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POST-GRADUATE TRAINING IN THE BASIC MEDICAL SCIENCES WITH EMPHASIS ON THE NEEDS OF DEVELOPING COUNTRIES

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AIMS OF POST GRADUATE EDUCATION IN BASIC MEDICAL SCIENCES

The aims of postgraduate education in basic medical sciences in any country in the world can be listed briefly as follows:-

(a) As continuing education for all doctors, dentists or Health Sciences personnel who even for their basic general practice must keep abreast of advances in Medical Sciences as well as revise what they had learnt.

(b) As foundation knowledge at an advance level for those doctors, dentists etc., who are embarking on courses for their particular specialist branches of Health Sciences e.g. Surgery, Medicine, Obstetrics and Gynaecology, Orthodontics etc.

(c) For those who have chosen the basic Medical Sciences as their career for teaching and/or research.

(d) For those who will ultimately give service in the Medical Laboratories of their countries as e.g. Pathologists, Microbiologists, Parasitologists, Immunologists, etc.

In developing countries there will be even greater need for training to fulfill all these four aims because of

(a) The rapid advances being made in Medical Sciences may be occuring in countries far away from a particular developing country. Dissemination and discussion of these advances should be encouraged in the developing countries.

(b) (i) Since it has now been accepted that postgraduate studies in clinical medicine should take place in the developing countries so that there will not be loss of essential health manpower then the necessary instructions in the basic Medical Sciences must also be given in the developing countries.

(ii) Secondly, the development of relevant research in the basic Medical Sciences can only occur in the developing countries if Clinicians and the Medical Scientists there can discuss problems together.

(c) (i) There is a great worldwide shortage of pre-clinical and Pathology teachers. This shortage is greatest in developing countries. Unless an active and a constructive effort is made to train the teachers in these fields of Medicine the shortage will continue.

(ii) The strongest motivation into the basic Medical Sciences can only come from the intellectual satisfaction of research. The development of interest in research which should start in the undergraduate years of education should be encouraged actively. Teaching can also only be enriched by participation in research.

(d) In most developing countries the motivation of doctors into fields of Pathology has been low. This may be because government have great difficulty in recruiting

general duty doctors and so keep those they have mainly for service in clinical medicine with the result that by omission, rather than with intent, they neglect the training of Pathologists. Unless there is an active effort made to correct this it will continue to be difficult to recruit Pathologists for the essential diagnostic services in the delivery of health care. Moreover research outside the Universities and in government health services will not develop unless post-graduate courses in fields of Pathology are instituted.

New approach to postgraduate medical education in developing countries

Most of the Faculties of Medicine and Dentistry or Faculties of Health Sciences in the developing countries have only recently been established during the last decade. While it is possible that their undergraduate curricula have been designed along the older traditional patterns there have been efforts made in many of the Faculties at the use of newer methods in education. Thus attempts are being made to bring closer the teaching of the traditionally compartmentalized pre-clinical subjects of Anatomy, Physiology, Biochemistry etc. These attempts have resulted in success of various degrees of integration, or correlation.

The integrated undergraduate programme in Human Biology and Human Pathology

As an example of a fairly successful experiment in integration the B.Sc. (Health Sciences) degree programme of the University of Ife, Nigeria will be outlined. This programme was designed to form a foundation degree not only for doctors and dentists but also for those who may wish to proceed to post-graduate work in the basic medical sciences.

The programme spans the first three years of a six year medical and dental education following one year of post secondary school science learning of Physics, Chemistry and Biology.

The institutional objectives of the Ife B.Sc. (Health Sciences) degree programme are as follows:-

B.Sc. (HEALTH SCIENCES) DEGREE

INSTITUTIONAL OBJECTIVES

General: At the end of a 3-year educational programme the graduate shall be ready and able to proceed to a clinical course leading to the M.B.,Ch.B. or the B.D.S. or to give service in the health fields of the nation as a paramedical scientist especially after an M.Sc. degree in one of the paramedical sciences.

Knowledge and Skill

(a) The graduate will be able to demonstrate with the use of scientific instruments and methods that he or she has a thorough knowledge of the structures, functions and chemistry of the cells, tissues, organs of the human body in health and in disease and the relationship of Man to his family, his community and his environment.

(b) With the use of scientific equipment the graduate will be able to demonstrate the structure, function and chemistry of the cells, tissues and organs of the human body.

(c) The graduate will be able to demonstrate his or her skill at investigating the relationship of Man to his family, his community and his environment.

(d) The graduate will be able to advise on how Man can maintain his body in good health through adequate nutrition and clean habits, improve his relationship with his family, community and environment.

(e) The graduate will be able to demonstrate a full appreciation of the contributions of earlier and current scientific research in the health sciences.

Attitude

(f) The graduate will demonstrate that he has acquired a sypathetic attitude towards the problem of human ill-health.

(g) The graduate will demonstrate a strong belief in the strength of team work in effecting solutions for health problems.

(h) The graduate will also demonstrate that he has acquired respect for and faith in the ability of other members of the health team.

The Course list for the Ife B.Sc. (Health Sciences) degree programme is as follows:-

COURSE LIST

A. INTRODUCTORY COURSES -

Introduction to the University, the world of learning, the objectives of the Faculty of Health Sciences, the Curriculum, Methods of learning and of enquiry.

B. BACKGROUND COURSES -

1. Introductory Course in Physio-Pathological Chemistry

2. Biostatistics

3. Physics in Health Sciences.

C. THEME COURSES ON HUMAN BIOLOGY IN HEALTH SCIENCES

Theme One	-	The Cell
Theme Two	-	The Tissue
Theme Three	-	Man
Theme Four	-	Man and the Animal Kingdom
Theme Five	-	Man and his Family
Theme Six	-	Man in the Community and Environment
Theme Seven	-	The Abnormal Biology of Man.

THEME ONE - THE CELL

1. Cell Structure and function
2. Cytochemistry
3. Medical microbiology
4. Pharmacocytology

THEME TWO - THE TISSUE

1. Cell Division, Maturation, Differentiation and Ageing
2. Fertilization and embryogenesis
3. Human Genetics - to include Immunogenetics
4. Introduction to pharmacogenetics
5. Tissues of the body
6. Histological and histochemical techniques
7. Pharmacodynamics - activity and effects of drugs on tissue.
8. Photographic technique

THEME THREE - MAN

1. Organogenesis and functional differentiation
2. Haemopoietic and lymphoid tissues -
   (a) blood and body fluids
   (b) immunology
3. Cardiovascular System
4. Respiratory System
5. Renal System
6. Gastrointestinal System
7. Nutrition and metabolism
8. Endocrines
9. Reproduction
10. Musculo-skeletal System and Skin
11. The Nervous System
12. Growth, development, maturation and ageing.

THEME FOUR - MAN AND THE ANIMAL KINGDOM

1. Evolutionary history of man and vertebrates
2. Animal behaviour
3. Man's instinctive behaviour
4. Parasitology.

THEME FIVE - MAN AND HIS FAMILY

1. Emotion and motivation
2. Personality
3. Cognative mental function
4. Psychological development and adaptation the child, the adolescent and the old.
5. The Structure of the Family
6. Patterns of life in the Family
7. The Family in health
8. The Family in disease.

THEME SIX - MAN IN HIS COMMUNITY AND ENVIRONMENT

1. Types of envronment: physical, biological and social
2. The Structure of the Community
3. Patterns of life within the community
4. Problems of health care within the community to include management
5. Delivery of health care to the community to include supervision
6. Sanitation within the community
7. Demography:
   (a) Population dynamics
   (b) Family Planning
8. Climatic Adaptation
9. Health Records
10. Professional Ethics in Health Science
11. Vital Statistics and Principles of Epidemiology
12. The response of Man and his Community to parasitic and microbial infection
13. Materia Medica and Toxicology.

THEME SEVEN - THE ABNORMAL BIOLOGY OF MAN

1. Principles of Pathology
2. Abnormal Psychology
3. Social Disorders.

From both the institutional objectives and the course list it will be noted that the curriculum demands:-

(a) more practice towards self-reliance in the preparation of material for investigation, e.g. preparation of histological sections; the preparation of media for culture of micro-organisms; the correct use and maintenance of basic diagnostic and research equipment.

(b) study in depth of cell and tissue biology etc.

(c) encouragement in the use of literature in scientific journals

(d) individual research projects for each student as well as opportunities for participation in research work.

While it is obvious that only some new Faculties may be able to institute such an integrated programme as this it is possible that the older Faculties may make initial attempts at integration through the less drastic approach of correlation. The essential is that the undergraduate be presented with a picture of the biology of Man as close to the reality of his integrated self.

Even with minor degrees of integration it will be essential as a foundation for future post-graduate work that in all faculties in developing countries:-

(a) effort be made to establish in all our undergraduate self-reliance in their practical work. They should learn to do things themselves.

(b) they should develop their instinct for investigation rather than be encouraged to learn by note and be presenting textbook statements without questioning them.

(c) they should be made more sensitive of the needs of their community for better and more efficient health care. To make this possible an early introduction into community care and public health should be made.

Post-graduate Medical Education

If an integrated undergraduate programme has been instituted then it is only logical that it should be followed by an integrated post-graduate education. Even if the under-graduate programme is traditional and the preclinical courses have been taught separately then the newly designed integrated postgraduage programme will be all the more essential. While there has been a tendency for post-graduate research to be specialized in that the post-graduate student chose to work in depth on one research problem, it has become obvious that greater success in Human Biology and Human Pathology can now be achieved if the background of the investigator is broad.

Again to offer an example of a programme that exists in one of our countries, the M.Sc. degree programme in Human Biology and Human Pathology of the University of Ife, Nigeria is presented:-

The Institutional Objectives of the M.Sc. degree in Human Biology and Human Pathology

Postgraduate education in the Faculty of Health Sciences in Human Biology and Behaviour and Human Pathology shall enable the graduate, to use the knowledge and skill acquired in the course:-

i. to contribute at a high level to health services in his community through diagnostic laboratory services;

ii. to contribute to the training of the health team by being able to demonstrate to students in an integrated teaching programme in Human Biology and Behaviour and Human Pathology i.e. the Basic Medical Sciences and Pathology;

iii. to be able to investigate health problems using, with knowledge and confidence, the most modern scientific equipment and methods;

+iv. to participate in the training of younger postgraduate students in Human Biology and Behaviour and Human Pathology

Attitudinal Objectives

The objectives must be to inculcate in the students that attitude of sympathy, scientific and intellectual approach to health problems and the humility to learn. Hence the students are stimulated to continue or proceed to their medical or dental degrees and to return to their chosen fields of Human Biology and Behaviour or Human Pathology to apply the scientific approach they have learnt to the solution of health problems.

Knowledge and Skill

The Post-graduate who will hold the Master of Science degree will, at the end of his course and research investigation be able:-

i. to use the basic scientific equipment to demonstrate and investigate the functions of the Cells, Tissues and Organ systems of the human body and human behaviour both in health and in disease;

ii. thus, he will be able to use competently such common instruments as the light microscope, phase contrast microscope, fluorescent microscope, the electron microscope, centrifuges, ultracentrifuges, spectrophotometers, oscilloscopes, polygraphs etc. in the investigation of scientific problems;

iii. he will be able to fix, embed, section and stain tissue sections for histological, histochemical and electron microscopical examination;

iv. he will be able to make permanent records of his cytological, histological, cytochemical and histochemical observations by photographic methods, being able to use the camera, develop and print photographic films.

v. he will be able to investigate the structure of the body by careful dissection and the permanent preparation of the prosected parts of the body. He will be able to mount for demonstration, prosected parts of the body. He will be able to measure, and compare, the variations in parts of the body.

vi. he will be able to follow metabolic processes within the cells of the body by biochemical methods, recording his results with the use of spectrophotometers, radio-counters etc. and also with the use of autoradiographic and other methods involving the use of radiosotopes as trace elements.

vii. he will be able to investigate the functions of cells of the nervous systems and other cells of the body with the use of bioelectric apparatus and record the results of his investigations;

viii. he will be able to use various psychological test intruments and interpret the results obtained correctly.

ix. he will be able to construct his own psychological test instruments and validate them.

x. he will be able to design experiments using laboratory animals, to simulate pathological conditions in man and to investigate the disease pattern thus produced;

xi. he will be able to search the literature for reports of investigations, cite them correctly and critically evaluate them;

xii. he will submit a thesis on an original work which he has carried out himself. The thesis shall demonstrate not only the findings of his investigation but also that he is capable of presenting, in writing, the methods, results and the discussions as well as the conclusions of his findings in a logical and scientific manner.

Application of knowledge and skill to delivery of health care

To ensure that the knowledge and skill acquired by the post graduate students can be used to meet the institutional objectives of the improvement of methods of delivery of health care, the post-graduate in Human Pathology and to some extent the postgraduate in Human Biology will.

i. participate during his postgraduate training in laboratory services in the hospitals of his Faculty.

ii. participate in the provision of diagnostic services in routine laboratory investigation - cytological, histological, chemical microbiological etc.

iii. be able to present the results of his laboratory and clinical investigation both in writing and at oral discussions to his clinical colleagues.

iv. be able to organize a diagnostic laboratory and to supervise and work efficiently with a team of laboratory technicians;

v. be able to organise mobile and field investigative laboratory services to cover hospitals and health centres in small urban and rural areas;

vi. be able to organize the purchasing and the maintenance of equipment and other items for laboratories.

Communication Skill

Since it will be one of the institutional objectives that the postgraduate shall be able to impart his knowledge to others who may be his colleagues in the health team or may be his students it becomes extremely essential that - at the end of his course the postgraduate:-

i. shall be able to impart his knowledge efficiently to his colleagues or students in demonstrations, lectures, seminars, tutorials as well as with publications;

ii. he will be able to impart his knowledge with the efficient use of audio-visual aids and be able to prepare for himself the materials that he shall use.

iii. he will be able to assess the efficiency of his method of teaching by evaluating the progress of learning of his students;

iv. he will be able to supervise the investigations of younger colleagues.

The Courses for the M.Sc. Degree in Human Biology and Human Pathology

General Requirement

(a) Entry Requirement

Candidates must hold a B.Sc. (Health Sciences) or a B.Pharm. (Pharmacology)* degree in the Second Class Upper Division grade. Candidates with Second Class Lower may be admitted with a high recommendation of their Deans. Candidates who hold a registrable

Medical qualification may be recommended by the Faculty Board of Health Sciences, for admission after assessment.

(b) M.Sc. Human Biology

Candidates offering M.Sc. (Human Biology and Behaviour) will be required to take courses HS. 401, 402, 403 in the Core Curriculum and either HS 404 or HS 405. In addition, candidates are required to take three Elective courses in the group for Human Biology and Behaviour chosen after discussion with their supervisors.

(c) Human Pathology

Candidates offering M.Sc. (Human Pathology) will be required to take courses HS 401, 402 and 403 in the Core Curriculum and either 403 or HS 404 plus THREE elective courses in the Human Pathology group - chosen after discussion with their supervisors.

(a) Duration of Course:

The duration of the M.Sc. course shall be one year

(b) B.Pharm. Graduates

B.Pharm. (Pharmacology) graduates will however be given remedial course in Cytology, Histochemistry, Electron microscopy etc. during the summer vacation - preceeding the one year programme.

Courses offered:

(a) Core Curriculum

HS 401 - Cytology and Histology
HS 402 - Histochemistry
HS 403 - Electron Microscopy
HS 404 - Electrophysiological Techniques
HS 405 - Tissue culture Techniques

Electives

(b) Human Biology & Behaviour

HS 406 - Developmental Biology and Psychology
HS 407 - Primatology
HS 408 - Teratology
HS 409 - Neurobiology
HS 410 - Endocrinology
HS 411 - Temperature Regulation
HS 412 - Cardiovascular Physio and Pharmacology
HS 413 - Neuro muscular Pharmacology
HS 414 - Respiratory Physiology & Environmental Adaptation
HS 415 - Individual behaviour and Psychophysiology

(c) Human Pathology

HS 416 - Histopathology
HS 417 - Chemical Pathology
HS 418 - Medical Microbiology
HS 419 - Haematology
HS 420 - Immunology
HS 421 - Parasitology
HS 422 - Comparative Dentition including dental material science
HS 423 - Oral Pathology

Dissertation

A dissertation based on the original research of the candidate on a subject chosen in consultation with his/her supervisor and written in accordance with the regulations stipulated for graduate students in the University of Ife shall be presented at the end of the course. There shall be an oral examination based on a discussion of the dissertation. The marks awarded shall count as 25% of the total grade.

Examination

The candidate shall be examined in a total of FIVE three hour papers and FOUR practicals - set as follows:

Paper I - HS

Paper II - HS 401 & 403 & 404
or
401, 403 & 405

Paper III - Electives

Paper IV - Electives

Practicals

I Histochemistry - HS 401, 403 & 404
or
II - HS 401, 403 & 405

III)
IV) Electives
V)

The weighting to be given to the Papers, Practicals, and Dissertation shall be as follows:-

Course Work	Core Curriculum (Papers & Practicals)	40%	75%
	Electives (Papers & Practicals)	60%	
Dissertation			25%

The M.Sc. degree programme is primarily intended to stimulate recruitment into the basic medical sciences:-

(a) The selection of the students for the M.Sc. degree is competitive and only the best students are chosen from among the B.Sc. (Health Sciences) graduates.

(b) Following the successful completion of the M.Sc. degree programme the student proceeds to his clinical courses in medicine (for the M.B.,Ch.B. degree) or in Dentistry (for the B.Ch.D. degree)

(c) While working to the M.Sc. degree the graduate student will be expected.to

(i) conduct research into a specific problem and publish his results

(ii) participate in teaching.

The participation in teaching is essential for the graduate student must learn how to teach even while he is carrying out research.

(d) It is suggested that the graduate student should be remunerated financially for his contribution to teaching.

(e) The M.Sc. graduate who successfully completes his clinical course to become a doctor or a dentist will be encouraged to return to research to work for the Ph.D. degree in his chosen field.

M.Phil. degree programme

While the M.Sc. degree has been specially designed for medical and dental students who are going on to complete their clinical education and may or may not return to the basic medical sciences, the M.Phil. degree programme is mainly for postgraduate students who wish to stay on in the basic medical sciences either as research scientists, teachers or as Pathologists in the service of the Government.

The objectives of the M.Phil. programme are as follows:-

M.Phil Programme

The Faculty of Health Sciences has already stated in behavioural terms the Institutional Objectives for her post-graduate training programmes.

The Objectives of the M.Phil programme are similar to those of both the M.Sc. and the Ph.D.

Knowledge and Skill

At the end of the M.Phil. programme, the postgraduate student will be able

(a) to use basic scientific equipment to demonstrate and investigate the functions of the Cells, Tissues and Organ Systems of the animal body both in health and in disease. Thus, he will be able to use competently such instruments as the light microscope (of varying sophistication) phase contranst microscope, fluorescent microscope, the electron microscope (transmission and scanning), centrifuges and ultracentrifuges, spectrophotometer and spectrofeurophotometers, Radio-isotope counting machines, oscilloscopes and oscillographs, polygraphs and various forms of transducers etc. in the investigation of scientific problems.

(b) to fix, enbed, section and stain tissues for histological histochemical and electron microscopical examinations.

(c) to make permanent records of his cytological, histological cytochemical and histochemical observations by photographic methods, being able to use the camera develop and print photographic films.

(d) to investigate the structure of the body by careful dissection and the permanent preparation of the prosected parts of the body. He will be able to mount for demonstrations prosected parts of the body. He will be able to measure and compare the variations in the parts of the body;

(e) to follow metabolic processes within the cells of the body by biochemical methods, recording his results with the use of spectrophotometers, radio-isotope counters etc. and also with the use of autoradiographic and other methods involving the use of radio-isotopes as trace elements;

(f) to investigate the functions of the cells of the nervous system and other body systems with use of bioelectrical apparatus and record the results of his investigations;

(g) to design experiments, using laboratory animals to simulate pathological conditions in man and to investigate the disease pattern thus produced;

(h) if in Human Pathology, to carry out investigations on specimen collected from patients in hospitals and report on the specimen to provide basis for diagnosis

(i) to search the literature for reports or investigation, cite them correctly and critically evaluate them,

(j) to present accurately, in a scientific manner and with confidence before an audience, the results of his findings.

Duration of the M.Phil.

The M.Phil. shall be of a two year duration. The first shall be devoted mainly to course work and the second year to research. The award of the degree shall be based upon a successful completion of coursework and the presentation of a dissertation - based on original research.

Entry Requirements

Candidates for the M.Phil must hold a B.Sc. (Health Sciences) or B.Pharm. (with Pharmacology as a special subject) or B.Sc. or B.Med.Sc. degree in any one of the tho following fields, Anatomy, Biochemistry, Physiology, Pharmacology and Microbiology. These degrees should be with First or Second Class Honours. Candidates who hold a registrable Medical qualification may be recommended by the Faculty Board of Health Sciences for admission - after assessment.

Course List

(a) Core Curriculum

(i) HS 601: Cytology as Histology
HS 602: Histochemistry
HS 603: Electron Microscopy
HS 604: Electrophysiological Techniques, or
HS 605: Tissue Culture Techniques

(ii) - Special Options
CS 102: Computer Programming
CS 305: Systems Analysis
HS 624: Experimental design
*HS 625: Homeostatic mechanisms

(b) Electives

1. Human Biology & Behaviour

HS 606: Developmental Biology & Psychology
HS 607 Primatology
HS 608 Teratology
HS 609 Neurobiology
HS 610 Endocrinology
HS 611 Temperature Regulation
HS 612 Cardivascular Physiology & Pharmacology
HS 613 Neuromuscular Pharmacology
HS 614 Respiratory Physiology and Environmental Adaptation.
HS 615 Individual behaviour and Psychophysiology

2. Human Pathology

HS 616 Histopathology
HS 617 Chemical Pathology
HS 618 Medical Microbiology
HS 619 Haematology
HS 620 Immunology

HS 621 Parasitology

HS 622 Comparative Dentition including dental material science

HS 623 Oral Pathology

Details of Programme

M.Phil in Human Biology

Candidates offering M.Phil in Human Biology & Behaviour and Human Pathology will be required to take

(a) The following courses in the core curriculum

HS 601, 602, 603, 624, 604 or 605 as well as

CS 102 and CS 305

(b) Three Elective courses selected from A or B Human Biology and Behaviour or Group B - Human Pathology after discussions with their Supervisors.

(c) Candidates entering the programme with background of the B.Pharm, B.Sc. or B.Med.Sci. in Anatomy, Biochemistry, Microbiology, Physiology and Pharmacology may be required to take Course HS 625.

Scheme of Examination

The candidate shall be examined in six three hour papers and five practicals.

Paper I: HS 602 - Histochemistry

Paper II: HS 601 - Cytology and Histology
HS 603 - Electron microscopy, and

HS 604 - Electrophysiological techniques,

or

HS 601 - Cytology and Histology

HS 603 - Electro-microscopy, and

HS 605 - Tissue Culture Techniques

Paper III - Experimental design (to include CS 102 & 305)

Paper IV - Electives

Paper V - Electives

Paper VI - Electives.

Practicals

I - HS 601, 602, 603 & 604

or

HS 601, 602, 603 & 605

II - HS 624

III - Electives

IV - Electives

V - Electives.

The Ph.D. or M.D. degree programme

In our developing countries whether in preparation purely for research and teaching on one hand or for health care Pathology services on the other hand no student should be encouraged to proceed to the Ph.D. degree without some extensive post-graduate courses. Thus all candidates for the Ph.D. degree should first either hold the M.Sc. degree or the M.Phil degree or at least have completed the first year of courses of the M.Phil degree programme.

This course work background will give the Ph.D. candidate a broad background both for his own research work and for teaching. Moreover the course work will offer the guarantee essential for the professional licensure of those who intend to practise in Pathology in the service of the Government. Besides, the sharing of these courses will develop in the candidate better team spirit.

The research work of candidates for the Ph.D. degree should be supervised but without the constant direction of the supervisor. By this is meant that it is essential that the postgraduate student should be allowed to use his own initiative and develop originality in his work. Under no circumstances must he be treated like a super-technician who merely carries out the orders of his supervisor who dictates daily what is to be done.

Professional training and examinations in Pathology

While the academic qualifications of M.Sc., M.Phil., Ph.D. or M.D. may be recognized as postgraduate courses for employment in some countries they may not be legally registrable for consultancy posts by some Governments.

Thus in some countries the governments may either institute its own Fellowship examination or authorize a National post-graduate College to do so. Such a postgraduate award is only made to candidates who pass some postgraduate examination.

For professional postgraduate diplomas (Fellowships) of this nature it is strongly recommended that all candidates for the award must serve some apprenticeship under licensed or registered pathologists from who they will be able not only how to serve in their profession with humility and kindness but also how they should organize diagnostic services for hospitals.

It is important to return to the first group of post-graduate students who should come back to Faculties for refresher courses. Unfortunately not enough attention is paid to the importance of continuing education in Medicine. Moreover, Universities tend to feel that their obligations are limited only to those who work towards diplomas and degrees.

Hence doctors are left at the mercy of the drug companies who provide them with "education" through their advertisements. It is recommended particularly for developing countries that Faculties of Health Sciences or Medicine endeavour to provide for the continuing education of doctors and other health workers.

Finally, the advantages of effecting postgraduate education locally in developing countries are obvious -

(a) The drainage of local health personnel away from their countries will be stopped.

(b) the postgraduate education will be more realistic - local problems in health will be discussed

(c) and there will be greater efforts at research towards solving the local problems.