CENTRE FOR TRADITIONAL MEDICINE

(AFRICAN MEDICINE RESEARCH CENTRE)

ARO, ABEOKUTA

By

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APPROVAL SHEET

DEPARTMENT OF ARCHITECTURE

AHMADU BELLO UNIVERSITY
ZARIA

This thesis (Centre for Traditional Medicine, Aro) has been read and approved as meeting the required standard for the award of master's degree (M.Sc) in Architecutre.

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Date

DECLARATION

I hereby declare that this thesis has been written by me and that it is a record of my own research work. It has not been presented in any previous application for a higher degree. All quotations are indicated and the sources of information are specifically acknowledged by means of references.

ADEWUMI O. DUROJAIYE

June 1983

DEDICATION

To the ALMIGHTY WHO in HIS GRACE and UNLIMITED LOVE, permitted HIS WORD, "IN THE LIGHT OF TRUTH", - THE GRAIL MESSAGE - to be proclaimed once more, in the WORLD ...

- GLORY BE TO HIM IN THE HIGHEST .....

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ABSTRACT

Introduction/Philosophy

The centre shall provide a forum whereby a healthy integration of the existing Traditional Healing method can be made with the Modern Healing method.

This shall be mainly in the field of processing drugs from plants.

The integration shall be based on the sociological and cultural aspects of both Healing methods.

The emphasis of the integration shall be placed on the Traditional Healing Method. This means that Centre shall try to develop the existing Traditional Healing method.

The Traditional Healing Method can be broadly classified into two groups, viz:-

- Herbal treatments
- Mysticism.

Objectives/Functions

- To serve as a Research Centre,
- To serve as an educational centre for both the Traditional Healers and the Medical Doctors,
- To provide a forum whereby a unified healing method, can be achieved for the whole country,
- To consciously preserve the Nigerian healing methods,
- To uplift those aspects of the Traditional healing methods which can be improved,
- To demystify the healing methods by discarding the elements of mysticism,
- To supplement the efforts of the various Nigerian governments in their health care delivery systems,

- To act as a centre for documentation and dissemination of the knowledge of the Healing methods.

Architectural Significance

Architectural solution would be such as can balance both the sociological and cultural aspects of both healing methods.

This Architectural Solution is necessary since the modern Hospitals are too institutionalized whereas, the Traditional Hospitals generate a feeling of awe.

Scope

The Centre will be divided into 3 main sections:

1. Research Centre
2. Educational Centre
3. Healing Centre.

Conclusion

In the execution of the thesis, emphasis would be placed mainly on the elements of nature, which can serve as the much needed balance.

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Chapter 1

INTRODUCTION

The countries of Africa belong to a group of those referred to as the third world or developing countries. The developing countries are characterised by extremely limited resources, poor communication, vast distances, individual and community poverty etc. These factors act upon one another and leave the developing countries in a perpetual state of poverty. Because of lack of what could be described as very simple health care measures, man in Africa dies daily of preventable and curable diseases, often associated with malnutrition.

The per-capita income for man in many African countries is less than US $94 a year. This figure is staggering especially when one considers that per capita income in the U.S.A. is $4,980 and in France $3,400 per annum according to 1972 figures. Yet, despite these differences in incomes, the population of the less developed regions of the world (including Africa) continues to rise sharply.

The life expectancy of man in Africa at birth is estimated to be about 45 years compared with about 70 years for man in Europe or in North America. The death rate in Africa is twice that of Europe while infant mortality is nearly seven times higher in Africa than in Europe (W.H.O., 1979). These unfavourably high levels of mortality are caused by a number of inter-related factors

including: infection and the consequences of ill-timed, closely spaced, and too frequent pregnancies as well as the lack of health care and other social services.

In deed most developing countries of the world are also very much below the level considered necessary for the prevention and control of communicable diseases and for the promotion and maintenance of good health. For example, only 20 percent to 25 percent of rural dwellers in developing countries have access to clean water.

The water supply to urban areas in these countries are grossly insufficient and the same goes for the waster disposal facilities. In Nigeria, an estimated 29 million out of a population of over 80 million have access to safe drinking water.

As if the situation is not complex enough for any government or community to try to help the health situation of man in Africa, the problem is further complicated by the fact that some of the people of Africa live a nomadic life. Some 50 to 100 million nomads have been estimated to be present in the world and 90 percent of these live in Africa and Asia. Nomads have their own needs and problems peculiar to their life style. Because of their constant movement and dispersion, special consideration must be given to provide help to this portion of the population in terms of health matters.

In tropical Africa, 1 million children die annually from malaria and in West Africa alone, half a million children die each year from measles. Diseases such as cholera, infectious

hepatitis, yellow fever, tuberculosis and poliomyelitis which are largely under control in developed countries still cause great harm in developing countries. Also, 25 percent to 30 percent of the population in Africa is estimated to suffer from significant undernutrition.

The lot of man in Africa has been improving in terms of available health facilities. However, the amount of these facilities available to the population is still very far from the United Nations recommended figues. For example, from 1961 to 1972, there was an increase in the doctor population ratio from 1 in 25,000 to 1 in 17,500 in Africa. Also from a ratio of one nurse per 6,000 population in 1961, a better ratio of one nurse per 4,400 was available to man in Africa in 1972, (Adinlugber, 1979). In Nigeria, there was 1 doctor per 24,000 population in 1970 and 1 to 11,000 in 1978, one nurse per 4,900 in 1970 and one nurse in 3,600 in 1978. One pharmacist to 74,000 in 1970 and in 1978, there was one pharmacist to 32,000 population in Nigeria. By 1977, there was one hospital bed per population of 1,350 in Nigeria although there was only one hospital bed per 2,150 in 1970 (FMH, 1980). These figures are alarming especially for Nigeria where we have had an oil boom. The situation calls for drastic measures.

The figures above show that not every Nigerian has access to the kind of health-care facilities available to intellectuals and students.

All these prove that, the efforts of the modern health facilities are not enough if one has to cater for the majority

of people; therefore a conscious development of what exists should be striven for.

Chapter 2

AIMS AND OBJECTIVES

The main aim of this thesis, is to try and design a centre, which shall provide a forum whereby, a healthy integration between the existing traditional healing method and the modern healing method, can be achieved.

The centre would provide a forum whereby a unified healing method can be achieved for the whole country.

It will strive to uplift the aspects of traditional healing methods which can be improved, so as to discourage the elements of mysticism in the traditional healing method. It will also strive to supplement the efforts of the various Nigerian governments in their health care delivery systems.

To achieve these aims the centre will serve as a Research centre where the processing of drugs from the available sources can take place.

It will also serve as an educational centre for both the traditional healers and medical doctors.

It will also have a healing centre where drugs, tested and produced in the Research Centre can be effectively used to cure patients.

Chapter 3

HISTORICAL SIGNIFICANCE AND MOTIVATION

The tradition of self-help in medicine has existed since time immemorial. Until healing roles were clearly defined and professionalization was on its way, much of what constituted healing was fundamentally domestic in nature. In fact, it could be argued that healing was originally a familial or communal activity before being invested in special persons and ritualized. Individual responsibility for good health as a conscious and moral ideal to be striven for characterized the Graeco-Roman World, while Christianity linked the appearance of disease to sinful actions.

In Nigeria, this role was transferred to Herbalists. It was only in recent times that modern medical doctors, after a particular training took over.

In Nigeria, the Herbalists are very good psychotherapists, and this helps the patient to recuperate faster. The use and recognition of traditional birth attendants in recent times has also lowered the infant mortality rate. Another aspect in which our herbalists are experts, is in Orthopaedic. As bone setters they have been proven to be better than our modern doctors.

From recent publications, one can come to the conclusion that the developed countries of the world are now trying to do away with synthetically produced drugs. They have started investigating the prospects of drug production from plants.

In fact modern doctors are only afraid of this herbal

practices because they have found that it cannot be scientifically evaluated.

At our stage of development, therefore, the only reasonable solution would be to try and integrate the two methods of healing.

As a World Health Organization report recently put it: "An integration of the two systems, without compromise of principle yet with full understanding of both sides, should enable the sorely underprivileged populations of the Third World to benefit from one of the fundamental human rights: the right to health".

Chapter 4

POSSIBLE WAYS OF INTEGRATION

(a) Research Centre

The various herbs, roots, barks and animal parts will be tested here for medicinal properties, so that they can be put to proper use.

A few example of herbs with medicinal properties are:

- Opium Poppy; which paved the way to the discovery of Pain-killers, Morphine and Codine.
- Fox glove; which paved the way to the discovery of the essential heart stimulator, digitalis.
- Bark of Cinchona tree; which paved the way to the discovery of the effective drug against malaria, Quinine.
- Sisal; which are used for making mats in Nigeria, but used as starting materials for synthesis of sex hormones and oral contraceptives.
- Aizadirachta Indica (Dongo Yaro) - Malaria.
- Ocimum gratissimum (Effinrin).
- Cassia Occidentalis (Rere).

WHY RESEARCH?

1. Inquisitiveness, Investigation and Evaluation

Example:- A few years ago, a team headed by Dr. Oku Ampofo, Director of the Centre for Scientific Research into Plant Medicine at Mampong, Ghana, investigated a plant used by local medicine men against malaria and urinary infections. They found the plant cryptolepis Sanguinolenta, haboured a compound similar to Quinine, as well as an antibiotic.

After establishing its effectiveness, the plant was used for treatment at the centre's clinic; its roots soaked in water in the way of the traditional healers.

ii. To Check Quackery

Example:- Snake Root (Rauwolfia Serpentaria) a small shrub native to Southern Asia, was first used against snake bites because of its shape. But traditional healers in India prized it as a tranquilizer for centuries. They found that the root could help with hysteria and what they called "lunacy". It was this application that originally attracted the attention of Western scientists.

By 1950, the plant's main alkaloid, a biochemical compound known as resperine, was proving itself useful against a broad range of ailments, especially nervous disorders, insomania and even mental illness. It is now used as a relief for Schizophrenia.

iii. To encourage more activities in the field of drug production.

From observation, major world discoveries are accidental and not through narrowly compressed rationalized thinking.

An example of this occurred recently in the Drug Research Unit, at the University of Ife. Investigations were carried out on various Nigerian chewing sticks.

Attempt was made to investigate whether the chewing sticks help in any way to explain why Africans, had a better set of teeth than their counterparts in other parts of the world. The chewing sticks tested included Massylaria Acuminata (Pako-Ijebu); Root of Anogiessus Leocarpus (Pako-dudu); Root of Fagara Zanthoxyloides (Oriwata).

They were all found to possess anti-microbial activity against oral microbial flora. From a chance observation of an extract of Fagara Zanthoxyloides, on blood agar, while testing for anti-microbial activities, sickled cell were noticed to retain normal shape.

Work is now at an advanced stage to perfect the drug which shall be used to fight sickle cell.

(b) Educational Centre

This shall serve as a place, where both modern and traditional healers can be educated in the aspects, they lack. It shall also serve as a place, where public lectures, symposia, courses, etc. are held for the benefit of the general public. Again, it shall also serve as a place where precise documentation of medicinal plants can be made.

(c) Healing Centre

This shall be a place where effective standardization of drugs prepared in the Research Centre can be effected.

It shall serve as a model for other clinics, which are bound to spring up.

It shall also help in supplementing the efforts of the Ogun State Government in their Health care delivery system.

- Sources of Research materials for the Centre.

i. Drug Research Unit of the University of Ife, where over 2,000 recipes of traditional medicine has been documented and deposited in the Rare Book Section of the University's library.

ii. Practicing Herbalists.

iii. General Public.

Plant History

A. Cultivation, Collection and Conservation of Crude Drugs

Advantages of Cultivation:

i. Cultivation ensures correct natural source of the drug.

ii. The drug can be collected at the right time in the proper manner.

iii. The purity of the drugs can be maintained by avoiding contamination with other drugs (admixture).

iv. Collection, drying and storage of drug can be effectively controlled.

v. The quality and production of drug can be improved by:-

   a. selection of high yielding and disease resistant seeds and varieties,

   b. by the use of natural and synthetic fertilizers which increase the total yield of the drug and its constituents,

   c. by producing disease resistant, healthy and high yielding hybrids.

vi. It also ensures constant and regular supply of genuine drugs.

vii. Price and monopolies can be controlled and reduced by cultivation.

viii. Illegal trade of dangerous drugs such as hemp, opium, etc. can be restricted by controlling them through cultivation.

Methods of Cultivation include:-

a. From seeds

b. Vegetative means.

(a) From Seeds:

i. This involves the selection of good variety of seeds.

ii. Preparation of ideal seed beds.

iii. Sowing of the seeds at the proper time and manner.

(b) 1. Vegetative means

i. By the development of bulbs e.g. squill.

ii. Corms e.g. crows, gladiolus.

iii. Tubers e.g. aconite, jalap.

iv. Rhizomess e.g. ginger.

2. By division (separation) e.g. Rhuberbs, wale fern, banana plant.

3. By Runners and Offset

Separates the various parts and plant them separately.

4. By layers

Simply to induce one part of the plant to produce roots at the nodes (continuous process)

5. Grafting

This is made by taking two different plants. A branch branch of one plant is grown on a branch of the other plant.

Problems

1. Climate - Plants always grown in their suitable climatic conditions.

2. Ecology - Types of soil and soil PH.

3. Weeds - Constitute great nuisance to plant growth.

4. Diseases

5. Rainfall

6. Sunlight

7. Altitude

8. Temperature.

COLLECTION

This is the gathering of the plant drug from the natural sources. It can be done either by

i. Hand labour - It is inexpensive

ii. Mechanical devices.

Where skilled selection of plant parts is required, the mechanical device cannot outbeat the hand labour e.g. in tea collecting, only two top leaves and buds are collected.

Time of Collection.

1. Drug should be collected during that period when the plant part constituting the drug is highest in its contents of active principle and when the material is dried, will give the best maximum quality and appearance.

The following modes (general) for the collection of various drugs may be adopted.

1.1 Roots and Rhizomes should be collected after the vegetative processes have ceased. If they are collected during the growing season, they would shrink and remain spongy e.g. ginger, squill, podophylum, rhubarb.

2. Barks should be collected during spring i.e. before the vegetative processes start e.g. cascara, cinchona.

3. Leaves (Flowering tops) brids - should be collected when photosynthesis is most active which is usually about the time of flowering and before the fruits and seeds mature e.g. Digitalis Strammonium.

4. Flowers:- should be collected prior to or just about the time of pollination i.e. before or just about the time of flower opening e.g. pyrenthrum, santonica.

5. Fruits:- should be collected before ripening or after their being fully rupe. Those collected before ripening include conium; those collected after fully ripe include capsium.

6. Seed:- should be collected when they are fully mature and when most of them are ripe e.g. cardamon.

CORRECT CROP PROTECTION

Protection from

i. Weeds ii. Droughts iii. Diseases iv. Pests.

STORAGE

Problems to take note of in drug storage are:

i. Moisture which increases the weight of the drug and reduces the percentage weight of active ingredients. This gives rise to enzymes and deterioration.

ii. Temperature - causes degradation and destroys the active medicaments.

iii. Insects/Rodents.

iv. Light - can change the colour of drug chemicals that is photosynthetive and hence render it inactive.

v. Oxygen - drugs that get oxidized by Oxygen atoms should be well protected.

vi. Odour communication due to scents which contaminate other drugs close to its storage condition.

METHODS OF STORAGE

1. Long storage is to be avoided
2. Stores should be fireproof
3. Stores should be unheated and rodent proof
4. Stores should be cool, dark and well ventilated with dry leather
5. Drugs should be stored at very low temperatures preferably freezing point
6. Drugs such as biologicals must be stored in temperatures not exceeding $5^{o}C$
7. Crude drug should not be kept in paper, cardboard, wooden boxes or dryers
8. Reflected light falling on the drugs should be avoided
9. Drugs which tend to reabsorb moisture should be periodically exposed to a temperature of $65^{o}C$
10. Crude drugs susceptible to insect or fungal attack should be fumigated with methyl bromide
11. In certain cases e.g. Ginger and Nutmeg, linning with calcium hydroxide particlly prevents insect attack
12. Drugs which can oxidize during storage must be stored in sealed well-filled containers. Any air in the container should be replaced by creating a vacuum or inert gas.
13. Drugs should be stored in air-tight moistureproof and light-proof containers such as empty cans, metal bins and and coloured amber glasses.

14. Drugs which are sensitive to sunlight must be stored in dard coloured containers.

15. Some suitable inert dehydrating agents may be added to such drugs which tend to reabsorb moisture.

EXTRACTION OF DRUGS — PLATES I – XI

Extractives are pharmaceutical preparations obtained from plant and animal tissues with the aid of solvents and standardized extraction procedures.

Principal modes of extraction employed in pharmacy at present are as follows:

1. Maceration
2. Percolation
3. Digestion
4. Infusion
5. Decoction.

Maceration and Percolation are the officially accepted methods for the removal of active ingredients.

Extracts from plant find wide use in phytochemical and biochemical research, forensic, chemistry, and extraction of volatile oils.

Maceration - of ancient origin, consists simply of extraction by soaking the properly comminuted drug or substance in menstrum until the cellular structure is thoroughly penetrated and the soluble portious are softened and dissolved.

Usual method is to introduce the drug into a bottle with the solvent or menstrum, stoppet it tightly and agitate it occasionally for a period ranging from 2 to 14 days, pours off

the liquids, express the residue to avoid losses and filter the mixed liquids.

An advantage is sometimes gained by suspending the ground drug, tied in a bag, in the upper part of the menstrum. The drugs are macerated in definite quantities of menstrum which consists of alcohol, of various strengths. Evaporation during filteration is to be avoided as much as possible. Maceration can be carried out by unskilled personnel, since it is very simple process. Maceration is usually conducted at a temperature of from 15° to 20°C.

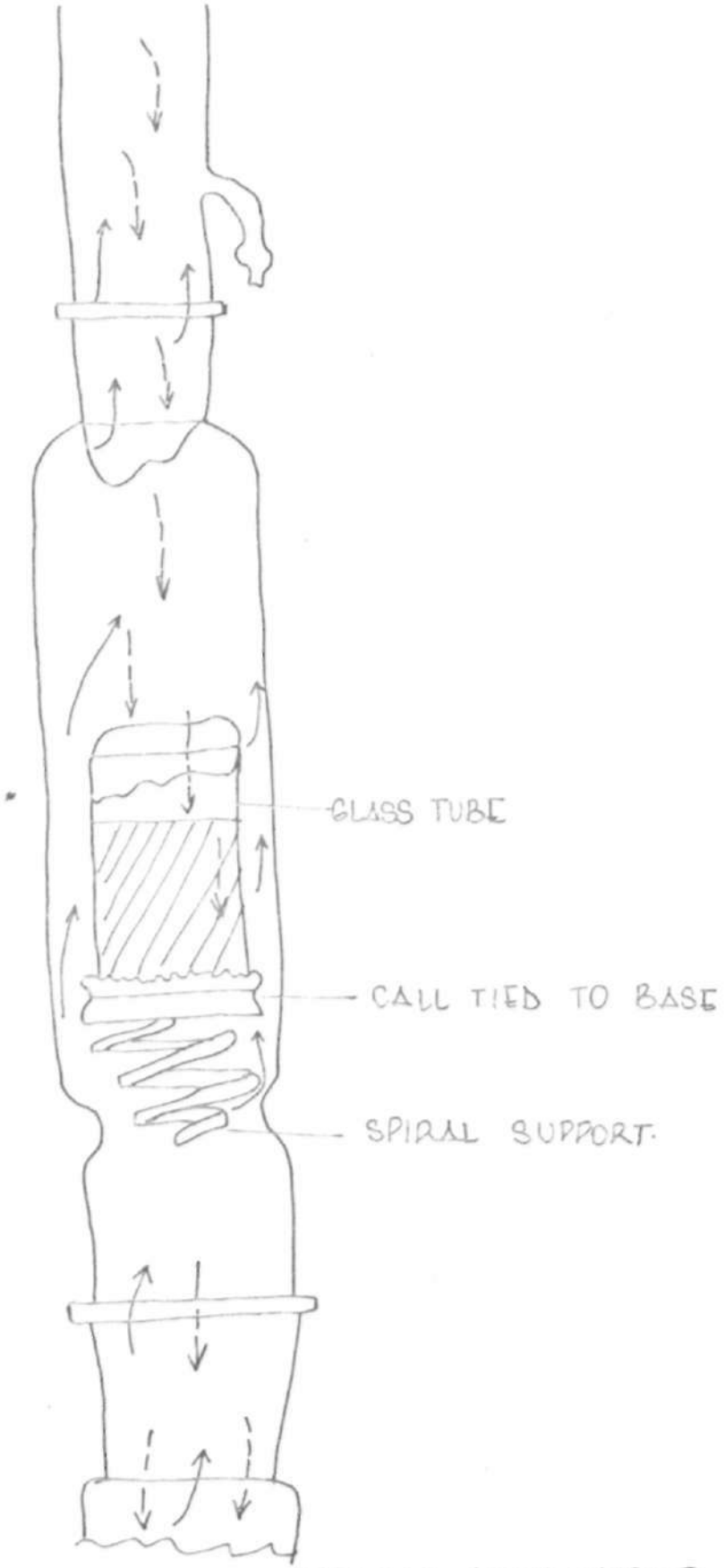
Percolation -- is the extraction process in which a granulated or powdered drug is deprived of its constituents by the descent of a suitable solvent through it.

Solvents that can be used in the extraction process includes:

1. Water
2. Alcohol
3. Ether
4. Chloroform
5. Light Petroleum
6. Glycerin
7. Acids
8. Fixed Oils
9. Propylene Glycol.

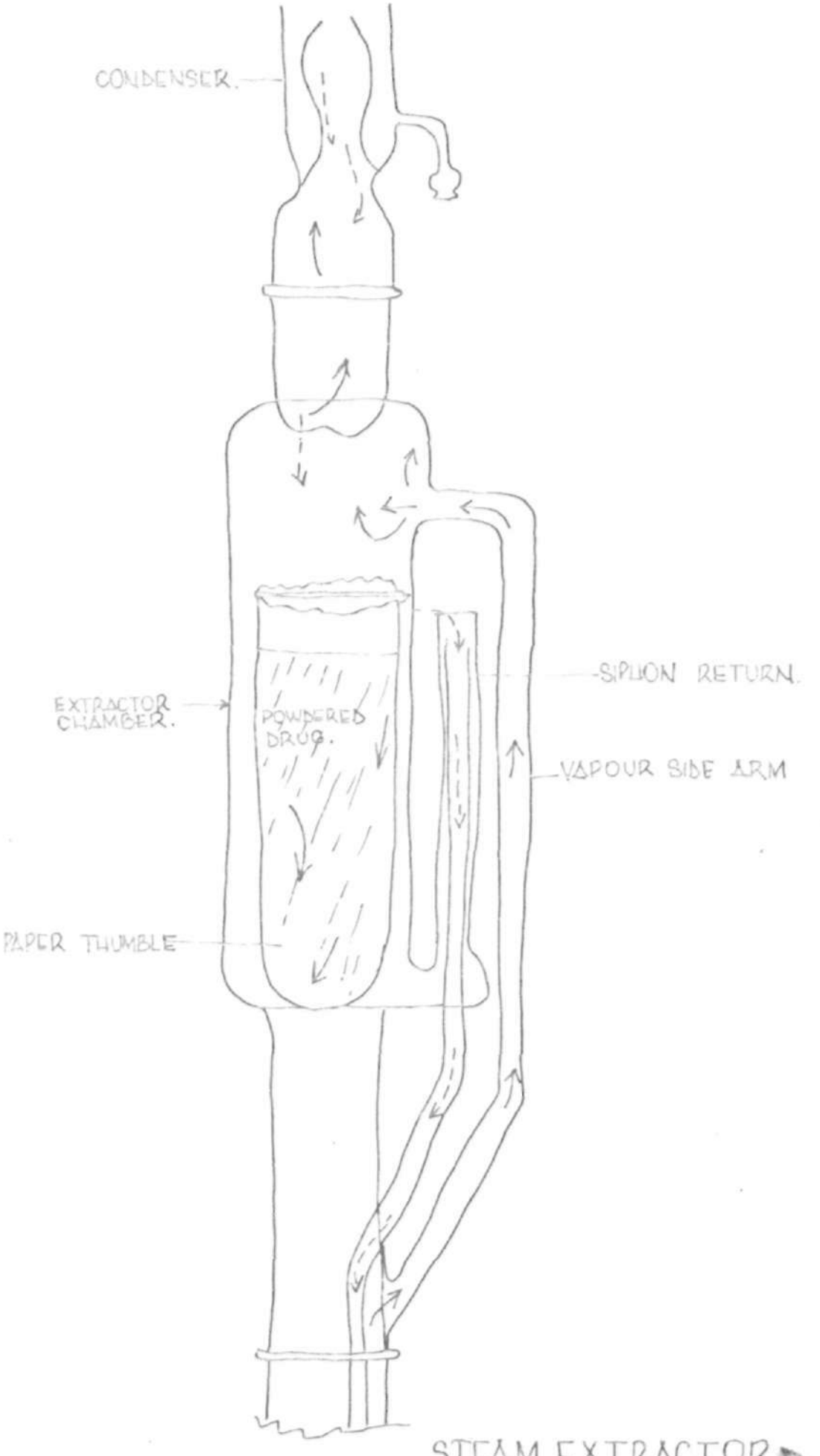
Properties of Ideal Solvent

1. Selective
2. Therapeutically inert if solvent is not to be completely removed
3. Low boiling point if to be removed
4. Preservative action if present in tiual product
5. Pleasant odour and taste
6. Cheap
7. Non-inflammable.



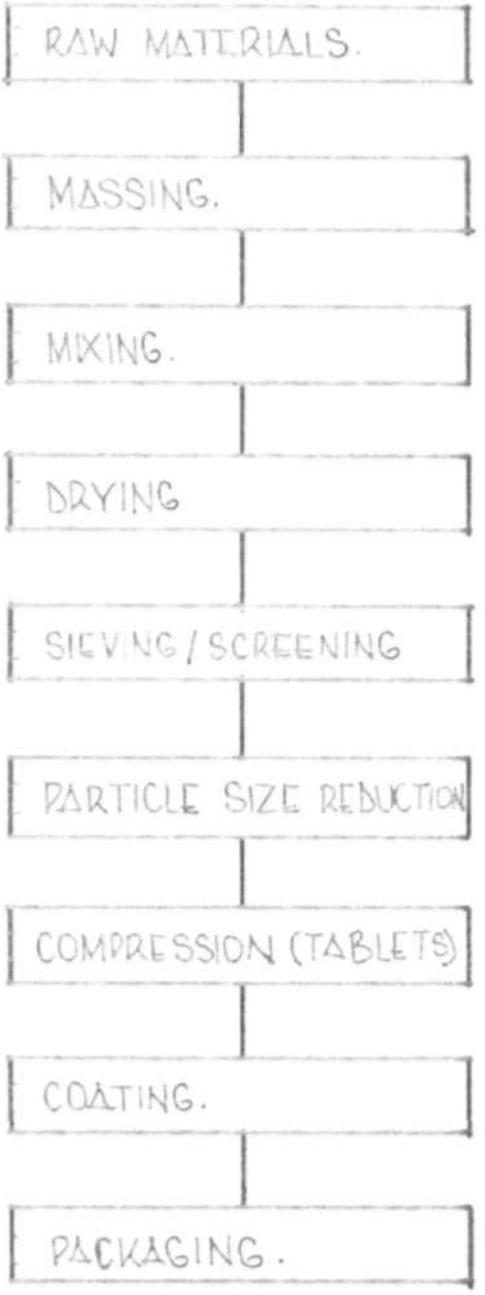
STEAM CONDENSER.

PLATE I



STEAM EXTRACTOR

PLATE II



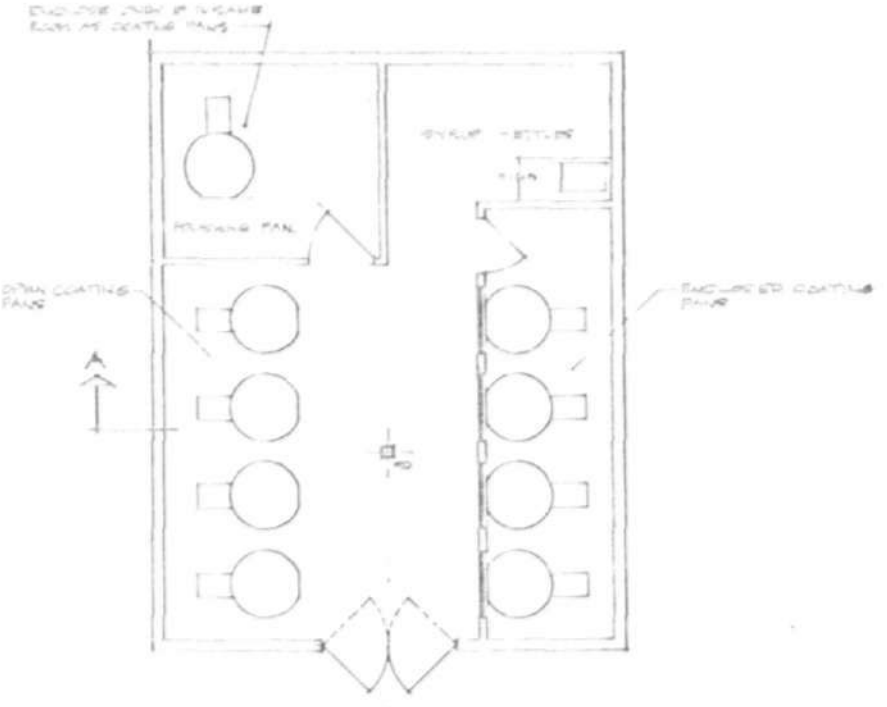
PROCEDURE EMPLOYED IN TABLET PRODUCTION.

PLATE III

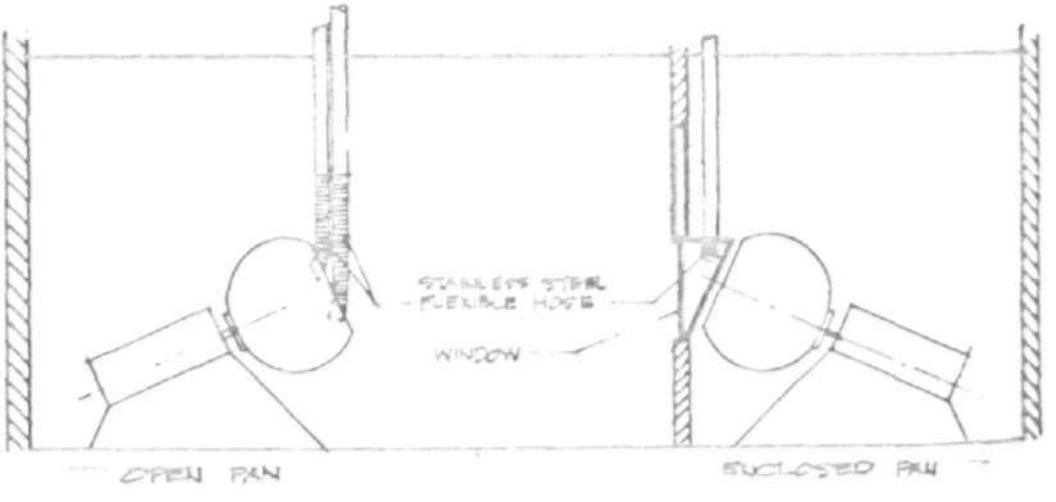


HARDWARE SYSTEM EMPLOYED IN TABLET PRODUCTION.

PLATE IV



COATING ROOM
SCHEMATIC



ELEVATION 'A'
SCHEMATIC

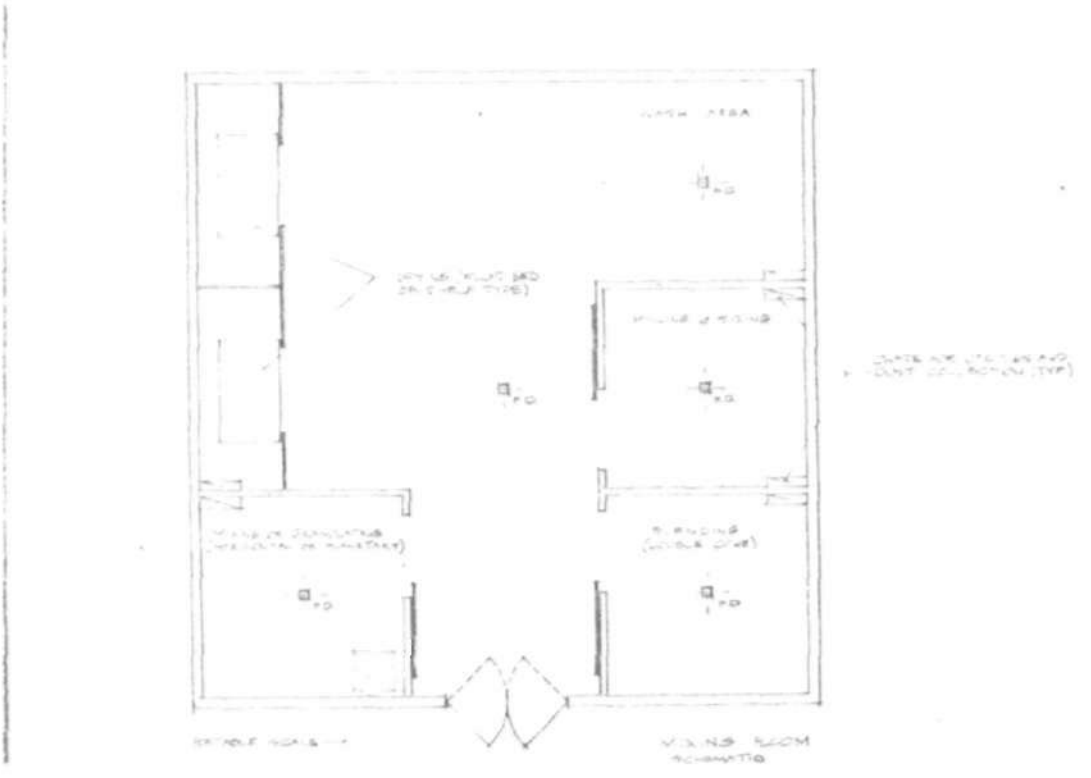
TOP: AN ENCLOSED BANK OF COATING PANS.
BOTTOM: DIFFERENCES BETWEEN OPEN AND ENCLOSED PANS.

PLATE V



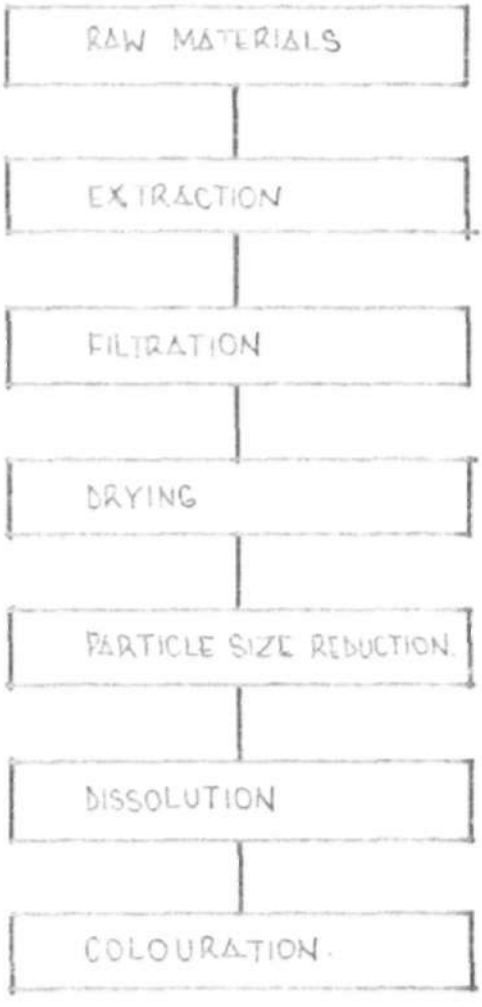
COATING PANS.

PLATE VI



TYPICAL GRANULATING ROOM SHOWING SEPARATION OF MILLING, BLENDING AND GRANULATING AREAS.

PLATE VII



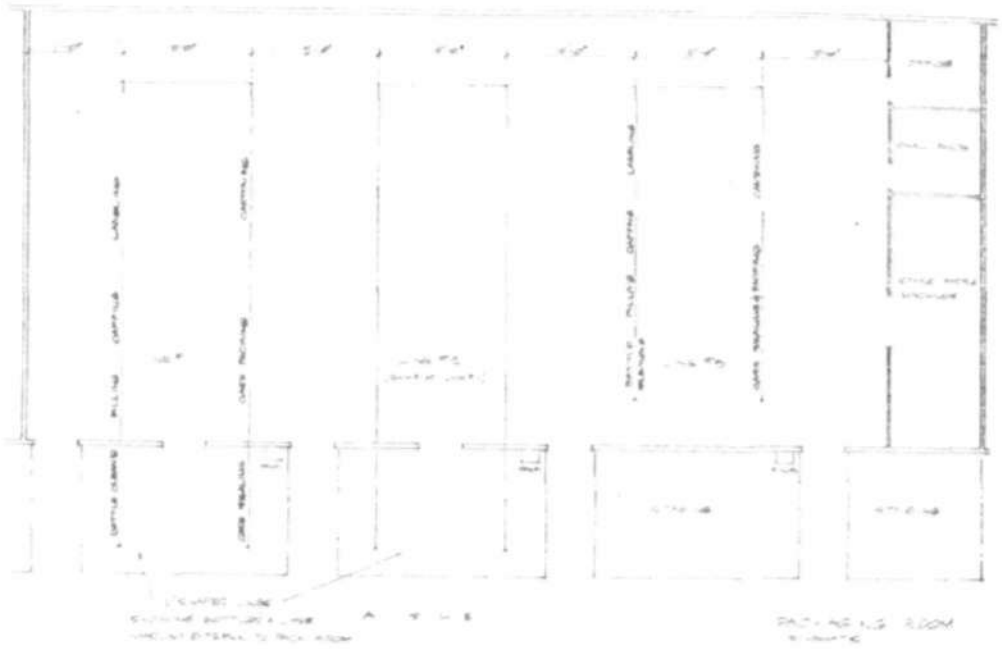
PROCEDURE OF PRODUCING LIQUIDS.

PLATE VIII.

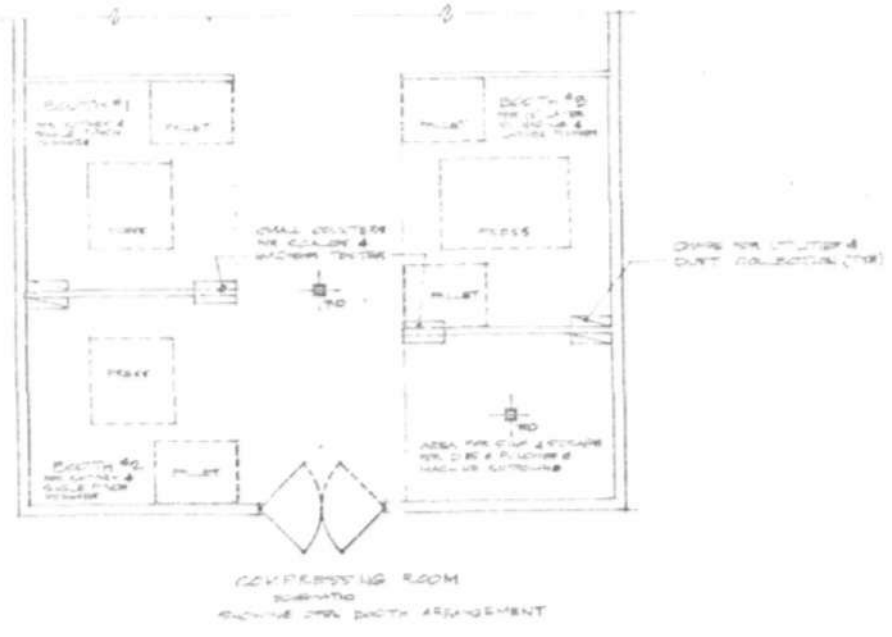


HARDWARE SYSTEM EMPLOYED IN LIQUID PRODUCTION.

PLATE XIX

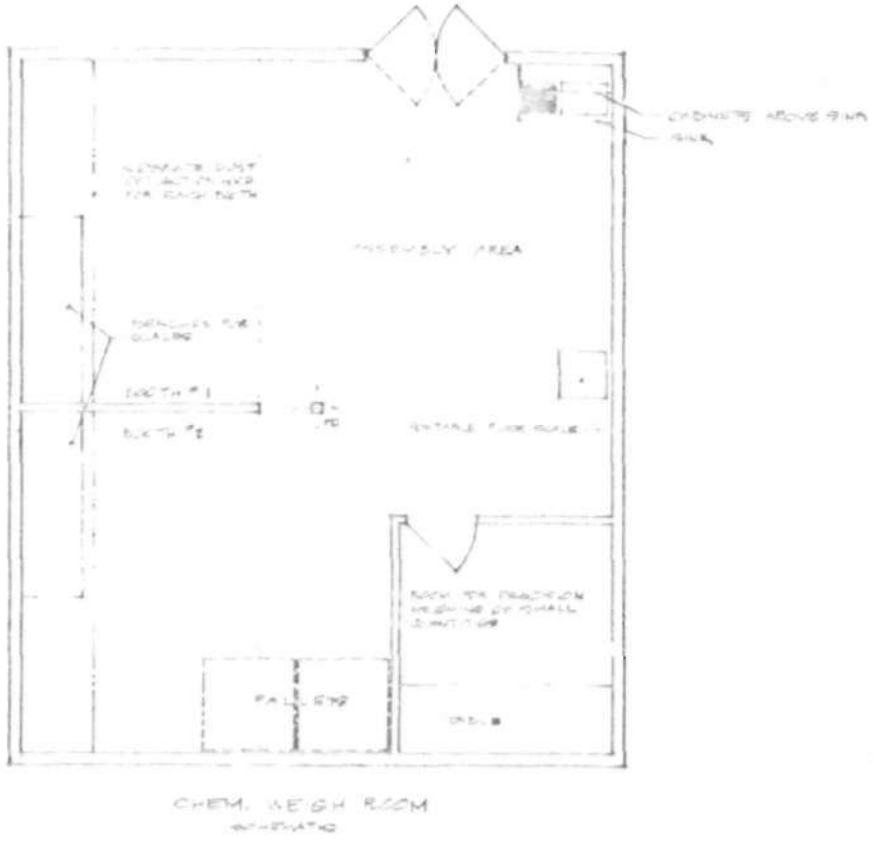


U-SHAPED LINES WITH BOTTLE FILLING.

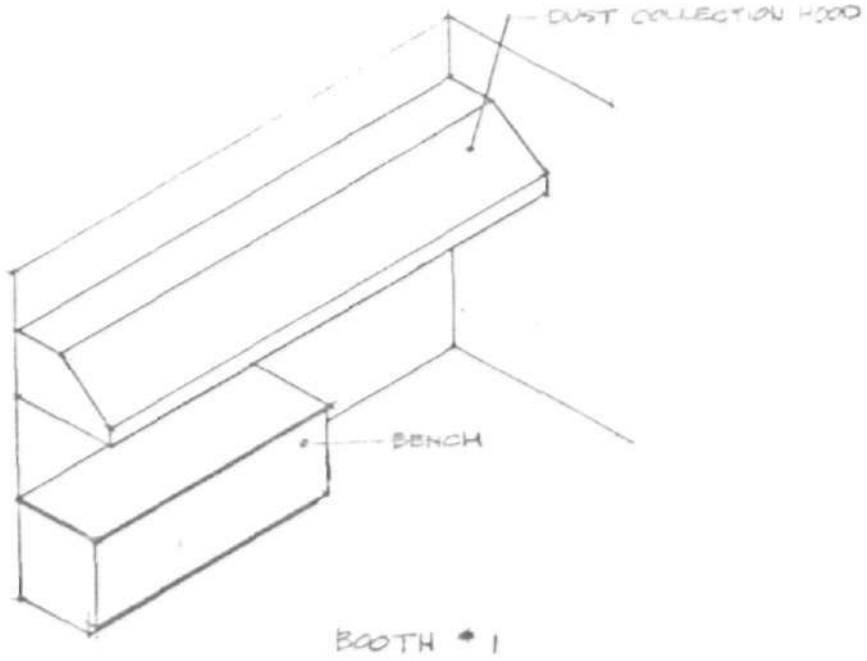


TWO BOOTH SIZES DESIGNED TO ACCOMODATE ROTARY PRESSES.

PLATE X



CHEM. WEIGH ROOM



BOOTH # 1

TOP. TWO WEIGHING BOOTHS TOGETHER.
BOTTOM. WORK BENCH AND HOOD.

PLATE XI

Chapter 5

FUNCTIONAL REQUIREMENTS

Type of Client:- The client shall be Federal Government, through the appropriate organ, viz. Federal Ministry of Health. This is necessitated by the fact that, this proposal, if successful will benefit all the citizens of Nigeria and the world as a whole.

The the purpose of economy, it is being sited in the Neuro-psychiatric hospital, Aro, Abeokuta, since it was originally planned to be an integration of both systems.

Type of Users:-

Users here shall comprise, traditional pharmacists, pharmacognosists, traditional healers (Babalawo), technicians and other related professionals, students, nurses, occasional students (Professional Doctors, Pharmacists, Pharmacognosists etc). In its initial stage, patients would only be directed here on the request of the centre, depending on what illness is being researched into.

Type of Spaces:-

1. Research Centre
2. Educational Centre
3. Healing Centre (clinic)
4. Botanical Garden
5. Zoological Garden.

BASIC SPACES REQUIRED IN:-

(1) RESEARCH CENTRE

TYPICAL RESEARCH CENTRE

1. Teaching Laboratories
2. Service Road
3. Library
4. Lecture Room
5. Research Areas
6. Student Areas
7. Lecture Rooms and Storage
8. Car Parking.

The system above was developed by Leslie Martin. It consists of a regular grid derived from considerations of space, lighting and an integrated system of structures and services. The grid forms 10m squares separated by 1.50m strips. Ducts and services can be introduced at any point within these strips. The system is also divided vertically, with large areas such as lecture halls, workshops and special laboratories for heavy equipment at the lowest level, teaching laboratories above, and research areas on top. As shown above, the grid can be applied to a site, giving a rough indication of present areas and future

expansion possibilities.

Architectural development can go on in stages, in relation to the grid, forming segments of a larger system rather than single buildings.

From the design criteria, the Research Centre in the complex, falls into class A Laboratories.

These are normally designed with maximum capability for conversion from one programme use to another.

These are primarily intended for research in the basic scientific disciplines of biology, chemistry, and some aspects of physical sciences. The design criteria are intended to protect the integrity of individual research programmes from interference by other research within the same structure and to reduce the possibility of infection or toxic hazards to personnel in present or future research projects.

The Research centre, shall be mainly occupied with the production of drugs which have been tested for medicinal purposes.

Raw Materials to be employed, would include the following:

i. Herbs

ii. Roots of herbs and trees

iii. Bark of trees

iv. Different animal parts.

(2) EDUCATIONAL CENTRE

1. Offices
2. Conference Rooms
3. Lecture Rooms
4. Equipment Room/Store
5. Laboratories - clinical science/Basic Science Research
6. Library
7. Animal Quarters.

(3) HEALING CENTRE

1. Special Wards/Observation Rooms
2. Consulting Rooms
3. Out-patient Department
4. Special Equipment Rooms/X-ray etc.
5. Pharmacy.

(4) BOTANICAL GARDEN

1. Machines Room/Store
2. Incinerators
3. Store for Herbs etc..
4. Parking for tractors etc.
5. Maintenance

(5) Zoological Garden/Animal Quarters.

Chapter 6

SITE/CLIMATIC DATA – PLATE XII – XVIII

Choice of Site

i. There is abundant rainfall and sunshine in the southern states of Nigeria, and majority of the higher plants in Nigeria are native to that part of the country.

ii. Majority of the Herbal Practitioners are in the Yoruba speaking areas.

iii. The Psychiatric hospital in Aro, Abeokuta is a World Health Organization Centre for training and research; and both healing methods are used there.

- Physiographic

  Site has a gentle sloping terrain.

- Soil

  Soil is predominantly laterite soil, and there is presence of fertile soil for planting herbs; and the top soil is good.

- Geology

  There is an absence of rocks and minerals on the site.

- Vegetation is scattered, like a savanna forest.

- Climatic

  Average annual temperature is 26.2^{o}C.

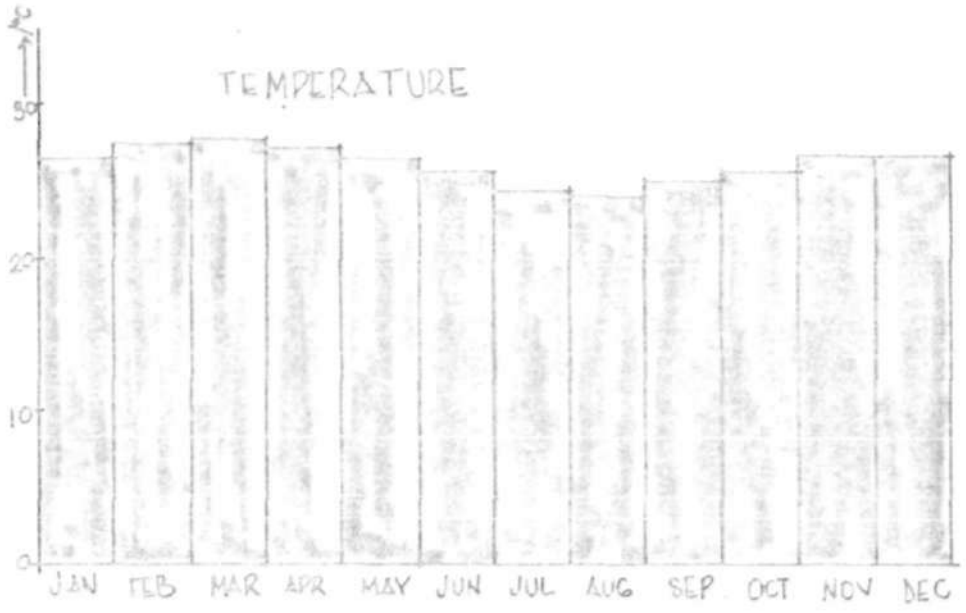
  Average annual relative humidity is 85%.

  Average annual atmospheric pressure is 11.7mb.

  Total annual rainfall is 1625mm

  The wind direction is predominantly south westerly, and moisture laden from March to October and this accounts for the heavy rainfall around this time. North easterly

trade winds, which are drier appear between November and February.



TEMPERATURES ARE RELATIVELY HIGH WITH A MAXIMUM FIGURE OF 27.7°C OCCURING IN MARCH. AVERAGE ANNUAL TEMPERATURE IS 26.2°C. PROPER VENTILATION WOULD BE FOR ALL THE BUILDINGS ON SITE. TO IMPROVE THE MICRO-CLIMATE, MOST OF THE TREES ON SITE WOULD BE RETAINED.

THE AVERAGE ANNUAL ATMOSPHERIC PRESSURE IS 11.7mm. PROPER CARE WOULD BE TAKEN IN THE ROOF DESIGN, AND IN THE STRUCTURES OF THE BUILDING.

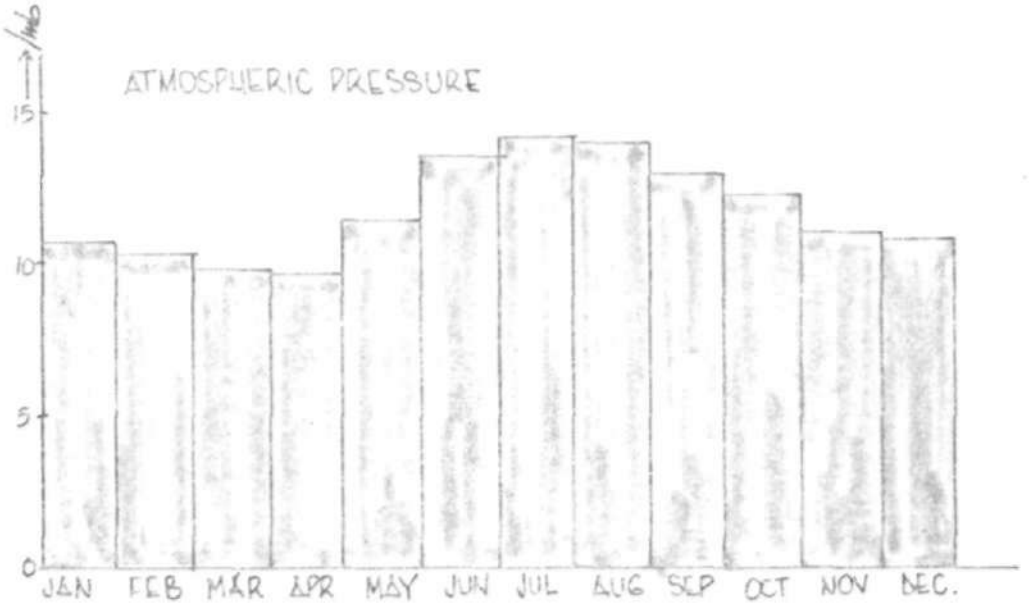
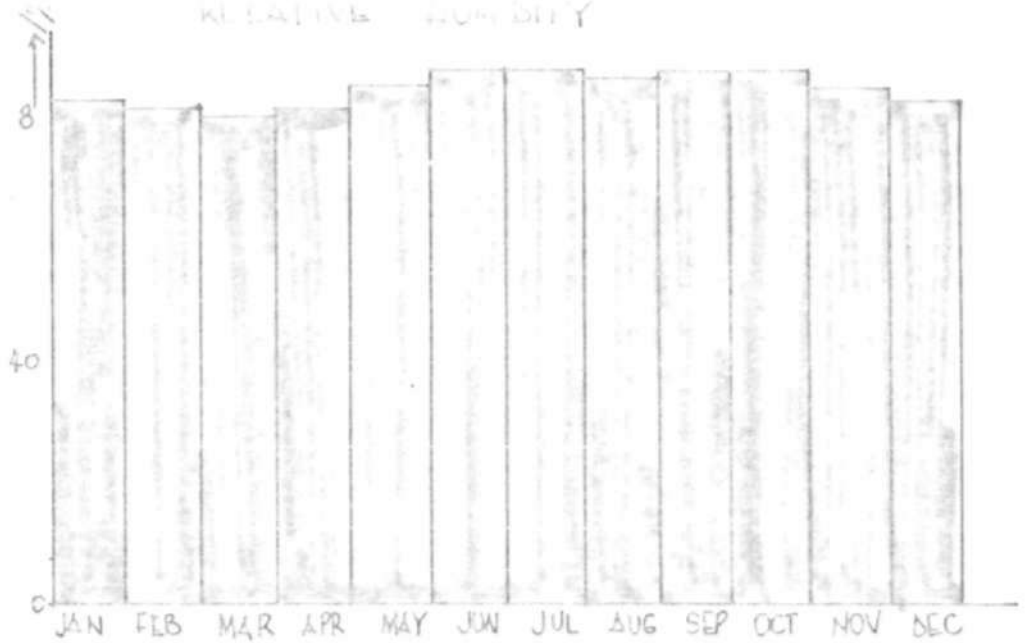


PLATE XII



RELATIVE HUMIDITIES ARE RELATIVELY HIGH, WITH AN AVERAGE ANNUAL FIGURE OF 85%.

MATERIALS TO BE USED WOULD CAPABLE OF RETAINING A LOT OF MOISTURE.

TOTAL AVERAGE RAINFALL IS 1625mm. PROPER DRAINAGE WOULD BE PROVIDED ON THE SITE.

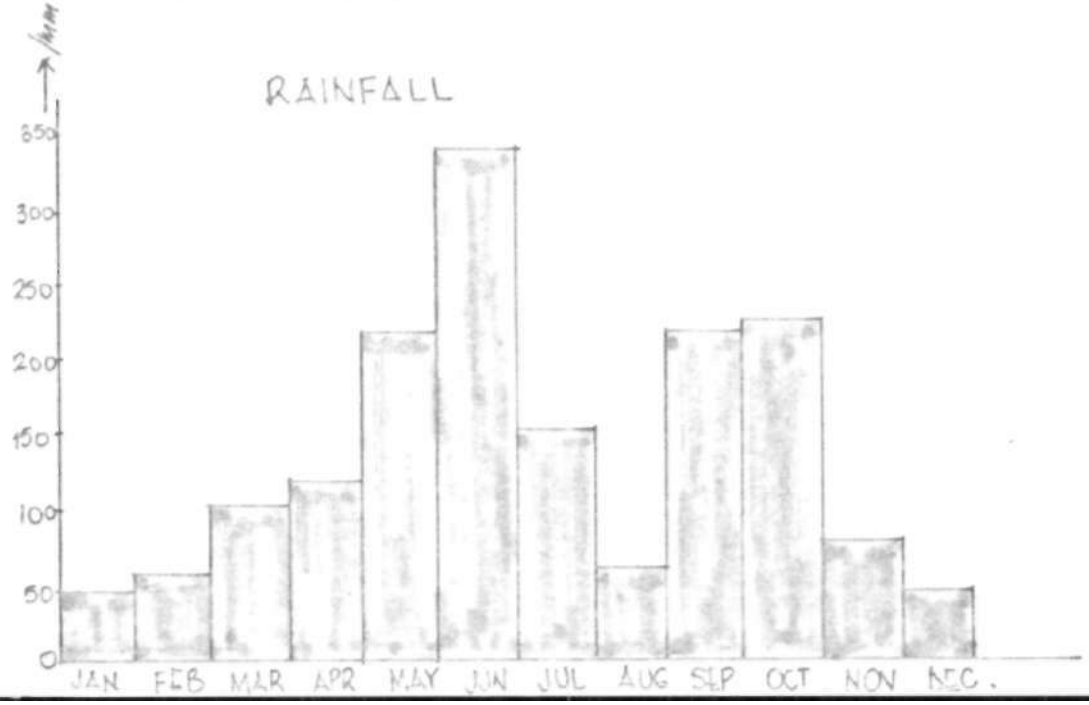


PLATE XIII



ENTRANCE VIEW TOWARDS GATE



ENTRANCE VIEW TOWARDS HOSPITAL

PLATE XIV



EXISTING ADMINISTRATION BLOCK.



MATRON'S HOUSE.

PLATE XV



PROVOST'S OFFICE IS ON THE LEFT.



MAIN ROAD INTO HOSPITAL.

PLATE XVI





SITE

PLATE XVII



VIEW OF SITE FROM WARDS.



ANOTHER VIEW FROM THE WARDS

PLATE XVIII

Chapter 7

CASE STUDY

1. African Science Hospital of Nigeria - PLATE XIX.

Proprietor - Dr. B. A. Olushesi.

1, Oyegunwa Street,

Abule Okuta, Barign,

P.M.B. 1121, Yaba, Lagos.

- "I was conducted round the hospital by the proprietor himself, in the presence of the Secretary to the Board of Traditional Medicine, Dr. Osumali".

The hospital is made up of an Administrative Room, a Consulting Room, Wards, Labour Room, Strong Room, Pharmacognosy Section, Research Section, Store for Herbs and a Lecture Hall.

The subjects taught in the lecture hall include Ifalogy, Traoscience, Health Science, English and Mathematics.

Administrative Section

There were five employees in this section. The section is contained in a room about 4m x 4m. Cards of patients are stored in pigeon holes lettered A to Z.

From available records, the hospital has catered for over 15,000 patients since its inception 18 years ago.

Patients are registered according to the type of ailment. Different Codes are used for different ailments. Example:- BZ5 code was used for Maternity cases.

There were standard drugs for different ailments, which were also coded with different alphabets. The employees are trained to know the differences by the proprietor himself.

PHARMACY SECTION

This is also situated in the administrative room. The prescriptions given by the Doctor is dispensed here.

Standard sized cups are used in measuring out quantities prescribed by the Doctor. These cups are given out to patients, so as to enable them take the correct doses. These cups are are returned after use.

The powders in the pharmacy departments are kept without preservatives for periods as long as 3 years and the liquids are kept for three days.

Conditional preservatives are sometimes used, to enable the liquids to stay longer.

WARDS

There are different wards for different categories of patients. The ward opposite the Administrative section is the male ward, while the female ward is opposite the Consulting Room.

Only patients with serious ailments are admitted into these wards. There are 3 beds in each ward of 4m x 4m.

Adjacent to the Female Ward is the Labour Room. There are three metal beds in the labour room, and each one of them have a hole through which the liquid waste pours into a metal box, attached under the beds.

These metal boxes can be detached whenever the liquid is to be poured away.

Opposite the labour room is the ward for the mothers that have been delivered of babies. The three beds in this room, have Cots next to them.

STORE:- is located in a separate building behind the Wards. Different types of herbs, roots, etc. are stored here.

STRONG ROOM:- This is situated next to the store. There are two strong rooms; (i) Male (ii) Female. It is here that the insane persons are kept.

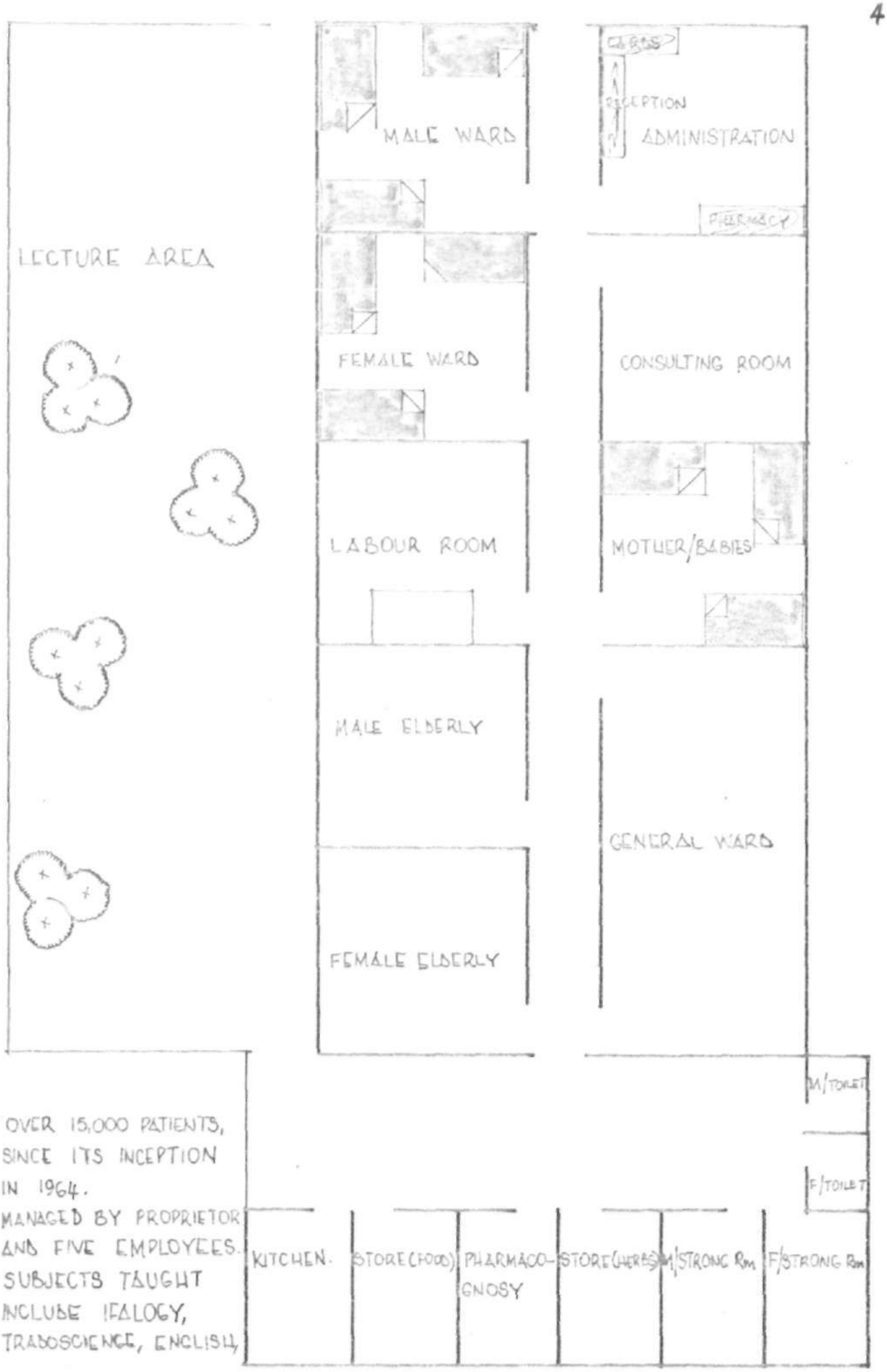
PHARMACOLOGY:- This is where the herbs are prepared and standardized. It is also here that researches are carried out.

KITCHEN:- This is where food is prepared for the inmates of the hospital.

Notes

The doctor claims that he carries out researches with his preparations, with a view of perfecting them. He also claimed that certain preparations work, only in a particular season; and that preparations are rounded off with a divination to Ifa.

Most of the traditional healers are Ifa priests. Because of its location in a central part of Lagos, the hospital is equipped with modern facilities. During peak periods, the hospital can contain up to 50 patients and there is a Botanical garden attached to the hospital.



- OVER 15,000 PATIENTS, SINCE ITS INCEPTION IN 1964.
- MANAGED BY PROPRIETOR AND FIVE EMPLOYEES.
- SUBJECTS TAUGHT INCLUDE IFALOGY, TRADOSCIENCE, ENGLISH,

AFRICAN SCIENCE HOSPITAL of NIGERIA.

PLATE XIV

2. Baba - Ni Araba Maternity Clinic - PLATE XX.

Proprietor - Chief (Dr) Fagbemi Ajanaku

(Baba-Ni Araba of Lagos)

- "located in the heart of Lagos Island"

The proprietor of the clinic is also the head of the Ifa Cult for the Lagos area, so a lot of divination to Ifa is done in trying to heal.

They mainly handle Maternity cases, as the name of the clinic suggests, but they also take case of all the necessary ailments common to the Yoruba people .

Herbal preparations are used, as well as divination to Ifa.

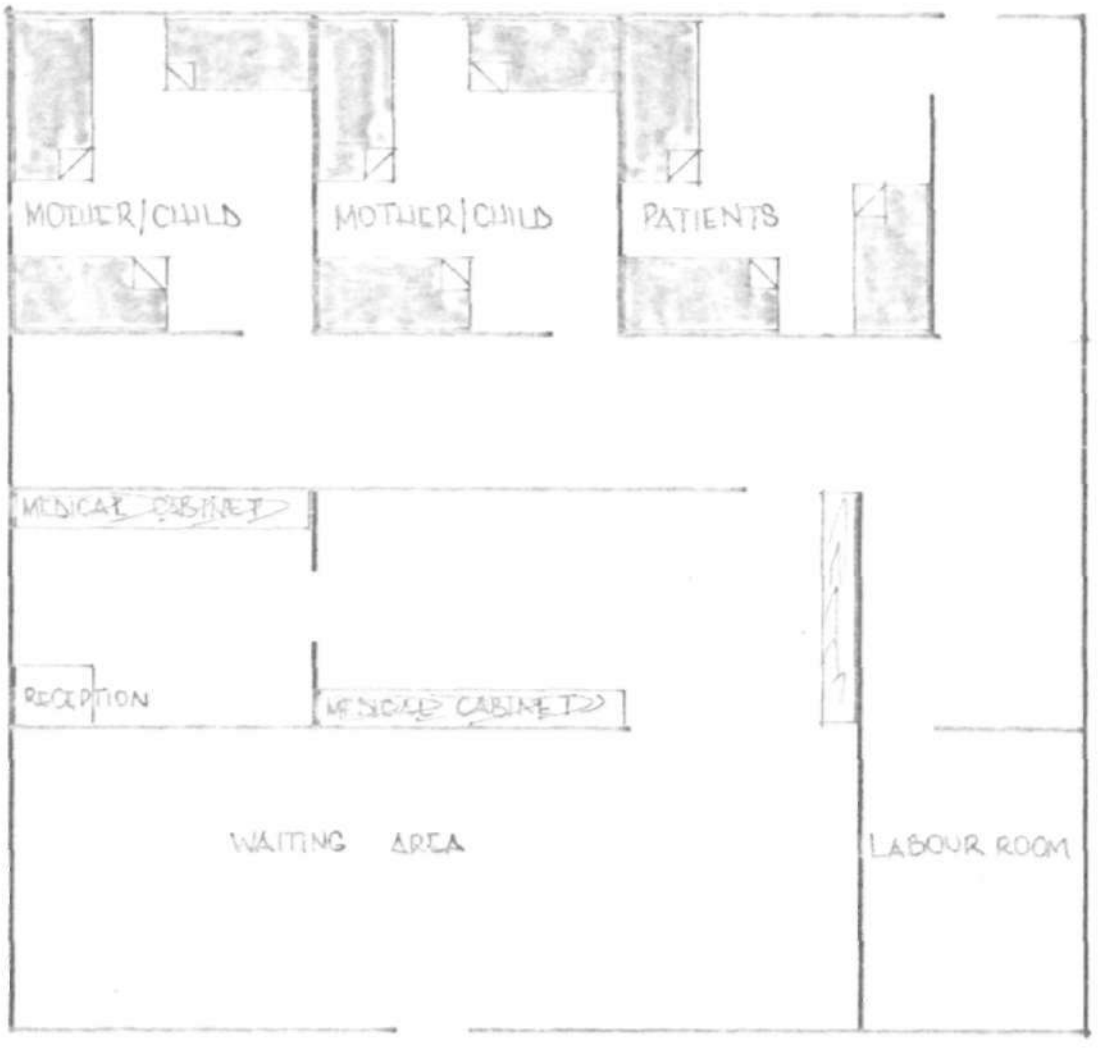
The clinic is made of the following sections:-

i. Labour Room - where mothers are delivered of thei babies.

ii. Records Section - where all the necessary records pertaining to the various individuals are kept.

iii. Medical Cabinet - which acts as a pharmacy department where drugs, prescribed are dispensed. These drugs are mainly in powder form, though others soaked in roots and kept in bottles were also noticed.

The clinic is a very small one, but considering the population of the people in Lagos Island, and the reputation of the proprietor, a lot of people patronise the clinic.



TITILOPE CLINIC.

- MAINLY MATERNITY CASES.
- ADMINISTERS HERBS WITHOUT ANY FORM OF DIVINATION.
- MANAGED BY PROPRIETOR, WIFE AND THEIR CHILDREN.
- BUY HERBS FROM TRADITIONAL PHARMACISTS "ÉLÉWÉ-ỌMỌ" IN THE MARKETS.

PLATE XX

Chapter 5

PHILOSOPHY/DESIGN CONCEPT

Philosophy

A proper marriage, through the integration of the existing Traditional Healing method, and the Modern Healing, is aimed at, in the evolution of the thesis.

According to Martin Luther, "There is no more lovely, charming, and friendly relationship, company or companion than a good marriage".

With this in mind, a site was chosen on "The Neuro-Psychiatric Hospital, Aro", where both healing methods are practiced, on "The Mentally Ill".

It is hoped, that there would be exchange of useful ideas, between the "Traditional Herbal Doctors", and the Modern Medical Doctors".

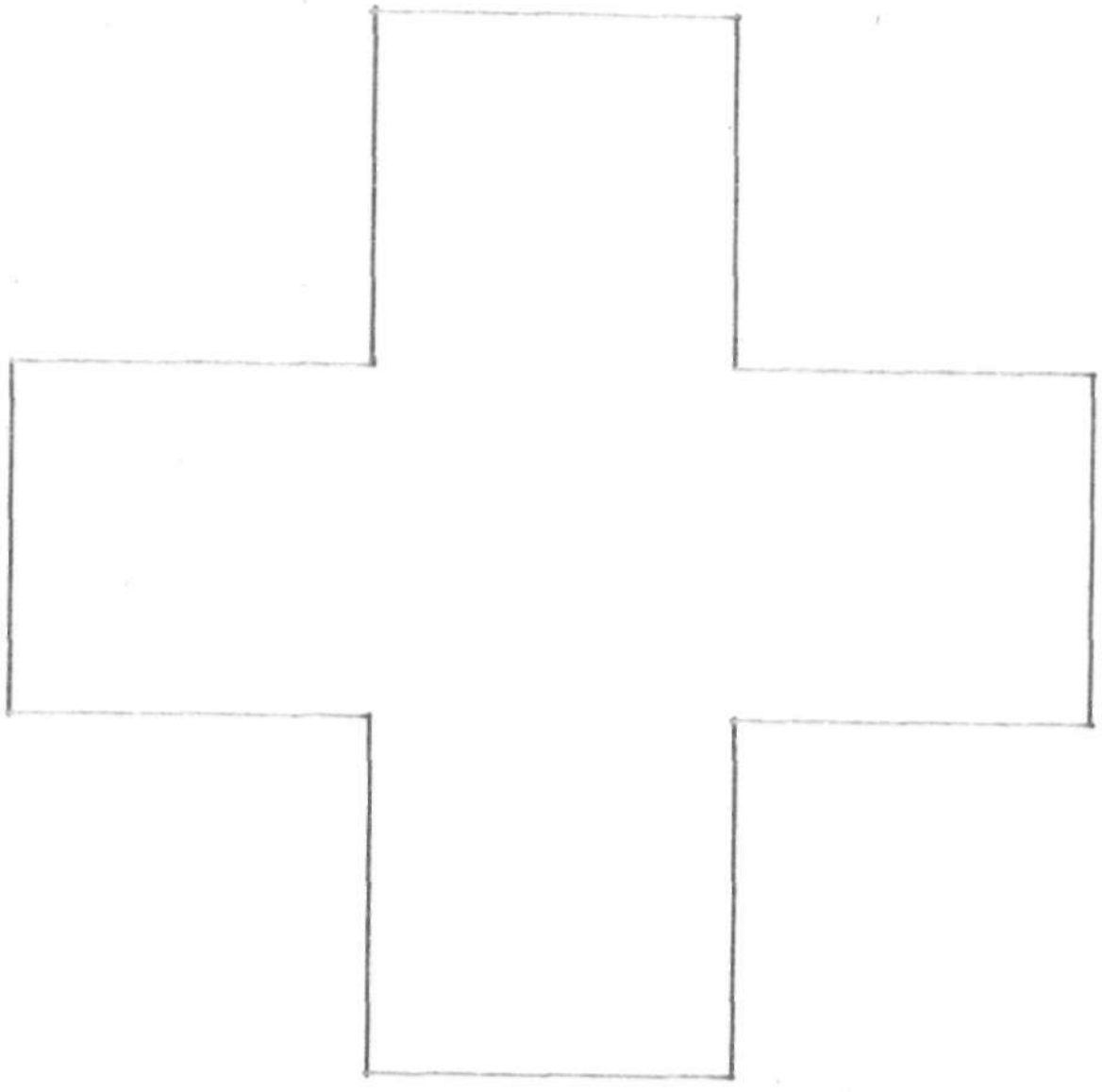
The equal arm cross which has always been used to denote Hospitals, has been adopted as a concept for the plans.

Due to the spaces, which shall be required in each section, the cross, has been stopped, so as to provide enough openings for a proper ventilation.

Abeokuta is a very Hilly town, so the roofs have been chosen, so as not to depart too much from this.

Site has a lot of trees, which shall be preserved so as to give a more natural outlook to the whole structure.

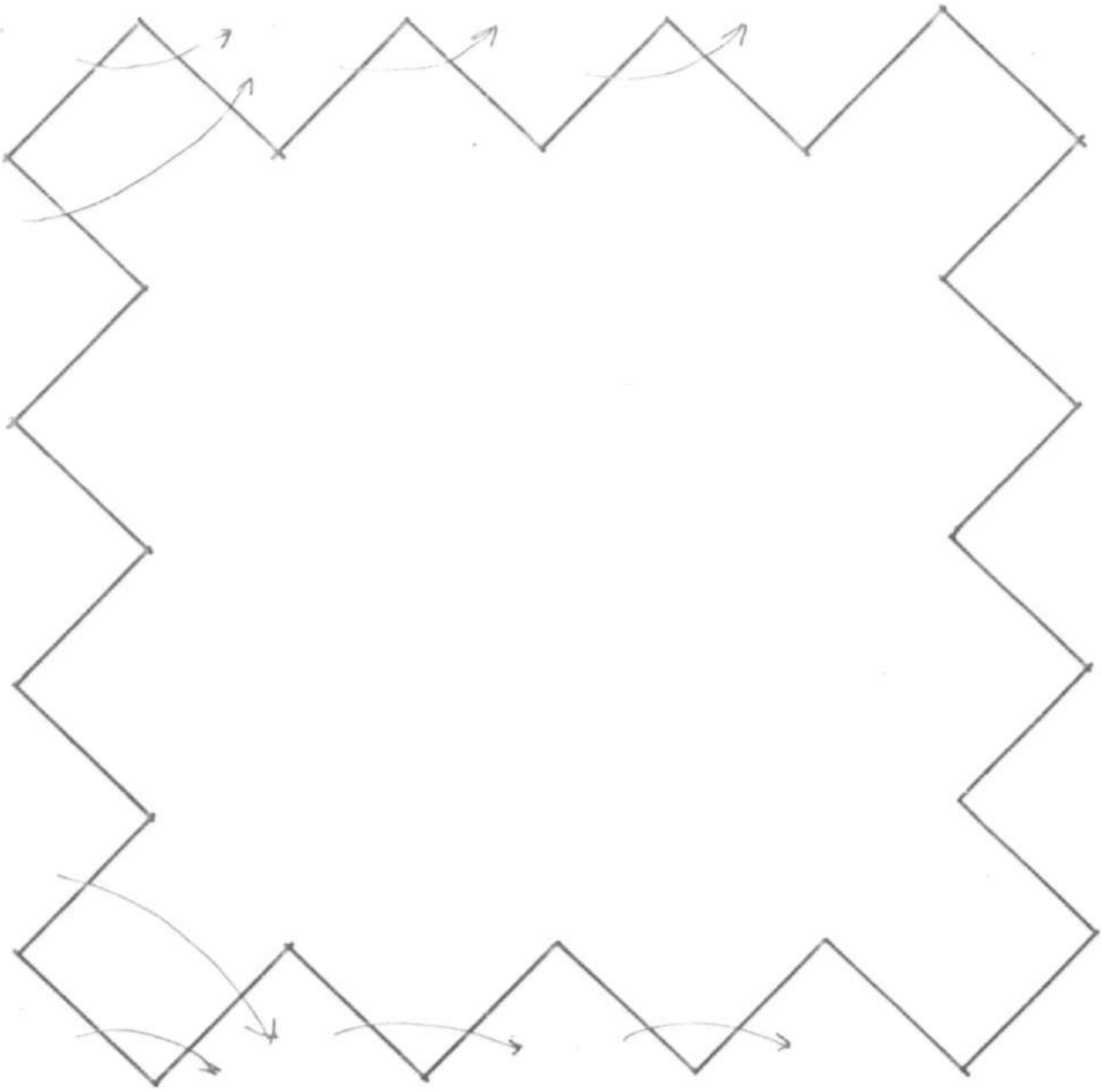
SEE PLATES XXI — XV



CONCEPT IS THE SYMBOL OF THE 'CROSS' USED TO DENOTE HOSPITALS.

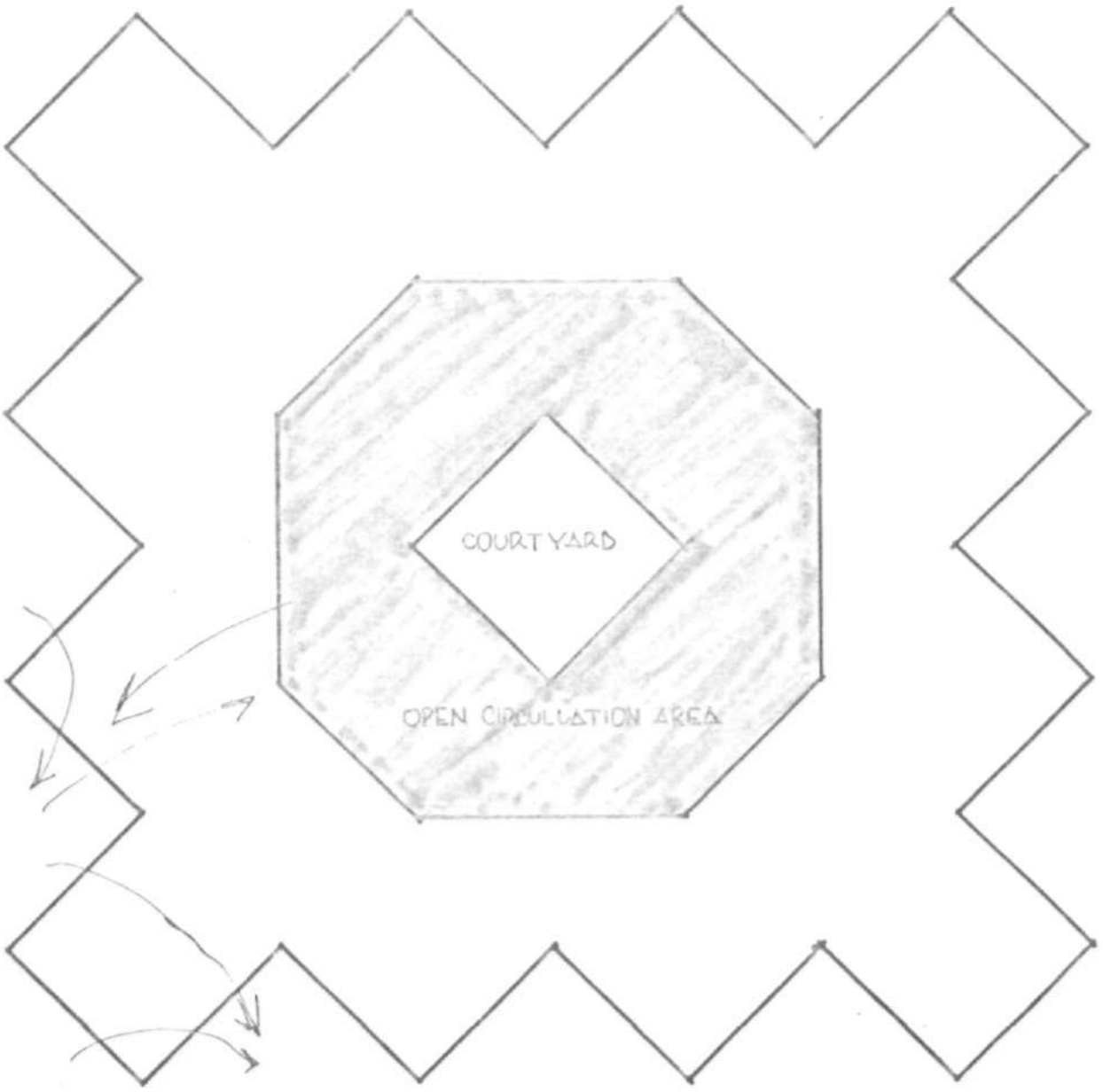
MAIN CONSTRAINT OF THE SYMBOL IS NON-COMPACTIBILITY AND PROPER VENTILATION.

PLATE XXI



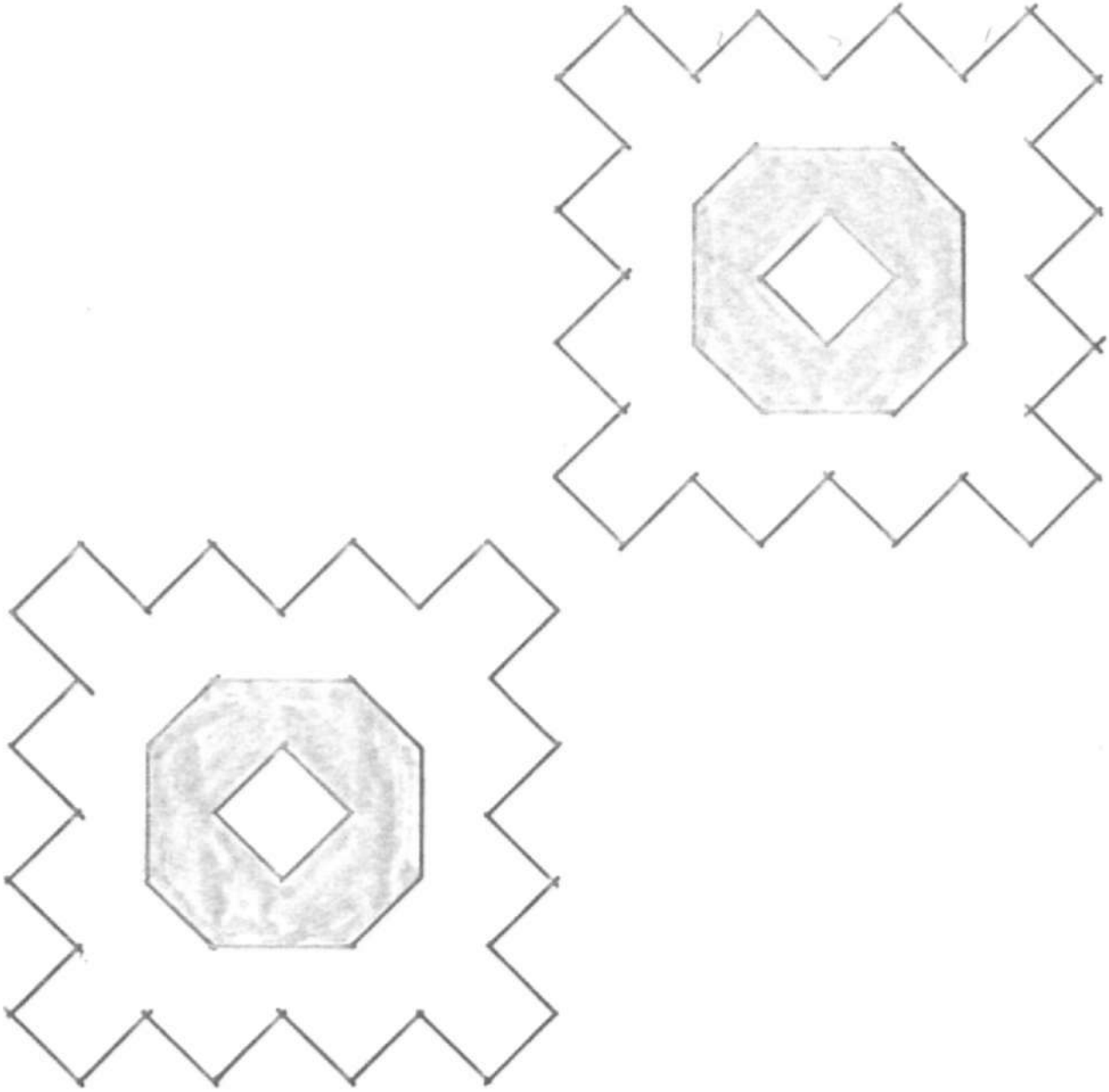
TO MAKE THE DESIGN MORE COMPACT, AND TO IMPROVE VENTILATION; THE SYMBOL FOR HOSPITALS, IS NOW STEPPED AS SHOWN ABOVE.

PLATE XXII



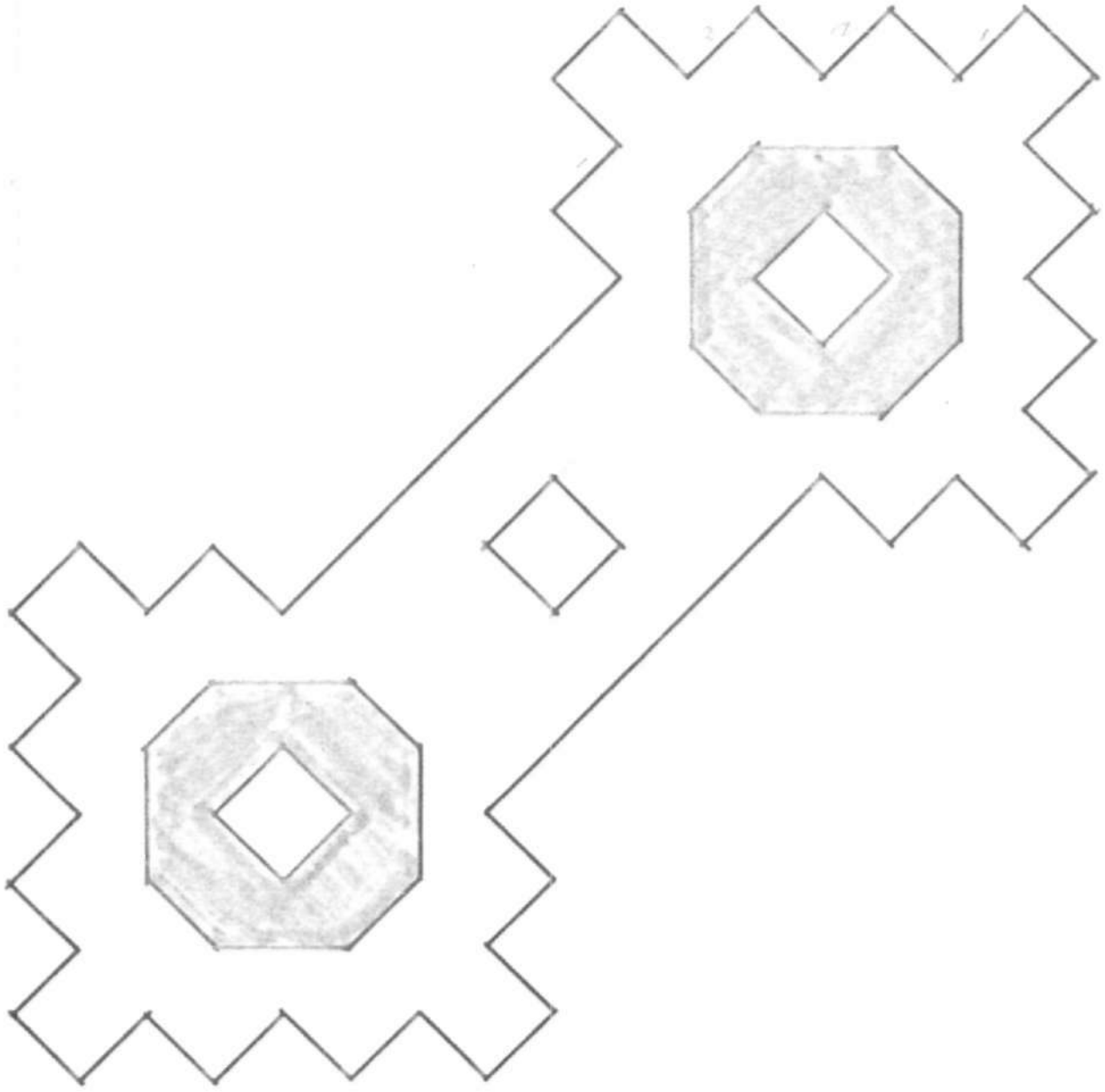
TO FURTHER IMPROVE THE VENTILATION, A COURTYARD WITH AN OPEN CIRCULATION SPACE IS PROVIDED.

PLATE XXIII



TWO STEPPED CROSSES ARE PROPOSED FOR THE HEALTH CENTRE TO MINIMISE THE NUMBER OF FLOORS, REQUIRED; AND ALSO TO SPREAD RELATED FUNCTIONS, ON THE SAME FLOOR.

PLATE XXIV



FOR EASY ACCESSIBILITY, THE TWO STEPPED CROSSES ARE JOINED TOGETHER, SO THAT THEY CAN BOTH SHARE A COMMON ENTRANCE, WHICH IS PROVIDED WITH A COURTYARD.

PLATE XXV

Chapter 9

SCHEDULE OF ACCOMMODATION

The Centre shall be put to varied use, and shall therefore be divided into three basic sections, namely:

1. The "Health Centre"
2. The "Research and Training Centre"
3. The Administration.

The approximate room sizes for the spaces in the individual sections would be as follows:-

1. The "Health Centre"

Ground Floor - (O.P.D./Treatment Areas)

i. Waiting/Circulation Areas . . . . . .
ii. Pharmacy . . . . . .
iii. Drug Store . . . . . .
iv. Records Department . . . . . .
v. Consulting Rooms . . . . . .
vi. X-ray Department . . . . . .
vii. Nurses Rooms . . . . . .
viii. Doctors Sleeping Apartments . . . . .
ix. Restaurant/Relaxation Areas . . . . .
x. Cleaners Rooms . . . . . .
xi. General Stores . . . . . .
xii. Toilets . . . . . .

First Floor - (In Patient/Wards)

i. Wards . . . . . .
ii. Nurses Rooms . . . . . .
iii. Kitchen/Servery . . . . . .
iv. Stores . . . . . .
v. Toilets . . . . . .

2. The "Research and Training Centre"

Ground Floor - (Drug Processing Unit)

i. Raw materials store . . . . . .

ii. Drug Production Hall . . . . . .

iii. Processed Drug Store . . . . . .

iv. Laboratory . . . . . .

v. Special Laboratory . . . . . .

vi. General Stores . . . . . .

vii. Toilets . . . . . .

First Floor - (Training/Educational Unit)

i. Offices . . . . . .

ii. Classrooms/Lecture Rooms . . . . . .

iii. Relaxation Area . . . . . .

iv. Toilets . . . . . .

Second Floor - (Research Unit)

i. Research Carrels . . . . . .

ii. Laboratories . . . . . .

iii. Conference Rooms . . . . . .

iv. Library . . . . . .

v. Relaxation Area . . . . . .

vi. Sleeping Areas . . . . . .

vii. Toilets . . . . . .

3. Administration

i. Offices . . . . . .

ii. Restaurant . . . . . .

iii. Toilets . . . . . .

Chapter 10

ARCHITECTURAL SOLUTION

The Architectural Solution, is such that, the maximum physical comforts, are aimed at, for all the users. The shape of the plans, are stepped crosses, which take care, of the problem of ventilation.

For additional comfort, and good cross-ventilation, courtyards have been provided which shall be drained from under the buildings.

The circulation areas, are located, around the courtyards, and the major public utilities are also located here.

The units to be designed were distributed on an hierachical basis. The Research and Training, being the main core of the Thesis, has three floors. The Health Centre has two floors, with the Administration, having one floor.

Hierachy was also used, in the distribution of spaces, for the individual units; and the criteria for the distribution is as follows:

1. Research and Training

i. Research Unit, is the area of the highest refinement, i.e. where majority of the thinking for the centre is done. It is therefore located on the top level, which in this design, is the second floor.

ii. The Training Unit, being an intermediary stage, is located on the First Floor.

iii. The Drug Processing, which is the coarsest, is located on the Ground Floor.

2. Health Centre

i. The Wards, which needs more refinement, in terms of hoise, is located on the Top Floor, which in this design, is the First Floor. This is also the In-Patient and Treatment Department, being

ii. The Out-Patient and Treatment Department, being of a coarser nature, in terms of hoise, is then located on the Ground Floor.

3. Administration:

This comprises of only one floor i.e. the Ground Floor, and it houses the offices of the Administrators of the Centre.

The design of the Botanical Garden, with its stores, has been purposely left out; due to the expertise needed for its accomplishment.

Architectural Finishes

1. FOUNDATION:

The site has a lot of trees and shrubs. Most of these trees and shrubs are to be preserved. Therefore, based on information in Building Research Digest 67, Bored piles shall be used as the foundation.

The advantages of this type of foundation system include:

i. Reduction in the amount of excavated spoil.

ii. Cleaner site.

iii. Faster construction.

iv. Work can continue in weather which would make trench digging impracticable.

This type of foundation consists of a series of short concrete piles in which, a pile or group of piles is placed under each column in a frame structure.

2. FLOOR STRUCTURE:

Shall be waffle grid structure in which the main beams are supported on columns which are placed 7 m apart; and supports a thin floor slabs, of about 125 mm. The distance between the intermediate beams shall be 1 m for economy.

3. ROOF STRUCTURE:

The roof rafters are supported on the main beams between four columns.

4. ROOF DRAINAGE:

The roof is drained by placing cement screed in-between the gutter connecting two roofs, which then directs the rainwater, into pipes built into the columns. These pipes direct the rain water into gutters under the building, into the main gutters, under the walkways.

5. ROOF COVERING

The roof is an example of a bolted and connectored structure. Therefore self-supporting sheet coverings can be used. These include tiles, slates and similar coverings commonly used.

In this particular design, tiles would be used as the roof covering.

6. CEILING:

The grid flooring, in-between floors is filled with acoustic tiles, so that the noise, penetrating, from one level to the other is reduced.

The ceiling on the top floors, are 10 cm polished wooden boards, glued on to 25 mm foamed polystyrene insulation, and made to follow the natural slope, of the roofs.

7. Partitions walls are mainly of very thin concrete partition walls, which are precast, and assembled on site.

For very special rooms, a different partition wall is used.

In the X-ray room for instance, a 120 mm thick concrete partition was used. This is then further covered by a 1.5 mm thick lead, as it is intended mainly for radiography.

Although the X-ray equipment is insulated, the floor, ceiling and walls shall be shielded with load, to guide against escape of X-rays.

8. LIGHTING:

A lot of natural daylight would be employed. This is facilitated by the use of courtyards and stepped side walls.

Artificial lighting would also be used to supplement this, especially in areas not serviced by the courtyards and natural light through the windows.

9. EXTERNAL WALLS:- are thin precast concrete walls, assembled on site. Plants (flowering and non-flowering) are planted all around the windows, to reduce dust coming into the rooms, and also to improve the moisture content of the air.

10. COURTYARD DRAINAGE: - are through pipes under the building, which flow to the main gutters, under the walkways.

11. DOORS AND WINDOWS:

Doors into public areas are swing doors, so as to facilitate fast and easy movements.

Doors into other rooms are hinged panelled or glazed doors, depending on the function of the room.

Windows are all glazed sliding, air-tight, water-tight and moisture proof.

Chapter 11

CONCLUSION

In as much as it is almost impossible to fully understand and design any project, which shall require the participation of a large proportion of the entire population, it is hoped that this shall be a starting point for bigger projects in the future.

It is also hoped that any impartial observer, would see how, the Traditional Healing Methods, can be greatly interlink with the Modern Healing Methods. This should, in fact, set his thinking, and I am sure with the best volition, a proper and well organised Traditional Medicine Centre would be built some day.

Thanks.

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8. Chief (Dr.) Pagbemi Ajanaku, (Baba-ni Araba of Lagos).