

UNIVERSITY OF GHANA

Annual Report by the Vice-Chancellor
for 1969-70

TABLE OF CONTENTS

MEMBERS OF THE UNIVERSITY COUNCIL	1
SPEECHES AT CONGREGATION	47
COMMITTEE REPORTS	47
The University Council	47
Academic Board	48
University Research Committee	49
Finance Committee	50
Development Committee	51
 FACULTY OF AGRICULTURE	
Department of Agricultural Economics and Farm Management	53
Department of Animal Science	58
Department of Crop Science	62
Department of Home Science	68
Agricultural Research Station, Kade	72
Agricultural Research Station, Kpong	75
Agricultural Research Station, Nungua	78
 FACULTY OF ARTS	
Department of Classics	80
Department of English	82
Department of Linguistics	83
Department of Modern Languages	86
Department of Philosophy	91
Department of Study of Religions	92
FACULTY OF LAW	95
 FACULTY OF SCIENCE	
Department of Biochemistry, Nutrition and Food Science	99
Department of Botany	106
Department of Chemistry	110
Department of Geology	113
Department of Mathematics	116
Department of Physics	119
Department of Zoology	122
Volta Basin Research Project	125
 FACULTY OF SOCIAL STUDIES	
Department of Archaeology	129
Department of Economics	131
Department of Geography	138
Department of History	140

Department of Library Studies	142
Department of Political Science	144
Department of Post-Basic Nursing	146
Department of Psychology	150
Department of Sociology	152

INSTITUTES AND SCHOOLS

Institute of Adult Education	159
Institute of African Studies	163
Institute of Statistical, Social and Economic Research ..	172
School of Administration	175

HALLS OF RESIDENCE

Akuafu Hall	177
Commonwealth Hall	178
Lagon Hall	180
Mensah Sarbah Hall	182
Volta Hall	183

BALME LIBRARY	185
----------------------	-----

CENTRAL CAFETERIA	190
--------------------------	-----

UNIVERSITY HOSPITAL	192
----------------------------	-----

UNIVERSITY PRIMARY SCHOOL	194
----------------------------------	-----

MEDICAL SCHOOL

Department of Anaesthetics	197
Department of Anatomy	198
Department of Biochemistry	199
Department of Chemical Pathology	200
Department of Child Health	201
Department of Medicine and Therapeutics	203
Department of Microbiology	209
Department of Obstetrics and Gynaecology	212
Department of Pathology	214
Department of Pharmacology	216
Department of Physiology	217
Department of Preventive and Social Medicine	220

STATISTICAL INFORMATION

1. Students Enrolment—1969/70	224
2. Distribution of Students by Courses and Subject—1969/70	225
3. Degrees Awarded—1969/70	226
4. Diplomas Awarded—1969/70	227
5. Certificates Awarded—1969/70	227

MEMBERS OF THE UNIVERSITY COUNCIL

Chancellor

Chairman

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Vice-Chancellor

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MR. VICTOR OWUSU, B.Sc. (Econ.), LL.B. (Lond.)

PROFESSOR SILAS DODU, M.B., CH.B (Sheff), M.R.C.S. (Eng.),
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Sheff.)

Secretary to the National Council for Higher Education

MR. F.W. BEECHAM, B.A. (Lond.)

Representative of Heads of Secondary Schools

MR. T.A. OSAE, B.A. (Lond.)

Two Members elected by the Council

DR. EL NAZEER DAFALLA, University of Khartoum

MR. J.B. BUTTERWORTH, J.P., M.A. (Oxon), Vice-Chancellor,
University of Warwick

Four persons elected by Members of Convocation

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M.A., PH.D. (Stan.)

E.J. THOMPSON, M.S., PH.D. (Iowa)

MR. J.A. PEASAH, B.Sc. (Lond.), M.A. (Tor.)

Secretary:

THE REGISTRAR

SPEECHES AT CONGREGATION

ADDRESS OF WELCOME BY THE CHAIRMAN OF THE UNIVERSITY COUNCIL ON THE OCCASION OF THE SPECIAL CONGREGATION HELD ON 25TH OCTOBER, 1969

Vice-Chairman of the Presidential Commission, Mr Vice-Chancellor, Members of the University Council, Fellows, Students, Distinguished Guests, Nananom, Ladies and Gentlemen.

It is a great pleasure to welcome you this afternoon to this Special Congregation which is being held in honour of the first medical graduates of the University.

I would also like to take this early opportunity of welcoming the Vice-Chairman of the Presidential Commission, Ministers of the new Government and the other members of the new Administration to the University. We in this University are very much delighted to see you here today and we have every hope that you will continue the fruitful co-operation which we enjoyed under the National Liberation Council. I shall have occasion, later in the year at our annual Congregation, to express more fully our feelings and hopes in our continuing role of co-operation and also to pay a fitting tribute to the work of the National Liberation Council.

This Congregation has two points of special significance for the University. Firstly, it marks the realisation of the ambition of this nation to train its doctors within our local circumstances and surroundings. And in this, the task has not been easy. The hope that Ghana should have its own Medical School was first raised in the dim past of the mid-nineteen twenties under the administration of Sir Frederick Gordon Guggisberg and it has taken us a little more than four decades to travel so far. It was not until the beginning of the decade, that serious efforts were made by the people of this country to start the Medical School. But these efforts suffered a severe setback to the point of complete collapse and frustration in 1963 when the Nkrumah Government refused to accept a generous offer of assistance from the Government of the United States of America to start the Medical School under more comfortable auspices. By that time, two generations of medical students had been enrolled and from then on we had to fall on our resources, meagre though they were. Throughout these difficult years, the Medical School continued to attract much sympathy from other

friendly countries like Great Britain and Canada which have sent not only men to fill vital gaps but also supplies and equipment to meet some of our dire needs. But the main support in manpower and resources has come from Ghanaians themselves- in the devoted and dedicated leadership and service of the Ghanaian staff in the search for a sound medical education and in Government's generous financial contributions despite our meagre finances and facilities. To all those who have made this school a reality, this Special Congregation is a fitting tribute. It is a monument and a milestone in the history of education in Ghana; and it symbolises a dream that has come true.

Secondly, this Special Congregation marks an end to some uncertainties in the position of the Medical School in the structure of higher education in the country. In the nature of policy-making characteristic of the early sixties, the school was at first conceived as an autonomous degree granting institution. Later, difficulties that would flow from such a set-up were realised and it was arranged that the Medical School should be in some special relation to this University which will allow its students to take the degrees of the University of Ghana. Since the Coup, these arrangements have been reviewed through a series of discussions and consultations between the University and the Medical School and I am happy to report that the Medical School is now an integral part of this University. It has the status of a Faculty with separate administrative arrangements designed to give the school greater freedom of action and flexibility while ensuring the requisite academic standards.

The University of Ghana Medical School has added a new dimension to the role of this University in our developing nation as it makes strenuous efforts to establish and develop the education of the future practitioners of medicine in this country. It has kept in view the vital problem of providing adequate medical attention for people of Ghana in the best traditions of the medical profession. Its curriculum is therefore based on local materials, local problems and local circumstances. We are confident that as more qualified doctors come out of the School, the quality of medical service which the ordinary citizen of Ghana should receive will be appreciable, and that he will enjoy a longer life expectancy and, a fuller, happier life. When people enjoy good health and are able to live longer, they will undoubtedly also be able to invest their efforts in more productive fields which will in turn add to the gross national product. In all these areas, these young doctors who will be presented very shortly, will need well equipped hospitals, well qualified para-medical personnel to work with, better facilities and, above all, good conditions of service to make it worth their while to continue to serve the country. I am confident that the new Government will make everything possible

for them to continue to be of service to the country. Resources that have been invested in the new medical graduates have been considerable. But much more will be needed to enable the country to derive the best possible advantage from their services.

I would also like, at this stage, to take the opportunity of extending a special word of welcome to the distinguished medical educators who have come from other countries and have in various ways contributed to the remarkable work which has been so far carried out in the Medical School. It is very pleasing to think that they have found it possible to be with us this afternoon and to share with us the joys of this moment. There is no doubt that, without their support, advice, guidance and encouragement, the Medical School would not have made so much progress in so short a time. To them, and to many others who have not been able to travel to Ghana, I say thank you. I extend to them the gratitude of the nation. It is my earnest hope that this example of fruitful international co-operation will continue for many years to come.

I will now, if I may, address myself for a few brief moments to the new graduates before us. Turn your minds with me to the enthusiasm with which we are sending you into the world and with which our Society are receiving you. Consider the faith or lack of faith that will be associated with your names; and think about the hope that very many people in this country may see in you. Our enthusiasm reaches out to you automatically. For we need doctors desperately. There is no need to persuade you to come home because you are already at home with us. And we know that you have been trained in circumstances that should let you understand the rest of us well. No, there cannot be any holding back in that respect. It is realistic, however, to note even at this time that enthusiasm is not usually matched by an equal amount of faith. We in this country have unfortunately received many things and many persons before now with unbounded enthusiasm only to find that their performance was not such as to ground any enduring faith in them. Successful practice of the profession into which you have now entered requires that the rest of us should have faith in you. But this faith will not come automatically. You have to earn and nurse it; and a good deal depends on how you help the rest of us not only to live happily but also to die in reasonable comfort.

You will by now have taken my point that you should not let your success in examinations make you oversure of success in practice. Success is always the results of something that has been done well and if you take it for granted that you are going to be successful, then almost certainly you are going to pay less than the requisite

attention to the actual doing of the job on which you will be engaged. As most of us understand it, your business as doctors will be to prevent, to diagnose and to treat the many diseases which afflict inhabitants of his country. This is not an easy task. You will be aided in his undertaking by very many persons, including not only scientists, but also other professionals like nurses and pharmacists as well as persons who are labourers and hospital attendants of various kinds. You will have to learn to work with them in a team, to understand them and to earn their understanding. Above all, you will have to be to your patients rays of hope and of light in their periods of darkness.

We cannot pretend that Ghana is either rich or developed. From newspapers published abroad some of us read of wonderful drugs and of exciting possibilities opened by the technological aids to the work of doctors in famous hospitals. If all hospitals in Ghana were like Korle Bu even, we could say then that some of these aids would be available for the benefit of many of our people. But the fact is that many of you will have to serve your country in the rural areas, in hospitals and clinics which are so under-equipped as not to deserve their very names. There are among us a good many who tend to think that doctors are hopeless and helpless in such places. And I am sorry to say that quite a few doctors encourage us in this erroneous view. It is my hope that those of you to whom we are awarding degrees now will never by your conduct and your practice lead any of our people into such a view. After all, healthy Ghanaians are fond of telling their stories; and if diseases turn these stories into tales of woe, that is the more reason why they should be told. Please listen to these stories. Listen to them patiently and carefully. You may well discover the symptoms of the diseases with which you will be confronted from the long-winded accounts of the victims. For I have it on good authority that this method, coupled with such common aids as the stethoscope, is capable of revealing quite a lot even in the absence of all the other wonders of modern technology. Sympathetic encouragement is what our sick people need; and it is from you that they will expect to receive this. Once you have stepped out from the domain of students into that of professionals you undertake, whether you like it or not—and I hope you do—to do your best in the task to which I have referred.

To be the first in every important line is often looked upon by Ghanaians, and perhaps all Africans, as a supreme achievement. And so it is, in many cases. But if all you are going to do with it is to expect everybody to defer to you, then you are grossly mistaken. It is for you throughout to prove your true worth as a man or woman in the community. You in particular will not only have

to impress your fellow workers and patients in the discharge of your normal duties as doctors, but you will have to be a source of inspiration to many generations of students that will pass through our Medical School. It has been said often enough that if there is any justification for having a university it should be evidenced in the products of the university concerned. Similarly, if the expenditure that this country has incurred and continues to incur in founding and maintaining a medical school in this university is at all justifiable, you should be the monuments that anyone may look at and look up to. You should indeed be more than monuments, because we expect you to help in creating in those around you and those who come after you other monuments to the glory of God and your country.

We in the Council of this university want to be able to feel that out of Legon, out of Korle Bu, there goes into every part of this country something powerful, something beneficial, something really wonderful, something exceedingly welcome. We have, as I indicated earlier, been assured that you are in form. What matters now is that you remain thus in form during the admittedly harassing moments of your professional lives. You will each have to feel, indeed know, that the others in this group expect you to pull your weight at all times, and that together you are making a real contribution to the improvement of our society—you will have to feel all that without losing your balance or losing your head. And, even more important, you must bear in mind that your present form cannot be retained unless having passed through discipline you continue to discipline yourselves throughout. Do not ever get into the slovenly habit of not knowing clearly what you propose to do or thinking that you are too insignificant either as an individual or in a group to make any impact in the Society. I am now talking much after the fashion, almost in the words of Ortega y Gasset, the famous Spanish thinker, teacher and statesman. He it was who in counselling the youth of his country about 40 years ago to bestir themselves and contribute their maximum to the progress of Spain ended, as I want to end today, by pointing out that it is not always that development has been gradual. Young men in form, that is, young men with disciplined minds and habits could push a country forward tremendously in a short time. His words were: "History proceeds very often by jumps. These jumps, in which tremendous distances may be covered, are called generations. A generation in form can accomplish what centuries failed to achieve without form. And there, my young friends, lies a challenge".

So now, Vice-Chairman of the Presidential Commission, Mr. Vice-Chancellor, Members of the University Council, Fellows, Students, Distinguished Guests, Nananom, Ladies and Gentlemen, I finish as I began, with congratulations to all concerned and a

very hearty welcome to each and every person who is present here this afternoon to see the celebration of our sending out these young persons, the first generation of doctors trained by us to improve the lives lived by us.

I now have pleasure in declaring open this Special Congregation.

Thank you.

VICE-CHANCELLOR'S ADDRESS AT SPECIAL CONGREGATION FOR THE FIRST GRADUATES OF THE GHANA MEDICAL SCHOOL

Vice-Chairman of the Presidential Commission, Chairman and Members of the University Council, Your Excellencies, Distinguished Guests, Nananom, Members of Congregation, Students, Ladies and Gentlemen.

Let me first add my word of welcome to all of you who have come to our special congregation this afternoon which we are holding in honour of the first medical graduates of this University. This ceremony is significant for a number of reasons. When we held our last annual congregation, Ghana was still under the dispensation of the National Liberation Council. Today we have returned to civil rule in a remarkable exercise of the popular will and I take this public opportunity to congratulate and greet members of the Presidential Commission, Ministers and other members of the civilian Government and all Members of Parliament here present with us, not forgetting representatives who have entered Parliament from this University. To all these we express our good wishes and I would like to endorse the hopes expressed by the Chairman of our Council that we will be able to continue under the new Administration the harmonious relationship and co-operation which we enjoyed with the National Liberation Council. At our annual congregation next year we shall have a more opportune occasion to pay due tribute to the work of the National Liberation Council.

The coming out of the first batch of doctors trained entirely in Ghana is an important achievement which deserves special recognition by the University and it is for this reason that the University Council decided to accord the first graduates of the Medical School this signal mark of honour. In subsequent years the gra-

duates of the Medical School will be presented together with all the other graduates of the University. Moreover, this special ceremony also marks the final process of the integration of the Medical School into the University. When all the legal formalities have been completed, the Medical School will have the status of a Faculty of the University but will enjoy the necessary financial and administrative autonomy compatible with the objectives, the overriding needs and academic standards of the University.

It has taken a very long time and effort indeed to bring to fruition the Medical School. The proposal to found a Medical School in this country was mooted as long as 1924 by Governor Frederick Gordon Guggisberg when he established Korle Bu Hospital; but there the matter rested until some years after the foundation of the University College of the Gold Coast. When interest in the project was actively revived in 1956, the Council of the University College of the Gold Coast appointed a Committee, under the Chairmanship of the Principal, Mr. David Balme, and including the Dean of Guy's Hospital, Dr. E.R. Boland, Professor T.H. Davey of the Tropical School of Medicine, Liverpool, Dr. Eustace Akwei of the Ministry of Health, Dr. C.O. Easmon and Dr. S.R.A. Dodu of Korle Bu Hospital, now Dean and Vice-Dean of the Medical School respectively, to advise on the establishment of a Medical School. Financial difficulties, however, again prevented any positive action.

1962 marked what appeared to be the final and decisive stage in the realisation of the Medical School project. The Ghana Government in October of that year invited assistance from the United States Government which agreed to help establish a Medical School that would form part of the University of Ghana and operate on an earmarked grant. Under this agreement, the School was to take the degrees of this University and was to be sponsored by the Group of Medical Colleges of Philadelphia. And the United States Agency for International Development agreed to finance the construction of the Medical School with a loan of \$4½ million, repayable over 40 years at an interest of 4% with a moratorium of ten years. The first 51 students were accordingly enrolled in October 1962, 34 of whom have now graduated, and a Dean, Dr. Richard Cross, an eminent educator from the College of Physicians of Philadelphia was appointed. All seemed set fair for the establishment of the Medical School when for reasons which were outside the control of the University and were mainly political and unacademic, the Ghana Government decided in 1963 that "in view of the difficulties about the financing and staffing of the Medical School and the Medical Centre, the present arrangements for a loan from the American Government and the organisation of the Medical Schools

with the assistance of the United States Agency for International Development should be terminated"

The traumatic difficulties and the problems that followed this abrupt cancellation of plans and the challenges involved in starting all over again with not much staff and two generations of students on our hands and relying mainly on our own meagre resources of money and men are too well known to all those who have followed the very difficult birth pangs and early years of the Medical School. Politics and personalities played an unenviable role in the chequered fortunes of the Medical School and eventually the then Government decided that the Medical School should be established independently of the University of Ghana and award its own medical degrees and diplomas. Thus for a brief period of some ten months (from March to December 1964), the Ghana Medical School enjoyed a completely separate and independent existence. It was however obvious to any detached medical educator that such a complete divorce of the Medical School from the University was neither in the best interests of medicine nor of higher education in the country. Eventually it was decided to bring the Medical School into some "special relationship" with the University of Ghana. Since then, the authorities of the Medical School and the University have held discussions and consultations and I am happy to announce that there is now complete agreement on the integration of the Medical School into the University. The successful graduation of these 34 medical graduates, when one recalls all the vicissitudes and pioneering uncertainties through which both staff and students of the School have passed, is indeed almost a tour de force and deserves commendation and special notice.

The total number of students enrolled at the School at the beginning of the current academic year is 234, with 33 students including 3 women in the 5th year who are also due to graduate next year. The School is at present able to admit a maximum of 60 students every year, although the laboratories can comfortably accommodate only 40 students at the same time. This output of doctors, encouraging as it is, is however, woefully inadequate for the health needs of this country. The population of Ghana is estimated at 7.5 million with an increasing rate of 2.5 per cent per annum. Of this population 45 per cent is below the age of 15, about 20 per cent is below the age of 5; and 70 per cent live in the rural areas from which the country derives the bulk of its economic strength.

Although our statistics are inadequate, we do know that the crude birth rate is about 47 per 1,000 inhabitants and the crude death rate is about 22 per 1,000. Maternal mortality is 17 per 1,000

live births and infant mortality is 40-50 per 1,000. These averages conceal very wide variations and the infant mortality, for example is known to vary from about 38 in Accra to 167 in some of the more remote rural areas. Communicable and preventable diseases of all types account for 30 per cent of the total deaths and for 75 per cent or more of all deaths in children, including diseases like tuberculosis, measles, small-pox, gastroenteritis and bronchopulmonary infections in children, and of course the scourge of malaria. One in three deaths in Ghana within the past nine years was due to some preventable or treatable condition.

This picture is typical of all the developing countries. Indeed Ghana is one of the better-off countries in Africa as far as health needs and medical manpower and facilities are concerned. At the end of May 1966, for example, there were 570 doctors in Ghana of whom 223 were Ghanaians and by December last year there were 539 on the medical register. Of these only 265 were Ghanaians, that is to say, less than 50%. And here one may mention the fact that there are today over 160 Ghanaians who have qualified as doctors but have so far failed to return to Ghana from abroad. The average of doctors per population in Africa as a whole is 1 per 20,000 according to a recent World Health Organisation report and Ghana's average of 1 per 14,000 thus compares favourably. But we have, of course, no room whatsoever for complacency.

There are other important and urgent problems which although not strictly medical, nevertheless have profound repercussions on the promotion of health. These are education, food and agriculture, water and sewerage, industrialization and communications. Our major health needs involve the provision of adequate health personnel and training institutions, the control and eradication of communicable and preventable diseases and the improvement in nutrition, maternal and child health services and environmental sanitation and the co-ordination and integrated development in education, water and sewerage, housing and transportation. All these problems are the proper concern of a medical school.

It is fashionable in some quarters to downgrade medical training in the order of national priorities for developing countries on the ground that the provision of medical services is not directly relevant to a rise in the gross national product, and that a fraction of the money spent on a medical school might be better devoted to other more 'economic' development. I am happy to say that our Government does not share this view and that it is aware of the direct relationship between a sound and healthy population and high economic productivity. Government has accordingly agreed

to make medical attention and, with it, the Medical School, as one of the highest priorities in its development programme.

The aim which our Medical School has set itself is to train doctors who, on the one hand, measure up to international standards of expertise and competence, but on the other hand have received an education that is directly related to the health needs and the socio-economic circumstances of this country. Our Medical School, therefore, aims primarily at producing multi-purpose doctors rather than narrow specialists; but the training is designed to be broad and fundamental enough to permit later specialisation. And in view of the statistics which I have given of the preponderance of children and young people in the population of this country, the curriculum of our Medical School has accordingly placed emphasis upon preventive and social medicine, maternal and child health and surgical and obstetric emergencies. And it is with these aims in view that, subject to continual review of the curriculum, the training of our doctors is being organised to allow in future for the acquisition of experience and skills essential to young doctors who will have to face medical surgical and obstetric emergencies almost single-handed in the rural areas. Thus it insisted upon that the student during his under-graduate period of training in our Medical School should be exposed to the general conditions under which he will work as a doctor by carrying out part of his clinical training in a district hospital, urban and rural health centres and village dispensaries. The students of the Medical School are being trained for their role as integrators of medical and social services in the community who will co-ordinate and direct health teams of such paramedical personnel as public health nurses, sanitarians, community health nurses, midwives, etc., in the rural areas, especially at the level of the health centre.

In sum, the tasks confronting the Medical School are not only to provide the students with the basic undergraduate education and training and to produce other health workers where required, but also to give postgraduate training to doctors when they have qualified and undertake research in the basic sciences, the clinical sciences and in community and public health practice. It is one of the main tasks of the Medical School to participate actively in public health services and to promote the general improvement of the social environment. I may here mention the very promising work in social and preventive medicine which the School has begun at the village of Damfa in our neighbourhood and in which it is collaborating with the Medical School of the University of California at Los Angeles.

To achieve all these purposes it is urgent that the Medical School should have at the earliest possible opportunity a proper

Medical Centre which will provide adequate accommodation and facilities, laboratories, classrooms, libraries, etc., for teaching and research in the pre-clinical, clinical and paraclinical sciences especially in Anatomy, Biochemistry, Physiology, Pathology, Chemical Pathology and Pharmacology. With the exception of the pre-medical and some of the Biochemistry work, all the teaching in the School is at present carried out at Korle Bu where there is inadequate room for expansion.

Indeed, facilities at Korle Bu are woefully insufficient for both the short and the long-term needs of the School. The main problem is to obtain the necessary finance which will enable the components of the Medical Centre to be realised within the immediate future. When completed, the planned Medical Centre will comprise a Basic Science building, a Teaching Hospital with about 600 beds, a Dental School, a Nurses' Training School and other paramedical institutions. Of these, the highest priority is to be given to the Basic Science building and Teaching Hospital on the permanent site at Legon. For it is after these two components have been built that the School can enjoy the requisite pre-clinical and clinical facilities which will enable the teaching and technical staff effectively to undertake the essential teaching and research. Given all these difficulties, I would like to commend, particularly, the small band of dedicated doctors and medical educators who have made the most of their very limited resources and have been able to attain the highest international standards and results as is attested by the External Examiners who have helped to examine these graduates. We are confident that given these limitations which preclude further expansion of the School at Korle Bu, Government will not only continue to support the approaches which we are now making to friendly Governments for technical assistance in finance and personnel for the Medical School, but that Government will itself make a substantial contribution towards the construction of the Basic Science building and the Teaching Hospital at Legon.

As I have already observed, External Examiners have been employed for all the professional examinations which the School has conducted in accordance with the practice of the University. These are specialists in their own fields and their participation in these examinations has ensured that from the very beginning the standards attained by the students of the School are comparable to standards in other Medical Schools of the highest repute. And it is expected that as soon as possible the degrees awarded by the University to our doctors will be recognised by the General Medical Council of the United Kingdom and that such recognition will then ensure arrangements for the School's medical graduates to undertake postgraduate training and enjoy other facilities in the United Kingdom like other doctors trained in most Commonwealth countries.

In these days of revolutionary scientific and technological advances, both in medicine and other branches of human knowledge, it is often easy to forget the central object of all this, which is man, and to concentrate on the specialisms and technical expertise per se. Whatever medicine may be, above all else, it is a humane profession that is primarily concerned with the human being. Although the very nature and essence of medical education has been radically transformed since the 19th Century, nevertheless it is still a fact that the basic philosophy of medicine which Hippocrates of Cos, the founder of scientific medicine, bequeathed to mankind some two thousand years ago still remains today a true, shining light to all who would practice this art. His approach as you will recall, was that the patient should be treated in the context of his environment and natural surroundings. "Every disease", he wrote, "has its own nature and arises from external causes"

Naturally, the passage of time has rendered much of the Hippocratic Corpus obsolete, but the central philosophy and approach to medicine is still as modern today as it was in 460 B.C. "Life", as he states in his first, Aphorism "is short and the Art long; opportunity fleeting; experiment dangerous, and judgement difficult" Perhaps today one might question the difficulty of medical experiment, granted that Hippocrates in his day had neither the aid of a thermometer nor the stethoscope and relied principally on his powers of observation and logical reasoning. Yet Life still remains short and certainly the Medical Art on which you have embarked is long; opportunities for doctors are still fleeting and judgement remains difficult. Permit me in this regard to remind you of Hippocrates's greatest gift to mankind, the great ethical code or charter of behaviour by which all doctors customarily swear to order their lives and practice. I shall with your indulgence remind you of the actual words of this oath;

"I will look upon him who shall have taught me this art even as one of my parents. I will share my substance with him, and I will supply his necessities, if he be in need. I will regard his offspring even as my own brethren, and I will teach them this Art, if they would learn it, without fee or covenant. I will impart this Art by precept, by lecture and by every mode of teaching, not only to my own sons but to the sons of him who has taught me, and to disciples bound by covenant and oath, according to the Law of Medicine."

"The regimen I adopt shall be for the benefit of my patients according to my ability and judgment, and not for their hurt or for any wrong. I will give no deadly drug to any, though it be asked of me, nor will I counsel such, and specially I will not aid a woman

to procure abortion. Whatsoever house I enter, there will I go for the benefit of the sick, refraining from all wrongdoing or corruption, and especially from any act of seduction, of male or female, of bond or free. Whatsoever things I see or hear concerning the life of men in my attendance on the sick or even apart therefrom, which ought not to be noised abroad, I will keep silence thereon, counting such things to be as sacred secrets"

Today, alas, one cannot hope to provide medical education without fee to the sons and daughters of doctors! It is a very costly business as we all know. But from this point of view and in the context of our present socio-economic resources, and of what it has cost in money and effort to educate you, I am sure you will agree that you all owe it on your part to make a fair return in dedicated service to the country and to bear always in mind the needs of the men and women in the towns and villages who have made your training possible. Your medicine should be used for the benefit of the people of this country according to your ability and judgment. Mere technical expertise is not enough in a doctor and you must of course refrain from all wrongdoing or corruption in the performance of your duties according to the terms of your oath. And you must place your skill at the service not only of the people in the urban centres like Accra, Kumasi, or Takoradi, but also in the remote village areas where 70% of the people live and from which the country derives most of its resources. The Hippocratic oath or ethical code of which I have reminded you thus places before you an ideal which, in its many forms, has guided the practice of medicine throughout the world for more than two thousand years. This is the profession you have joined. Your degrees and high attainments will be meaningful only if their quality is accepted and ratified by the men and women who call upon your services in the towns and villages of Ghana and elsewhere. They will be your final External Examiners.

In your practice of medicine and in your conduct may you live up to this ideal and bring health to the sick and comfort to the distressed. May you, in the words of another ancient Greek physician, Asclepiades of Bithynia, treat our diseases "safely, speedily and agreeably"

Once more, I congratulate you and your teachers on this achievement and appeal to all concerned to support the work of this School and enable us to build upon the good foundations that have been laid, a worthy and strong edifice.

**ADDRESS OF WELCOME BY THE ACTING CHAIRMAN
OF THE UNIVERSITY COUNCIL ON THE OCCASION OF
THE CONGREGATION OF THE UNIVERSITY OF GHANA
HELD ON SATURDAY, MARCH 14, 1970**

CHAIRMAN AND MEMBERS OF THE PRESIDENTIAL COMMISSION, THE RIGHT HONOURABLE PRIME MINISTER, MR. VICE-CHANCELLOR, MEMBERS OF THE UNIVERSITY COUNCIL, MINISTERS, FELLOWS AND STUDENTS, YOUR EXCELLENCIES, NANANOM, LADIES AND GENTLEMEN,

It is my rare privilege to be able to welcome you all to this University on the occasion of its twenty-first anniversary on behalf of the Chairman of the University Council who is now unfortunately out of the country on health grounds. His absence on this occasion will very much be felt; for the eloquence, courtesies and the graces with which he would have presided over this Congregation are well beyond my capabilities. On behalf of the whole University, I wish him a speedy recovery from his illness and an early return to the service of the nation.

I should also like on this occasion to extend a special word of welcome to the Honorary Graduands who have been able to accept the invitation of the University of Ghana and are now here to be admitted to its Honorary Degrees. Each one of you, Sir, has distinguished himself in the service of this University and this country and I am glad that you have given the University the opportunity of bestowing honour which is so richly deserved. I would especially like to welcome Professor Balme back to Ghana and to Legon.

Professor Balme, as you all know, was the first Principal of this Institution before it became a fully fledged University. The success of the pioneering work in putting this Institution on its proper foundations was due largely to his vision, integrity, devotion to duty and above all his strong passion for academic freedom. As we enter our new Constitution, we are happy for the opportunity of bestowing a well deserved honour on him.

The rule of the National Liberation Council has come to an end and we have entered into another era of civil rule. We are all beneficiaries of the sacrifices of these gallant men who rescued the country from the clutches of tyranny and greed. Tributes have been paid to them by various sections of our community and individual Ghanaians have expressed their gratitude and appreciation through their contribution towards the erection of a fitting memorial to the leader of the Revolution, the late General Kotoka. It is now the turn of our highest academic institution in the country to

pay its tribute to the regime and work of the National Liberation Council.

Some people may say that we are too close to events to pass a detached and correct judgement on this period of our history; others may maintain that we do not have enough facts on this period to make a fair assessment. While it may be conceded that human limitations and imperfections make it impossible for us to foresee at a glance all the consequences of any particular event, yet this should not prevent us from recognising the significance of an event when it does occur. On the contrary, the full impact of any event is best felt by those among whom it takes place and they are the best qualified to pass judgement on it.

All of us here were victims of the most brutal tyranny and wanton greed that this country has ever witnessed. Apart from corruption and economic mismanagement, the ordinary human freedoms which make life a little more tolerable even in the midst of poverty were lost to us. Academic freedom, that indispensable tool for the promotion of intellectual pursuits was denied to this institution. We have only to cast our minds back on the indiscriminate deportation of University professors and lecturers and the throwing into jail of innocent students whose only crime was that they dared express their minds freely. Then came our gallant men who put an end to all this tyranny and endeavoured courageously and with good faith to restore values to our society so that we may, like all free men, continue to live in freedom and justice in this country. The National Liberation Council has given us a Constitution on which the nation can look with faith and upon which we may build the foundations of the Second Republic in the spirit of true democracy. The Council has, as it were, given us all a second chance to rebuild this nation of Ghana, on the basis of honesty, integrity and in the brotherhood of human fellowship and understanding—the very pillars of stability and progress in any society.

In the face of these circumstances, the people best placed to appreciate the full significance of the 24th February Revolution are ourselves—we who suffered the tyranny of the old regime. As time passes, people's wounded feelings are apt to wane and the full significance of the Revolution may be lost to posterity especially if our posterity should be spared the horrifying experience of tyranny, and should enjoy the fruits of our new democratic Constitution. Moreover, if we fail to defend and preserve the heritage bequeathed to us by the National Liberation Council, the responsibility will be ours and not the Council's. Therefore as far as the regime and work of the Council are concerned, posterity would hardly disagree with our verdict and the fitting tribute which we are paying to the leaders of the National Liberation Council this afternoon.

Lastly, the honorary graduand, Dr. Abrefa Busia. A scholar, teacher and Professor of the highest standing in the academic world, he has more than earned this token honour we are about to confer on him in his own right as an academician; but it is probably fitting to remind ourselves that as a foundation member of the Academic Staff of this University, he was substantially responsible for the establishment of the Department of Sociology and eventually became the first Ghanaian Professor of this University of Legon in 1954. His tenacious and sustained struggle against the forces of oppression in this country, both from within and without Ghana, and the faith and hope he cherished that right will finally triumph over wrong have earned him the respect and approbation of all civilized men, and rewarded him with the high office of the first Prime Minister of the second Republic of Ghana.

I should also like to take this opportunity on behalf of the University to welcome the Government of the Progress Party into office. The lessons from the Nkrumah regime are there for all of us to learn from and to profit by and I sincerely hope that this forward-looking Government will not fail us in our desire to live a decent life and in our efforts to rebuild a national and patriotic consciousness. You, Mr. Prime Minister, have come into office at a difficult period of our history when the needs and the ambitions of the nation far exceed its present abilities and resources. You have come into power with a clear mandate from the people of Ghana at a time when we are just beginning to respect and understand each other. It is therefore our earnest hope that you will display a marked sense of tolerance in the conduct of things and that we shall all try to learn how to live with constructive criticism, however inconvenient, during this second attempt at nation building. This is how we in this University would wish you to perceive your role as the leader of a national government at this critical point in our history and we very much hope that the welfare of the people and the progress of the nation will make substantial advances during the tenure of your office. Above all, we believe that under your regime, we shall all continue to live in true freedom and justice.

The Vice-Chancellor will soon report on the progress that has been made during the past academic year and the problems of growth now facing the University. Since the latter part of the sixties, the attention and energies of the University Council have in the main been focused on how best to restore good health to the finances of the University. In these tasks, I am happy to say that there has been some measure of success. The Government has taken over completely the accumulated deficits of the University which stood at NC3.3 million as at 31st May, 1969. But the main problem of the inadequate level of our subvention has remained and

in order to get out of this difficulty permanently, the Government is right now making a serious effort to determine what should be a reasonable and a fair level of subvention for this year. Side by side, the University has also made genuine efforts to effect structural changes in the pattern of its traditional financial management which on the whole should make for better utilisation of available resources. As part of these efforts, an Appeal for Funds will be launched in the course of this year to provide an endowment fund through which the University will hope to finance the inevitable shortfalls arising from its operating budgets. The major part of funds that will be realised through the appeal will be devoted to the provision of academic facilities which will enable the University first to consolidate its work and then to move into the next two decades with imagination and confidence. I trust that both the people of Ghana and our friends abroad will respond generously to the Appeal when it is launched.

At this juncture, Mr. Vice-Chancellor, I feel justified to inform Congregation that long before the Auditor-General reported on the state of the accounts of the University for 1963-64, the new members of the University Council who took office soon after the overthrow of the Nkrumah regime felt strongly that it needed more information to understand the scope of the financial and other problems which faced the University. It therefore set up a Committee of the Finance Committee to look into these matters. This Committee was followed by a Committee of the University Council on which other persons outside the University were invited to serve. The University Council finally appealed to the Government to set up a Commission of Enquiry which has now reported. At no point did the University Council attempt to condone any acts of omission and at no point did it desire to shelter any official or group of persons for their contribution to the problems that led to the unhappy state of affairs. The University Council felt at that time it needed more facts, more time and more understanding in order to reconstruct the affairs of the University in any meaningful way. It still feels convinced more than ever before that it took the right course of action in the interest of the nation.

In September 1967, the Government at the request of the University Council set up a Commission of Enquiry into the Financial Administration of the University. The Commissioners reported on their work in December 1969 and the University Council has had the opportunity of discussing the report and the recommendations contained therein. I am happy to report to Congregation that the University Council has accepted in full both the findings and the recommendations of the Commissioners and it will shortly transmit its views on the Report to the Government to whom advance copies of the Report have already been issued. There have been errors of omission and of judgement in our past

performance and we fully accept the recommendations of the Commission as a basis for seeking improvements in our procedures and conduct. The Commission in one of its most significant findings concludes with emphasis that what is wrong does not consist in a defect in the general administration of the University but in its comparatively precarious financial position which calls for immediate remedy (paragraph 24). We are grateful for these findings and as I have already reported, both the University and the Government are in serious discussions as to how best to restore good health and stability to our financial position, which has remained in a poor shape for some time now.

I should also like to take this opportunity to thank the Commissioners for the hard and difficult work which they had discharged with probity, maturity of judgement and wisdom. They have done a thorough and scrupulous job; they have provided us with the basis for streamlining and improving upon our procedures, and have thus placed themselves in the debt of the University and indeed the whole nation.

Another area of difficulty of the immediate past has been with "student power" or what is constructively called 'student participation'. This is now a world-wide phenomenon and a problem with many institutions; and it is refreshing that we have had our share of such experiences. Since the unhappy events of October 1968, both the students and the University authorities have settled down to a period of fruitful discussion on their relative roles. Much has happened that has personally cheered me. We have all learnt how best to resolve points of differences and disagreement within the frame work of our constitution. We have talked together and cleared the air of any possible misunderstanding. Student participation in shaping some of the policies of the University has been recognised and progressively strengthened on some of our Committees. But I would like to counsel that some of the valuable enthusiasm of our youth could also be creditably channelled into useful service of the community, always mindful of the noble ideal that what matters is the quality of service they can give to other people and not what they can get for themselves.

The University of Ghana is twenty-one years old this year. This is a relatively brief period in the life of a university and this anniversary should normally have passed unnoticed. But I think it is fitting to stress the importance of this occasion: the University of Ghana has passed through some very testing times indeed and may only be said to have come of age. We shall also take this occasion to renew our efforts to serve the nation more fully and with greater quality; and it is also a time when we rededicate ourselves to the traditions and standards of the world community of scholars. Guided by these aims, let us go forward into the

nineteen seventies with renewed confidence in the future progress of our University and of our country. I would like to thank the various sections of our community—students and staff, past and present—all who have toiled hard and contributed to the present heritage we now enjoy.

On this occasion our thoughts are with the new graduates who have just successfully passed through the corridors of this University. To this, I shall address myself for a brief moment. You have come out at a very crucial period of our history. The early sixties have their own lessons for us in Ghana and one of these is the vanity of men entrusted with power. The late sixties have been a period of difficulties when we have endeavoured to repair the fabric of our national life so badly shaken by our experiences of the early sixties. Now, you stand at the cross-roads of these experiences and of our times. The unique return to civilian rule has given us a wonderful opportunity of a rebirth and an awakening of national consciousness. It should be your duty to strive together with the nation to consolidate these gains and to add to them in true humility, honesty of purpose and integrity. This should always be your aim wherever service may take you. Of course, Ghana will not be made a better place by these aspirations alone or by a bright vision of the future by itself, but by a combination of all these qualities strengthened by persistent thought, experiment and unremitting effort.

And now Chairman and Members of the Presidential Commission, the Right Honourable Prime Minister, Mr. Vice-Chancellor, Members of the University Council, Ministers, Fellows and Students, Your Excellencies, Nananom, Ladies and Gentlemen, I have the greatest pleasure in declaring this Congregation open.

*VICE-CHANCELLOR'S ADDRESS TO CONGREGATION
14TH MARCH, 1970*

CHAIRMAN AND MEMBERS OF THE PRESIDENTIAL COMMISSION, THE RIGHT HONOURABLE PRIME MINISTER, MR. ACTING CHAIRMAN AND MEMBERS OF THE UNIVERSITY COUNCIL, HONOURABLE MINISTERS, DISTINGUISHED GUESTS, YOUR EXCELLENCIES, NANANOM, MEMBERS OF CONGREGATION, STUDENTS, LADIES AND GENTLEMEN

I extend a cordial welcome to all of you on behalf of members of the University and on my own behalf. We held a special Congregation last October as a special mark of honour for the first

doctors to graduate from our Medical School. On that occasion we had the pleasure of your company, Mr. Deputy Chairman of the Presidential Commission. You, Sir, Chairman of the Presidential Commission and you, Mr. Prime Minister, were not then able to be with us and we are therefore happy to welcome both of you this afternoon. I can only add my regrets that the Chairman of our Council is not with us this afternoon to receive you. Legon is twenty-one years old this year, and it is only fitting and appropriate that, as we come of age, we should have Professor David Balme, the first Principal of this institution, here with us on this occasion. It is my privilege to wish you and Mrs. Balme a very happy welcome and to thank you for accepting our invitation.

As Universities go, Legon is, of course, a very young institution and Universities normally celebrate their coming of age on their twenty-fifth anniversaries. But our twenty-first year is worth celebrating, for Legon has been through some very testing times indeed; and this Congregation takes on added significance because it is our first Annual Congregation to be held since Ghana returned to civilian rule. And it is to mark this double occasion that our Council and Academic Board have decided to bestow honorary degrees on our four distinguished graduands whom it is our privilege to have with us this afternoon.

It is easy for soldiers and policemen to overthrow oppressive governments, but it is not very easy for them to hand over power voluntarily, as did the National Liberation Council, to a freely elected civilian government. This exercise of self-abnegation is certainly unique in the political history of Africa, if not elsewhere, and the people of Ghana will do well to ponder over its meaning and its lessons. The Muse of history is an exacting goddess and instant history is always a greasy pole to climb. Yet we who have lived through these last two decades in Ghana may be permitted to hazard this verdict on the rule of the N.L.C. Whatever their sins of both commission and omission, they have rendered one signal service to this country for which we should all forever stand in their debt: they have given us back freedoms that appeared to be irretrievably lost, enshrined in a constitution that is founded upon the rule of law. This much must be said on this occasion, since human memories tend to be so short.

Mr. Prime Minister, we congratulate you and the Members of your Government. You of all people need no reminder from us that universities can only thrive and function effectively if these fundamental freedoms are scrupulously preserved. The difficulties that face the Second Republic of Ghana are enormous, especially the economic and social problems, and pose a great challenge to all Ghanaians, not least to members of this University. As we try to

meet this challenge and endeavour to rebuild on the present ruins a new and prosperous Ghana and go forward into the 1970s, the Universities will continue to play a more vital role in this task of national reconstruction through their teaching and research and their service to their country and to the world of learning at large. We are confident that we shall continue to enjoy the requisite academic freedom and that the country on its part will enjoy from us the necessary exercise of responsibility and dedication to excellence and quality.

The Acting Chairman, in his eloquent address, has already high-lighted some of the important developments of the year and I need not tread the same ground again, except that I would like to emphasize that the problem of finance, on which the Commission of Enquiry has reported, has continued to receive the most urgent attention of the University. The University, in common with its other institutions, faces very grave and difficult questions of finance which we are now urgently examining with Government. But it must be emphasized on this occasion that if the University is to move forward in the coming decade and fulfil its fullest potential, it is essential that it should receive the necessary funds for this purpose.

The academic buildings that we see on this campus were built for a student population of a thousand. Now we have more than exhausted this capital investment and the main academic departments, with the exception of a few, are now all hopelessly overcrowded and urgently require new buildings. Since 1962 the only permanent academic buildings constructed on this campus have been those of the School of Administration and the Biochemistry, Nutrition and Food Science buildings. This year, the only buildings going up are the Mathematics Department building and a set of flats for visiting professors. We have had to resort to a lot of improvisation and makeshift arrangements and have built many temporary and utility buildings. But in this second phase of the growth of the University, the cost effectiveness of this temporary expediency is almost near zero and we are making an urgent appeal to Government to consider these needs and come to the assistance of the University. We know of the difficult financial problems that face the country but we make this appeal from a deep sense of our responsibilities which we can only fully discharge if we have the necessary plant to do the job. As the Acting Chairman has announced, we propose to launch an appeal for funds towards the end of this year in order to finance some of the important development projects which it's essential for us to embark on. Government alone cannot meet all our needs and we do hope that when the time comes all sections of the Ghanaian community and our many friends abroad will respond to this call.

I do not propose to give you a detailed catalogue of developments within the various departments. I shall cause these to be published in a comprehensive report within the next two months. On this occasion I propose to highlight a few of the salient developments and some of our problems.

The year that has gone by has been one of general stabilisation and review, but there has also been some modest growth in all directions. We have achieved tremendous growth in student numbers during the past decade and it appears that until our financial position improves we shall not be able to do much more. The total number of students enrolled in the University has increased from 2,445 to 2,501. The actual number of resident places in the University is 2,400 and therefore the growth has been in the non-resident element most of whom are postgraduate students. One subtle and gratifying revolution that has taken place in our student numbers is in the numbers of women students. Over the last ten years there has been an increase of 300 per cent in the intake of women which now stands at 346. Indeed, in the immediate future one of our problems is going to be to find more accommodation for the large numbers of women entrants and clearly we shall have to consider building a new hall of residence for women.

The number of foreign students within the University has remained at 176 and there was a noticeable drop in the numbers from African countries on account of the Nigerian Civil War. At the same time, however, numbers from outside Africa have gone up and there are now 66 Americans, 26 British and the rest from Canada, Norway, Poland and Czechoslovakia.

This year 542 students have successfully taken degrees and 155 have obtained diplomas and certificates, making a total output of 697. During the last twenty-one years Legon has turned out a total output of 3,425 graduates and 1,115 holders of certificates and diplomas. Of those who have obtained their degrees from this University 667 were science graduates, including medicine, and 2,792 were in the non-science subjects, including 225 LL.Bs. and 54 at the Master's level.

We are making some progress in training personnel for some of the vital areas of the country's needs. In 1968-69 about 36 per cent of the students reading for degrees in this University were enrolled in science courses including medicine and agriculture. This year the percentage has risen to 40 and thus the imbalance between the science and the non-science courses is being gradually redressed. An encouraging feature of this growth in particular is the increase in the number of students now enrolled in the Faculty of Agriculture. In 1964-65 there were only 25 students enrolled in that Faculty. This has now increased this year to 180.

The teaching and senior administrative staff now number 308 of whom 196, that is to say, 62 per cent are Ghanaians. Of the teaching staff 57 per cent are Ghanaians: and Ghanaians in overall senior staff positions now form 70 per cent. The process of Africanisation is continuing apace and we have been making steady progress, thanks to our postgraduate training scheme under which at the moment 70 students are undertaking higher degrees in overseas universities. On the whole, I must admit, however, that our postgraduate schools here in Legon have not grown as well as we would have wished, for it is essential to the health of this institution that, as quickly as possible, we should expand these postgraduate training facilities in all the faculties and give at least the initial advanced training to our students in Legon. We aim at having about 10 per cent of our student population in our own postgraduate schools. At the moment we have only about 5 per cent. The reason for this is lack of adequate facilities. We hope that as our facilities improve, we shall be able to retain more and more of them for further work here.

In this connection, we are convinced that the University has now reached the stage in its growth where it should considerably expand its postgraduate facilities and move from being a predominantly undergraduate institution to one which has a large postgraduate dimension. As we move forward into the 1970's, it is clear that the problem of the output of the University, the nature of the training that the students receive here, the character and scope of our teaching, and the quality of the research that we do in relation to the manpower needs of the country and its relevance to the national problems, as well as the intrinsic academic demands of the University itself, will be the focus of our attentions. This should be the main thrust of our policy for the seventies.

We have been very much exercised by the general question of research in this University and, in this connection, I have recently established a research committee whose terms of reference are:

- (a) to determine general policy on research and co-ordinate research in the University as a whole and to agree on priorities;
- (b) to consider the general research needs of the various Faculties and to advise the University's Finance Committee on the allocation and disbursement of funds for research and to receive at periodic intervals reports on the expenditure of such funds and on the progress made in the prosecution of research projects.

Such a committee will enable the University to gain a clear picture of its research programmes as a whole and will also allow scarce resources to be effectively and equitably deployed. For

experience in Universities all over the world has shown that if the teaching is to be vital, it must go hand-in-hand with research: otherwise the teachers lose interest and fail to convey to the students an appreciation of our constantly changing picture of the world, of man and of his activities. In a country such as ours with its myriad problems of development, this is especially important, for there are no ready-made solutions to these questions. Our students must be brought to understand that they have the responsibility, once they leave the University, of contributing to the resolution of these problems and so the task of education becomes one of opening the students' minds to the possibility of formulating new ideas, new policies: that is, of being creative in the service of their country. If the education given by the University is to awaken this creative potential of the students, it is essential that the staff should themselves be closely concerned with some of our national problems and this implies that much of the research being carried out in the University should relate directly to these issues.

An examination of the results of research which has been undertaken in the University over the years shows clearly that where there is a nucleus of full-time research workers, there valuable results can be achieved. This is to be seen, for example, in the very considerable body of information collected by the Volta Basin Research Project which, during the six years of its existence, has published more than 60 papers, as well as numerous more ephemeral technical reports. As a result of this work it has proved possible for the first time to describe the changes which occur in a tropical man-made lake and this knowledge is proving of value in determining management policy for new, artificial lakes in other parts of Africa. This can be paralleled in other Departments of the University such as the Institute of African Studies and the Department of History and many of the Departments in the Social Sciences. But it must be admitted that the work being undertaken within the individual Departments needs reconsideration. Certainly, research is going ahead but its total impact is small because much of it is fragmented and lacks the necessary concentrated effort. Where members of staff have interests related to those of the full-time research units, much of value can be achieved partly from the fact that there is a core of people with a common problem and the promise of obtaining a satisfyingly adequate picture of the whole field being studied, and partly from the optimum deployment of resources. An important lesson to be learned from this is that if research is to develop within the University, we must make it possible for people to join forces in working upon some common theme, upon some topic which is inter-disciplinary and which at the same time has relevance to the major problems of the country today. The Research Committee I have appointed is now studying these problems.

I am happy to report, however, some major developments in this general field of research. First is the inauguration this year of the enlarged Institute of Statistical, Social and Economic Research, which is perhaps one of the most important developments of the academic year; and I am happy to say that people drawn from the Ministries of Finance and Economic Planning and Agriculture, the Central Bureau of Statistics, the Central Bank and private industry have agreed to constitute an Advisory Council to formulate policies for research projects of this Institute, thereby ensuring that they are of relevance to the practical needs of this country. We are grateful to the Ford Foundation which has given a generous grant of \$ 175,000 in support of its work.

The Carnegie Corporation of New York has also given a generous grant of \$200,000 to support a Language Research Centre in Legon to undertake research into the total language situation of Ghana. The need for such a Language Centre in Legon has been brought about by two main factors. In the first place, we have noticed with some concern that a number of our students are unable to use the English Language as well as their own mother-tongue with the expected degree of proficiency—a lack evident both in academic and extra-curricula situations. Discussions soon revealed that the best solution of the problem must include an attempt to improve the student's performance before he arrives in the University—at the primary and secondary school levels. What is needed, therefore, is a complete reappraisal of the total language situation in the country's educational system.

In the second place, research in linguistics, especially in the fields of Ghanaian languages in the University, has got to the stage where material that has become available can now be disseminated to other educational levels. The Language Research Centre is thus being established to enable the Arts Faculty which consists mainly of Departments dealing with languages, to attempt a solution of one of the University's own problems as well as meet other important educational needs in other sectors of the educational system. So, essentially, the Centre is both for research and practical applications. We are most grateful to the Carnegie Corporation for this generous grant and also to the Ministry of Education which has agreed to second staff to participate in this important work.

Another major development this year has been the initiation of co-operation between the Department of Economics of the University of Ghana and its counterpart in the University of Western Ontario, Canada. An agreement on co-operation between the two Departments for a period of five years initially was concluded in 1969 and endorsed by the Governments of Ghana and Canada. Under this 'twinning' agreement, economic research workshops have been established in both Universities to work on

co-ordinated research programmes related to the economic problems of Ghana and West Africa. A team of three faculty members from the University of Western Ontario have joined the staff of the Department of Economics in Legon to take part both in the research and teaching work in the Department. The research programme of the Workshop in Legon embraces several projects which we expect when completed to provide relevant policy guidance on some of the important issues of the economic development of Ghana, as well as add to the stock of knowledge about the working of the country's economy. Negotiations have reached an advanced stage for a similar twinning agreement with the University of Guelph in Canada in the field of agriculture.

Supported by a generous grant from the Cadbury Endowment Fund which now stands at £140,000, research work on cocoa is being undertaken in the University on ecological studies upon the whole complex of insects associated with cocoa trees and more especially with ants. Ants are both friends and enemies of cocoa farmers. Some species aid the farmer by killing capsids; others are undesirable as they protect the mealybugs which spread the virus of swollen shoot. The problem is how to encourage the farmers' friends and how to discourage his enemies. Various suggestions about ways in which this might be done have been put forward by the entomologists in the University and it is hoped that more extensive studies aimed at assessing the practicality of these ideas will be started fairly soon.

Another important field for cocoa research is the economics of cocoa production and marketing and we have established a Cocoa Co-ordinating Research Committee, under the chairmanship of Professor K. Twum-Barima, on which the major cocoa agencies such as the Cocoa Research Institute, the Cocoa Marketing Board and the Cocoa Division of the Ministry of Agriculture are represented, to work together with members of the appropriate University Departments and formulate proposals for the most effective research on cocoa.

In these ways the University is contributing the research results and the expertise of our Faculty members to the solution of broad problems facing the country. We do this in many ways: through holding or participating in conferences, short courses, schools and public functions. The Faculty of Agriculture is organising to extend its research findings to farmers in a useful and understandable form. And in co-operation with the Ministry of Agriculture and its Extension staff, our Faculty of Agriculture is carrying out field work so that our research can be applied to agricultural problems and in turn made more responsive to the needs of our farmers.

To demonstrate the practical application of research results from our livestock research station at Nungua and prove the

profitability of commercial livestock production, a successful commercial farm has been set up by the University at Katamanso with the help of a loan granted by the Agricultural Development Bank and it is our hope that through such practical demonstration and example the University can make a positive contribution to the development of agriculture in this country.

We are grateful to the various companies which, through various prizes are encouraging the work of our Faculty of Agriculture. The Pioneer Tobacco Company and Shell Company offer prizes to final year students in Agriculture and for the first time a Mobil award of NC600 has been made to the best first year student in Agriculture and this will now be an annual prize. Gliksten (West Africa) Limited is also offering an annual award of NC500 to an enterprising student in Agriculture.

The Institute of Adult Education plans to extend its services to a wider section of the community by means of correspondence courses and the plans for starting this programme in October 1970 are proceeding apace. Several of the lessons have already been written and at the beginning of the new session the course will be ready for at least its trial runs on a pilot-scheme basis. It would, however, be appreciated by all potential users that a course of this nature, like any new and elaborate piece of machinery, must be subject to strenuous testing before going into general operation and general use.

Among the graduates to be presented this year are nine students who undertook their studies at the External Degree Centre organised by the Institute of Adult Education; one of them, who obtained a Second Class Degree, has been awarded a postgraduate scholarship by the University of Ghana.

It is now my happy task to turn to the numerous gifts we have received this year. I have already mentioned the two big grants of \$175,000 and \$200,000 given by the Ford Foundation and the Carnegie Corporation respectively. The Canadian Government, in addition to the substantial sums they are contributing in support of the twinning arrangement, have made a grant of NC295,000 towards staff housing under our various co-operative links. The Australian Government has made a donation of a set of Commonwealth Law Books to the value of NC300 to the Law Faculty. The Nuffield Foundation has made a gift of books and periodicals to the value of £3,000 to the Institute of Adult Education. Other gifts of books have been made by the United States Information Services to the Department of Political Science and the Faculty of Law. The Ministry of Overseas Development of the United Kingdom has given a grant of £15,000 to the Faculty of Law and the School of Administration for the purchase of books. There is a promise

of similar sums for the following two years. Kalamazoo College in Michigan, U.S.A., from whom we have a number of students on this campus, has given the University a gift of \$1,000. Nestles Products, Accra, have given NC300 to the Department of Biochemistry, Nutrition and Food Science to purchase equipment. It is with deep regret that I announce the death at the age of 84 of Mr. Joseph Waddell, the Afro-American gentleman who, over the past nine years, has made a total contribution of \$10,000 to set up a fund for the award of prizes in the Faculty of Science. We are grateful to the Fulbright Commission and the U.S.A.I.D. who have been supporting the appointments of various professors from America working in the School of Administration, the Faculty of Law and the Faculty of Agriculture.

The intellectual life of the University has continued to grow and gain strength this year. The mounting interest of outside institutions in the University can be seen in the growing number of special links which we have continued to build up with overseas Universities and this year the most noticeable event in this regard was the conclusion of an agreement with the University of California Education Abroad Programme under which ten students from California have been admitted to study for a year here in exchange for visits by our students to the University of California system. Under this scheme, also, a Visiting Professor, Professor D.J. Crowley, Professor of Anthropology in the University of California at Davis, is spending two years with us. The Chancellor of the University of California at Santa Barbara, Dr. Vernon I. Cheadle, and Dr. William H. Allaway, the Director of this Programme, paid a personal visit to Legon last February for the inaugural ceremony.

The link between our Law Faculty and the Law Faculty of Oxford, already well-established by the loan of Mr. Brian Simpson of Lincoln College, who until December last year was the Professor and Dean of the Faculty, and the short visits of Mr. D. Heydon and Mr. Cordeaux, the Bodleian Law Librarian, was further strengthened by the acceptance of one of our graduates who took a First Class Honours degree to read for the B.C.L. at Wadham College and by the election of Mr. George Ofosu-Amaah, Senior Lecturer in the Law Faculty, as a Fellow of All Souls for the year 1970-71. Mr. David Bentley, another lawyer from Oxford, is now here with us paying a short visit and we expect further visits in the coming year.

It has also now been finally agreed that the University of Nottingham Department of Adult Education should co-operate with our Institute of Adult Education in a scheme of secondment by which one lecturer in Adult Education will teach in the new unit of the Institute for a period of five years. I would like to take this opportunity to pay tribute to the work which Professor H. C.

Wiltshire of the University of Nottingham Department of Adult Education has done during his period of two years secondment which comes to an end this year. Mr. J. B. Neilson, also on secondment from Nottingham, who has organised and consolidated the Adult Learning and Research Unit, returns to Nottingham at the end of this year.

The intellectual life of the University has continued to be enriched by greater activity in other directions. The Faculties of Science and of Law organised inter-Faculty lectures during the Michaelmas and the Lent Terms and six professors have delivered Inaugural Lectures this year. The University has also benefited from a number of open lectures delivered by Visiting Professors, among whom may be mentioned Professor Hellawell of Columbia University, Professor M. Fortes, Professor of Anthropology, Cambridge University, Mr. C. W. Jenks, Deputy Director-General of I.L.O., Professor Gwendolyn Carter of North-western University and Professor Symons, Professor of Psychology from Aberdeen University, who is here as a Nuffield Visiting Professor to the Department of Psychology.

In the field of publication, I am happy to record good progress with some noticeable studies published by members of the various Faculties. And within the Faculty of Social Studies efforts were made to improve the facilities for the publication of significant research contributions. The Board of the Faculty of Social Studies has commenced work on publishing a journal of Social Studies under the auspices of the Faculty. And our Department of Archaeology, in conjunction with the Universities of Ibadan and Ife, is sponsoring the new West African Journal of Archaeology, of which the first number is expected to appear later this year.

A notable event on our academic calendar this year was the meeting of the Board of Directors of the International Association for Cultural Freedom which took place in this University at the beginning of January under the Chairmanship of Professor Alan Bullock, Vice-Chancellor of Oxford University, and Mr. Shepard Stone, the President of the Association. Among the many other important conferences which have taken place this year in the University may be mentioned the International Cocoa Conference and the Conference on Rice which the Faculty of Agriculture organised in conjunction with the Ministry of Agriculture and the Council for Scientific and Industrial Research.

The greatest period of expansion has occurred during the last ten years and, as I have already said, the University realises the importance during the coming decade of working closely in harmony with the man-power needs of the country and adapting more and more the research and teaching which these students receive in the

University to the urgent needs of the country. But the basic point remains that the University is first and foremost an institution in which the highest standards of intellectual and academic excellence are cultivated in a responsible and concerned manner. As we face the challenges of the coming years, we shall be judged more and more by the integrity and the loyalty to which we adhere to the highest possible academic standards.

And now if I may turn to you graduates who are now leaving this University to enter the wide world: you have received and will continue to receive a good deal of advice from all quarters. There is no need for me to dwell too long upon the essential qualities which we hope you will endeavour to practise and cultivate wherever you find yourselves. I would place first and foremost intellectual honesty and modesty and a great sense of social responsibility. You must by now have learned, if you are not already aware of this fact, that Ghana does not owe you a living, just because you are graduates. As the competition for the various jobs increases, and it becomes more and more difficult to walk immediately into well-paid jobs in the cities, you will find that you will succeed or fail not by your mere possession of degrees and higher qualifications, but by the quality and the soundness of your character and by your readiness to serve the country in whichever corner your talents are required, especially in the rural areas from where the bulk of the money came with which your education here was financed, and where the problems are greatest.

Ghana has many opportunities for responsible and qualified graduates who are ready to place themselves at the service of their country, who are prepared to place before self-interest the needs of others, and who, above all, cultivate the highest standards of intellectual and moral integrity and excellence. The University motto, *Integri Procedamus*, Progress with Integrity, should be your constant watchword: it is a good motto and it stands for all that is best and true. That is your challenge. Legon will be judged by how well you meet this challenge and we have every confidence that you will rise to your opportunities.

RESPONSE BY PROFESSOR D. M. BALME ON BEHALF OF THE HONORARY GRADUATES

MR. CHAIRMAN, VICE-CHANCELLOR, YOUR EXCEL-
LENCIES, NANANOM, LADIES AND GENTLEMEN:

You have given me the honour of replying on behalf of your newest graduates, in whose company I feel indeed unworthy both of this honour and of the recognition that your University has generously bestowed on each of us. But I know that I say for us all that, in our various capacities, we are at one in loyal support

and enthusiastic admiration for the University of Ghana, and we express to you not only our own gratitude but our sincerest congratulations and good wishes on the University's 21st anniversary.

By coincidence this is a real stage in the University's growth. Somewhere in your archives there is an old plan, the first ever made of this university, showing it with 5,000 students in residence, with faculties of Arts, Science, Medicine, Engineering, Agriculture, Law, Education, and areas reserved for Schools of such applied or professional studies as might turn out to be necessary. It was not a map but a diagram, intended to show that such a university could be accommodated here. Upon it (among other things) depended our decision that the Legon site was suitable. In our earliest discussions in 1948 we called this plan Phase II. We did not know when it would be achieved, but that it was both possible and necessary we had no doubt. Twenty-two years ago, almost to the day, a party of us stood near this very spot, then a bare hillside frequented by snakes, Achimota boys, and orchids, and said to the chosen architect: "We are talking about a university of international standard: can one of that size be built here?" I remember his reply: "You produce the men, and I will give them the buildings."

So that was our objective from the beginning. But for the first few years we were occupied with what we called Phase I. May I tell you what was in our minds. We felt we had to establish two things. First should come the basic theoretical "disciplines" in Arts and Science, upon which all professional and applied studies depend. If you want Engineering, you must first have Mathematics and Physics; if you want Medicine or Agriculture, you must first have Chemistry and Biology; if you want literature, you must have languages and linguistic analysis; if you want Law or Social and Administrative studies, you must have Jurisprudence, Economics, Philosophy, and so on. Secondly, we had to establish exact standards. We speak colloquially about high and low standards, but of course the thing about a standard is exactness. A high standard of measurement does not give you a yard and a half for every yard: it gives you exactly one yard, neither a fraction more nor less. To determine what should be the standards of the degree, and of entry, is a matter dependent upon circumstances. But whatever standard a university decides to be appropriate, it must—if it is a real university and not a degree factory—be rigorous in maintaining its standard.

This applies not only in teaching but in a slightly special sense in research. When a university produces a scientific report, or any considered statement, we expect its conclusions to be visibly supported by proven facts and by logical argument. Nothing else will do—no rhetoric, no emotion. We expect to see every case argued

on its own merits; if it involves political expediency or ulterior motives, we expect to see these set out separately. What we expect from a real university is straight facts and straight reasoning. It is the joy of producing these that stimulates scholars and rouses their devotion and dedication; it is the freedom to produce these that they ask for when they ask for 'academic freedom', for without it they cannot do their job efficiently. It was to set up a place capable of this standard of work that we embarked upon Phase I.

And the men? You do not need me to tell you of the shining success that your students have achieved. They are spread about the country in all manner of activities and professions right up to the top. But it is not particularly the top people that we should consider. Everybody who goes through this place ought to acquire habits of mind and character that will fit him to make a contribution, to pull his weight, to give a lead when it's needed and to follow a lead when support is needed. We did not set out to promote patriotic feelings; nevertheless any university should turn out its graduates with a feeling that they owe something to society, and that they are equipped to pay that debt in a valuable currency. This, I believe, you are achieving with the great majority. As you know, Mr. Vice-Chancellor, I do not often use the word 'brilliant'. It is not in my normal vocabulary. But I do use it of the University's work and results,—and of some of the young men and women who have studied here, some of whom have stayed on as lecturers. As one who has experience of many universities, may I say that this is a place of unmistakable quality.

By English custom, a son on his 21st birthday is given the key of his parents' house. To what family does this university belong, to what house? What are its ancestors and breeding? I can answer in a word borrowed from horses: you are of thoroughbred stock. This place has courage and stamina and brilliance; it has strength too, so that when the earthquake came it did not fall. Your work has been true and exact: Phase I is complete.

It has been completed faster than we had hoped. There has already begun the great expansion, in which numbers should increase side by side with the development of applied studies, based of course upon the theoretical studies but directed to the country's problems as they might appear from time to time. You have the men for this, and more to come. But I would not be honest if I did not ask, where are the necessary buildings? We left you spaces for them, but the spaces are still empty. Permit me, as a privileged visitor and old friend, to say that your teaching accommodation has become grievously inadequate. It is no use filling in verandahs, gaining little space and spoiling the buildings. You might as well empty the sea with a spoon. Phase II, like

Phase I, needs two things: men and buildings. You have got one of them.

May I say just one more thing, especially to the undergraduates—those who were not even born when I first stood on this hill. You have come here full of hopes and ideas, perhaps ideals too about improving society—I hope so. So did I as a student. What do you, and what did I, expect to get? Not just a good career for ourselves. Our country would hardly go to this trouble and expense and indeed self-denial, just to make you and me fat. Well, then, what? If your head is full of ideals, keep it so. Keep it high in the air. But let us—you and me—make sure that our feet are not in the air too. In a way this expresses what the university tries to do for its students: to get their heads high, to give them freedom to theorise, to inquire, to criticise make mistakes and learn thereby, but at the same time to get their feet on to the ground—to insist that for every theory there is valid evidence and valid reasoning. This is why it makes so little difference which basic subject you study, so long as it is basic. I am sure that you do not lack theories, any more than I did. I am equally sure that you, like me, need facts and a training in how to reason from facts. That is what Phase II is about: facts, facts, facts. You have the basic training now, the theories and skills, the philosophical discipline. Now the University is all set to go for the country's problems and needs. You have a debt to pay, and you are able to pay it. We, whom you have honoured today, accept the honour gratefully but not for ourselves alone: we humbly represent your family and your world, your country with its needs and aspirations. We made you; we give you the key of our house; we wish you from the bottom of our hearts ever more success, so that you may contribute your share—your vital share—to this little and great, new and old, country of Ghana.

**TRANSCRIPT OF THE SPEECH MADE BY THE
RT. HON. DR. K. A. BUSIA, PRIME MINISTER, AT
THE 21st ANNIVERSARY CONGREGATION DIN-
NER OF THE UNIVERSITY OF GHANA AT
LEGON ON SATURDAY, 14th MARCH, 1970**

CHAIRMAN OF THE PRESIDENTIAL COMMISSION,
DEPUTY CHAIRMAN OF THE PRESIDENTIAL COM-
MISSION, ACTING CHAIRMAN OF THE UNIVERSITY
COUNCIL, HONOURABLE MINISTERS, DISTINGUISHED
GUESTS, LADIES AND GENTLEMEN:

Twenty-one years is a long time in a life time, even though it is a short time in the life of a university. When early this morning, as it is my custom, I started to think of what to say tonight, I

could not help but remember that the first Principal of this institution was a classics man from Cambridge, and the present one also happens to be a classics man from that same place.

I remembered a meeting of the Association of Teachers in Technical Institutions in Britain in 1958. These gentlemen said that they were going to revolt against a limited culture dominated by the glory of Greece and the grandeur of Rome but reflecting little of the achievement, the ideas and the philosophy of modern science. They wished, on the contrary to evolve a curriculum which would nurture all that is good in our human and national heritage and which therefore also reflects the importance of science in the mid-twentieth century, and I wondered what these gentlemen who, by implication, were revolting against the glory of Greece and the grandeur of Rome and yet were directing their attention to the contemporary situation, would think of inviting a classics man from Cambridge to establish a university in Ghana. They must think us very incorrigible to continue this kind of thing. So I had to ask myself whether we were doing a wise thing.

In my reflections, I thought that the students were going to be here, but as they are not here, I will direct myself to my colleagues who are university teachers. Of course, I cannot also forget that I happen to be the Chief Executive of this country and therefore face to face with our practical problems. And yet I think it was very fortunate that we had a classics scholar to begin our institution. Whether it is fortunate to continue, I will not say. But it was fortunate because I went to a school where they were not civilised enough to teach Greek. They were barbarians so they taught me Latin. But I have tried to make up for this by reading Greek in translation. I don't think it is too bad if it is the second best thing I could do. I have learnt that they had some very important things to say about education.

I think it was Russo who said that if anyone wanted to learn about public education he should read Plato's "Republic". He added that those who merely judged books by their titles would think that this was a book about politics but that, in his opinion, it was the finest treatise ever written on education. I have a man who can bear witness that I read Plato's "Republic" in English at the age of 12. But when I read it later when I was supposed to try to understand it, it seemed to me that I had heard all those stories before.

I would like us, seriously, as teachers in a university, to consider two things which stem from the Greek tradition. As to the technical teachers thinking that the glory of Greece and the grandeur of Rome had nothing to do with the contemporary situation I can only ask them, as Russo would have done, to read Plato's

"Republic". And there they would find a man struggling with the problems of his day to devise an educational system that answered the needs of his time. This is very Greek in character. But I think this morning I was led to try to think of the contribution of Greece to education because when I was here on the staff I always found it very stimulating, especially, to listen to the Principal and to read in him what classics can do to a man's mind. There are certain things that one can read to be universal in the Greek experience which all university students, I think, and university teachers can do well to remember.

Twenty-one years, we are supposed to have come of age and as we were reminded this afternoon, we now have the key of the father's house. And this house is the house of education and I would like us to open the door and try to discover what there is in it. I think the first thing we shall discover is the very old relic— a relic so old that it comes from Socrates. You will recall that he conceived himself as having a mission to fulfil, and that mission was put upon him by the utterance of the Delphic Oracle which had taught him one supreme thing—his own ignorance. His mission was to try to save men from misery by leading them to self-examination and self-criticism. The evil of ignorance, he taught, was that he who was neither good nor wise was nevertheless satisfied with himself and has no desire for that of which he felt no want. This is the first thing we see in this house of education. An old, old chair that tells us: he who enters here and would inherit this house must first know himself to be ignorant. The humility of mind is essential in university education. Linked with this humility of mind and the acknowledgement of ignorance is this: that the educated mind is the mind which is able to tell real learning from spurious learning, and the man who is able to tell when he listens to a man speak, the educated mind from the pretentious one. This, I think, is important because if as university teachers, we are not able to train our students to have this humility of mind and this ability to distinguish between real knowledge and spurious knowledge we would have failed in our duty.

Unless you think this is not relevant to the present situation, then I would talk about student power. But they have heard me speak about it before. I grant them that we who are older have done a lot of things that are wrong. They have reason to rebel. But if we succeeded in teaching them that even though they can see things wrong which we have done, they must examine themselves and see that there is a lot that they do not know. I think if we got that across we may have had a mitigation of this student revolt across the world. For it stems from those students who are so sure of themselves and so sure of their knowledge that they think

they can smash and break everything else that exists. There is a second thing in this house to which we would like to give the key to this University on its 21st birthday. And it is this: you cannot read Plato, you cannot read the Greek philosophers, without realising that they will always compel you to think where you are going to have a goal. I remember reading many years ago a book by Sir Richard Livingstone who also was bred in the Greek tradition, when he was thinking of the state of the world during the war. The older among you will remember his book, "Education for a world adrift", and, steeped in the Greek tradition, he too got round to asking the first thing to do. That is, to find your goal. For he said the history of mankind might be described by cynics as a series of splendid expeditions—towards the wrong goal or towards no goal at all—led by men who have all the gifts of leadership except a sense of direction and every endowment for achieving their ends except a knowledge of the ends worth achieving. We are university teachers and we will do well to ask ourselves what our goal is.

In this house which we now enter, we presume, as adults we shall see the second heirloom. It is this: that all the Greek philosophers agree that the aim of education is to produce good men and women. Again, I do not think that this is something that is too unreal or too far away to consider our goal because if we do not consider the goal, then the means will really not be worth while. For what is the use of having the means when you do not know the end? And if I were asked, now that I occupy the position that I do, what the biggest need of the country is and what I should expect from the University, I will answer you in one sentence: Give me men and women of integrity.

This is the time when we are talking about manpower needs and when we shall come to you to work out our programme—engineers, doctors and nurses—and ask you to gear your output to meet these needs. But I hope that when that happens, you who are in the University will see these things in relation to your goal to the end. I hope that you will not be trapped into looking for money from the Government in order that you may turn the University into the machinery for producing engineers and doctors and what-have-you to meet the needs of the goal. It must be your task constantly to be aware of your goal. Indeed, you are to serve, and I shall come to that presently. But I am very anxious that this search which is going on throughout Africa, this idea that we want rapid progress and therefore we want that: it is very true. But I hope that our universities are going to meet that need in relation to the goal: producing good men and women. What do I mean by that, I mean that in our education we, as university teachers, learn to treat every human being as an end in himself.

But I hope that in our teaching we shall also do the kind of teaching which will stop every student who passes through us from thinking of himself as an end. If we do that, if we make them think of themselves as ends in themselves then we shall only produce selfish, greedy and inward-looking people. We shall fail. Although we treat them as the ends they must treat themselves not as ends but as people who are to serve members of the community

This too is important because when I started thinking what to wish this University on its 21st birthday (which is what I am proposing), I thought very simply: May we produce students who think not of what they can get but what they can give. And on the 21st birthday of this University, I would ask you to think of what you can give to this country. You will not be able to decide what it would be best to give this country unless you know the country. This's the reason of your research. As I try to grapple with the problems of the country—a huge debt, unemployment, lack of roads and of houses, people taking our money across our borders, people stealing, and people under-invoicing and over-invoicing—all those things which you know and write about. How do we deal with them? The answer is very simple: we are not able to do these things, not for lack of skill, not for lack of knowledge; but for lack of good, honest men. People take milk and sardines across our border because we have not got honest men there. People are able to clear goods from our Customs because we have not got honest men there. And people are able to order things for which they have not got licences or rather use licences for ordering things which are different from the things they have been licensed to order because they know they can get away with it. They know they can get away with it because they are sure they can bribe those whose duty it is to see that they do not get away with it.

Perhaps you would have expected me to talk about learning instead of talking in this rather simple, perhaps too simple, way. But I believe this is something that I would ask you, my colleagues, to think about: How do you make good men and women? How do you produce the kind of undergraduate who, while he is here, learns to drink beer within his means? How do you produce the kind of undergraduate or lecturer whose cheque is not rebounding because he can reckon his accounts? It is no use producing brilliant first class honours if we do not produce people who, because they have had education, come to think that there are certain things which are simply not done.

My friends, the task of a university is to produce good men and women. I speak to you as a colleague, one who is not unfami-

liar with all the hard work we must do and the training we must give in integrity and honesty and so on. But in the last resort whatever it is that we are teaching, whether it is medicine or chemistry or Greek or what-have-you, I believe that the reason why we set the best example before those whom we teach is that we hope that through it we may teach them some human achievement which will have an influence on the sort of people they become. Ghana is in dire need of honest people, Ghana is in dire need of people who have taught themselves discipline, the discipline which will make a man sit in his office and get on with his work not because there is somebody standing behind him, but because he is the kind of trained person who when he has the job, has the sense of responsibility to do it because he is trained and disciplined.

You would expect me to talk about academic freedom. I can tell you this: that as long as I remain the Prime Minister of this country, you have nothing to worry about academic freedom. But I will go on to say this: that you cannot fool me about what academic freedom is. The freedom to choose your students, the freedom to determine your standards, the freedom to do your work in the best way you can, you will have, but I hope that you will also know that there is no freedom which does not require self-discipline and restraint and responsibility in its exercise. I hope that from this hill, from those who slipped under your feet we shall get the men and women who have been trained in the exercise of freedom, that is the men and women who have been trained to know that the exercise of freedom means thinking of other people. And very often it means putting yourself in the other person's place. There are many learned men with strings of degrees who do not learn these very fundamental things.

What then is my toast to the University. It is simply this: that this may be the place where the means of enriching life are taught and sought after with mastered skill because the goal—that of producing good men and women—is clear. My wish is that this University may be a seat of learning where this goal is pursued clearly, vigorously in all that we try to do and where proof is given of our progress towards this goal by the only real convincing evidence that any university can produce, and that is the character and quality of its students.

We have built our dormitories and lecture theatres. We are, of course, asking for more. We have determined the subjects that we shall teach. We have set the high standards. Now we must keep clear our goal and I think that my colleagues in the Government will agree with me when I say that what we need, what we ask of you, is that you give us men whom we can trust, men who can be honest, men who have been disciplined and men who have learnt

that the education which they have received through the sacrifices of many people, gives them the privilege to serve, the privilege to love. It was carlisle who said: "A loving heart is the beginning of all knowledge"

Ladies and Gentlemen, I would like you to rise and drink with me a toast to our University that it may be a place where good men and women for all times, always, are produced to meet the needs of our generation and succeeding generations.

CITATION FOR DAVID MOWBRAY BALME ON THE OCCASION OF THE AWARD OF HONORARY DEGREE OF DOCTOR OF LETTERS

DAVID MOWBRAY BALME, 21 years ago you first set foot on these golden shores as Principal-designate for the proposed University College of the Gold Coast, to translate into reality an ideal and aspiration passionately cherished by the people of this country; and you were most well-fitted for this great task.

Born on the 8th of September, 1912, some 57 years ago, you received your early education in the famous English School at Malborough and went from there to Clare College in Cambridge where it was hoped you would follow the medical profession of your distinguished father. But it was not to be.

The love which you had conceived for the Greek and Latin classics ever since your early years and in which you have now achieved the highest distinction as Professor of Classics at Queen Mary College in London University, won the day and distinction upon distinction came your way as a classical scholar in Cambridge. First Class honours in both parts of the Classical Tripos in Cambridge were followed by your election to the coveted honour of a Research-Fellowship in Clare College and, later, a Fellowship in Jesus College in Cambridge, after you had spent three years delving deeper into Greek philosophy as a research student in Halle University in Germany and as a Lecturer in Classics at Reading University.

When, in 1940, Hitler's armies and Luftwaffe threatened to engulf all the civilised world, you joined the Royal Air Force and proved your outstanding valour and courage as an airman. You served with No. 207 (Bomber) Squadron in 1943 and rose to the command of No. 49 Squadron in 1945. Your grateful country acknowledged your intrepid exploits with a Distinguished Service Order and the Distinguished Flying Cross in the same year, a feat only achieved by a select few; and in 1955, you were elevated as a Companion of the Order of St. Michael and St. George. When

the drones of the war planes were silenced in 1945, like Cincinnatus, you returned to Cambridge to cultivate more peaceful arts and resumed your outstanding career as a teacher of the classics and rose to be first Tutor and then Senior Tutor of Jesus College and Lecturer in Classics of that great and ancient University. These were the great qualities of scholar and airman, thinker and fighter, that brought you to the Gold Coast in 1948.

For nine years you toiled here with your devoted band of colleagues whom you recruited with energy and good judgment, few of whom, alas are now left with us; with single-mindedness, boldness, clarity of vision, lucidity of mind and of expression, and a very clear conception of what a University is and should be, you laboured successfully and translated the dream of the Ghanaian peoples into a reality that is now justly held to be one of the greatest seats of learning in Africa today. Your view of the University as a place where a community of scholars selected only for the quality of their scholarship live and work together in harmonious association with junior members in the corporate life of the collegiate Halls of Residence functioning closely with the academic departments—this view has stood the test of time and has been more than amply vindicated. The Oxbridge trappings have been modified, it is true, but your basic concept still stands on solid foundations and well-established systems. Your own words which you spoke when, ten years ago, this University paid you one of its highest compliments by naming its Library after you, a Library now adorned with your portrait bust, sculptured by the great Nigerian artist, Ben Enwonwu, are worth recalling today: "Somewhere there must be a place where the basic theoretical work is done, and where people can step back and see their immediate problem in its true relationship with universal principles. Such a place is the University. This is the crucial point, and it is so often misunderstood. . . . If there is a place where these lessons can be learned and where the truth of the matter can be calmly and objectively weighed, it is the University" Legon is, indeed, and will always be, your undying memorial. But your passion and your skill in elucidating the subtleties of the thoughts of Aristotle still burn brightly and you have gone back to your native heath to pursue your abiding love for the civilization of the Greeks and Romans which gave birth to Plato and Aristotle. The abiding wisdom of these great masters you now expound as Professor of Classics and Dean of the Faculty of Arts at Queen Mary College in London University. Your love of humanity and your belief in the common values of civilization still remain undimmed "Our roots are in every country", as you also said ten years ago, "some in Africa, some in Britain and America; but the main one—do they call it the tap-root?—is in the lands of the Mediterranean. There is the cradle of all the civilization that has

conquered the world. Happy is Africa whose shore is on that sea." And it causes you no shame, as an Englishman, to confess that much of your civilization originated from the Greeks and was forcibly imposed upon you by the Romans and the French; that while Aristotle was writing his treatises your ancestors were running about naked in the bush. What does cause you shame is to contemplate the uses to which men have put that civilization in the interests of power and comfort and so-called progress.

David Mowbray Balme, these words of yours still ring true today and on the 21st anniversary of the institution which you did so much to found, we salute you and add another honour to your many distinctions. It is true you have received an honorary Doctorate of Laws from Lincoln University in Pennsylvania, but we hope, indeed we are sure, that you will very much treasure the degree of Doctor of Letters (*honoris causa*) which I now ask you with great joy to step forward and receive.

CITATION FOR KOFI ABREFA BUSIA ON THE OCCASION OF THE AWARD OF HONORARY DEGREE OF DOCTOR OF LETTERS

...KOFI ABREFA BUSIA: Today the University of Ghana has summoned you up to this hill to give public recognition and do honour to your long record of achievements as scholar, educationist, humanitarian, and a great champion of freedom and the rights of the individual.

Born fifty-seven years ago in the royal house of Wenchi, you gave early promise of scholarship. In 1927 you entered Mfantsipim School, Cape Coast, as a Methodist Synod Scholar; and as Achimota Council Scholar you continued your education at Achimota College and later at Oxford University. Many more fellowships were to come your way, each a tribute to your growing stature as a scholar and your wider international recognition. At a time when many of your educated colleagues were content with a first degree, you went on to acquire four. Medieval and modern history, politics, philosophy, economics, social anthropology and sociology, over all these fields you ranged with a versatility and competence worthy of envy and emulation.

You are no stranger to Legon hill. You were among the early pioneers who helped to lay the foundations of the University of Ghana. It was a fitting and deserved honour, that you should be the first African to head a department and hold a chair in this University, in the field of Sociology. That was but a beginning. In 1959, when a shadow began to fall on this institution, you were

appointed a Professor of Sociology at the Institute of Social Studies, at The Hague in Holland, and a year later you had the distinction of being offered a second chair as Professor of Sociology and Culture of Africa at the University of Leiden, in Holland. In 1964, your own University of Oxford beckoned you back as Professor of Sociology and Senior Associate Member of St. Anthony's College.

Your pupils and students the world over, at Wesley College, Kumasi, Achimota College, here in Legon, the Universities of Leiden, The Hague, Wageningen, Northwestern, Mexico, York and Oxford where you taught for longer or shorter periods—all of these will remember you as a devoted and patient teacher insistent upon excellence, attention to detail, clarity of thought and expression and originality, qualities which you yourself exemplify in all your works.

Education has been your life-long interest. On platforms, at seminars and in your writings you have emphasized the role that education must play in transforming the human resources in Africa for development and progress. When, more than 30 years ago, you founded the Plato Club at Achimota College, you adopted, as your motto the Greek sage's aphorism: "The unexamined life is not worth living." The scrutiny of life as people live it, the quest to understand the springs of human action, the study of the human condition and human potential in society—these have dominated your activities as a sociologist and research scientist. This scrutiny you directed first to conditions at home. In *The Position of the Chief in the Modern Political System of Ashanti*, that durable work of scholarship, you distilled your heritage, experience and knowledge and demonstrated the need to understand our traditional system of government and the genius of our ancestors before proceeding to chart a course for change and progress. In the *Social Survey of Sekondi-Takoradi* you pioneered a study into the contemporary living conditions of the urban dweller. As Director of Studies for the World Council of Churches Study of the Role of the Church in Birmingham, you took a detached view of a contemporary problem in another culture, and in the resultant publication *Urban Churches in Britain*, you held up to scrutiny and challenge the churches' role in modern Britain. That study itself bears witness to another dimension of your interest: the moral posture of the churches and the place of religious values in social life.

In all these activities you brought to bear a deep Christian concern for the welfare and dignity of man, a concern that drew you more and more into public life. 1951 saw your formal commitment to national politics when you became a member of the National Assembly. That commitment you have continued to

honour. It is a far cry from the forests of Wenchì to the sea-lapped citadel of Christiansborg Castle; from Leader of the Opposition under Nkrumah to Prime Minister of the Second Republic of Ghana. But you have made it, with modesty and without bluff. Through many trials and tribulations you have manifested a quiet courage and dogged persistence that has confounded your critics and warmed the hearts of your many admirers. You have brought a new style to public life in Africa and taught, by example, that power should be exercised with restraint and without arrogance, that gentleness is no sign of weakness, nor courtesy one of diffidence, but a salute to man's inalienable dignity. You have shown us that humility is a mark of wisdom; that firmness should not be confused with obstinacy and that probity in public life is not an empty slogan. You have been many things in your time: scholar, administrator, teacher, lecturer, research worker, preacher, educationist, politician, statesman, even public enemy number one! Yours has been a full and busy life inspired by faith in the integrity of man, filled with concern for the well-being of your fellow men, informed with knowledge of the social condition, and buoyed up by the belief that moral progress for mankind is possible and necessary.

As we confer on you this distinction we do so with the hope that the challenge of your exemplary career will be taken up by the Youth of Ghana.

Kofi Abrefa Busia, Legon salutes you! It gives me much happiness to ask you to come forward now and receive the degree of Doctor of Letters (*honoris causa*) of the University of Ghana for which you have done so much in the past and can do much more in the future.

CITATION FOR AKWASI AMANKWAA AFRIFA ON THE OCCASION OF THE AWARD OF HONORARY DEGREE OF DOCTOR OF LAWS

AKWASI AMANKWAA AFRIFA, in honouring you today, the University of Ghana does honour to a great citizen of Ghana, a young and fearless soldier who risked his life in order that Ghana may be free from oppressive rule. In recognition of your gallant deeds and outstanding statesmanship, the State has already awarded you the Distinguished Service Order and Companion of the Order of the Volta. Some there were among us who may have thought after the 24th February Revolution that the sword was mightier than the pen but you soon left us in no doubt that the old adage still remains true, and that we could look forward to a new era of freedom, intellectual, spiritual and political. We honour you

today for your statesmanship and for your leadership in the exercise of our newly won freedom. We honour you for your awareness of the moral, spiritual and intellectual needs of our society and for the critical judgement which spurs you to action.

Scion of a warrior grandfather, you were born thirty-four years ago at Mampong-Ashanti, where you were first educated at the Presbyterian Boarding School for boys, and from which you went to Adisadel College for your secondary school education. There is much evidence to show that throughout your life you have always been a man of determination and of action, interested both in the pursuit of knowledge and in its practical application. At Adisadel, you gave proof of the budding intellectual and man of culture, passing your School Certificate with distinction in the Classics in 1956. Some members of the Classics Department of this University recall with pleasure your youthful declamation of those sonorous lines of Virgil:

Interea magno misceri murmure—

though the first prize in that School Latin Speaking Competition eluded you on that occasion. But the life of the classical academic was not the one you chose; with more spirit of adventure, you elected to join the Ghana Army. At the Regular Officers Special Training School at Teshie, and at the Cadet School at Aldershot and at the Royal Military Academy at Sandhurst in England, you showed much character and intelligence, and you were commissioned a Second Lieutenant in July 1960, coming third in the order of merit at the final examination of all Commonwealth Cadets.

You first won your spurs by the banks of the Congo and Lualaba rivers where you commanded a rifle platoon; a period of distinguished service which was interrupted by further advanced Courses in the United Kingdom. Your quickness of intellect, your courage and sterling qualities of leadership marked you out for rapid promotion through the various ranks to that of Brigade Major. Thus it was that a fortunate conjuncture brought you into touch with your hero and master, the late General Emmanuel Kwasi Kotoka in 1965, and thus it was that with him you played a leading role in the February 1966 Revolution. The Revolution and the events which followed now belong to history. Though the youngest of your colleagues on the National Liberation Council, it fell to your lot in the closing months of the life of this Council to be appointed Chairman by your peers and to preside with vigour and forceful leadership over the peaceful return to civilian rule and, as Chairman of the Presidential Commission, to hold, with your two colleagues, the office of Head of State in the initial years of the Second Republic of Ghana. Hero of both the young

and old of this country, you are admired not only because of your dynamic youth, but also because of your moral courage, your intellectual honesty, your wit, your keen sense of humour and the leadership you gave in the exercise of our newly won freedom of speech. By your bold and frank public speeches, your contributions to the press, your book *The Ghana Coup*, you have shown that you treasure your pen as much as your sword. And in attaining the highest office of the State, you have given ample proof of your maturity as a statesman.

AKWASI AMANKWA AFRIFA, soldier, statesman and author, in conferring upon you the degree of Doctor of Laws (*honoris causa*), we also pay public homage to the memory of your late gallant comrade, Lieutenant-General E. K. Kotoka; and by this honour we congratulate you and your colleagues of the National Liberation Council. It is with much pleasure that I now ask you to come forward to receive this honour, the mark of this University's gratitude to you and your gallant comrades.

CITATION FOR JOHN WILLIAM KOFI HARILEY ON THE OCCASION OF THE AWARD OF HONORARY DEGREE OF DOCTOR OF LAWS

JOHN WILLIAM KOFI HARILEY born on 9th May, 1919 at Akagla in the Volta Region of this country, you early gave evidence of the high honours and distinction which your lively intelligence, shrewdness and sagacity would earn for you. Moulded in the formative years of your life by the austere but wholesome and well-grounded education provided by the Presbyterian Elementary Schools at Boso, Akropong-Akwapim and Anloga, you completed your secondary education at the Accra Academy. With your unrivalled gift for languages, you first sought employment as an Interpreter in the District Magistrate's Court and later in the Supreme Court, Accra. Though by birth an Ewe, few native-born speakers of Twi, Fante, Ga or Hausa, to name only these among the languages of Ghana, can surpass you in facility in their mother-tongue. You enlisted in the Ghana Police Service on the 1st of May, 1940, and rose through the ranks to be Inspector some twelve years later. For your sheer native ability and intelligence, you were selected for higher training at the Metropolitan Police College in Hendon, England, and on your return in 1953, you progressed rapidly through the senior ranks of the Police Service from Assistant Superintendent, Head of the Special Branch, to the high positions of Commissioner of Police in 1965, and Inspector-General of Police on February 25, 1966, and in all these positions you acquitted yourself with considerable brilliance and exceptional merit.

The leading and beneficent role you played in the Revolution of 1966 which brought freedom back to Ghana is so well known to all of us and has already won you and your colleagues the sincere gratitude and esteem of your fellow citizens. The statesmanship, patience and wisdom you showed as Deputy Chairman of the National Liberation Council and now as Deputy Chairman of the Presidential Commission have already been rewarded by the highest honours this country can bestow on you:

Member of the Order of the Volta and Officer of the Order of the Volta. We wish you a long life of continued, useful and mature service to your fellow citizens.

And now, it is my pleasure to invite you to come forward to receive the degree of Doctor of Laws (*honoris causa*) of this University, by which our Academic Board and Council seek to crown your deserving achievements.

COMMITTEE REPORTS

THE UNIVERSITY COUNCIL

The membership of the Council during the 1969-70 academic year was as follows: -

Mr. Justice E. Akufo-Addo	— Chairman
Dr. A.A. Kwapong	— Vice-Chancellor
Professor S. La-Anyane	— Pro-Vice-Chancellor
Mrs. Justice Annie Jiagge	— Member
Hon. Mr. Victor Owusu	— Member
Mr. K. Twum-Barima	— Member
Professor Silas R.A. Dodu	— Member
Mr. J.B. Butterworth	— Member
Dr. E.N. Dafalla	— Member
Mr. T.A. Osae	— Member
Mr. G.B. Boahene was succeeded by Mr. F.W. Beecham	— Member
Dr. E.J. Thompson	— Member
Mr. J.A. Peasah	— Member

Members of Convocation were unable to elect a member to fill the vacancy created after Professor J.A.K. Quartey had come to the end of his tenure.

Mr. Justice E. Akufo-Addo was away from the country on grounds of ill health and the Honorable Mr. Victor Owusu acted as the Chairman of the Council for most of the second half of the academic year. On his return from overseas towards the end of the academic year, Mr. Justice E. Akufo-Addo was elected President of the Republic of Ghana under the new Constitution.

The Council held six meetings during the academic year and continued discussions on how best to rehabilitate the finances of the University. As a result of representations from the University the Government decided to take over an accumulated deficit of NC2.2 million on the recurrent accounts of the University and NC1.1 million on borrowings from the Endowment Fund. These represented deficits in the accounts of the University as at 30th September 1968. However owing to difficulties with Government financing, the University was compelled to continue with deficit spending. This development has continued to cause the Council considerable concern and anxiety.

The Commission of Enquiry which had been appointed by the Government at the request of the University Council to enquire into the Financial Administration of the University submitted its report to the Council. The Council accepted in full the findings and recommendations of the Commission and sent its views on

them to the Government. Copies of the Report were deposited in the Balme Library for the information of members of Convocation.

The Council received the audited accounts of the University for the year 1967-68 and accepted them for publication.

The Council started discussions on a number of changes that had been proposed to the statutes of the University in the light of its pre-coup experiences. The most important change that was discussed was the need to separate the Chancellorship of the University from the Office of the Head of State. There was also considerable discussion on the concept and the future role of the Office of the Chancellor of the University as well as on regulations for the conduct of elections to that Office.

The Council enacted amendments to the statute on the Office of Deans, to the effect that if a Dean of a Faculty is absent from the country for a period of over two terms a new Dean should now be appointed as soon as it was known that a vacancy was about to fall, or has fallen. The Vice-Chancellor would in the meantime appoint an Acting Dean.

Statutes on the integration of the Ghana Medical School with the University of Ghana as its Faculty of Medicine which had been under discussion for the past two years were duly enacted.

The Council also started discussions on rotatory Headships of Departments and considered draft statutes on it. It however referred certain issues for further clarification by the Academic Board.

ACADEMIC BOARD: REPORT FOR THE YEAR 1969/70

The Academic Board held one special and four scheduled meetings in the 1969/70 Session. In addition to approving changes in syllabuses, appointment of external examiners and election of members to Boards and Committees, it also took the following major policy decisions.

1. *Minimum Entry Requirements*

The Board confirmed its previous decision that with effect from October, 1970 the minimum requirements for entry should be a pass in English Language at the Ordinary Level and in four other subjects three of which must be at the

Advanced Level, one to be at Grade D or above, plus a pass in the General Paper or its equivalent.

ii. *Procedure for the award of Honorary Degrees*

The Academic Board approved the machinery for considering nominations for the award of Honorary Degrees of the University. The Vice-Chancellor after due consultations with the Chairman of the University Council, would submit nominations for the consideration of the Academic Board which would then make its recommendations to the University Council.

iii. *Office of the Chancellor*

The Board approved a draft amendment to the University of Ghana Act to the effect that the Chancellor should be appointed by the President of Ghana on the advice of the University Council. Draft statutes for the election of the Chancellor are still under consideration

iv. *Absence of Deans of Faculties*

The Board decided that Deans of Faculties should not be absent from the University for more than two terms and agreed that the Vice-Chancellor should assign acting responsibilities pending the holding of elections at the earliest opportunity. Revised statutes regulating the office of the Dean in the University have been provisionally approved by the University Council.

v. *Placement Service Centre*

The Board approved in principle the establishment of a Placement Services Centre to serve as the university's main link with employing organisations with respect to the employment of students and graduates.

vi. *The Language Centre*

The Board recommended to the University Council that a Language Centre with the status of an Institute of the University should be established. Steps are being taken to have the Centre established.

UNIVERSITY RESEARCH COMMITTEE 1969/70

The University Research Committee was established in October last year following a meeting of the Vice-Chancellor with Heads of Departments and Professors. It held its first meeting on 2nd December, 1969.

The purpose of the Committee is to serve as a forum for discussing research activities, determining priorities and co-ordinating

research in the University. Three types of research come under its purview, viz: individual research, departmental research and inter-departmental research. In the course of the session the Committee gathered a considerable body of information from the various Departments and Institutes of the University about their research activities and the problems which arise in connection with the pursuit of research. The main problem was the absence of assistants of the right calibre and the Committee recommended and obtained approval for the appointment of three research assistants at the Graduate Research Assistant/Instructor/Senior Research Assistant level. It is hoped that with the appointment of these assistants the progress of research will be facilitated. Reports on research projects will be submitted to the Committee during the next session.

FINANCE COMMITTEE

The membership of the Finance Committee during the 1969/70 Session was as follows: -

Vice-Chancellor	Chairman
Pro-Vice-Chancellor	
Professor D.W. Ewer	Elected by the Academic Board
Professor Z.L. Sadowski	" " " "
Professor C.W. Cameron	" " " "
Professor W.J. Harris	" " " "
Dr. Elizabeth M. Hartley	" " " "
Mr. A. Hyndman	" " " "
Dr. J.N. Seward	" " " "
Dr. D.A. Akyeampong	" " " "
Mr. E.H. Boohene	Chairman of the Estate Management Committee
Miss. Lindsay Cripser	Elected by the Residence Board.
A Standing Sub-Committee with the following membership was appointed during the period:	
Pro-Vice-Chancellor	Chairman
Professor D.W. Ewer	
Professor W.J. Harris	
Dr. K.B. Dickson	
Dr N. Ahmad.	

The Finance Committee held six regular meetings during the year and the Standing Sub-Committee met in between these regular meetings as and when necessary to consider issues referred to it by the main Committee. The main Finance Committee considered among other things the University's Estimates for Recurrent Expenditure of about NC6,492,148.00 against an expected income of NC5,021,500.00 made up of NC3,728,500.00 scholarship grant

and NC1,293,000.00 internal income. The University's financial position remained weak but the Finance Committee continued its efforts to effect internal economies in order to cut down expenses and step up its internally generated income. Among steps taken to generate more income was a review upwards of rents payable by University personnel occupying University accommodation, and the levying of water rates.

The University's accounting processes were streamlined and made more efficient, and following upon efforts made during the previous year the Finance Committee ensured that the backlog of accounting work was cleared and the University accounts brought up to date. By the close of the year, the 1967/68 accounts had been audited and published and the 1968/69 accounts had been drawn up and auditing work was almost complete. An Interim Statement of Income and Expenditure for the period 1st October 1969 to 30th June 1970 had also been prepared.

The Report of the Ollennu Commission of Enquiry into the Financial Administration of the University was published during the year and after the University Council had studied it and made its recommendations to the Government, the Finance Committee started to implement the main recommendations of the report. Steps were taken to ensure that in the interest of greater efficiency, the financial administration of the Halls of Residence was made more directly responsible to the Finance Officer in a way that would both safeguard the necessary autonomy of the Halls and at the same time ensure the efficiency of their financial management. The Standing Sub-Committee was asked to study other details of the Commission's recommendations and to make proposals to the Finance Committee towards their implementation.

Finance Boards of the autonomous Institutes and Schools in the University were set up during the year and all of them held meetings at which the Finance Committee was represented. These Boards were set up to ensure that the Finance Committee and for that matter the University became much more involved in the financial management of those bodies.

DEVELOPMENT COMMITTEE

Membership

Vice-Chancellor—Chairman
Pro-Vice-Chancellor
Professor D.W. Ewer
Professor A.F.J. Smit
Professor K.F. de Graft-Johnson

Professor K. Twum Barima
Mr. G.B. Boahene/Mr. F.W. Beecham

Towards the end of the year Mr. F.W. Beecham succeeded Mr. G. B. Boahene as the Principal Secretary for the National Council for Higher Education and was appointed by the University Council to replace Mr. Boahene on the Committee.

Under the Statutes of the University the Development Committee is charged with the following responsibilities:

- (a) To formulate development policy
- (b) To attend to detailed planning with architects
- (c) To supervise the non recurrent and development projects of the University
- (d) To advise on and supervise the expenditure of the University's capital and development funds; and in the performance of these functions, the Committee held six meetings during the year. Tenders for the following projects were approved:
 - (a) Additional Junior Staff Quarters, Legon
 - (b) Street Lighting—Phase I
 - (c) New Building for the Department of Mathematics
 - (d) 12—One Bedroom Living Units
 - (e) Extension to the Central Administration buildings.

Work actually started on all these projects except the Extensions to the Central Administration Buildings, and by the close of the Session the new building for the Department of Mathematics was ready for use and twelve additional living units had been completed at the Legon Staff Quarters. The new building for the Department of Biochemistry was also completed during the year.

As indicated in the 1968/69 Annual Report, the Development Committee had considered the financing of development projects on a long term basis and adopted triennium estimates which were examined by a Visitation Committee early in January 1969. However, as a result of delay in the submission of the Visitation Committee's report and Government's inability to consider the report finally during the year, it was not possible to proceed with the planning and construction of all the projects proposed for the year. Nevertheless, plans were prepared for the Science Complex and the proposed Language Centre. Details of the architectural and engineering drawings for the initial phases of these projects as well as the bills of quantities are expected to be considered during the 1970/71 Session.

FACULTY OF AGRICULTURE

DEPARTMENT OF AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

Staff

Dr. S. La-Anyane, Associate Professor, was appointed Professor of Agricultural Economics. Professor C. W. Bockhop, Head of the Department of Agricultural Engineering in Iowa State University, Ames, Iowa, U.S.A. replaced Professor Wesley F. Buchele as Visiting Professor and Head of the Division of Agricultural Engineering. He returned to Iowa State University at the end of the current academic year.

Professor M.O. Watkins of the University of Florida, U.S.A., joined the Division of Agricultural Extension as Visiting Professor in September, 1969.

Dr. G.E. Dalton assumed duty as Lecturer in Farm Management in January, 1970.

Mr. D.B. Ampratwum joined the Department on 1st October, 1969 as Lecturer in Agricultural Engineering.

Mr. E. Bortei-Doku was appointed Senior Lecturer in Agricultural Extension after completing the M.Sc. degree in Agricultural Extension at the University of Reading. He returned to the Department from Reading in October, 1969.

Messrs J.A. Dadson and E.G. Andah, Lecturers in Agricultural Economics, were granted one and two years study leave respectively to complete their studies for the Ph.D degree in Agricultural Economics. Mr. J.A. Dadson was admitted to Harvard University, U.S.A. and Mr. E.G. Andah to University of Manitoba, Canada.

Dr. Frantisek Penkava, Lecturer in Agricultural Engineering, resigned his appointment in September, 1970 to return to the University of Prague whence he joined the Department in 1965.

The following were the senior members of staff of the Department in the 1969-70 academic year:-

S. La-Anyane, B.Sc. Agric (R'dg.), M.Sc. Econ.

(Lond.), M.A., Ph.D. (Stan.)

— Prof. & Head of
Department

C.W. Bockhop, M.Sc., Ph.D. (Iowa)

— Visiting Professor

M.O. Watkins, M.A., G. (Florida,) D.P.A. (Harv.)

— Visiting Professor

E. Bortei-Doku, M.Sc. (R'dg.) D.I.C.T.A.

— Senior Lecturer

J.A. Dadson, B.Sc. (MCG.), M.A. Econ. (Harv.)

— Lecturer

E. Andah, M.A. (Stan.)

— Lecturer

F. Penkava, Ing. Ph.D. (Prague)	—	Lecturer
B. Rourke, B.A. MSA. (Tor.) M.A. (Stan.)	—	Lecturer
G.E. Dalton, B.Sc. N'ele (U.K.), M.Sc. (Nott.)	—	Lecturer
D.B. Ampratwum, B.Sc. Agric. (Kumasi), M.Sc. (Alta.)	—	Lecturer
J. Gordon, B.Sc. M. Agr. (Belf.) A.I.C.T.A.	—	Lecturer

Teaching:

Courses leading to the B.Sc. (Honours) Agriculture degree and the National and Special Diploma in Agriculture were taught by all the Divisions of the Department. The Division of Agricultural Economics provided courses in the Principles of Economics, Farm Management, Agricultural Finance, Agricultural Marketing, Economic Development and Planning, Mathematics, Statistics and Econometrics. The courses in the Division of Agricultural Engineering included Farm Power, Mechanisation, Soil Conservation, Irrigation and Drainage, Building and Storage, Machine Design and Draughting, Farm Engineering, Civil Engineering, Rural Electrification and Farm Structures. Rural Sociology, Education and Extension and Farm Management courses were offered by the Division of Agricultural Extension. Three students completed the four-year B.Sc. (Honours) Agricultural Economics degree course. They were the first group of students to complete this new programme.

Dr. F. Penkava went to Kumasi one day a week to teach a course in Soil and Water Engineering to students at the University of Science and Technology.

The Department took an active part in the Long Vacation Course organised by the Faculty. The two week practical training programme attracted a large number of people interested in farming, especially from the private farming sector, commercial institutions and secondary schools.

Research:

Fields of specialisation and research currently undertaken: -

Professor S. La-Anyane	—	Economic Development and Agricultural Policy.
Professor C.W. Bockhop	—	Agricultural Mechanisation, Tillage and Weed Control
Professor M.O. Watkins	—	Agricultural Extension.
Mr. E. Bortei-Doku	—	Rural education and extension
Mr. J. Gordon	—	Rural Sociology and Publications.
Dr. F. Penkava	—	Soil and Water Conservation, Irrigation and Drainage

Mr. J.A. Dadson	Economics of peasant agriculture
Mr. E.G. Andah	— Cocoa marketing and finance
Dr. B.E. Rourke	— International Commodity Trade and Agricultural Policy
	Cocoa rehabilitation and labour
Dr. G.E. Dalton	Farm management studies of peasant agriculture.
Mr. D.B. Ampratwum	— Grain Drying and Storage and Mechanisation

Professor S. La-Anyane supervised student research projects.

Dr. B.E. Rourke pursued his studies of labour in cocoa production. He undertook a survey of Incomes and Wages of Agricultural workers in Ghana for the International Labour Organisation. He was also involved in studies of factors affecting Agricultural Growth in Ghana organised by the Institute of Statistical, Social and Economic Research, especially studies of marketing and labour productivity. Dr. Rourke supervised student research.

Dr. G. E. Dalton engaged in farm management studies in villages on the Accra Plains. He also supervised student research.

Professor C. W. Bockhop assisted the Animal Science Department in swine feeding trials by designing some self-feeders. He and Mr. Ampratwum continued work on the development of a small dryer. Two additional units were constructed for research tests.

Mr. D. B. Ampratwum has initiated a project designed to develop a continuous cropping programme for maize.

Dr. F. Penkava studied the irrigation requirements of maize and compared sprinkler and furrow irrigation. He also studied the irrigation of grassland and conducted trials to determine the irrigation requirement of cassava.

Professor M. O. Watkins engaged in an extension programme for breeding animals jointly with the Department of Animal Science. He studied the factors determining the success or failure of agricultural Cooperatives in Ghana. He and Mr. E. Bortei-Doku investigated factors in the adoption of improved technology by farmers with Middle School education.

Mr. E. Bortei-Doku's M.Sc. thesis was on "A study of Curriculum design and implementation in Agricultural Education, with special Reference to the needs of Developing Countries." The research projects he undertook during the year included studies of traditional knowledge in peasant farming, and school leavers embarking upon farming.

Mr. J. Gordon continued his survey-cum-action programme in villages around Legon, to elucidate "Institutional and Organisational obstacles to Agricultural Improvement programmes in West Africa."

Public Activities

Professor S. La-Anyane continued to serve on several national committees and boards. He was Chairman of the Board of Directors of the University of Ghana Farm Enterprises. He read several papers at symposia and conferences in Ghana and in Cornell and Purdue Universities in U.S.A.

Dr. B.E. Rourke served on committees in the Ministry of Agriculture and on the Board of Directors of the University of Ghana Farm Enterprises.

Dr. G. E. Dalton was a member of the Board of Directors of the University of Ghana Farm Enterprises.

Professor C. W. Bockhop participated in the Rice conference at Legon in February, 1970. He served on the National Advisory Committee on Mechanisation and was Chairman of the first meeting of the Ghana Society of Agricultural Engineers. He also developed proposals for a Milk Pasteurising Unit for the Agricultural Research Station at Nungua. He was a member of the Board of Directors of the University of Ghana Farm Enterprises.

Dr. F. Penkava served as a member of the Ghana National Committee of the International Commission of Large Dams. He provided consulting services to farmers wanting to establish irrigated farms in Ghana.

Professor M.O. Watkins, Mr. E. Bortei-Doku and Mr. J. Gordon maintained the closest possible links with the Ministry of Agriculture. Mr. Bortei-Doku served on several committees in the Ministry. Mr. Gordon assisted the Institute of Adult Education in its Awudome College Agricultural Education project.

Publications:

S. La-Anyane

- "The Case for an Agricultural Revolution in Ghana" (*Proceedings of New Year School*, 1970).
- "Social and Educational Factors Relevant to Agricultural Progress in Ghana" (*Proceedings of GAAS 10th Annual Conference*, November, 1969).
- "Problems of Rural and Agricultural Development in Ghana" (*Proceedings of Cape Coast University Social Studies Centre conference*, 1970).

- Social barriers to Rural and Agricultural progress in West
ern Africa (*Proceedings of conference of Sociological
Society*, 1970).
 - Contributions on "Land tenure", "Plantations" and "Sub-
sistence Agriculture" to *African Encyclopaedia on
Agriculture* (OUP, London, 1970).
 - "Pattern of Cocoa Futures Marketing in U.S.A." (Cocoa
Conference, 1969).
- C.W. Bockhop
- "A proposal for Agricultural Engineering and Farm
Mechanisation at the University of Ghana" (Faculty of
Agriculture Seminar).
 - "Drying and Storing of Cereal Grains" (Orientation course,
Ministry of Agriculture, Tsito).
- M.O. Watkins
- "Extension and Rural Development" (*Legon Agricultural
News*, February, 1970).
 - "Extension Methods in Ghana" (Mimeo)
 - "Principles and Procedures Followed by the Crops Pro-
duction Division, Ministry of Agriculture, in Building
Extension Programmes" (Mimeo)
- E. Bortei-Doku
- "A search for development possibilities in Ghana's agricul-
ture." (*IPA conference proceedings*, 1970).
- B.E. Rourke
- "Labour Force Engaged in Cocoa Production in Ghana"
(*Cocoa conference proceedings*, November, 1969).
 - "A Note on Ghana's Contribution to Year-to-Year Changes
in World Production of Cocoa Beans"
- (with H.H. Hiadzi)
- "The Use of Tractors in the Accra Agricultural District
(Legon, 1970).
- (with A.S. Appiah)
- "The Organisation of Labour for the Production of Cocoa
Beans in Ghana" *Cocoa Marketing Board Newsletter* No
44 April, 1970.
- J. Gordon
- "State Farms in Ghana", *Change in Agriculture* (Duck-
worth, 1970).

- *Cocoa in Ghana and Nigeria* (praeger ,1970).
- "Attitudes and Opinions of some Extension staff in Ghana", *Ghana Journal of Agricultural Science* (1970).
- Editorials for *Legon Agricultural News*.

Katamanso Farm:

The first commercial livestock project of the University of Ghana Farm Enterprises was launched at Katamanso near the Agricultural Research Station, Nungua on 1st October, 1969.

Research in Village Development:

A joint Legon-Reading University research project in village Development was initiated during the year. Eight villages in the Volta Region were selected for survey.

DEPARTMENT ON ANIMAL SCIENCE

STAFF:

All established positions in the department have been filled as of March, 1970. This is the strongest position the department has enjoyed in recent years. It is especially noteworthy that the staff comprises six Ghanaians and one Nigerian and one American.

Dr. E. N. W. Oppong submitted a thesis on some aspects of bovine demodicosis, streptothricosis and bestnoitiosis in Ghana and a study of *Demodex ghanensis* sp. n. to the University of Dublin, for which he was awarded the Ph.D. degree.

Four members hold the Ph.D. degree and one member is on study leave doing advanced work toward the Ph.D. at McGill University in Canada. A training programme has been set forth to enable the other members in the department to do advanced work leading to the Ph.D. degree over the next six years.

SENIOR MEMBERS 1969-70

C.W. Cameron, B.Sc., M.Sc., (Penn.)	
Ph.D. (Corn.)	— Professor and Head of Dept.
E.N.W. Oppong, BVSC & AH. (Agra.) MRCVS Camb.	
D.T.V.M. (Edin.) Ph.D. (Dublin)	— Senior Lecturer
R.E. Larsen, MSc. (Iowa) (on leave)	— Lecturer
G.E.S. Williams, B.S. (Berea) M.Sc. (Corn.)	— Lecturer
E.O. Otchere, B.Sc. (Ghana) M.Sc. (Iowa)	— Lecturer
L.O. Ngere, B.Sc. (Lond.)	
M.Sc., Ph.D., (Corn.)	Lecturer
R.K. Assoku, BVM & S. (Glas.)	
MRCVS., (Lond.) Ph.D., (Edin.)	— Lecturer
F.K. Fianu, B.Sc. (Ghana) M.Sc. (Cal.)	— Lecturer

Dr. K.W. Benson returned to the United States at the end of the 1969-70 session. Dr. E.N.W. Oppong asked for and was granted an extension of his study leave by a term. Dr. R.K. Assoku was appointed lecturer in Animal Health in October but could not assume duties at the beginning of the session. The division was therefore short by one permanent member of staff during the Michaelmas term. Teaching during this term was undertaken by Dr. S.K.B. Quartey, Dr. K.O. Gyening, Dr. K. Taylor and Dr. I. Frimpong-Boadu, who were employed as part-time lecturers.

Dr. E.N.W. Oppong, returned to Ghana on the 11th of January, 1970 and resumed duty the following day, the 12th of January. Dr. R. K. Assoku arrived on the 15th of April and reported for duty on the following day. With the promotion of Dr. E.N.W. Oppong to Senior Lectureship, the division attained its full establishment for the first time since October 1966. All the part-time lecturers were retained till the end of the teaching session for 1970.

In addition to the part-time lecturers in Animal Health mentioned above the following persons were called upon to give lectures related to other aspects of the Animal Science programme. They include Mr. T.O. Mills, Animal Husbandry Division, Ministry of Agriculture, Mr. St. John Clotey, Food Research Institute and Mr. A.K. Mofi of the Animal Research Institute.

Two members of junior staff were awarded U.S.A. U.D. scholarships to undertake courses leading to an associate degree in applied science at State University of New York at Alfred, New York. Mr. S.K. Qurrantey will do a course in Laboratory Technology and Mr. B. K. Asholey will do a course in Agricultural Sciences, with emphasis on Animal Science.

TEACHING

The Department participated in the following teaching programmes of the Faculty.

1. B.Sc. (Honours) Agriculture Part I, Part II and Part III.
2. Special Diploma in Agriculture
3. National Diploma in Agriculture, Part I and II.
4. National Diploma in Agriculture, (Animal Health) Part I and II.

Three students majoring in Animal Science completed the work leading to the B.Sc. Degree during the academic year 1969-70.

One Masters Degree candidate from the University of Science and Technology at Kumasi conducted a research project on silage

preservation at A.R.S. Nungua under the supervision of Professor C. W. Cameron.

The department offered short courses in (1) Poultry Production and (2) Pig Production during the long vacation under a programme arranged by the Extension Division of the Faculty.

RESEARCH

Departmental research activities were conducted at Agricultural Research Station, Nungua, Agricultural Research Station, Kpong and in Faculty Laboratories at Legon. Projects conducted by members in the department during academic year 1969-70 are listed below: -

I. *Breeding and Management*

1. *Title:* Crossbreeding programme using Santa Gertrudis semen on local breeds of cattle.

Officer-in-charge: Professor C.W. Cameron and Dr. F. Vohradsky.

2. *Titles:* a) Study of systems of management of poultry using deep litter, cages and extensive range system.

b) Study of systems of management of Guinea Fowl.

Officer-in-charge: Mr. G.E.S. Williams.

3. *Title:* The response of the local chicken to improved management.

Officer-in-charge: Mr. G.E.S. Williams.

II. *Nutrition*

1. *Title:* Rate of growth and feed efficiency of cross bred cattle using various locally produced feeds.

Officers-in-charge: Professor C.W. Cameron and Dr. F. Vohradsky.

2. *Title* Nutritional studies with pigs using various locally provided feeds for pork production.

Officer-in-charge: Professor C. W. Cameron.

III. *Grassland and Forage Production and storage*

1. *Title:* Study of silage preservation.

Officer-in-charge: Professor C. W. Cameron

2. *Title:* Field trials for alfalfa production with and without irrigation.

Officer-in-charge: Professor C.W. Cameron.

Dr. E. N. W. Opong, concluded the first phase of his work on skin diseases of cattle. This project is still being pursued to

include sheep and goats with emphasis on epizootiology, pathology treatment trials and in collaboration with Dr. R. K. Assoku on their immunological aspects.

Research on several proposed projects were restricted owing to lack of funds. The department is hopeful of undertaking additional projects that have been proposed and approved pending funds. These projects are on file in the Department.

PUBLICATIONS

- Staff Department of Animal Science.
Commercial Goat Keeping In Ghana.
Legon Extension Bulletin No. 3.
April, 1970.
- Mammah, M. K. and C. W. Cameron.
Making Ham, Bacon and Lard.
Legon Extension Pamphlet No. 1.
April, 1970.
- Olsen Ellen, M. and G. C. Ashton.
Use of locally available feedstuffs for laboratory rats
diets in Ghana.
Ghana Journal of Agricultural Science, Vol. 3, Part, 2,
December 1970 (in press).
- Oppong, E. N. W.
Relative Susceptibility of Pigs, Sheep and Goats to the
type A Virus of Foot and Mouth Disease. *Ghana
Journal of Science*, Vol. 9 (1) page 54-60.
Toxicity of Berenil in the Dog. *Veterinary Record* Vol.
85, p. 370
The Livestock Industry in Accra Plains. *Legon Agri-
cultural News* Vol. 30, pp. 11-14.

PUBLIC ACTIVITIES AND CONFERENCES

All staff members continued to be active in various extension activities, advising farmers in many aspects of livestock production.

The department was well represented at the Third Animal Science Symposium held at University of Science and Technology at Kumasi on May 21 and 22, 1970

Dr. E. N. W. Oppong read a paper on Bovine Demodicosis in Ghana at the West African Science Association at Ibadan on 30th March to 4th April, 1970.

Professor C. W. Cameron attended American Society of Animal Science held at Purdue University in United States in August from 3rd—7th 1969. He also participated in a 2 week Workshop on Agricultural College and University Development held at Purdue University on 27th July, 1969. In May 1970 he read a paper: "Feeding Pigs for Profit" at the third Animal Science Symposium held at University of Science and Technology at Kumasi.

DEPARTMENT OF CROP SCIENCE

The Department of Crop Science (formerly known as the Department of Crop Husbandry and Horticulture) consists of two divisions, namely: the Soils Division and Crops Division. These divisions, although quite distinct, work together in close co-operation. The Department deals with those aspects of agriculture referred to elsewhere as Agronomy.

The Department continued for the sixth successive year without a Professor. During the year Dr. D. K. Acquaye, Senior Lecturer in Soil Science, acted as Head of Department. All senior staff posts were filled during the year except that of Lecturer in Crop Physiology. Mr. K. A. Haizel after successfully completing his Ph.D. degree returned to Ghana from study leave and resumed duty in November, 1969. Mr. P. Lamprey, the plant pathologist, was away for the second year on study leave. In his absence, Dr. J. T. Legg of the Cocoa Research Institute, Tafo gave the plant pathology lectures on part-time basis for the second year. Towards the end of the academic year Mr. E. F. G. Mante and Mr. E. V. Doku proceeded on study leave to Australia to work for the Ph.D. degree.

Dr. E. J. Thompson, Lecturer in Soil Science, was promoted Senior Lecturer during the year.

STAFF

The position of senior staff and their major fields of specialisation during the academic year were as follows:

Soils Division

Dr. D. K. Acquaye, Senior Lecturer: soil chemistry and fertility.

Mr. P. M. Ahn, Senior Lecturer: General pedology and soil classification with special reference to tropical soils.

Dr. E. J. Thompson, Senior Lecturer: soil chemistry and fertility including biological transformation of nutrients in soils.

Mr. E. F. G. Mante, Research Fellow: soil physics.

Crops Division

Dr. K. A. Haizel, Lecturer: tropical crop production, particularly the use of weedicides.

Mr. E. V. Doku, Lecturer: crop improvement and crop production, particularly annual grain legumes and root crops, Mr. P. Lamptey, Lecturer (absent on study leave in Canada since October 1968): plant pathology, particularly virus diseases.

Dr. S. Sinnadurai, Lecturer: crop production in the tropics, particularly vegetable crops.

Ir. P. van Halteren, Lecturer: agricultural entomology and the control of insect pests.

Dr. J. T. Legg, Part-time Lecturer: plant pathology, including virus diseases.

Teaching

The Department continued to offer five different courses at the Diploma, B.Sc. (Hons) Agriculture and M.Sc. (Agric) levels. At the Diploma level the Department co-operates with other departments in the teaching towards the one-year Special Diploma course and the two-year National Diploma in General Agriculture course.

At the B.Sc. (Hons) Agriculture level the Department continued teaching soil science, crop production and crop protection. The honours course, as now designed, allows increasing specialisation; the students specialise from their third year, and in the fourth and final year they may elect to study either soils or crops alone within the Department. The first group of students under the new four-year course completed their training at the end of the year. Of the four students (two in soils and two in crops) one obtained a first class in crop science whilst the other three obtained an upper second class.

At the M.Sc. level two distinct courses are offered in crop science and soil science. During the year one of the two students completed the course in soil science.

(a) Soil Science

The soil science teaching continued to be shared at all levels by Dr. D. K. Acquaye, Mr. P. M. Ahn and Dr. E. J. Thompson. Mr. E. F. G. Mante assisted by giving the soil physics lectures at the M.Sc. level.

(b) Crop Science

The crop science teaching in crop production was shared by Dr. K. A. Haizel, Mr. E. V. Doku and Dr. S. Sinnadurai and in crop protection by Ir. P. van Halteren and Dr. J. T. Legg.

Research

(a) Soils Division

Dr. D. K. Acquaye continued his programme of research on the assessment of nutrient availability on representative soils of Ghana. With the co-operation of an M.Sc. student, work on the availability of phosphorus in these soils was completed. He continued work on the following subjects:

- (1) factors affecting phosphorus availability in acid soils of Ghana;
- (2) potassium reserves in Ghana soils;
- (3) the estimation of availability of nitrogen in Ghana soils.

In co-operation with a fourth year student, Mr. A.S.K. Danso, he started studies on the manganese status of Ghana soils. Mr. Danso was awarded the 'Shell Prize' for a dissertation entitled "The manganese status and its availability in representative soils of Ghana" which was based on this work.

Mr. P. M. Ahn continued his work on the genesis, physical and chemical properties of Ghana forest soils. Detailed investigations included micro-morphological microscope studies on thin section, physical analyses, routine chemical analyses, determination of clay minerals and determination of heavy minerals in the sand fraction etc. He also continued the catena experiment, which is designed to give information on soil changes during cultivation and fallow periods, with a fifth year of cropping.

Investigations on the physical properties of Ghana soils particularly on texture and the extent of micro-aggregation were also continued.

Dr. E. J. Thompson continued his work on the calibration and use of chemical tests for determining fertilizer needs of soils. In co-operation with a fourth year student, Mr. M. R. Appiah, he continued investigations on the C/N status of Ghana soils. Investigations into nitrogen fixation by ten grain and forage legumes initiated in co-operation with an M.Sc. student, Mr. E. A. Dennis, continued.

Mr. E. F. G. Mante continued his work on water requirements of cotton and tomatoes on soils at Kpong.

(b) Crops Division

Mr. E. V. Doku continued his work on the food legumes. This work concerned the flowering, pollination, fruit setting, nodulation and nitrogen fixation of the food legumes.

Dr S. Sinnadurai continued studies on the improvement of tomato cultivars in co-operation with Mr. F. V. Doku. This work yielded two outstanding cultivars which were multiplied for seed and the seeds distributed to farmers in Anloga, Ho, Tsito, Kpedze, Damango, Navrongo, Manya and Nasia. The response from Anloga has been very good. At present 32 farmers at Anloga are growing tomato varieties produced from crosses at the Department. Studies on the effects of plant growth regulators on vegetable crops have been intensified as the responses have been good. The results of trial at Bawku are not yet in but work done in co-operation with a fourth year B.Sc. student, Mr. J. F. Abu, has shown that the flowering of the 'Bawku' onion can be chemically controlled to give bigger-sized bulbs. Studies on crosses between 'Bawku' onion and shallot, and the storage and flowering of shallots were continued. Work done also in co-operation with Mr. S. K. Amuti, fourth year B.Sc. student, has shown that the total soluble solids content, a factor which is important for canning tomatoes, can be increased by the use of the plant growth regulator 'cycopel'. Work on herbicides also continued. Research was also began on the oil crop sesame, and the fibre crop cotton.

Ir. P. van Halteren continued his studies on insect pests of rice, cowpea, tomato, onion and mango. He also carried out research on the accumulation of the persistent insecticide dieldrin in an insect food chain.

Broadcasts

Several members of the Department, particularly Dr. D. K. Acquaye, Mr. E. V. Doku, Mr. E. F. G. Mante and Dr. E. J. Thompson contributed to radio discussions and broadcasts on agricultural topics in the 'Focus on Agriculture' programme of Radio Ghana. Dr. D. K. Acquaye was elected Scientific Editor of the new *Ghana Journal of Agricultural Science*, which is an amalgamation of the former *Legon Journal of Agriculture* and the former *Ghana Journal of Agricultural Science*. This is published under the joint sponsorship of the Faculties of Agriculture at Legon and Kumasi and the Council for Scientific and Industrial Research.

Publications

- Ahn, P.M. . Some aspects of soil texture in West Africa. Paper read at the Soil Science Society of Ghana Conference, Kumasi April 1970 (23pp, mimeo).
- . The effects on plantain and cocoyam yields, and on Ghana forest soils, of clearing by poisoning as compared with clearing by felling and burning.

- Ghana Journal of Agricultural Science*, November, 1970.
- West African Soils (*West African Agriculture*, Vol. 1): 1970. Oxford University Press. 332 pages, 48 photographs.
 - Doku, E. V.: Growth habit and pod production in bambara groundnut (*Voandzeia subterranea*) *Ghana J. Agric. Sci.* 2, 91-95, 1969. and Sinnadurai, S. The need to develop tomato varieties for Ghana. *Int. Hort. Soc.*, 1970. (In press)
 - Doku E. V., and S. K. Karikari: Fruit development in bambara groundnut (*Voandzeia subterranea*). *Ann. Bot.* 34. 1970. (In press).
 - Effect of day-length and water on nodulation of cowpea (*Vigna unguiculata* (L) Walp.) *Expl. Agric* 6, 1970. 13-18.
 - Halteren, P. van: *Cyrtopeltis Tenuis* Reut. (Miridae, Heteroptera), a pest of tomato. *The Ghana Farmer* XIII, 2, 1969, 78-79.
 - The effect of flooding on root-knot nematodes. *The Ghana Farmer* XIII 4, 1970; 176.
 - Some notes on the biology of the scale insect *Aulacaspis mangiferae* Newst. Coccidae, (Hemiptera) on mango. *Ghana J. Agric. Sci.* 3, 1970. (In press).
 - Insect pests of cow (*Vigna unguiculata*) In the Accra Plains. *Ghana J. Agric. Sci.* 3, 1970. (In press)
 - Insect pests of irrigated rice at A.R.S. Kpong.
 - Yearly Report, A.R.S. Kpong, 1969-70. (In press).
 - Agricultural Nematology, a neglected field in Ghana. *Legon Agric. News* 3, 1970; 22-25.
 - The onion thrips, *Thrips tabaci*, on shallots and onions. *Legon Agric. News* 3, 1970; No. 4 (In press).
 - Sinnadurai, S.: A note on the bulbing and flowering habits of the 'Bawku' onion. *Trop. Agriculture, Trin.* 47; 1970 77-79.
 - Effect of light and temperature on onions. *Ghana J. Agric. Sci.* 3, 1970. (In press).
 - Effect of nitrogen fertilizers on Indian spinach (*Basella alba* L) *Ghana J. Agric. Sci.* 3, 1970 (In press).
 - Farming: Helping crops to grow well. *Ghanaian Times* No. 3739.
 - Farming: Helping crops to grow well. *Ghanaian Times* No. 3739.

Sinnadurai, S.: Onion farming in Ghana. *Ghanaian Times* No 3921.

and E.V. Doku: New tomatoes for farmers.

Ghanaian Times No. 3896.

— and S. K. Amuti: Effect of dormancy in shallots. *Expl. Agric.* 1970. (In press).

and J. F. Abu and S. K. Amuti: The Effect of day-length on some tropical crops. *J. W. Afr. Sci. Ass.* 1970 (In press)

and S. K. Amuti. Effect of daylength of pH and soluble solids content in tomato (*Lycopersicon esculentum* L.) *Hort. Science*, 1970 (In press).

Effects of CCC on tomato cultivars in Ghana.

Ghana J. Agric. Sci. 1970 (In press)

Conferences and other Activities

The crops division continued to distribute improved varieties of vegetables to several farmers in southern Ghana, particularly in the Anloga area.

During May, 1970 Dr. D. K. Acquaye visited Hungary in reciprocation of an earlier visit by Professor Istvan Szabóles, Director of the Soil Research Institute of the Hungarian Academy of Sciences, Budapest. While in Hungary he delivered two talks on soils to the Soil Science Society of Hungary. He also continued as a member of the Management Committee of the Soil Research Institute of the C. S. I. R., and as Faculty representative on the Nathan Consortium for Agriculture Sector Studies. He acted as Dean of the Faculty during the absence of Professor S. La-Anyane. He continued as President of the Soil Science Society of Ghana and with Mr P. M. Ahn and Mr E. F. G. Mante attended the sixth annual conference of the Society at Kumasi in February, 1970.

Dr. E. J. Thompson was appointed Master of Commonwealth Hall. He also continued as Secretary of the Volta Basin Research Project and as Co-ordinator of Agricultural Research in the Faculty.

Mr. P. M. Ahn continued as the corresponding member in Ghana of the World Land-Use Survey. He also continued his work on the ecological investigations in the drawdown area of the Lake under the Volta Basin Research Project.

Dr. S. Sinnadurai continued as Ghana representative of the American Society for Horticultural Science. He also attended the following conferences: The Conference on Tropical and Subtropical Fruits (15th—19th September, 1969) organized by the Tropical Products Institute, London; F. A. O. Conference on Propagation

of Tropical and Subtropical Fruits (22nd—24th September, 1969), London; and the 7th Biennial Conference of the West African Science Association (30th March—4th April, 1970), Nigeria.

Dr. K. A. Haizel was appointed a member of the Management Board of the *Ghana Journal of Agricultural Science*.

General remarks

Although the staff position improved (the only vacancies being those of a Professor and a Lecturer in Plant Physiology), work in the Department continued to be restricted by lack of funds, particularly funds for equipment. As a result of this, research has often had to be either modified, delayed or completely suspended. From what the Department is doing under the present circumstances, it is quite apparent that a lot more significant contribution can be made by the Department towards the national development of agriculture if adequate funds become available.

DEPARTMENT OF HOME SCIENCE

Staff

After three years of outstanding service and leadership, Dr. Virginia F. Cutler, who was responsible for the initiation and establishment of the three-year Degree programme in Home Science completed her assignment and resigned to return to Brigham Young University in Utah, U.S.A. in August 1969. Her successor, Dr. Margaret S. McCready, came from the University of Guelph, Canada.

The 1969-70 staff included the following persons, who are listed with their areas of specialization and research interests noted:

Margaret S. McCready, Professor and Head of Department—Nutrition and Child Study.

Margaret J. Ripley, Lecturer, Home Management and Housing, Textiles and Clothing. She completed an analytic study of the plan, the building, the furnishing and cost of *Fidua*, the demonstration village house, which is an experimental laboratory for studies in management and housing.

Joanna D. Nsarkoh, Lecturer,—Foods and Nutrition. She has worked to organize her courses in Introductory and Family Foods to utilise Ghanaian food combinations of excellent nutritional value.

Jean Steckle, Lecturer—Home Management and Extension Methods and Research. She has conducted with students a village extension programme based on a fact-finding

survey and interview of village families, who responded by carrying out several important self-help projects. Her special research is on extension of the above process in several selected rural communities.

Nabilla Williams,—Principal Research Assistant—Human Development, and Director of Nursery School. Her contribution has been in teaching, and in organizing and supervising student observation and experience with pre-school children, and in keeping close contact with parents of children.

She is registered as a graduate student in the Department of Sociology, where she is planning her thesis research to compare child development and personality traits in pre-school children who have, or have not had creative experience with adequate but simple play materials. This year she participated actively in the village extension programme.

Ruth W. Ayres, economist, home economist, visiting senior lecturer on a one year assignment, was brought into the department to work on its research and to develop bases for future research/action projects. She initiated and carried out a small pilot project with emphasis on methodology of data collection on selected factors related to village production, and uses of local protein-bearing foods. She was asked to devote her major time to collaboration with the Department Head and Home Science staff and other potentially involved persons, for the development and drafting of such a departmental interdisciplinary programme. Revised working papers were assembled for interdisciplinary discussion with a university group at the end of June.

Development Programme

Degree and Diploma

A slight revision in the course schedule of the Degree programme was proposed by a study committee because of student complaints of an overload of courses and examinations, particularly in the first year. The revised schedule was accepted by the Board of the Faculty of Agriculture and by the Academic Board and formed the new basis of the Degree programme from 1969.

At the same time the programme of studies for a two-year Diploma in Home Science Extension was being finalized, and was accepted by the Board of the Faculty of Agriculture and the Academic Board. This programme was offered in response to the need for district level Technical people to work in home science

extension in several of the Ministries and in some non-governmental agencies. Five trainees sponsored by the Ministry of Agriculture began their training in October, 1969. A request came from Tanzania that we consider accepting their trainees for this Diploma programme. Developments in the need for this training of assistants in home science extension will be constantly appraised particularly after the first graduates have been at work in the field and have shown the value of their home science training.

There was much discussion with students and staff during the year about the need to offer a fourth year in the Degree programme, thereby offering the students an opportunity for specialization in their chosen area of studies and in concentrated training for field work. Plans for this increase in course work will involve also planning for additional highly qualified staff and also for additional space for offices and other needed laboratory-conference areas to accommodate the predicted increase in student numbers, and also field laboratory facilities are essential.

Student Enrolment

There were twenty-three students enrolled in the Home Science Department, eighteen in the Degree programme (6,8,4, in the three years, respectively), and five in the diploma programme (first year). The second group of Degree students have now graduated, the four achieving B class standing, two in upper division B, two in lower division B. Of the twenty-three students examined this year, one was referred to repeat Part I of the Degree programme. Four students were referred in one subject and had to write a supplementary examination in September. There was a total of nine graduates from the Degree programme; three of these proceeded to enrol in Graduate Diploma studies, two in Applied Statistics, one in Library Studies.

Employment of Graduate

Of the first group of graduates one was employed by the Rural Development Department of the Ministry of Youth and Rural Development, another by the Central Revenue Department. Others planned to take up teaching as a career, or seek positions as researchers in universities and elsewhere.

Nursery School

This facility of the Home Science Department has been in such constant involvement with community groups of parents and child care workers that its value extends much beyond its service to students as an observation centre enhancing their course in

Human Development and providing experience with and understanding of pre-school children. This year the playground location had to be moved at considerable expense. Fortunately a generous grant of \$1500 was received from the Canadian Save the Children Fund. This organisation was impressed with the role of the nursery school in the Home Science educational programme and in the community.

Publications

Three articles have been published on the work of the Home Science Department, in *New Era magazine*. The titles were Home Science: New Horizons for Ghana (January, 1970) Child Development Studies, by Nabilla Williams (March, 1970); The Nutrition and Feeding of Children, by Joanna Nsarkoh (April, 1970). This magazine is widely distributed throughout secondary schools in Ghana.

Mrs. Margaret J. Ripley completed in April, 1970, a Report on *Fidua*. Environmental Studies House, Home Science Department, Faculty of Agriculture, University of Ghana, Legon.

An informative leaflet on the Home Science Department describing the Degree and Diploma programmes, was published through the generosity of the VALCO Company.

Mrs. Williams and Mrs. Nsarkoh have non-technical manuscripts in preparation for bulletins in the Agricultural Extension series. In addition, Mrs. Williams completed work on a manual for parents of nursery school children, and for another booklet on adult responsibilities for phases of child development.

Dr. Ruth Ayres' report on "the protein study" is forthcoming.

Gifts

The Department acknowledges gratefully the many contributions in money and in kind which have been made by individuals, agencies and companies. These have helped substantially in the work of our new Department.

The Trust and Fellowship Fund established by Dr. Virginia Cutler is awaiting further donations before the interest can be of sufficient size to support a graduate fellowship for a Ghanaian candidate.

Conferences

Through active co-operation with the Ghana Home Science Association, the Home Science Department was involved in

splendid meetings bringing together many professional workers in Ghana from the areas associated with home science. This year we were honoured to have the Prime Minister, Dr. K. A. Busia, as our special speaker when our theme was *Home Science in Toto—The Family, Key to Development*. For this event the auditorium in the School of Administration building was filled to capacity. The conference represented the Ministries of Health, Housing, Youth and Rural Development, and Labour and Social Welfare, and also many non-governmental agencies.

During the year staff contributed to other conference groups with such organisations as the Women's Division, T.U.C., Planned Parenthood Association, the Y.W.C.A., Department of Social Welfare Training School for Day Care supervisors and senior attendants, the Parents Association of Home Science Nursery School.

AGRICULTURAL RESEARCH STATION—KADE

MEMBERS OF STAFF AND THEIR RESEARCH INTEREST

NAME	POSITION	RESEARCH INTEREST
F. Pospisil M.Sc.Ph.D. (Prague).	Senior Research Officer-in-Charge	Citrus, Avocado, Mango, Pawpaw and Spices.
A.A. Opoku, B.Sc. (Cornell), M.Sc., Ph.D. (Calif.)	Research Officer	Rubber, Cola, Cover Crops and mineral nutrition of Crops.
S.K. Karikari, B.Sc., M.Sc., (Legon).	Assistant Research Officer	Plantain, Banana Cocoyam, Pineapple and Legumes.
E. Boamah Mensah, B.Sc., (Legon).	Graduate-in-Training	General Agronomy.

RESEARCH:

The Station continued to be primarily concerned with investigations into methods of cultivation of tropical and sub-tropical perennial crops. Semi-perennial and annual crops had previously received little attention, but research activities in these were intensified during the year under review. 27 acres were planted for

experiments on the agronomy of plantains, bananas, cocoyams, pineapple, ginger, pawpaw and winged beans.

The "double bunch plantain" cultivars studies started in the previous year appear to indicate that double bunch formation may be the result of floral mutation.

Results of citrus rootstock trials at the Station show that Rangpur Lime as rootstock for sweet oranges must be preferred to Rough lemon as fruit quality is much better and the tree shape is much smaller. The smaller tree size makes it possible to plant more closely at about 20 ft. x 20 ft. instead of the 25 ft. x 25 ft. recommended by the Ministry of Agriculture.

PUBLICATIONS:

POSPISIL, F., KARIKARI, S. K.,
AND MOAMAH-MENSAH, E.

Dichotomy of inflorescence of the plantain (*Musa paradisiaca* Linn) in Ghana. *Ghana Journal of Agricultural Science* (in press).

POSPISIL, F. KARIKARI, S.K.,
AND BOAMAH-MENSAH, E.

Three new tangerine varieties among A.R.S., Kade selection. *Ghana Farmer* (in press)

OPOKU, A.A.

Availability and uptake of iron: Effect of pH changes during uptake of macro-nutrient ions. Ph.D. Thesis, University of California, Riverside, 1970.

KARIKARI S.K.

Flowering pollination and pod-formation in Bambarra groundnut (*Voandzeia Subterranea* Thouars) in Ghana. M.Sc. Thesis University of Ghana, Legon 1969

- Economic importance of Bambarra groundnut (*Voandzeia subterranea* Thouars) in Africa.—a Review. *World Crops* (in press)
- Plantains (*Musa sapientum* Linn) and Bananas (*Musa sapientum*

Linn) and their identification. Paper read at Faculty of Agriculture Seminar, Legon February, 1970).

- A note on Plantain (*Musa paradisiaca* Linn) and Banana (*Musa sapientum* Linn) cultivars in Ghana. *Ghana Journal of Agric.* (in press).
- Plantain (*Musa paradisiaca* Linn) growing in Ghana. *World Crops* (in press)
- Problems of plantain (*Musa paradisiaca* Linn) production in Ghana. *Ghana Farmer* (in press)
- Plantains in Ghana. *Legon Extension Bulletin* (in press).
- Cocoyam (*Xanthosoma sigittifolium* and *Colocasia antiquorum*) growing in Ghana. *World Crops* (in press)
- Commercial citrus production in Ghana. *Legon Extension Bulletin*. (in press)

KARIKARI, S. K. AND
DOKU, E. V.

Operational selection in Wild Bambarra groundnut (*Voandzeia subterranea* variety *spontanea*) under cultivation. Paper read at the 2nd Biennial Conference of the Ghana Science Association, Legon. December, 1969.

- Fruit development in Bambarra groundnut (*Voandzeia subterranea* Thouars) in Ghana. *Annals of Botany* 34. (in press).
- Flowering and Pod Production in Bambarra groundnut (*Voandzeia subterranea* Thouars) in Ghana. *Ghana Journal of Agric. Science*. 3. (in press)

AGRICULTURAL RESEARCH STATION, KPONG

Introduction

This Station offers research facilities in mechanized irrigation agriculture in the Accra Plains. Undergraduates at the Faculty of Agriculture, Legon, visit the Station periodically on study tours with their tutors. The first postgraduate degree in agriculture was awarded in 1969 for work conducted at the Station in Sugar-cane agronomy. A wide range of studies for postgraduate degrees in agricultural science of immediate benefit to Ghanaian agriculture can be conducted at this Station.

Senior Staff

NAME	APPOINTMENT	SPECIALIZATION
E.J.A. Khan, M.Sc.	Senior Research Officer	Soil chemistry
A.N. Aryeetey, M.Sc.	Research Officer	Plant Breeding
J.W. Oteng, M.Sc.	Junior Research Officer	Soil chemistry
A.A. Quarcoopome	Asst. Farm Manager	—
S.D. Jones	Senior Technician	Agric. machinery and motor vehicles

Mr. Y. Tweneboah, M.Sc., an agronomist of the Crops Research Institute has been stationed at Kpong working on sugar-cane.

Mr. J. W. Oteng was appointed in April 1970 to assist in developing laboratory studies in support of field experiments.

The post of Farm Manager remained vacant.

Junior Staff

Mr J.T. Ahulu, Farm Bailiff, successfully completed a 2 year course at the University for the National Diploma in Agriculture and resumed duty in July 1970.

Mr. J.M.D. Obeng was promoted to Departmental Assistant Grade I, and Mr. G. Y. Gidiglo was promoted to Senior Clerk.

Other Junior Staff remained in their posts except for the Senior Accounts Clerk and Store Keeper who were transferred to Legon and replaced by an Accounting Assistant and Senior Store keeper from Legon temporarily.

Amenities

Accommodation for both Senior and Junior Staff at this Station has been inadequate; 2 research officers presently live off the Station and the University expects to make new houses available for them at the Station by 1971.

Electricity supply from a 12-year old Diesel generator (31 KVA) was poor in recent years, but L. Rose and Company Limited

generously donated 2 Mc Laren generators (69 KVA) to the Station in April 1970, and these are now in use until the lines connecting the Station with the Akosombo power supply are installed later..

All the roads of the Station need to be repaired.

The pump on the Volta River at Kpong Water Works was not working satisfactorily because of the difficulty in obtaining spare parts for maintenance, and for several weeks in 1970 the Station was without irrigation water. Field experiments were therefore adversely affected.

Notable activities and developments during the year

Ghana held a Conference on Rice Production at the University in February 1970 organized by the Ministry of Agriculture, the Faculty of Agriculture, Legon the C.S.I.R. and U.S.A.I.D. Some 16 papers were read and discussed at this Conference, which ended on February 6 with a successful Field Day for Rice at Kpong Station opened by the Minister of Agriculture and the Vice-Chancellor of the University.

Under an agreement signed by the Government of Ghana and the FAO (UNSF) of United Nations for "A Pilot Irrigation Settlement Scheme, Asutsuare", new offices were erected at the Station for this project, and an auxiliary farm on the alluvial Soils of the Volta River was started for extending experimental studies. A training school in irrigation agriculture was approved for erection at the Station by 1971.

Current Research Projects:

The following research projects on Black Soils (Vertisols) were approved by the Research Committee of the Station: -

- a) Introduction and selection of new rice varieties (A. N. Aryeetey)
- b) Fertilizer requirements of irrigated rice (E.J.A. Khan)
- c) Weed control in rice (A. N. Aryeetey)
- d) Cotton agronomy (E. J. A. Khan)
- e) Weed control in sugar-cane (Y. Tweneboah)
- f) Treatment of sugar-cane planting material (Y. Tweneboah)
- g) Sugar-cane variety trials (Y. Tweneboah)
- h) Spacing and type of sugar-cane planting material (Y. Tweneboah)
- i) Fertilizer requirements of sugar-cane (Y. Tweneboah)
- j) Introduction, selection and breeding of cowpea varieties—(A. N. Aryeetey)

- k) Weed control in cowpea (A. N. Aryeetey)
- l) Introduction, and trials of new crops—soya bean, sorghum, sesame, wheat (A. N. Aryeetey)
- m) Beef cattle breeding (Prof. C. W. Cameron)

Mr. J. W. Oteng worked on the assessment of the present fertility status of the soils in all fields after some 14 years of experimentation.

Mr. Khan was a representative of Ghana at the West African Rice Seminar held in Ibadan in March 1970 sponsored by Ford Foundation, West Africa Regional Office, Lagos, Institut de Recherches Agronomiques Tropicales et des Cultures Vivrières, Paris and International Institute of Tropical Agriculture, Ibadan.

Mr. Aryeetey served on the National Seed Committee dealing with seed multiplication of recommended crop varieties, and Mr. Khan is a member of the National Weed Committee.

The Station co-operated with the Ministry of Agriculture in the testing of recommended varieties in the rice growing areas of Ghana, and also in the use of chemicals for controlling weeds in rice. In April 1970 Mr. Aryeetey trained 6 regional agricultural assistants at the Station in the techniques of applying herbicides, and they returned to their districts to put down herbicide trials with rice.

The Station has been one of the locations selected in Africa for the International Rice Adaptation Experiment co-ordinated by Professor T. Matsuo of Japan, and about 50 varieties were grown by Mr. Aryeetey in this international trial.

The following papers were read at Seminars and Conferences -

Aryeetey, A. N.

"Rice Research in Ghana including weed control"
Ghana Agric. Conference on Rice Production,
Legon, February 1970.

Khan, E. J. A

"Rice Research in Ghana with particular reference to fertiliser requirements", Ghana Agric. Conference on Rice Production, Legon, Feb. 1970.

"Status of Rice in the Accra Plains, Southern Ghana", West African Rice Seminar, Ibadan, Nigeria, March 1970.

Aryeetey, A. N.

"Chemical weed control in Cowpea at Kpong", 3rd Annual Meeting, National Weed Control Committee, Accra, March 1970.

"Chemical Weed Control Investigations in Rice at Kpong", 3rd Annual Meeting, National Weed Committee, Accra, March 1970.
Control Committee, Accra, March 1970.

Tweneboah, Y.

"Initial Trials with herbicides in sugar-cane at Kpong", 3rd Annual Meeting, National Weed Control Committee, Accra, March, 1970.

AGRICULTURAL RESEARCH STATION, NUNGUA

(1) STAFF POSITION:

(a) Senior Staff:

Frantisek Vohradsky,

MVDr. C.Sc., Brno., Senior Research Officer-in-Charge, specialized in Veterinary Medicine and Animal Hygiene. Resigned as from 1st October, 1970.

Ivan Sada, Ing. Brno.,

Research Officer—specialized in Animal Husbandry.. Resigned as from 15th July, 1970.

Emmanuel Tetley Ablakwa,

B.Sc. Agric. (Hons), Dip. A.I. Farm Manager—specialized in Animal Husbandry. Appointed on 26th May, 1970.

B. K. Quartey-Papaio,

Assistant Farm Manager—seconded to the University Farm Katamanso as Farm Manager with effect from 20th January, 1969.

G. A. Hammond—Accounting Assistant.

A. Azu—Technician, Workshop.

Joseph Odai Laryea, Technician, Workshop.

Dave Brown, B.Sc.,

California-Davies, Research student—Peace Corps Volunteer with special assignment.

P. Connolly, M.R.C.V.S.,
Veterinary Surgeon, Instructor V.S.O.

- (b) *Junior Staff*
47 established employees.
- (c) *Monthly-Rated:*
61 monthly-rated employees.

(2) Development in teaching:

The First and Second Year students of the Faculty of Agriculture, Legon, had their Long Vacation practical course at the Station.

(3) *Research:*

The following Research Projects were conducted by Officers at the Station:

- (a) Research Project No. 1: "Crossbreeding dairy programme in cattle". Officers in Charge: Dr. F. Vohradsky and Mr. I. Sada. The aim of this programme is to develop suitable types of dairy cattle. 70 milking cows have been produced so far with a mean of 4,500 lbs of milk per lactation. Rotational system of crossing using local breeds, Jersey and Friesian has been adopted.
- (b) *Research Project No. 14:* "Haematological studies in cattle" Officer in Charge: Dr. F. Vohradsky.
A study to determine the types of haemoglobins in Local cattle has been conducted. The results should serve as a basis for further investigations into relations between haemoglobin types and susceptibility to blood-borne diseases, particularly trypanosomiasis.
- (c) Research Projects Nos. 7, 10, 12, 17, 18, 22, 23, 25, 32, 33 and 34 were undertaken by the Officers from the Animal Science Department of Farm Engineering and will be included in their reports.

Publications

- F. Vohradsky: "Clinical course of *Thelazia rhodesii* infection of cattle in Accra Plains of Ghana" *Bull of Epiz. Dis of Africa*, 1970.
- F. Vohradsky with I. Sada: Annual Report ARS Nungua 1969 (70)

FACULTY OF ARTS

DEPARTMENT OF CLASSICS

The number of students taking various courses in the Department increased considerably for this session. This was due largely to the popularity of Ancient History as a subject both for the First University Examination and for the Combined Honours degree course. There was a total student enrolment of 97 distributed as follows:

Latin:

F.U.E.	...	...	...	...	7
2nd Year Hons.	...	...	...	...	3
3rd Year Hons.	...	...	...	...	8
3rd Year General		...	...	...	1

Ancient History:

F.U.E.	...	...	...	...	58
2nd year Comb. Hons	...	...	...	...	6
2nd Year General	...	...	...	...	13
3rd Year General	...	...	...	...	1

For the first time in more than five years the Department had its full complement of lecturers with the return of Mr. J. O. de Graft Hanson from sabbatical leave, and the appointment of Mr. A. D. MacDonald to replace Mr. C. R. Whittaker who resigned at the end of the previous session. The only vacancy now is the Professorship of the Department. Members have the following areas of specialization:

Mr. J. O. deG. Hanson:

Greek and Latin Literature:
Epic and Drama.

Dr. D. J. H. O. Macqueen:

Graeco-Roman Philosophy: The
Thoughts of St. Augustine.

Miss Daphne Hereward:

Greek Epigraphy and History.

Mrs. Lysbeth Ford:

Greek Drama: Menander and New
Comedy.

Mr. A. D. MacDonald:

Ancient History and Classics.

The session saw the first intake of students for the B.A. Combined Honours Course in Ancient History and another subject. A new Honours Course in Latin without a subsidiary subject, aimed at giving the student a more thorough acquaintance with

Classical Literature, Civilisation and Society and at laying the foundation for post-graduate work in Classics was approved by the University to start in the 1970/71 Session.

Members of the Department were engaged on the following research topics:

Mr. J. O. deG. Hanson:

"Thematic Correspondence in Herodotus and Euripides",
"The Role of Pylades in the Orestes' Legend."

Dr. D. J. H. O. Macqueen:

Preparation of Doctoral Dissertation for publication.

Miss Daphne Hereward:

Preparation of Inscriptions for publication.

Mrs. Lysbeth Ford:

"The Quack Doctor in Greek Literature", "Irony in Menander"

Mr. A. D. MacDonald:

"The History of Sea-power in 4th Century Greek Thought",
"Political and Social Background of the Ionian Revolt"

Publications

Mr. J. O. deG. Hanson:

"Women in Classical Greece"—Contribution to Inter-Departmental series of talks on the General Theme—"Sex and Women"

Miss Daphne Hereward:

"The Command at Marathon" (submitted to *Palaeologia*)

Mrs. Lysbeth Ford:

"The Aspis of Menander" (Contribution to Classical Association Conference at Cape Coast.)
"Thoughts on the Aspis of Menander" (submitted to *Greece and Rome*)

Mr. A. D. MacDonald:

"A Note on the Raid of Sphodrias" (submitted to *Historia*).

In addition, members of the Department continued to participate in the G.B.C. 3 programme "From the Classics". The following were some of the important scripts:

Mr. J. O. deG. Hanson:

"Greek Humanism and Us"
"Aliens in the Greek Society"
"Greek Parrhesia" (Freedom of
Speech).

Dr. D. J. H. O. Macqueen:

"The Occult in the Greek and the
Roman World"; "Apuleius";
"Marriage and Sex in Greek and Ro-
man Society"

Miss Daphne Hereward:

"Glimpses of North Africa"
"The Ethiopians of Kush"
"The Ptolemies of Egypt"

Mrs. Lysbeth Ford:

"Propaganda in Augustine Poetry"
"Seneca the Tragedian"

DEPARTMENT OF ENGLISH

Staff

Alec M. Hardie, M.A. (Oxon)—Professor and Head of Department
K. E. Senanu, B.A. (Lond.) M.A. (Cantab.) Ph.D. (Carnegie-Mellon
Univ) Senior Lecturer

N. Dawes, M.A. (Oxon)—Senior Lecturer (School of Administration)

K. A. Sey, B.A. (Lond.) M.A. (Oxon.) M.A. (Manchester)—Lecturer

J. S. Woolley, M.A. (Oxon)—Lecturer

T. H. S. Kwame B.A. M.Phil. (Lond)—Lecturer

H. J. Andrews, M.A. (Oxon) —Lecturer (School of Administration)

T. K. Setse, B.D. (Lond.) M.A. D.Ed. (Col.)—Lecturer

I. S. Ikiddeh, B.A., (Ghana,) M.A. (Leeds)—Lecturer

A. N. Mensah, B.A. (Ghana,) M. Phil. (Leeds)—Lecturer

P. J. M. Murray, M.A. N.Z., M.A. (Oxon)—Lecturer

Mrs. Gail A. K. Rebelo, B.A. (N.Y.,) M.A. (Yale)—Lecturer

B. S. Kwakwa, B.A. (Lond.)—Part-time Lecturer

James Gibbs, B.A. (Bristol,) M.A. (American Univ. Washington, D.C.)

—Instructor (V.S.O.)

Mr. K. A. Sey, B.A. (Lond) M.A. (Oxon) returned in April from
the University of Manchester where he was awarded the degree
of M.A. for his thesis on "The Characteristics of Educated Ghana-
ian English, an exploratory survey"

M.A. Award

Mr. C. O. Adebayo of the University of Ife, Nigeria was
awarded an M.A. degree for his thesis on "Religion and the Super-
natural in Modern African Literature"

Development and Research

Perhaps the most significant development in language teaching in the Department during the year was the entirely new Language Option syllabus for Honours students. For the first time in the Department, students who are more interested in the study of the English Language than in English Literature are being offered a course, approved by the Academic Board, which is designed to meet this need. The course provides for the study of the history and development of the language in greater depth and more meaningfully than has been possible hitherto; at the same time it emphasises the present-day language, its structure, usage, functional varieties or 'styles', bearing in mind the needs of those for whom English is a second language. The final examination on this syllabus (as for the revised literature alternative) consists of nine papers.

A course leading to an M.A. degree in English Language has also been established.

Research

Our interest is in two broad fields: English as used locally and educated English not restricted to any geographical area. In the first, work is in progress with a view to determining more systematically than has ever been done the areas and features of English at which remedial teaching may most profitably be aimed, and how.

Research Interests and Publications

K. E. Senanu: Theories of Poetic transaction and communication: "The Truth as Event",—an examination of T.S. Eliot's idea of 'the objective correlative' and James Joyce's 'Epiphany'.

The texture of Wole Soyinka's play i.e. the relationship between the verbal drama, music and dance in his plays.

— 'Anton Chekhov and Henry James', *Ibadan English Studies*, Vol. 2 No. 1

Ime Ikiddeh: The Development of the African Novel.

DEPARTMENT OF LINGUISTICS

Staff

Professor J. Ellis: kinds of comparative linguistics (including linguistic theory of translation) and their relation to general and descriptive linguistics; descriptive, comparative and sociological linguistics of language-varieties; theory of grammar.

Senior Lecturer: Miss L. Crier: - working on a Classification of Types of English in Ghana, and also the phonology of Ga English, and organizing an international research project on English in West Africa.

Lecturers: J.R. Birnie: - linguistics of English; applied linguistics of language teaching; attainment levels in written English; linguistic aspects of reading difficulty; examining spoken English; Akuapem Twi.

L. Boadi: - theory of grammar; Akan Grammar and phonology; English in the schools.

Mrs. F. Dolphyne: - phonetics and phonology of Akan (Fante, Asante, and Akuapem dialects); contrastive analysis of English and some Ghanaian languages to determine the influence of Ghanaian languages on spoken English in Ghana.

A. Duthie: - lexicography and semantics; Ewe phonetics, phonology and grammar; preliminaries to an Ewe dictionary; bibliography of publications in and about Ewe.

H. Trutenau: - phonetics and phonology; working on Ga (grammar and lexis in particular); sociolinguistics classification, bibliography.

Miss J. N. Ure: - methodics of language teaching, particularly at an advanced level; theory of registers; general theory of translation.

Fields of Teaching and Research

The following courses were taught this session:

F.U.E.

Second and Third Year General B.A.

Second and Third Year Combined Honours B.A.

Ph.D. in Linguistics

Special Subject (General Linguistics) for B.A. Hons. in English and French

There are now four people registered for the Ph.D. course in Linguistics.

Other Developments

The Department joined with the Institute of African Studies in holding a workshop for training college teachers and others on linguistic and other aspects of teaching of Ghanaian languages with particular reference to the new O Level syllabus. A generous grant for the expenses of this was made by the Ford Foundation.

The Department was represented on the West African Examinations Council Specialist Committee on Ghanaian Languages (O

Level and prospective A Level) by Professor Ellis and Dr. Boadi, and then by Dr. Dolphyne and Mr. Trutenau.

The Department has continued to hold staff seminars attended also by linguists from the Institute of African Studies and the Departments of English and Modern Languages. At a special symposium with a wide audience on "What is Sociolinguistics?" the speakers were Professor Ellis, Miss Cripser, Mr. Trutenau (chair), Dr. Ansre (I.A.S.) Dr. Earle (Psychology).

Miss Cripser continued as Chairman of West African Linguistic Society working party on English and French in West Africa, and as Secretary/Treasurer of the Linguistic Circle of Accra.

Miss Ure spoke to the annual conference of the Ghana Association of Teachers of English on the teaching of registers for the new English syllabus, and with B. Forson and members of the British Council and the Ministry of Education Curriculum Development Division began a research project on Language Use in Ghana.

Publications and Conference Papers

- J. Birnie: "Up the royal road again—in search of inconsistency in i.t.a.", Reading 4.1. "Oral English Exercises for West Africa" Evans.
- L. Boadi: "Reciprocal Predicates in Akan", paper to Ninth West African Languages Congress, Freetown
- I. Cripser: "The English in West Africa Project" 9th W.A.L.C.
- I. Dolphyne: "The Phonology and Functions of Reduplicated Forms in Akan", 9th W.A.L.C.
- A. Duthie: "Preliminaries to the Study of Ewe Lexis", 9th W.A.L.C.
- J. Ellis: "Some Lines of Research in Sociolinguistics" Actes du Xe congres International des Linguistes, Bucharest, 1. "Linguistics in a Multilingual Society", inaugural lecture, Legon.
- R. Osbiston: "Recent Developments in Transformational Theory" paper to Departmental Seminar.
- H. Trutenau: "The Case for generative transformational grammar as applied to first language instruction in Ghana", *Ghana Journal of Education*, 14. "Customs versus Christianity: review of John Mumonye, "Obi" (Heinemann 1969)", *Legon Observer* V.6, and other contributions to this journal.
- "Materials for the teaching of Ghana languages", paper to conference on the Teaching of Ghana Languages, University College, Cape Coast, December 1969.
- "The Importance of the Masking effect in speech of a strong sound stimulus on a short weak preceding stimulus for explaining

- synchronic/diachronic variations of the type/wala/-/wla/ in the Ga language", paper to 6th Biennial Conference of Ghana Science Association, Legon, December 1969.
- "A Sketch of tone rules required in a generative transformational grammar of Ga", 9th WALC.
- J. Ure: "A Comparative Study of Registers: the Distribution of Colour Words in Romanian and English", Actes du Xe Congrès des Linguistes, Bucharest, I. pp. 733-745.
- "Practical Registers", *English Language Teaching*, XXIII, pp. 107-114, 206-215.
- "Lexical Density and Register Differentiation", paper to Second International congress of Applied Linguistics, Cambridge, 1969.
- "The integrated approach to the internal languages of Ghana, II: The study of the mother tongue in a multilingual Community," paper to conference on the Teaching of Ghana Languages, University College of Cape Coast, December 1969.
- "English in a Multilingual Community with special reference to Ghana", 9th WALC.
- and J. Ellis, with A. Rodger (Edinburgh): "Somn: Sleep, an exercise in the use of descriptive linguistic techniques in literary translation", *Babel*, XV.

DEPARTMENT OF MODERN LANGUAGES

The Department of Modern Languages continued to offer courses leading to the following examinations:

- I- U.E. in French and other Modern Languages
- B.A. Honours in French
- B.A. Combined Honours:
 - French/English
 - French/Linguistics
 - French/Latin
 - French/Greek
- A Modern Language/A Ghanaian Language
- Arabic/Islamic Studies
- B.A. in Modern Languages (French with either Arabic, Russian, Spanish or Swahili)
- B.A. General involving a Modern Language.

In addition, German was taught to science students and other interested persons in the University.

Staff

French Section

<i>Name</i>	<i>Appointment</i>	<i>Research or Special Interest</i>
R. F. Amonoo, B.A. (Lond) M.A. (Mane) D.U.P.	Senior Lecturer Ag Head	17th Century French Literature with special reference to drama. Corneille
W. O. Animfen, M.A (Lond)	Lecturer	20th Century Fench Literature including Negro African writing in French; Andre Gide as a pre-Existentialist.
P. A. V. Ansah, M.A (Lond)	Lecturer	The poetry of Senghor
S. K. Britwum, M. Phil. (Lond)	Lecturer	Flaubert, Malraux and Leor Damas.
J. N-D Dodoo, B.A. (Ghana) D.E.S., & Doc. de 3e Cycle (Paris)	Lecturer	20th Century French Literature. Techniques and Evlution of the Contemporary French Novel.
J. J. Achiriga, B.A., (Ghana) D.U. (Bord)	Lecturer	Afrique Francophone Literature.
F. K. Adinyira M. A. (Wisc)	Lecturer	
M. A. Barry, B.A., (Oxon)	Lecturer	Translation
J. Crocq, L.es-L., D.E.S., C.A.P.E.S., (Paris)	Lecturer	Philology and Philosophy. Ghanaian image of France. Ghanaian French. Ghanaian Literature.
P. J. G. Daguerressar, Agrége des Lettres Classiques	Lecturer	18th & 20th Century Literature.
P. Lomer, L.es-L., D.E.S., D.E.S. C.A.P.E.T., (Poitiers)	Lecturer	History of France. 18th Century French Literature. Anna de Noailles.
G. Kleim, L.es-L., (Rennes)	Tutor	20th Century French Literature.

Modern Languages section

Arabic

A. K. Zaki, B.A., M.A., Ph.D. (Cairo)	Senior Lecturer	The literary life in Basra.
A. M. Shyboub, B.A., Postgraduate Diploma (Alexandria)	Tutor	—

Russian

L. Broz, Ph.Dr., C.Sc., (Charles) (Prague)	Senior Lecturer	Russian Language and Literature. The structure and stylistics of the Russian language as compared to some other languages especially Czech., German, English. Methodology of the teaching of Russian.
R.G. Haden, B.A. (Manc)	Lecturer	Linguistic theory and its application to the description of Russian and other Slavonic Languages, French and English.
Mrs. Emilia Mensah Diploma, (Moscow)	Tutor (Part-time)	Russian and Soviet Literature and Novels.

Spanish

Miss E. McGrath, B.A. (Lond)	Lecturer	The Negro in Spanish literature, drama, poetry, novel, prose and folklore—of the 16th and 17th centuries.
J. Tavira	Chief Instructor	

Swahili

Mary Wagstaffe, B.A. (Lond)	Tutor	
J. A. R. Wembah B.A. Rashid, (Dar-es-Salaam)	Tutor (Part-time)	

German

Erich Weissmann, Ph.D., (Freiburg)	Lecturer	
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Developments in the Department

This year, the Department welcomed Dr. J.N-D. Dodoo, Dr. J. J. Achiriga, former pupils of the Department of Modern Languages, Dr. Erich Weissmann, (German) Mr. R. G. Haden (Russian) and Mr. J. A. R. Wembah-Rashid (Swahili). The staffing situation in Modern Languages other than French improved slightly especially in respect of Russian and Swahili, French continuing to be the best established subject. The main development in the Department worth mentioning is the series of staff research seminars. These were instituted to enable members of the Department to know something of the different areas of specialization and also to stimulate research and publication. It is hoped that some of the material would appear in the initial number of a Modern Languages journal which we eventually hope to publish in conjunction with other Departments of Modern Languages in West Africa.

Below is the list of the seminar papers:

Mr. R. F. Amonoo

"The fortunes of Corneille's drama in France during the Consulate, Empire and Restoration Periods"

Dr. J. N-D. Dodoo

"The use of personal pronouns and the quest for new narrative techniques in the contemporary French novel."

Dr. J. J. Achiriga

"The French speaking negro-African writer and his historical situation"

Dr. F. Weissmann

"Phonemic Analysis of the Dialect of Bristol".

Dr. L. Broz

"Periphrastic Adverbs"

Dr. A. K. Zaki

"Arabic Cultural trends in the Middle Ages"

During the course of the year, there were various discussions held as to the future of Modern Languages after 1972 with a view to expanding the programme of activities. One of the possibilities envisaged was that of Area Studies in which language and literature would be taken alongside papers in history, sociology, geography and politics.

The Language Laboratory and the Projection Room, which were lying idle for a fairly long period were recommissioned towards the end of the academic year and were put to good use.

External Examiners

French: Monsieur M. Pollet, University of Dakar.
Arabic: Dr. El-Masri, University of Ibadan
Russian: Dr. Georgette Donchin, S.S.E.E.S., London.
Spanish: Professor J.E. Varey, Westfield College, London.
Swahili: Professor H. W. Whiteley, S.O.A.S., London.

Gifts

Gift of books for the Departmental Library and the Balme Library were gratefully received from the Russian Embassy. On that occasion H. E. The Russian Ambassador and 2 officials of the Soviet Embassy visited the Department and addressed briefly a first year Russian class.

Research and Publication

Mr. R. F. Amonoo:

Writing 2 articles on (1) The appreciation of Racine at the beginning of the 19th Century.
(2) The decline of Voltaire's theatre at the beginning of the 19th Century.

Mr. W.O. Animfen:

Doctorate thesis, "Andre Gide as a pre-existentialist".

Mr. P. A. V. Ansah:

Doctorate thesis, "A critical evaluation of the concepts of Negritude".
"The poetry of Leopold Senghor as an instrument of self-affirmation and social and political emancipation"

Mr. S. K. Britwum:

Doctorate thesis: "Flaubert and Realism"

Dr. J. N-D. Dodoo:

Collecting material for a book entitled "Art and Technique in the 20th Century French Novel."

Dr. J. J. Achiriga:

A survey of modern Ghanaian literature

Mr. J. Crocq:

Typology of faults in Ghanaian French

Microstylistics

Mr. P. J. G. Daguerressar:

Survey and interpretation (linguistic, poetic and philosophical levels) of the

- animal metaphors in "Les Fleurs du Mal" and other works.
- ...
- The Basic differences: Baudelaire and Gautier.
- Mr. P. Lomer:
- 3rd Cycle doctorate thesis on "The Poetic expression of Anna de Noailles."
- ...
- Translation into French of "The Narrow Path" by Francis Selormey.
- Dr. L. Broz:
- Psychology of the first lesson in a Foreign language (in print; article for *G.A.F.T. Bulletin*)
- ...
- Russian Linguistic Terminology (for F.U.E.; will be duplicated in the Department in June-July)
- ...
- Russian Morphology (for F.U.E.)
- Mr. R. G. Haden:
- Completion of material for the Final Report of the contemporary Russian Language Analysis Project.
- Miss E. McGrath:
- Doctorate Thesis: "The Negro in Spanish Literature of the Golden Age".
- Miss M. Wagstaffe:
- Article submitted to "Africa Report" on the teaching of Swahili in Ghana.

DEPARTMENT OF PHILOSOPHY

The Department welcomed two new members of staff, Dr. K. Gyekye and Mr. B. Oguah. During the year Professor W. E. Abraham was away on leave of absence and during the Michaelmas Term Mr. D. Gjertsen was on study leave.

Below are the research interests of members of the Department: -

- W. E. Abraham, B.A. (Lond), M.A., B.PHIL. (Oxon): The philosophy of Leibniz, Rationalism, Philosophical Logic.
- C. B. K. Archampong, B.A., M.PHIL. (Lond): Frege's Theory of Functions, Prescriptivism and Aesthetic Theory.
- E. F. Collins, B.A. (Cantab.): Moral and Political Philosophy.

D. Gjertsen, B.A. (Leeds): The origin and development of the rational tradition in ancient and medieval science and thought.
K. Gyekye, B.A. (Ghana) M.A. Ph.D. (Harv.): Graeco-Arabic Philosophy.

M. A. Kissi, B.A. (Lond): Psychology: its relation to philosophy.
B. Oguah, B.A. (Ghana), B.Phil. (Oxon): Philosophy of Logic.

The Department provided courses for students reading for the following degrees: -

B.A. Honours in Philosophy

B.A. General

B.A. Honours in Political Science.

During the year Professor W. E. Abraham became a member of the Institute in Greek Philosophy and Science (Council for Philosophical Studies, U.S.A.); Mr. J. Arthur, B.A. (Ghana), B.Phil. (Oxon) a former student of the Department, joined the staff of the Department of Sociology; Mr. M.A. Kissi attended a course of study at Stuttgart University.

Publications:

Abraham, W.E.: Mahlon Powell Lecturer (Indiana University, 1969). Introduction to *DEM* by Malvin Kelly (Collier—Macmillan, 1969). "Complete Concepts and Leibniz's Distinction between Necessary and Contingent Propositions" in *Studia Leibnitiana*, Band 1 Heft 4, 1969, Hannover.

Gyekye, K.: "The terms 'Prima Intentio and Secunda Intentio' in Arabic Logic" (Accepted for publication in *Speculum* 1971).
— "The term Istithna in Arabic Logic" (Accepted for publication in *Journal of the American Oriental Society*, 1971).

Wiredu, J.E.: "Kant's A Priori in Geometry and the rise of Non-Euclidean Geometries", in *Kant-Studien*, January 1970.

DEPARTMENT FOR THE STUDY OF RELIGIONS

Staff

<i>Name</i>	<i>Position</i>	<i>Research Interests</i>
Baeta, C. G.	Professor and Head of Department	Bases for Church Union in Ghana. The Relationship of Religion and Medicine in contemporary Ghana.
Kamali, S. A.	Associate Professor	An Anthology of Muslim Statements on the question of Iman (Faith)

Dickson, K.A.	Associate Professor	The Old Testament and African Life and Thought. Old Testament Sacrifices.
Pobee J. S.	Lecturer	Church and State in Ghana. Martyrdom in the New Testament. Matthew's Gospel for Schools. Course Notes for Ordinary Level for Institute of Adult Education.
Mole, D.E.H.	Lecturer	The Church in the Victorian City. The Evangelical Revival and Missions
Gaba, C.R.,	Lecturer/Research Fellow	Studies in the Prophet Movements. The Apostles Revelation Society. Studies in African Traditional Religion - Fwe Ritual Recitals.
Braimah, B.A.R.	Temporary Lecturer	Islamic Faith and Ghana. Islamic Literature and Ghana.

Publications

Dickson, K. A. *The History and Religion of Israel—from Abraham to the Early Days of Israel in the Promised Land*, 160 pp. (Darton, Longman & Todd, 1970).

Pobee, J.S. Early Christian Worship, *Ghana Bulletin of Theology*, December 1969. The Cry of the Centurion—A Cry of Defeat, in the Trial of Jesus (*Cambridge Studies in honour of C.F.D. Moule*) pp. 91-102 S.C.M., 1970.

Gaba, C. R. Sacrifice in Anlo Religion, Part II, *Ghana Bulletin of Theology*, December 1969.

Professor Baeta took his sabbatical, which he spent at Selly Oak in Birmingham. In his absence Professor K. A. Dickson acted as Head of Department. Professor S. A. Kamali also was away at Harvard University on a year's leave. His Islamic courses were taken care of by Mr. B. A. R. Braimah, M.A., who was appointed by the University as Temporary Lecturer in the Department. Mr. Braimah competently shouldered the heavy responsibility of teaching six courses in Islamic Studies. He has been awarded a University post-graduate scholarship to study for his doctorate.

About 160 students, a few of whom were 'Special Admissions' students from America worked in the Department. Of these 65 were first year students, 50 second year, and the rest final year students. Of the 10 final year honours candidates there was only

one failure, and three obtained a Second Class Lower Degree. out of 9 Licentiate candidates were successful.

Trinity College once again presented candidates for the External Licentiate in Theology. All 4 candidates presented were successful. An application from two Roman Catholic Seminaries (Pedu Major Seminary, Cape Coast and St. Victor's Seminary, Tamale) to the University to participate in this special relationship between our Department and outside Theological Institutions has been accepted; the first candidates will be presented within two or three years.

The next session should be a happier one as far as the staffing situation goes. Although Professor Dickson will be away on a year's sabbatical leave, Professors Baeta and Kamali are expected to be at post, and a new lecturer, Mr. J. C. Thomas, whose special field is Philosophy of Religion has been appointed.

In September 1969 Professor Dickson attended a Conference at Abidjan (All African Conference of Churches) at which he read a paper on "Towards an African Theological Expression". Dr. Gaba visited America from the 5th to the 25th of March 1970, and gave lectures and seminars at some Universities on the subject of A Methodological Approach to the Study of African Religion and the Prophet Movements; and from August 16th to the 23rd he attended a Conference of the International Association of the History of Religion in Stockholm at which he presented a paper on The History of Religion and the Study of African Religion.

FACULTY OF LAW

Staff

Mr. Justice A. N. E. Amissah, a Judge of the Appeal Court, Ghana took up his appointment as Professor of Law in December, and was elected Dean of the Faculty.

Professor J. T. Sneed of Stanford University, California came to the Faculty as Visiting Professor for the Michaelmas Term to teach the Law of Taxation.

Mr. D. J. Bentley of Christ Church College, Oxford, visited the Faculty as Lecturer for the Lent Term to teach Jurisprudence and Conflict of Laws.

Appointments

Professor K. Bentsi-Enchill was appointed Honorary Professor of Law. Mr. G.F. Sawyerr was appointed to a lectureship. Mr. Jeffrey Newman of the International Legal Centre was seconded to the Faculty for a two year term to teach the Law of Taxation. Mrs. Josephine Webb was appointed Part-time Lecturer for the Michaelmas Term to teach English Legal History. Mr. E. D. Kom was appointed as a Part-time Lecturer to teach Civil Procedure.

Visits and Exchanges

Mr. Francis Reynolds of Worcester College, Oxford visited Legon as an External Examiner. The special relationship between the Faculty at Legon and the Faculty at Oxford was further strengthened by the visit of Mr. D. J. Bentley. Mr. E. V. O. Dankwa and Miss Mary Koranteng Sakyi gained admission to Oxford to read a B.C.L. degree. Both of them obtained 2nd Upper in the LL B. Degree Examination last year. It is envisaged that further visits and interchanges will be arranged in the years to come.

Mr. William P. Rogers, United States Secretary of State visited the Faculty. He had useful discussions with the Law Students and later presented American Law books to the Law Library. Other visitors to the Faculty during the year included Mr. J. R. P. Dumas, Associate Director Carnegie Endowment for International Peace, Mrs. Patricia Roberts Harris, formerly Dean and Professor of Law, Harvard Law School and U.S. Ambassador to Luxembourg, and Professor David M. Balme, first Principal of the University.

Research Activities

Dr. W. C. Ekow-Daniels was engaged in research into various aspects of Administrative Law and Family Law while Dr. G.R.

Woodman was examining the Case-Law of Customary Land Law and Internal Conflicts of Laws in Ghana and Nigeria. Dr. S.K. Date-Bah and Dr. A.K. Fiadjoe took the initial steps towards the preparation of a Casebook on the Ghanaian Law of Torts. Dr. A. K. Fiadjoe was engaged on the revision of his thesis for publication.

Publications

Dr. W. C. Ekow-Daniels:

- (a) Address: "Legal Effects of Conversion of Customary Marriages into monogamous marriages and of De-Conversion". Conference on developments in the marriage Laws of the Commonwealth 17th April to 20th April, 1970.
- (b) Inter-Faculty Lecture: "The Legal Position of Women under our Marriage Laws".
- (c) Review and Notes in *Ghana Law Review* and *U.G.L.J.* ...

S. O. Gyandoh, Jr.:

- (a) The Role of the Judiciary under the Constitutional Proposals for Ghana (1968) 5 *U.G.L.J.*
- (b) Review article, "Ombudsman" in *Legon Observer* Vol. IV No. 10
- (c) Inter Faculty Lecture: "The Constitutional Basis for the Exercise of Discretionary Powers in the Second Republic"

Dr. G. R. Woodman:

- (a) Review of James and Kasunmu, "Alienation of Family Property in Southern Nigeria" (1969) 6 *U.G.L.J.*
- (b) "Estoppel by Judicial Decision in Ghana" 1969 *Journal of African Law*.
- (c) Palliatives for Uncertainty of Title: the Land Development (protection of Purchasers) act 1960 and the Farm Lands (Protection) Act 1962" (1969) 6 *U.G.L.J.*
- (d) "Conflicts between Ghanaian Systems of Inheritance" (Inter-Faculty Lecture).
- (e) Reports of Land Cases 1938-47 (*General Legal Journal*, 1970.)

G. K. A. Ofosu-Amaah:

- (a) The Structure, Role and Functions of U.N. System. (Seven Lectures, Dag Hammarskjold Foundation, Uppsala 1969).
- (b) "The Law Reform Commission Decree 1969" Notes and Comments (1969) 6 *U.G.L.J.*
- (c) Inter-Faculty Lecture: "The Positions of Aliens in Ghana".

K. K. Dei-Anang:

- (a) The Pre-incorporation Contract and S.13 of the Companies Code (1969) 6 *U.G.L.J.*

D. K. Afreh:

- (a) History of the Ghana Legal System (1969 *Transactions of the Historical Society of Ghana*)
- (b) Chapter on Ghana in Allott's Judicial and Legal Systems in Africa (1968).
- (c) Chapter on Ghana in the Encyclopaedia of World Law (1968)
- (d) Inter-Faculty Lecture: "Lawyers and Litigants in Contemporary Ghana"

Dr. A. K. Eiadjo

- (a) "Juliana Ashong v. Daniel Cobblah Ashong: An Exercise in Excessive Judicial Caution: (1969) 6 *U. G. L. J.* 53
- (b) "The Pre-Incorporation Contract And Section 13 of the Companies Code—A Rejoinder: 1970 *U.G.L.J.*
- (c) "Failing to Plead Res Ipsa Loquitur—Nelson v. Klutse" (1970) 2 *R.G.L.* 73.
- (d) "Company Documents: Some Random Thoughts on the Annual Return" (1970) 3 *R.G.L.*
- (e) "A Point of Jurisdiction: Mary Steiner v. Jonathan C. A. Steiner" (1970) 3 *R.G.L.*

Dr. S. K. Date-Bah.

- (a) Tsede v. Nubuasa: A welcome Inroad into the Doctrine of Consideration" (1969) 6 *U. G. L. J.*
- (b) "Article 15 of the Constitution and the tort of False Imprisonment" (1970) 7 *U.G.L.J.*
- (c) "Recent Developments in the Law of International Trade" (1970) 7 *U.G.L.J.*
- (d) Mould v. de Vine: A successful invocation of mandamus against a public utility supplier (1970) 7 *U.G.L.J.*
- (e) A Restatement of the Application of the Customary Law of Slander (1970) 2 *Review of Ghana Law*.
- (f) Illiterate Parties and Written Contracts in Ghana and Nigeria (1970) 2 *Review of Ghana Law*.

Examinations

All the 43 candidates presented for the LL.B. Part II Degree Examination were successful. Two of them obtained 2nd Class Upper. All the 39 candidates presented for the Post-Law Professional Law Examination were also successful.

Conferences and Seminars

In April 1970, Dr. W. C. Ekow-Daniels attended a Conference on Developments in Marriage Laws of the Commonwealth held in Windsor as a representative of Ghana. Mr. K. K. Dei-Anang was invited by the Ministry of Foreign Affairs to assist in the preparation of documents on the Hague Conventions of 1955 to 1964 relating to the International Sale of Goods and was Ghana's delegate to the United Nations Working Group on International Sales which met in New York. He also represented the Attorney-General's Office at an International Legal Conference on Marine Pollution Damage held in Brussels. Dr. S. K. Date-Bah was nominated by the Ministry of Foreign Affairs to join the Ghana Delegation to the Conference of the United Nations Commission on International Trade Law in New York; he also participated in the Eleventh Session of the Afro-Asian Legal Consultative Committee held in Accra. Professor A. N. E. Amissah also participated in the latter Conference.

Miscellaneous

The Law Students' Association held an enjoyable Fund Raising and Annual Dinner at the end of the year. Honourable J. Kwesi Lamptey, Minister of Defence was the Guest Speaker at the Dinner, which was attended by leading members of the Bench and Bar, the Public Services and the Diplomatic Corps.

FACULTY OF SCIENCE

DEPARTMENT OF BIOCHEMISTRY, NUTRITION AND FOOD SCIENCE

Senior Staff

	<i>Position</i>	<i>Areas of specialization and research interest</i>
*E. V. Evans, B.S., M.A. (Western Ont)	Head of Professor, Department	Nutrient content of foods; vitamins; energy and protein requirements.
*J.S. Matthews, B.Sc. (McG.), D.Sc. (Zurich)	Associate Professor	Fruit and vegetable processing; preservation of palm wine. preservation of fufu.
D. Fejer, dr.rer.nat. C.Sc., (Bud)	Associate Professor.	Free amino acids in plant protein sources; new protein foods; fermentation processes.
D. Y. Dako, B.Sc. (Durh.), Dr. Agr. (Giessen)	Lecturer	Carbohydrates, enzymatic methods; transketolase activity.
P. F. Larway, B.Sc., Ph.D. (Wales)	Lecturer	Respiration and biochemical changes in yams stored at ambient and lower temperatures
K. K. Oduro, B.Sc. M.Sc., (Edinburgh)	Lecturer	Chemical structure and bio- chemical functions of proteins.
R. Orraca-Tetteh B.Sc., Ph.D., (London).	Lecturer	Weaning diets; proteins and protein requirements; energy, analysis of foods; social factors in nutrition.
†J.D. Watson, M.Sc. (London)	Lecturer	Composition of Ghanaian food stuffs.
G. L. Mabey E. G. Sam	Chief Technician Senior Technician	

Visiting Staff

F. C. Happold, Ph.D., D.Sc. (Manchester)	Professor Visiting	Bacterial biochemistry; biochemistry teaching methods.
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H. Hassall, B.Sc., Visiting Lecturer Radio-isotopic tracer
D.Phil. (Leeds) in Biochemistry techniques; enzyme control
and adaptation.

J. H. Parish, M.A. Visiting Lecturer Nucleic acids; protein
D.Phil (Oxford) in Biochemistry synthesis; virus structure.

*Supported by Canadian International Development Agency.

†Unicef Lecturer.

Department Staff (Senior)

Without extensive assistance from outside agencies which supplied or supported several personnel, the Department would have had great difficulty in meeting its obligations during the year, primarily in the teaching area. Two members were supported by the Canadian International Development Agency (C.I.D.A.) and one by UNICEF.

The special relationship with the University of Leeds in the field of Biochemistry was again of great assistance. Professor Visiting Professor of Biochemistry in the Department. One Visiting Lecturer in Biochemistry was provided by the University of Leeds for a period of eight weeks in each of the first two terms; these were Dr. H. Hassall and Dr. J. H. Parish, respectively.

Dr. J. V. G. A. Durnin, Reader in the Institute of Physiology, University of Glasgow, visited the Department for several weeks under sponsorship of British Technical Assistance to assist the Nutrition division in his special field of energy metabolism and anthropometry studies.

During the 1969-70 session only one of the three senior staff vacancies resulting from resignations at the end of the previous session was filled. Dr. D. Y. Dako, who had completed undergraduate, postgraduate and post-doctoral training in Europe, joined the Department as Lecturer in Nutrition. He also assisted with the teaching in some areas of Food Science. The Food Science division, operating with only two senior staff members where four had been available in preceding years, faced particular difficulties and overloading of staff resulted. This was alleviated slightly by the use of two part-time Lecturers for limited parts of the courses. The enrolment of four students in the B.Sc. Honours course in Food Science added to the teaching and supervisory load of the limited staff.

The Department had the services of Mr. David Donkor-Anim, a 1969 B.Sc. Honours Biochemistry and Nutrition graduate of the Department, as Instructor on a one-year appointment for assistance

with student practical classes. Miss Gilliam Gordon, continuing the second year of her appointment as half-time Instructor under the Study and Serve Scheme provided similar assistance.

Mr. K. K. Oduro, Lecturer in Biochemistry, left the Department at the beginning of July to study at Leeds University under a six-month's Fellowship of the Royal Society and Nuffield Foundation Commonwealth Bursary Scheme, having also been granted study leave for the first term of the 1970-71 session.

Department Staff (Junior)

One of the Department's Technical Assistants, Mr. D. Anyetei (Grade I) was granted leave of absence for up to three years, commencing September, 1969 to undertake advanced training in biochemical techniques at Algonquin College, Ottawa, Canada under a scholarship from Canadian International Development Agency. Appointed to replace him for the period was Mr. Owusu-Mireku (as Technical Assistant Grade II), and Mr. B. Abeki was appointed (also Grade II) to a previously-existing vacancy. Mr. C. Kassene was appointed Technical Assistant (Grade II) in the Food Science processing laboratory to replace Mr. E. A. Nkrumah who resigned.

Late in the year Mr. B. Umanah and Mr. B. Abeki resigned as Technical Assistants (Grade II) and their replacements, Mr. G.B. Amankwaah and Mr. A. Asiedu-Ofei assumed duty in September, 1970.

The vacant second post of Clerk in the Department office continued to be filled on a temporary basis throughout the year until July when Mr. S. O. Aboagye was appointed as Clerk Grade I to the vacancy.

Teaching

The teaching activities of the Department involved the following classes, the numbers of students being shown for each subject:

Course	Biochemistry & Nutrition	Biochemistry alone	Nutrition alone	Food Science
Second University Examination in Science				
B.Sc. General	27	—	—	10
B.Sc. Honours	13	—	—	4
	—	5	—	4

B.Sc. (Honours) Agriculture Part I	41	—	—	—
B.Sc. (General) Home Science, Part I	8	—	—	8
B.Sc. (General) Home Science, Part II	4	—	—	4
First Preclinical Year, Medical Course	—	61	—	—
Diploma in Post-Basic Nursing Part I	—	—	12	—
M.Sc.	—	—	1	—

In the graduating classes, Departmental students achieved B.Sc. General degrees in the following classifications:

Class II (Upper Division)	— 2 students
Class II (Lower Division)	— 6 students
Class III	— 5 students

and B.Sc. Honours degrees as follows:

Class I	— 1 student
Class II (Upper)	— 3 students
Class II (Lower)	— 5 students

One Third Year student in Food Science, Miss Lydia Amu, was successful in a competition, based on academic standing and the preparation of an essay, to select a student representative from Ghana to receive an award of travel expenses to attend the Third International Congress of Food Science ("Science of Survival, 1970") at Washington, D.C., U.S.A., in August 1970.

The numbers of courses during 1969-70, apart from the Honours course in Food Science already mentioned, were the same as in the preceding year but there were increases in numbers in most classes. The substantial increase in size of the class in Agriculture, Part I, necessitated the scheduling of two separate practical periods for this group, the Departmental laboratory facilities being inadequate to handle a class of more than thirty students at one time.

Combined lectures in Biochemistry to Second Year Science students and First Preclinical Year Medical students on the Legon campus continued the pattern established in 1968-69.

Revision of courses in the Department's subjects was continued in moderate degree during the year.

The Head of Department served as external examiner in Nutrition for the Home Science Diploma course at Winneba Specialist Training College

Departmental Organisation

Preparations were made for the creation of a separate Department of Biochemistry as previously approved. The new Department in the Faculty of Science, to combine the present Department's Biochemistry section with the Department of Biochemistry of the Ghana Medical School, will commence operations in the 1970-71 session. The other sections of the present Department will continue operations as a renamed Department of Nutrition and Food Science. The Head of this Department will, pending the appointment of a new Professor of Biochemistry, serve also as Acting Head of the new Department of Biochemistry.

Physical accommodation (laboratory and class-rooms) and much equipment will be shared to a considerable degree by the two new Departments for the near future.

Concurrent with the plans for the establishment of separate administration of the two Departments has been planning for a revision of the teaching pattern. Biochemistry for Science and Medical students will be taught as a separate subject, the former combined course Biochemistry and Nutrition being terminated. The future pattern of teaching for Nutrition and for Food Science commencing in 1970-71 was the subject of extensive study and the decision was reached that they would be taught as separate subjects.

Facilities and Equipment

During the year the Department occupied the first phase of a temporary building constructed adjacent to the main building to extend the accommodation for the Department. This extension, referred to as the "Biochemistry Annex" provides large lecture rooms, tutorial rooms and office space, primarily for the new Department of Biochemistry, but to be shared as required with the Department of Nutrition and Food Science. Anticipated future expansion of the Annex will be largely directed to the provision of expanded student laboratory space.

The Department was the recipient of several important donations of specialized equipment. A large contribution of equipment for studies on energy metabolism and requirements by human

beings was received from British Technical Assistance; this equipment was supplemented by further donations from UNICEF and from Nestles (Ghana) Limited. The Canadian International Development Agency contributed extensive visual aid equipment for teaching purposes. At the end of the year delivery was taken of a high speed centrifuge and delivery of a recording spectrophotometer was awaited; both items were contributed by British Technical Assistance.

The agreement under which UNICEF has assisted this Department (as well as certain Departments in the Faculty of Agriculture) during the past four years was extended for another three years and support for one senior staff member as well as grants for laboratory and transport equipment will be provided until the end of the 1971-72 session.

The Department is grateful for the most beneficial support of the above-noted agencies.

Research and Other Activities

- The comparative long-term study of the canning quality of various tomato varieties produced by the Department of Crop Science with that of local varieties was expanded; new varieties studied to date are not as suitable for canning as whole fruit or as juice as are the commonly grown local varieties.

- Some success has been achieved in the attempts to preserve palm wine for moderate storage periods; the work continues.

- An extensive study of the chemical changes occurring during the fermentation of palm wine was completed.

- Studies on the reconstitution of powdered dry preparations from cassava and other starchy crops to produce an "instant fufu" are progressing; the planning of consumer testing of products is under way.

- In a new project on the purification of the virus causing cocoa swollen shoot disease considerable concentration of the material was achieved and some characteristics measured.

Early results in the study of the proteins of yams have indicated that at least six different proteins are present.

- Preparation and testing of various mixtures including legumes and other protein sources for use as supplementary foods are continuing. Some acceptability studies have been conducted

- Measurements of energy utilization by a group of men in various physical activities over a five-day period were undertaken as a pilot study in a planned programme of investigations of energy requirements of various segments of the Ghanaian population.

Anthropometric measurements on University athletes were made; evaluation of the data is in progress.

The programme of analysis of Ghanaian foodstuff for proximate components, minerals and gross energy was continued and expanded to include larger numbers of samples of each foodstuff.

Fermentation of locally-grown soybean varieties in an attempt to produce an acceptable protein-rich food was conducted; there is a varietal difference in suitability for the process. A satisfactorily fermented product was found acceptable as a means of improving the protein level and quality of *kenkey*.

A detailed study was made of the sugars produced in the malting process applied to sorghum for the production of *pito*. The production of amylase activity during the malting process was also investigated.

Papers Published

- V. Rasper: "Investigations on starches from major starch crops grown in Ghana. II. Swelling and solubility patterns; amyloclastic susceptibility. *J. Sci. Food and Agric.* Vol. 20 642-646 (1969).
- V. Rasper and D. R. MacGregor: Starchy "root" crops in the Ghanaian diet and aspects of their industrial utilization. *Gordian* Vol. 1969 No. 2, 47-50
- E.C. Bate-Smith and V. Rasper: Tannins of grain sorghums. Luteoforol (leucoluteolinidin), 31, 4, 41, 5, 7—pentahydroxyflavan. *J. Food Sci.* Vol. 34 203-209 (1969).

Papers Read

- E V Evans: Inaugural Lecture, The World of Food and Nutrition, University of Ghana, Legon, February 12, 1970.
- The Natural Sciences in Home Science, Fourth Annual Home Science Conference, Legon, March 31, 1970.
- Science and Technology, Washington, August, 1970.
- R. Orraca-Tetteh: Some Aspects of the Nutritional Evaluation of Foods in Developing Countries. VIIIth International congress of Nutrition, Prague, August 1969.
- The Need for a Nutrition Policy in National Development, Inter-Faculty Lecture, University of Ghana, December 1969.
- The Nutritional values of the Traditional Weaning Foods and Children's Diets in Ghana. Ghana Science Association, 6th Biennial Conference, Legon, December 1969.
- Effects of Rapid Population Growth in Ghana on Nutritional Needs, A Symposium on Family Planning and the Implications of Demographic Trends in West

Africa, April 1970: Department of Sociology, University of Ghana, Legon.

- Higher Living Standards and Improved Diets, First Ghana Food Congress, Accra, June 1970.

D. A. Donkor and R. Orraca-Tetteh: The Effects of Feeding Maize and Milk on the Nutritional Status of the Experimental Animal (The Rat). Ghana Science Association, 6th Biennial Conference, Legon, December 1969.

Food Science Training in Developing Countries. 3rd International Congress of Food Science and Technology, Washington, August, 1970.

Protein-Rich Foods in Ghana. 3rd International Congress of Food Science and Technology, Washington, August, 1970.

DEPARTMENT OF BOTANY

STAFFING POSITION:

Dr. M. Hossain resigned his appointment to take up a Senior Lectureship at Lagos University. Dr. F. E. Round visited the Department during the Michaelmas term as Royal Society Visiting Professor and gave lecture and practical courses on phycology to both Honours and General B.Sc. students in addition to delivering a number of public lectures. Dr. E. S. Ayensu was a visiting lecturer during the Lent term. Mr. K. O. Armstrong-Mensah commenced a two year- leave of absence to take a Ph.D. course at Michigan University. Dr. N. I. C. Nwachuku was awarded a Ph.D. degree by the University of Aberdeen.

RESEARCH ACTIVITIES OF SENIOR MEMBERS:

Professor G. W. Lawson

- (i) Ecology and systematics of marine algae;
- (ii) Productivity of moist semi-deciduous forest at Kade.

Dr. E. Laing:

- (i) Reproductive biology of *Crinum ornatum*
- (ii) Genetics of cowpea
- (iii) Human cytogenetics

Dr. J. C. Clerk:

- (i) Motility of zoospores of phycomycetes
- (ii) Chemotropism in *Phytophthora palmivora*

Mr. J. B. Hall:

- (i) Phytosociology of swamp and aquatic vegetation
- (ii) Ecology of the drawdown area of Lake Volta.

Dr. N. I. C. Nwachuku:

- (i) Physiological and biochemical studies of stored yam tubers
- (ii) Nutritional and environmental control of tuberization in yam vine cuttings
- (iii) Development of acid phosphate and peroxidase activities in germinating corn embryo and endosperm tissues
- (iv) Tracer studies of solute translocations in mistletoe—cocoa associations

Dr. D. U. U. Okali:

- (i) Growth rate and water relations of woody plants

Dr. D. M. John:

- (i) Comparative studies of algal colonisation breakwaters along the Guinea Coast.
- (ii) The compilation of a species list of subtidal marine algae along the Ghanaian Coast

Mr. J. F. Acquaye:

- (i) Post harvest respiration in Yam tubers.

Miss C. Townsend:

- (i) Experimental studies on zonation of *Enteromorpha*

Conferences attended and Papers read:

Professor G. W. Lawson and Mr. K. O. Armstrong-Mensah attended the UNESCO Forestry Education Seminar held in Accra in July 1969 as observers.

Professor G. W. Lawson attended the XI International Botanical Congress in Seattle and read a paper entitled "The catena concept, applied to High Forest in West Africa" He also chaired a session at the congress.

Dr. G. C. Clerk presented a paper entitled "Motility and chemotaxis in zoospores of *Phytophthora palmivora*," at the Third International Cocoa Research Conference held at Legon in November 1969.

At the Ghana Science Association Conference held at Legon in December 1969 members of the Botany Department read the following papers: -

- "Germination of conidia of *Phyllactinia corylea*"—Dr. G. C. Clerk.
- "Effects of flooding on the vegetation of the drawdown area of Lake Volta"—Mr. J. B. Hall and Mr. K. O. A. Mensah.
- "The grazing of algae by fish on the Tema break-water"—Dr. D. M. John (with Mr. W. Pople).
- "Genetics of

flower colour in *Talinium triangulare*"—Dr. E. Laing.

Mr. F. Agble and Mr. C.E. Stephens.

"Genetics of cowpea (*Vigna unguiculata*)"—Dr. E. Laing and Mr. F. Agble. "A study in plant-soil relationships in moist semi-deciduous forest"—Professor G. W. Lawson, Mr. K.O.A. Mensah and J. B. Hall.

"Role of transpiration in nutrient distribution in plants"—

Dr. N. I. C. Nwachuku.

"Tissue wear relations for some woody species of the Accra Plains"—Dr. D. U. U. Okali

At the Symposium on Family Planning and the Implications of Demographic Trends in West Africa held in April Dr. E. Laing read a paper entitled "Genetic engineering and family planning". He also gave two lectures on the Genetics of Sex in a series on New Testament Ethics given in the Department for the Study of Religions in May 1970.

Professor G. W. Lawson delivered his Inaugural Lecture entitled 'Ecology and Conservation in Ghana' on 30th April 1970.

The Botanical Garden:

Exchange of seeds with other Botanical Institutions increased considerably during the year.

A rest garden was constructed among the *Gliricidia* Trees and has become very popular with visitors to the gardens.

Other activities in the gardens included the planting of perennials and shrubs along the dam, the replacement of dead trees in the arboretum, the construction of a third greenhouse, the rebuilding of the bush-house on the island, and the provision of new experimental plots for research workers in the Botany department and the Faculty of Agriculture.

For the second time Legon Botanic Garden participated in the National Horticultural Show held in Accra in May.

Long Vacation Courses:

- Two courses were mounted during the long vacation in 1969
- (i) "Herbarium work in the Tropics". This course which was held for the first time was organised by Mr. A. A. Enti and took place between 18th and 30th August. It was attended by 12 students.
 - ii) 'Horticulture for Beginners'. This is the second time this course had been held. It was again organised by Mr. L. M. Quartey and was held from 15th to 30th August and attended by 32 students of whom 20 were serving junior staff from the

Grounds and Gardens Organisation and only four from outside the University.

Field Course:

A field course for students was held at the Agricultural Research Station, Kade from 21st to 28th March, 1970. The theme of the course was "Primary productivity in forests" and a considerable amount of data on productivity of the forest near Kade was amassed by the twenty students and staff attending the course.

Student Projects:

The following Student research projects were completed during the year: -

Acquaye, J. F. 1970: Experimental studies on post harvest respiration of Yam tubers (*Dioscorea rotundata* Poir.) pp. vii. + 267. (M.Sc. Thesis).

Agle, F. 1969: Genetics of *Vigna unguiculata* pp. 1—190 (M.Sc. thesis)

Ampofo, S.T. 1970: Autecological studies on *Afrormosia elata* Harms pp^v + 146 (M.Sc. Thesis)

Ayesu-Offei Cedrina, 1970: Studies on the effect of light on growth of *Neocosmospora Vasinfecta* E. F. Smith pp 1-50 (B.Sc. Hons project)

Bimpong, C. E. 1969: Studies on factors influencing zoospore motility and chemotaxis in *Phytophthora palmivora* Butl. pp. 1-238 (M.Sc. Thesis)

Blankson Janet, 1970: Studies on germination capacity of different sized spores in polymorphic conidia of *Cladosporium fulvum* Cook pp. 1-70. (B.Sc. Hons project.)

Dodoo, Gladys, 1970: The diurnal pattern of leaf water status in two woody species, *Khaya senegalensis* and *K. ivorensis*, of contrasting habitats. pp. 1-75. (B.Sc. Hons project.)

Halm, Mary, 1970: Studies on some aspects of germination of sporangia of *Phytophthora palmivora* Butl. pp. 1-72 (B.Sc. Hons project.)

Mante, S. D. 1969: Studies on the physiology of perithecial formation in *Neocosmospora vasinfecta*, E. F. Smith pp 1-337 (M.Sc. Thesis)

Publications:

Nwachuku, N. I. C., 1969: "Studies on ion uptake and redistribution between shoot and root. (Ph.D. thesis, University of Aberdeen)

Clerk, G. C. and Ankora, J. K. 1969: Development and release of conidia of *Phyllactinia corylea* Can. J. Bot. 47(8), 1289-90.

- The conidial apparatus of *Phyllactinia corylea*. *Ghana J. Sci.* 9, 111-114.
- Clerk, G. C. and Bimpong, C. E. 1969: Influence of three herbicides on germination of sclerotia of *Sclerotium rolfsii*. *Ghana J. Sci.* 9, 115-118
- Dokosi, O. B. 1969: Some herbs used in the traditional systems of healing diseases in Ghana—I. *Ghana J. Sci.* 9 (2), 119-130.
- Hall, J. . 1969: Tropical African Plants: XXX.
Kew Bull. 23: 254 pp 343-345
- Hall, J. B. Laing, E., Hossain, M., and Lawson, G. W. 1969: Observations on aquatic weeds in the Volta Basin
Man-Made Lakes, The Accra Symposium Ed L. E. Obeng. pp 331-336
- Lawson, G. W. 1969: The catena concept applied to High Forest in West Africa. *XI Int. Bot. Cong. Abstracts.* p 123.
- Lawson, G. W. 1970: The lessons of the Volta—a new man-made lake in tropical Africa. *Biol. Conservation*, 2(2), 90-96.
- Lawson, G. W. Mensah, K. O. A., and Hall, J. B. 1970: A catena in tropical moist semi-deciduous forest near Kade, Ghana. *J. Ecol.* 58 (2).
- Longman, K. A. 1969: The dormancy and survival of plants in the humid tropics. *Symp. Soc. Exp. Biol.* 23, 471-488.

DEPARTMENT OF CHEMISTRY

<i>Name</i>	<i>Position</i>	<i>Specialization</i>
Torto, F.G.T.O' B., B.Sc. Ph.D., (London.)	Professor	Natural Products
Quartey, J. A. K., M.A., Ph.D. (Camb.) F.R.I.C.	Professor	Natural Products
Bekoe, D.A. B.Sc. Lond. D.Phil. (Oxon.)	Associate Professor	X-Ray Crystallography
Sundaram, K.M.S. M.A. M.Sc.. (Annam.) Ph. D. (Sydney) A.R.I.C., A.R.A.C.I.	Senior Lecturer	Molecular Polarisability Electrochemistry, Study of insecticides and herbicides in plants, soil Chemistry.
Chaco, M.C., B.Sc. (Trav.), M.Sc. (Agra.) Ph.D. (Bom.), A.R.I.C.	Senior Lecturer	Terpenoids, Synthetic Organic Chemistry.
Pearson, R.E., A.B. (Car.) Ph.D. (Ill.)	Senior Lecturer	Reaction Kinetics.

Adjangba, M.S., I. es. Sc. (Lyon.,) M.Sc. (Penn.,) D.Sc. (Paris.)	Senior Lecturer	Natural Products.
Sundaram, A., M.Sc. (Annam) Ph.D. (Sydney)	Senior Lecturer	Molecular Polarisability, Electrochemistry, Study of insecticides and herbicides in plants,soil Chemistry.
Dakubu, M., B.Sc. Ph.D. (Lond.)	Lecturer	Reaction Kinetics.
Jokic, G., Higher Diploma, (Belgrade.)	Lecturer	Inorganic Chemistry
Gentner, D.R., B.Sc. (N.Y.) Ph.D. (Calif.)	Lecturer	Biophysics Thermodynamics.
Smit, H. Drs., (Free Uni. Amst.)	Lecturer	Thermodynamics, Electrochemistry.
Weller, K., M.Sc. (Birm).	Lecturer	Chemical Kinetics.

Dr. M S. Adjangba and Dr. A. Sundaram were promoted to the grade of senior lecturer.

Dr. M C. Chaco and Dr. M. Dakubu were away on study leave for the whole of the academic session. Dr. D. R. Gentner resigned at the end of the session.

Teaching Activities

Teaching continued for First Year students of Agriculture, Home Science, Science, and Pre-medical and for B.Sc. General degree. Two students continued research in Organic Chemistry for the M. Sc. degree.

Publications

Torto, F. G., Sefcovic, P. and
Mensah, I. A.

"Alkaloids of *Fagara Species*". *Ghana Journal of Science*, 9, 3-8, 1969.

Torto, F. G. and Mensah,
I. A.

"Alkaloids of *Fagara macrophylla*"
Phytochemistry, 9, 911-3, 1970.

Sundaram, K. M. S.

- (a) Viscosity, Density Refractive Index, Electrical Conductivity and Surface Tension of Quinoline-Acetic Acid Mixtures, *Z. Physik. Chem.* 241, 107-11, 1969.
- (b) Some Physicochemical Studies on the Latex; of *Plumeria Acutifolia*, *Legon Journal Agric.*, 2 No. 1, 1-6, 1969.

Sundaram, A. and

- (a) Studies on the Translocation Pattern, Persistence Characteristics and Metabolic Pathway of Sumithion [O, O-Dimethyl-O- (3-Methyl-4-Nitrophenyl) Phosphorothioate] in the Cocoa Tree *Theobroma Cacao L.*, *Ghana Journal Sci.*, 9, No. 2, 96-110, 1969.

Sundaram, K. M. S.

- (b) Studies on the Translocation, Persistence and Metabolic Characteristics of the Insecticide *Sevin*, "Peaceful Uses of Atomic Energy in Africa." International Atomic Energy Agency, Vienna, 1970.
- (c) Penetration, translocation and Metabolism of 2, 4, 5-T in *Combretum Ghasalense*, *Ghana Jour. Sci.* (in press).

Pearson, R. E.

- (a) "Basic Organic Laboratory Techniques and Problem Solving", *J. ... Chem. Educ.*, 46, 692, 1969.
- (b) Several book reviews, *Journal of the Ghana Association of Science Teachers*, Vol. 11, No. 2, 1970

General Information

Members of the Department continued to serve on various national and public bodies. These include the West African Examinations Council and some of its committees. The Ghana Atomic Energy Commission, the Organic Materials Standards Technical Committee of the National Standard Board, the Ghana Science

Association, the Ghana Association of Science Teachers and its Chemistry Sub-Committee. Some members of the Department acted as examiners for the Ordinary and Advanced Level Examinations of the West African Examinations Council.

DEPARTMENT OF GEOLOGY

Staff

During the session 5 Senior Members were active in the Department. Mr. Mensah was on sabbatical leave and spent a large part of the session overseas. The Department had one vacancy. Dr. G. Sestini, a Research Fellow of the Research Institute of African Geology of the University of Leeds was attached to the Department as a Visiting Research Fellow and used its facilities while in Ghana (December 1969 to January 1970). He carried out a research project in the Tarkwa goldfields.

Mr. J. R. Manu joined the Department as Clerk Grade I. Dr. H. P. Bar and Dr. W. R. Fitches resigned from the service of the University at the end of the session.

Teaching

The following courses were conducted during the session:

- First year geology: 19 students
- Second year geology: Standard course: 5 students
- Second year geology: Major course: 8 students
- Third year geology: standard course: 3 students
- Third year geology: Major course: 12 students
- Fourth year geology (Honours course): 2 students.

Dr. G. Sestini delivered a series of three lectures on "Palaeo-currents and their application" and Mr. M. N. Wilson, Geological Adviser to the State Gold Mining Corporation conducted a seminar on "A Comparison between some of the Schist Belts in Southern Africa and West Africa with some guesses at the sources of their gold ores"

Visitors

Professor Arne Noe-Nygaard, Professor of Geology at the University of Copenhagen, spent several weeks in Ghana on a private visit, during which he had very pleasant contacts with the Department of Geology. He made several fieldtrips with Senior Members of the Department and gave a public lecture on "Iceland and the Mid-Atlantic Ridge" on Friday, 6th February 1970. Dr. M. W. McElhinny of the Institute of Geophysics and Geochemistry of Australian National University spent 4 weeks in Ghana in Feb-

ruary-March 1970 to assist the University in the planning of research and teaching in solid earth geophysics, a project of interest to both the Physics and Geology Departments. He conducted a series of four joint colloquia by the two Departments and also took part in fieldtrips with members of the Geology staff.

Research Interests and Activities

Professor A. F. J. Smit: Micropalaeontology and stratigraphy of the Mesozoic-Tertiary basins of West Africa; the microflora of the Sekondian; geology and origin of the Bosumtwi and Nebiewale structures, beach rock formation in Ghana; micro-facies studies of Lower Tertiary rocks of the Spanish Pyrenees.

Dr. J. E. J. M. van Landewijk: Geometrical geology; petrology of the Tumu-Nebiewale area; structures and petrology of the Dahomeyan and Togo Series (Ho-Tsito region, Accra area); the occurrence of halotrichite and jarosite in the Accra shales; the application of geological and mineralogical methods to archaeological problems (particularly the study of beads).

Mr. L. A. K. Quarshie: Clay mineralogy; quartz and coesite stability relations in geological environments; chemical equilibrium conditions in bauxite and laterite deposits; geology and mineralogy of gold deposits.

Mr. M. K. Mensah: The trilobites and ostracods of the Accrain; brachiopods and plants of the Sekondian; the molluscan fauna of the Cretaceous of W. Ghana.

Dr. H. P. Bar: Stratigraphy, sedimentology and facies of the Voltaian of Ghana.

Dr. W. R. Fitches: The thermal-tectonic evolution of the central West African basement, with emphasis on the Precambrian units of southern Ghana; Palaeomagnetism in the Upper Paleozoic rocks of Ghana and its relevance to sea-floor spreading.

Dr. van Landewijk continued his studies on the mineralogy and manufacturing of beads. He made a number of trips to typical bead-manufacturing sites. He also investigated slags and artefacts collected by members of the V.B.R.P. and Department of Archaeology.

Mr. Quashie completed his petrographic and mineralogical studies of pottery of the New Buipe archaeological site, in co-operation with Mr. R. N. York of the V.B.R.P. A paper on the results, to be published in the "Journal of West African Archaeology" is in preparation. He also worked on the determination of the firing temperatures of the material of New Buipe and the Chuluapsi-Jimasagi river sites and the results are incorporated in publications

by R. N. York and R. Duncan Matthewson of V.B.R.P. During the long vacation Mr. Quashie worked on the ore-microscopy of the Bibiani goldfields deposits at Imperial College of Science and Technology, London. This project was made possible by a grant from the Special Research Fund of the University.

Mr. Mensah worked on the flora of the Sekondi Series, in co-operation with Dr. Chaloner of the University College, London. This investigation, which was partly supported by a grant from the Special Research Fund led to the recognition of two new fossil species. A publication on this material is in preparation.

Dr. Bar continued his studies of the Voltaian Series. He made several extensive fieldtrips to the North of Ghana and the bordering regions of Togo in connection with this work. It is hoped that, although he has left the service of the University, he will publish the material collected during the past two years in due course.

Dr. W. R. Fitches continued his projects, started during the previous session. He completed an analysis of small-scale structures and petro-fabrics in the Precambrian of the coastal region of Ghana and carried out a general survey of the Precambrian in Ivory Coast, Togo, Dahomey and Nigeria. His studies resulted in two papers (see below), whilst a third one is nearing completion for publication in the Bulletin of the Geological Society of America. He completed the sampling of the Elmina Sandstone for palaeomagnetic studies, which are now being carried out by Dr. J. Briden of the Geophysical Division of the Earth Science Department, University of Leeds. This joint-research is expected to contribute substantially to the solution of the problem of drift.

Conferences and Extra-Departmental Lectures

Mr. Quashie and Mr. Fitches contributed to the Annual Meeting of the Ghana Science Association, held at Legon in December 1969. Mr. Quashie spoke about the "Origin of Gold in Ghana" and Dr. Fitches lectured on "Deformation and Metamorphism of the Togo Formation and Dahomenyan of the coastal region of Ghana". Dr. van Landewijk lectured on "Beads" to the Ghana-Caribbean Association and to the Accra Girls' Secondary School.

General

Professor J. G. Ramsay of Imperial College, London, was External Examiner for the B.Sc. General and the B.Sc. Honours degree examinations in Geology for the third time in succession. While in Ghana he carried out a field study of some interesting sedimentary structures in the Sekondi Series with Professor Smit. They hope to publish the results of this.

Professor Smit delivered his Inaugural Lecture on 23rd October, 1969.

At the end of 1969, the Department received a request from the Inspector of Monuments, Elmina, to participate in the investigation of a so-called "Natural Castle" at Ahunyame in the Nsein Traditional Area. Dr. van Landewijk inspected this phenomenon with students while on a fieldtrip in the Dixcove area in January 1970.

The Department received generous book gifts from professor A. Noe-Nygaard, Copenhagen and the United States Information Service, Accra.

Publications

W. R. Fitches:

"A Part of the Ubendian Orogenic Belt in Northern Malawi and Zambia"

Geol. Rundschau Bd. 59, Heft Febr. 1970. pp. 444-458
(correction of last year's Annual Report)

W. R. Fitches:

"The Pan-African Orogeny in the Coastal Regions of Ghana"
Nature, vol. 226, May 1970 pp. 744-746.

Landewijk J. E. J. M. van:

"Integrated Science Teaching" *Journ. Ghana Association Science Teachers* vol. 11, January 1970, no. 1, pp. 10-14.

Smit, A. F. J.:

"Aspects of Geological Practice and Education in Ghana".
(Inaugural Lecture, 23rd October 1969). Ghana Universities Press, 1970, 26 pp.

DEPARTMENT OF MATHEMATICS

Staff Changes

Dr. S. I. K. Odoom assumed duty in October 1969 after a year's study leave in the University of Lancaster. Dr. J. Kleijn returned from study leave in January 1970. Dr. Galambos left at the end of the session 1968/69 to take up an appointment at the University of Ibadan. Dr. Petruv and Dr. Kleijn left at the end of the session 1969-70. Each has contributed much of value to the Department in teaching, in seminars and in research. Mr. G.K. Osei was transferred at the beginning of the session from the Institute of Statistical, Social and Economic Research to the Department.

Staff

Hartley, E. M. (Miss),
M.A., Ph.D. (Camb)

Senior Lecturer and Ag.
Head of Department

Analysis and algebraic
geometry; reform of
mathematical curricula in
Schools.

Petruv, V., M.Sc. RNDP, C.Sc (Charles)	Senior Lecturer	Mathematical Analysis, Differential Equations (Ordinary), Functional Analysis.
Jackson, J. S., B.Sc., (Lond) B.A. (Camb)	Lecturer	Geomagnetism and Astrophysics.
Hyde, J. M. B.Sc., Ph.D. (Lond)	Lecturer	Relativity.
Odoom, S. I. I., B.Sc., Ph.D. (Lond)	Lecturer	Stochastic Processes, Group representations and applied Probability.
Kleijn, J., Drs. (Amst.)	Lecturer	Stable Structure of Pro- jective Modules, Applica- tion to Diagnosis of Boolean Derivatives.
Akyeampong, D.A. B.Sc., (Ghana), Ph.D. (Lond)	Lecturer	Theoretical High Energy Physics and Elementary Particles.
Boateng, G.K., B.Sc. (Lond) Ph.D. (Manc.)	Lecturer	Numerical Analysis
Kofinti, N. K. B.Sc., Ph.D. (Lond)	Lecturer	General Relativity
Osei, G. K., B.Sc., (Ghana) M.Phil. (Lond)	Lecturer	Probability and Statistics.
Oppenheim, A., O.B.E., M.A. Visiting D.Sc. (Oxon) Ph.D. (Chic), Hon. D.Sc. H. K., Hon. LL.D. Sing.	Professor	Theory of Numbers, Analysis.

Research

Many seminars were given by members of staff. Special mention should be made of:

Dr. Petruv: "Compositions and Decompositions of K-Spaces" (I, II).

Dr. Kofinti: (i) "Foundation Problems in General Relativity"
(ii) "On a New Boundary Condition in General Relativity"

Dr. Akyeampong: (i) "Lie Groups and Special functions"
(ii) "On the Harmonic functions for $Su(n)$ "

Dr. Odoom: "A Design Criterion for Finite Reservoirs"

Teaching

Courses have been given as follows: Pre-Medical course; Introductory Mathematics course; Mathematics for Chemists. Courses for B.A. and B.Sc. (General); modifications have been introduced into Gl. Courses for B.Sc. (Honours) as in previous years. Courses for M. Sc.—under the supervision of Dr. Akyeampong and Dr. Odoom.

Changes in the programme are being considered. A report will be made at a later date.

Conferences

Dr. Petruv presented a paper "Polynomials uniformly bounded in a compact intervals" at a West African Science Association conference in Ibadan in April 1970.

Professor Oppenheim gave the Presidential Address at the Annual General Meeting of the Mathematical Association of Ghana at Winneba, April 1970.

Mathematical Education

Members of the Department continue to play an active part in the conduct of examinations for West Africa, both at O-Level and A-Level. Particular mention should be made of the "Mathematical Education Research Unit" headed by Mr. M.C. Mitchelmore. This group organises the Joint Schools Project. Its publications, used not only in Ghana but also in other parts of Africa, have earned high praise.

Publications

Dr. D. A. Akyeampong:

- (1) On the relation between the $O(4)$ and $O(3,1)$ partial wave expansions, (with J. F. Boyce and M. A. Rashid), *Journal of Mathematical Physics*, 11 (1970).
- (2) High-Energy behaviour of Feynman amplitudes in a Model Field Theory: International Centre for Theoretical Physics Report No. IC/69/115.

Dr. V. Petruv:

Remark on boundary value problem with retarding argument in Banach space, *Ghana Science Journal*, (in press).

Professor A. Oppenheim:

- (1) Representations of real numbers by series of reciprocals of odd integers, *Acta Arithmetica*, 18 (1970), (dedicated to the memory of Harold Davenport).

(2) The irrationality or rationality of certain infinite series, *Studies in Mathematics* (Academic Press, London, 1970).

Mr. J. S. Jackson:

"On the Diurnal Variation of the Geomagnetic Field, I. The Solar Variation", *Journal of Geophysical Research*, (in press).

"On the Diurnal Variation of the Geomagnetic Field, II. The Lunar Variation", *Journal of Geophysical Research*, (in press).

Headship of Department

We record with regret the departure on sick leave of Dr. E. M. Hartley (present Ag Head) so well known to the mathematical and educational world of Ghana for her many valuable contributions. We all hope she will soon return fully restored to health. In the meantime at the request of the Vice-Chancellor, Professor A. Oppenheim has agreed to continue for another session at the University of Ghana, and to take charge temporarily of the Department of Mathematics. We are indebted to the University of Ibadan for permitting him to defer his visit to Ibadan for another year.

DEPARTMENT OF PHYSICS

Staff

Mr. McClelland was on study leave for a further year at the Department of Science Education, Cornell University. Professor May was on study leave in Bristol during the Michaelmas term. Dr. Baeta took up his appointment as Research Fellow after postgraduate training at Bristol. Mr. W. L. Maduemeia was promoted to a Senior Lecturership. Mr. Ahen was on study leave at the University of Aberystwith under the Commonwealth Universities training scheme and Mr. Christian was under a further year's training at Birmingham under I.A.E.A. auspices. Mr. and Mrs. MacClement spent a year in the Department under the Canadian Voluntary Service Scheme (CUSO). They were mainly concerned with the teaching of first year students, especially the 'B' course for those not continuing physics in later years. They brought great enthusiasm to this task, and were very active in running tutorial groups and problem classes.

Conferences and Visits

Dr. Maduemeia attended the West African Science Association's Biennial Conference at Ibadan in March-April. He also attended the Third Brazilian Symposium on Theoretical Physics at Rio de Janeiro in January and spent the months of July, August and September at the International Centre for Theoretical Physics

at Trieste where he is an Associate member. Dr. Tetteh spent the long vacation in Birmingham working with Professor Fremlin on the location of trace elements in human teeth.

Dr. McElhinney of the Geophysics Department, Australian National University visited the department and the Geology Department during February and March to advise on the setting up of teaching and research in Geophysics. This visit was sponsored by the Australian Government at the suggestion of Sir Mark Oliphant who came to Legon to deliver the Aggrey-Fraser-Guggisberg lectures in 1969. Dr. Mc Elhinney had many conferences with members of the staff of both departments. He also gave seminars and lectures to both staff and students. His review of the prospects of geophysical teaching and research has been most valuable and it is hoped to push forward his proposals.

Research

The work of the Ionosphere group under Porfessor Koster has been concentrated on the continuous observation of signals from synchronous satellites. From a determination of the Faraday rotation of the E vector it is possible to calculate the integrated vertical columnar electron content from the earth's surface to the height of the satellite (35,800 km). The equipment runs on a continuous basis, producing a new value every ten minutes. Dr. Yeboah-Amankwah is working on the analysis of these results. A great deal of information about the physical processes in the ionosphere above the equator can be deduced from the records. Scintillation studies are also being made, using the same satellite signals. Mr. Korfker has analyzed records from two closely spaced synchronous satellites (ATS-C and Early Bird) and deduced some interesting results about the size, drift speed and lifetime of patches of ionospheric irregularities. The relationship between electron content and scintillation is also proving to be of interest.

This work is being done under Contract with the U.S. Air Force. A report on the research was produced in July.

Dr. Maduemazia continued his theoretical work; he completed a paper on "Euler Factorization of $SO(p, q)$ and $SU(p, q)$ Groups" and read a paper on "Physical Interpretation of a certain Deformation of the Invariants of the Conformal Group" at the W.A.S.A. Conference at Ibadan. Dr. Grimes continued his work on radar ornithology. Dr. Yeboah-Amankwah was enagaged on assembling a Mössbauer spectrometer for research in solid state and for teaching purposes. Dr. Agyei has been preparing for the proposed Geochronology project and visited Leeds and Cambridge during the vacation to gain experience in methods of A39/A40

dating. Professor May continued his studies of the high temperature variation of elastic constants of crystals and their relation to the theory of melting.

Teaching

Student numbers were about the same as in the previous years having now reached the limit set by the accommodation and equipment available. A great deal of attention was paid to tutorial and problem classes especially in the first years, and this appears to have been beneficial. In the honours class the usual practical class was replaced by a number of projects on which the students wrote formal reports, and presented their results at informal seminars. Professor Ziman from Bristol came this year as external examiner, and his discussion has provoked a review of our courses at the Honours and B.Sc. level. Mr. and Mrs. MacClement organized a questionnaire among the first year students on the effectiveness of the courses, and the results of this are under study.

Several members of the staff assisted in the Junior Staff Training Scheme, which has now become active. We were assisted by Dr. Garbrah of the Ghana Atomic Energy Authority, who gave a course on Applied Radioactivity and by Dr. Boateng of the Mathematics Department, who gave a course on computational methods, both to the Honours class.

Publications

A. Maduemezia:

"Theory and Applications of Generalised Lie Algebra Contractions" *Proc. of the 3rd Brazilian Symposium of Theoretical Physics* 1970.

D. Yeboah-Amankwah:

"The hyper-fine structure of the 2, 122 keV excited state in Sm^{152} doped CaF_2 , observed by the Mossbauer resonance absorption technique"

Chapter in the book "Peaceful Uses of Atomic Energy in Africa" (I.A.E.A.) pages 411-419, 1970.

"On the absolute determination of the Velocity sense in a continuously varying velocity type Mossbauer Spectrometer" In: *Review of Science Instruments*.

R. D. Baeta: "Mechanical Deformation of Quartz"

"Constant strain-rate compression Experiments" *Phil. Mag.* 1970 (in press).

2 "Stress Relaxation and Thermal Activation Parameters" *Phil. Mag.* 1970.

Senior Members and Research Interests

A.N. May B.A. Ph.D. (Cantab)	Professor and Head of Department.	Solid State and Metal Physics.
Rev. J.R. Koster M.S. (de Paul) Ph.D. (Lond).	Associate Professor	Ionosphere, Radio Astronomy
L.G. Grimes, B.Sc., Ph.D. (Bristol)	Senior Lecturer	Ionosphere, Ornithology.
A.A. Maduemezia B.Sc. (Lond) Ph.D. (MIT)	Senior Lecturer	Theory of Lie Groups Foundations of Quantum Mechanics.
J. A. G. McClelland, B.Sc. (Belf)	Lecturer	Geophysics, Teaching Methods.
S.D. Mark, B.Sc. (London)	Lecturer	Solid State Physics.
Tetteh, G.K. M.Sc. Ph.D. (Sask.)	Lecturer	Radiation Physics.
D. Yeboah-Amankwah, M.S. Ph.D. (MIT)	Lecturer	Nuclear Structure Spectroscopy.
E. K. Agyei, B.Sc. (London) M.Sc. (McM), Ph.D. (McM)	Lecturer	Nuclear Physics. Mass Spectrometry.
R. D. Baeta, M.Sc. (Ghana), M.Sc., Ph.D. (Bristol), A. Inst. P. Fellow	Research	Mechanical Testing of Materials: Electron Microscopy and X-ray Diffraction Topography of defect structures.

DEPARTMENT OF ZOOLOGY

Dr. D. R. Cole and Dr. S. T. Wen resigned. No new staff appointments were made during the Academic Year. Dr. M. Edmunds was promoted to Senior Lecturer.

Staffing and Research

D.W. Ewer, M.A. (Cantab), Ph.D. (Birm)	Professor
Specialization	Comparative Physiology
Research Interest	The nervous system of grasshoppers.

M. Edmunds, M.A., D. Phil (Oxon)	Senior Lecturer
Specialization	Marine Biology
Research Interest	Marine molluscs.
W. Pople, B.Sc. (Hons), M.Sc. (Natal)	Lecturer
Specialization	Marine Biology
Research Interest	Sub-littoral ecology
B. Hughes, B.Sc. (Lond)	Lecturer
Specialization	Vertebrate Zoology
Research Interest	West African Snakes
J.K.M. Hodasi, B.Sc. (Lond), M.Sc. (Manitoba)	Lecturer
Specialization	Helminthology
Research Interest	Ecology of helminth vectors
Rosalie F. Ewer, B.Sc., Ph.D. D.Sc. (Birm)	Lecturer
Specialization	Behaviour
Research Interest	Behaviour of small mammals.
R. Kumar, M.Sc. (Agr), Ph.D. (Rajasthan and Queensland)	Lecturer
Specialization	Entomology
Research Interest	Cytotaxonomy of Hemiptera.
W.Z. Coker, B.Sc., M.Sc. (Lond), Ph.D. (L'pool).	Lecturer
Specialization	Medical Entomology
Research Interest	Genetics of Aedes.
P. Grubb, B.Sc., Ph.D. (Lond).	Lecturer
Specialization	Vertebrate Zoology
Research Interest	Mammalian biology
D. Leston, D.I.C.	Senior Research Associate
Research Interest	Cocoa and forest ecology.

Teaching

The teaching of invertebrate zoology in the second year of B.Sc. (General) Degree has been radically changed. The traditional taxonomic approach has been replaced by a more ecological bias, so that three courses are given on marine invertebrates, terrestrial invertebrates and parasitology.

Dr. R.F. Ewer delivered a short course of lectures in the Department of Archaeology and Mr. Leston lectured upon the ecology of Africa in the undergraduate course of African Studies.

Research

Visiting research workers included:

Dr. J. Laborrell, University d'Abidjan, studying corals. Miss P. Cook, British Museum (Natural History), studying Polyzoa. Dr. E. Trevawas, British Museum (Natural History), studying Tilapia.

Dr. M. D. Robinson, Smithsonian Institution, Tropical Field Station, Panama, studying spider behaviour.

Mr. W. Pople has been appointed Chairman of the National Committee for Oceanographic Research.

Conferences Attended

D. W. Ewer

"Some problems of the Volta Lake" First National Conference of the Malawi International Biological Programme Committee, Limbe. July 1969.

W. Pople

(with D. M. John). "The grazing of algae by fish on the Tema breakwater".

(with G. Makey) "The occurrence of the interesting fish, Lobotes, in Ghana" Ghana Science Association Conference, Legon, December 1969.

D. Leston

(with D. G. Gibbs) "Phenology of cocoa and some associated insects in Ghana". "Ants, capsids and swollen shoot in Ghana: interactions and the implications for pest control", Third International Cocoa Research Conference, Legon, November, 1969.

P. M. Room

"The mistletoe *Tapinanthus bangwensis* and cocoa in West Africa", Third International Cocoa Research Conference, Legon, November 1969.

Publications

Cole, L. R.

"Observations on the finding of mates by male *Phaeogenes invisor* and *Apanteles medicaginis* (Hymenoptera: Ichneumonidae) *Anim. Behav.* 1970. 18. 184-189.

Edmunds, M.

Opisthobranchiate Molluscs from Tanzania. I Eolidacea (Eubranchidae and Aeolidiidae) *Proc. malac. Soc. Lond.* 38. 451-469.

II. Eolidacea (Cuthonidae, Piseinotectidae and Faceliniidae) *Proc. malac. Soc. Lond.* 1970. 39. 15-57.

- (with A. Kress) On the European species of *Eubranchius* (Mollusca, Opisthobranchia) *J. mar. biol. Assoc. U.K.* 1969. 49. 879-912
- Ewer, D. W.
A-level Biology in West Africa: a new syllabus
J. biol. Ed. 1969. 3. 271-282
- Ewer R. F.
Form and function in the grass cutter, *Thryonomys swinderianus* (Rodentia, Thryonomyidae). *Ghana J. Sci.* 1969. 9. 131-141.
- Hughes, B.
(with D. H. Barry) The snakes of Ghana: a checklist and key. *Bull. Inst. fond. Afri. noire* (A) 1969. 31. 1004-1041
- Kumar, R.
Morphology and relationships of the Pentatomoidea (Heteroptera) III. Natalicolinae (Tessaratomidae). *Ann. ent. Soc. Amer.* 1969. 62. 681-695.
- Lelek, A and Wuddah, A. A. A note on the occurrence and length-frequency distribution of *Tilapia* species caught by gill nets in the Volta Lake in "Man-made lakes: The Accra Symposium" 186-189. Ghana University Press, Accra. 1969.
- Leston, D.
Entomology of the cocoa farm *Ann. Rev. Entomol.* 1970. 15. 273-294.
- Pople, W.
(with Rogoyska, M). The effect of the Volta River Hydro-electric project on the salinity of the lower Volta River. *Ghana J. Sci.* 1969. 9. 9-20

General

T. Petr was awarded the Ph.D. of the University in Zoology for a thesis entitled "Development of the Bottom and Periphytic Invertebrate Fauna in the Volta Man-made lake during the first years 1964-1969"

J. K. M. Hodasi was awarded the Ph.D. of the University of Bristol for a thesis entitled "Laboratory and field studies on the role of *Lymnaea truncatula* as an intermediate host of *Fasciola hepatica*"

VOLTA BASIN RESEARCH PROJECT

Staffing

During the last academic year Dr. T. Petr and Mr. J. D. Reynolds resigned their appointments. Professor G. W. Lawson resigned

as Chairman of the Project and his place was taken by Professor D. W. Ewer.

Research

Archaeology: The current year is the last of the scheduled life of the Project's archaeological programme, and has been spent in the analysis of material and compilation of reports intended for publication in *West African Journal of Archaeology*. Particular attention has been given to the study of ceramics from the Gonja Region; Mr. Mathewson examined in detail the newly defined Chuluwasi Ware and, in co-operation with Mr. Flight, the Kisoto Bowl, while Mr. York compiled a typology of the New Buipe ceramics which forms the second part of his monograph on that site. Mr. L. A. K. Quashie of the Department of Geology carried out mineralogical analysis of a large range of samples of the new Buipe pottery which has produced much new information about the origins of the materials used and the techniques of manufacture. In addition, co-operation from the Department of Physics made possible the first typological analysis by computer of a large stratified series of tobacco-pipes, also from New Buipe, which has confirmed and complemented existing theories about the evolution of this type of artifact.

Hydrobiology: Both Dr. Petr and Dr. Biswas were engaged in bringing together into a provisional synthesis the work of the last several years. Dr. Biswas was preparing reports upon the changes in water chemistry and phytoplankton during the first six years of the Lake's existence. Dr. Petr's account of the changes in the invertebrate fauna served to emphasise the very great importance in the economy of the Lake fisheries of the biological complex associated with flooded tree trunks. At the same time he was able to trace many of the changes in species composition which accompanied the extensive alterations in the habitat following flooding.

Mr. Reynolds completed observations upon the biology of various species of *Alestes*. Mr. Attionu completed a study upon the biology of the common weed, *Pistia* while Mr. Whyte continued his studies upon the factors influencing the distribution and productivity of the midge fauna. Dr. Ruth Biswas has maintained regular studies upon the bacterial flora of the Lake and upon the composition of the zooplankton, especially the Rotifera.

Draw-down area: Regular studies upon changes of the shore areas of the Lake subject to periodic flooding have continued. Mr. Ahn and Mr. Amematepor have undertaken an extensive survey of soil types in these areas, while Mr. J.B. Hall of the Department of Botany has followed the effects of repeated inundation upon the composition of the shore flora. Particular attention has been paid to the effects of different durations of submergence upon the sub-

sequent vegetational types and to the nature of the zonation which is thus being established.

Papers presented at Conferences

Biswas, F. R. I.

"Further microbiological observations on the Volta Lake" Ghana Science Association Conference, Legon, December 1969. "Observations on the zooplankton of the Volta Lake", West African Science Association Conference, Ibadan, March 1970.

Biswas, S.

"Changes in the phytoplankton of the developing Volta Lake". Ghana Science Association Conference, Legon, December 1969. "Distribution of phytoplankton during the early development of the Volta Lake" West African Science Association Conference, Ibadan, March 1970.

Publications

Biswas, E. R. I.

Some microbiological observations on the Volta Lake. *Ghana J. Sci.* 1969, 9 21-29

Biswas, S.

Thermal changes in the Volta Lake at Ajena. in "Man-made Lakes: the Accra Symposium" pp. 103-109. Accra, 1970. Hydrobiology of the Volta River and some of its tributaries before the formation of the Volta Lake. *Ghana J. Sci.* 1968, 8, 152-166.

The Volta Lake: some ecological observations on the phytoplankton. *verh. Internat. Verein. Limnol.* 1969 17, 259-272.

Lawson G. W.,

Biswas, S.

Petr, T.,

Biswas, E. R. I.

and Reynolds, J. D.

"Hydrobiological work of the Volta Basin Research Project" 1963-1968. *Bull. Inst. fond. Afri. Noire.* 1969, 31(A), 965-1003.

Petr, T.,

First population changes in the Volta Lake over the period January 1965—September 1966 in "Man-made

Lakes: the Accra Symposium" pp. 220-234. Accra, 1970.

Development of bottom fauna in the man-made Volta Lake in Ghana. *Verh. Internat. Verein. Limnol.* 1969. 17. 273-282.

Development of the bottom and periphytic invertebrate fauna in the Volta Man-Made Lake during the first years 1964-1969. Ph.D. Thesis, University of Ghana, 1970.

Proszynska, M.

A preliminary report on the quantitative study of the Cladocera and Copepoda in the Volta Lake, 1964-1965. in "Man-made Lakes: the Accra Symposium", pp. 127-132, Accra, 1970.

Reynolds, J. D.

The Biology of the Clupeids in the Volta Lake, Ghana, in "Man-made Lakes: the Accra Symposium". pp. 195-203, Accra, 1970.

Viner, A. B.

Hydrobiological observations on the Volta Lake north of Ajena, April 1965—April 1966 in "Man-made Lakes: the Accra Symposium", pp. 133-143. Accra 1970.

Technical Reports

X29. Reynolds, J.D., Adetunji, J.A. and Ankrah, H.O.: Length-weight relationships of some Volta Lake fishes.

X32. Petr, T. and Reynolds J.D.: Fish population changes in the Volta Lake in 1968.

X33. Petr, T.: On the preferences of some aquatic insects for hard or soft wood trees.

X35. Hall J.B.: Observations on the vegetation of the Lake Volta drawdown area.

FACULTY OF SOCIAL STUDIES

DEPARTMENT OF ARCHAEOLOGY

During the year the staffing situation was considerably improved with the arrival of Mr. B. Wai-Ogosu from Berkeley to take up a lectureship, and the appointments of Dr. J. Dombrowski and Mr. R. Derricourt who will take up lectureships in October, 1970. In January, Mr. M. A. B. Harlow, M.A., M.Phil. was appointed part-time lecturer; he gave lectures on the rock art of Southern Africa. There was a total of 55 students consisting of:

- 34 F.U.F. Students
- 17 2nd Year B.A. Honours and General Students
- 1 M.A. Student
- 3 Occasional students.

Lectures were given to F.U.F. students in their African Studies courses at Legon, Cape Coast and Kumasi. Mr. J. Wembah-Rashid of the National Museum of Tanzania was attached to the Department for the year and undertook special courses on conservation and prehistory.

The Department was very fortunate during the year to receive assistance in the lecture programme in the following fields: the South African Australopithecines and associated faunal material by Dr. R. F. Ewer of the Department of Zoology; beads and bead making by Mr. P. Ahn of the Department of Crop Science; the Archaeology of the Eastern part of the Indian Ocean by Professor H. A. Lamb of the Department of History and Mr. A. Nitecki of the Department of Library Studies on the art of Nok, Ife and Benin.

A training excavation, attended by second year students, was conducted at Fort Orange, Sekondi, during the Easter vacation.

Professor Posnansky gave a public lecture at the Ghana Museum on "Discovering Ghana's Past" in November and at the Ghana Cultural Festival at Kumasi in February on "The Archaeological Contributions to Ghanaian Cultural History". Several other lectures were given during the year to Schools and Training Colleges.

Senior Members and Research Interests

<i>Name</i>	<i>Appointment</i>	<i>Research or Special Interests</i>
Posnansky, M., B.A., Dip. Arch., Ph.D. (Nott)	Professor	African Prehistory, Iron Age Culture Contract, West African Trade.

Calvocoressi, D., B.A. (Cantab).	Lecturer	Later Iron Age of North and Central Ghana.
Wai-Ogosu, B., B.A. M.Phil (Lond).	Lecturer	Transition from Hunting and Foodgathering in Upper Volta, Stone Age ecology
Golden, B., B.A., M.A., (Columbia)	Chief Technician	Problems of Conservation

Research

Mr. Bassey Wai-Ogosu with the aid of a National Science Foundation grant commenced in April a two-year archaeological investigation in Upper Volta. From July he was in the field conducting survey and test excavations of sites providing evidence of the earliest agricultural societies in selected areas of Upper Volta. He was assisted by a second year student from Legon and several American graduate students.

The Department also commenced a five-year project on the origins of West African trade, and with the aid of a grant from the Wenner-Gren Foundation for Anthropological Research, survey work was undertaken in Brong Ahafo and an excavation was conducted at the presumed site of the market town of Begho. Seven students from Legon and one from Birmingham participated in the excavation. Mr. K. Myles of the Ghana Museum directed the research into the oral history of the area. Two students with the aid of a grant from the Smithsonian Institution commenced a survey of stone ruins in the Navrongo area. A brief survey was undertaken by Professor Posnansky and Mr Harlow of the lagoon area at Half Assini, and several prehistoric shell middens were located. With the aid of a grant from the special Research Fund, Professor Posnansky completed his analysis of the stone tools from Nyabusora, Tanzania, while in East Africa in July.

Conferences and Other Activities

From June 21 to June 27, Professor M. Posnansky attended the conference on the Historical Study of African Religious Systems in Dar-es-Salaam, where he presented a paper on "Archaeology and the evidence for Religious History"

Mr. D. Calvocoressi and Professor Posnansky continued to serve on various committees of the Ghana Museum and Monuments Board. In January Professor Posnansky was elected a member of the Council of the Ghana Historical Society.

Publications

Calvocoressi, D.,

(i) 'Report on the Third Conference of West African Archaeologists', (Legon 1969) *West African Archaeological Newsletter*, Ibadan No. 12, (1970) pp. 53-90.

(ii) (with Mr. R. N. York) 'The Present State of Archaeological Research in Ghana', *West African Journal of Archaeology*, 1 (1970).

Posnansky, M. 'Bigo Bya Mugenyi', *Uganda Journal* 33 (1969), pp. 100-125.

— 'African Prehistory and Geographical Determinism' in *Geographical Essays in Honour of K. C. Edwards*, ed. R.H. Osborne, F.A. Barnes and J.C. Doornkamp, Nottingham, 1970, pp. 215-223

Museum and Teaching Collections

Gifts and exchange material were received from the National Parks of Kenya and University College, London. In addition casts were obtained from Wenner-Gren Foundation for Anthropological Research and F. D. Castings

Library

A total of 100 books, journals and pamphlets were accessioned, including donations from Professor O. Davies, Mr. B. Golden, Dr. R. F. Ewer, The de Beers Corporation, the United States Information Services, Centre Voltaique de la Recherche Scientifique, Mrs. C. Simpson, Mr. D. Calvocoressi, Mrs. A. Pantanali and Mr. Osei of Ghana Survey Division.

DEPARTMENT OF ECONOMICS

Staff

The academic staff position of the Department was considerably improved as compared with the previous year owing partly to the arrival of three members from the University of Western Ontario under the twinning agreement between the Government of Canada and Ghana. In addition, One Senior Lecturer, two Lecturers and one visiting Lecturer joined the Department during the course of the academic year. Consequently, the dependence of the Department on part-time Lecturers from other Departments and from outside the University was reduced.

<i>Full-time Senior Members</i>	<i>Position</i>	<i>Area of Specialization and/or Research work</i>
Z.L. Sadowski, D.Sc. Econ. (Warsaw)	Professor and Head of Department (Resigned from 1st Oct. 1970)	Economic Planning History of Econ. Thought
J.C. de Graft-Johnson, B. Com., M.A. Ph.D. (Edin)	Research Associate Professor (returned from leave of absence on 28th, May, 1970)	Economic History of Ghana.
N. Ahmad, M.A. Econ. (Panj) Ph.D. F.U. (Berlin)	Senior Lecturer (Ag. Head from 1st July 1970).	Principles of Economics, Money and Banking, Public Finance
David Williams, B.Sc. (Econ) (Lond.,) M.A., (U.N.B.) Ph.D. (M.I.T.)	Senior Lecturer (joined on 30th December, 1969)	Principles of Economics, Economics of Education and Manpower Planning
J.E.A. Manu, B.Sc. (N.Y.) M.A. (Mc.G.)	Senior Lecturer promoted on 9th February, 1970)	International Economics, Economics of Ghana
S.O. Kwamina-Barnes, B.A. (Tor), M.A. (Atla).	Lecturer	Public Finance, Econ. of Transportation
A.N. Hakam, B.A. (Brown), M.Sc. (Col.)	Lecturer	Development Economics, Economy of Ghana, Elements of Economics
J.N. Seward, M.A. (Rutgers)	Lecturer	Elements of Economics, Economic Theory
T. Riha, prom-ekom (Prague)	Lecturer (resigned from 31st Dec. 1969)	Economics of Education, Princ. of Econ. Planning
G.K. Agama, B.A. Econ. (McG.) Ph. D. (Tor.)	Lecturer (on leave of absence)	Economy of Ghana

I. Bissie, B.Sc. Econ. (Lond.) B. Litt. (Oxon)	Lecturer (on study leave)	Development Planning Applied Economics
G. T. Odonkor, B.Sc. Econ. (Lond.) M.Sc. Econ. (R'dg.)	Lecturer (on leave of ab- sence)	Economic History Agricultural Economics
A. Kumar, B.Sc. Econ. (Ghana) M.A. Econ. (Leic.)	Lecturer	Economy of Ghana Elements of Economics
J. L. S. Abbey, B.Sc. Econ. (Lond.) M.S. Ph. D. (Iowa)	Lecturer	Elements of Statistics Math. for Economists Statistical Theory
J. B. Abban, B.Sc. Soc., (Ston), M. oc. Sc., (Birm- ingham).	Lecturer	Industrial Economics Principles and Applied Economics
A. B. Ahmad, B. Sc. Econ (Ghana) M.A. (Indiana)	Lecturer (joined 1st. Oct. 1969)	Principles of Economic Planning. Principles of Economics.

Visiting Senior Members.

T.M. Brown, B. Sc., Ph.D. (Australia National)	Visiting Professor (Western Ontario)	Econometrics Nat. In- come & Social Accounts
W.F. Vickery, B.A. (Vanderbilt) M.B.A (Harvard), Ph.D. (Chicago)	Visiting Lecturer (Western Ontario)	Elements of Math. for Econ. Cost/Benefit Analysis
J.C. Leith, B.A (Toronto) M.Sc. Econ. Ph.D. (Wis- consin)	Visiting Lecturer (Western Ontario)	International Economics Applied Economics
D.G. Blanchard, B.A. (Wooster,) M.A (Indiana)	Visiting Lecturer (Wisconsin)	Economic History

Part-time Lecturers

R. Ashiboe-Mensah, M.Sc. Econ. (Lond).	Ministry of Finance & Econ Planning	Economic Planning
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T. Killick, B.A. (Oxon.) Harvard Ad- Problems of Economic
visory Group Development of Ghana

Senior Staff

Mr. D.W.Y. Awumey Administrative Assistant Joined on 1.3.70

Junior Staff

Mr. E. Appea Senior Clerk Resigned from 1.6.70

Mr. G.T. Adjabeng Senior Clerk

Mr. J. Abrahams Senior Clerk

Mr. B.K. Freeman Clerk Grade I

Mr. M.N. Kusunuh Research As- sistant Joined on 1.10.69

Mr. D.K. Twumasi Departmental Asst. Joined on 1.1.70

Grade III

Mr. Haizel Asare Messenger

Mr. J. Ofori Messenger

Teaching

The Department provided teaching in Economics for various degree and non-degree courses as listed below. Each of them was supplemented by tutorial teaching.

Courses and Number of Students

B. Sc. (Economics) Part I	31
B. Sc. (Economics) Part II	31
M. Sc. (Economics)	4
B. Sc. (Administration) Part I	65
B. Sc. (Administration) Part II	54
B.A. (General) 2nd Year	26
B.A. (General) 3rd Year	10
B.A. (Hons.) Political Science	22
Certificate in Social Administration	19
Diploma in Public Administration and other non-degree courses	55
F.U.E. Arts	86
F.U.E. in Administration	59
F.U.E. Law	5
Certificate in Statistics	8
Home Science	8
B. Sc. (Agriculture)	10

Post-Graduate Studies

One more graduate from the Department was admitted to read for the M. Sc. (Economics) degree in addition to the 3 who had been admitted last year. The Thesis of one of the students who presented himself for examination last year has still not been completed, although he passed the written examination.

With a view to running the graduate programme on a more systematic basis, a Committee for Graduate Studies was appointed. The Committee was under the Chairmanship of Dr. N. Ahmad, who was designated as the Co-ordinator for Graduate Studies in Economics.

A new series of graduate seminar was introduced. The following seven papers were presented by the Graduate students:

N.P. Quarmyne: Some aspects of Parliamentary Control of Public Expenditure in Ghana, 1957 — 66.

S.M. Ntim: Urbanization and Unemployment in Ghana, 1960 — 68.
The Profile of Export Pattern and Policy of Ghana, 1960 — 68.

M.U. Ezenwinyinya: The Efficiency of the U.S. Aid to Ghana, 1960 — 68. The Contribution of Agriculture to the Economic Development in Ghana: The Relevance of Japan's Experience.

B.W.K. Caiquo: The Objective of a Firm.
Three Problems in Investment Management

A thorough revision of the M. Sc. (Econ) Degree syllabus and regulations was undertaken during the year. The revised scheme was approved by the Board of Faculty of Social Studies and the Academic Board and will be introduced with effect from the next academic year.

Four graduates from the Department were sent to the University of Western Ontario to do post-graduate courses, under the agreement of co-operation between the University of Ghana and the University of Western Ontario, Canada.

Other Teaching Activities

Members of the Department continued to contribute to the teaching programme of the Institute of African Studies and the Institute of Adult Education. Consultative contact was maintained with the Department of Economics, University College of Cape Coast. Several members of the Department served as examiners in Economics for the West African Examinations Council.

Dr. N. Ahmad, and Dr. J.L.S. Abbey acted as external examiners for the University of Lagos, Nigeria. Dr. N. Ahmad and Dr. D. Williams acted as external examiners for the University College of Cape Coast.

Research Workshop

With the establishment of the Economic Research Workshop, a greater emphasis was placed on research and almost all the members of the Department initiated research work on various projects.

The following are the research interests of senior members of the Department:

Mr. A. Kumar

Labour Productivity and Technical Change in the Ghana Textile Industry.

Mr. J.B. Abban

The Formation of Prices in Manufacturing Establishments in Ghana.

Mr. A.N. Hakam

Industrial Entrepreneurship in Ghana and Nigeria.

Mr. D.G. Blanchard

Economic Motivation in the Volta and Eastern Regions.

Mr. G.T. Odonkor

Cocoa Marketing, 1965-69.

Dr. W.D. Vickery

Internal Migration and Economic Growth in Ghana.

Dr. J.C. Leith

Trade Distortions: The Case of Ghana.

Mr. J.E.A. Manu

Foreign Capital in Ghana.

Professor T.M. Brown

A Macro-Model of the Ghanaian Economy.

Mr. A.B. Ahmad

Timber Industry in Ghana.

Departmental Staff Seminars

The following papers by senior members and outside scholars were presented at Departmental Staff Seminars:
Senior Members:

Prof. T. M. Brown

The Use of Econometric Models for Estimating Optimal Growth Paths.

Dr. W. E. Vickery

Migration in Ghana.

Mr. J. B. Abban

Price Formation in Local Manufacturing Establishments.

Dr. J. C. Leith

Export Concentration and Instability—The Case of Ghana in the Nkrumah Period.

Dr. W. E. Vickery

The Pricing of Transport Services in Ghana.

Non-Members:

Dr. J. H. Lemley

Director, Transport Sector Studies.

Special Problems in Transport Economics in Ghana.

Mr. A. G. Blomqvist

Univ. of Western Ontario.

Growth and Inflation in A Low Income, Primary Producing Economy, with special reference to Ghana

Dr. M. Singal

Central Bureau of Statistics.

National Accounts of Ghana.

Mr. Kodwo Ewusi

Institute of Statistics,

Social and Economic Research

The Effects of Deterioration in The Terms of Trade on the Economy of a Developing Country. The Case of Ghana.

Conferences Attended and Visits by Senior Members

Professor Z. L. Sadowski visited the University of Western Ontario, Canada, in September, 1969.

Mr. J. B. Abban attended the 2nd International Industrial Relations Association Conference in Geneva from the 1st—4th September, 1969.

Dr. J.L.S. Abbey was nominated to attend the following Conferences:

2nd World Congress of Econometrics Society (6th—13th September, 1970)
Prospects of Employment Opportunities in the 1970's (13th—24th September, 1970).

IDEP University Teachers Seminar and Students Course:

The Department played host to the 1970 University Teachers' Seminar and Students Course sponsored by the United Nations African Institute for Economic Development and Planning, Dakar, Senegal. About 60 University Teachers and researchers from 18 countries in West, Central and North Africa participated at the Seminar held from 20th to 25th July, 1970. This was followed by a four-week students course which was attended by nearly 60 pre-final year students from 20 Universities in Africa. The theme of the Seminar and the Course was: "Sociological, Scientific and Institutional Pre-requisites of Development in Africa"

Both the Seminar and the Course were directed by Dr. N. Ahmad.

DEPARTMENT OF GEOGRAPHY

Staff and Research Interests

The teaching staff during the year consisted of the following:

K. B. Dickson, B.A., Ph.D. (Lond)	Associate Professor	Historical and Settlement Geography. Methodology.
G. Benneh, B.A., Ph.D. (Lond)	Lecturer	Agricultural Geography.
A. Frischen, M.A. Ph.D. (Bonn)	Lecturer	Urban Geography.
P. M. Saey, Ph.D. (Ghent)	Lecturer	Climatology, Population Geography, Methodology.
C. Dorm-Adzobu, B.A. (Ghana), Ph.D. (Liverpool)	Lecturer	Industrial Geography.
K. Boaten, M.A. (Ghana)	Lecturer	Historical Geography,
C. Votrubec, R.N. Dr. Doc (Prague)	Visiting Senior Lecturer	Urban and Transport Geography.

Mr. K. Boaten was appointed to the teaching staff in October, 1969.

Promotions

Towards the end of the academic year Dr. K. B. Dickson was promoted to the rank of Associate Professor with effect from April 1st, 1970.

Resignations

Dr. C. Votrubec and Dr. P. M. Saey resigned from the teaching staff at the end of the academic year.

Student Numbers and Teaching Load.

The teaching loads continued to be heavy owing to the persistence of the large student numbers:

F.U.E.	99
B.A. Hons. 2nd Year	22
B.A. General 2nd Year	23
B.A. Hons 3rd Year	28
B.A. General 3rd Year	21
B. Sc. Econ Part I	3
M.A.	4

Conferences attended and papers read

Professor K. B. Dickson:

Annual Conference of the Ghana Geographical Association—Cape Coast, April, 1970. Presidential address: "Towards a Ghanaian Geography".

Symposium on Family Planning in Ghana, —Legon April 1970. Paper read: "The Population Factor in the Economic Development of Northern Ghana".

Dr. G. Benneh:

Sixth Annual Conference of the Soil Science Society of Ghana—Kumasi, February, 1970. Paper read: "Scientific Research and Food Production in Ghana."

Symposium on Family Planning in Ghana,—Legon, April, 1970. Paper read: "Population, Food Production and Nutrition in a Northern Savanna Village of Ghana".

International Symposium on World Water-Balance,—Reading, July 1970. Paper read: "The Importance of Rainfall and Soil Moisture in the Agricultural Development of the Closed Forest Zone of Ghana"

Dr. C. Dorm-Adzobu:

Annual Conference of the Ghana Geographical Association
—Cape Coast, April, 1970. Paper read: "The State and Industrial Development in Ghana"

Mr. K. Boaten:

Conference of the Historical Society of Ghana—Legon, December, 1969. Paper read: "Northern Asante 1702-1902: A Geographical Appraisal"

The following works from the Department appeared in print during the academic year:

Professor K. B. Dickson,

(with Dr. G. Benneh), *A New Geography of Ghana* (Longmans, 1970), 173 pages.

"Source Materials for the Historical Geography of Ghana, from earliest Times to 1850 A.D.", *Bulletin of the Ghana Geographical Association* vol. 13, 1968.

"The Middle Belt of Ghana", *Bulletin de l'I. F.A.N.*, T.xxx, Ser. B, no. 3, 1969.

Dr. G. Benneh,

(with K. B. Dickson) *A New Geography of Ghana*, (Longmans, 1970), 173 pages.

"Agricultural Land-Use and Population in the Closed Forest Region of Ghana," a paper in *Population and Socio-Economic Development in Ghana* (Ghana Population Studies No. 2, Legon 1970, pp.44-79.

"The Importance of Rainfall and Soil Moisture in the Agricultural Development of the Closed Forest Zone of Ghana," *Symposium on World Water Balance*, Vol. II, Publication No. 93, IASH-UNESCO-WMO, 1970, pp.467-478.

DEPARTMENT OF HISTORY

At the beginning of the academic year the Department was joined by Professor J. O. Hunwick, previously of the School of Oriental and African Studies, who took over responsibility for the teaching of North African and Middle Eastern history. For the whole of 1969-70 Mr. A. Van Dantzig and Mr. Paul Jenkins were away in Europe on study leave. From January 1970 Mrs. J. Murray joined the Department as a Temporary Lecturer to assist with the F.U.E. class in Modern European History. From January 1970 Professor A. A. Boahen was away from Legon on a visit to Columbia

University, New York, where he took over from Professor Irwin who was on leave of absence. While in America Professor Boehen lectured at a large number of academic Institutions and travelled extensively.

In July 1969 Professor Lamb took part as a speaker in an International conference for Senior Officers and Foreign Service Officials organised by the University of Oxford under the title "Change and Conflict among the Powers"; and in May 1970 he took part in a conference organised at Ditchley Park, Oxfordshire, by the Ditchley Foundation on the subject of "Sino-Soviet and Soviet-Western Relations"

During all or part of the 1969-70 academic year the following scholars were affiliated to the Department: Dr. Phyllis Stevens, Mr. R. Thomas, Mr. T. Lewin, Mrs. V. M. Lamb.

Publications

Professor H. A. Lamb

The Mandarin Road to Old Hue, Chatto and Windus 1970.

"The Sino-Indian and Sino-Russian borders: some comparisons and contrasts," in *Studies in the Social History of China and South-East Asia*, edited by J. Ch'eh and N. Tarling, Cambridge University Press 1970.

"Sinkiang under the Manchus and the Chinese Republic", in *Central Asia*, edited by Gavin Hambly, Weidenfeld and Nicolson 1969.

Mrs V.M. Lamb, *The Home Book of Turkish Cookery*, Faber and Faber 1969.

Professor J.O. Hunwick "Studies in the Tarikh al-Fattash. Its Authors and Textual history", *Research Bulletin*, (Centre of Arabic Documentation, University of Ibadan) Vol. 5 (1969) pp. 57-65.

Associate Editor (Africa) and Contributor of 85 entries 'Dictionary of World History' (Nelsons, Ltd.)

Dr. K. Y. Daaku, Oral Traditions of Adanse, *Institute of African Studies*, Legon 1970.

Oral Traditions of Gonja, *Institute of African Studies*, Legon 1970.

Mr R. G. S. Sprigge, "A note on the Ethno-Historical background to the Fwe speaking villages of the Achimota-Legon Area", *Ghana Notes and Queries*, No. 11.

DEPARTMENT OF LIBRARY STUDIES

The Department had ten students in the Post-graduate Diploma Course, five being in their first year, one repeating the course, and four doing Part II.

In the July examinations three students successfully completed the whole course and one was successful in Part I. Two failed their Part II and three the 1969/70 course. Two students have still to complete their bibliographical assignment.

Mr. S. I. A. Kotei, Lecturer, was given leave of absence for one year to study for a higher degree in librarianship at the University College, London. His departure at the end of the second term left the Department with its teaching staff reduced to two.

At the end of the first term the Department organised a three day Seminar in Cataloguing under the leadership of Mr. Nitecki, Senior Lecturer in cataloguing. It was attended by thirty-five representatives of libraries throughout the country. Its theme was the implications for Ghana of the new Anglo-American Cataloguing Code.

With Mr. Kotei away, and the failure to secure any replacement it looked for a time as though the new Certificate Course, announced in the previous year's Annual Report, would never be started, but help came from the Ghana Library Board and the British Council. An experienced Librarian, Miss Ivy Hill, F.L.A., who, under British Council auspices was organizing school libraries for the Ghana Library Board, generously offered her services and was released for the purpose by the Ghana Library Board. With her assistance, and under Mr. Nitecki as Course Supervisor, the Certificate Course started on June 29, 1970.

An entrance examination for the Certificate Course was held in April. Thirty-five sat the examination, and sixteen qualified for admission. Fifteen of these enrolled in the course, which will be completed in August 1971.

In November 1969 the Head of Department, Professor Harris, was awarded the honorary degree of Doctor of Letters for his services to the University of Ibadan.

In August 1969 Mr. Andre Nitecki was honoured by appointment at the University of Syracuse as Associate Adjunct Professor for his services in the field of African Art.

Academic staff

W. J. Harris, B.A. (Oxon), F.N.Z.L.A., Hon. D. Litt. (Ibadan),
Hon. F.L.A., Professor and Head of Department.

Specialization: Administration; History of Libraries and Librarianship; Bibliography; University Libraries.
 Research: History of Libraries and Librarianship in West Africa; Nigerian Bibliography; The Printed Book in West Africa.

A. Nitecki, M.A. (Chicago), Senior Lecturer.

Specialization: Technical Services, including Cataloguing and Classification, Information Retrieval.
 Research: Classification for Africana; Acquisition and prices of o.p. books; Nigerian tribes and languages.

S. I. A. Kotei, M.A. (Ghana), F.L.A. Lecturer.

Specialization: Bibliographical Control; Public Library Administration, References.
 Research: A study of the social and cultural context of libraries in Ghana.

Publications

John Harris:

Books about Nigeria. 5th edition, Ibadan University Press, 1969 viii, 83p.

-- Standards of practice for West African libraries: opening address. in *Standards of practice for West African Libraries*: proceedings of a Seminar, Ibadan 1967. Institute of Librarianship. University of Ibadan, 1969, pp. 11-14.

Occasional papers, Department of Library Studies.

No. 1. *Librarians for Ghana*, 1970

No. 2, *Libraries and librarianship in Nigeria at Mid-Century* 1970, 16p.

-- No. 3, *Patterns of library growth in West Africa*, 1970

— Reviewed 'Printing and the Mind of Man,' by Carter and Muir. 1967. In *Ghana Library Journal*, 3 (1): 44-45, 1969.

-- "Tudor England," 1485-1603, by M. Levine. Reviewed in *Ibadan*, 27: 51-25, October 1969.

Andre Nitecki:

Reviewed 'A Classification Scheme for Law Books', by Elizabeth M. Moys, 1968. In *Ghana Library Journal*, 3 (1): 45-47, 1969.

Reports

A library service for the Mid-Western State, Nigeria, prepared by John and Priscilla Harris, March 1970, 21p.

DEPARTMENT OF POLITICAL SCIENCE

As in previous years, the Department was faced with the problem of student numbers. A total of almost 500 students registered for Political Science Courses, and effective supervision and teaching in the Department became more difficult.

Staff

Three members of the Department, Dr. Yaw Manu, Mr. E. Y. Twumasi and Mr. Henry Frimpong were on leave during the year. In January 1970 Mr. B. D. G. Folsom, Senior Lecturer, was seconded to government service as Executive Director of the Centre for Civic Education, a post that he is expected to occupy until January 1972. The absence of four Senior Members reduced the effective teaching personnel at hand to seven, and the Department sought additional help. The Department was fortunate in securing the appointment of Mr. S. K. B. Asante and Dr. Andrey Smock as Part-time Lecturers. The two appointments helped but did not completely fill the teaching gaps left in the Department by the absence of the four Senior Members. Three new appointments were made at the beginning of the year. Dr. Victor T. Le Vine of Washington University, St. Louis, U.S.A., was appointed Professor and Head of the Department for a two-year term. Dr. Samuel Coleman was appointed to a one-year Lectureship and Mr. Gene Harris was appointed Lecturer for a five-year term. At the end of the session Mr. J.A. Peasah, Lecturer, left for the London School of Economics to undertake work for his Ph.D. The staff situation was as follows:

Victor T. Le Vine, M.A., Ph.D. (Calif)	Professor and Head
B.D.G. Folsom, B.Phil (Oxon)	Senior Lecturer
Yaw Manu, Ph.D. (New York)	Senior Lecturer
J. A. Peasah, M.A. (Toronto)	Lecturer
E. Y. Twumasi, M.Sc. (Lond)	Lecturer
F. K. Drah, M.Sc. (Lond)	Lecturer
J. H. S. Frimpong, M.A. (Ghana)	Lecturer
E. O. Saffu, B.Phil (Oxon)	Lecturer
Samuel Coleman, Ph.D. (Col.)	Lecturer
A. M. Berrett, M.A. (Camb.)	Lecturer
Gene Harris, M.A. (Boston)	Lecturer

Part-time Lecturers

Audrey Smock, Ph.D. (Col.)
S. K. B. Asante, M.A. (Ghana)

Visitors to the Department

During the Michaelmas term, the Department was pleased to welcome Professor Paul Seabury, winner of the Bancroft Prize for 1965. Professor Seabury gave a talk on "Diplomacy, Foreign Policy and World Affairs". The Department also played host to Dr. Gwendolen M. Carter, Director of the Programme of African Studies at Northwestern University. Dr. Carter gave two Public Lectures, one of which was under the auspices of the Department. Also during the course of the year, Dr. Fred M. Hayward of the University of Wisconsin at Madison was attached to the Department as a Visiting Research Scholar.

Dr. Hayward, who has done research in Senegal and held a Lectureship at the University College of Sierra Leone Fourah Bay, conducted research on "Aspects of National Integration in Ghana". The Department was fortunate in securing Dr. Hayward's services as a Tutor, and he gave a Departmental Seminar on the methodology and theoretical implications of his work.

A visiting Research Student from Occidental College, Mr. Erik Eckholm, was present during parts of the Michaelmas and Lent terms, conducting research on "Student Commitments".

Research and Publications

The Department did not, during the year, become involved in any department-wide research project. However, individual members, as before, conducted their own research. One significant step taken during the year was the opening of research links with the Institute of Statistical, Social and Economic Research. Upon consultation and active collaboration with Dr. C. O'Loughlin, Director of ISSER, the Department was able to second Mr. Gene Harris to ISSER for the 1970 Summer term to conduct one phase of ISSER's broader programme of research on agricultural development. Mr. Harris' programme deals specifically with the impact of national decision-making on selected areas of the agricultural sub-system of the economy. It is expected that Mr. Harris' research will produce a report integral to the broader ISSER programme, as well as materials upon which he can base in his own Ph.D. Dissertation.

The General Election of August 1969 provided the opportunity for four members of the Department to become engaged in research on some aspects of that national political experience. Messrs Peasah,

Saffu, and Drah produced valuable constituency studies, and Professor Le Vine became engaged in a study of the candidates, parties and the campaigns. Mr. Berrett continued with his research on national Conference on the theme "Africa The Next 30 Years" held at Makerere University College, Kampala in December, 1969. His paper on "Problems of Political Succession in Africa" will be published as part of the proceedings of that Conference. A significant innovation of the year was the institution of periodic staff seminars, to which Honours students and Senior Members of the University were invited. Messrs Saffu, Peasah, Drah and Hayward read papres.

Courses and Curriculum Revision

Decisions were taken during the year to effect some far-ranging changes in the Department's offerings. The Direct Entry course, seen to be redundant within the framework of the Department's programme was abolished. In accordance with a long felt need, the Department decided to institute, at the beginning of the next session, a new course on the Government and Politics of Ghana," which would be compulsory for 3rd Year Honours students and optional for General degree students. The Department also decided to offer a third year paper on "The Government and Politics of North Africa". Finally, in accordance with developments in the Faculty of Social Studies, the Department decided to divide the Honours examination into parts I and II to be taken at the end of the Second and Third years, respectively. The above changes and decisions were all subsequently endorsed by the Faculty of Social Studies and approved by the Academic Board. It is intended that a more thorough-going curriculum revision will be undertaken during the 1970/71 session.

LIBRARY

During the year the Department was fortunate to receive four library gifts. Two valuable collections of books which included the Encyclopaedia of the Social Sciences, a basic research tool for Political Scientists, were donated by the United States Information Service. The British High Commission donated a set of books dealing with British Government and Politics, and the Soviet Embassy donated books on Soviet politics, law, government and international relations.

POST-BASIC NURSING DEPARTMENT

The Post-Basic Nursing Department was established in 1963 as a joint programme sponsored by the University, the Ministry of Health and World Health Organization. The enrolment for the year was 17 — 12 first year students and 5 second year students.

5 students graduated from the programme in June 1970 bringing the total number of graduates to 61.

Graduates according to clinical area

General Nursing	30
Public Health Nursing	10
Midwifery	16
Psychiatric Nursing	5
Total	61

Members of the Teaching Staff provided by the University:

Miss Ayodele Akiwumi	Nursing Administration.
(Acting Director, Dec. 1969 --- April 1970)	
Mrs. Alice L.N. Akita	General Nursing.
	Public Health Nursing.
	Midwifery.

Staff provided by World Health Organization

Miss Margaret Svenningsen	
(Resigned from WHO June 4, 1970)	Psychiatric Nursing
Miss Barbara A. Bassett	Director

External Examiner

Miss Mary Abbott, Senior Nurse Educator and Head of the Department of Nursing, University of Ibadan.

Developments

This year the faculty prepared "A Draft Memorandum on the Establishment of the Post-Basic Nursing Department along the lines of other Departments in the University prior to withdrawal of WHO assistance". This projects the Department's plans for expansion. On schedule the Ward Sisters Course began in July this year and ended on August 15. 17 candidates enrolled from three different institutions. In the future this course will be given one or two terms during the regular academic year.

The two year programme in Nursing Service Administration will begin in 1971 in support of the Ministry of Health's re-

commendation that Nursing Service Administration personnel should have educational preparation comparable to that of Tutors.

Other Activities:

Miss Ayodele Akiwumi and Miss Barbara A. Bassett attended the Joint Ministry of Health Nurses' Training College and Post-Basic Nursing Department monthly meetings.

In January World Health Organisation held its budget estimates meeting, which Miss Ayodele Akiwumi and Miss Margaret Svenningsen attended. Two Fellowships for the Department were granted for 1970.

Miss Ayodele Akiwumi talked to the students of Wesley Girls High School in Cape Coast about a career in nursing as well as the development of a degree programme at Legon.

Miss Ayodele Akiwumi continued as Chairman of Educational Committee of Nurses' Board, which met frequently to set state examinations for nurses and compile results.

She also continued this year as Editor of the *Ghanaian Nurse*, the official organ of the Ghanaian Nurses Association.

She was Chairman-Convener of the committee for the review of the Ghana Registered Nurses' Association, which was being prepared for the 10th Anniversary Celebrations of the Ghana Nurses' Association.

Miss Akiwumi also served as a member of the Coordinating Committee responsible for coordinating the various committees planning for the 10th Anniversary Conference of the Ghanaian Nurses' Association.

Mrs. Alice L.N. Akita was selected to be a member of the Ministry of Health's Committee to review conditions of service for Public Health Nurses.

She was also a member of the International Committee of the 10th Anniversary Conference of the Ghana Nurses' Association responsible for making arrangements for all international guests attending this Conference. In the absence of Miss Akiwumi, she attended the annual conference on Nursing Administration in November. She spoke on the "Need for Continuing Education"

Members of the Department participated in the Tutors Workshop held at Nurses' Training College, Accra, February 18 — 20th, 1970.

The Department requested an additional fifty-eight texts and references from WHO. This request which will strengthen the De-

partment's present library of nine hundred volumes was approved in June this year.

Visitors to the Department

September 4, 1969

Miss Madalaine Heimendinger, WHO Nurse Educator enroute to post in Niger.

October 9, 1969

Mrs. Stiner Henreetta Szold, Hadassah School of Nursing, Jerusalem, to follow up activities of Ghanaian Nurses, trained in Israel, now working in Ghana.

January 26 — 30, 1970

Miss H. Reyes, WHO Nurse Educator enroute to Kenya visited the Department.

March 23, 1970

Mrs. M.E. Yaidoo from Liberia on WHO fellowship and Miss A.J. Welford, Matron of Birmingham Hospital visited us.

April 2 — 4, 1970

Mrs. Elfrida Adebo, Public Health Nurse Educator, Department of Nursing, University of Ibadan, Nigeria, visited the Department to become acquainted with the programme.

June 4, 1970

Dr. Claude Joubert, Medical Director, Valco Hospital visited the Department and kindly donated 2 copies of "Obstetrics for the Nurse" by Barbara G. Anderson to the library.

June 29 — July 1, 1970

Miss Elizabeth Logan, Director, School for Graduate Nurses, McGill University, Montreal, Canada, visited the Department to follow up the possibility of developing special relationships with us.

July 2, 1970

Mrs. Barbara Anderson, Director of Nursing Services Kaiser Hospital, Oakland, California, visited the Department on the first stop over to several countries. Her purpose is to become acquainted with the health programmes particularly the administrative side of hospitals to see if Kaiser International Foundation could assist facilities abroad.

DEPARTMENT OF PSYCHOLOGY

Staff

The Department's senior staff for the session was as follows:

<i>Name</i>	<i>Area of Teaching</i>	<i>Area of Research Interest</i>
Fiscian, C.E. B.A., Ph.D. (Lond.) Senior Lecturer (Ag. Head of Department)	Social Psychology General Psychology	Social Psychology of Education; Psychological Aspects of Social Change.
Bulley, H.C.A., B.Sc. (Lond) M.Ed. (Tor) M.A., (Col.) Lecturer	Statistics Research Methods	Personnel Selection
Earle, Margaret, M.A., (N.Z.) Ph.D, (Lond) Lecturer	Psychology of Personality Development Psychology	Psycholinguistics Cognitive development.
Davidoff, J.B. B.Sc. (Lond) Lecturer	Experimental Psychology	Sequential Processing in the visual systems; Position response bias.
Fine, J.M. M.A. (Harvard) Lecturer	Physiological and Comparative Psychology	Physiology of the Nervous System; Human Operant Conditioning.

Dr. C.E. Fiscian continued to act as Head of Department. Prof. J.E. Symons, Professor of Psychology at the University of Aberdeen spent the Michaelmas term with the Department as Nuffield Visiting Professor. He gave a number of lectures and seminars in the Department, and one public lecture entitled "Technology and Men: A problem for Education." Dr. Margaret Earle joined the Department under the home-based scheme sponsored by the U.K. Ministry of Overseas Development. Dr. E.B. Forster, Specialist Psychiatrist at the Mental Hospital in Accra, and Prof. S. Reinis, Acting Head of the Department of Physiology at the Ghana Medical School, continued as part-time Lecturers and did the teaching in Abnormal Psychology and Elements of Human Physiology respectively. Mr. J. M. Fine resigned his appointment at the end of the year, to proceed to Harvard to complete his doctoral dissertation.

Students

The Department presented its first batch of students for degree examinations. Out of the four candidates, two obtained Second Class Honours (Upper Division) and were subsequently awarded University Post-graduate Scholarships; one obtained a Lower Second Honours and another a Third. Mr. E.W.K. Agyei, one of the recipients of University Postgraduate awards proceeded to the University of Strathclyde to pursue the M.Sc. Course in Research Methods in Developmental and Social Psychology.

Enrolment for the Period was as follows:

First University Course	29
2nd Year Honours	9
Third Year Honours	4
2nd Year General	2
Third Year General	1

Courses in Psychology were offered to students reading Sociology, Social Administration, Nursing Education, and to First Year Students at the Medical School.

Conferences

Dr. Fiscian attended the congress of the General Association of Francophone Psychologists at Abidjan from 6th to 12th July and contributed a paper entitled "Psychological Research in Developing countries—Prospects and Problems".

Seminars

The Department organized the first series of staff seminars. The following papers were read:

Dr. C.E. Fiscian:

Psychological Research in Developing Countries—Prospects and Problems.

Mr. J.M. Fine:

Dreams, Hallucinations, and the Structure of the Nervous System

Prof. J. R. Symons:

Extrasensory Perception.

Mr. J.B. Davidoff: The Ambiguous Situation.

Dr. M. Earle:

Psycholinguistics and Sociolinguistics.

Mr. H.C.A. Bulley

The Study of Values—A Cross Cultural Evaluation.

Other Professional Activities

Dr. C.E. Fiscian was appointed by the Government as the Chairman of a three-man committee of enquiry to probe the affairs of the Asamankese Local Council. He also conducted a number of tests on behalf of the Psychological Corporation of America, and participated regularly in G.B.C. Broadcasts.

Mr. H.C.A. Bulley was appointed a special consultant to the American Peace Corps in Ghana.

Dr. Fiscian and Mr. Bulley conducted a series of motivational studies for Research Bureau Limited.

Publications

Dr. M. Earle:

A Cross-cultural and cross-languages study of dogmatism.
J. Social Psychology 1969, 79, 19-24.

DEPARTMENT OF SOCIOLOGY

The Department of Sociology senior staff for the session 1969/70 consisted of the following:

<i>Name</i>	<i>Position</i>	<i>Area of Specialization</i>
Abraham J.H., M.A., Ph.D. (Lond)	Professor and Head of De- partment	Social Theory; Philosophy and Sociology of Law.
de Graft-Johnson, K.E. M.A., (Lond)	Associate Professor	Political Sociology; Elites; Traditional Religions.
Fiawoo, D.K. M.A., Ph.D. (Edin)	Senior Lecturer	Child Development; Social Change; Sociology of Reli- gion.
Nukunya, G.K., B.Sc., Ph.D. (Lond)	Lecturer	Kinship; Social Organisa- tion.
Gaisie, S.K., M.A. (Lond)	Lecturer	Demography; Statistics.
Addo, N.O., M.A., Ph.D. (Lond)	Research Fellow	Population Studies; Immigration in Ghana; Migration Survey.
Aryee, A.F., B.A. (Lond)	Lecturer (on leave of absence)	Population Studies; Tribes in Ghana.

Mends, E.H., B.A. (Lond), M Litt. (Cantab)	Lecturer	Sociology of Religion; Social Organisation.
Kumekpor, T.K., B.Sc. (Lond) M.A. (Prin)	Lecturer	Population and Resettle- ment Studies; Ewe Social Structure.
Nortey, D.N.A., B.A. (Ghana) M.A. (Suss)	Lecturer	Criminology; Social Devi- ance and Disorganisation.
Assimeng, J. M., B.A. (Ghana) D.Phil. (Oxon)	Lecturer	Sociology of Religion; Sects and Sectarianism.
Date-Bah Eugenia (Mrs) B.A. (Ghana) M.A. (Lond)	Lecturer	Social Institutions; Indus- trial Sociology.
Maston, T.J. B.A. (Exet)	Lecturer	Urban Sociology.
Westwood, S.I. (Miss) B.A. (Lond)	Junior Re- search Fellow	Stratification
Arthur, J.K.M. B.A. (Ghana), B.Litt. (Oxon)	Lecturer	Logic; Social Philosophy.

Social Administration Unit

Hardiman, M.G.M. (Mrs) B.A. (Lond)	Senior Lec- turer (on secondment from I.S.E.)	Community Service.
Jones-Quartey, P.W. (Mrs) M.A. (Wayne)	Lecturer (on leave of ab- sence)	Voluntary Organisation.
Blavo, E. Q., B.A. (Dur), M.A. (Columb)	Lecturer	Social Administration.
Asamoah, Y W. (Mrs) M.A. (Columb)	Part-time	Social Psychology; Case Work.

The academic year 1969/70 was one in which a number of welcome changes occurred in the Department. Mr. K.E. de Graft-Johnson was promoted as Associate Professor of Sociology at the University. Mr. N.O. Addo returned from study leave, having been

awarded the Ph.D. degree by the University of London and has resumed his post as Research Fellow at the Demographic Unit. Mr. E.Q. Blavo obtained the M.A. degree at the University of Columbia in 1969 and rejoined the Social Administration Unit as Lecturer. The Department welcomed four new members of staff: Mrs. Eugenia Date-Bah, Mr. T.J. Mason (V.S.O.), Miss S.I. Westwood (Serve and Study), and Mr. J.K.M. Arthur. Valuable assistance has been given to the Social Administration Unit by Mrs. Y.W. Asamoah. A new Diploma Course in Social Administration was run for the first time in the Department.

During the year three Research Associates were attached to the Department: Dr. A.R. Luckham, Lecturer in Government at Manchester University, Miss Christine E.M. Byrne, M.A., of Sussex University and Mr. D.K. Robotham, M.A., of the University of Chicago.

Visitors to the Department included Professor P. Hauser of Columbia University, Professor M. Fortes and Dr. J. Goody of Cambridge University, both of whom lectured and held seminars in the Department, and Professor Clark Kerr, Guest Speaker of the Aggrey-Fraser-Guggisberg Memorial Lectures, conducted two seminars in the Department.

Student Enrolment

Pressure for places in Sociology has not relaxed. Emphasis on tutorials made it necessary to restrict the intake to the minimum. Even so, the existing staff found it extremely difficult to cope adequately with tutorial work. In spite of this, standards were maintained and Sessionals and Finals results were, on the whole, satisfactory. Enrolment for the year 1969/70, excluding external students, was as follows:

First University Course	119
Degree Courses:	
2nd Year Honours	20
2nd Year Combined Honours	1
2nd Year General	33
3rd Year Honours	25
3rd Year General	57
M.A.	1
Social Administration:	
1st Year Certificate Course	19
2nd Year Certificate Course	22
Diploma in Social Administration	8

Members of staff serviced the Departments of Home Science and Post-Basic Nursing, and the School of Administration.

Research

Mr. Nortey conducted research on the Sentencing Policies of the Magistrates Courts and Indebtedness among White Collar Workers in Ghana. Dr. Nukunya continued with his investigation into the Economy of the Lower Volta. Miss S.I. Westwood begun a research project on Stratification at Akim Oda.

Mr. Mends was engaged on a survey of Features of Traditional Political Systems of the Fanti, while Dr. Assimeng was making a study on Patterns of Sectarianism and Revivalism in Ghana with special emphasis on religious leadership, social mobility and detribalisation in the country since the beginning of the 20th century.

Mrs. Date-Bah was engaged in research into the Informal Relations existing between the Workers within the Industry of a Ghanaian Entrepreneur.

Dr. N.O. Addo was working on the following topics for publication:

- (a) Internal Migration differentials and their effects on Socio-demographic change in South-eastern Ghana.
- (b) Immigration and Socio-economic developments in Ghana 1870/80—1960.
- (c) Population policies in Ghana (with Gaisie, Jones and Perkin).

Major Surveys

1. *Demographic Unit*—The analysis of Post Enumeration Sample Survey data on Fertility and Mortality is on the point of completion. The last phase of the Demographic Sample Survey, which was financed by U.S.A.I.D., Ghana Government, and the University of Ghana was completed. Mr. Gaisie was responsible for this.

A survey of Migration and Economic Growth in Ghana was launched in April-May, 1970 and is being carried out by Dr. Adoo. The first phase of the research is designed to investigate some of the social, demographic and the economic effects of the mass return of aliens from certain sectors of the economy since the Aliens Compliance Order was brought into force in December 1969.

2. *The Togo Demographic (K.A.P.) Sample Survey*—This survey, the first of its kind in a fraco-phone African country south of the Sahara, was a co-operative exercise with (a) the Department of Social and Preventive Medicine of the Ghana Medical School and (b) Institut de Benin, Lome; the field work, under Mr. T.K. Kumekpor's direction was completed, and work was started on

the analysis of the data to determine population growth, population distribution and movement, sanitary and hospital facilities (including attitudes to and utilisation of such facilities) and attitudes towards family planning, contraceptive practice and induced abortion.

This study is one of the few inter-disciplinary, inter-university projects cutting across national boundaries.

3. *The Sekondi-Takoradi Survey*—This survey under the direction of Professor K.E. de Graft-Johnson and supported by the Population Council, New York, was launched.

Social Administration Unit

Having run the new Diploma Course in Social Administration, the Unit is planning to set up a degree course in Social Administration. Plans have been put forward for expanding the scope of the existing Certificate in Social Administration Course to include staff from other ministries. Already, officers from the Ministry of Agriculture and the Ministry of Education have been accepted for the course.

Revised budget proposals were presented during the year and an approach was made to UNICEF to assist with the running of courses for Supervisors and a research/action programme for developing training facilities for students. The Unit's Staffing is totally inadequate even to provide adequately for existing commitments, and the situation regarding field-work supervision is particularly serious, let alone any possibility of research. We have had generous help from other members of the Department of Sociology and elsewhere but still the main burden of administering and teaching 50 students has fallen on two full-time and one part-time member of staff.

The Unit has made a strong effort to strengthen the professional aspects of the course by providing supervised placements for all students during six weeks of the long vacation while the remaining six weeks of field-work will be devoted to research projects.

Conferences and Seminars

The following papers were read by members of staff who attended various conferences and seminars in the course of the year:

Professor J.H. Abraham:

1. Inaugural Address: "Technology, Politics and Value," January 1970.

2. "Social Change and Role Conflict" at the conference of the Ghana Sociological Association, April 1970.

Dr. D.K. Fiawoo:

"Continuity and Change in some aspects of Religion in Ghana", at the Colloquium on Religion, Porto Novo, Dahomey, August 1970.

Dr. G.K. Nukunya:

"Some Aspects of Land Tenure and Inheritance among the Anlo", Nov. 1969.

Mr. E.H. Mends:

"Aspects of Fanti Political Structure", Nov. 1969.

Dr. N.O. Addo

"Urbanisation, Population Growth and Employment Prospects in Ghana", at seminar on Population Growth and Economic Development in Africa, University College, Nairobi, Kenya, December 1969.

—
Immigration into Ghana: some social and economic implications of the recent Aliens Compliance Order," January 1970.

—
"Sociological and Demographic problems in Nation-Building" at symposium organised by the Ghana Sociological Association in co-operation with the Ghana Academy of Arts and Sciences, March 1970.

—
"Urbanisation and the Changing Structure of South-eastern Ghana" at conference of the Ghana Sociological Association, April 1970.

—
"Household Family Size and Socio-demographic Variables: the Ghanaian experience," at symposium on Family Planning organised by the Demographic Unit, April 1970.

Mr. S.K. Gaisie:

"Population Growth in Ghana" at the seminar on Population Growth and Economic Development in Africa, University College, Nairobi, Kenya, December 1969.

Mr. E.Q. Blavo:

"Role of Social Welfare in National Development" at Staff Seminar, December 1969.

"Human Relations" at the Defence College, Ghana, July 1970.

"The Role of National Youth Service Programmes in Economic and Social Development" at Africa Regional Seminar on National Youth Policies, August 1970.

Publications

Dr. D.K. Fiawoo:

"Ancestral Worship among the Ewe-speaking People of Ghana: A Study in Religious Change," *Ghana Journal of Sociology*, Vol. 5 No. 2, October 1969.

"Some Problems of Adolescence in Ghana," *Ghana Journal of Child Development*, Vol. 2, No. 2 June 1970.

Dr. G.K. Nukunya:

"Kinship and Marriage among the Anlo Ewe" *L.S.E. Monographs on Social Anthropology*, No. 37, London, October 1969.

Dr. N.O. Addo:

"The 1966 Migration Survey: a case study of methods and problems of social research in Ghana" *Research Review*, Institute of African Studies, Legon, May 1970.

Mr. S.K. Gaisie:

"Dynamics of Population Growth in Ghana," Ghana Publishing Corporation, May 1969.

Journals.

The *Ghana Journal of Sociology* is published for the Ghana Sociological Association twice a year. The Editor is Mr. Kumeckpor.

The *Ghana Journal of Child Development*, which was launched last year under the editorship of Dr. D.K. Fiawoo has met with very favourable response. A second issue was published in 1970.

INSTITUTES AND SCHOOLS

INSTITUTE OF ADULT EDUCATION

The 1969/70 academic year marked the end of the first phase of our link with Nottingham, which started three years ago. This year has been significant for one main thing: the continued dialogue among staff at headquarters and between headquarters and field staff, which has resulted in an unprecedented number of meetings, conferences and seminars. The purpose of these colloquies has been to see how best existing programmes can be carried out, and how to develop new programmes.

In this regard, it was agreed that the organisation and administration of the classes should be improved. Students had to be tested and be fully registered before classes started. Resident Tutors should take up regular teaching loads and should visit classes and report on them, and thereby be able to counsel students and advise part-time tutors.

Existing Programmes

It was decided that for the academic year, students should be registered, i.e. paid up, before classes began. This decision has made the collection of fees both effective and efficient and has cut off students who are not determined. Our figures can now be said to be realistic and reliable.

The Examinable Courses

The General Certificate of Education programme continued to take up much of our energy. The External Degree Centre continued to grow and there is a solid beginning of Professional Courses. A break down of classes reads as follows:

	Classes	Students involved
GCE (OL)	240	Over 1,250
GCE (AL)	67	
Professional Courses	6	
External Degree Courses	44	89

The students of the Institute of Adult Education are not allowed to take the June GCE (AL) examination as school candidates, and it is therefore impossible to report on results. The students of the Professional Courses are prepared for the A.I.A. examination, and they enter as private candidates. Here again, it is impossible to report on results.

The results of the G.C.E. (OL) examination show that there is a lot to be done to improve the conduct of the programme.

The determinant variables in the situation have now been determined.

These are:

- (1) availability of text-books
- (2) sufficient time for study
- (3) Proper tuition
- (4) proper guidance for students
- (5) initial attainment of students.

Attempts are going to be made to control these variables so that the General Certificate of Education programme ceases to be the lottery game it has been.

In contrast, the External Degree Centre results showed a very encouraging trend.

Non-Examinable Courses:

Courses run under this programme are in three groups:

- (i) Courses which require paid-up membership and a course of studies covering 24 weeks in the year. A break-up shows the following figures:

Liberal Studies	}	over 469 Students
Sessional Courses in		
Book-keeping and Accounts		

- (ii) Residential courses where participants pay up and come into residence for periods ranging from 3 to 10 days. These were:

Annual New Year School	—	239 participants
Course for Members of Parliament	—	99 participants
Courses organised at Awudome	}	— 349 participants
Residential Adult College		
Courses organised at Sekondi-	—	60 participants
Takoradi Workers' College		

- (iii) Finally there were:

34 Public Lectures, 3 Brains Trusts, 2 Debates, 1 Film show.

Development Programme:

Research Unit: The Research Unit has been functioning for two academic years now. It has conducted a survey into the organisation of the General Certificate of Education programme, and has issued a report. In the meantime, work is going on on a survey of the adult education needs and interests of different groups of people in the country.

Right from the beginning, it was expected that the Research Unit would blossom into a teaching department. The syllabus for the Diploma in Adult Education has been approved.

Correspondence Unit

It was decided early in the year that the Institute of Adult Education should embark on education by correspondence in the 1970/71 academic year. Our new buildings were commissioned and work started with the assignment of two Senior members and a Senior Organiser to the task. It is certain that courses in English, Mathematics, History, Economics, Commerce etc. will be ready early next session.

Tsito Project

The Institute has a substantial physical plant at Tsito. In a sense, the people of Tsito helped to put up the Awudome Residential Adult College. It is proposed to start a project in agricultural training, backed by village technology, for practising farmers in the Awudome area. Already, discussions have taken place between the Institute and the chief and people of Tsito on the project. The advice of the Faculty of Agriculture has been sought and it is expected that when the project gets under way, it will help as a guide in rural development.

Part-time-Tutors

The Institute relies on a large number of part-time tutors to carry out its various programmes. The External Degree Course programme is taught by internal staff of the University of Ghana. 34 of these are engaged on the programme. For the Examinable and non-examinable courses, the Institute relies heavily on teachers in the secondary schools and training colleges. Most of these work very hard, but all of them require guidance and direction from the permanent staff of the Institute of Adult Education. Altogether, there are 345 part-time tutors.

Difficulties

The Institute continued to be plagued by the shortage of staff. In this academic year, there were no Resident Tutors in Tamale, Ho, Cape Coast and Sunyani. Tamale has been vacant for three years, and the absence of a Resident Tutor has told heavily on the work in the Northern and Upper Regions. As yet, it has been impossible to appoint a Deputy Director. With the inception of the Correspondence Education programme which had required the redeployment of two Resident Tutors, the shortage of Academic Staff has become still more acute.

The Finance Committee of the Institute of Adult Education was inaugurated in the third term of the academic year. The

establishment of the Committee has in no way eased the difficulties of the Institute.

Work has suffered very badly because it has been impossible to pay part-time tutors for work done. In such a situation, it has been impossible to control part-time tutors since the Institute has had to rely on their good-will to continue work.

We still, however, look into the future with great hopes. The link with Nottingham is expected to continue with the coming over here of teaching staff for specific and shorter periods. Field staff now know that they have the duty to initiate programmes suitable for their own areas, and see to the effective and efficient running of existing programmes. The Correspondence Unit is certain to survive the initial difficulties of launching, and the Teaching Unit is sure to make an impact on adult education in the country. Even with the acute shortage of staff and lack of transport facilities for field staff, the Institute of Adult Education can look forward with confidence provided there is an improvement in financial administration.

EXTERNAL DEGREE CENTRE JUNE 1970 EXAMINATION RESULTS

<i>FUE</i>	<i>No. Presented</i>			<i>No. Passed</i>		
	<i>Normal</i>	<i>Mature</i>	<i>Total</i>	<i>Normal</i>	<i>Mature</i>	<i>Total</i>
Arts	5	6	11	3	3(+3)	9
Administration	3	2	5	3	2	5
Law	3	7	10	2	3(+1)	6
<i>POST FUE</i>						
BA. General	1	1	2	1	1	2
BSc. (Administration) ⁽¹⁾	1	—	1	1		1
<i>I.I.B.</i>						
Preliminary ⁽²⁾	18	—	18	13	—	13
Part I ⁽³⁾	1	2	3	1	2	3
Part II. ⁽⁴⁾	9	1	10	9	1	10
Totals	41	19	60	33	12	49(+4)

Three of the FUE candidates were referred in Political Science. Bracketed Numerals indicate referred candidates who were required to resit in September.

- (1) The BSc. (Administration) Part I candidate will take the referred paper with the Part II papers.
- (2) Five of the Preliminary candidates were referred. The referred papers will be taken together with the LL.B. Part II papers.
- (3) Two of the LL.B. Part I candidates were referred and will take the referred papers together with the LL.B. Part II papers.
- (4) Two of the successful candidates in the LL.B. Part II Examination obtained Second Class Lower Division Degrees.

INSTITUTE OF AFRICAN STUDIES

ADMINISTRATION

<i>Name</i>	<i>Position</i>
Professor J.H. Nketia	Professor : Director
Mr. R.D. Greenfield	Senior Research Fellow/ Administrative Secretary
Mr. K.O. Odoom	Research Fellow/Acting Assistant Secretary

Research and Teaching: Historical and Social Studies Section

<i>Name</i>	<i>Position</i>	<i>Research Interest</i>
R.D. Greenfield	Senior Research Fellow	Ethiopian History and Politics
E.O. Ayisi	Research Fellow	African Sociology and Political Development
K.A. Opoku	Research Fellow	African Religion and Ethics
J.J. Holden	Research Fellow	19th Century Islamic States in the Western Sudan
Kwame Arhin	Research Fellow	Social Anthropology
R.H.K. Darkwa	Research Fellow	Ethiopian History
G.P. Hagan	Research Fellow	Social Anthropology
Mrs. C. Oppong	Research Fellow	The Family in Africa
K.N. Bame	Research Fellow	Sociology of Education African Drama
A.K. Quarcoo	Research Fellow	Social Anthropology

African Languages and Literature Section

G. Ansre	Senior Research Fellow	African Linguistics
J.M. Steward	Senior Research Fellow	African Linguistics
E.O. Apronti	Research Fellow	African Linguistics
I.K. Chinebuah	Research Fellow	African Linguistics and Education
Mrs. M.E. Kropp-Dakubu	Research Fellow	African Linguistics
Mrs. E. Sutherland	Research Fellow	African Drama and Literature
E.O. Akyea	Research Fellow	African Literature
A.C. Denteh	Chief Instructor	Akan Language and Literature

Arts Section

Prof. J.H. Nketia	Professor	African Music and Literature
E. Amu	Senior Research Fellow	African Music
A.M. Opoku	Senior Research Fellow	African Dance
A.K. Quarcoo	Research Fellow	African Art
G. Colburn	Research Fellow	African Theatre
Miss B. Brown	Research Fellow	African Music
B.A. Aning	Research Fellow	African Music

SCHOOL OF MUSIC AND DRAMA

Music Division

N.Z. Nayo	Tutor	Music
Madam E. Partos	Tutor	Music

Mrs. E.F. Munn	Tutor	Music
M. Strumpf	Instructor	Music
<i>Drama Division</i>		
Miss S.D. Lokko	Tutor	Drama and Theatre Studies
Mrs. A. Seward	Instructor	Drama and Theatre Studies
<i>Dance Division</i>		
Miss E. Tamakloe	Instructor	Dance
Miss P. Kwakwa	Instructor	Dance
Miss E.F. Love	Instructor	Dance

The programme of the Institute of African Studies continued to attract students and scholars from Ghana and abroad. There was a marked increase in the number of internal Ph.D. candidates as well as in the number of affiliated research students and scholars from other Universities. Co-operation with the University of Science and Technology and the University College of Cape Coast continued, especially in the organisation of introductory courses in African Studies in these institutions and in limited areas of individual research.

Teaching:

- (a) The Institute continued to organise special courses in African Studies for all first year students of the University of Ghana and of the University of Science and Technology and the University College of Cape Coast
- (b) Inter-disciplinary courses leading to the M.A. degree of the University of Ghana were offered by the Institute in co-operation with relevant Departments.
- (c) Three-year Diploma courses were offered in the School of Music and Drama in each of the Performing Arts in Music, Dance, Drama and Theatre Studies. The emphasis of these courses was on general professional training.
- (d) In addition to the regular courses of the University, two courses were run for the general public: A course on African Art, and Language Proficiency course in Akan

- (e) Introductory courses of three to six weeks duration in various areas of African Studies were given during the Long Vacation and were attended by a large number of students from overseas, sponsored by various educational institutions and agencies. A Summer Institute of African Studies was held at Fordham University in New York and was attended by fifty students from different University institutions in the United States.

Research:

The research programmes of the Institute of African Studies were closely linked to its various teaching schedules. On-going inter-disciplinary projects included the Ashanti Research Project designed for the study of the history and cultures of Ghana and its neighbours and studies in problems of incorporation. The completed topics of investigation included the growth of centralised administration in Ashanti from the time of Osei Tutu to the time of Osei Kwamina Asibe Bonsu; Status differentiation in Ashanti in the Nineteenth century; The Political Organisation and History of selected towns; Aspects of Ashanti-Northern trade in the 19th century; The development of market centres 1874-1968 with particular reference to Atebubu and Kintampo selected as case studies, and an examination of the relationship between the divinity of the office of kingship and its potent secular power.

Studies of the Family continued. Matriliney and marriage were examined as well as conjugal power and resources. A preliminary analysis of changes in prescribed norm for conjugal relationship was undertaken.

Other studies of social anthropological interest included examination of basic assumptions in kinship and descent systems and an analytical study of Fanti kinship; case studies of recruitment and roles in Dagomba country, and dualism in Akan conceptual thought.

Studies in the sociology of religion continued. These included a number of studies of shrines and their role in traditional society; biographical studies of priests and priestesses of traditional religion, and the documentation of observations and interviews, etc. on spiritual churches. Investigations into Islamic education among Moslem children were begun as part of a general study of the history and cultures of Islamic peoples in Ghana and other West African states.

Work on Ghana Languages and Literature continued throughout the year with particular emphasis on educational and socio-linguistic problems. Consideration was given to the question of an

integrated approach to the internal languages of Ghana, orthographical and other problems with particular reference to Akan and Dangbme and the problem of grammatical anglicisms in Ghana languages.

A number of case studies of problems of general interest to linguists were made. These included a study of the language of a two-year-old Dangbme; a case study of the language of Anana Shrine at Big Ada and Leni Stops of the Potou Lagoon languages.

Investigations into music, dance and drama continued throughout the year. The studies completed include the analyses of musical styles in Kusasi and Dagarti; the development of course work in zylophone music based on field studies of techniques; musical instruments of selected areas, the organisation of migrant musicians in Nima (Accra); selected dances of Northern and Upper Regions and studies of the Popular Theatre in Ghana including biographical studies of leading actors and musicians.

The Institute's archive of source material continued to expand. Several important collections of oral traditions were made in Adansi, Denkyira, Ashanti, Gonja and Dagomba, with the assistance of a grant from UNESCO. The documentation of festivals continued as well as the systematic recording of traditional music throughout Ghana.

Publications

The Institute published a number of research papers during the year and maintained its three periodicals: *Research Review* published thrice a year; *Okyeame*, published twice a year; *Odawuru*, an Akan magazine, published thrice a year.

The following is a list of publications by Research fellows of the Institute

Arhin, Kwame:

Ashanti and the Northeast (ed. with introduction). Supplement No. 2 *Research Review*.

Aspects of the Ashanti Northern Trade in the 19th century. *Africa*, October, 1970.

Political succession and Gold mining at Manso Nkwanta. *Research Review*, Vol. 6 No. 3 1970.

Collected Papers on Ahafo Landholding. Supplement No. 3 *Research Review*, 1970.

Ayiisi, E.O.

Academicism in Social Anthropology. *Research Review* Vol. 5 No. 1 1969.

Introduction to African Cultures, Heinemann Educational Books (forthcoming).

Hagan, George:

Ashanti Bureaucracy — A Study of the growth of centralised administration in Ashanti from the time of Osei Tutu to the time of Osei Tutu Kwamina Asibe Bonsu. An analytical study of Fanti Kinship, *Research Review* Vol. 5 No. 1 1968.

Oppong, Christine:

A Preliminary Account of the Role and Recruitment of Drummers in Dagbon, *Research Review* Vol. 6 No. 1 1970.

A Note on Dagomba Fiddlers, *Research Review*, Vol. 6 No. 2 1970 p. 27 — 33.

Matriliney and Marriage, Network Approaches ed. Mitchel & Boissevain.

The Conjugal Family, Open or Closed, *Ghana Journal of Sociology* (Special issue) 1970.

Opoku K.A.

Field Notes No. 2 Interdisciplinary Seminar in Field Methods 1969.

Akom Ho Nkommo (Kwaku Mframama) Institute of African Studies, 1969.

Spiritual Churches and Traditional Religious Beliefs, *Research Review* Vol. 4 No. 2.

Kingdom Community, *Research Review* Vol. 6 No. 2, 1970.

Darkwah, R.H.K.:

Menilek of Ethiopia Heinemann Educational Books (forthcoming). Some Developments in Ethiopia during the era of Mesafint, *Research Review* Vol. 6 No. 2 1970. Aspects of the 19th century History of Ethiopia, *Research Review* Vol. 3 No. 3.

Greenfield R.D.:

Ethiopia - - *A New Political History* (London) 1969. A New African edition in Paperback.

"An Ethiopian Protest Poem: Submit to Cross Examination", *Literature East & West* (New York) Vol. XII No. 1 p. 22—29 1969.

"The Civilizing Mission: A history of the Italo-Ethiopian War of 1935 — 36" by A.J. Barker (New York: 1968) Reviewed in *Africa Report* (Washington) Vol. 14 No. 2, 1969.

"Towards the Modern History of Ethiopia I — The so-called 'Civilizing Mission' a Review Article, *Research Review*, Legon Vol. 6 No. 1 1969.

"Haile Selassie's Government" by Christopher Clapham, Review in *Political Science Quarterly* (New York) (in Press)

"The Ethiopian War 1935 — 1941" by Angelo Del Boca, Review in *Political Science Quarterly* (New York) (in Press)

Chinebuah, I:

The Education Review Report and the Study of Ghanaian Languages, *Ghana Journal of Education* Vol.1 No. 2 1970 p. 22 — 45.

Candidates' performance in the 'O' Level English Language Examination, *Ghana Journal of Education* Vol. 1 No. 3

'Consonant Mutation in Nzema' *Journal of West African languages* Vol. VII No. 2

Variable Nouns in Nzema: *Journal of the Linguistic Circle of Accra*.

A note on the Homonym: *Research Review* Vol. 7 No. 1 1970.

Ansre, Gilbert:

Why Study Ghanaian Languages: *Institute of African Studies*, August, 1970.

Stewart, John M.:

Drills for the indicative active tenses of the Asante verb: *Institute of African Studies*.

Apronti, E.:

The Writing of Dangbme

Akyea, Ofori:

Traditionalisms in African literature—A Study of J.P. Clark's *Ozidi*: *The Nigerian Review of English*.

The Chosen tongue by Gerald Moore: Review Article, *Legon Observer*.

Sutherland, E.

The Original Bob, The Story of Bob Johnson, Ghana's Ace Comedian: Annowuo Publications 1970.

Kwaa Mensah (Makers of Ghana Theatre Series) Annowuo Publications 1970.

Ananse and the Dwarf Brigade (Fanti version): Anno-
wuo Publications 1970.

Aning, B.

Music Teachers: A Survey of Manpower Resources in
Secondary and Commercial Schools in Ghana: *Institute
of African Studies*, August, 1970. *Ghana Journal of Edu-
cation* Vol. 2 No. 2 (forthcoming).

Nketia, J.H.

Ashanti Man, *Myth and Magic* p. 134 — 137.
'The Place of Non-Western Music in General Education'
Report of the First National Conference of the Austra-
lian Society for Music Education p. 139 — 147.
The Poetry of Akan Drums: *Black Orpheus*, Vol. 2 No.
2 1968 p. 27 — 35.
'Anwonsem': *Odawuru* No. 3 1970 p. 17 — 24.
Ethnomusicology in African Studies: (ed. G.M. Carter
and A. Paden) p. 143-146 Northwestern University Press
1970.

Papers Presented at Conferences, Symposia, etc.

Akyea, Ofori:

Elements of African Literature (Geneva, February, 1970)
An Examination of Africanisms as a basis for Christian
Literature for the Youth (Piriapolis, Uruguay, April
1970).

Ansre, G.

On the Scope of Language Description (Burg Wartens-
tein, Austria, August, 1970) Wenner Grenn Foundation.
Why Study Ghanaian languages (Univ. College of Cape
Coast, 1970)

Apronti, E.

The teaching and development of Ghanaian Languages
(Ghana Academy of Arts and Sciences, Accra, April,
1970).

Arhin, K.

Atebubu Markets c. 1884 — 1930 International African
Institute (Freetown, December, 1969).
Political Organisation and History of Atebubu town:
Historical Society of Ghana (Legon, January 1970).

Chinebuah, I.:

'Consonant Mutation in Nzema': 9th Congress of the
West African Linguistic Society (Freetown, March
1970).

The Language Problems of Modern Africa: Association of Teachers of Ghanaian Languages (University College of Cape Coast April, 1970).

Nketia, J.H.

The Place of Non-Western Music in General Education (Brisbane, Australia, August, 1969).

Non-Western music in tertiary education (Brisbane, Australia, August 1969).

The Creative Arts and the Community: Ghana Academy of Arts and Sciences (Accra, November 1969).

The Musical Languages of Africa, a Comparative Study. UNESCO (Yaounde, February, 1970).

The Place of the young Musician in Community Life: International Society for Music Education (Moscow, August, 1970).

Oppong, Christine:

Matriliny and Marriage: *Afrika Studie Centum* (Leiden, September, 1969).

The Conjugal Family 'Open' or 'Closed': Ghana Sociological Association (Legon, April, 1970).

Steward, J

Orthographical and other problems connected with the literary development of Ghanaian Languages: Ghana Academy of Arts and Sciences (Accra, April 1970).

Opoku, A.M.

Social Organisation of the Dance, Legon July 1970.

Early Basic Movement Training in the African Dance, Legon July, 1970

Basic Movement Analysis from Different Areas, Legon July, 1970.

Opoku, A.M.

The Dance in Traditional African Society, Legon, July, 1970.

The African Dance in the Modern Setting: Legon, July, 1970.

Dramatic Expression in the African Dance: Legon, July, 1970.

The Festival in Ghana: Legon, July 1970.

Ghana's Cultural Policy (UNESCO Conference) Venice, September, 1970.

INSTITUTE OF STATISTICAL, SOCIAL AND ECONOMIC RESEARCH

Staff

...

Apeldorn, J. Van:

(Joined October 1969) Research work in agricultural marketing.

Arthur, H.D.:

On study leave.

Bhattacharya, C.G.:

Statistics, teaching and research.

Boateng, E.O.:

(Joined March 1970) Research work in productivity.

Chacko, V.J.

(U.N. Attachment) Statistics, teaching; research in education and marketing statistics and methodology.

De, R.N.:

(Left July 1970) Statistics, teaching and research.

Ewusi, K.:

(Joined October 1969): Research in national accounts project and teaching econometrics.

Ghosh, R.N.:

(Arrived July 1970) Research in prices and distribution sector; teaching econometrics/operation research.

Kpedekpo, G.M.K.

(Promoted to Senior Research Fellow April 1970): Demography teaching and research.

Nadkarni, P.N.:

(U.N. Attachment) Directs Certificate courses and teaches statistical theory and mathematics.

Nyanteng, V.K.:

(Joined October 1969) Research — agricultural marketing; teaching agricultural economics (Faculty of Agriculture).

Ofori I.M.:

(Joined August 1970) Land tenure research.

O'Loughlin, C.:

(Joined October 1969) Director in national accounts, the sugar industry, consumption studies and project Direc-

tor, "Factors of Agricultural Growth" Teaching public finance (Economics Department).

Ray, D.:

(Left July 1970) Teaching and research in computer programming and operation research.

Subrahmanya, M.T.:

Teaching sampling theory; Research in education statistics and methodology.

Visiting Research Professor:

W. H. Beckett:

To advise on structure and programme of a Cocoa Economics Research Unit.

Graduate Assistants:

Odai, J.K.:

Computer Programmer.

Okali, Mrs. C.:

Cocoa economics project.

Panford, S.:

Land tenure project.

Developments in Teaching:

The following courses were completed:

The Certificate in Statistics: 8 candidates, 8 passed.

Postgraduate Diploma in Statistics: 5 candidates, 1 passed.

M.Sc. in Statistics: 1 candidate, 1 passed.

Ph.D. in Statistics: 1 candidate, still to be examined.

The syllabuses for the M.Sc. course and Certificate course were revised. A new course, The Higher Certificate, has been introduced to start 1970-71.

Developments in Research:

The following projects were started:

Factors of Agricultural Growth: including studies in Land Tenure, Marketing, Storage and Agricultural Institutions.

Economic Structure National Accounts: including studies in the Transport Sector, the Sugar Industry, Income Distribution and Macro-economic Model

Manpower Studies and Education Statistics: including studies on Teachers' Attitudes to their profession, the Demand for Graduates, and the Demand for Specific Skills.

Cocoa Economics: Re-survey of Koransang; Cocoa Data Banks. The following projects, started in previous years, were continued: Demographic and Population Studies: including studies of 1960 Census Data; Interpenetrating Sample Design for Estimating Basic Demographic Measures, Health Statistics and Family Planning Evaluation.

Statistical Methodology:

Household Budget Survey: including studies in further analysis of Eastern Region Survey; and relationship between Food Consumption and Income Change in the Volta Region.

Publications

V.J. Chacko (with M.T. Subrahmanya): Middle School Teachers in Ghana. *I.S.S.E.R. Technical Publication Series No. 7*, University of Ghana, Legon 1969.

— (with G.M.K. Kpedekpo): Sampling for Demographic Characters in Ghana. *The Indian Journal of Statistics*, Vol. 30, 1969.

Kpedekpo, G.M.K.:

Some Recent Developments in Some Aspects of Stratified Sampling. *Metrika*, 1970.

— Housing and Household Conditions in Accra. *Community Health Report* No. 1, 1969, Ghana Medical School.

— Studies in Vital Registration: *I.S.S.E.R. Technical Publications* No. 10 and 11, 1970.

— Some Statistical Aspects of Births and Deaths Regulation in Ghana; *Ghana Population Studies* No. 2, 1969, pp. 1-12.

— Height and Weight of Ghanaian Children, *Journal of the Royal Statistical Association*, Series A, 1970.

Working Life Tables in Ghana with Particular Reference to the Female Working Population, *Journal of Royal Statistical Association*, Series A, 1969.

Subrahmanya, M.T.:

Modified Integer-Estimations, *Merika*, 15 (1970).

Bhattacharya C.G.:

A Study of Cocoa Farmers in the Eastern Region; *I.S.S.E.R. Technical Research Publications* No. 8

O'Loughlin, C.:

Tourism in the Tropics. *Insight and Opinion*, Vol. 5 No. 2.

SCHOOL OF ADMINISTRATION

Staff

E.H. Boohene	Senior Lecturer in Accounting
G.K. Atiase	Lecturer in Accounting
P.T.K. Aidam	Lecturer in Accounting
B.C.F. Lokko	Tutor in Accounting
A. Hyndman	Senior Lecturer in Business Management
H.O.A. Agyeman	Lecturer in Business Management
E.A. Kwabong	Lecturer in Business Management
G. Adali-Mortty	Lecturer in Business Management
D.K. Greenstreet	Senior Lecturer in Public Administration
S.N. Woode	Lecturer in Public Administration
J.M. Beck	Lecturer in Public Administration
E.A. Addo	Lecturer in Hospital administration
N. Dawes	Senior Lecturer in English
H.J. Andrews	Lecturer in English
T.H.S. Kwami	Lecturer in English
M.A. Barry	Lecturer in French
S.O. Gyandoh	Lecturer in Law

Mr. Ackom Mensah and Dr. Adjei were on secondment to GIHOC and State Fishing Corporation respectively. Mr. F Adinyira a Member of Parliament was on leave without pay. Messrs J.K. Nsarkoh, F.O.M. Sakyiama, J.N.E. Amarin and B.C.F. Lokko were on study-leave in the U.S.A (Mr Lokko returned in May 1970).

Development in teaching and research

A study of sub-professional courses of training for office personnel was made by Mr. G. Adali-Mortty.

Management Day

A new feature, "Management Day" was introduced into the School's calendar. On Management Day, top executives from G.N.T.C. spent a full day in the School giving talks and holding discussions with students and faculty on the regular running of the different branches of their corporation. "Management Day" is to become a regular feature in the School's calendar and periodically top management executives from reputable business organisations will be invited to spend a day in the School to share their "on-the-job" experiences with students and faculty.

HALLS OF RESIDENCE

AKUAFO HALL

There were 533 students in Hall during the year. 240 were in the Main Hall and 293 were in the Annexes. There were 16 Foreign students in residence.

Hall Officers:

Mr. H.C.A. Bulley held his post as Master Mr. E.Y. Amedekey was elected Vice-Master of the Hall.

Other Officers

Senior Tutor—Mr. M.K. Mensah
Tutors

Dr. G.C. Clerk
Rev. Dr. G. Ansre
Mr. S.K. Britwum
Rev. Dr. C.R. Gaba
Mr. S.K. Garsie
Mr. M.A. Kissi
Dr. G.M.K. Kpedekpo
Dr. J.H.O. Macqueen
Mr. D.N.A. Nortey
Mr. Ofori Anyinam
Mr. K.A. Opoku
Mr. G.K. Osei
Rev. Dr. G. Ansre
Mr. E.Y. Amedekey
Mr. K.A. Opoku

Chaplain
Librarian
S.C.R. President

Mr. S.K.B. Asante continued as Bursar of the Hall and Mr. F.W.T. Acquah held his post as Administrative Assistant. The post of Accounting Assistant was vacant.

7 new fellows were assigned to the Hall during the year.

Members of Hall Council

The Hall Master, The Vice-Master, The Senior Tutor and the President of the S.C.R. (as ex-officio member), Dr. K.B. Dickson, Mr. J.R. Birnie, Rev. Dr. C.R. Gaba, Dr. G.C. Clerk, Mr. Ofori Anyinam, Mr. D.N.A. Nortey, Dr. E.K. Newman, Mr. D.B. Ampratwum and Mr. S.K.B. Asante (Secretary)

Conferences, Seminars and Courses

<i>Name of Conference</i>	<i>Sponsored by</i>	<i>No. of people</i>	<i>Date</i>
U.T.C. Management Development Seminar	General Manager U.T.C., Accra	12	5-9/1/70
Historical Society of Ghana	Hist. Soc. Ghana	40	2-5/1/70
U.T.C. Management Development Seminar	General Manager	12	22-26/3/70
—do—	—do—	12	20-24/7/70
Ghana National Credit Union and Thrift Association	Konrad Adenauer Foundation	35	24/7/70 25/9/70
Ghana Association of Teachers of Religious Knowledge.	Ghana Assoc.of Teachers of Rel. Knowledge.	30	27-31/7/70
Christian Women Teachers Seminar	G.N.A.T.	80	31/3/8/70
2nd Biennial Delegates Conference Public Services Workers Union of T.U.C.	P.S.W.U. of U.T.C. (Ghana)	120	28-31/8/70.

COMMONWEALTH HALL

There were 426 students in the Hall during the year. Three Fellows of the Hall resigned to enter politics. They were Dr. Jones Ofori-Atta, Dr. J.K. Fynn and Dr. G.K. Agama. At the beginning of the year the Hall was without a Master, Professor J.H. Nketia, the previous Master having resigned his appointment as Master on 12th August 1969. Dr. E.J. Thompson served as acting Master until he was elected Master on 17th April, 1970. He was inducted at a special ceremony in the Hall Chapel on Tuesday, 23rd June, 1970. The Administrative Assistant and acting Bursar, Mr. M.M. Akpor-Mensah resigned to take up appointment with the Ghana Medical School. Mr. W.A.N. Nartey, Accounting Assistant and Mr. J.W.T. Adjotey, who was appointed Administrative Assistant in October, 1969, acted as Hall Bursars during this period until 1st July, 1970 when Mr. J.N.O. Lamptey took office as substantive

Hall Bursar. 18 new fellows were assigned to the Hall during the year.

Hall Council Members

Dr. J.M.Hyde	Senior Tutor
Mr. T.H.S. Kwami	Deputy Senior Tutor
Dr. G. Benneh	Tutor
Mr. I.K. Chinebuah	Tutor
Mr. G.F. Daniel	Tutor
Dr. G.K. Nukunya	Tutor
Mr. J.A. Peasah	Tutor
Mr. J.K. Ansere	Tutor
Dr. E.O. Apronti	Tutor
The Hall Librarian: Dr. J.M. Assimeng.	

Rev. K.A. Dickson resigned as Hall Chaplain. He was succeeded by Mr. J.S. Pobee of the Department of the Study of Religions as Warden.

J.C.R. Governments

Michaelmas Term:

K. Akuamoah-Boateng	—	President
Abu Abarry	—	Vice-President
Francis Tsegah	—	Secretary
C.D. Anyane-Yeboah	—	Treasurer

Lent Term:

Chriss Tay-Agbozo	—	President
Fred Abedi Oskar	—	Vice-President
Sam Amuquandoh	—	Secretary
Sam Akosah	—	Treasurer

Trinity Term.

J.K. Larbi	—	President
E.A. Amoah	—	Vice-President
C.S. Sackey	—	Secretary
F.A. Aruk	—	Treasurer

Conferences

The New Year School, organised by the Institute of Adult Education.

The Commonwealth Conference on Education in Rural Areas, organised by the Ministry of Education.

The 1970 Summer School, comprising:

- (a) The American Forum for International Studies
- (b) University of California Group

- (c) University of Southern California Group
- (d) Queens College (City University of New York) Group organised by the Institute of African Studies.

Sports

The Hall distinguished itself in the Inter-Halls Cross Country Race and won the coveted Satis Cup. The athletics shield was also snatched from Akuafio Hall.

LEGON HALL

This was the first year of office of the third Master of the Hall, Professor D.A. Bekoe, who succeeded Rev. Professor C.G. Baeta. The formal installation of the new Master took place on the 17th of December, 1969.

There were 516 undergraduates and 19 graduate students in residence; these included students from ten nations outside Ghana. There were 97 Fellows, 23 of whom were assigned during the session.

The Hall Anniversary this year was celebrated on Trinity Sunday, as usual. The one innovation was that students in the two annexes were able to join those in the Hall, and such Fellows as were able to attend, at a single sitting for the Anniversary Dinner. By rearranging the tables in the Hall and making use of the passage between the Dining Hall and the J. C. R. we were able to accommodate about 600 persons at the Dinner. The Warden of Volta Hall, Miss Lindsay Crier kindly agreed to present the various Hall awards and Prizes.

There was considerable activity and excitement in the J.C.R., centred around two main issues. The first was a proposal to change the 17-year old J.C.R. Constitution; the second concerned investigations into the financial transactions of the previous year's Annual Ball Committee (A.B.C.). It is hoped that the constitutional reforms will be carried through more smoothly in the near future. The A.B.C. affair brought to light many unsatisfactory aspects of the organisation of the Annual Ball. From the activities of this year's Committee, it is evident that many lessons have been learnt. The 1970 Annual Ball drew a large crowd and was extremely successful.

The Senior Common Room has continued to thrive throughout the session. The Presidency changed hands on the departure of Mr. K.O.A. Mensah on study leave. Dr. K.A. Haizel was elected to serve the unexpired portion of his term. Services offered in the Senior Common Room, the Coffee Room, the Fellows' Garden and "Isaac's Corner"—so named informally after Mr. Isaac Tufuoh

who usually "presides" over activities in the passage between the Senior Common Room and the Coffee Room—have attracted much patronage from Fellows, non-Fellows, senior students and guests, including many former members of the Hall. At the Fellows Dinner, Mr. Isaac Tufuoh and Mr. J. O. de Graft Hanson who had been Fellows for ten years, and Professor H.C. Wiltshire and Mr. R. N. De, who were leaving the University, were honoured.

Members of the Hall Council:

Prof. D.A. Bekoe	Master
Prof. J.A.K. Quarthey ...	Vice-Master
Dr. R. Orraca-Tetteh .	Senior Tutor
Mr. K.O.A. Mensah	President, S.C.R.
Dr. K.A. Haizel	President, S.C.R.
Dr. K.E. Senanu ...	Chapel Warden
Dr. S. Sinnadurai .	Librarian
Mr. J.I. Haizel ...	Hall Bursar
Mr. W.O. Animfen	
Mr. E.V. Doku	
Mr. J.O. de Graft Hanson	
Mr. J.K.T. Kafe	
Mr. N.K. Kofinti	
Mr. E.Y. Twumasi.	

Mr. Twumasi was away on study leave for the whole session.

Tutors

Dr. R. Orraca-Tetteh (Senior Tutor)
 Mr. R.M. Asiedu
 Mr. R.N. De
 Mr. R. Addo-Fening
 Mr. J.D. Watson
 Dr. S. Sinnadurai
 Dr. N.K. Kofinti
 Dr. I. K. Derban
 Mr. J.K.T. Kafe
 Mr. G.E.S. Williams
 Dr. N.I.C. Nwachuku
 Dr. J.L.S. Abbey
 Mr. E.V. Doku
 Mr. K.K. Oduro.

Conferences were organised in the Hall by the West African Examinations Council, the British Council and the Canadian Universities Services Overseas

MENSAH SARBAH HALL

The Hall started the year with a figure of 595 students. The student population settled down shortly afterwards at a total of 566 (including 67 women) and hovered around this figure throughout the year. Of this number 543 were Ghanaians and the rest foreigners.

A notable development in student affairs during the year was the decision of the Hall Council following recommendation by the Tutorial Board to involve students in the maintenance of law and order in the Hall. After careful preparatory work had been done by the Tutorial Board, students were invited to be responsible for disciplinary action as far as minor offences in the Hall are concerned. The students did not respond promptly to this invitation; in fact, nothing was officially heard from them. It is our hope that the students will accept this challenge. This step could go a long way in promoting a healthy spirit of discipline and responsibility, culminating in the display by students, of a willingness and ability to participate more actively in Hall administration.

The darkest spot this year was the accidental death of a Third year B.Sc. (Hons) Agriculture student—Kofi Owusu-Bioh—which sad event occurred on Saturday, 31st January, 1970. He fell from the stairs leading to one of the Blocks in the Hall.

Conferences

The Ministry of Education Conference.

The West African Examinations Council Conference.

Parliamentarians Conference.

Members of the Hall Council

Rev. Prof. J.R. Koster (Master)

Mr. J.E.A. Manu

Mr. E.O. Saffu

Dr. K.M.S. Sundaram

Mr. J.S. Jackson

Mr. S.O. Gyandoh, Jnr.

Dr. N. Ahmad

Dr. W.Z. Coker

Mr. S.A. Djan (Secretary)

Tutors

Mr. E.O. Saffu (Senior Tutor)

Dr. K.M.S. Sundaram

Miss G.E. Fairweather

Mr. E.F.G. Mante

Mr. A.N. Hakam
 Mr. G.K.A. Ofosu-Amaah
 Dr. N. Ahmad
 Mr. J.S. Jackson
 Mr. S.O. Gyandoh, Jnr.
 Miss A. Akiwumi
 Dr. W.Z. Coker
 Mr. E.Q. Blavo
 Dr. E.K. Agyei
 Mr. A.N. Mensah
 Dr. A.K. Fiadjoe

VOLTA HALL

The 1969/70 session, the tenth year of the Hall, was characterised by an unprecedented increase in student numbers, bringing the total to 283 students in residence, and a fairly large assignment of Fellows as well.

Officers

Miss L. Cripser	...	Warden
Mrs. C. Bannerman	.	Deputy Warden
Dr. F. Dolphyne	.	Senior Tutor
Miss O.I. Robinson	...	Hall Bursar
Mrs. J. Grimes	...	Librarian
Mrs. C.O. Kisiedu		Tutor
Mrs. A. Sundaram		Tutor
Mrs. E. Date-Bah	..	Tutor
Miss M. Wagstaffe	.	Tutor
Miss F. Asafu-Adjaye	...	Tutor

Hall Council

Miss L. Cripser	Mrs. A. Sundaram
Dr. F. Dolphyne	Mrs. C.O. Kisiedu
Dr. F.M. Hartley	Mrs. M. Ripley
Miss O.I. Robinson	Mrs. E.F. Munn
Mrs. C. Bannerman	Miss S. Lokko

15 new Fellows were assigned to the Hall.

First Half of Year

Miss Esther Hayford	..	President
Miss Margaret Nartey	...	Vice-President
Miss Phyllis Ruby-Williams	..	Secretary
Miss Victoria Nelson	..	Treasurer
Miss Gifty Benson		Entertainment Secretary
Miss Docea Anin		Sports Secretary

Second Half of Year

Miss Dorothy Adomakoh	...	President
Miss Mercy Fiawoo	...	Vice-President
Miss Janet Osei	...	Secretary
Miss Rose Appenteng	...	Treasurer

Hall Prizes for the year based on last year's performance went to the following:

Miss Doris Anakwa	(McCallien Prize)
Miss Erica Senanu	(Tazelaar Prize)
Miss Esther Hayford	(Volta Hall Prize)
Miss Ruby E. Ofori	} Other Prizes
Miss Alberta Hagan	
Miss Anna Abban	
Miss Florence Agbenowu	

There was a Mathematics and Physics Teachers conference in the Hall from 27th December 1969 to 5th January 1970. There was also a Home Science conference from 30th March 1970 to 2nd April 1970. Eighteen of our students took part in the 3rd Inter-University Games.

Activities in connection with the tenth anniversary celebrations consisted of a dinner-dance, and the choice of the Hall Motto. The dinner was held on the 11th of April for Fellows, former students of the Hall, special guests of the Hall and present Volta students. The Hall Motto chosen out of a number of suggestions by a committee set up for the purpose reads "Akokobere Nso Nim Adekyee"

THE BALME LIBRARY

Staff

For the first time in many years all Assistant Librarian posts were filled. The following were appointed as Assistant Librarians:

Mr. E. Amoah (Assistant Librarian. In training overseas)
Mr. H. Dua-Agyemang (Assistant Librarian. Acquisitions)
Mr. S.N. Amanquah (Junior Assistant Librarian. Periodicals)
Mrs. T. Dadson (Junior Assistant Librarian. Cataloguing)

The following members of staff were offered admission to a sub-professional certificate course in Librarianship: -

Mr. S. Bont-Awotwi	(Library Assistant Grade III)
Mrs. E. Gaba	(Library Assistant Grade II)
Mr. A.P. Korsah	(Library Assistant Grade II)
Mr. L.D.M. Laryea	(Library Assistant Grade III)
Mr. R.Y. Tonyigah	(Library Assistant Grade III)
Mr. A.C. Okai	(Clerk Grade I)

The course began on 29th June, 1970 and was expected to last for one year.

New Departments

The Library Board took note of the establishment of the new Department of Nutrition and Food Science for future financial allocations in the book budget.

Publications

The Library Guide was revised up to 1970. The last edition was published in 1964. The first edition of a general library Staff Manual was also published during the year. Four numbers of the Library Bulletin were published.

Proficiency Course

A proficiency course was arranged for Senior Clerks and Administrative Assistants during the long vacation of the year 1969-70. The following members of staff of the Library attended:

Mr. F.K. Amfo
Mr. G. Amartey
Mr. V.O. Owuo

Visitors

Mr. J.D. Pearson, Library Adviser, Inter-University Council for Higher Education Overseas, and Librarian, School of Oriental and

African Studies, University of London, was a guest of the University (October 4 to October 11, 1969) invited to make a preliminary survey of the Libraries of the University of Ghana. He presented a report which was accepted by the Library Board as a valuable guide for the future development of libraries in the University.

Consequent on Mr. Pearson's Report the Inter-University Council for Higher Education overseas arranged for a Library Planner to visit Legon to examine possibilities for extending library facilities for the University as a whole and also to size up the library situation at Legon with a view to providing the necessary basis for drafting a brief for the Architect. During the visit, Mr. H. Fairhurst, the Library Planner and Librarian, University of York, England, consulted the Vice-Chancellor, the Deans of Faculty and their Library Board Representatives, the Development Officer and the Students' Representative Council.

Exhibitions

An exhibition in commemoration of the 50th Anniversary of I.L.O. and sponsored by the United Nations was open to the public in the Library for one week in October 1969. An exhibition on Education in Bulgaria was also held in the Library.

Special Collections

The U. N. Library

This collection was moved to a bigger room south of the East Ground Floor Stack formerly occupied by the Atoms for Peace Collection.

The Atoms for Peace Collection

This is now housed in a section of the room south of the West Ground Floor Stack adjacent to Science Bound Periodicals. Additional shelving was provided for a major re-organization of the Collection.

The Arabic Library

This Collection now occupies the room vacated by the U.N. Library.

Law Library

A new scheme of classification specially designed for the Law Library was introduced during the year. This involved major re-classifying processes. Union Author Cards for all re-classified Law Books are being held in the Balme Library. Other Books on Law intended for the Balme Library are being classified by the "old" scheme in "K"

Gifts

The Canadian High Commissioner in Ghana, on behalf of the Canadian Government, donated multiple sets of student text books mainly on Economics and related subjects for the Students' Reference Library.

The Russian Ambassador in Ghana presented a selection of about one hundred titles symbolizing the Culture of Russia. These included books on Language, Literature, Folklore, Art, Music, History and Geography.

The British Overseas Development Ministry allocated £5,000 in the 1969/70 session to be applied to the book needs of the School of Administration. This same Ministry allocated £10,000 to be applied to the book needs of the Law Library. A number of books were received during the session against these grants.

Book Stock

Approximately 5,309 volumes were acquired this year as against last year's 8,000. The Students' Reference accessioned approximately 1,867 volumes and catalogued 1,709. The total number of books borrowed during the session was approximately 3,977.

New periodicals totalled 201, and 37 titles, were either cancelled or ceased publication. The number of periodicals catalogued for the year was 313.

The grand book stock is now approximately 247,000. This figure includes approximately 16,000 volumes in the Students' Reference Library. Periodical titles now number approximately 4,500.

Notable Accessions

The following are selections from notable accessions for the year:

Ahrens L.H. (ed)

Origin and Distribution of the Elements.

British Museum

General Catalogue of Printed Books 3rd edn.

De Bray, R.G.A.

Guide to the Slavonic Languages.

Furia, T.F. (ed)

Handbook of Food Additives.

Great Britain, Colonial Office Lib.

Catalogue of the colonial office Library 15 vols.

Laffont-Bompiani

Dictionnaire des oeuvres Contemporaines de tous le pays.

Lima-De-Faiia, A. (ed)

Handbook of Molecular Cytology

London Univ. Lib.

The Palaeography collection in the Univ. of London Library.

Meetham, A.R. (Ed)

Encyclopaedia of Linguistics, information and control.

Reuss, J.D.

Repertorium Commentationum 16 vols.

Thompson, O. (ed)

The International Cyclopedia of Music and Musicians.

Verzijl, J.H.W.

International law in historical perspective 2 vols.

Wadstrom, C.B.

An essay on Colonization particularly applied to the Western Coast of Africa.

Readers' Services Department

Library Hours

During the Session members of the Library Board felt that in the Easter Holidays (the holidays preceding end-of-year examinations) the library should open for longer hours to enable students to use its facilities for the pending examinations. It was also felt that the Library should open for a few more hours on Saturdays in term time throughout the session. Library Hours for Saturdays during term time were therefore rescheduled as follows:

8 a.m.—4 p.m.

Use of Library Materials and Schedule of Fines for Overdues

The Academic Board during the year approved the Library Board's recommendation that with effect from the year 1970/71 the Balme Library should impose fines for overdues in accordance with existing library rules and regulations.

Library Discipline — Rules, Regulations, Offences and Penalties

The Library Board also approved a set of Rules, Regulations, and Penalties to regulate Library Discipline.

Statistics

1. Registration

Senior staff
students

564
1,821

Readers in other categories	67
Total	2,452

2. No. of books borrowed during Session 29,546

3. *Attendance (average daily)*

Michaelmas Term	615
Lent Term	450
Trinity Term	542
Total Average daily attendance	536

4. *Photo-reproduction Services*

Microcopies ordered	183
Microcopies received on order	29
Microcopies ordered for mutilations	142
Microcopies serviced to local clients	170
Microcopies serviced to overseas clients	7
Microcopies serviced for mutilations	17

5. *Library Co-operation*

Books loaned to local libraries	71
Books loaned to overseas libraries	5
Books borrowed from local libraries	16
Books borrowed from overseas libraries	Nil

*Cataloguing Department
Statistics*

Number of volumes catalogued — 5,309. Last year's total was approximately 7,000 volumes.

Technical Services Unit

A supervisor for the Technical Services Unit was appointed. New or additional appointments were as follows:

Mr. G.H. Christian (Supervisor on promotion)
Miss F. Danquah (Bindery Asst. Grade III on promotion)
Mr. E.A. Mantey (Apprentice Bindery Asst. on promotion)
Mr. E. Aghanyoh (Messenger/Cleaner)

Statistics

Books bound	4,873
Periodicals bound	3,213
Books rebound	1,150
Photostats bound	408
Books mended	50
Theses bound	102
Reels of microfilms produced	11

CENTRAL CAFETERIA

Staff

Mr. E.M. Okere, Dip. H.C.M., Exp. H. & T. Org., Cert. Diet.	— Manager
Mr. P.B. Okai	— Administrative Assistant
Mrs. Rosalie O. Acquah	— Domestic Bursar
Mrs. Cecilia Dickson	— Accounting Assistant
Mr. Berko-Nti	— Kitchen Superintendent
Mr. J.K. Tsiagbe	— Technician

Management Committee

Professor C.W. Cameron	— Chairman
Mr. E.M. Okere	— Ag. Secretary
Mr. E.O. Saffu	
Mr. E.K. Mensah	
Dr. R. Orraca-Tetteh	
Mr. A. Hyndman	
Mr. R.H.F. Longdon	
Mr. P.L. Amoah	
Mr. J.L. Ogum	
Mr. E.A. Kwakye	
Mr. S.O. Aryetefio	

Mr. E.M. Okere succeeded Mr. R.H.F. Longdon as Manager in January, 1970, and the vacant post of Technician was filled in November, 1970.

Students' Feeding

The Cafeteria catered for 900 students. The introduction of meal cards to replace the use of vouchers reduced food shortage and wastage.

Snack Bar

The Snack Bar was officially opened on 16th October, 1969 to provide a relaxed atmosphere for social meeting of the university staff and the student body.

Functions

<i>Name</i>	<i>No. of people</i>	<i>Date</i>
Ghana Medical School	200	25/10/69
Pharmaceutical Society	180	1/11/69
Cocoa Research Institute	160	24-28/11/69
I.C.I. (Export) Ltd.	200	29/11/69
Oman Lodge of Instructions	60	4/12/69
University Primary School	18	18/12/69
Legon Hall	300	19/12/69

University Bookshop	18	20/12/69
Manciple's Organisation	24	23/12/69
Manciple's Organisation	150	11/1/70
Harmonic Lodge	35	17/1/70
W.A. Examinations Council	60	21/1/70
Tema Lodge	35	22/1/70
Department of Psychology	30	28/1/70
U.S.A.I.D./Faculty of Agric.	100	4/5/2/70
Department of Sociology	50	4/2/70
Accra Ice Company	80	13/2/70
Registrar's Offices	250	6/2/70
Registrar's Offices	140	14/3/70
Registrar's Offices	380	22/3/70
Inter University Games	390	21-29/3/70
Registrar's Offices	121	8/5/70
Judicial Service	36	25-29/5/70
Sport Amalgamated Clubs	170	19/6/70
Lodge Academic	36	20/7/70
Inst. of Adult Education	140	20/7/70
Altours (Ghana) Ltd.	250	13/8/70/9/70

Apart from the functions mentioned above, individual orders placed for "small chops" were encouraging.

Clinic

Part of the open space behind the Cafeteria Offices was converted into a Clinic for students of the University

Visits

The following distinguished personalities visited the Cafeteria:
 Mr. B. Bungoni (of the Management of C.A.S.T., Ltd., Akwata)
 Dr. C. Whitworth (Vice-Chancellor of Salford University)

UNIVERSITY HOSPITAL

Staff

Dr. S.A. Banful—Senior Medical Officer.
Dr. Hilda P. May—Medical Officer.
Dr. M.K. Frimpong—Medical Officer.
Mr. Clement K. King—Senior Pharmacist
Mr. A.J. Micah—Pharmacist;
Miss A.C. McCarthy—Senior Sister
Mrs. Mabel Doku—Ward Sister
Mrs. M.A. Djadoo—Ward Sister (Maternity)
Dr. A.K. Boaitey resigned his appointment as Medical Officer with effect from 31st December, 1969.

New Appointment

The Hospital has now been able to employ the services of a Senior Domestic Assistant to help improve the quality of food given to patients.

Students' Clinic

A special students' clinic was established in October, 1969. It is situated on the basement floor of the Central Cafeteria building. This clinic, which operates daily from 8. a.m.-12 noon (Monday to Saturday), during term time, caters for students only. Sick students are requested to report for registration between 7.30 and 8.30 a.m.

Maternity

A new Maternity Wing with 12 beds was opened in April, 1969. It is a well equipped unit suitable for dealing with all normal deliveries. Abnormal maternity cases are as usual referred to the Teaching Hospital at Korle-Bu. Records at the Maternity Wing showed that 466 deliveries were made from April, 1969 to July 1970.

Out-Patient Statistics

During the period October 1969 to July 1970 the Out-Patient Department catered for 43,387 patients. These comprised:

Students	8,433
Senior Members	764
Senior Members' dependants	2,578
Senior Staff	199
Senior Staff dependants	586
Junior Staff	2,748
Junior Staff dependants	5,344

Monthly-rated labourers	560
Monthly-rated lab. dep.	2,372
Daily-rated labourers	3,733
Daily-rated lab. dep.	4,212
Public Patients	11,858

In-Patient Department

1,701 patients were admitted at the In-Patient Department. The details are as follows:

Students	202
Senior Members-Senior. Staff	35
Senior Members' dependants	101
Junior Staff	168
Junior Staff dependants	172
Monthly rated laboures' dependants	64
Daily rated labourers	151
Daily rated laboures' dependants	164
Public Patients	629

Study Leave

Mr. Mahama Issaka, a Laboratory Technician is now doing an advanced course in Laboratory Technology at the Gradwohl School of Laboratory Techniques in the USA, and Mr. Enoch Quaye Kumah also a Laboratory Technician was awarded an Inter-University Council Technician Training Scholarship tenable at the School of Tropical Medicine in Liverpool.

Dental Attention:

Our appointed Dentists are:

The Dental Surgeon, Military Hospital, Accra Telephone 76111 EXT. 462

Dr. Robert Lee, Osu, Accra Telephone 76765

Dr. Kornelia Choitel, Tesano, Accra. Telephone 22685

Future Development

A new and more spacious Medical Store is now under construction and it is hoped that the work would be finished by October, 1970.

UNIVERSITY PRIMARY SCHOOL

Enrolment

The school opened for the 1969/70 academic year on Monday, 6th October, 1969. With the establishment of a second stream for class 7 at the beginning of the year, all classes in the school, from Nursery 1 to class 7, became two-stream. Throughout the year all classes in the school were full except class 6, a class for 10+year old children, where there were no suitable applicants to fill ten vacant places in the two streams of the class. At the end of the year the total number of children in the 18 classes in the school was 636. The number of classes and children in the three sections of the school were as follows:

Nursery Section

N. 1D	37
N. 1M	33
N. 2A	40
N. 2W	40

Lower Primary Section

Class	
1A	43
1B	44
2C	40
2D	41
3E	41
3F	42

Upper Primary Section

4G	36
4H	34
5J	33
5K	34
6L	26
6M	23
7R	26
7S	23

Class Size

From the numbers in the various classes it is obvious that the sizes of the classes in the school are rather large for effective teaching and control. In the previous academic year the Committee of Management for the School, in an effort to solve the problem of

large classes, recommended an increase in the number of streams for each class from two to three. Had this recommendation been implemented it would have meant a re-grouping of the children in the present two-streams of each class into three streams so that there would have been not more than 30 pupils in each class. The Committee again recommended the introduction of a third stream for classes 1 and 2 as from the beginning of the 1970/71 academic year.

Staff

Full-time

An additional teacher, Mrs. Mercy Amarteifio, was appointed to the full-time teaching staff at the beginning of the year. With the implementation of the revised Unified Scheme of Service for University Institutions in Ghana in the course of the year it became necessary to regrade or redesignate certain posts. Thus the former post of Headmaster was redesignated Headteacher. The post of Teacher/Demonstrator was abolished. Instead, the former Teacher/Demonstrators were grouped into two categories—Senior Teachers and Teachers—according to qualification. The full-time teaching staff, therefore consisted of the following:

Mr. K.O. Budu-Saidu, B.A. (Lond)—Headteacher
Mrs. Getrude Dowokpor—Senior Teacher in charge of N. 1D
Mrs. Esther Mfodwo—Senior Teacher in charge of N. 1M
Mrs. Salome Acquah—Teacher in charge of N. 2A
Mrs. Dorcas Winful—Teacher in charge of N. 2W
Mrs. Jessie Renner—Teacher in charge of Class 1A
Mrs. Kate Thompson—Senior Teacher in charge of Class 1B
Miss. Beatrice Larbi—Teacher in charge of Class 2C
Mrs. Rose Yeboah-Amankwa—Teacher in charge of Class 2D
Miss Josephine Mensah—Teacher in charge of Class 3F
Mrs. Vida Gyening—Teacher in charge of Class 3F
Mrs. Rebecca Vanderpuije—Teacher in charge of Class 4G
Mrs. Clare Mensah-Dapaa—Teacher in charge of Class 4H
Mrs. Victoria Quaidoo—Teacher in charge of Class 5J
Mrs. Mary Longdon—Senior Teacher in charge of Class 5K
Mrs. Rebecca Hansen-Addy—Senior Teacher in charge of Class 6L
Mr. J.O. Oyetunji—Senior Teacher in charge of Class 6M
Miss Grace Mingle—Senior Teacher in charge of Class 7R
Mrs. Mercy Amarteifio—Teacher in charge of Class 7S
Mr. G.O. Twerefoo—Senior Teacher in charge of Music.

Resignation

Mrs. Mensah-Dapaa, who had been on the staff since October 1966 resigned her appointment from the end of August 1970.

Part-Time Staff

Mr. P.L.K. Kondo for French
Mrs. R.C. Kwami for Ewe
Mr. J.K. Aduakwa, the University Sports Coach.
Mr. H. Falconer, Mr. M.K. Jallow and Miss. B. Lezynski for Swimming.

Curriculum Development

The course in Entebe Mathematics, which was started in Primary Class 1 in the 1968/69 academic year, was continued in Primary class 2. It is intended that the Entebe Mathematics course should eventually replace our present course in traditional Mathematics. A course in civics, aimed at turning out respectful and responsible citizens was also introduced into the curriculum for the Upper Primary Section.

Visitors

In the course of the year several parents as well as official and private visitors were welcomed at the School. Prominent among the visitors were the Acting Principal and a group of students from the Advanced Teacher Training College at Winneba, who visited the school on Thursday, 20th November, 1969 and spent the whole day with us.

The School presented 49 candidates for the Common Entrance Examination. Of this number 48 qualified for entry to secondary Schools.

A special event for the Girl Guides was a complete course in Preliminary First Aid organised by the St. John's Ambulance Brigade of Accra. 23 children were enrolled for the course and the 17 successful candidates were awarded certificates.

MEDICAL SCHOOL

DEPARTMENT OF ANAESTHETICS

Staff

The academic staff consisted of the following: Dr. K.A. Oduro, M.B., Ch.B. (University of Glasgow) FFARCS (Ireland), FIARCS (Eng), D.A. (RCS and P) Senior Lecturer and Acting Head of Department.

Dr. C.G. Boateng M.B., B.S. (Lond) FFARCS (Ireland): Lecturer
Dr. S.L. Baffoe-Bonnie M.D. (Hamburg): Registrar.

Part-time Clinical Teachers were:

Dr. A.E. A. Mensah M.B., B.S. (Lond), DRCOG, FFARCS (Eng), D.A. (RCS&P)

Dr. E.S. Le Grange M.B. B.S. (Lond) D.A. (RCS&P).

Research Projects

"The Incidence of Post-operative Vomiting in a Standard operation" by Dr. C.G. Boateng.

"The place of Penthrane Analgesic in minor surgery"—Dr K.A. Oduro.

Publications

Dr. K. A. Oduro:

"Deaths Associated with Surgery and Anaesthesia Observations in Korle Bu Hospital Accra", in *West African Medical Journal* Vol. XVIII No. 6, December 1969.

—

"Two Cases of Anoxia and Cardiac Arrest from a defective Anaesthetic Apparatus" in *Ghana Medical Journal* Vol. 8 No. 4 December 1969.

—

"Communication between the Old Countries and the New" in *Excerpta Medica International* No. 200 1970.

Dr. C.G. Boateng:

"The Manpower requirements of the Medical Services in a Developing country" in *World Medical Journal* December, 1969.

Conferences and Visits

Dr. K. A. Oduro and Dr. C.G. Boateng attended the Annual Conference of Association of Surgeons of West Africa in Dakar, in January 1970.

Dr. K.A. Oduro attended the British Council Course in Anaesthesia for Consultant Anaesthetists in the United Kingdom in February 1970.

Dr. C.G. Boateng attended a meeting of the World Medical Association in New York in April 1970.

Dr. K.A. Oduro and Dr. C.G. Boateng attended the Annual Meeting of the Society of Anaesthetists of West Africa in Lagos, in May 1970.

Visitors

Visitors to the Department during the year included: Professor Stephen Steen of New York.

Dr. Peter Tomlin, 1st Assistant, Department of Anaesthetics, University of Birmingham in January 1970. He read a Paper on "Automatic Ventilation with special reference to Tetanus"

Dr. John Farman, Consultant Anaesthetist, Adenbrooke Hospital, Cambridge and Visiting Professor to Department of Anaesthetics, Ahmadu Bello University in June 1970. He read a Paper on "Some Physical Effects of Blood and Electrolyte Infusions".

Other Activities

The Department carried out weekly seminars for Ministry of Health members of staff who were preparing for post-graduate studies in Anaesthesia.

ANATOMY DEPARTMENT

Staff

Dr. C.R. Dutta Associate (Professor)—Neuroanatomy.

Dr. F.R.L. Engmann (Lecturer)—Cytogenetics.

Dr. R.J. Nicholas (Lecturer)—Tissue transplantation.

Dr. M. Katzarski (Lecturer)—Physical Anthropology.

Three technicians, who pursued a successful course in anatomy in U.K., joined the Department. This raised the standard of technical facilities for teaching and research.

For the first time two students who achieved the highest standards in 2nd M.B. Anatomy examination were sent to Royal Free Hospital School of Medicine, University of London, to do a B.Sc. course in Anatomy.

Research

Dr. Dutta and Dr. Katzarski did some research work on the inguinal region, on the appendix and on the vascular and biliary system at the porta hepatis.

Publications

C.R. Dutta and M. Katzarski—"The anatomical basis for inguinal hernia in Ghana, *Ghana Medical Journal*—Vol. 8 No. 3; p. 185, 1969.

F.R.L. Engmann

— "Some observations on adult and newborn Lymphocytes in culture"—*Ghana Medical Journal*, Vol. 8; No. 3, p. 181, 1969

DEPARTMENT OF BIOCHEMISTRY

Staffing

It was possible to add two members to the senior staff—one lecturer and one laboratory demonstrator. The Department found it useful to engage a Master's degree holder to assist fully in the many practical classes in the courses. The senior staff consists therefore, of one senior lecturer, one lecturer and one demonstrator.

There was no change in the number of the junior staff, which was as follows:-

- 1 Assistant Technician
- 2 Laboratory Assistants Grade I
- 1 Clerk Grade I.

Two staff members were away in the United Kingdom for further training.

Research Projects

The biochemical analysis of Dore, a honey-related natural product from the Ghanaian forest. This is published in the *Journal of the Ghana Medical Association*, 1969.

The Biochemical Analysis of Ghanaian Food-Stuffs—this is to be published soon.

The effect of long treatment of Chloroquine phosphate (Anti-malaria drug) on the phosphate metabolism in rats and also the

metabolite of the substance in the urine of rats. This work is still in progress.

- The radioactive synthesis of C^{14} labelled choline iodide and
- (i) its studies in respiratory function in mice.
 - (ii) its studies as thyroid diagnostic. This work is still progressing.

Other activities

The first year medical biochemistry theory lectures continued at Legon. The second year students had all their classes at Korle Bu as usual.

The professional examinations of M.B. Ch.B. took place at Korle Bu, where Professor R.T. Williams, F.R.S., of London University was the external examiner.

DEPARTMENT OF CHEMICAL PATHOLOGY

Staff and Research Interests

Professor Bela Ringelhann, Acting Head of Department.

Special Research Interest:

- (a) Abnormal Haemoglobins, their biochemical characteristics and problems connected with their genetics. Types and Distribution of Abnormal Haemoglobins in Ghana.
- (b) Use of Radioisotopes in Diagnosis and Research of Tropical Diseases.

Dr. G.R.E. Swaniker—Lecturer

Special Research Interest:

- (a) Biochemical Normals in Ghanaians
- (b) The Importance of Arginase Activity as an Evaluation of Hepatic Damage.
- (c) The Origin of Arginase found in Plasma and Red Blood Cells.

Dr. T.D. Osafo—Lecturer (Part-time)

Special Research Interest:

- (a) Electrolytes in Surgical Patients.
- (b) Renal Handling of Enzymes.
- (c) Quality Control in Laboratory
- (d) Calcium Metabolism.

Development in teaching and research during the year:

The Third Year Medical Students had 62 hours for Chemical Pathology, 25 hours for theoretical and 37 for practical work.

The number of Third Year Students increased this year, from 32 to 54. With the help of the Administration, a new Students Laboratory with all the necessary equipment was installed. This new laboratory helped a great deal to raise the standard of the laboratory sessions. New Techniques were introduced and these were employed by the students. Students were encouraged to learn about the basic problems connected with the work in a chemical pathology laboratory.

Publications

Bela Ringelhann, F.I.D. Konotey-Ahulu, H. Lehmann and P.A. Lorkin: A Ghanaian Adult Homozygous for Hereditary Persistence of Foetal Haemoglobin and Heterozygous for Elliptocytosis. *Acta Haematologica* (Basel) 43,100, 1970

F.I.D. Konotey-Ahulu and Bela Ringelham: Sickle Cell Anaemia, Sickle Cell Thalassaemia, Sickle Cell Haemoglobin C Disease and Asymptomatic Haemoglobin C. Thalassaemia in one Ghanaian Family. *Brit. Med. J.* (London) 1,607, 1969.

Bela Ringelhann, F.I.D. Konotey-Ahulu and S.R.A. Dodu: Studies on Iron Absorption, Incorporation and Distribution in Sickle Cell Anaemia, Sickle Cell Haemoglobin C Disease and Haemoglobin C. Disease in Ghana, using a large volume liquid scintillation counter. *Journal of Clinical Pathology* (London) 23, 127, 1970.

Bela Ringelhann: Radioisotope Studies in Congenital Haemoglobinopathies; *Ghana Medical Journal*, 9, 130, 1970.

T.D. Osafo:

Observations on Laboratory Results in Chemical Pathology The Significance of Figures quoted in Results; *Ghana Medical Journal*, 8,285, 1960.

DEPARTMENT OF CHILD HEALTH

Staff

Dr. Y. Asirifi, M.B. Ch.B., M.R.C.P. (Edin), D.C.H. Senior Lecturer, Acting Head of Department. Research Interest: Social Paediatrics. Convulsive seizures.

Dr. C. A. Reindorf, M.B., B.S., M.R.C.P. (Edin), D.T.M. and H., D.C.H. Dip. American Board of Paediatrics: Senior Lec-

turer. Research Interest: Haemoglobinopathies Neonatal Paediatrics.

Dr. S.O. Ofori-Amaah, M.B., Ch.B., M.R.C.P., (Glasg) D.C.H. Lecturer. Research Interest: Growth and Development.

Dr. A.G. Boohene, M.B., B.S., M.R.C.P. (Edin and Lond), D.C.H., D.T.P.H.; Lecturer. Research Interest: Preventive and Social Paediatrics. Epidemiology of infectious diseases.

Dr. F.K. Nkrumah, M.D. (Berlin) Dip. American Board of Paediatrics, F.A.A.P., M.P.H. (Harv), Lecturer. Research Interest: Haematology; Applied Immunology.

During the year, Dr. S. Ofori-Amaah went to America on study leave.

Additions to Staff

Dr. A.G. Boohene, Dr. F.K. Nkrumah and Dr. Carl Reindorf joined the staff during the year.

Research

Dr. Asirifi: Epidemiological and virological study of Diarrhoea in children in Accra (in collaboration with Department of Microbiology); Convulsive seizures.

Dr. Reindorf: A study of the range of P.C.V's in 1,000 premature babies in Ghana. Incidence of Hookworm infestation in sickle cell disease and other Haemoglobinopathies.

Dr. Nkrumah: Possible immunological mechanisms, involved in anaemia due to Malaria, Asthmatic bronchitis, asthma and intestinal parasitism; host/parasite relationship.

Research Programmes

Cerebral Malaria: Evaluation of Arvin and Dexamethasone in the treatment of cerebral malaria.

Burkitt Lymphoma—survival studies and drug evaluation. (In collaboration with the National Institute of Health, Bethesda, U.S.A.)

Students from Overseas

During the year, Mr. John Osborne, a Medical Student from St. Thomas Hospital, London, spent three months in the Department.

Mr. Victor Pappoe, student in Yale University, also spent four weeks in the Department.

DEPARTMENT OF MEDICINE & THERAPEUTICS

STAFF

<i>Academic Staff</i>		<i>Areas of Special Interest</i>
S.R.A. Dodu, M.D. (Sheff.); F.R.C.P. (Lond) D.T.M. & H.	Professor and Head of De- partment	Diabetes and Cardiology
D.R.W. Haddock, M.D. (Liverp) F.I.D. Konotey-Ahulu,	Associate Professor	Neurology and Endemic Diseases
A.K. Foli, M.B. (Glasg) M.R.C.P. (Ed.); D.C.H.; D.T.M. & H.	Senior Lecturer	Gastroenterology
F.I.D. Konotey-Ahulu, M.B. (Lond) M.R.C.P. (Lond) D.T.M. & H.	Senior Lecturer	Haemoglobinopa- thies
B.B. Edoo, M.B. (Cantab); M.R.C.P. (Ed.) D.T.M. & H.	Lecturer	Neurology
J.O.M. Pabee, M.B. (Lond) M.R.C.P. (Lond)	Lecturer	Respiratory and Cardiovascular Disease.
J.H. Addy (on study leave) M.B. (Lond); M.R.C.P. (Lond) D.T.M. & H.	Assistant Lecturer	General Medicine/ Dermatology
<i>Honorary and Part-time Staff</i>		
A.J. Hawe, C.B.E.; M.D. (Liverp) F.R.C.P. (Lond) D.T.M. & H.	Hon. Professor	General Medicine/ Dermatology
Lt-Col. R.O. Addae, M.B. (Lond) M.R.C.P. (Lond)	Part-time Tutor	General Medicine
S.K. Dutta, M.B. (Calc.); D. Phys. Med. (Eng)	"	Physical Medicine
G.A. Chowdhury, M.M.F. (E. Pakis); D.T.C.D. (U.K.); F.I.N.P.S. (Italy)	"	Tuberculosis
M.A. Barnor, M.B. Ch.B. (Edin)	"	Ethics of Medical Practice

Senior Registrars & Registrars

S.K. Owusu, M.B. (St. Andrews); M.R.C.P. (Lond); D.T.M. & H.	Senior Registrar
Y. Anim-Addo, M.B. (Durham); M.R.C.P. (U.K.)	Senior Registrar
Marianne Janosi, M.B., B.S.	Registrar
J.E. Abbey, M.B., Ch.B.	Registrar

Teaching

Undergraduate

The Department carried a heavy teaching load throughout the year, at 3 levels: -

- i. Introductory Clinical Course
- ii. Junior Medical Clerking
- iii. Senior Medical Clerking, and in addition organised a 5 week intensive revision course for final year students. The teaching load was intensified during the Trinity Term when the Introductory Clinical Course (3rd Year) the Senior Medical Clerking (5th Year) and the Revision Course (6th Year) were taken concurrently.

Postgraduate

The in-service training of preregistration House Officers included formal departmental clinical meetings and seminars.

Consideration is being given to mounting an organised postgraduate training programme suitable for doctors who wish to pursue higher studies in general medicine. A number of suitable candidates will have to be assigned to the Department before such a programme could be started.

Service Patients

Clinical Care

The Department has responsibility for a total of 200 adult medical beds (General Medicine: 167; Fevers: 33), and provides consultant and specialist services for the medical Out-Patients' Department and also for all medical emergencies in the Korle-Bu Teaching Hospital complex, which contains over 1,000 beds.

Special Units

The following 3 units were developed in the Department of Medicine:

- i. Cardiopulmonary Unit
- ii. Neurology Unit
- iii. Radioisotope Unit.

In addition to their research functions, these units provided a range of diagnostic facilities which were otherwise not available anywhere else in the country.

Research

In spite of the heavy clinical and teaching commitments, members of the Department carried out research in their fields of interest:

Research Activities

Dodu, S.R.A.:

- "Clinical Coronary Heart Disease in Ghanaians"
- "Trial of Oral Hypoglycaemic Substances"
- "Clinical Aspects of herbal medicine in Ghana"

Haddock, D.R.W.,

- "Resistance of Hookworm to bephenium (Alcopar)" with Edoe, B. and Konotey-Ahulu, F.I.D. — "Electroencephalographic Changes in Sickle-cell Disease" with Konotey-Ahulu, F.I.D., Janosi, M. and Reid, H. — "Trail of Arvin in Sickle-cell Crisis"

Foli, A.K.

- "A Study of Hepatocellular Carcinoma"

Konotey-Ahulu, F.I.D. (In receipt of a grant from the I.A.E.A.)

- "Phenotype/genotype Correlation in Clinical Haemoglobinopathy"
- "Heat Treated Chromium 51 Tagged Erythrocyte Uptake by the Spleen in Haemoglobinopathy"
- (With Ringelhann, B. Department of Chemical Pathology): "Haemoglobin F Phenomenon in Relation to SS, S beta-Thalassaemia and SF high-gene genotypes"
- "Haemoglobin A2 Linkage Studies"
- "A School Survey (Kwahu Area) in connection with Hb. K. Woolwich".
- with Addae, S.K. Department of Chemical Pathology.
- "Renal Profiles in Sickle-cell Disease in Relation to Changes in Environmental Temperature".
- with Quarcoopome, C.O. Department of Surgery: "Eye Changes in Sickle-cell Disease"

Edoe, B.B.:

- "A Study of Adult Ghanaians with Epileptic Seizures".
- "A Correlated Study of Clinical Electroencephalographic and Carotid Arteriographic Patterns in Ghanaian Hemiplegics".

Pobee, J.O.M.:

The Clinical Pattern and Etiological Aspects of the Pneumonias admitted to the Korle-Bu Teaching Hospital".

International Conferences

- (i) The 2nd Pan African Congress in Neurological Sciences (Ibadan, January 1970), was attended by Prof. Haddock and Dr. Edoo. Two papers were read: (a) "E.E.G. Changes in Sickle-cell Disease", Haddock, Edoo and Konotey-Ahulu, and (b) "Relentless Fits" by Dr. Edoo.
- (ii) The 4th Annual Conference of the Association of Physicians of West Africa (Dakar, April 1970) was attended by Dr. J.O.M. Pobee who read a paper on "Trial of Phenylene Diisothiocyanate in the Treatment of Hookworm Disease".
- (iii) The 4th Meeting of the European Association for the Study of the Liver (E.A.S.L.) held in Vienna, was attended by Dr. A.K. Foli who read a paper on "A Survey of Foetal Alpha Globulin in Liver Disease".
- (iv) At a meeting of the Association of West African Gastroenterologists (Ibadan, April 1970), Dr. Foli read a paper on "Alpha foetoprotein Positive Hepatoma in Ghana".
- (v) Dr. Foli also attended the meeting of the International Association for the Study of the Liver in Denmark (July, 1970) and presented a paper — "Serum alpha Foetoprotein in Liver Disease (A Co-operative Study)", in collaboration with Prof. Sherlock, S. (Royal Free Hospital, London) and Adinolfi, M. (Guy's Hospital, London).

International Committees

- (i) Professor Dodu was elected Chairman for the meeting of the W.H.O. Study Group on Hospital Medical Records (Geneva, November 1969) and presented a working paper on "Hospital Medical Records—The Clinician's Attitude".
- (ii) Dr. Konotey-Ahulu was appointed a temporary advisor to the W.H.O. Genetic Section on the "Public Health Aspects of Sickle-cell Health" (Geneva, November, 1969).
- (iii) Professor Dodu was appointed a member of the W.H.O. Expert Advisory Panel on Cardiovascular Disease.

Other activities

Dr. Konotey Ahulu was Chairman of a committee appointed by the Government to investigate and report on the system of Hospital Fees in Ghana.

Professor Dodu was invited as an external examiner in Medicine to the medical schools at Makerere, Uganda, Dar-es-Salaam, Tanzania and Ibadan, Nigeria.

Fellowship Award

Professor Dodu was nominated for a Commonwealth Senior Fellowship by the Association of Commonwealth Universities. He spent the Michaelmas term as a Visiting Professor in the Department of Medicine at the University of Sheffield.

Visitors

1. During the year, the following personalities visited the Department:

- (i) Dr. Brandon-Lush — Principal Medical Officer, Medical Research Council of Great Britain (10—13 February 1970)
- (ii) Professor J.M. Bishop — Professor of Medicine, University of Birmingham, U.K. (20 — 24 March 1970)
- (iii) Dr. H.A. Reid — Liverpool School of Tropical Medicine (7 — 11 April, 1970)
- (iv) Dr. H. Miller (Sponsored by the I.A.E.A. through the Ghana Atomic Energy Commission), Chief Physicist, Sheffield Hospital Management Committee—visited as an I.A.E.A. Expert to assist in the development of the Radioisotope Unit (May 7—July 6th, 1970).
- (v) Dr. P.J.S. Hamilton — Medical Research Council, U.K. (22 — 26 June, 1970).

External Examiners

- (i) Professor Sir Charles Stuart-Harris — University of Sheffield,
- (ii) Professor W. Parson—Makerere, University of East Africa, and
- (iii) Professor T.O. Ogunlesi — University of Ibadan.

Students from Overseas

Six students from overseas medical schools (Royal Free Hospital, London; Bristol University, University of Illinois and Yale University) spent their elective period in the Department of Medicine as part of their training programme.

Publications

Dodu, S.R.A.,

"Preliminary Trial of HB 419 as a One Stage Replacement Substitute for Tolbutamide in the Treatment of Maturity Onset Diabetes", *Ghana Med J.* 8 (Dec. 1969) pp. 275 — 278.

Section on Hypertension in "Management and Treatment of Tropical Diseases", Edit. Macgraith and Gilles. Blackwell Scientific Publications Ltd. pp. 180 — 192 (in press).

Edoo, B.B:

"Clinico-electroencephalographic Features of Status Epilepticus in Accra", *Ghana Med. J.* Vol 9 No. 2, June, 1960, pp. 70 — 79.

and Haddock, D.R.W.: "Social Disabilities of Epileptics "Epilepsy in Accra, Ghana; A Report on classification and Etiology", *African Journal of Medical Sciences* (1970), 1,207-212. and Haddock, D.R.W. *EPILEPSIA*, Vol. II (1970), pp. 217—222.

Foli, A.K.:

"A Diagnostic Test for Hepatocellular Carcinoma", *Ghana Med. J.* (March 1970).

and Sherlock, S. and Adinolfi, M: "Serum alphafetoprotein in Patients with Liver Disease", *Lancet* (Dec. 13, 1969), pp. 1267 — 1269.

and Christain, E.C.: "A Report on the alphafetoprotein Test", *Ghana Med. J.* (June 1970);

"Obesity in Medical Outpatients in Accra", *Ghana Med. J.* (1970) 9, pp. 31 — 34.

Haddock D.R.W.:

Sections on Meningitis, Arbo-Virus Diseases and Giardiasis in "Management and Treatment of Tropical Diseases", Edit. Macgraith and Gilles. Blackwell Scientific Publications Ltd., (in press).

and Awadzi, J.K.. "The Treatment of Invasive Amoebiasis with Metronidazole (Flagyl)", *Ghana Med. J.* (1970), 9, pp. 31 — 34.

and Mitra, A.K.: "Paraplegia due to Guinea worm Infection", *Trans. R. Soc. Trop. Med. Hyg.* 64, pp. 102 — 106.

Konotey-Ahulu, F.I.D.:

"Possible Use of Radio-isotope Scintigraphy in the Early Detection of Bone, Joint and Other Lesions in Sickle-cell Disease", Proceedings of Salzburg Symposium (1969), *I.A.E.A.*, Vienna, vol. 2 pp. 361 — 362.

"Maintenance of High Sickling Rate in Africa: Role of Polygamy", *J. Trop. Med. Hyg.* (1970), 73, pp. 19 — 21.

—
and Acquaye, J.K. and Tetteh, Angeline: "Epilepsia Partialis Continua Caused by a Left Frontal Lobe Abscess", *Ghana Med. J.* (1970), 9, 141-142.

Pobee, J.O.M. and Amissah, J.K... "Clinical Trial of a New Anti-Hookworm Drug Phenylene Diisothiocyanate (1.4) Joint (R)—Preliminary Communication", *Ghana Med. J.* 9 (June 1970), pp. 98-101.

Other Publications Involving Members of the Department:

Ringelhann, B.

(Department of Chemical Pathology), Konotey-Ahulu, F.I.D. and Dodu, S.R.A.: "Studies on Iron Absorption, Incorporation and Distribution in Sickle-cell Anaemia, Sickle-cell Haemoglobin C Disease and in Haemoglobin C Disease in Ghana, Using a Large Volume Liquid Scintillation counter", *J. Clin. Path.*, (1970) 23, 127-134.

Ringelhann, B., Konotey-Ahulu, F.I.D., Dodu, S.R.A.. "A Study of the Sequestration of Heat-damaged Tagged Red Cells in Splenomegalies of Various Origins in Ghana" *Trans. Roy. Soc. Med. Hyg.* (1970), 64, 107-117

Ringelhann, B., Konotey-Ahulu, F.I.D., Lehmann H. and Lorkin, P.A.: "A Ghanaian Adult Homozygous for Hereditary Persistence of Foetal Haemoglobin and Heterozygous for Elliptocytosis", *Acta Haematologica* (Basel), 1970, 43, 100-110.

DEPARTMENT OF MICROBIOLOGY

Staff

The staff situation during the year was far better than it had ever been before and there were five full-time tutors and two visiting tutors at post as against only two full-time tutors in the previous academic year.

Dr. S. N. Afoakwa: Senior Lecturer and Ag. Head of Department General Bacteriology including Immunology and Mycology.

Research: A study of diarrhoeal diseases in collaboration with the Department of Child Health

Collection of strains of Myco. tuberculosis from T.B. cases for phage-typing in collaboration with Professor Stead and Dr. Bates, Marquette School of Medicine Milwaukee, U.S.A

Dr. Peter Evans:

Senior Lecturer. General Bacteriology including Immunology.

Dr. S. Pasca:

Lecturer in Virology; Research: A study of viral causes of diarrhoea in children in collaboration with the Department of Child Health;
Sero-epidemiological studies of Enteroviruses in Greater Accra Region;
Laboratory study of the effectiveness of Smallpox vaccination in new-born babies in collaboration with Department of Preventive and Social Medicine;
Investigation of an out-break of "Acute haemorrhagic conjunctivitis" in collaboration with other colleagues in Korle Bu Hospital.

Dr. W.A. Chinery:

Lecturer in Parasitology and Medical Entomology; Handling the parasitological aspect of a "Diarrhoea Project" in collaboration with Department of Child Health; Investigating the efficiency of Alcopar in the treatment of Hookworm infection in collaboration with Professor Haddock, Department of Medicine and Therapeutics;
Determination of the incidence of various species of human hookworms in patients attending the Korle Bu Teaching Hospital and also histochemical studies on the ineffective larvae of Hookworms;
Completed the histochemical study of the relationship of the tick-bite reaction to the secretory activities of the salivary glands of the Tick *Haemaphysalis spinigera*.

Dr. R. K. Anteson:

Lecturer in Parasitology; Research:
A survey of filariasis in Ghana;
A preliminary work on an attempt at biological control of Schistosomiasis by competitive exclusion;
A survey to find out whether the rat lung-parasite, *Angiostrongylus cantonensis* (Cheng 1935) is present in rats in Ghana (The larval stage of this parasite is of medical importance).

Visiting Staff

Prof. K. Minami:

Visiting Associate Professor of Virology, Fukushima Medical School, Japan; Virology.
Research: Investigation of an out-break of acute haemorrhagic conjunctivitis in collaboration with other colleagues;

Investigation of suspected cases of smallpox and yellow fever. Sero-epidemiological studies of yellow fever and measles in Ghana;
Investigation of specificity of acute phase immunoglobulins after arbovirus infections.

Dr. T. Yokota:

Visiting Virologist: Training of technicians in various virological techniques.
Research: Worknig as a team with Prof. Minami on the projects listed above.

Staff Training Overseas

Mr. A A. Mingle:

Assistant Lecturer (Virology). Completed his M.Sc. last June at the University of Ottawa, Faculty of Medicine, Canada. He is now working on his Ph.D. thesis in the same institution.

Notable Developments

Under the scheme of Technical co-operation with the Government of Japan, the School was lucky in securing a very generous gift of an electron microscope and a variety of expensive laboratory equipment for the setting up of an up-to-date Virus Laboratory in this Department. Under the same scheme, a Japanese team headed by Professor K. Minami of Fukushima Medical School arrived at the beginning of the academic year to establish the Electron Microscope Laboratory for inter-departmental use and also to help train Ghanaians to take over the running of the laboratories at the end of the training period.

With this team also arrived two Ghanaian technicians who had been undergoing six months training in Japan. It is hoped that other science graduates will be recruited as local counterparts to work with this visiting Japanese team

The University of Newcastle-on-Tyne also gave formal approval of co-operation between their Department of Microbiology and our Department. Through this co-operation, Professor C.A. Green was expected to undertake a three months teaching tour here starting from October 1970. One of our technicians was away in Newcastle for further training.

Publications

Dr. W A Chinery:

A survey of mosquito breeding in Accra and Tema, Ghana, during a two-year period of larval mosquito

control with suggestions for future control consideration. Mimeographed report, 67 pp., 20 tables and 26 figs. (October 1969) in University of Ghana Medical School Library.

"A survey of mosquito breeding in Accra, Ghana, during a two-year period of larval mosquito control.

The mosquitoes collected and their breeding places" *Ghana Medical Journal*, Vol. 8, pp 266-274 (1969).

"The breeding of *Culex* (*Culex*) *pipiens fatigans* Weidmann and *Anopheles* (*Cellia*) *gambiae* Giles, in Accra" *Ghana Med. J.* pp 109-116 (1970)

"Studies on the salivary glands of the tick *Amblyomma variegatum*" Abstract, pp. 66-67. Proceedings of the 7th Biennial Conference of West African Science Association, 30th March—4th April, 1970.

Dr. R.K. Anteson:

"On the resistance of the snail *Lymnaea catascopium pallida* (Adams) to concurrent infection with sporocysts of the strigeud trematodes *Cotylurus flabelliformis* (Faust) and *Diplostomum flexicaudum* (Cort and Brooks)": *Annals of Trop. Med. and Parasitology*.

Conferences

The Organizing Committee of the GIAM III (Third International Congress on the Global Impacts of Applied Microbiology) invited Dr. S.N. Afoakwa to serve on the panel for discussions on "Control of Tuberculosis and Leprosy with special reference to the socio-economic conditions in developing countries" at the Congress held in Bombay in December, 1969. Dr. Afoakwa also presented a paper entitled: "A study of the pattern of occurrence and types of *Shigella* in Accra, Ghana"

Dr. W.A. Chinery attended the 7th Biennial Conference of West African Science Association in April this year and presented a paper entitled: "Studies on the Salivary glands of the tick *Amblyomma variegatum*"

DEPARTMENT OF OBSTETRICS GYNAECOLOGY

The total staff of the Department consisted of:

- 1 Associate Professor
- 2 Senior Lecturers
- 1 Lecturer
- 1 Senior Registrar
- 1 Secretary
- 1 Messenger.

The Senior Registrar resigned at the end of the year but was persuaded by the Dean to request a leave of absence for two years.

The main difficulty of the Department remains with us—the shortage of the senior registrar and registrar grades. We continue to look for these in the open market. Strenuous efforts are being made to interest Ghanaians overseas who have specialised in the field to apply for these appointments.

Research:

Sickle-cell Thalassaemia in the new born.

Sickle-cell disease and pregnancy.

Contraceptives in the postpartum patient.

On the whole research being carried out in the Department has been slow moving; this is because of the shortage of staff.

Seminars and Conferences

1. Drs. Korsah and Newman attended a conference on Family Planning in New York, Jamaica, Caracas and Mexico City.
2. Association of West African Physicians—Paper by Dr. K. K. Bentsi-Enchill. "Some Observations in Sickle-cell Disease and Pregnancy."
3. Conference of International Planned Parenthood Federation in Nairobi. Attended by Dr. Ampofo.
4. International Federation of Obstetricians and Gynaecologists, New York. Attended by Dr. K. K. Bentsi-Enchill.

Publications

Dr. D. A. Ampofo: -

Causes of Maternal Death and Comments. Maternity Hospital, Accra, 1963-67. *B.A.M.J.* June, 1969.

The Motivation for Reproduction and the New Population Dimensions of Ghana. *E.A.M.J.* April 1970.

Early Detection of Cancer in Women. Health in Ghana Publication Pamphlet 8, April 1970.

Dr. K. K. Bentsi-Enchill: -

Thirteen Children from Twelve Pregnancies in Sickle-cell Thalassaemia. *B.M.J.* September, 1969.

The Changing Face of Obstetric Practice in Ghana. *G.M.J.* June, 1970.

DEPARTMENT OF PATHOLOGY

Staff position

Full-time:

Dr. W.N. Laing—

M.B., Ch.B. (St. And) D.T.M.&H. (Eng) D.C.P. (Lond)
M.Sc.-Med. (Queen's Canada), M.R.C. Path.
Senior Lecturer and Acting Head of Department.
Research Interests: Renal Pathology; Geographic Forensic Pathology.

Dr. E.C. Christian—

M.B., B.Ch., B.A.O., M.D. (N.U.I.), D.C.P. (Lond), Dip. Path. (Eng) M.R.C. Path. Senior Lecturer
Research Interests: Diseases of the liver with particular reference to cirrhosis and hepatomas; pathologic changes in sickle cell trait (Hb AS).

Dr. A.A. Bruce-Tagoe—

M.B., B.S. D.C.P. (Lond)
Assistant Lecturer. On study leave

Dr. R.I.A. Fenuku—M.B., B.S. (Lond) Assistant Lecturer. On study leave.

Dr. S.E. Odamtten—M.A., M.B., B. Chir. (Camb) Assistant Lecturer. On study leave.

Mr. C. Bannerman-Williams—A.I.M.L.T. Senior Technician (Haematology)

Mr. G. Addai—A.I.S.T. Technician (Histology).

Part-time

Dr. F.S. Boi-Doku—

M.B. Ch.B. (Birm) D.T.M. & H. (Eng) Dip. path (Eng), M.R.C. Path. Part-time Lecturer in Haematology. Research: Blood Group serology; abnormal haemoglobins.

Dr. B.B. Tribedi—

M.B., B.S. (Cal) D.T.M. & H. (Cal) Ph.D. (Edin) M.R.C. Part-time Lecturer in Haematology. Research: Blood group serology.

The staff position remained critically low, with two of the permanent members bearing the brunt of the teaching of the formal lecture-practical course in pathology. Although strenuous and continuous efforts through private personal contact as well as the official level were made to recruit more staff to the Department, all such efforts proved fruitless.

Major developments and other activities

A major development was the completion and commissioning of the Museum of Pathology. It has a workshop, a museum with study bays, and a group discussion area with full facilities for slide and film projection and microscopy. Teaching tapes, portable play-back tape recorders, and 35 mm slides with small slide-viewers are also now available for individual self-instruction. The equipment was presented by Great Britain under the Special Commonwealth African Assistance Plan, through the good offices of Professor K.R. Hill, Professor of Pathology, Royal Free Hospital Medical School, London.

Accession of mounted specimens exceeded 170, with more than this number of specimens awaiting processing

Dr. F.C. Christian, who was directly in charge of the day-to-day running of the Museum, obtained a Commonwealth Foundation travel award and was during the long vacation attached to the Wellcome Museum in London to gain further experience in museum technology and display.

Dr. F.S. Boi-Doku regrettably left his part-time teaching position following his promotion to a higher post in the Ministry of Health

During the long vacation Dr. W.N. Laing attended a special short course on the interpretation and electron microscopy of the renal biopsy at the Department of Pathology, St. Thomas' Hospital Medical School, London, under a Commonwealth Foundation travel award.

Publications

Pobee, J.O. and Christian, E.C. (1969) A survey of liver disease in Korle Bu Hospital, Accra. *Ghana Med J.* 8, 76

Laing, W.N. (1969) The pattern of cardiovascular and renal causes of obscure deaths in Accra, Ghana. *Ghana Med J.* 8, 254

Christian, E.C. (1970) Human Toxoplasmosis in Ghana. *Ghana Med J.* 9, 80.

Foli, A.K. and Christian, E.C. (1970) Report on the alpha-1-feto-protein test. *Ghana Med. J.* 9, 117.

DEPARTMENT OF PHARMACOLOGY

Staff

Professor R.A. Lewis:

Head of Department. Research Interest: "In Vitro" Sickling.

Dr. J.A. Blukoo-Allotey,

Lecturer in Pharmacology. (continued as Acting General Manager of State Pharmaceutical Corporation).

Mr. O. Larbi

Lecturer in Pharmacology. Research: Methaemoglobin formation following the administration of adpsone. He was in the University of Sydney, Australia, working for a Ph. D. degree.

Dr. K.K. Agyepon-Yamoah,

Assistant Lecturer, was away all the year doing research on Endocrinology.

Dr. E. B. Larbi,

Lecturer, was away on W.H.O. Fellowship; expected back about March, 1972

Non-teaching personnel

Mr. F.A. Hemans, Clerk Grade I.

Mr. S.A. Sumanu, Laboratory Assistant Grade I.

Miss Charity Cato, Laboratory Assistant Grade II.

Research

A new research project was initiated on the acclimatization of tropical residents to sudden exposure to temperature likely to be encountered in England. Research on "in vitro" sickling continued, and a book describing several years experience of the author as well as a review of work published by other investigators was accepted for publication by the Ghana Universities Press and is likely to appear in print in 1970.

Publications

R.A. Lewis & D.S. Chadhury:

"Anaemia of Leprosy Patients in West Africa". *International Journal of Leprosy*, vol. 37 p. 288, 1969.

R.A. Lewis & S.O. Larbi:

"Quantitative Measurements of Oxygen Saturation and Sickling of Incubated Blood", *Blood*, vol. 24, p. 391, 1969.

J.A. Blukoo-Allotey, N.H. Vincent and S. Ellis

"Interactions of Acetylcholine and Epinephrine on Contractility, Glycogen and Phosphorylase Activity of Isolated Mammalian Hearts", *Journal of Pharmacology and Experimental Therapeutics*.

Service to the Hospital

The Department carried out tests on the enzyme activity of red cells (G-6-P D) of patients in the hospital and these studies were often published by our colleagues in the Medical Department. The Department also carried out some determinations of arterial oxygen saturation on patients in the Korle Bu Hospital.

DEPARTMENT OF PHYSIOLOGY

Staff position

Stanislav Reinis, M.D., C.Sc. (Prague) Associate Professor and Acting Head of Department. Special Interest: Neurophysiology.

Genrich A. Vartanian, M.D., Dr. Sc. (Leningrad), W.H.O. Visiting Professor. Special Interest: Neurophysiology and the building of the electro-physiological unit.

Stephen K. Addae, M.B., B.S. (London) M.Sc. Ph.D. (Rochester), Lecturer. Special Interest: Renal Physiology.

H. Chinyanga, M.D., M.Sc. (Jerusalem): Away on study leave.

H.H. Phillips, M. B., B.S., B.Sc. B.Sc. (Hon): Away on study leave.

Mr. D.V. Greenberger, Visiting Chief Technician (Hadassah University Medical School, Jerusalem).

Miss E A. Okai, B.Sc., Technician (Assumed duty on 1st December, 1969).

Mr D.E. Laryea, Laboratory Assistant Grade I.

Mr. C.P. Solomon, Laboratory Assistant Grade I.

Mr K.G. Sosu-Yawluie, Laboratory Assistant Grade I.

Mr. D.S. Foli, Laboratory Assistant Grade I.

Mr. W. Agbenyenu, Stenographer/Secretary.

Mr G.K. Dagadu, Clerk Grade I (appointment ended with the Department on 28th April, 1970).

Mr A.A. Annan, Clerk Grade I (assumed duty on 1st May, 1970).

Examinations

The group of students who passed their 2nd M.B., Ch.B. in March 1970 showed poorer results than the students of the previous years; this was mostly due to increased requirements imposed on them by the examiners. Three promising students, B. Osei-Tutu (3rd year), F.E.K. Adzaku (2nd year) and P.O. Odonkor (2nd year) were sent to study for B.Sc. Hon (Physiology) degree in the London Hospital Medical College and the University of Ibadan respectively.

Publications

Reinis, S.: Indirect effect of puromycin on memory. *Psychonomic Science* 14, 44-45 (1969).

Can RNA transfer the information from one brain to another? *Ghana Medical Journal* 8, 174-179 (1969).

Delayed learning deficit produced by hydroxylamine. *Physiology and Behaviour* 5, 253-256 (1970).

and Mobbs, D.R.: Some applications of "memory transfer" in the study of learning, in *Molecular Mechanisms of Learning and Memory*, W.L. Byrne Ed., Academic Press 1970, pp 189-193.

Archampong, E.G., and Reinis, S.: Intestinal electrical activity: a means of assessing viability. *Postgraduate Medical Journal* 45, 655-658 (1969).

Addae, S. and Craig, A.B.: Comparative scale for air and water environments. *Fed. Proc.* 28, 722, 1969.

Vartanian, G.A.: Interaction of excitation and inhibition in the neuron. Leningrad, 1970, 212.

Papers presented at conferences

Reinis, S.:

Molecular mechanisms of memory studied by drugs interfering with protein metabolism. 6th Biennial Conference of Ghana Science Association, 30th December, 1969, Legon.

Addae, S.K.:

Renal Handling of Uric Acid in Haemoglobin C disease. 6th Biennial Conference of Ghana Science Association, 30th December, 1969, Legon.

Addae, S. and Craig, A.B.:

Comparative Temperature scale for air and water environments. Federation of American Society of Experimental Biologists, Atlantic City, 1969.

Addae, S.:

Effect of acute temperature changes on the renal metabolism of water and electrolytes in the sickle cell patient. 2nd Biennial Conference of West African Science Association, Ibadan, April 1970.

Addae, S.:

Ammonia excretion in the perfused intestines of dog during metabolic acidosis. West African Science Association, Ibadan, April 1970

Vartanian, G.A. and Reinis, S.:

A new type of conditioned evoked electrical activity in the brain cortex. 6th Biennial Conference of Ghana Science Association, 28-31 December, 1969.

Other notable developments

For the first time, two or three first year students will be selected to participate in a summer Research Project. It is hoped this will be an annual affair and that students will involve themselves directly in some specific research work.

Papers presented for publication in 1969/70

Reinis S.:

Derepressor hypothesis of memory transfer; in "Chemical transfer of Learned Information", E.J. Fjerdingsstad Ed., North Holland Publishing Company, 1970.

Effect of 2, 6-diaminopurine and 6-mercaptopurine on learning in mice. *J. Biol. Psychol.* 1970.

Effect of hydroxylamine on maze learning in mice *J. Com. Physiol. Psychol.* 1970.

One trial learning in mice affected by purine and pyrimidine derivatives. *Ghana Medical Journal.*

Effect of 5-iodouracil and 2,6-diaminopurine on one-trial learning.

Time dependent learning deficit caused by hydroxylamine.

Further study of the learning deficit produced by hydroxylamine..

Addae, S. and F. Addae:

The effects of acute temperature changes on renal function in the resident of the tropics: I Haemodynamics *Ghana Medical Journal*, 1970.

The effects of acute temperature changes on renal function in resident of the tropics: Electrolyte Handling. *Ghana Medical Journal*, 1970

Addae S.:

The effect of temperature changes on renal water and electrolyte metabolism in the resident of the tropics. *Clin. Sci.*, 1970.

Addae, S. and Konotey-Ahulu, F.I.D.:

Diurnal variations in sodium and potassium excretion in the homozygous haemoglobin S and the haemoglobin SC.

DEPARTMENT OF PREVENTIVE SOCIAL MEDICINE

Staff

Full-time:

Dr. F.T. Sai:

Professor & Head of Department. (On secondment duties with the Ministry of Health as Director of Medical Services from 1st April, 1970).

Dr. S.N. Otoo:

Senior Lecturer.

Dr. J.K.E. Amorin:

Visiting Senior Lecturer. Appointed Senior Lecturer and Acting Head of Department from 1st April 1970.

Dr. L.K.A. Derban:

Lecturer.

Dr. F.K. Wurapa:

Lecturer.

Dr. L. Pobee:

Senior Registrar (Left the Department at the end of the academic year.)

Mrs. M.E. Pappoe:

Health Education Specialist.

Lecturers from other Departments of the School

Dr. A.G. Boohene:

Lecturer in the Department of Child Health gave lectures to the 2nd Year Students on normal physical, social and emotional development in relation to biological environment and another series of lectures to the 4th Year Students on child health.

Other part-time Lecturers

Dr. D.K. Fiawoo:

Senior Lecturer in the Department of Sociology, University of Ghana, Legon.

Dr. C. Fiscian:

Ag. Head of the Department of Social Psychology, University of Ghana, Legon.

Dr. N.O. Addo:

Lecturer in the Department of Sociology (Demography Unit), University of Ghana, Legon.

Dr. G.A.K. Kpedekpo:

Research Fellow, I.S.S.E.R., University of Ghana, Legon.

Mr. E. Hornsby-Odoi:

Regional Physical Planning Officer for the Greater Accra Region.

Mrs. S. Ababio:

Ministry of Health (Nutrition Unit)

Mr. Quansah:

Ministry of Health (Health Education Unit).

Seminar at Danfa

The Department organised from February 16 to March 4th, 1970 an orientation course for the staff working at the Danfa Health Centre.

Research

The Department continued its research work in the epidemiology of protein calorie malnutrition at the P.M.L. hospital in Accra. This project was initiated and carried out by Prof. F.T. Sai, with the collaboration of Dr. L. Pobee, Mrs. V. Adomakoh and Miss M. Hosu-Porbley.

Dr. F.K. Wurapa:

Small pox vaccination study at James Town Clinic.
Dr. Pasca, Dr. L. Pobee and Dr. Amoah collaborated in this study.

Dr. F.K. Wurapa:

Typhoid fever follow up clinic: A study of the natural history of this infection in the Ghanaian patient. Collaborators: Miss M. Cudjoe and Mrs. Turkson, public health nurses.

Dr. F.K. Wurapa:

Evaluation of the effectiveness of Schwartz strain measles vaccine in a group of children in the Danfa district.

Laborators: Dr. Pasca, Mrs. Turkson and Miss Cudjoe.

Dr. Derban:

Silicosis programme at Tarkwa Mines; Heat stress in industry.

Mrs. M.E. Pappoe and Mr. E.K. Andoh, in collaboration with Mr. Kpedekpo carried out a K.A.P. project on family planning in Accra.

Developments

Danfa Rural Health and Family Planning Project: The Danfa Rural Health Centre was officially opened by the Prime Minister, the Rt. Hon. Dr. K.A. Busia on 16th January, 1970. This was conceived by the Department as a teaching and research project.

Mr. Quartey-Papafio, who is a social welfare officer working in the Department played a very important role in the mobilisation of communal labour for the construction of the Danfa Health Centre. He was the principal supervisor of all the construction work at the centre. He was also engaged in community mobilisation activities, leading to a census of the whole Danfa Project area.

Mrs. M.E. Pappoe assisted in the family planning clinics organised by the Korle-Bu Teaching Hospital.

Services to other agencies

Ministry of Health: Dr. S.N. Otoo was on secondment duties with Accra-Tema City Council. He spent 80 per cent of his time in public health administration practice. Dr. L.K.A. Derban provided advisory services to this Ministry on matters relating to occupational health.

Ministry of Labour: Dr. Derban provided services of all kinds to this Ministry.

Consultantship Service to the Department

By special arrangement between the Ministry of Labour and this Department, Prof. S. Yamaguchi, an I.L.O. expert on occupational health from Kurume University, Japan, was attached to the Department for 6 months. He assisted the Department in defining occupational health problems in Ghana and in developing an occupational health unit.

Publications

Prof. F.T. Sai:

The Problems of Food Nutrition in West Africa, *Wld Rev. of Nutrition & Dietetics*, Vol. 10, 77-99.
The Epidemiology of Viral Hepatitis in Accra, Ghana *Trans. Roy. Soc. Trop. Med & Hyg.*, Vol. 63, No. 6 pp. 755-767, 1969.

Dr. S.N. Otoo.

The Training and Utilization of Medical Auxiliaries, *Ghana Med. J.* Vol. 9, No. 1 pp. 58-63, 1970.

Extra mural activities of staff members.

Prof. F.T. Sai:

Elected Vice Chairman of the Central Medical Committee and also Vice-Chairman to the governing body of the International Planned Parenthood Federation.

Took part in conferences held in

(i) Lima on The Training and Utilisation of Health Auxiliaries,

(ii) Bellagio on Changing the Medical Curriculum in the light of Needs, and

(iii) a conference on The Use of the Auxiliary in Mother and Child Health.

Held seminars for graduate students in

(i) U.C.L.A. on The Contribution of U.N. Agencies to African Development and Social and Cultural Factors in relation to Health Programmes;

(ii) M.I.T. and Cornell University on Food, Population and Politics in West Africa.

(iii) Atlanta for the staff of the Communicable Disease Centre on the Needs of Medical Education in Africa.
Gave key note address in Harvard on Responsibilities and Opportunities of Industry in the Developing World.

Dr. J.K.E. Amorin:

Served as a member of the W.H.O. Expert Committee on Dental Health Education.

STATISTICAL INFORMATION

1. STUDENT ENROLMENT — 1969/70

*Degree Courses		*Postgraduate Courses		*Diploma Courses		*Certificate Courses		*Special Courses		Total	
Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1781	267	76	30	168	23	91	10	19	36	2135	366
2048 Sub-Total		106 Sub-Total		191 Sub-Total		101 Sub-Total		55 Sub-Total		2501 Grand Total	
*Arts Law Economics Administration Agriculture Science including Home Science, Medicine		*M.A. M.Sc. Postgraduate Diploma, Postgraduate Research		*Nursing *Dance Drama Music Special Dip. — Agriculture National Dip. — Agriculture Hospital Admin. Public Admin.		*Social Admin. Licentiate — Drama & Theatre, Music, Statistics, Local Government		**Special Admission, Occasional Students			

2. DISTRIBUTION OF STUDENTS BY COURSES AND SUBJECTS

SUBJECTS	Preliminary	B.A. (Hons) B.Sc. (Gen) B.Sc. (Home Science)	B.A. (Hons) B.Sc. Law B.Sc. (Econ) B.Sc. (Admin) B.Sc. (Agric)	Post-graduate M.A., M.Sc. & Practical Law	Post graduate Research	Certificates and Diplomas	Medical Sch-
	1st Yr.	1st Yr. 2nd Yr. 3rd Yr.	1st Yr. 2nd Yr. 3rd Yr.	1st Yr. 2nd Yr.	1st Yr.	1st Yr. 2nd Yr. 3rd Yr.	
Totals	108	2024 456 538	175 310 323	77 28	40	168 111 18	235
Ancient History		37 15 1	— — —	— — —			
Arabic		— 1 —	— — —	— — —			
Archaeology		32 10 —	— — —	— 2			
Economics		75 26 18	— 31 31	2 3	2		
English		81 20 61	11 24 27	2 —			
French		22 10 17	5 13 8				
Geography		87 23 21	— 16 28	4 —			
Latin		6 — —	— 3 8				
Linguistics		51 15 31	— 13 —			3	
Modern History		113 39 79	— 20 18			4	
Music		— — 1	— — —				
Philosophy		82 15 27	— 2 11			1	
Political Science		154 51 65	10 18 20			1	
Psychology		28 2 1	— 9 4				
Russian		7 1 3	— — —				
Sociology		102 33 57	— 20 25	2 1 —		1 2	
Spanish		— 2 11	— — —				
Study of Religions		57 21 23	9 14 10	— 1			
Swahili		15 3 —	— — —	— —			
Botany		25 4 8	— — 4	— 2			
Biochemistry and Nutrition		— 26 13	— — 5	— 1			
Chemistry		97 22 16	— — —	— 2			
Food Science		— 10 4	— — 4				
Home Science		6 8 4	— — —			5 — —	
Geology		19 13 15	— — 2				
Mathematics		51 42 23	4 1 4	1 1			
Physics		90 32 26	— — 4				
Zoology		47 12 13	— — 3	— 3	4		
Fresh Water Biology				— 1			
Medicine	59						235
Law			36 40 43	39			
Agriculture	49		41 21 10	1 3			
National Dip. in Agriculture						23 30	
Special Dip. in Agriculture						6	
Administration			59 65 54				
Hospital Admin.						5 5 3	
Public Admin.						23 11	
Local Government						19 19	
Social Admin.						19 22	
Nursing Education						12 5	
Statistics						8	
Dance (Diploma & Certificate)				5 1	2		
Music (Diploma & Certificate)						8 4 5	
Drama & Theatre Studies (Dip. & Certificate)						19 10 10	
Licentiate (Study of Religions)					3	10 15 —	
Library Studies				6 —		11 9	
African Studies (ALL FUE)		685 39 16			6 8	17	
Special Admission Occasional Studies							

3. DEGREES AWARDED, 1969/70

COURSES	AWARDED			CLASSES OBTAINED									
	Men	Women	Total	Class					Division				
				1	11A	11B	111	PASS	1	11A	11B	111	
B.A. General	102	9	111	—	—	—	—	—	—	—	—	17	94
B.A. Honours													
English	16	7	23	—	—	3	20	—	—	—	—	—	—
French	7	1	8	—	2	2	4	—	—	—	—	—	—
Geography	27	1	28	—	1	10	17	—	—	—	—	—	—
History	15	2	17	—	1	12	4	—	—	—	—	—	—
Latin	5	—	5	—	—	1	4	—	—	—	—	—	—
Philosophy	9	1	10	—	—	4	6	—	—	—	—	—	—
Political Science	19	—	19	—	2	7	11	—	—	—	—	—	—
Psychology	3	1	4	—	2	1	1	—	—	—	—	—	—
Sociology	22	2	24	—	2	17	5	—	—	—	—	—	—
Study of Religions	8	1	9	—	—	4	5	—	—	—	—	—	—
English/French	—	2	2	—	—	—	2	—	—	—	—	—	—
English/Linguistics	2	—	2	—	—	—	2	—	—	—	—	—	—
French/Arabic	1	—	1	—	—	—	1	—	—	—	—	—	—
French/Linguistics	2	—	2	—	—	1	1	—	—	—	—	—	—
French/Spanish	3	1	4	—	—	2	2	—	—	—	—	—	—
History/Political Science	1	—	1	—	—	1	—	—	—	—	—	—	—
B.Sc. Administration	47	1	48	—	4	32	12	—	—	—	—	—	—
B.Sc. Economics	32	1	33	1	5	12	15	—	—	—	—	—	—
L.L. B. Part II	43	10	53	—	2	22	29	—	—	—	—	—	—
Practical Law (Prof)	31	11	42	—	—	—	—	—	—	11	24	7	—
B.Sc. General	35	10	45	—	—	—	—	—	—	1	4	14	26
B.Sc. Gen. (Home Science)	—	4	4	—	—	—	—	—	—	—	2	2	—
B.Sc. Honours													
Agriculture	9	1	10	2	4	4	—	—	—	—	—	—	—
Biochemistry	2	3	5	—	—	5	—	—	—	—	—	—	—
Botany	—	4	4	—	—	3	1	—	—	—	—	—	—
Food Science	4	—	4	1	3	—	—	—	—	—	—	—	—
Geology	2	—	2	—	—	2	—	—	—	—	—	—	—
Mathematics	4	—	4	—	1	—	3	—	—	—	—	—	—
Physics	4	—	4	—	3	1	—	—	—	—	—	—	—
Zoology	3	—	3	—	1	2	—	—	—	—	—	—	—
M. A.													
African Studies	1	—	1	—	—	—	—	1	—	—	—	—	—
English	1	—	1	—	—	—	—	1	—	—	—	—	—
Study of Religions	1	—	1	—	—	—	—	1	—	—	—	—	—
M.Sc. Part II													
Agricultural Economics	1	—	1	—	—	—	—	1	—	—	—	—	—
Botany	1	—	1	—	—	—	—	1	—	—	—	—	—
French Water Biology	1	—	1	—	—	—	—	1	—	—	—	—	—
Mathematics	2	—	2	—	—	—	—	2	—	—	—	—	—
Physics	1	—	1	—	—	—	—	1	—	—	—	—	—
Statistics	1	—	1	—	—	—	—	1	—	—	—	—	—
Postgraduate Diplomas													
Applied Statistics	2	2	4	—	—	—	—	4	—	—	—	—	—
Library Studies	2	1	3	—	—	—	—	3	—	—	—	—	—
Social Administration	1	5	6	—	—	—	—	6	—	—	—	—	—
B.A. Gen (Edu) U.C.C.C	71	12	83	—	—	—	—	—	—	—	27	56	—
B.Sc. Gen. (Edu.) U.C.C.C	12	1	13	—	—	—	—	—	—	—	1	12	—
GRAND TOTAL	556	94	650	4	33	148	145	23	1	17	85	195	

DIPLOMAS AWARDED, 1969/70

DIPLOMA	MEN	WOMEN	TOTAL
Hospital Administration	1	—	1
Public Administration	14	—	14
Dance	4	1	5
Music (General)	4	1	5
Nursing Education	1	4	5
Agriculture (National)	17	—	17
Agriculture (Special)	6		6
Agriculture (Animal Health)	9	—	9
GRAND TOTAL	56	6	62

CERTIFICATES AWARDED, 1969/70

CERTIFICATE	MEN	WOMEN	TOTAL
Music	9	—	9
Drama & Theatre Studies	3	1	4
Social Administration	18	6	24
Statistics	10	—	10
Licentiate in Study of Religions	7	—	7
External Licentiate in Theology (Trinity College)	4	—	4
GRAND TOTAL	51	7	58