waiting space.

The waiting area at 'history recording' leads straight to that at the consultation rooms, via the second reception

counter. This reception will control patients coming for consultation either by appointment (i.e. through the second entrance) or direct from history recording after registration. Seats are arranged at the consultation waiting area, so that the queue to each consultation room is defined.

The planning of the consultation section is such that patient's circulation is defined as much as possible from staff circulation. Patient's movement from waiting to waiting areas are as straight as possible.

5:812 DIAGNOSTIC AND THERAPEUTIC FACILITIES

i. PHARMACY DEPARTMENT

Since the most common therapy prescribed in modern psychiatry is psychopharmacological, the pharmacy department is deliberately located very close to the consultation rooms. Two waiting areas (male and female) have been designed and each will be served by the same dispensary.

Adjacent the dispensary is an office for the pharmacist. There is a bulk medical store that serves the dispensary and rest of the hospital and it has a service platform from the parking space outside.

ii ELECTRO-CONVULSIVE THERAPY DEPARTMENT

This department is zoned into three main parts. The first section is the reception and waiting area. The

receptionist will check the patient's medical record and his or her condition to make sure everything is in order, then sends the patients to the male or female waiting, respectively. The relative or friend who may accompany the patient is sent to a separate waiting area designed for them.

The second section of this department is the treatment and recovery sections. These have been sub-divided into two; the male, and female units. Typically each treatment booth is accessed from each waiting area and lead to the recovery wards via a joint nurse's observation station.

Finally a section of this department is the patient's relatives or friends waiting area. This has been provided because, while the patient is recovering (0.5 to 6.0 hrs.) the relative or friend is expected to wait in a separate section of the ward. Some form of intertainment have been provided here.

iii SICK BAY

The sick bay is located near the electro-convulsive therapy department. In order to accomodate emergencies, the sick bay is designed so that it is directly accessed from the ambulance bay.

Functionally the sick bay is zoned into two parts. The first part deals with examination and treatment while the second section is the pathological laboratory.

iv. RADIOLOGY DEPARTMENT

Because of the massive quantities of radiations, extremely heavy shielding is required in this department. This shielding could be restricted to the rooms where radiations are used. Because of the weight of the building (due to structure and machines) it has been restricted to the ground floor.

Procedure rooms with their sheilding maze must be large enough to accommodate equipment and access for patients on stretcher or trolley. Examination cubicles, treatment and planning space, offices, records rooms etc. have been provided[11].

v. CENTRAL MEDICAL RECORDS

This department is placed between the medical centre and teaching/research centre, so that it will enable medical consultation and academic research. The planning consideration provides; entrance area, reception counter, where incoming records are registered. Staff facilities, a catalogue section and filing shelves for storing registered records.

vi. CHILD THERAPY DEPARTMENT

Functions designed for include reception and waiting, child therapist offices, and multipurpose space used for day activities, group therapy, games and child observation.

vii ELECTRO-ENCEPHALOGRAPHY DEPARTMENT (EEG)

Because of the tranquility required in EEG recording, the department is placed upstairs. Planning considerations include airconditioning, lighting and patient privacy. Airconditioning is necessary in this department because the machines have not been tropicalized. For the same reason, three machines are provided, so that each machine needs not be over-worked. One electrocardiography room has been thrown in.

Procedure rooms along with records store have been designed so that they can all be accessible by the consultant, the attendants and the patients.

viii OPERATING THEATRE DEPARTMENT

Design factors considered include patients flow, staff flow and students observation. Ambulant patients can reach the theatre by the adjacent stair case. Non-ambulant patients are pushed up a ramp, on a stretcher. The ramp and the stair case have been designed to share the same landing. The landing serves both EEG and the operating theatre. The landing leads to the patients reception and presurgical, preparations room. This area is designed so that the patients can be taken straight to the annesthesia room; presurgical preparations may or may not be necessary. The annesthesia room is separated from the main theatre by only a slidding door.

After the operation, the patient is wheeled out of the main theatre into the internal corridor. There may or may

not be needed for post surgical preparations. In either case the patient will end up in the recovery ward.

Another design consideration is the staff flow. Some offices have been provided for the staff. They will access the operating section through the cloak/scrubb room. Scrubbed clean and attired in surgical gowns the staff pass through the instrument/plaster room to the main operating bowl. It should be noted that patients and staff access the main theatre from different and apposite entrances.

5:813 STAFF FACILITIES

The third planning aspect of the medical centre is the provision of facilities for all its staff. It is necessary to sub-divide these facilities according to type of staff. Junior staff include medical nurses, junior technicians, attendants etc. Their facilities are provided on the ground floor, connecting the consultation area to the diagnostic/ therapeutic section. The accommodation include a set of water closets, common room with lounge sits, and a mobile canteen. A section of the building is designed as a multifunctional room.

Senior staff will include the pharmacist, doctors, consultants, senior technicians and visiting specialist. Their facilities are located above that of junior staff. It is possible to provide temporary sleeping facilities for the

doctors on call. A medical library and conference hall have been designed on this floor. These could be jointly used by staff and students.

5:820 ADMINISTRATION AND TEACHING DEPARTMENTS

Administration and teaching departments have been located near the main vehicular entrance, but recessed from the road so that the medical centre is prominent. Teaching and research section is sandwitched between administration and medical centre. This is because psychiatric teaching and research is half administrative and half medical.

5:830 THE WARDS

The in-patient requires a bed to sleep and a closet to keep his or her personal belongings. The bed should be placed near a window, so that the patient can occasionally look outside. The closet, which should be provided to each patient, should be positioned so that it does not obstruct the line of nurse observation. For this reason the closets have been reccessed as permanent structures in form of wardrobes. They serve an added function fo shadding the windows, thereby giving the wardblocks a variety of orientation.

There are four types of patient accommodation within a typical ward. There are seclution rooms (padded cells). These are designed for very violent patients. Non-violent

but acute patients that require intensive observation are accommodated in a separate dormitory. Their privacy is restricted, their movement is always escorted and their toilet facilities are not within their direct reach. Their day spaces is designed around the nurse's station.

The third type of patient accommodation provides some amount of privacy. The patients are not continuously observed and they are not escorted. They share some facilities within a group, and their movements in and out of the ward are occasionally censored. Finally there are single rooms with private toilets and patients in them have complete freedom of movement.

If a patient's condition improves, by this design, his accommodation changes (move privacy and freedom) and if his or her condition reverses the accommodation also changes proportionally (less privacy and freedom).

To reduce the effective number of patients in one ward, the ward has been broken into two wings and the main circulation corridor passed directly through it. This concept produces a structure that looks like two wards. The central part of the ward (which is noisy) is made up of patient's communual facilities, staff facilities and house keeping services. These include visiting rooms, sick bay, staff rooms, utility rooms etc.

Three wards are grouped around some central recreational facilities. These are common rooms, reflection gardens,

kitchen and the workshops. The centre is a social centre at a smaller level. Finally some rehabilitation villages are grouped near the workshops.

NOTES

1. A. BAKER, R. L. DAVIES and P. SIVADON (Public health papers, World Health Organisation, Geneva): Psychiatric services and Architecture (1959). 59 pages. Pages 39-40.

2. BAKER, A., DAVIES, R. L. and SIVADON, P. (1959): Op. at. page 30.

3. Ibid. page 23.

4. Ibid. page 24.

5. Ibid. page 25.

6. USIDAME, OLUSHOLA OBAIKA: A Psychiatric Hospital Agege-Lagos (1975). 57 pages. Page 24.

7. BAKER, A., DAVIES, R. L. and SIVADON, P. (1959): Op. at. page 27.

8. Ibid. page 29.

9. USIDAME, O. O. (1975): Op. at. page 29.

10. Op. at. (Condensed) pages 52-55.

11. Ernst Neufert, Architects' data (1980). 433 pages. Page 170.

CHAPTER SIX

CONCLUSION

6:000 CONCLUSION

The course of this thesis research is more medical than architectural. This is aimed at introducing the technology of psychiatry into architectural science. It is therefore suggested that, further research content to include proper analyses of effect of building forms, space inter-relationships and finishes (espcially colour psychology on the psychic patient at various levels of the anomaly.

The thesis design satisfies a minimum requirement of psychiatric hospital design which is pervaded with a strong therapeutic atmosphere. The design principles can be used under a variety of settings (site location, climate, population, etc.) to obtain different results.

BIBLIOGRAPHY

1. BAKER, A: DAVIES, R. L: and P. SIVADON (1959: Psychiatric Services and Architecture. World Health Organisations Public Health Papers.

2. ELTON, B. M. (1970): Neuroses and Personality Disorder, Prentice-Hall, Inc.

3. FRANZ, C. A. and SHELDON, T. S. (1967): The History of Psychiatry. George Allen and Unwin. Ltd;

4. DAVID, C. (1978): The Language of Madness. Coy and Wyman Ltd;

5. ISADORE, R. (1969): Hospital Architecture and The Beyond. Halliday Lithograph Corporation (U.S.A.).

6. KAYLA, F. B. and RICHARD, R. J. L. (1979): Schizophrenia, Symptoms, Causes, Treatments. George J. MacLeod Ltd; Toronto (U.S.A.).

7. MARK, V. (1975): The Eden Express. Corgi.

8. MAX-LOCK, G. N. (1976): Maiduguri. The Warminster Press Ltd (UK).

9. NEUFERT, E. (1980): Architects Data. Granada Publishing.

10. READERS DIGEST; August, 1982.

11. READERS DIGEST; December, 1982.

12. RICHARD, H. P. (1978): Abnormal Behaviour, Perspectives in Conflict. Holt, Wine Hart and Winston.

13. ROGER, B. (1972): The Sociology of Mental Disorder. Western Printing Services Ltd; Bristol (UK).

14. VINCENT, J. D. (1977): Psychoactive Drugs. Cummings Publishing Company, Inc.

15. VICTOR, E. F. (1978): Psychotherapy and Existentialism, Selected Papers on Logotherapy. Pelican Book.

APPENDIX

SCHEDULE OF ACCOMMODATION

5:100 MEDICAL CENTRE

5:110 GATE HOUSE

Description	No. of Rooms	Area of Each Room (M^2)	Total Area (M^2)
ENQUIRIES	1	24	24
CONSULTATION	1	18	18
SECLUTION	2	9	18
MULTIPURPOSE HALL	1	36	36
TOILET	2	6	12

5:120 OUT PATIENT DEPARTMENT

CONSULTATION FACILITIES

RECEPTION	2	8	16
WAITING	2	104	208
REGISTRATION	1	36	36
HISTORY RECORDING	2	32	64
CONSULTATION ROOM	6	18	108
WAITING	2	36	72
TOILET	4	6	24

DIAGNOSIS/TREATMENT FACILITIES

5:130 ELECTRO-ENCEPHALOGRAPHY (EEG) DEPARTMENT

Description	No. of Rooms	Area of Each Room (M^2)	Total Area (M^2)
CONSULTATION	1	30	30
WAITING/RECEPTION	1	60	60
EEG	3	12	36
ELECTRO-CARDIOGRAPHY	1	12	12
RECORDS STORE	1	16	16

5:140 LABORATORY FACILITIES

RADIOLOGY DEPARTMENT

RECEPTION	1	8	8
STRETCHER BAY	1	6	6
WAITING	2	36	72
RADIOTHERAPY	1	90	90
PLANT ROOM	1	18	18
OFFICE	1	20	20
RECORDS	1	12	12
DARK ROOM	1	16	16
LIGHT ROOM	1	20	20
DIAGNOSTIC X-RAY	1	24	24
CHANGING	3	2	6
TOILET	2	6	12

5:150 ELECTRO-CONVULSIVE THERAPY (ECT) DEPARTMENT

Description	No. of Rooms	Area of Each Room (M^2)	Total Area (M^2)
RECEPTION	1	8	8
WAITING (PATIENT)	2	34	68
TREATMENT ROOM	2	12	24
NURSE'S STATION	1	9	9
RECOVERY WARD	2	90	180
TOILET	2	6	12
RELATIVES WAITING	2	30	60

5:160 PHARMACY DEPARTMENT

WAITING	2	48	96
DISPENSARY	1	64	64
MEDICINE STORE	1	70	70
PHARMACIST	1	20	20

5:170 MEDICAL RECORDS

REGISTRATION	1	12	12
CATALOGUE	1	8	8
RECORDS	1	56	56
STAFF REST	1	16	16
TOILET	1	6	6

THEATRE DEPARTMENT

Description	No. of Rooms	Area of Each Room (M^2)	Total Area (M^2)
RECEPTION	1	20	20
PRE-SURGICAL PREPARATIONS	1	12	12
ANAESTHESIA	1	20	20
MAIN THEATRE	1	30	30
INSTRUMENT ROOM	1	20	20
SCRUB ROOM	1	18	18
CLOAK ROOM	1	8	8
POST-SURGICAL PREPARATION	1	15	15
CHIEF SURGEON	1	20	20
SECRETARY	1	15	15
OFFICES	2	20	40
TOILET	1	6	6

5:180 SICK BAY

Description	No. of Rooms	Area of Each Room (ft^2)	Total Area (M^2)
WAITING	2	36	72
EXAMINATION ROOM	1	32	32
TREATMENT ROOM	1	40	40
PATHOLOGICAL LAB.	1	54	54
SPECIMEN	2	12	12
RECORDS	1	12	12
OFFICE	1	12	12
TOILET	2	6	12

5:220 TYPICAL WARD

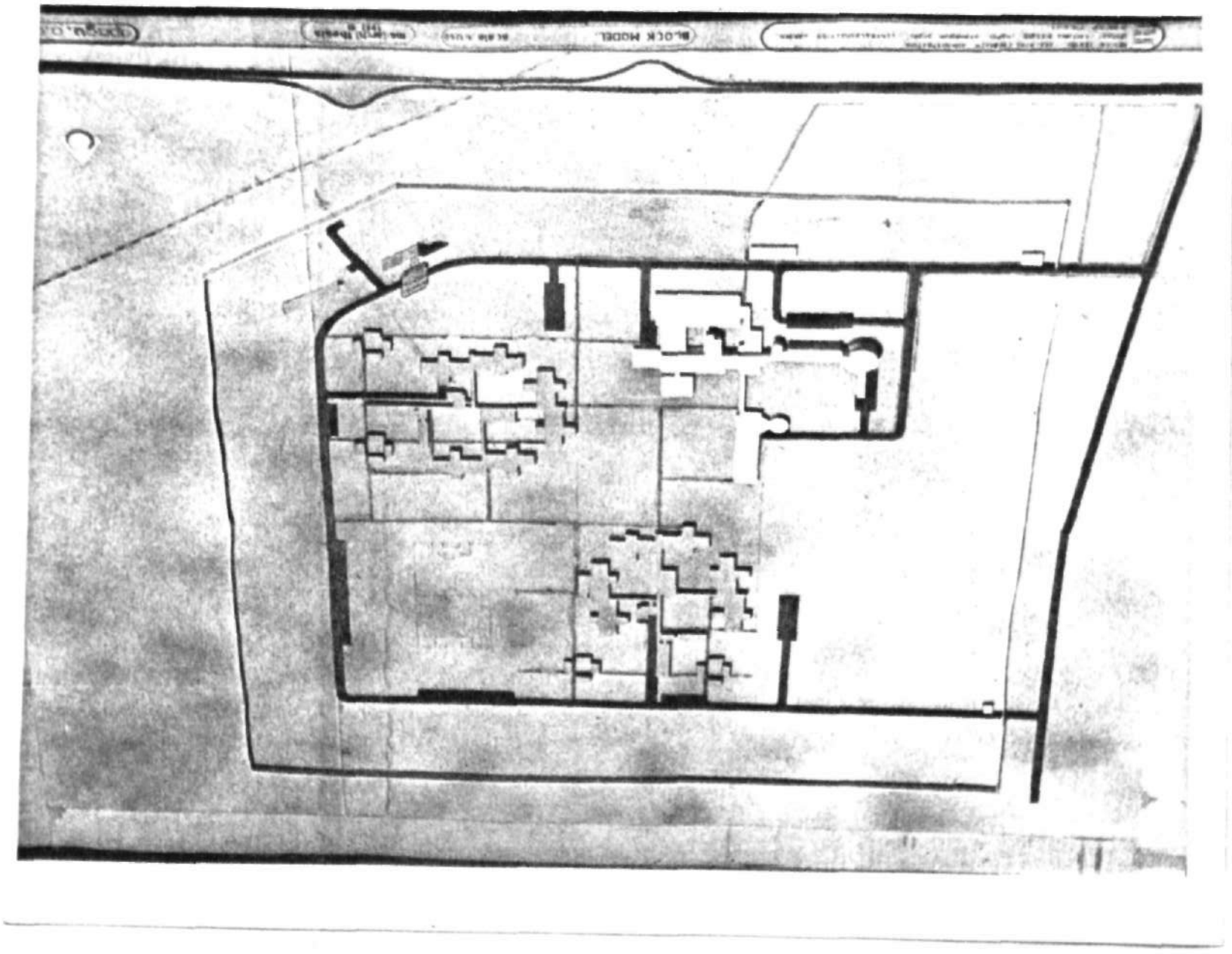
SECLUTION ROOM	2	9	18
SICK BAY	1	48	48
UTILITY ROOM	2	24	48
VISITING ROOM	2	36	72
NURSE'S ROOM	1	18	18
NURSE'S STATION	2	12	24
MEDICINE STORE	2	8	16
6-B OPEN DORMITORY	2	99	198
TOILET FACILITIES	2	24	48
LAUNDRY	2	16	32
DAY SPACE	2	36	36

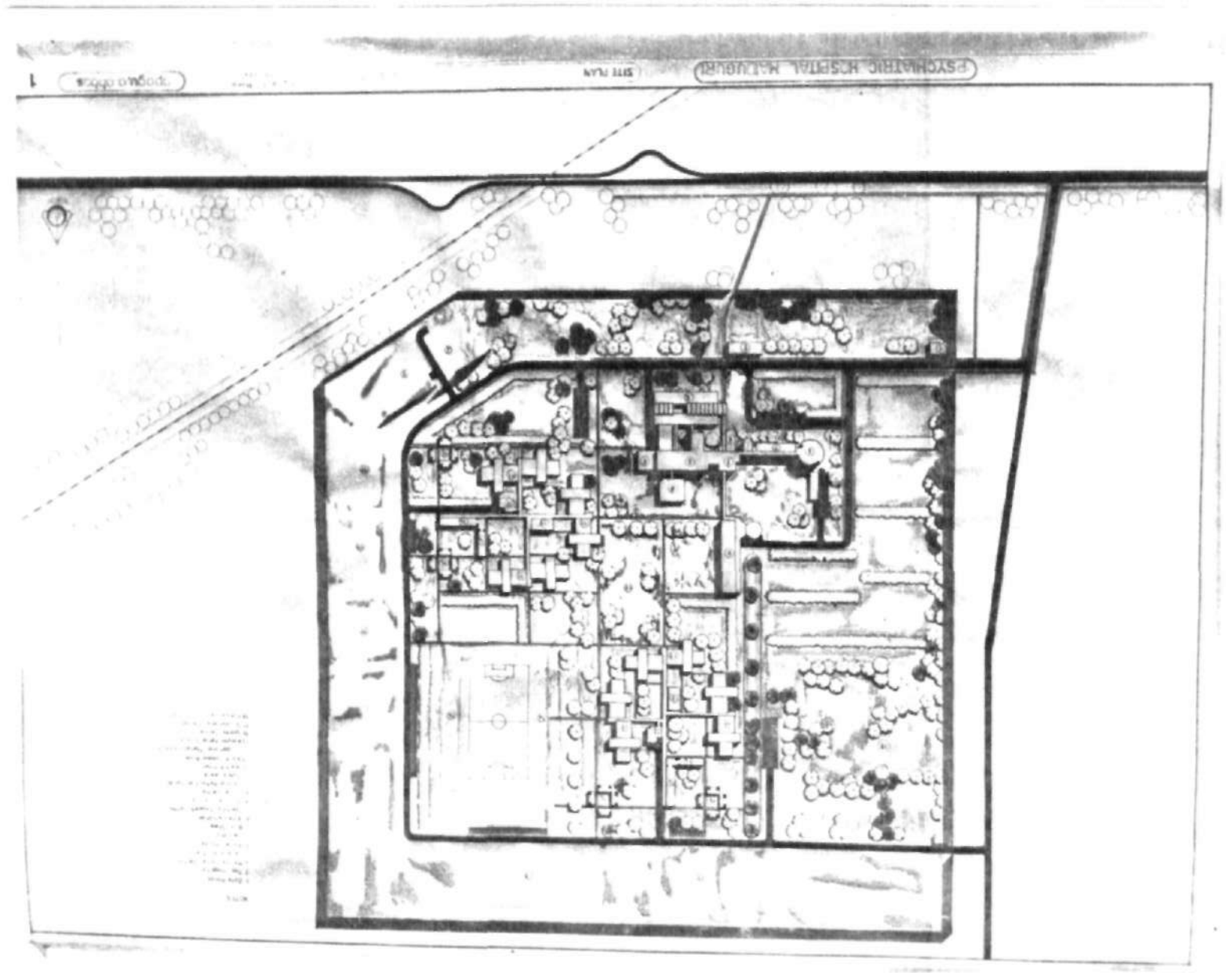
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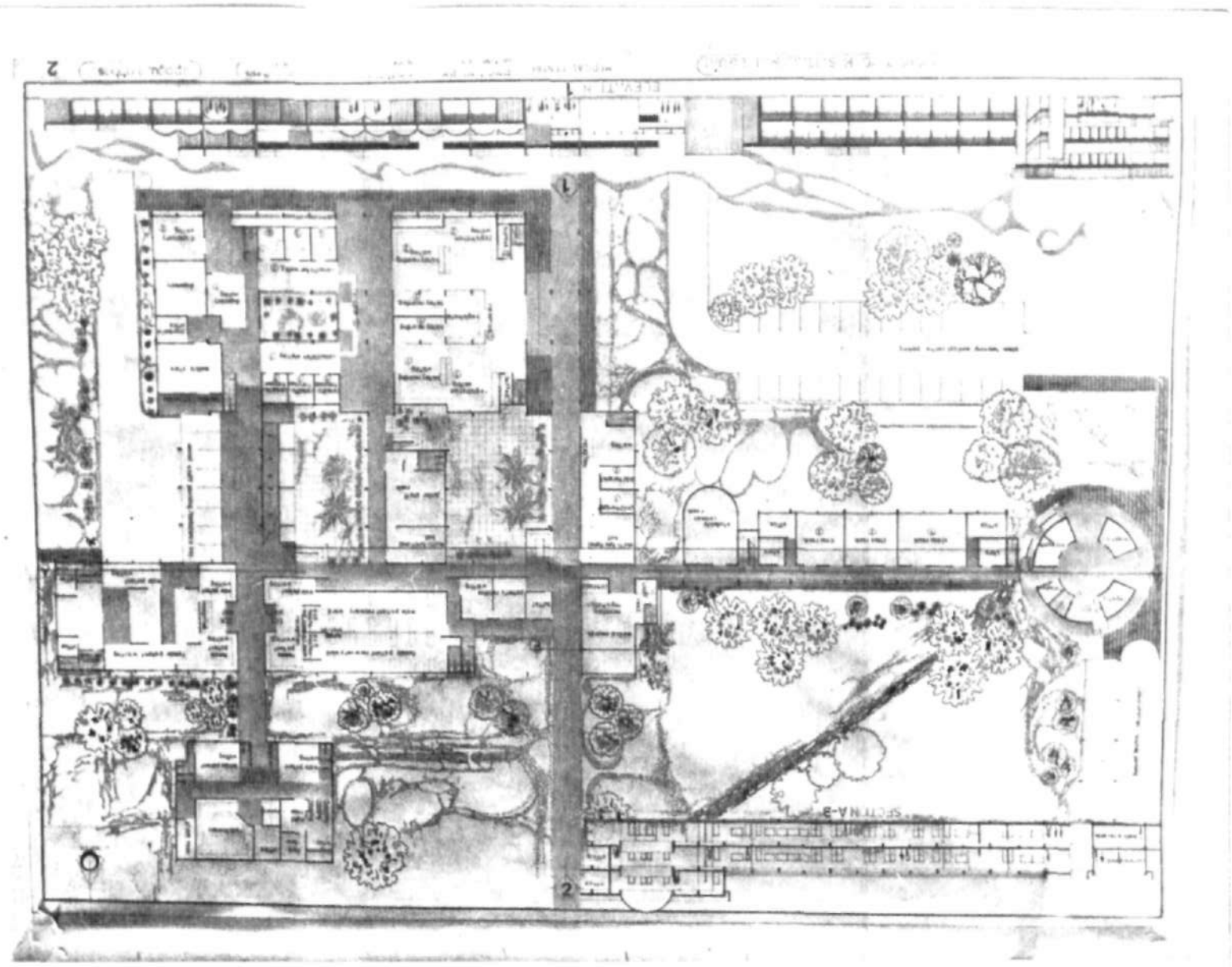
Description	No. of Rooms	Area of Each Room (M^2)	Total Area (M^2)
6-B 'CLOSED DORMITORY	2	88	176
TOILET FACILITIES AND LAUNDRY	2	175	35
DAY SPACE	2	50	100
SINGLE ROOM	4	15	45
TOILET	4	4	16
DAY SPACE	2	20	40
MULTIPURPOSE ROOM	2	15	30
5:400 ADMINISTRATION/TEACHING			
ADMINISTRATION			
RECEPTION	1	18	18
REGISTRY	1	18	18
ACCOUNTS	1	18	18
STATISTICS	1	18	18
TELEPHONE EXCHANGE	1	6	6
CONFERENCE	2	20	40
MATRON	1	16	16
DIRECTOR	1	18	18
DIRECTOR'S SECRETARY	1	12	12
HOSPITAL SECRETARY	1	18	18
TOILETS	3	6	18

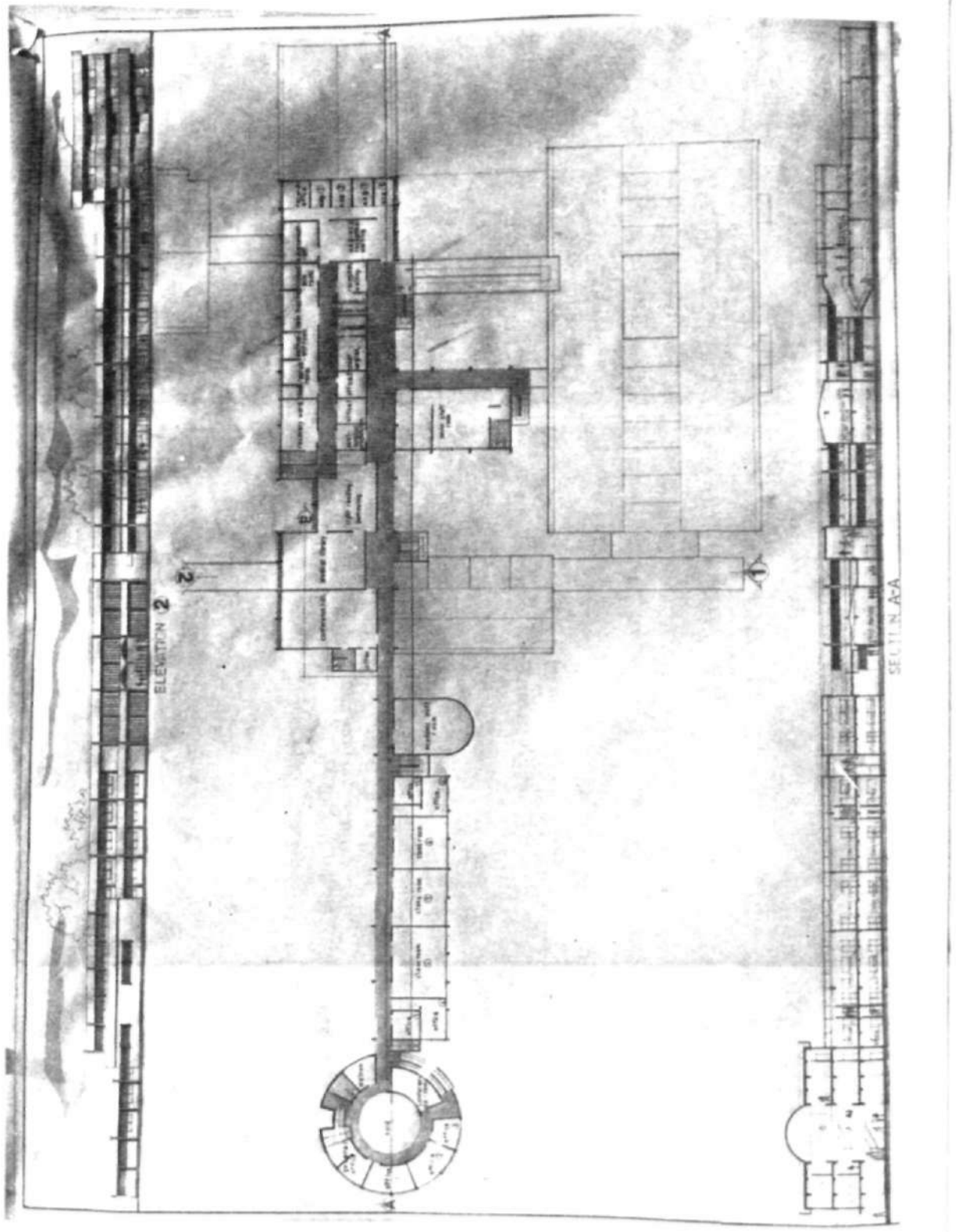
TEACHING FACILITIES

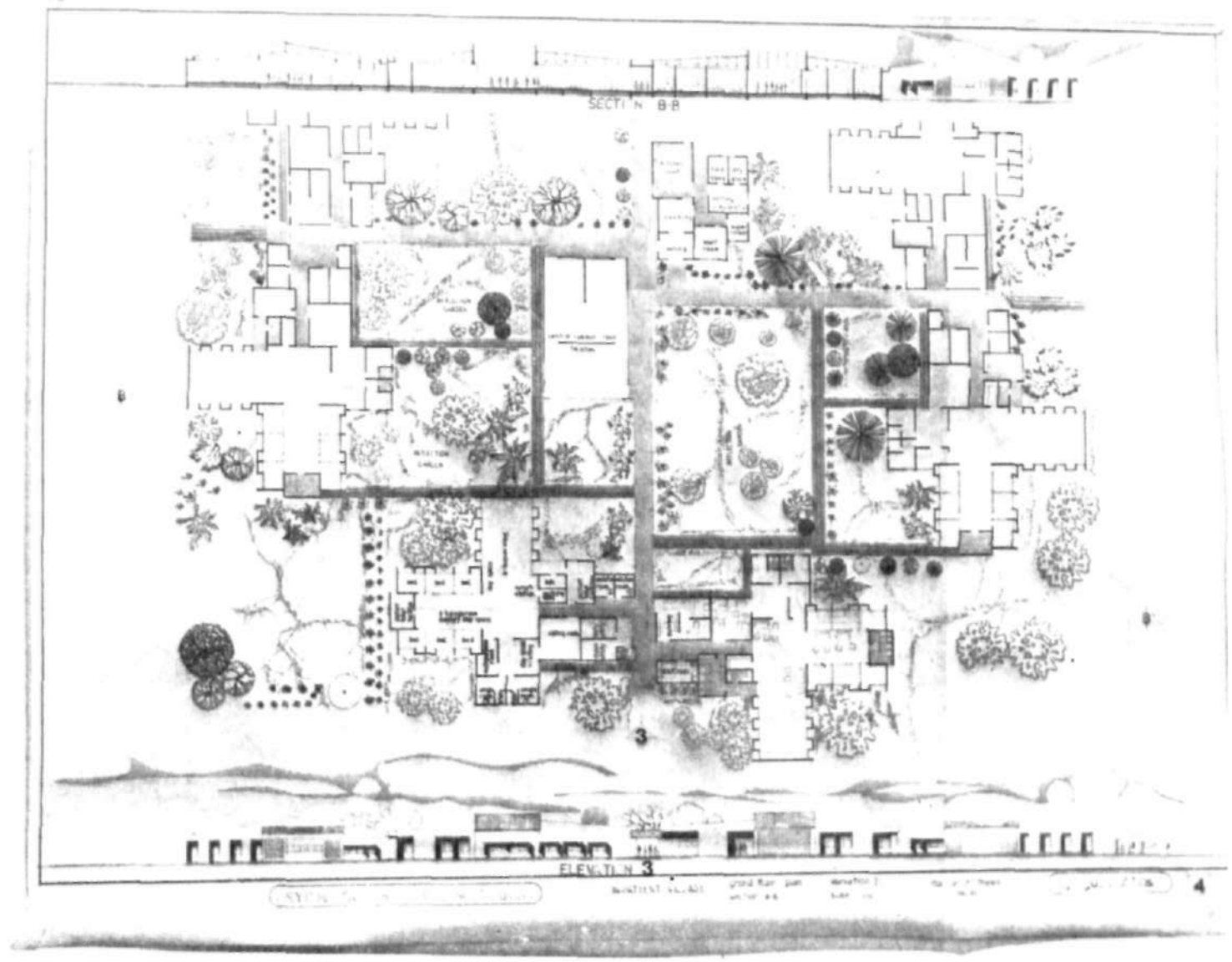
Description	No. of Rooms	Area of Each Room (M^2)	Total Area (M^2)
PRINCIPAL	1	20	20
CONFIDENTIAL SECRETARY	1	16	16
TEACHING STAFF ROOM	1	64	64
MEDICAL LIBRARY	1	96	96
CLASSROOMS	4	64	256
SEMINAR ROOM	2	80	160
STUDENTS COMMON ROOM	1	64	64
DIRECTOR OF RESEARCH	1	20	20
RESEARCH SECRETARY	1	16	16
OFFICES (TEACHING)	2	18	36
OFFICES (RESEARCH)	2	18	36
TOILETS	2	6	12


BLOCK MODEL


PSYCHIATRIC HOSPITAL, MALTA




ELEVATION 2
SECTION A-A


SECTION B-B
3
ELEVATION 3
4

