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r. p. baffour
inaugural
lectures

THE ROLE OF
UNIVERSITIES
IN THE
MODERN WORLD

lord bowden

FIRST R. P. BAFFOUR ANNUAL LECTURES

delivered by

**THE RT. HON. LORD BOWDEN
(OF CHESTERFIELD)**

From January 24, 1977 To February 1, 1977

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**INAUGURAL SPEECH BY THE RT. REV. DR. PETER
SARPONG, CHAIRMAN OF COUNCIL, TO R. P. BAFFOUR
ANNUAL LECTURES—U.S.T., JANUARY 24, 1977**

THE Vice-Chancellor, has interpreted, in a very able manner, Council's mind on the R. P. Baffour Lectures which we are about to inaugurate. Lectures of this kind are a commonplace in Universities the world over. They are, in the first place, a means of acknowledging the worth and work of individuals or groups of individuals whose achievements and contributions to particular institutions, the particular nations in which the institutions are situated, or to humanity at large, the Universities would like to hold up as an inspiration to their staff, students, and alumni and to the general public.

If normally such lectures are christened after the dead and hence are "memorial", this does not, in any way, preclude their being made use to do honour to a living person of the stature of Dr. R. P. Baffour who has accomplished so much for our great institution, particularly in the sphere of its physical development.

As I said last year in my Congregation Welcome Address, the inevitable will one day happen, and thereafter they will be rechristened. We shall then insert the epithet "Memorial" between the last two words of the caption of the series, namely, "Annual" and "Lectures". For the time being however, the U.S.T. Council wishes to hold up as an example to Ghanaians the solid all-round scholarship, hard work, dedication to duty and rare courage of Dr. Baffour. But University annual lectures would seem to me to be pointless and woefully restricted in utility if their sole aim were to enhance the reputation of those whose names they bear. For me, a much more significant function of these series of lectures is that they act as bait to attract some of the best minds and renowned personalities of the world to other campuses for the edification of all, but particularly of the younger generation.

These are scholars who are able to handle any subject of their specialized field of learning to the admiration and benefit of those who are fortunate to hear them. What is more, they generally deal with topics that are in high currency, topics of a deep understanding or added knowledge which must have a tremendous advantage to society.

It is no doubt this aspect of such Lectures that has motivated Pioneer Tobacco Company and prompted them to sponsor the R. P. Baffour Annual Lectures. The whole nation is grateful to the Company for this patriotic gesture on their part.

The theme of the First series of the R. P. Baffour Annual Lectures: *The Role of Universities in Modern Society*, is surely of singular relevance to Ghana and Ghanaians. For, at a time when the nation is pouring such colossal sums of money into University education, a time when the whole nation looks up to its University-trained sons and daughters to lift it up from the economic and social morass into which we are gradually being sunk, a time when our beloved country needs dedicated and selfless leaders more than at any other period of its history, it is imperative that we get a completely disinterested expert opinion on what our universities can and should do in our peculiar situation to help in the march towards true progress and prosperity. That march, of course, is worth the trouble only if it be inextricably bound up with the improvement of the quality of life, with which universities have been associated from time immemorial.

But it is almost an axiom that the present is what it is because the past was what it was; and the future course of events will inevitably be shaped by what happens now. Historical events are not unconnected. Consequently the role of present-day universities can hardly be adequately assessed outside the broader perspective of universities in the past, even the ancient past, when these institutions of higher learning were only beginning to be and trying to establish themselves as organs of development. Hence the first lecture of the First series of the R. P. Baffour Annual Lectures within the framework of the general Theme: *The Role of Universities in Modern Society*, is appropriately entitled "The Development of Western Universities—800 years of Chaos and Tumult".

The scholar, to enlighten us on, and dispel our ignorance of, this subject is no less a personality than the Rt. Honourable Lord Bowden (of Chesterfield), M.A., PH.D., M.SC. TECH., D.S., LL.D., C.ENG., F.I.E.E.E., F.I.C.E., Principal of the University of Manchester Institute of Science and Technology, from 1953 to 1976.

It would be superfluous for me to emphasise that a person with such an array of academic qualifications, who has been for almost a quarter of a century the Principal of an institution of higher learning in England, is well qualified and competent, to deal with the subject of Universities.

I should like to mention that Lord Bowden has for a long time been closely associated with this University. His University and ours have, through his instrumentality, established an exchange programme of studies which is much more to our advantage than theirs. Many of our past students have, in fact, done advanced studies at his Institute. As a member of our Council from October 1968 to September 1972, Lord Bowden placed at our disposal his wealth of wisdom, experience and expertise.

It is not by chance that Lord Bowden was chosen on as the person to open our series of lectures. It is a measure of our gratitude to him for his keen interest in us, and therefore, quite fitting that the lot should have fallen on him to do us this honour. On behalf of the U.S.T. Council, we thank him for accepting to be with us with his wife on the 25th anniversary of the U.S.T.

Ladies and gentlemen, we are about to hear a most distinguished scholar. Those who know him well have described him as an "exhilarating, energetic, clever" and generous man with a "broad humanity". In the presence of such a person, I must decrease and he increase. But before resuming my seat, I solemnly declare the R. P. Baffour Annual Lectures duly inaugurated and invite the Rt. Honourable Lord Bowden to deliver the First Lecture of the First Series.

INTRODUCTION

I FIRST heard of Kumasi more than 20 years ago, when my old Friend, Dr. Eric Duncanson, came to see me in Manchester where I was the newly appointed Principal of what was then called The Manchester College of Science and Technology. He told me about the new foundation in Ghana of which he was the Principal and how he hoped that it would be able to educate the engineers and the technologists whom Ghana desperately needed. I had heard about the classical University of Legon and I realised at once how important it was for us in Manchester to do all that we could to help Kumasi.

My own Institution was something of an anomaly by conventional British standards. It had been founded in 1824 and it was the oldest part of the University of Manchester of which it had been an integral part ever since University had its Charter in 1903. It was the biggest technical college in the North of England and I knew only too well how difficult it can be to create an Institution of the first rank which concerns itself with science and with all branches of technology and engineering.

I thought that Kumasi ought to do for Ghana what my Institute had done for the industries of the North West of England—and the rest of the world. My Council resolved to help Kumasi by all possible means and the two Institutions have been collaborating ever since. I am proud to see how many of the staff of Kumasi have been students in Manchester.

Our first task was to arrange for staff and students to move from one place to the other and, particularly, to arrange for academic staff to go out from this country and help to organise new academic courses. The Ghana office in London arranged these visits with the assistance of Mr. Deakin who was back in Cambridge after a life-time in Achimota. I did what I could and so did Professor Sparkes of Imperial College who was responsible for liaison between Kumasi and the University of London, which was "in special relationship" with Kumasi and helped it to establish the standards of its degrees and diplomas until the day came when Kumasi received its own Charter and became finally independent. It was astonishing how many Englishmen were attracted by the idea of a Technical University in Africa and how delighted they were to help it in its early stages. I remember that I went to a meeting of the Inter-University Council in the Senate House of London University. We discussed the problems of sending staff from the Universities of Great Britain to all the Universities in the Indian Sub-Continent. I realised, to my astonishment, that more people

had gone in the previous year to Kumasi than the whole official machine had been able to send to India. I rushed round to tell Mrs. Hull in the Kumasi office. We were so proud of ourselves that we danced round her room with glee. I rang her up yesterday to remind her of this incident which she well remembers. Even after twenty years it still seems to have been one of the high spots of our professional lives.

I have been to Ghana several times; I was on the Council of Kumasi for years and I have known Dr. Baffour and Dr. Evans-Anfom and of course, I have met scores of staff and students. I have watched with astonishment and admiration the growth of what has now become one of the most important institutions of its kind in the whole of Africa.

My wife and I were delighted to be invited to visit Kumasi as soon as I had retired from my own University, so that I could inaugurate the Robert Baffour Lectures which have been so generously endowed by the Pioneer Tobacco Company in honour of an old friend of mine.

I prepared my lecture in England, but when I came to Ghana I gave them as I always do, with neither notes nor manuscript. The tapes which recorded my lectures were transcribed by Mrs. Cynthia Abbiw-Jackson in Kumasi. I must express my thanks to her—she must have faced a formidable task. When I read her typescript, I realised the difference between what I meant to say, what I thought I had said, and what I actually said. I have edited the lectures as best I can, for there is a profound difference between colloquial style which is suitable for a lecture and the slightly more formal manner which is appropriate in a permanent record. I found that my audience was never the same twice, although a few hardy men survived all five lectures. I felt obliged to make some of the same points more than once and I decided to leave a certain amount of repetition in this little pamphlet. Perhaps it will help to clarify points which might otherwise be obscure.

After I had spoken in Kumasi about the problem of inflation, I asked to discuss the subject again in Legon and so I changed the lecture I had planned to give there, almost at the last moment. I hope that the story I told will bear repetition. Unfortunately it seems to have become even more important since I came home.

I must thank my Secretary in England, Mrs. Anne Jones, for her help in preparing the final manuscript. I must thank many people for the kindness and affection with which my wife and I were greeted everywhere, from the moment we touched down in Accra to be greeted by a reception party led by Dr. Baffour and the Vice-Chancellor of Kumasi, to the moment we left the airport to the frantic waves of Mr. Kissi-Richardson, who had looked after us throughout, and Mr. Oware, who had been our steward in Legon.

I have already said that the lectures were endowed by the Pioneer Tobacco Company, so I must express my thanks to the Company and to its Directors. I must thank the Committee in Kumasi for choosing me to inaugurate the series and the Vice-Chancellors of Kumasi, Legon and Cape Coast for their hospitality. The Volta River Authority and the Aluminium Company showed us some of the most remarkable sights in the world. Dr. Robert Gardiner was most kind and helpful to us, and so were several senior Civil Servants and countless members of staff in the three universities we visited.

Perhaps I may be forgiven for mentioning the fact that when I talked to our Steward in Legon he told me how difficult it can be for a poor Ghanaian to get himself educated if he misses his place in the formal educational machine. I discussed this problem with my host and I asked the Pioneer Tobacco Company to give my fee to help one or two such men to learn a skill so that they would have a trade—and hope for the future.

I hope that readers will accept this little book as a record of the opinions of a man who has known and loved one Ghanaian University ever since it began.

LECTURE ONE

“THE DEVELOPMENT OF WESTERN UNIVERSITIES— 800 YEARS OF CHAOS AND TUMULT”

The First Robert Baffour Lectures, delivered in the Great Hall of the University of Kumasi on 24th January, 1977 by Lord Bowden. The Right Reverend Peter Sarpong, Catholic Bishop of Kumasi and Chairman of the University Council, presiding in the Chair.

LECTURE ONE

THE DEVELOPMENT OF WESTERN UNIVERSITIES— 800 YEARS OF CHAOS AND TUMULT

MY LORD BISHOP, DR. BAFFOUR, VICE-CHANCELLORS, LADIES AND GENTLEMEN:

FIRST of all, may I say how much I appreciate the opportunity of being here this afternoon. As the Lord Bishop has said, I have known Kumasi ever since the very early days when it was struggling to be born. Dr. Duncanson was in charge. How glad we are to see him and his devoted wife today. How proud they must feel when they look around them and see the results of their labours. It is wonderful for all of us to see Kumasi in its glory. I do not think that there is a comparable institution within two thousand miles of this spot. In fact, you may have to travel twice as far before you find anything to rival your remarkable University of Science and Technology here in Kumasi. I have known Dr. Baffour for many years and it gives me great pleasure to come here to deliver a series of lectures which have been established in his honour. He is no ordinary man. He is more like an elemental force of nature. He sometimes reminds me of a volcano in full eruption, or perhaps a hurricane. I was delighted to come and inaugurate the Robert Baffour lectures for a dear old friend.

The tradition of education of the highest quality in Ghana is older than many people realise. The first Ghanaian lawyer graduated in England more than 100 years ago. I once met dear old Dr. Danquah who took his Ph.D. long before I took mine. Guggisberg was years ahead of his time when he founded Achimota. The school was doubly fortunate because of the outstanding work of the dedicated men who have been its Principals. Ghana will never forget the names of Frazer, Aggrey and Stopford, whom I knew myself when he was Bishop of London. They created a unique institution. Most of the men who are in positions of authority in Ghana today were students in Achimota, St. Augustines, Mfantsipim and other first class public schools in Ghana. I want, particularly, to refer to an Englishman who spent twenty years in Achimota, after he had graduated in engineering and mathematics in Cambridge. Mr. Deakin, Charlie Deakin to his friends, was a pocket Hercules; all by himself, and with his own hands, he created the first proper department of engineering in Ghana. He did it in Achimota School. The Vice-Chancellor of Kumasi may be astonished to know that he gave almost all the lectures himself. He may be even more astonished to know that he equipped the laboratory in which he taught engineering to the standard of a London degree for a total cost of

£2,500. His students did a great deal of practical work. They had to build a lot of their apparatus for one thing. Mr. Deakin went with them to survey the site of the Volta Bridge which stands today where he and his students suggested it should be. He drained the swamps and killed the mosquitoes for miles around Achimota and Legon. But his greatest achievement was to educate Robert Baffour who was his very first pupil. When they heard that young Robert Baffour had become the first Ghanaian student to graduate as an engineer in London University, the boys of Achimota carried Charles Deakin and Robert Baffour shoulder-high round the school courtyard.

I went to see Mrs. Deakin before I came out here and she told me about the impact which Robert Baffour made on Achimota when he was a boy. At their very first meeting she introduced him to his first dish of ice cream. He tried it very doubtfully, but he liked it, he still does! He has always been a good singer and he first became famous by producing a version of "The Pirates of Penzance", which he called the "Pirates of Pampam". He disguised himself as a pirate, and that seems to have been easy, but went on to astonish everybody. He painted himself yellow, he put on a pigtail to make himself look Chinese and he sang the Cobblers' Song from Chu Chin Chou.

He was a very good swimmer and on one occasion when he was out in a fishing boat they caught a huge baracuda in the net. What happened next is not quite clear, either Robert Baffour fell in, or he was pushed in, or perhaps he jumped in. And there he was in the net with this enormous fish. Fortunately they were able to haul him out, so Robert Baffour ate the baracuda, although everyone expected that the baracuda would eat Robert Baffour. He was known as baracuda Baffour for the rest of his school life. Perhaps that is why they made him the first Vice-Chancellor of this University of Kumasi.

When he was your Vice-Chancellor he did some very remarkable things indeed. How many people know, for example, that your swimming pool, which is the best in the whole of North Africa, was never planned as a swimming pool at all. It began as a minor annex to a hall of residence. It takes genius to turn a few bedrooms into a swimming pool, but Dr. Baffour did it.

I now come, perhaps rather belatedly, to the theme of my discourse. Last September I went to Turkey. I saw the University in Istanbul and the Technical University in Ankara which is in many ways like Kumasi, although it is much bigger. Both Universities had been shut for six months until they had opened parts of them specially to conduct a few examinations before the beginning of the new academic year. Last month I read in the newspaper that the University of Istanbul and the Technical University of Ankara were closed again. The campus at Ankara is occupied by armed troops and the authorities cannot say when it will re-open. I want

to try and explain why these great universities face disaster today and why the educational system of Turkey is no longer educating university students. It is a long story and in order to put it into historical perspective I want to tell you how universities first began in Europe.

When Plato was teaching in Athens, there were no formal classes: his students never matriculated and they never graduated. They just went to listen to what he had to say. Some people think that this is still the best way of educating the young. But the universities as we know them today began in mediaeval Europe, more than seven hundred years ago. The oldest of them were the Law School in Bologna and the School in Paris where men studied theology and medicine. There were only three learned professions in those days—law, medicine and the church. The first universities were created to make sure that the men who followed these professions were properly educated. After quite a short time these two universities became exceedingly important and many other universities were founded in their image. Throughout the Middle Ages it used to be said that the three pillars upon which society depended were the Holy Catholic Church, the Holy Roman Empire and the universities of Europe. I shall say nothing about the Catholic Church, the Holy Roman Empire is gone, but universities have grown and multiplied and spread all over the earth.

Scholars from Paris founded the University of Oxford. Students from Oxford founded the University of Cambridge. John Harvard from Cambridge founded the University of Harvard. All the universities of the English-speaking world derived their traditions from Paris and they handed them on to Africa. So let me speak for a moment about the ancient University of Paris. In the early days it specialised in theology and medicine, but it never had a department of civil law. The title "University" was not meant to imply that an institution studied all branches of knowledge, but that its students came from all parts of Europe. It is an extremely important point to remember, even to this very day; an academic institution does not call itself a "University" because it teaches everything, but because its students may come from anywhere. The link it creates between the peoples of different countries is still one of the most characteristic attributes of a true university.

In those early days university students were among the few people who could read and write. That is why they were called learned clerks or clerics, and that is why they were classified as minor clergy and wore the tonsure which is still the mark of Catholic monks. Perhaps I should explain that the tonsure is a special hair style—a monk has a clean circular patch on top of his head. Now you may think that it couldn't possibly matter how mediaeval undergraduates cut their hair, but it was in fact most important because in those days the clergy were immune to the ordinary

processes of the law. A cleric who committed a crime could not be tried by an ordinary court. He was entitled to go before a special ecclesiastical court.

You have doubtless heard of Saint Thomas A'Becket, the most famous of English martyrs, but do you know why he was killed? King Henry II discovered that several hundred people had been murdered by clergymen during his reign, but no-one had been punished. He tried to persuade Thomas A'Becket, who was Archbishop of Canterbury, to accept the idea that if a cleric had been found guilty by the ecclesiastical court, he should be sentenced by a civil court. The Archbishop said that to admit such a practice would be "to bring Christ to trial before Pilate again". Four of King Henry's Knights went to Canterbury and killed the Archbishop in his own Cathedral. He died to preserve the special privileges of the clergy and no-one tried to abolish them for hundreds of years.

Now this was the time when the Universities of Oxford and Cambridge were founded and I am sorry to tell you that the students were only too willing to wear the tonsure and exploit the privileges of the Clergy. They rioted, they fought among each other and they fought with the civilians; they made themselves an intolerable nuisance to everyone else. More blood has been spilt within two miles of the Church of Great Saint Mary in Oxford than was spilt in any of the battles which were fought on English soil in the Civil War, or the Wars of the Roses. But successive Kings of England couldn't do without their universities. They knew that they needed graduates to fill the learned professions and to administer the country. In spite of all the rows between the undergraduates and the civilian populations, the universities survived. For example, in the thirteenth century an Oxford student raped the daughter of a townsman and then killed her father when he tried to protect her. He was arraigned and found guilty by the civil court which sentenced him to be hanged. The Chancellor of the University heard that one of his tonsured students was under indictment and demanded that he be released to him. He thereupon tried him and found him guilty. But instead of hanging him he made him say five penitential psalms; as a final punishment he sent him from Oxford to Cambridge.

On St. Scholastica's Day 1252 an Oxford student ordered some beer in an inn; he said it was bad and threw it at the landlord. The landlord hit him over the head with the pot. Immediately both sides rushed out and called for their supporters. There was a tremendous series of battles and the university staff and students were driven to take refuge in their halls. But the King came to Oxford with his army; he released the university students, he subdued the townsmen, then he commanded the Mayor of Oxford to swear allegiance to the Chancellor of the University and, furthermore, he insisted that his successors should do this for ever. This ceremony was repeated every year on Saint Scholastica's Day until 1890.

To celebrate the 700th anniversary of this famous riot, the University and the City decided to have a special ceremony of reconciliation on St. Scholastica's Day in 1952. The University conferred an honorary degree on the Mayor of Oxford and the City made the Vice-Chancellor a freeman of Oxford. They had a splendid banquet and after they went home they had the biggest row for a hundred years over the problem of the road through Christ Church Meadows. I am sure that any Oxford graduate here today will remember that controversy which has not been settled yet.

It became exceedingly important to make certain that ordinary criminals did not give themselves a tonsure just to escape the law. They used to test convicted criminals by giving them a verse of the Latin Bible to translate. It was the one which begins with *Miserere mei Domine*, the English translation being, "Have mercy upon me, O Lord, out of thy great goodness". For 300 years this was called the "neck verse", because any man who could construe it would never have his neck stretched by the public hangman!

I have tried to give you some idea of the turbulent history of the ancient universities. I have told you about Oxford—the rest were just as bad. In one riot the students of Paris pulled down the Mayor's house and left it in ruins. But French Kings needed a university and they always rescued it if the citizens threatened it or overpowered it.

I shall now talk about the special problems of the University of Bologna which is 50 years older than Paris and the oldest university in Europe. In many ways it was very much like Paris, but it concentrated on the civil law which was not taught in Paris. There was one fundamental difference between Paris and Bologna. The University of Paris was organised and run by the staff, much as Kumasi is today—after all that is what we would expect because, as I have already explained, Paris was the remote ancestor of Kumasi. But the University of Bologna was organised, financed and run by students who dominated the University. They hired and disciplined the faculty. They treated these learned men abominably. They could do it because they were all wealthy young men. Many of them were beneficed clergy and they had come to learn the law so they could go and govern all the countries of Europe. In many ways Bologna was like a modern postgraduate school for mature students.

The very idea that there can have been universities which were run by the students instead of the staff has been almost totally forgotten. But they flourished for three hundred years. Every year the students of Bologna elected one of their number to be their Rector. He took precedence over everyone in the city, except the Bishop. He was the chief magistrate of the city and of the University. After his election the staff and the students all swore allegiance to him on bended knee in the same sort of way the barons of the time swore allegiance to newly crowned kings.

It must have been a wonderful experience for a young man to be elected student rector, to preside over a great feast, to receive the homage of the whole university and ride with an escort of his friends to preside over the tumultuous pageantry of a great mediaeval city. Those must have been the days—and Bologna was the city! We might have had student rectors today were it not for the fact that after they were appointed they had to pay for a feast, and the feast became so very expensive when the University of Bologna had 10,000 students that there came a time when newly elected student rectors fled from the University to avoid bankruptcy. Student rectors were forgotten, but the idea of universities run by students spread all over Italy and to Spain. The University of Salamanca in Spain had a Charter very much like that of Bologna. When the Spanish Kings conquered South America they founded a university in Lima in Peru: it is 150 years older than Harvard and it is the oldest university in the western hemisphere. It's Charter was based on Salamanca. The idea that students should run their universities, or at least that they should profoundly influence them, is widespread to this day throughout South America where Spanish traditions persist. It was remembered in the New World long after the tradition was destroyed in Europe by the Bourbon Kings and by Napoleon Bonaparte. The tradition went from South America to Berkely in California after the last war and ever since then the controversy between two systems of university government which began 700 years ago has plagued us all. Too many people who advocate student power forget that all the universities in the world today are financed by central governments and not by wealthy young men who have already begun their professional lives. That is why all the universities I know, including Kumasi, had to copy the traditions of Paris and not those of Bologna, that is why Kumasi must be run by staff acting on behalf of the paymaster, which is the government.

I want now to talk about the influence and the power of ancient universities. They were one of the three pillars upon which society depended and the speculation of their scholars helped to transform the world of mediaeval Europe. Society depended on university scholars to preserve and explain the works of such scholars as Aristotle, Plato and Archimedes; to interpret the scriptures and the law, and to create the beginning of modern science. The speculations of the schools in Paris and in Oxford led to widespread disbelief in some of the teachings of the Church. They cast doubt on the idea of Transubstantiation and they argued about the nature of "The Presence" at the Eucharist. The controversy spread from Oxford to Paris and to the University of Prague. The Holy Roman Emperor summoned the Rector of Prague, whose name was John Huss, to answer for his beliefs. He gave him a safe conduct, but the ecclesiastics assured him that because the man was a heretic his safe conduct was invalid. The Emperor burned the Rector of the

University of Prague at the stake (Under the statute of *De Heritico Cumburrendo*) in order to prove that the Carpenter of Nazareth can be worshipped in only one way. Huss was one of the first and the most famous of Protestant Martyrs. The Emperor found that the whole University of Prague was infected with Huss' ideas. He crushed the University in his rage. The scholars fled, some of them went to Germany and founded the University of Heidelberg. The wars which followed spread throughout the whole of Europe and they destroyed the hegemony of the Catholic Church for ever. They were caused by ideas which had come from the universities and by speculation about the truth of Catholic doctrine. Some of the bloodiest wars in history were fought in Europe to reconcile the conflicting opinions of university scholars.

The universities have much to boast of and much to answer for. They educated many of the rulers and administrators of Europe. They produced many of the best theologians in history and many of the best lawyers. They helped to create modern science and they profoundly influenced many of the ideas and traditions of mediaeval Europe and of modern society. They helped to create and to change the civilisations of which they have always been a vitally important part. The University of Oxford did not completely recover from the consequences of the speculations of its mediaeval scholars for several hundred years. I want to make the point that universities have been in trouble many times in their history and that the difficulties we have today are as nothing compared to those which afflicted our ancestors.

I have told you that the mediaeval universities were full of students who called themselves minor clergy and that the buildings of the universities were sacred places like churches. To this day some churches in England have preserved a "sanctuary bell". At one time a man who rang it could not be arrested by the civil power. When Thomas A'Becket was murdered, Europe was shocked and the King himself had to do penance, not so much because the Archbishop had been killed, but because he had been killed in his own cathedral, which was a place of refuge, a place of sanctuary, a sacred place which could not be profaned by the civil power.

University buildings acquired the same aura of sanctity and were regarded by everybody as places into which the civil power should not enter. This tradition still persists most remarkably in many countries long after ecclesiastical buildings such as churches have lost their status in law as places of sanctuary. I found that my own students in Manchester felt strongly that the police had no place in the university. They didn't know why, but this ancient tradition seemed to survive as folklore. "No cops on Campus" has always been the war-cry of students in the United States, although the idea of sanctuary has never been known to American law. You will

remember that when the universities of France had their troubles in 1966 and 1967, the worst riots in Paris began when the police moved into the courtyard of the University of the Sorbonne. Traditionally it was a sacred place to which the students had the sole right of entry and from which they could exclude everybody else. Students and staff stood side by side on the barricades to repel the civil power, just as their predecessors stood in the same place for the same cause five hundred years ago.

When the Olympic games were held in Mexico City five years ago, there was a tremendous riot and I think that a hundred students were killed. In revenge the students seized all the buses they could find and parked them on the campus. The police felt unable to go and collect them because the university campus was a place from which they were traditionally excluded. It is unbelievable, but true, that only five years ago police in Mexico could shoot students, but they were not allowed to move onto the campus because of the ancient tradition of the sanctuary of the students' university.

The University of Caracas in Venezuela received a Charter in 1630 which makes it clear that the campus is an enclave from which the civil power must be excluded. The government recently accused university students of forming an unholy alliance with the local criminals and said that the campus had become so dangerous that the police could not go into it. The government introduced legislation to allow the police to have access to the university campus if they were in hot pursuit of a criminal, although they were not to be admitted to the buildings. This proposal so outraged the students that they marched out and the university was closed for more than two years.

Three years ago the Turks redrafted the constitution of Turkey. Turkey is a developing country as Ghana is. It is bigger than Ghana of course; it has about three times your population and it has some splendid universities, most of which were built with American money. The new constitution of Turkey prescribes that a university campus is a place from which the police are to be excluded when students are in residence. This means that anyone who wants to have a battle can do so on the campus without being interfered with by the police or the army. The political parties of the extreme right and the extreme left have gone into the universities with guns. More than a hundred students were killed and a thousand were wounded in the crossfire last year. And so the Technical University of the Middle East was closed for six months. They opened it again last October, but it was closed a month later and it is still shut. The government claims that they are trying to purge it of left wing dissidents and the whole place is occupied by the army.

A very remarkable ancient tradition is affecting the lives of ordinary human beings to this very day. I wanted to make this point because it is almost impossible to believe that traditions which

began six or seven hundred years in England, in France, and in Italy should survive all over the world. I wonder if they are known in Ghana.

Perhaps I should complete this part of my story by telling you that when the city of Alexandria was founded by Alexander the Great two thousand years ago, he established certain places of sanctuary into which "no debtor could be pursued by his creditors and no son by his father,"—family life must have been complicated even then! These places were the brothels, the bawdy houses of the city! I shall say nothing more!

The next problem I must discuss, and my time is getting short, is the position of the universities themselves in modern society in so far as they engage in political and social controversy, as their predecessors have always done. We never consider the problem seriously in England, because our own universities have never been very powerful politically. But universities in many countries have preserved a mediaeval tradition which makes them suspect by governments. It is a difficult and most delicate problem which I am reluctant to embark upon. But within the memory of everyone in this room, General de Gaulle was brought down by riots led by university students. President Lyndon Johnson couldn't stand for office again because of the opposition of university students in the United States. Students could not possibly have done any of these things themselves, nor would they even dream of trying, but they spoke of the ideals and the frustrations of their contemporaries and they helped to destroy two of the most powerful statesmen in the world. They were following a very old tradition. It was university students led by poets who brought down Metternich in 1848 and began the agitation which overthrew half the governments in Europe. A university is a place of learning, but it is acutely important to realise that universities are sometimes the only places in a country in which free discussion of political issues is possible.

If young men are taught to think freely and to speculate about matters scientific or philosophical or political, or whatever else their subject may be, they will not easily forget this technique of free enquiry when they come to discuss matters concerned with the organisation of the society in which they live. They are bound to be sceptical and one of the most important functions of a university is to establish what Lord Ashby has called "The dialogue between authority and dissent". For on this dialogue depends, not only the future of every university, but the future of the society in which it exists.

The Western democracies have usually tolerated political arguments and detailed criticism of their governments and of the organisation of society. Sometimes they have gone so far as to institutionalise an appropriate mechanism to facilitate the complex processes involved. Dictatorships, such as those in the Soviet Block,

seem to have managed quite well without it. Your tradition and our tradition has always assumed that discussion and persuasion are vitally important. Our parliamentary system incorporates what we call—to the confusion of many people—"Her Majesty's Loyal opposition", and the leader of the opposition is paid a salary from the public purse. The Opposition exists to comment on and, if need be, to criticise and even to oppose the policy and the actions of the Government which is in office. In due course, if it wins an election and defeats the governing party, the opposition may itself form a government. This sophisticated system does not exist in Ghana, and, for this reason, if for no other, the universities of Ghana have become much more important to the whole community; perhaps they are more important in Ghana today than our own have ever been in England. Perhaps they will become as important as universities were in Mediaeval Europe.

Universities are a most important instrument for changing themselves and ultimately the community in which they are embodied. This University of Kumasi will have a most profound effect upon the whole of the future of Ghana and its industries because it is developing new engineering and new science. Inevitably, therefore, a university has to consider the effects of its own achievements on the organisation and structure of society.

Universities will help to create the future, they will change society, they will change themselves, they will change the way in which the universities and the community interact.

This magnificent institution here in Kumasi has changed profoundly in the last twenty years. It will not stop changing now. It is bound to change in ways that no-one can foresee. If the changes are to do for Ghana whatever its people most want, then they will come about after the students and staff in the universities have discussed what is to be done and tried to persuade ordinary people to accept their ideas.

Here in this university and in Legon and Cape Coast the destiny of Ghana will be moulded and the society of Ghana will be created. It may be changed socially, economically, industrially and spiritually—I do not know, but I do believe that it is from the universities that many of these changes will come, just as they did in Europe and in America.

Universities are always said to be very conservative places and to be resistant to change. You know the old proverb—"A university is a place in which nothing whatever may be done for the first time." But the very existence of this university proves how fast they can change when they want to do so. Every university in the world, and most especially every university in a developing country which desperately wants to change itself, must maintain the dialogue between dissent and authority upon which progress depends and without which society can stagnate.

My task has been difficult. That is why I wanted to begin by explaining how extremely complicated and turbulent the history of universities have been. I wanted to tell you that the word "professor", the word "master", the word "doctor", are all mediaeval as the gowns you wear and the ceremonies of matriculation and graduation. All these play a part in modern universities and just all of them are five, six, or seven hundred years old; they all originated in schools designed to produce the professional men upon which society depended. The first universities needed no buildings. They had their staff, their students and a few documents which they could carry in a chest. They were enormously influential and the whole of mediaeval society was profoundly changed by them. The universities educated lawyers and the administrators who governed Europe and they educated priests and clergymen. There are many more professions today than there were then, but the universities must educate those who will fill the professions and keep society going.

But a university has other functions too, it preserves and hands down the traditions of a community to the young men who will lead it. Not only does it hand on professional skills, it investigates new types of professional skills. Sometimes a university creates new professions. All universities engage in research and try to extend the bounds of human knowledge. The scholars will influence the society in which they live, both now and for hundreds of years to come. Above the door of the Bureau of the Archives in Washington is inscribed the motto:—"The Past is but the Prologue to the Future".

Half an hour ago I told you that the Mediaeval universities were one of three pillars which supported contemporary mediaeval society. I believe that the universities of developing Africa will be just as important. Vice-Chancellor, Lord Bishop and Gentlemen, yours is an immense responsibility. Upon you, upon your efforts and upon the efforts of your students will depend much more than the future of this University. You will help to determine the future of Ghana and, I suspect, the future of a great part of West Africa. You will build on foundations which have been well and truly laid.

Once again, may I say how grateful I am for the opportunity of being here and how much it has meant to me to be able to talk to you all in this way. I would like to wish you all the Very Best of Good Fortune. I do so with all due diffidence, but I do it with all my heart.

LECTURE TWO

" UNIVERSITIES IN DEVELOPING COUNTRIES AND THE UNITED STATES SINCE THE CIVIL WAR "

The Second Robert Baffour Lecture, delivered in the Great Hall of the University of Kumasi on 25th January, 1977 by Lord Bowden. Professor Emmanuel Bamfo Kwakye, Vice-Chancellor of the University, presiding in the Chair.

LECTURE TWO

UNIVERSITIES IN DEVELOPING COUNTRIES AND THE UNITED STATES SINCE THE CIVIL WAR

THANK you, Sir. And may I say again how very much I appreciate the privilege of being here to do honour to Dr. Baffour. He and his family have always done great things for Ghana. How many of you know that Dr. Baffour's Grandfather explained the technique of scouting and tracking to Baden-Powell and that a wonderful book called "Scouting for Boys" was dedicated to him? I never thought when I read it in my childhood that I should meet a descendant of the famous African Chief who helped to found the Boy Scout Movement which has spread all over the world.

Yesterday, in my first lecture, I tried to show you that this country was extremely fortunate more than 100 years ago because of the enterprise and the genius of the dedicated men who created its educational system. I tried to explain, Vice-Chancellor, that if you and your colleagues can see further than most men, it is because you stand on the shoulders of giants. It is astonishing that when Dr. Baffour was a very young man, he learned engineering from one of the best teachers of engineering that either this country or England has ever seen. Some very remarkable men taught science and engineering here many years ago. Their ideas were not in the tradition of the conventional English educational system.

When the Asquith Commission came to Africa just after the war, it had no doubt that a university should be established in this country. It was taken for granted by everyone concerned—English and Ghanaian alike—that the university which would best suit this country would be as much like an English university as possible. I believe this was a fundamental mistake, and I want to talk to you this evening about other university systems from which Ghana may learn. In fact, I believe you have already begun to learn from them without realising it.

The most remarkable achievements of which England can boast which changed the face of the earth, were the industrial revolution and the agricultural revolution which preceded it and which made it possible. These extraordinary revolutions have transformed the nature of life in every country in the world. They were made by men who had never been near a university, who owed nothing to university education and who created a new world by their skill and by their genius. When they were at work, Oxford and Cambridge had not recovered from the troubles I told you about last night. Both universities were sunk in apathy and in the 18th century Oxford

matriculated only half as many undergraduates as it had admitted in the preceding hundred years. Both Oxford and Cambridge devoted themselves to the education of wealthy young men and potential clergymen. They lost interest in the law and in medicine. Gibbon tells us that the dons in his time were "steeped in Port and prejudice". Our universities were almost useless to industry, but England became fabulously wealthy through the genius of self-taught men who learned things for themselves and had most remarkable practical skills. And, perhaps, because the universities had had nothing to do with the creation of wealth, they were content to be centres of privilege and they boasted that they had nothing to do with industry or commerce. Let us remind ourselves how extraordinary the industry of Lancashire became. In 1913 it was said that "the mills of Lancashire clothe England before mid-day on a Monday and clothe the rest of the world during the rest of the week". The men who went into the Lancashire mills were taught in little institutions such as my own Manchester Tech. was in those days. We have had a textile department for a very long time and I am delighted to see that some of the most influential members of the textile department in Kumasi are graduates from my Manchester Institute.

But other countries in Europe became tremendously envious of the wealth that the industrial revolution had created in England. They determined to do what they could to catch up. And so, very sensibly, they decided, nearly two hundred years ago, that if an underdeveloped country in Europe wanted to develop its industry, it could only do so if it had enough well educated engineers and technologists and it could only produce such men if it established special universities to teach them.

In 1795 the revolutionary Government of France determined to have a university institution to teach engineers. The University of Paris would have nothing to do with it so the government founded what they called, "The Ecole Polytechnique". From that day to this the graduates of the Ecole have run the industry of France. In 1799 the German Government in Berlin decided that they too must provide proper university education for the men whom they needed to build up their industry. The staff of the University of Berlin said flatly that engineering was not a proper subject for a university to study and there it might have ended, but the German Government persisted and founded a great institution at Charlottenburg in Berlin which was the first of those great continental schools which used to be called "Technische Hochschulen" and are now called Technical Universities. Graduates from Charlottenburg transformed Germany and made its industry rich. Other countries followed suit. The University of Amsterdam refused to teach engineering and so the Dutch Government took courage from the example of the Germans and in 1860 they established a

Technical University in Delft. When I last saw it, it had eleven or twelve thousand students. It is a splendid place and its interactions with Dutch industry are both important and effective. The Swiss established the Technical University of Zurich in 1856. It educated engineers, not only for Switzerland which is a small country, but for Europe and for America. When I went to the centenary celebration of the foundation of this Technical University, they showed us pictures of the great structures which had been built by Swiss engineers; among them were nearly all the bridges across the Hudson River in New York as well as half the bridges on the American Railways. For a long time Swiss engineers were the most important of Swiss exports and they all came from the Technical University. May I remind you that it was founded by the Swiss Government which was determined to educate engineers in spite of the fact that the classical universities would have nothing to do with them.

As a result of the enterprise of several European Governments, English industry lost its pre-eminence. In 1851 when we had our Great Exhibition, England was the workshop of the world. England became the wealthiest country in the world at a time when her people were the most illiterate in Europe. Even ten years later in 1861, people had begun to realise that German industry, French industry, Swiss industry, Dutch industry and Swedish industry were catching us up and beginning to surpass us. All these countries had special technical universities, but our own Government did nothing, and soon afterwards a few English universities began to teach a little engineering. We never had a full-scale special university of science, engineering and technology until long after our industrial pre-eminence had gone for ever. Perhaps by then it was too late.

But Oxford dreamed on and ignored the genius of the practical men who had created the wealth of Lancashire and of England. The Dean of Christ Church in Oxford said in a university sermon about a hundred years ago, "The advantages of a classical education are twofold, it allows us to look with contempt on those who have not shared it, and it fits us for places of emolument, both in this world and in that which is to come". I doubt if you, my Lord Bishop, would be so bold as to say such things today. Be it as it may, contemporary students reported that "an ordinary man could not fail to observe in Oxford that the subjects to which his attention was directed had no connection with any form of employment whatsoever, and that the modes of thought which he encountered were quite unlike those which prevailed in the ordinary intercourse of society".

In 1900 we had fewer universities in proportion to our population in England than any other country in Europe except Turkey. Furthermore, more graduates came from the University of Charlottenburg in 1900 than came from all the universities of England

put together. Even to this day some of the universities of England have never taken to engineering with enthusiasm. Oxford has 3 professors of archeology, 3 of classics and 4 of philosophy. Until recently there was only 1 professor of engineering, now there are 3. So, I make the point that the continental tradition of engineering education has always been more highly developed than ours and so, for many years, was the tradition of scientific research.

The universities of Germany began to study organic chemistry in the 1850's and by the end of the century the dye stuffs industry and the whole chemical industry as well as the optical industry were completely controlled by Germany. A few German chemists migrated to England in the nineteenth century and established what afterwards became our very own Imperial Chemical Industries. At the beginning of this century German chemistry was supreme and dominated world markets. German engineering was beginning to be supreme and all that England could boast of was its textile trade and very good engineering firms, all of which were in the hands of men who had learned their skills in little technical institutes, but few of whom had ever been near a university. Even as late as 1930 as many engineers graduated from Charlottenburg as came from all the English universities put together. It is unbelievable. No wonder our industry has deteriorated.

After the last war the Russians surrounded Berlin so the Germans decided to develop what was then a small technical university in Aachen. In five years, from 1946 to 1951, they built a technical university which could educate more engineers than all the universities in England put together. It is important that you should realise that the English tradition of engineering education in universities is neither particularly good nor particularly ancient.

I was delighted to discover that Professor Kwami was a student and a staff member of the great University of Charlottenburg for 18 years before he became Dean of Engineering in Kumasi and that your Vice-Chancellor, Professor Kwakye, studied in Munich for several years. Both of them know Germany well and I hope they will be able to introduce the best traditions and practices of Germany to Kumasi, both for the education of engineering graduates and, equally important for the education of craftsmen and technicians.

When I came here first in 1956, I found to my delight that Ghana adopted the continental system without realising it. You had established a classical university concerned with pure science, mathematics, law, classics and the arts in Legon. It was just like Oxford or the University of Bonn or the University of Amsterdam. You had begun to develop here in Kumasi a university institution like Aachen or Zurich which is concerned with the subjects which are traditionally taught in the Hochschulen and the Grandes Ecoles of France.

If I can give you a word of advice. Don't assume that the system which you inherited from England is the best in the world, it isn't; you can still learn a lot from other countries. In the end every university has to make itself, but most of them have a favourite among the ancient foundations. The University of Legon can model itself on Oxford or Cambridge, but Kumasi could learn something from places like my own Manchester Tech. which has already provided several members of your staff and you must see what you can learn from the Vice-Chancellor and the Dean of Engineering about the Technical Universities of Delft, Zurich, Vienna and Stockholm, as well as the famous Hochschulen of Germany.

May I summarise the story so far. The developing countries of Europe created their industries more than a hundred years ago by establishing special institutions like Kumasi, from which recruits went into the developing industries of Germany, of France and of all the other countries of Europe and made them so much more efficient than ours in England that our industries declined as theirs grew.

I am afraid that I shall not have the time to describe the educational systems of Russia or of China—Ghana might learn from both. But I must describe some of the educational achievements of the United States. In my opinion theirs has been in many ways the best system for a developing country that the world has ever seen. The United States devised their educational system whilst the country was creating itself; it was developing its industries and growing from a small group of colonies on the Atlantic coast into the great industrial power which bestrides the world today like a colossus.

The American colonists were always extremely interested in education and by the time they achieved their independence two hundred years ago, they had nine universities whereas we had only Oxford and Cambridge in England. In fact we had to wait for an American scientist to found the Royal Institution in England "to facilitate the general introduction of useful mechanical inventions and teach the application of science to the common purpose of life". The nine American universities were all based on the two ancient Universities of Oxford and Cambridge where most of their staff had been educated. The University of Harvard, which is the oldest of them, was founded by a scholar from my own Emmanuel College in Cambridge. It taught the classical subjects and it taught medicine. In 1800 Harvard was properly established and modestly famous. But it became evident to the Americans that the system which Harvard represented was not of itself good enough for a developing country. In 1848 a great convention was held in Boston to discuss the future of education in America. It derived much of its inspiration from Manchester and from men who fled from England to America

soon after the turn of the century. It is frightful to remember how many of the ideas which came to flower in New England originated in Lancashire in Old England and were neglected there for a hundred years. The Boston convention resolved that new institutions should be founded to provide an education of the highest standard for recruits to all the trades and professions. This widespread agitation inspired the Senator from Vermont, whose name was Justin Smith Morrill. He was able to introduce a bill in the United States Congress. Every state had to provide 30,000 acres of land as an endowment for a new type of university institution. This bill, which I believe to be the most important piece of legislation in the whole history of western education, was signed by President Lincoln in 1862 in the middle of the Civil War, two months after the battle of Gettysburg when the fortunes of the United States seemed to be at a lower ebb than they have ever been either before or since. The new universities were expected to study the problems which concerned most Americans at the time. The most important industry of all was agriculture, because most Americans were farmers in those days, just as most Ghanaians are farmers today. Their second industry they called the Mechanic Arts by which they meant all forms of manufacture. The new foundations were called Land Grant Colleges or sometimes A and M Colleges. At first they had a very difficult time because America was poverty stricken after the Civil War and no-one knew how to create a new university system such as had never been seen before in the history of the world.

I would like to quote from the reminiscences of a man named Roberts who was, I believe, the first professor of veterinary science in America. He had no textbooks, he had no instruments, he had no apparatus, he had no syllabus to teach. But there he was, with his class outside an old barn which he used as a laboratory. He knew that some horses had died and been buried nearby. He had their bodies exhumed. He decapitated them and he arranged half a dozen stinking horse heads on a bench in front of his barn, he put his class on the windward side—for obvious reasons—and he “gave a lecture on the dentition of horses”. In other words, on horses’ teeth. You may think this is a trivial, foolish story, but I maintain that if there was one moment in time in which one can say that our modern world began, that was it. For the first time, a man and his students were wrestling with the problem of creating a new type of academic discipline in a university. They were studying the care and husbandry of animals. At about the same time other men began to study all the problems of farmers all over the continental United States. This very significant moment in the history of western civilization should never be forgotten. The memory of it may encourage other pioneers all over the world.

These new colleges grew dramatically. They were expected to perform three functions which were to be of equal importance. The three were, in no particular order, to undertake research into any

important problems which beset the community, to teach undergraduates and to undertake what they called Extension work. This third task was in some ways the most significant of all in the early days because so few Americans had ever been to college. The universities were determined to teach whatever they knew to all the citizens of the State who wanted to learn. They were extraordinarily enterprising in organising this Extension work.

The University of Wisconsin, which is one of the famous of the former Land Grant Colleges, adopted as its motto “The boundary of the campus is the boundary of the state”. Staff were prepared to go anywhere in the state of Wisconsin to teach anyone anything he needed to know. If need be, men went on horseback through the snow. They taught farmers about new types of corn or the drugs they should use to cure their sick cows. This Extension work meant that the ordinary farmers in America were brought up to date all the time. They learned about the work in their local University and about the latest development all over the world. Furthermore, and this is equally important, the members of staff of the university were made very much aware of the fact that some of their ideas did not work well when they were used in the field. If the man from the University of Wisconsin told a farmer how to cure a cow and the cow died, he went straight back and told the professor concerned. This system helped to create American agriculture. When the colleges celebrated their 100th anniversary in 1962, it was computed that half of all the crops which were harvested in United States that year would never have been grown without the work done by the Land Grant Colleges, by their research staff, by their students, and by the men who organised the Extension work.

American agriculture is the most productive in the world. I think that the most important political fact in the world today is not that America has sent a man to the moon; not that America and Russia are both able to annihilate each other with atomic weapons, not that nearly half the oil in the world is in Saudi Arabia. More important than all of these is the fact that America is the only country which has enormous quantities of food to export. Without it half the west would go hungry. India would certainly have starved in the last few years and I do not know how Russia and China would have managed without American wheat. This plentiful, wonderful food would not have grown had it not been for the Land Grant Colleges which, in the hundred years since they were founded, have turned into the great State Universities we know today in which most American students are educated. May I repeat that this astonishing achievement depended on the interaction between their three functions, namely, to tell any one in the state anything he wanted to know, to undertake research into the unsolved problems of the community and to teach undergraduates. American university presidents call them the three legs of the three-legged stool.

I must now describe the contribution of the Land Grant Colleges to the development of the mechanic arts. In 1910 we sent a delegation from Manchester to see Andrew Carnegie who was one of the wealthiest men in the world and owned most of the steel mills in the United States. The delegation wrote to Andrew Carnegie. "It is not so much your unlimited supply of raw materials we have cause to envy, nor the unrivalled equipment in your factories, it is rather the class of skilful, educated young men who run every department in your works". "There are," they added, "no such men in England." It is notoriously true that American industry dominates the world today. There are 20 or 30 times as many engineers in America as there are in England. Europe has proportionally many more engineers than we have in England. For example, in 1957 the single firm of Schiss in Dusseldorf which makes machine tools for the Ruhr recruited 130 graduate engineers, whereas in that year the whole British machine tool trade had been able to recruit only two graduates. This is the kind of disparity which destroyed the British industry and made the industry of Europe and the industry of America so much more productive than ours.

American industry dominates the world just as American agriculture had done because of the involvement of the universities in its activities.

The Land Grant Colleges which became the great state universities have always been prepared to concern themselves with and study any problem which besets society if they thought they could make a contribution towards its solution. When Mr. Cornell endowed the university which is known by his name, he said, "I aim to found an institution in which any man may learn any subject." He, for one, had no sympathy with arguments about "academic respectability" which seems so important in other countries—most notably in my own—and sometimes, (dare I say it?) in Ghana.

American universities started to study the organisation of business about 1900 because, as they put it, "business is the business of America". It seemed to them to be a natural thing to study the problems of organising a group of men having a common purpose which is to run a factory. We did not follow their example in England for nearly fifty years. Even today many English academics do not believe that they should be willing to study any subject whatever, if it is important, if the community is interested in it and if they themselves feel they might make some contribution towards solving the problems which it throws up.

No university can ever know in advance that its research programme will succeed. All one knows is that there is a problem, and that perhaps academics might help to solve it if they studied it. All anyone can be certain of is that if no-one studies it, the problem won't be solved. And on that rather grim note the American

universities struggled to tackle an enormous variety of problems. They are still doing it. You will remember the probe which went to Mars last month. Did you realise that most of the rockets, their guidance system and the whole of the fabulous electronic gear was designed and built in California Institute of Technology? There is no doubt at all of the immense achievement of the American university system.

But in England, until very recently, English dons denounced what they could not understand and said it was wrong that certain subjects should be taught in a university environment. Believe it or not, I have been bitterly attacked because we insist on studying textiles and paper-making in Manchester Tech. Dons whose lives depend on paper work don't want to know how paper is made, nor do they think, should any university students. I can remember Englishmen who denounced the A & M Colleges and said that "they were places where men throw manure about and act as wet nurses to steam engines". This was at a time when these despised A & M Colleges were laying the foundation of American industry. I went to the centenary celebration of the Cavendish Lab. in Cambridge where I had been a student. It was founded in 1874 long after such establishments existed in half the universities of Europe. We were reminded that when it was proposed to set up a Physics laboratory in Cambridge the idea was denounced in the Senate on the grounds that "since most of the lecturers in applied mathematics are men of probity, and furthermore, many of them are ordained members of the Church of England, it would be impious to subject their theoretical predictions to the test of experiment". I like that word "impious"—there is so much of our national history—and of our decline in it.

I have said that you can learn something from Germany and even more from the American system which has been even more versatile and much more productive. I don't think you should be concerned with America as it is today, but as it was about the turn of the century when the United States was still a developing country. Since it achieved its enormous industrial success the functions of its universities have changed, in a way which makes them less suitable than they once were as a model for a developing country like Ghana.

Nevertheless, Chairman, I'd like to talk a little more about the American system as I know it.

One of the most famous of all American university institutions is Massachusetts Institute of Technology. It was founded by Barron Rogers in 1856 just before the Morrill Act was signed. When people told me that we needed something like it in England, I used to point out that M.I.T. had twice as much money to spend on its research programme as all the universities in England had, put together.

You can't create an institution like that in a hurry, overnight. Furthermore, when there were 2,500 students in the graduate school only 275 men graduated with Ph.D.s in engineering in England altogether. M.I.T. succeeded because it believed passionately that it should study any problem of concern to the community.

But, until 1930 or so, American universities did very little pure research. They were content to accept the results of fundamental research from Europe and apply them to make America rich. It was not until after the last war that Vannevar Bush wrote a celebrated paper called "Science, The Endless Frontier", for President Roosevelt. He had been on the staff of M.I.T. for many years. He said that the universities of Europe were in ruins and that America could no longer rely on them to undertake fundamental research which might be used in the United States. American universities would have to undertake fundamental research themselves, and pay for it. I remember that from 1946 to 1950, Presidents of American universities went round Europe with bags of gold and bought up the best scientists in the western world. They took them to America and gave them all they wanted by way of apparatus, facilities and staff. Furthermore, the American Government gave enormous sums of money to endow research in American universities, so for twenty years more research was done in the U.S.A. than was done in the whole of the rest of the world. It is still true to say that the best research schools in many subjects are in the United States. But let us remember, they went there because America was wealthy and America became wealthy because it applied other people's research in the first place. Our own universities grew in England because they used money created by the industrialists most of whom were self-taught. These are very sombre reflections, Gentlemen!

And now I come to the peculiar problems of Ghana. Twenty-five years ago you decided your policy for university development because you believed, as many Englishmen did at the time, that the universities of England were the best in the world. I remember that at about the time when Kumasi was founded I was denounced for saying that English universities had much to learn from America. People said, "What can we learn from them, let them come and learn from us."

Emmisaries from England based their plans on an idealised version of the University of Oxford in the 19th Century when Cardinal Newman was writing his wonderful book, that dreadfully misleading book, on the nature of the universities. Newman said that a university should not engage in research. The only man whom he knew had ever done any research was Porson; he was a great classicist but he was never sober after lunch. Newman believed that

research led to drunkenness and denounced it for that reason. Perhaps that was why Lord Curzon, who was Chancellor of Oxford in 1900, said that "Oxford could not possibly hope to emulate a university like Harvard".

I must make the point that in spite of everything, Ghana copied the continental system of engineering education. And now you have here an institution capable of following the best traditions of the German universities and American universities in the last century when Europe and America were both developing fast and had a very large agricultural population. They were struggling to create their industry, just as you are in Ghana today. I think that you should model yourselves on the universities which triumphantly solved problems which so resemble yours—and did so a hundred years ago. You can forget ours in England, at least for the time being. It used to be said that the Great American West was conquered in the laboratories of the Land Grant Colleges, and that their graduates tamed the continent. I hope and expect that graduates from Kumasi will tame the hinterland of Ghana. Perhaps in some ways your problem will be more complicated than theirs was because people have been settled here in Ghana for hundreds of years, whereas most American settlers were newly arrived. You may have more trouble than the Americans did from long established traditions. Your task may be more difficult and perhaps even more important than any one realises.

I believe that the agriculture of Ghana could be dramatically improved in many ways by the efforts of graduates who go to work in the field and who travel the country and take the latest information wherever it is useful. They will keep the Department of agriculture on its toes and stop it from getting too complacent. The Mechanic Arts will grow in the same way if they have the same stimulus. I have visited Kumasi several times, but I had not been here for some years. In the last few days I have seen the University's Faculty of Engineering, I have seen the Faculty of Architecture and I have seen the College of Art. I am going to see Agriculture tomorrow. Everywhere I find close links between the Faculty and the community. Staff and students are trying to help to solve the ordinary problems of the community in the very best American tradition. And these days I notice more close and intimate and effective liaison than I ever saw before. I know of no other country in the world where the traffic lights were designed by a Vice-Chancellor. How proud you should be when you are held up at a red light! This kind of collaboration always takes time to develop. Twenty years ago I remember urging the Department of Civil Engineering to try to develop simple pumps which could be installed easily and cheaply in local villages and provide them with their first water supply. I now find to my great delight that scores of such pumps have been manufactured and installed by the university to the great benefit of

poor people, many of whom live in cheap houses which were designed here in Kumasi. They keep pigs which were bred in Kumasi and they grow tomatoes and corn which they first saw in Kumasi. Ordinary people now believe that the university is a place from which help can come and that it is not merely a place into which resources are endlessly put. Here is the beginning, I think, of the revolution which could make Ghana into a self-sustaining economy growing and flourishing as America grew and flourished in the last century. But it will only happen if everyone remembers that three-legged stool—teaching, research and extension work.

A couple of months ago I met the Vice-Chancellor of the only University of Agriculture in Pakistan. Pakistan depends on agriculture just as Ghana does. He told me that, although they have research centres, university teaching and extension work, these three activities are the responsibility of three separate ministries, and that in consequence there is quite inadequate liaison between them at the working level. Undergraduates never learn from research workers, and they never meet the extension men. The system behaves like a motor-car which has no link between the engine and the gear-box, or between the transmission and the back wheels. It may look impressive, but it doesn't move. You are doing better than that in Kumasi, so Good Luck!

But only the other day I read a passionate denunciation of the universities of Nigeria, which had been written by a distinguished Nigerian scholar. He said, "the universities have become islands of privilege in an ocean of poverty". Of course this is true in the sense that any university is a place of privilege. The standard of living is much higher than it is in the villages from which most students have come. But the most important privilege of the students is their opportunity to learn something which will be useful to them for the rest of their lives. It is extremely important that this should not lead to the creation of a caste system which might become as rigid as anything in India, although it is based on education, not on birth. It would be terribly wrong if graduates were unwilling to go up-country wherever they are needed to help the people whose toil has made it possible for this university to be built and for the students to have the privileges which are theirs today.

I have been profoundly impressed, not only by the achievements of the staff and by their research programmes, but by their evident concern for the welfare of ordinary Ghanaians wherever they may be.

Here is the most important problem you have to solve. How can the university improve its links with the community? How can it accept the obligation which inevitably goes with the enormous privileges which any university has in the modern age? The splendid buildings and their wonderful equipment, halls of residence and

staff houses, all of these are better than most Ghanaians can ever expect to see in their working lifetime. If I can just briefly mention one point as I shall discuss it in my next lecture; it costs as much to educate a Ghanaian student in Kumasi as it costs to educate an English student in England. But the ordinary working man's wage here is perhaps a tenth as great as it is in England. So that in order to pay for the education of a student in Kumasi an ordinary man has to work for the whole of his life to earn the necessary equivalent sum. An ordinary Englishman, whose son has gone to university, will probably earn as much every year as the total cost of his son's university education during the year. An American father will do as much in six months or less. This means that Ghanaian students are very much more privileged, relatively speaking, than students are in England or in any other developed country in the western world. It means that there is a real risk that graduates will regard themselves as creatures apart, and expect to be given special privileges for the rest of their lives. Many of them refuse—and who am I to blame them?—to live in villages up-country where there is no decent water supply, no sewage, no electricity, no telephone, no medical service, and no schools for their children. Nevertheless, it is upon the graduates of Ghana that the real hopes of the future depend.

It was an astonishing act of faith on the part of the Government when it decided that by educating young men here, the whole of Ghana would become richer. It is remarkable that the same faith encourages the authorities to go on pouring their resources into the universities in spite of the fact that the industries of Ghana are not growing as fast as every one hoped that they would—not yet anyway. Too many people are still poor and want to benefit from some of the wealth which the country seems to have lavished on its educational system. Ghanaian agriculture is improving all too slowly and people are still hungry and ill-housed.

It is faith by which you live, and the faith is based upon the hope and confident expectation that in the end all will be well. You believe that before long new crops, new fruits, new pigs and cattle, new trades and industries will be developed here and will be accepted and used throughout the whole of Ghana.

The future of your country will depend upon many things, upon the help and goodwill of other countries, upon the support and the help of the Government, and most of all upon the charity and the devotion of those graduates of yours who decide to devote their lives to the betterment of their fellow countrymen, in spite of all the difficulties and even the hardship which they will have to accept.

Two thousand years ago it was written in our scriptures, "Now abideth faith, hope and charity, these three, and the greatest of these is charity".

LECTURE THREE

“UNIVERSITIES IN AFRICA AND THEIR SPECIAL PROBLEMS”

The Third Robert Baffour Lecture, delivered in the Great Hall of the University of Kumasi on 26th January, 1977 by Lord Bowden. Dr. Evans-Ansorn, former Vice-Chancellor of the University of Kumasi and Chairman of the National Council for Higher Education, presiding in the Chair.

LECTURE THREE

UNIVERSITIES IN AFRICA AND THEIR SPECIAL PROBLEMS

DR. ANFOM, LORD BISHOP, VICE-CHANCELLOR, AND FRIENDS,

THE last time I met you, Dr. Anfom, you were Vice-Chancellor here in Kumasi. I am very pleased that you are looking more relaxed than you were then. Whatever your cares may be in Accra, they seem to rest lightly on your shoulders. The problems of this university, in the days when you guided it so skilfully and so successfully, must have been worse than I knew at the time.

This is the third of my lectures and I would like to begin, if I may, by reminding you very briefly of what I have already said. In my first lecture I tried to describe for you the astonishingly turbulent and complicated history of the mediaeval universities of Europe from which all the universities that we know in the world today are descended. Universities have been a source of great distinction to many states, they have on occasions caused the downfall of governments, but no important modern country can long endure or prosper if it does not possess a university of its own. Universities have played an extraordinarily complicated role in the history of the last millennium—and they are still growing and preparing themselves for the future.

In my second lecture I tried to explain how other developing countries (and I mentioned particularly, Germany and America in the last century) each attempted to devise a university system which seemed to be suitable at the time for them. England almost ignored its educational system because the industrial revolution had been made by self-taught men. Germany was envious of our successes as an industrial power so it established special schools of engineering in many ways like Kumasi, which produced the engineers upon whom German industry depended throughout the nineteenth century and still depends at this very moment. The United States had to tame a continent as well as developing its industry. President Lincoln founded a whole series of universities of a new and altogether unprecedented type. They were the so-called Land Grant Colleges. In the last hundred years these new foundations have grown into the Great State Universities which dominate America today. I ventured to suggest that Ghana could learn a great deal by studying their achievements in their first fifty years, during which the Great American West was conquered in the laboratories of the Land Grant Colleges and their graduates tamed the continent. They did this at a time when our own English universities took little or no interest in either industry or agriculture.

My most important point has been that universities and their structure may have to change dramatically from time to time to meet the needs of the community in which they are situated. I repeat it now with all the emphasis I can command. It is quite impossible to import into one country a university system which is appropriate to another and expect it to flourish unchanged. A sapling can be transplanted and will grow, a great tree will die if it is moved. There is no doubt in my mind that the universities of Ghana will have to change and adapt themselves to the needs of Ghana, just as the universities of the United States adapted themselves to changing circumstances in the United States. The problems of the community changed—as millions of immigrants arrived from every country in Europe—America became a great agricultural power, then a great industrial power, so the structure of the universities changed to meet the changing circumstances.

So my first point today, and I hope it is a brief summary of what I have said to you so far, is that universities form an essential component in any society and that their nature and the work they do has to be adapted to the particular society in which they are situated. Now, this means that your University of Kumasi which has changed so dramatically and so wonderfully in the last twenty years, will undoubtedly continue to change. It would be very wrong and improper of me to attempt to predict how it will change, or presume to say how it ought to change. All I can do is to point out some of the problems with which you must inevitably wrestle and suggest some ways in which you might cope with them.

Every university, in Kumasi or in Legon or in Cape Coast, must try to help the people of Ghana to become familiar with the great intellectual achievements of modern civilisation. This is an essential function of all the universities in the world. But it is not their only function. Most ordinary people in Ghana hoped when universities were established here that their very presence would help to make the country rich. Ordinary people in England hoped much the same when our universities began their dramatic expansion twenty years ago. We have not been as successful as we hoped to be in England. Nor, I suspect, have you been in Ghana. And the reason is really very simple when you come to think of it. It is this, it is a far harder thing to do to establish an industry which will absorb graduates and find something for them to do than it is to establish an engineering school and educate young men and give them degrees.

The really difficult and expensive part of the creation of wealth is not the education of the farmers and engineers, but the development of the organisations within which they will spend their lives. After all, a man's education in school and university takes only a fraction of his life; his expensive university career lasts for only four years. After he has left and has become a professional engineer

or a professional agriculturist, he will spend the whole of the rest of life his struggling with all sorts of problems, some of which he may be able to solve because of his experience in the university, but most of which he will have to solve in the light of the then existing circumstances, which will probably be quite unforeseeable when he is a student in his youth. No man who has graduated from here can count himself completely educated in the sense that he will never need to learn anything again. What he must have learned is that he can go on learning. Unfortunately many people never understand this simple but important truth about themselves. Every student must learn too how novel and unfamiliar problems can be solved. Students should solve problems while they are still in the university, but the achievements of a man's lifetime depend on the way in which he can fit himself into the community and solve the problems which come his way. These problems will be less clearly defined and much harder to solve than those he encounters as an undergraduate.

It is well known that much of the industrial prosperity of America depends on the universities. Yesterday I told you that when they celebrated the centenary of the establishment of the original agricultural colleges, it was computed that more than half of all the crops grown in the United States depended on work which had been done over the generations by the Land Grant Colleges and their graduates. And I explained to you that the great universities have the three-fold function of discovering new ideas, of teaching undergraduates and disseminating information all over the country in places where it can be of use, be it on the farm, or in the factory, nearby or remote. The great University of Wisconsin adopted as its motto, "The boundaries of the campus are the boundaries of the state". Wherever a problem existed with which the University could help there its men went to try and solve it. Where they could teach people, there they went. I believe Ghana could well adopt this wonderful American tradition.

But, I have over-simplified the story. Every industry needs a great variety of people. It needs trained, highly sophisticated engineers to direct the work. But for every graduate engineer it may need a dozen men less highly qualified but able to take instruction, operate machines and work with technicians. It is easy to have too many generals, too few soldiers. Or to put it the other way round, we have not enough technicians for our engineers. The structure of the labour force in a factory is defined by the nature of the task to be performed; usually it is like a pile of stones, it needs a big foundation and only a few at the top. It is only too easy to find a factory which has been forced to make use of qualified engineers as rather inadequate craftsmen because there are no properly trained craftsmen to be found. How can Ghana produce technicians and skilled craftsmen in sufficient numbers to exploit the ideas the engineers are producing? We have the same problem in England. A perennial

shortage of skilled men has often prevented the expansion of British industry when we had capital and graduate engineers in plenty and an assured market.

It gave me great pleasure to see how part of this problem is being solved here in Kumasi, particularly in the College of Art. I have seen the new hand looms which were developed and made here. It so happens that Mr. Baah, who is the Head of the Department of Weaving and Textile Technology, was a student in UMIST when I was there and we have been able to send UMIST staff to help him from time to time. Mr. Baah has developed a method of weaving very beautiful cloth. Ghanaians are very skilled designers and this valuable ancient tradition must be preserved and used. Beautiful cloth in great variety is being produced today on looms designed and built in Kumasi and the looms themselves are cheap enough for ordinary Ghanians to buy them and set themselves up as weavers.

Most of the investment that has been made in Ghana has been funded by such people as The World Bank and it has been very capital intensive. In other words, it has involved an enormous investment for a relatively small number of jobs. The great Akosombo Dam and the great Aluminium Smelter which it feeds cost about 400 million cedis. So far the Aluminium Smelter employs about two thousand people, that is to say, every job costs 200,000 cedis to create. Mr. Baah's looms cost perhaps two hundred cedis each, and each loom can occupy a weaver. This useful, simple local development is in the best tradition of the A & M Colleges of America in the last century. Kumasi University has begun to develop a new industry which might be of great importance to the whole economy of Ghana, and which may provide work, and poor cash, for men in remote villages. You can employ a thousand weavers for the price of a single job in Valco. It is just as important to report that ordinary Ghanaian technicians can make the looms in the university workshop. The cloth is made from cotton grown near here, spun in Tema, woven and printed in Kumasi and sold in local shops. It would be quite wrong for the university to become a large manufacturing organisation. But it is very much to be congratulated on the fact that it has already created an industry which might grow and bring prosperity to the villages in which the weavers will live.

I have seen your university potters. They, too, are developing an ancient craft industry. They are improving the techniques and they are making some very beautiful pots based on Ghanaian designs and traditions, both old and new. They are demonstrating the very important fact that ordinary people can afford to establish themselves as small-scale operators in the villages. They will increase the prosperity of the rural population and produce a product which is useful in Ghana and can probably be sold abroad as a source of the

foreign exchange which Ghana so very much needs. The water pumps which your engineers have developed may prove to be vitally important elements of a small-scale industrial revival which is appropriate here in Ghana in present circumstances. How splendid that you had to seek the help of local craftsmen to make the castings. It would be absurd for an American University to do this sort of thing today, and it would be just as absurd for Ghana to try and make the very sophisticated things that the Americans want. Every university has to adapt itself to the circumstances of the place in which it is situated.

The Technology Consultancy Centre which has been established here tries to help ordinary men who have no great resources of their own to set themselves up in business and explicit what the university has done.

The Department of Agriculture has done great things too. When I first came here Professor Twum Barima was in charge. How nice it is to see him here today. How proud he must feel when he looks around. The man who was breeding pigs knew them all as his personal friends. I remember that he brought a leg of pork round for us to eat and he said, "This is Henry's hind leg, treat it kindly. I was very fond of Henry". I believe that most of the pigs in Northern Ghana have an ancestor who was farrowed here. I went and scratched the ear of one of the sows on the farm yesterday and told her as I did it that I had scratched the ear of her great, great, great grandma. I hope she was suitably impressed! Better pigs will make Ghanaian farmers happy for generations to come, and so will the healthy cows, and the new vegetables and so, perhaps, will the beautiful roses I saw half a mile from here.

One of the most famous roads in the whole of America is called Route 128. It runs round the north of Boston and all along it are factories which are developing and manufacturing products which originated in the Massachusetts Institute of Technology. There is no reason why the same sort of development should not happen here. The new factories will not be making, shall we say, transistorised computers for the Air Force, nor will they be making gyroscopes to stabilise aeroplanes or High Voltage X-ray machines, but they will be making products which have been developed here in this university and can become a source of prosperity to the community. You should be proud of the traffic lights which were designed and built here. Don't underestimate the importance of the first glue factory in Ghana or a plant which can dry and preserve bananas, and don't on any account ignore your metal jobbing shop. They all exist, thanks to Kumasi, and they are doing well. Other factories will be built before long to weave cloth perhaps, or to make ceramics, who knows? I hope they all succeed. Some clever men have just thought of a special name for this sort of thing. They call it "appropriate technology". Kumasi has had it for years, even if you never thought of the name.

Academics must never forget for a moment that unless the community is prosperous the universities cannot survive. If universities become "islands of privilege in a sea of poverty", as they have in some countries, they will inevitably be destroyed. It is only by justifying their existence as sources of wealth, as well as becoming centres of intellectual vitality, that the universities can persuade the public to support them on the scale they hope for. You may perhaps say that the new industries I have mentioned are very simple and unsophisticated. In my opinion, no-one who has not tried himself to make a pot or to weave a piece of cloth is in a position to describe it as a simple operation. The skills which are required are quite different from the skills which a man needs if he is to write an English essay. All conventional education systems attach too much importance to the skill a man has with language and symbols and place far too little emphasis on the skill he may have in his hands and in his ability as a creative designer. Academics forget that we all depend on ordinary craftsmen for the food that we eat and the clothes that we wear as well as the building which shelters us and the chairs on which we sit.

I would like to pay my tribute to some of the work of your Department of pharmacy. Ever since I first came here, the staff and students have been investigating the medicinal properties of local plants. These investigations seem to me to have great potential. They may make it unnecessary for Ghana to spend precious foreign exchange on importing expensive drugs and they make it possible for Ghana itself to become a major exporter of some of the drugs which can be developed here. I hope very much that you are able to undertake most of the purification and refinement of the drugs, and that you don't merely provide raw materials to be processed abroad. You already have most of the scientists, the engineers and the technicians you will need in your Department of Chemical Engineering. I believe that this could be an enormously important growing industry and that it would not make excessive demands on your very scarce capital. I hope you will be able to employ hundreds of specially trained farmers and foresters and chemical engineers and pharmacists, and make the fortunes of all of them.

The day before I left England to come here I saw an extraordinarily interesting programme on English television which described the way in which "the pill" was developed. I presume that the word "the pill" is as well known here as it is in England. I am referring to the fertility pill which at this very moment is controlling the population of the earth. It has transformed the relationship between men and women everywhere. This pill was invented by an eccentric American who knew that some of the hormones which control fertility in women are like steroids which exist in certain plants. He went to Mexico with a botanist to look for the root of a plant which he thought was likely to contain these steroids. The Botanist

ran away so the American went as far as he could into the jungle on a bus. He searched in the jungle—alone. He brought two roots back with him to the States, one of them was confiscated by the customs people, goodness knows why, and he took the other one home. From it he extracted the steroids he wanted and from the steroids he made the hormones upon which the pill depends.

A revolutionary new industry depends on the existence of a particular plant in the jungle of Mexico. There is no reason to believe that Mexico is the best source of these steroids. What is going to be found in the jungles of Ghana? The search is exciting. The devoted members of the Faculty of Pharmacy have already done a great deal, and they have much more to do. We all wish them the very best of luck. They, too, may create an industry which will provide a decent living for the thousands of farmers upon whom this University must depend. And, let us never forget, as I have said before, that the cost of educating a Ghanaian student in Kumasi is as great as the cost of educating an English student in England. But the income earned by an ordinary Ghanaian, a farmer, let us say, is very, very much less than the income earned by an ordinary Englishman. It costs as much to educate a student here as an ordinary farmer earns in his lifetime and this farmer may be the father of one of the students here. Unless ordinary men are persuaded that the universities contribute in some ways to the prosperity of the country as a whole, it is not reasonable to expect that the universities will be maintained as they are today.

I believe the future of Kumasi may be as important in Ghana as M.I.T. has been in the United States. You have it within your power through techniques which your staff and students can develop to improve the disposal of sewage and the provision of pure water which would do more for the health of the population than all the medical schools in the world. You can improve agriculture, improve engineering, improve pharmacy, improve pottery and establish a whole series of industries on a scale with which you can cope, industries which will not demand enormous investments of capital, industries which will make ordinary people more prosperous, more happy and more content than they are today. There can be no more noble ambition than this for a university anywhere in the world.

This university is adapting itself, as it must, to the peculiar problems of the community. I hope that its senior engineers will develop the new ideas that I have spoken of and many, many more as well, the very nature of which cannot now be foreseen. I trust that the university will educate the men who will be needed to execute the work.

I have had great difficulty all my life from university dons who say that some of the subjects we try to teach in Manchester are not proper university subjects. My own opinion is that any subject

which universities can teach and which the country needs to know, is a proper university subject. This University of Kumasi can develop in such a way that its influence on public health, on industry, on commerce, on trade, on pharmacy, on drugs, on engineering and particularly on agriculture, will be of profound importance to every citizen in Ghana.

That brings me back yet again to the enormously important question—how is all the information to be taken from here to the remote parts of Ghana? It is not possible to wait until graduates go there to settle. Older men must be able to learn too, and they can only be taught by the university. I remember that Mr. Baah once told me that men were coming from all parts of Ghana to sleep on the floor of the weaving shed so that they could see the looms which they hoped to buy and take home and with which they may be able to double their income. It is an inescapable obligation of a university such as this to send out missionaries, into all parts of the country in order to explain to the people how and why they can use new techniques to improve their own standard of living, how they can free themselves from water-born diseases, how they can make their farms more fertile, how they can make their businesses more prosperous and how they can start new ones. The future of this great University of Kumasi will be as important in Africa as the Land Grant Colleges were in America a hundred years ago.

And now, I would like, if I may, to change the subject and talk about the most dangerous of all the problems which threaten universities today, both here and everywhere else in the world. And that is the problem of inflation. The cost of university education has been growing for a very long time. Our Chairman, Dr. Ankomah, knows the figures better than I do, but I am sure that for 20 years or more the cost of providing education in Ghana went up every year by as much as 20 or 30 per cent. I will quote some figures from Great Britain to illustrate a world-wide problem. For a long time the cost of our university science education grew at about 16 per cent a year. When I was myself a student in Cambridge, I worked with Lord Rutherford in what was then the most famous physics laboratory in the world; his total budget for research was £2,500 a year. And with that he produced nine Nobel prizemen who were on the staff when I was there. Never in the history of science have so many Nobel Prizes been won at so small an expense—it will never happen again. He used to say to us, "We have no money, so we shall have to think". That is not a bad motto for any university. But the point I make is, that for a very long time the number of scientists increased every year by about 10 per cent. The cost of equipping each scientist increased every year by 6 per cent and the total cost of scientific research increased by 16 per cent a year. When I was the

Minister responsible for these things in England, I travelled to America and to Russia and found that in both countries the cost of scientific research was increasing about as fast as it was in the U.K.—and it had been doing so for a very long time. The economy of the country had been growing much more slowly. It was impossible to go on increasing the cost of science at 16 per cent if the gross domestic product, which means the wealth of the country, is growing at 4 per cent. I wish we were developing at 4 per cent today—what happy days they were. In Russia they told me that anyone who mentioned such a subject might be asked to go to Siberia for an indefinite time. Americans said if the cost of science had been increasing at 16 per cent for a hundred years, this is obviously the figure that God had ordained and we might as well stick with it. Only in England did we seem to realise in time that the process had to come to a stop. For many years the cost of running universities' science departments had increased at the rate of 16 per cent every year, while prices in general were rising quite slowly—that was before inflation came to stay. But in the last few years prices have been rising much faster than the inflation of the cost of the universities. It is extraordinary to remember that prices used to rise by three per cent a year and university budgets increased four times as fast. Today the cost of universities is hardly growing at all in real terms, but the inflation of all prices is growing dramatically. In England we are told that our inflation is at a rate of 15 or 20 per cent per annum. In Ghana it may be as much as 60 per cent per annum.

Inflation has already destroyed more than one great civilisation. At the beginning of the second century of our era, inflation spread throughout the Roman Empire at an average rate of 12 to 15 per cent per annum, and it continued for more than a hundred years. Prices rose several hundred thousand times. The price of wheat rose three hundred thousand times in a hundred years. This meant that the whole fiscal system collapsed. It was impossible to collect taxes. They couldn't pay the army. The barbarians invaded; the Roman Empire of the West was over-run, and that was the end of the greatest civilisation that the world had ever known.

In 1919 John Maynard Keynes, who was the greatest economist of his time, observed with horror the rapid inflation which was then occurring in Austria, in Italy, in Germany and in France. He said that Lenin had already decided that the best way to destroy the capitalist system would be to debauch the currency. Keynes wrote, "In times of inflation governments can confiscate, secretly, arbitrarily and unobserved, a very great part of the wealth of their citizens and, furthermore, all the forces of economic law are involved in the process of confiscation".

The same unsuccessful remedies for inflation have often been tried. Before the end of their century the Emperor Diocletian introduced a very complicated prices and incomes policy; he fixed the wages of workmen and the prices of all ordinary commodities by law. He enforced his rules by the use of the death penalty. After five years he found that prices were still rising. And so he abdicated and divested himself of the imperial purple. He spent the rest of his life growing cabbages. In England we have had a prices and incomes policy which was introduced by Mr. Wilson. He too, found that it didn't work very well and so he resigned. He has retired to the Scilly Islands and he, too, is growing cabbages. It is a remarkable coincidence. Unfortunately, most prices and incomes policies have been equally unsuccessful.

But the remarkable thing is that a really effective remedy was described in some detail very soon after the death of Emperor Diocletian and it was announced by no less a person than the Prophet Mohammed. Perhaps the word remedy is inappropriate, I really mean that he proposed a method for survival in spite of inflation. I hope that those of you who are Moslems will recognise the ideas I shall describe and that the rest of my audiences will be willing to study a very old solution to a problem which has been with us as long as men have used coins to buy and sell. The real problem of inflation is that nobody knows what he is going to get for his money. If you lend something to someone, you don't know what the debt will be worth when it falls due. In times of inflation you never can get back a sum which represents the same purchasing power as the sum which you loaned. I would like to quote a simple example. In the year 1952 the British Government issued a series of bonds (Consols, we called them). One hundred pound bonds were sold to the public for 98 pounds to earn $2\frac{1}{2}$ per cent interest. Today a hundred pound bond is worth only sixteen pounds and the sixteen pounds are worth no more than five pounds would have been in 1952. A man who invested in Government stock in England in 1952 has lost 95 per cent of his investment in real terms. I think that this procedure is scandalous, but all governments do it without the citizens realising what they are up to. Thousands and thousands of English people have trusted their savings to the government or to the bank or to a building society, or to a fellow citizen and found that the money they are repaid after a few years is not worth having because it will buy nothing.

And yet the remedy for this scandal was enunciated in the Koran. I shall quote the text from memory, "when you repay a loan, do not repay money for money, but you repay gold for gold, silver for silver, camels for camels, tents for tents, corn for corn and salt for salt. Better measure for measure. Everything in its own way". This means that a Moslem who borrows money from a member of the same faith repays a sum equivalent in purchasing power to the sum he borrowed

I will give you what may seem to be a widely improbable example of the application of this principle. I shall consider the question of Blood Money. If one Moslem kills another, he has to recompense the family for their loss. But if he absconds and brought to justice 20 years later, how much will he have to pay then? The adjudicators work out the price of a shopping list. When the man was killed the family would have liked to buy some tents, some camels, some horses, some food and other things, with the money they should have been given at the time. How much money do they need today to buy the same commodities? This is the sum they can now demand. This is, in a nutshell, the principle which has dominated Moslem trade and commerce for much more than a thousand years. Since the Moslems controlled the world from the Atlantic Ocean to the Pacific the idea must have merit. Their merchants bought and sold among tribes whose languages, currencies and traditions were infinitely variable. Our own Chancellor of the Exchequer issued some special bonds last year which he would only sell to old age pensioners like me. A bond cost £500. However, long I keep mine I know that when I sell it I shall get a sum of money which will buy the same amount of goods as the money I invested last year. To use a technical phrase, the bonds are indexed to the cost of living. When our Chancellor introduced these bonds he thought he was doing something new and unprecedented. He did not know until I told him, that similar bonds could have been bought from the bankers to the Caliph of Bagdad a thousand years ago.

The traditions of Islam have suddenly become fundamentally important now that money can no longer be used as a long-term standard of value. Money will always have to be used as a medium of exchange, even if most transactions are based on barter—the simple exchange of goods for goods, but money has become useless as a standard in which value can be estimated. That is why inflation is so dangerous. I have no idea how many Moslems there are in Ghana, but I think their tradition may help in a very fundamental way to save the economy of the country.

Several other countries have applied the same principle without realising that it is more than a thousand years old. In 1948 China was taken over by the Communist Government after years of Civil War. The economy had collapsed and inflation reached the level of 10 per cent a day which was worse than anything that ever happened in Germany in the 1920's. Your inflation in Ghana is no more than one or two per cent a week and that is bad enough. Imagine what inflation nearly a hundred times as bad as yours would be like. Something desperate had to be done. The Chinese Government did two things. It indexed wages; every week a man's wages were adjusted to the cost of living. It indexed bank loans so that a man who put his money into the bank could be sure that when he withdrew it, he would receive a sum of money, the purchasing power of which was as great as the purchasing power of the money he put in. The only

people whose money lost its value were those who kept it hidden. The Chinese used a very simple index which depended on the cost of five important commodities. They were, rice, millet, cooking oil, fuel and cotton cloth for making clothes. The average price of these five commodities fixed the rate of wages and the rate of bank loans. That was in 1948. Indexation made industry more confident and increased production began to reduce inflation. Within two years inflation had stopped, although it had been a hundred times as bad as it is in Ghana today. After 1952 they were able to relax and simplify the system. But from 1952 to 1976 prices in China have risen 7 per cent and fallen by 5 per cent—an overall change of 2 per cent in 25 years. This is an astonishing achievement which has made it possible for China's commerce and trade and industry and manufacture to thrive.

Much the same system was introduced in Brazil about twelve years ago. I have met the Brazilian Ambassador to Great Britain who was Finance Minister in Brazil at the time. He believed that he had invented something quite new and strange. He had no idea that he was following the precepts of the Prophet Mohammed and the experiments of the Chinese. In 1964 inflation in Brazil was between 60 and 100 per cent a year, much as yours is today. Industry was stagnant. People would not invest in factories and couldn't get mortgages to buy houses so no houses were being built. Every one rushed out and spent their wages as soon as they got them. The whole trade and economy of Brazil was stagnant and ordinary people could not buy food to eat. The Government introduced widespread indexation. They began by indexing all government bonds much as our own Chancellor has indexed the five hundred-pound bonds for old folk. People bought the bonds and the money provided cash for mortgages, so the building trade started again. The Brazilians went much further. They indexed wages to the cost of living. They indexed the rents of houses, they indexed the value of the assets of manufacturing firms as well, so that the directors didn't find themselves running valuable plants which seemed to be worth nothing in the books. Today Brazil has the most prosperous economy in South America. Their inflation is down to 20 per cent which is only one-fifth of what it was, whereas inflation in Argentina which has not introduced indexation, was three hundred and twenty per cent last year. The economy of the Argentine is in ruins, that of Brazil is prosperous and successful. The Ambassador told me that Brazil can cope with inflation at 20 per cent with less trouble than we had in England when our inflation was 5 per cent.

The idea that one can establish a standard of value which is independent of money, but depends on commodities instead, seems to me to be of enormous potential importance and I believe that it could be used in one way or another in this country. I am sure that the Mammies who run your markets would understand the

idea. Most of their transactions are a complicated form of barter anyway. The idea is simple enough and we are apt to underestimate the fundamental good sense of ordinary merchants, both ancient and modern. Men have always liked the idea of a stable standard of value once they understood it. And in some form or another the basic idea has been invented many a time. I will give you another example. Our own King Edward I went to the Levant as a Crusader and there he was exposed to the ideas of the Moslems. When he came back he decided that the pensions of his civil servants must be indexed. In other words a man's pension was not computed in terms of money, but in terms of purchasing power. A man was entitled, after he had served the King, to a standard of living and not to a sum of money. These pensions were called Corrodies. They could be bought for cash by ordinary citizens from Abbeys, cities and other institutions. A man who had one was entitled, let us say, to a room in a castle with food, wine and raiment, fuel and a horse and a groom and stabling for the horse. He had all this for the rest of his life quite independently of the value of money. All of these principles were defined by law in 1285. Members of staff in Kumasi who are about to retire know only too well that the value of their pensions will decline if they stay in Ghana and that they will have difficulty in buying the ordinary essentials of life in 10 years' time, if prices go on rising as they are today. They would have done better 700 years ago in England. They might have done better in Babylon or Bagdad a thousand years ago. Does anyone know how old men were looked after in Ghana in the old days? After they had finished their life's work, how were they fed and housed and cared for? did they have to depend entirely on their families? Or did the ruler whom they had served make certain that they were properly looked after as long as they lived? It would be interesting and important to know. Perhaps our ancestors have more to teach us than we realise. Why must we all endure the tyranny of a fiscal system which depends upon money which loses its value as we watch it? Our ancestors seemed to know better than we do, in a very fundamental sense their fiscal system was fairer and more honest than ours is and it seems to have been much more effective than ours when ever it has been tried.

The principle I am talking about is very old. It has been rediscovered several times, but to some people it is still very new. It has been introduced more than once and it has saved the economies of several countries which seemed likely to be ruined by inflation. I think it must be part of the ancient traditions of Ghana. I think it should be studied in Ghanaian Universities by the Department of Economics, by the Department of Accountancy, by the Social Scientists, by the Engineers and by everybody else to see whether it is possible to introduce it here, and if so, how?

If nothing of the sort is done, I do not see how the country can survive. How can trade and commerce flourish if there is no standard

of value by which the products can be measured? In Brazil the current standard of value is not something like a thousand cedis or a thousand pounds, it is instead one standard indexed minimum annual wage. This is a figure which is adjusted every six months to the cost of living. A man working in a factory finds that his wages are automatically adjusted so that his purchasing power is sustained. When a Brazilian buys a house, he does not pay for it in Brazilian money, he pays for it in terms of a certain number of minimum annual wages adjusted to the cost of living and he pays his mortgage in the same units.

In 1926 Sir Winston Churchill put the pound sterling on the gold standard at the equivalent of 4.85 American dollars. He once said in later life that he wished he had introduced what he called "The commodity pound" instead. If he had done so, the whole tragic history of the great slump of the 1930's would have been very different. Brazil's standard indexed minimum wage is nothing more nor less than Mr. Churchill's "commodity pound" in another form.

This is all I have time for so I would like very briefly to summarise what I hope I have said to you in these three lectures. I tried to explain to you that universities are places of enormous importance to all great countries. They have had a most turbulent history, sometimes they have been destroyed by outraged citizens and indignant kings, but no country can prosper without them, so they have survived. A few years ago the presidents of America and France were overthrown by a popular revolution led by students. I have tried to explain to you that one of the most important functions of a university is to sustain the dialogue between dissent on the one hand and authority on the other, because it is upon this dialogue that the progress of the community depends. It is upon the results of free discussion conducted with reason on both sides that policy has to depend. And universities have been the most important centres of this discussion for the last 700 years.

I have said that every university has to be adapted to the community in which it is situated; that it is an integral part of the community and that it will lose public confidence if it becomes a centre of abstract thought which is totally unrelated to the work of the society in which it lives. Nevertheless, abstract thought has an essential role as one of the functions of every university. Sometimes the abstract speculation of scholars can transform society. A university is part of a society, much as a leg is part of a body. The two depend upon each other and profoundly influence each other for good or for evil. And everything depends on the way the university itself makes sure that its influence is for good and not for evil.

A university is part of an international society as well as being part of a local community. If its loyalties are wholly to the international society, and it ignores its local community, it will lose

touch with ordinary people and sooner or later it will die for lack of the money which the community provides for it. If it concentrates entirely on the local community, the international society of scholars will ignore and let it wither away. Its survival depends on a nicely adjusted balance of interests.

Every doctor, every physicist, every engineer is a member of a profession whose members are to be found in every country in the world. Professional loyalties ignore the boundaries of the country in which a man is living. It was one of the great glories of the mediaeval universities and the mediaeval church that they were all part of a world-wide society within which people could move freely. Scholars have been wandering all over the world for hundreds of years. Some have gone to learn, others to teach. You have scores of them here in Kumasi and you couldn't do without them.

The responsibilities of modern universities all over the world are many and complex. They are particularly complex in the developing countries whose universities are so young, and so relatively inexperienced. I think that your great University will save itself by its own exertions, and that it will help to save Ghana by its example.

May I wish you the very Best of Good Fortune.

LECTURE FOUR
*UNIVERSITIES AS CENTRES OF SCHOLARSHIP—
ANCIENT AND MODERN*

YOUR EXCELLENCIES, LADIES AND GENTLEMEN,

I GAVE the first three of my Robert Baffour Lectures in Kumasi; I am to give one here in Legon and I shall give the fifth in Cape Coast. Perhaps I should begin with a disclaimer. Many of the ideas I discussed in Kumasi, and most of what I shall say today, are controversial and would be repudiated by many of my fellow countrymen. I have never been worried by accusations that I am unorthodox, or heretical. My ideas are my own. I hope they interest you and entertain you, but do not assume that they represent anything like the consensus of English academic thought. They don't, but I think they are none the worse for that!

I began my lectures in Kumasi by talking about the history of the universities which we all know so well. They began their turbulent story seven hundred years ago. The Catholic Church, the Holy Roman Empire and the universities of Europe were the three pillars which supported the whole world in the Middle Ages. The universities dominated intellectual life and they educated most of the recruits to the three learned professions of the time; law, medicine and the Church. Since those early days they have changed dramatically, they have multiplied in number and spread to every corner of the earth and at this moment they find themselves facing some of the most formidable and intractable problems which have ever confronted them.

Ghana built this lovely University of Legon less than thirty years ago and deliberately modelled it on the pattern of our ancient universities of Oxford and Cambridge in England. You did so because everyone concerned believed at the time that they were the very best universities in the world. I did not believe that this was true at the time, and in my second lecture I suggested that Ghana might have done better had she based her plans on the so-called "Land Grant Colleges" of America, as they existed in the 1890's when America was itself a developing country, anxious to increase the efficiency of its farms and factories, and attempting to educate thousands of ordinary people for the rapidly increasing number of professions which they hoped to enter. These Colleges have since grown into the great State Universities which dominate so much of American education, but they were first established by President Lincoln when he signed the Morrill Act in the middle of the Civil War, just after the battle of Gettysburgh in 1862 in one of the darkest hours in American history. I shall tell you more about them in a moment.

When Robert Baffour was a schoolboy he was taught by a most remarkable Englishman named Charles Deakin who spent twenty years of his life in Achimota. He had virtually no resources and he had no assistance, but he created a school of engineering which was so efficient and so well equipped that he was able to educate his young men to take the examinations of London University for degrees in engineering. Robert Baffour was the first engineering graduate from Achimota School and when his examination result was announced, the boys of the school carried him, and his master, round the campus shoulder-high. Deakin was years ahead of his time and I hope I may be forgiven for reminding you of his incredible achievements today. They should have been the foundation upon which university education in Ghana was built, but he was ignored by the scholars who founded this University of Legon and his engineering school has been almost forgotten. He went home a frustrated, disappointed man, but Cambridge welcomed him. He joined the staff of the Engineering School and he went to live in rooms in Queen's College which had been occupied more than 400 years before him by Erasmus of Rotterdam, who first brought the New Learning to England. What could have been more appropriate? What could have demonstrated more clearly how ancient and how modern my own University of Cambridge can be? Deakin had graduated in mathematics and engineering in Cambridge before he first went to the then Gold Coast to bring new knowledge and learning to the boys of Achimota School.

When Legon was founded, Ghana needed civil servants, she needed administrators of all kinds, and politicians too, and she needed engineers. Thousands of Ghanaians were suffering from river blindness, from malaria and from other diseases which exist because of the problems of separating men from their own excrement. Deakin and his pupils had drained the marshes round Achimota and Legon which once filled the skies round here with mosquitoes. I was myself denounced as a philistine or worse because I said that, although Ghana desperately needed thousands of men who could dig ditches and bore for water, all her limited resources were being devoted to the education of a select few in Legon who were learning Euripides in the original Greek from devoted expatriate Englishmen. I never suggested for one moment that Ghana could have been administered by well trained plumbers, although goodness knows, she needs them still. Your new-born country needed administrators who could hold their own with their opposite numbers anywhere in the world, and Legon educated them. Many of Legon's classical scholars are in positions of authority today in the government and in the civil service. Some of them are working alongside graduates from the forgotten school of engineering in Achimota.

But Ghana waited for nearly ten years for the establishment of a school of engineering in Kumasi to follow Achimota and make

Charles Deakin's dream come true. What a wonderful thing it was that in spite of everything that went wrong, it was Deakin's very first pupil who became the first Vice-Chancellor of Kumasi.

No country can ever import a system of university education ready made from somewhere else. Universities have to grow and adapt themselves to the community in which they are embodied. They have to make sure that they teach the right things to their students and it is therefore not surprising that Legon has already moved away from the original ideas which she adapted from Cambridge. It is always best, I think, to co-operate with the inevitable if one can only find out what it is. I have been delighted to discover that policies which did so much for America when they were invented in President Lincoln's Colleges are now firmly established here, although neither Cambridge nor Oxford has heard of them. My time is short, but I would like to single out one recent development which seems to me to be very important indeed, both now and in its promise for the future, because it shows how the university can make certain that the subjects it teaches are useful and helpful to the community.

The new American Colleges devoted their efforts to agriculture and the mechanic arts. They realised from the very beginning that they had three quite separate tasks to perform. First of all they studied all the problems of agriculture to which they thought they could contribute and the faculty became as well informed as any men of their time. In America in those days, as in Ghana today, very few of the farmers had ever been near a university so the new universities invented a system of Extension work. Members of staff travelled all over the country. They taught local farmers how to get rid of weeds, how to cure their sick cows and how to grow better corn. Then they came back and told the faculty if their latest ideas didn't work and what the real problems of the farmers were. Extension work was a two-way process, a continuous dialogue between the farmers and the Faculty. It was so important that the University of Wisconsin adopted the motto, "The Boundaries of the Campus are the Boundaries of the State". The University began to use a long-wave radio station to broadcast educational programmes in 1918—long before anyone broadcast anything in Europe and years before our British Broadcasting Corporation began. I believe that Legon and Kumasi have both understood the quite fundamental significance of this philosophy. Either or both of them might adopt the Wisconsin motto officially or unofficially.

I have left the third function of these universities till last, if only because some people imagine it to be the only important thing that universities exist to do. They taught undergraduates and to the best of their ability they taught them what they wanted to know and what they expected to find useful to them.

The great American West was conquered in the laboratories of the Land Grant Colleges and their graduates tamed the Continent. When they celebrated their 100th anniversary in 1962, it was computed that of all the food then being grown on the North America Continent, more than half depended on the work which had been done in the Agricultural Departments of the Land Grant Colleges by their Extension work, their research programmes and their undergraduate teaching. Today American food is more important than all the oil in Saudi Arabia. Russians and Chinese and Indians all have to buy wheat from America in order to survive. The world, as we know it, depends entirely on the work of those Colleges which have since grown into the State Universities which dominate American education today.

I was delighted to discover that the agricultural work of this University and of the University of Kumasi is being made known all over Ghana by your Extension service. It is impossible to over-emphasise the importance of this work. One cannot contemplate any system of agricultural education which does not involve a two-way transfer of information from the university into the field and from the field back into the university. The School of Agriculture must be made aware of the problems which beset the farmers as soon as the farmers have learned and applied the latest ideas from the university. Finally, I must stress the fact that Extension work can be just as important to such faculties as administration, taccountancy, medicine and of course all branches of engineering, as it has ever been to agriculture. You have created a splendid tradition and I hope you can build on it. It will make all the difference if you can.

When one has paid tribute to the work of these new American foundations, one must reflect too on the enormous significance of Harvard—a University which was established by a member of my own Emmanuel College, Cambridge, to be a centre of classical scholarship. The tradition which inspired its founders inspired those who founded Legon. Its graduates have become distinguished politicians, civil servants and scholars and they are among the most famous of all American citizens. It would be absurd for me to tell you from this platform how so much the graduates of Legon have done for Ghana.

The next topic I discussed in Kumasi, and which I propose to talk about in more detail this afternoon, is, I believe, the most serious and intractable problem confronting the universities in your country and in mine, as well as in many other parts of the world. In England and in Ghana many people seem to have lost the drive and self-confidence which once made them plan for the future and work to create wealth. It seem to me that in your country and in mine the rewards for hard work are less than they should be, particularly

if the work results in the production of such things as corn or cocoa or manufactured goods. The salaries earned by people who do this kind of work are very much less than those which can be earned in Government service and in other office jobs which are pleasant and easy, but do not add to the real wealth of the community. And it seems to me that your country and mine are both in very considerable danger because of this apparently irresistible trend away from productive industry. People simply do not believe that work on farms or in factories will get its proper reward, either here in this world or in the hereafter. Why should this be so? There are many reasons, but one in particular is overwhelmingly important.

Both your country and mine are suffering from rapidly rising prices. I would like, if I may, to speak to you about the insidious, all pervasive and sometimes unsuspected results of inflation and the way they affect the prospects for universities and our hopes for national survival. We all know that the universities are an integral part of society and they can only prosper if society prospers. It may well be that a community can survive for a few years without universities, but it will never become the ideal society which we would like to live in, nor can it hope to prosper in the long term. I confidently link the future of all universities with the even more vital question of the success of the communities which embody them.

Inflation has been with the world for many thousands of years. I hope to explain to you that some of the most remarkable and effective techniques for living with and surviving inflation are to be found in the ancient traditions of Ghana. I hope that when I have finished my story some of the historians, the economists and the accountants here in this Great Hall will be willing to study these old traditions. If I may say so, I think that you are in a uniquely fortunate position, almost all the records you will need must exist in Ghana. Can the ideas of your ancestors help the merchants, the workers and the governors of modern Ghana?

Rapid inflation has occurred many times in the past and it has helped to destroy great civilisations. In the year 200 A.D. the Roman Empire was supreme, prices were stable, trade flourished. The golden age of the Antonines had lasted for 100 years and the world had enjoyed the most prosperous and happy time which it ever was to see for nearly 2,000 years. Edward Gibbon assured us that for ordinary men it was the best epoch of which records can tell us. But then the Emperors discovered that by debasing the currency which Augustus Caesar had created, and by putting less gold in the coins, they could make an apparent profit for the mint. They used the profit to rebuild the city of Rome, to buy bread for the populace and to pay for gladiatorial games in the circus. It seemed an easy way for the Government to make money without

raising taxes, but unfortunately prices started to rise. Once inflation had begun no-one could stop it and prices went on rising steadily at something between a minimum 12 per cent and a maximum 40 per cent per annum for more than a hundred years. It is easy to forget what inflation at a steady 13 per cent will do. Prices rise threefold in ten years, tenfold in twenty years and a hundred thousandfold in a hundred years. Both England and Ghana are averaging much more than 13 per cent, but we haven't had inflation every year for a hundred years at a time—yet! The price of wheat in Rome rose more than three hundred thousand times. Trade and commerce collapsed. Farmers were so overtaxed that they stopped growing crops. It became impossible to collect taxes from anyone. No-one could pay the army. Barbarians attacked and conquered the Western Empire. The new city of Constantinople became the capital of the Eastern Empire and of those parts of the West which survived the Barbarian invasion.

In the year 290 A.D. the Emperor Diocletian was in despair; he issued a famous edict and I wish to read part of it to you. This passage was not taken from yesterday's "Ghanaian Times", as you might think. It was written by a Roman Emperor seventeen hundred years ago. "If the excesses which are committed by persons of unlimited and frenzied avarice could be checked by some self-restraint, the situation could perhaps be faced in silence. But the only desire of these uncontrolled madmen is to have no thought for the common need. Among the unscrupulous, the immoderate and the avaricious, it is considered almost a creed to desist from plundering the wealth of all only when necessity compels them." The Ghanaian press could print this without altering a word. "Therefore we," this is the Emperor speaking, "who are the protectors of the human race are agreed as we view the situation, that decisive legislation is necessary. Profiteers charge extortionate prices for merchandise on such a scale that human speech cannot find words to characterise their practices. We have decided that maximum prices of articles for sale must be established. It is our pleasure, therefore, that the prices listed in the subjoined schedule be held in observance in the whole of our Empire." I have a list of hundreds of items, for example, the cost of a pound of pork, the wages of a carpenter, the cost of hiring a lawyer which, I may say, was excessive even in those days. He got 50 times as much for pleading for an hour in the court as a tailor earned by making a pair of breeches. And so on, and so on, and so on.

This must have been one of the first and most elaborate prices and incomes codes in history. The Emperor did his best to enforce his regulations by using the death penalty, but prices went on rising. After five years he became so disheartened that he abdicated from the throne of the Caesars and divested himself of the imperial

purple. He retired to his palace and spent the rest of his life growing cabbages. If I can jump nearly two thousand years, you may remember that we have had a prices and incomes code in England. It was introduced by Harold Wilson, who was Prime Minister at the time. It was not very successful, prices never stopped rising. Mr. Wilson resigned and he spends much of his time in the Scilly Islands, where, I believe, he is following the example of his illustrious predecessor and growing cabbages. I do not know if every statesman whose price code fails spends his declining years in this way.

I shall come back in a moment to the astonishing achievements of those men who discovered how to cope with Diocletian's inflation. But first I want to tell you about the inflation which occurred in many countries of Europe in 1919 after the first world war. You must have heard of the famous English economist, John Maynard Keynes. He had been an adviser to the English Treasury until he resigned to write a remarkable polemical book called, "The Economic Consequences of the Peace". In it he considered the effects of the inflation which was then raging in the fated countries of Europe. Keynes quoted Lenin who was ruling Communist Russia at the time.

"Lenin once said that the best way to destroy the capitalist system would be to debauch the currency". By that he meant, simply, to create inflation. Keynes went on to say that "in times of inflation Governments can confiscate secretly and arbitrarily an important part of the wealth of their citizens. Furthermore, they do so without the knowledge of the people concerned and they involve all the forces of economics and law on the side of the spoilers".

And that is why in my country, and in yours, institutions like hospitals, schools, concert halls and universities are so very much at risk today. Keynes like Marshall before him proposed that we should abandon the use of money as a standard of value and introduce a standard which was based on goods. A few years later Mr. Churchill (as he then was) became Chancellor of the Exchequer. It was he who put the pound sterling back on the gold standard at the old rate of 4.85 American dollars to the pound. He afterwards regretted it. He had yielded to pressure from his advisers. He had wanted to introduce a "Commodity Pound" instead. This seems to me to be the simplest way of describing the standard of value we are looking for today, all over the world. Had he been able to introduce it in 1926, Mr. Churchill might have changed the history of the world. It is one of the unanswerable questions—would England have survived the slump of the thirties without such terrible hardships?

You must be familiar with the concept of the "cost of living index". It provides a very useful way of measuring changes in the value of

money. But the extraordinary thing I have to tell you is this, that the very same idea which Marshall and Keynes were advocating 70 or 100 years ago, and which Mr. Churchill proposed in 1926, had been enunciated with great clarity by the Prophet Mohammed soon after inflation had helped to destroy the Roman Empire of the West. The Moslems had become only too aware of the fact that in times of inflation money cannot be used to decide how much a debtor really owes to his creditor when the time comes to repay his debt. He borrowed good useful money. It is quite inequitable for him to repay his debt with money which has lost its original purchasing power.

In England in 1952 the trustees of charities and of such institutions as universities were compelled by law to invest in government securities, for example, the bonds issued by the Consolidated fund "Consols" for short. Other people bought them out of patriotism or because they thought they were safer than other forms of investment. In that year £100 bonds were sold for £98 and they earned two and half per cent interest. Today these same £100 bonds are worth only £16 each and 16 depreciated pounds will buy no more than about 5 of the original pounds which the wretched investor used to buy the bonds. In other words, the government has confiscated at least 95 out of every 100 pounds which were entrusted to it by gullible, patriotic, law-abiding citizens a quarter of a century ago. Our Government is exploiting the opportunity which it gets in time of inflation, just as the Governments of Austria and Germany and Italy did under the horrified eyes of Maynard Keynes nearly fifty years ago. I think it is quite scandalous, but it still goes on in England today, and I suspect that it happens in Ghana too.

It never happens in countries which follow the Prophet, for it is written in the Koran that when a Moslem repays a loan he must not repay money for money, but he must repay:

"Gold for gold, silver for silver, corn for corn, camels for camels, dates for dates and salt for salt, the same thing, like for like, measure for measure".

I shall repeat this argument, for it is most important. When a Moslem repays a debt, he does not repay a sum of money plus interest, as we do, but he repays a sum of money which will enable the person from whom he borrowed the money to buy goods which are as valuable as those which he himself bought when he had the loan. This tradition persists in the whole Moslem world and it means that transactions between borrower and lender are more equitable, more just and more tolerable than those which we find in countries like my own and yours in which money is borrowed and then repaid when it has lost its value. The interest which is charged on money these days is never enough to make up for inflation.

May I give one rather curious example of the Moslem tradition in practice. A lady's marriage contract specified that if ever she were divorced she would be entitled to the return of her dowry. Her husband had used her money to start his business. After thirty years of married life what was her dowry worth? Some held that all her husband's wealth depended on the capital she gave him, others that her money had lost its value. It was decided by the arbitrator that her original dowry was rather bigger than most girls had been given at the time she married, so she received a sum equivalent to a large dowry at the time of her divorce. I once described this case to the Lord Chancellor of England. He said that the decision was based on principles unknown to English law, but, he thought, nevertheless, that it had merit.

I understand, Mr. Chairman, that this ancient tradition is well understood in this country. Many people must be familiar with it. The idea is so important that I believe that the University of Legon should try to see if any of these ancient ideas could be reintroduced into Ghana and if they were, whether they would produce some sort of stability into the ordinary commercial transactions of the day. The Prophet insisted that the value of a loan should be preserved when it is repaid, and he denounced creditors who charged interest which he called RIBA. He said, "Those who devour RIBA are the people of Hell and they shall remain in it for ever." But every society seems to need money-lenders and money-lenders have always charged interest. In spite of the fulminations of the Prophet, his followers have invented most ingenious tricks which make it possible for money-lenders to flourish without disobeying the strict letter of the Law. For example, they use the "double contract of sale". If I wanted to borrow £1,000 from the Vice-Chancellor, I could sell him my pocket-knife for £1,000 and undertake to buy it back from him in a year's time for £1,500. In other words, I should pay interest at 50 per cent without ever using the word. This scheme is still in use among the Moslems and I am told that 50 per cent interest is quite commonplace. It spread all over Europe, but it was expressly forbidden by a statute of our first Queen Elizabeth.

The Caliphs of Bagdad controlled an enormous empire. Their merchants traded all the way from the Atlantic Ocean to the Pacific. They themselves had all the problems of rulers who may have to wage a war and finance it before they have raised taxes. Many Caliphs had to raise large sums of money at short notice. Everyone needed a BANK. The court bankers had to finance their Caliphs so they raised money for him just as our own Bank of England does today. To help the merchants they issued bonds which, if I can use an analogy, were very much like an indexed version of American Express Travellers Cheques. You will not be surprised to learn that the very word "cheque" is Arabic in origin. A thousand years ago a man could travel anywhere in Asia or Europe carrying a document

with which he could buy food for himself and fodder for his horses. I doubt if men could travel so easily or so safely today. The same document could buy wool in England, or the alum from Algiers which was needed to process it. In those days the Academy in Babylon was one of the most important centres of learning in the world. Most of its students paid their fees with indexed bonds which had been issued by the court bankers to the Caliph of Bagdad.

Moslem law forbade unbelievers to hold important offices in the State. Nevertheless, the Caliph could not manage without his Bank and the Bankers could not operate unless they paid interest on the money they borrowed. So it came about that the Bankers to the Court of successive Caliphs were either Christians or, more often, they were Jews. When a Caliph came to power he had to swear not to appoint unbelievers to positions of authority and for centuries every Caliph went home and appointed a Jew to be his Court Banker. Some of them became very wealthy and once installed in office they were usually there for life. There is a record of one Court Banker who outlasted a dozen Grand Viziers. In England we have become accustomed to the idea that Prime Ministers may come and go, but the Rothschilds go on for ever.

This complicated financial system was created more than a thousand years ago and it lasted for centuries. It may have reached this part of Africa long before the first European sailors came here. Someone has investigated the way in which trade used to be organised and financed in the Sahara desert. How, for example, did an Algerian merchant pay his bills if he bought camels or dates in Timbuctoo? Apparently all such transactions used to be in the hands of a small closely knit tribe of Moslems who broke away from the rest a very long time ago and whose creed allows them to charge interest. The merchants who came to Timbuctoo may have come on here to buy Ashanti gold or ivory. The only point I can make with confidence is that they could cope with inflation better than we do and might be able to learn something from them. If I may repeat something I said in Kumasi, it may well be that the secret of your survival as a nation may be found in some of your most ancient traditions.

I have been told that the market women of Ghana, the Mamies, as I have learned to call them, use a system of barter which can survive inflation. Is this true? Perhaps the economists and accountants of Legon will be able to tell us.

Our own King Edward I went to the Levant as a Crusader and there he must have learned something of Moslem commerce. When he came home he introduced what I can best describe as indexed pensions for his civil servants. Now an indexed pension is really an entitlement for the rest of one's life to a particular standard of living. It does not mean that you are going to get £10,000 a year,

but it does mean that you will be able to afford to keep your house and pay for your food and everything else that you happen to need, whatever happens to the value of money. This is a perfectly reasonable extension of the Moslem tradition that when a debt is repaid the debtor must ensure that he hands over resources which will buy at least as much as the money he borrowed would have bought at the time. A pension is the repayment of a debt over a period of years. King Edward's indexed pensions were called "Corrodies" and their status in law was defined by the great lawyers who advised the King in a statute in the year 1285. A man could buy one for cash, or he might be given one in return for services rendered. It guaranteed his standard of living for the rest of his life. He might expect (let us say) a room in a Great House, service, fuel, food, liquor, clothes, a horse and its fodder. Lucky man! Some monasteries and a few towns sold Corrodies in order to raise ready money and because they did not understand the principles upon which actuarial calculations have to be based, they often sold them too cheaply—and then complained that their pensioners lived for ever! But that is another story. Members of the staff of this university who are about to retire may find it hard to believe as they face the possibility that prices may go on rising until they can no longer afford to pay them, that they would have been better off had they lived in England 700 years ago. They might have done better as members of staff in the Academy of Babylon a thousand years ago. But such is progress.

Mr. Heath, who was then our Prime Minister, introduced indexed pensions for our civil servants in 1972. He never knew, until I told him, that the idea was 700 years old. About a year ago Mr. Healey who is Chancellor of our Exchequer, introduced what were called indexed bonds for old age pensioners. An old man like me is allowed to buy one special bond worth £500. This bond earns no interest, but its purchasing power is guaranteed indefinitely by the government because it is indexed to the cost of living. Since I bought mine, it has paid the equivalent of 21 per cent after tax, this being the rate at which money has lost its value in the past couple of years. Although it earns no interest in the formal sense, it really earns more than any other type of bond one can buy. Most ordinary bonds really pay a large negative rate of interest these days. But to continue my story, these new bonds were claimed to be a novel and important innovation, the like of which this world had never seen before. No-one in the government realised that the Bankers of the Caliph of Bagdad were issuing exactly similar bonds a thousand years ago.

The point I make is that this concept of indexation is very ancient as well as being very modern. The ancients suffered from inflation just as we do and, like us, they tried to survive it. We are faced, as

they were, with the fact that we can no longer use money as a standard of value in the long term.

I have already told you how our Government borrows money from its citizens and repays them in currency which has lost its value. To put the matter another way, the interest rate on Government stock is much less than zero. Is that true here too?

I would like to amplify Maynard Keynes' remark that inflation ruins ordinary men in more ways than one. I shall use a few examples which I know from my own experience in England and I feel fairly certain that any country which is suffering from inflation as you are will have similar stories to tell.

Industry is robbed of its working capital by inflation. The procedure may not be the same in Ghana as it is in England so I will give you a couple of simple examples which are typical of the problems facing our industry. A friend of mine has six buses which he uses to take people round the country on trips. He paid £7,000 for each bus. His profits are apparently very big, but when his buses wear they will have to be replaced by new ones which will cost £17,000 each. The amount he will have been allowed to accumulate to replace each bus will be its original historic price of £7,000. so, he says, "apparently I am making a very large profit, but when my six buses have worn out I shall scarcely be able to afford three new ones". The money he ought to have been allowed to save to replace the old buses has been taken by the Government in the form of taxation.

About ten years ago a firm near my Institute installed a big machine and one of our academic staff studied its effect on the operation of the company. It is very difficult to do this calculation accurately, but he concluded that it had contributed about £30,000 a year to the profits of the company. The Government took half as corporation tax and most of the rest as income tax on the profits which were distributed to the shareholders. When the machine wears out, as it will next year, a new one will cost a lot more than the old one did. It will take the whole of the £100,000 that has been accumulated in the accounts to replace it as well as all the profit they thought they had earned. So that the company will have to raise an additional sum of money as big as the total profit they thought the machine had earned, in order to put itself back into as good a position as it was when it bought the machine in the first place.

There is no getting away from the fact that the Government has taken the capital of the company and spent it. This process should really be called a Capital Levy. It has been going on for years and it has done great harm to the manufacturing industries in Great Britain. They simply cannot afford to save the money they need to

keep their factories in working order; all of them are in difficulty and some of them have gone bankrupt. This is what our system of taxation and our tradition of historic accounting have done for us. This is how the government collects the working capital of industry and then spends it as if it were an unexpected form of recurrent income. Our factories are so undercapitalised and so ill-equipped as compared with those of our industrial competitors, that our workmen are underpaid by comparison with workmen in many other countries whose rate of inflation has been less than ours and this has provoked an enormous amount of industrial unrest and discontent in England. You copied our system and you use it have in Ghana. Your rate of inflation is worse than ours. What is our system doing to you?

I must repeat this point for emphasis. In times of inflation the use of conventional historic accounting can ruin industry. The accountants have been studying the problem for twenty years or more to my knowledge, but they seem to me to have faced their task upon which, in my view, the very survival of society depends without any sense of urgency; they treated it as if it were a theological question of great intellectual sophistication, but of no great practical significance. Sir Francis Sandilands and his Committee recently published a report which is now being considered and the Government has promised to take action as soon as they reasonably can. I am afraid that our industry will become more and more depressed while these learned men count the angels on the point of a pin. A few days ago the Richardson report was published in New Zealand. It is simpler and much more sensible than anything else I have ever seen, and I strongly recommend it to any of you who want to study the subject.

It would be wrong for me as a visitor who knows little about your country, to say much about the peculiar problems of Ghana, but there are one or two points I would like to make with all due diffidence, if only because so many of your difficulties are like our own. Inflation at home has put many of the most cherished of our institutions at risk. Universities, hospitals, schools, orchestras, are all suffering and so, let us never forget, it is industry itself which supplies us with our food and all our goods. All view the future with mounting anxiety. Your rate of inflation is worse than ours, so it seems inevitable to me that you have to face all our problems. But I think that you have one or two of your own as well and it is these I would like to speak about.

I suppose that everyone in Ghana has always known that the average wage of her working people is very much lower than it is in England. It depends entirely on your gross domestic product, and some farmers earn pitifully small wages. On the other hand the incomes of professional men; doctors, lawyers and merchants, for example, to say nothing of university dons, are related,

loosely perhaps, to the salaries of professional men in other countries. Highly qualified men can move about the world, *unskilled* labourers cannot. Your rich have been tolerably well off, but your poor have been very poor indeed. Inflation has made matters much worse.

The economy of Ghana depends on the cocoa crop. The cocoa farmers have always been neglected. To this day, most of them live in small villages without any of the amenities which so many other Ghanaians (Thank Goodness) can take for granted. They may have no pure water, they may have no adequate sewage, or electricity, or telephones, or proper medical care, or schools for their children, and they have always been poor, but the rest of the country has always depended on their efforts. They paid for this university and all the splendid buildings and equipment. For years they have been the forgotten men. Many of them have drifted into the cities; their children won't stay on the farms, and why should they? Any threat to cocoa is a threat to the future of Ghana, but in the last few years inflation has made the position of cocoa farmers much worse. The operations of the Cocoa Board, which would be perfectly equitable if prices were stable, have been a source of much difficulty. A remedy must be found or Ghana can have no future.

I am afraid that I may have depressed you by telling you about the damage that inflation can do and the difficulties we have had in England in learning to live with it. Now I shall try to encourage you by telling you how two countries quite independently devised a relatively simple technique which made it possible for them to live with inflation, and then to master it. Neither of them did anything until their rate of inflation was much worse than anything that has been seen in England or in Ghana—yet. They had to do something dramatic to save themselves from immediate and total collapse. They both invented the same remedy, neither seems to have known that anyone had used it before and both of them found that it worked: There is hope for us yet!

At the end of the war in China in 1948 the whole structure of society had been destroyed and inflation reached the appalling rate of 10 per cent per day. This is worse than anything that ever happened in Germany and at least fifty times as bad as your rate here. People used to rush out and spend their money as soon as they got it. Trade and manufacturing industry were at a standstill. No-one was working. The Communist Government suddenly indexed wages and bank loans. Men knew two things; the value of their wages would be maintained from week to week and if they put their money in a bank instead of spending it, they would be able to buy as much with the money they drew out of the bank as they could have done with the money they deposited. The only people who lost out were those who kept their cash under the mattress.

Men began to work again, they put their wages in the banks, the banks had money to invest in industry. Factories re-equipped themselves and more and more goods appeared on the market. The increase in the supply of goods reduced the rate of inflation and after a couple of years it had virtually stopped. The index they used was very simple. Any statistician would say it was crude and quite unacceptable, but it worked. It was based on the average price of five commodities in common use: rice, millet, cooking oil, fuel for heating and cotton cloth for making clothes. By 1952 inflation had stopped in China and the Government changed their fiscal system. Since then, in spite of a terrible drought and the wars in Korea and Vietnam, prices in China have been stable. They rose by 7 per cent and then fell by 5 per cent over a period of 25 years. Not bad!

In the year 1964 inflation in Brazil was at the rate of hundred per cent per annum and the economy of the country had reached the state of almost total stagnation, which seems to be inevitable in the circumstances. The Government introduced a system of indexation which they have been refining ever since. To begin with they indexed wages and government bonds and bank deposits as the Chinese had done, but in addition they indexed mortgages and they indexed the capital assets of businesses, so that the directors did not undervalue all their plant and equipment. They linked rents and wages and, perhaps most important of all, they indexed money itself. If someone borrows money from a bank, he pays interest for it at a rate which he negotiates with the bank and in addition he pays a sum which is computed by the central statistical office of the government and it is intended to allow for the depreciation in the value of money which has taken place during the period of the loan. The economy of Brazil is much more complicated than that of China and so the Brazilians used an elaborate index for the cost of living, which in turn determined the rise of wages. Furthermore, they found that they needed three indices. One for the cost of living, one for manufactured goods and one for overseas transactions. They invented what has rather oddly been called the "snake in the tunnel" to cope with changes in the exchange rate of their currency. They were denounced for it at the time, but all the countries of Europe have been using it since they reinvented it a few years ago. Finally, the Brazilians changed the unit in which they estimate the value of all their assets. Instead of using something like £1,000, as we do, and trying to cope with the fact that money becomes less valuable as the days go by, values are defined in terms of the standard minimum indexed annual wage which, if all has gone according to plan, will have the same purchasing power next year as it had last, or slightly more.

This unit of account which is now used throughout Brazil is Mr. Churchill's "Commodity Pound" in modern dress. How I wish that we had used it for the past half century, as we might have done.

Since they introduced reforms the economy of Brazil has boomed as never before and the rate of inflation has been cut from 100 per cent to less than 20 per cent. Furthermore, they think that they can cope with this rate of inflation better than we could in England in those happy days when our rate was only 5 per cent.

The Minister who invented this system and has supervised its introduction told me himself that he had no idea the Chinese had done something similar twenty years before he did, and he was astonished when I told him that the basic idea had been enunciated in the Koran. We thoughtfully concluded that "there is nothing new under the sun".

Vice-Chancellor and Gentlemen, I have been discussing a very important theme and I have talked about it in a very unusual way. I doubt if many professional economists would accept half of what I have said, but I do think that the staff of this University could join forces with the staff of Kumasi and study some of the ancient history of Ghana. Where else are there professional historians, economists and accountants to be found in such numbers? I have tried to persuade you that the remedy for many of your nation's troubles has been rediscovered several times since it was enunciated in its simplest form, by the Prophet himself nearly 1500 years ago. I believe too that your own traditions must have been powerfully influenced by these ideas and that they would repay urgent and profound study such as only a university can give. It is believed, too, that if nothing is done, inflation may destroy most that you hold dear and nearly everything you have created here since the end of the last war.

Perhaps if she is inspired by her universities, Ghana may be able to save herself by her own exertions; if she does, she may help to save Europe by her example.

LECTURE FIVE

"THE FUTURE OF THE UNIVERSITIES THROUGH A GLASS DARKLY"

The Fifth Robert Baffour Lecture, delivered in the Great Hall of the University of Cape Coast on February 1st, 1977 by Lord Bowden. Professor K. Yanney-Ewusie, Vice-Chancellor of the University of Cape Coast, presiding in the Chair.

LECTURE FIVE

THE FUTURE OF THE UNIVERSITIES THROUGH A GLASS DARKLY

MR. CHAIRMAN, LADIES AND GENTLEMEN,

MAY I begin by saying how greatly I appreciate the opportunity of coming to Cape Coast where education in this country began. The oldest schools in Ghana are all here and it was from here that the first great Ghanaian lawyers graduated. Many of the leaders of Ghana were born and educated here.

It has given me great pleasure to come here to talk to you, to learn something of the traditions which led over the centuries to such great achievements. I am particularly happy to be here on an occasion which has been organised to honour Dr. Baffour. I have known him for many years. The Chairman has told you that he is a man of many parts, but I think his most remarkable talent has never been mentioned, at least in public. He is the only Vice-Chancellor I have ever heard of who can go to a pond full of bull frogs and order them to be quiet so effectively that they fall silent for an hour or more! Whether he knows the bull frogs' language or whether it is because from where they sit in the pond Dr. Baffour looks like the emperor of all bull frogs as he walks towards them, I do not know. Nevertheless, he has this unique ability, it is well remembered in Kumasi, and I hope very much that he will be able to teach the trick to the present Vice-Chancellor who tells me, alas! that he does not know how to do it. Dr. Baffour is indeed a man of many parts.

I have known Ghana intermittently for more than 20 years and I have always greatly enjoyed my visits. I have always felt that many of the problems which you face here are like the problems we have in England, but they seem to be more clearly visible in the bright sunlight of the tropics than they are back home under our dull skies. Every country in the world is facing problems, everywhere in the world universities are in difficulty and everywhere in the world people are anxious and worried and unclear about the future. It is extremely difficult for anyone to make any confident predictions about the future. The task which I have embarked upon in this lecture will inevitably be difficult, but I hope to talk to you about some of the problems which confront us all. At this moment we are much more aware of problems than we are of the way we can begin to solve them.

My first topic must be the astonishing growth of universities in the last few years. Other academic institutions have grown dramatically in the past, but we have watched universities grow very much faster than ever before and we have seen more new universities than had been founded before in the history of man.

There are new universities in every country in the world. In England, for example, in 1900 we had four—Oxford, Cambridge, London and Durham. Now we have 45. There are more than 2,000 universities in America; some of them are enormous and have tens of thousands of students. It is not by any means untypical that Ghana founded its first universities less than 30 years ago and now you have three all flourishing today. But, as I have said, other institutions have flowered and already decayed. The great Abbey of Cluny which was the first of the great monasteries of the mediaeval Christian church was founded just over a thousand years ago. It was from there that the other abbeys and monasteries ultimately derived their traditions. All of them liked to found another in their own image every twenty years or so and this is the perfect recipe for what we call geometrical or exponential growth. In the 14th century there were over 8,000 abbeys and monasteries in Europe and one can predict with great confidence that had the expansion programme continued for another 200 years all the resources of Europe would have been devoted to the support of monasteries and every adult male in Europe would have been a monk. I cannot say what effect this would have had on the growth of the population. Be this as it may, the monasteries grew, they flourished, they dominated the intellectual life of Europe for several hundred years and then they decayed and almost disappeared. There are the ruins of some very beautiful abbeys in England, some of them in isolated and very lovely places. Fountains Abbey, for example, which is not far from my home, flourished about 500 years ago. It was full of monks and their students. In the days of its glory Fountains Abbey contained a larger proportion of the total population of Yorkshire than there are in the three universities of York, Leeds and Bradford combined today. In those days Fountains Abbey must have seemed to those who lived in it to be immortal, to have been built for eternity and destined to last as long as man himself. And there it is, a beautiful ruin. It is one of the most lovely sights in the world, but it is a ruin. There are no servants, no staff, no students, no monks, but the birds sing in the ruined choir. Will the same fate befall the universities? Is it possible that another cycle may have reached its peak and even perhaps be on the decline? I have asked university audiences in England how many modern universities will be as beautiful in decay as Fountains Abbey.

Universities represent the flowering of a particular academic tradition, just as the Abbeys did four or five hundred years ago. They decayed, although Oxford and Cambridge survived. Will the universities survive? And if they do, in what form will they survive? We must try to decide that, because their future is in our hands. Why do we think they ought to survive? It is not enough to say that they are beautiful or that we must keep them in being because they are splendid examples of our own society at its most flamboyant. The monasteries were splendid, beautiful places. They taught students in large numbers; they were among the most important

centres of scholarly activities in those days and they provided a very remarkable link between the members of a world-wide supranational organisation. All members of a monastery owed an allegiance, not only to the country in which they lived, but to the international community of the church.

The wandering scholar was a familiar figure of the middle ages. Men would walk for hundreds of miles along terrible roads, many of which were infested with bandits. They went to seek their ecclesiastical superiors and their teachers. Wherever they went they were sure of a welcome among men like themselves who lived in great houses like their own, they talked among themselves in Latin which was the common language of all ecclesiastics. They worshipped the same God, they read the same scriptures and they celebrated the same Mass in the same way. Ordinary laymen were never quite sure whether the allegiance of the monks to the church took precedence over their desire to be of service to the community or whether they were as much concerned about their fellow men as they were about the great international church itself.

May I remind you that one of the most notable features of academic life today is that all members of staff owe an allegiance to the international world of scholarship, be it the scholarship of lawyers or surgeons or physicians or geographers or historians. In some ways a historian in Ghana has more in common with a historian in Cambridge than he is likely to have with a chemist in Ghana who may have the next office to his own. Both of them may understand academic traditions and international scholarship more easily than they understand farming. Both of them may know more scholars and more universities abroad than they know farmers and farms at home. At one time the mediaeval monks were as proud of their positions, were as privileged in their relation to the rest of humanity and were confident in their value as university dons have ever been. Their international links were their great strength and became their great weakness because ordinary men resented them and feared them.

We really ought to take thought and decide what it is the universities should do and what they can do. I have been reading the opinions of African and Indian scholars. I find some of the arguments which they advance are extremely alarming. For example, a great Nigerian scholar recently denounced the universities of Africa because he said, "They have become a little more than islands of privilege in a sea of poverty." He agreed strongly with the remarks made by an Indian Vice-Chancellor who said that "any child who has completed his secondary education is no longer an asset to the community, but a burden upon it". These, may I remind you, are the views of contemporary scholars in India and Africa. I want to

discuss them and see how far they can be answered. If there is no answer, then it seems to me inevitable that universities, at least as we know them, will not survive even as long as the monasteries did.

The Indian Vice-Chancellor went on to say that, "A child who has been to a secondary school is detached from his family; he will be unable to go back and earn a living in the crafts or profession or trade which his fathers have followed for generations and he will very probably be unable to get any useful work in the community after he has finished his schooling, because no jobs exist." So ladies and gentlemen, in spite of what one might call the generous splendour of these places, in spite of all the enthusiasm with which they have been developed, one has to face the ultimate question, "Can they continue to exist, can they continue to flourish in the future as they have in the past?" This question which I pose to you in the words of Indian and Nigerian scholars must be answered.

I wonder if I may be allowed to speak to you for a few moments about the situation of some of our English universities. After the war in 1946 the Barlow Committee suggested that our universities should be expanded. They said so because they believed that we needed more engineers in British industry so that we could compete effectively in world markets. It was obvious to the Government even then that our industry might decline if we did not have engineers in sufficient numbers—we knew how much better manned continental factories and American factories were than our own, and we were fearful and worried about the future. So the Barlow Committee urged the Government to develop engineering education on a substantial scale. Successive reports followed and finally the famous Robbins Report recommended that all young people who wanted to go to a university and were qualified to do so should be provided with a place and allowed (as far as possible) to study the subject of their choice.

Robbins paid eloquent tribute to the scholarly functions of the universities, to their achievements in maintaining and handing on the best traditions of the community. But, may I repeat it. The original impetus for the development of our universities came from a belief which we now think to have been both pathetic and naive that if universities grew, the country would become rich. It was this more than anything else which made the taxpayer willing to pay for them. The dons of course had other ideas about the true role of universities. They were certain that if engineering was to develop, so must other subjects in order to preserve the mysterious balance between the faculties.

The Barlow Committee was sitting at about the same time as the Asquith Committee was reporting on the education of the people of the Gold Coast and recommended that universities should be

established here. They believed that the development of universities would provide men to run the country, to run the civil service, to become politicians and become the administrators and the organisers of the country. Ghanaians would learn something of the best traditions of Western Civilisation and the country would prosper.

Ghanaian universities have performed one vitally important task, their graduates administer Ghana and man its professions. As I look around me, I see that most university staff are Ghanaians, although when I came here first, nearly all senior men were expatriates. This change of itself demonstrates a wonderful achievement of Ghanaian scholarship. But the growth of the universities has not produced the riches we all expected and Ghana can barely afford the expense of educating people in the way that we have become accustomed to. Here is a very great problem indeed!

We all know that the wealth of any country depends on its industries. In England we rely on heavy engineering, on electrical engineering, mechanical engineering, chemical engineering, the refining of oil products, the manufacture of new fibres, new plastics, new drugs, all sorts of things like that. These are the industries upon which in the end most of the wealth of our country depends. In Ghana the great industry upon which most of your wealth depends is agriculture, particularly cocoa farming.

In the last few years Englishmen have stopped coming to universities to study those subjects which will fit them for a career in productive industry. It has been dreadful for me, presiding as I did over a large engineering school, to find that although most of our departments of engineering, civil engineering, for example, or chemical engineering or mechanical engineering had all been full in 1970; by the time I came to retire they were half empty. The decline was precipitated, it was unexpected and it has most devastating potential consequences for our industries. Now, of course, one doesn't know if a trend which began so suddenly will reverse just as suddenly and whether in a few years' time the demand for places in engineering schools will have suddenly increased again. I cannot presume to say, all I can tell you is that ordinary English students don't want to study branches of engineering which will fit them for a career in some form of manufacture. Our engineering departments are half empty and half of the students have come to us from foreign countries. We have been educating men from foreign countries in my institution for 120 years. A dozen of the staff of Kumasi, for example, were in my institution a few years ago. There are half a dozen Ghanaians there at this minute. We take great pride in the fact that we had students from 63 different countries last year, but we are alarmed to discover that we have so few native Englishmen studying such fundamental subjects. We cannot possibly afford to pay for our universities, our schools and

all the other components of modern society unless our industry prospers and we can manufacture goods on a substantial scale in order to export them to pay for the goods we need for our economy to survive.

This sudden change in the behaviour of our young people has been a shock to us all. We do not really know the whole cause, but there are certain reasons which we know very well. The first is this, that the salaries which are paid to graduates who go into factories are much lower than those which the same men could get by going, for example, to work in local government or for the Central Government or for the nationalised industries. They are much less than the salaries of accountants or lawyers. There was a time when a man who wanted to make a fortune would go into industry and work for a big firm or he might found a little firm himself. By making and selling something he would become rich. Now it seems almost impossible to do any such thing and this may be one reason why young people are so reluctant to undertake the long difficult courses which fit them for poorly paid work. If a man goes into industry, he will have to put up with working unsocial hours, he may have to work in a noisy and not very pleasant environment. He may find that his job is insecure because it depends totally on the success of his company. If for any reason the company goes bankrupt, he will have no job. Furthermore, however successful he is, his social prestige will be less than that of an ordinary professional man, perhaps a lawyer whose activities, however important they may be, do not increase the total wealth of the community in the same way as those of the engineer on the shop floor or the farmer in the field. For all of these reasons men are tending more and more to drift away from manufacture into other parts of society and in particular into various branches of government.

It seems to me that your problem is much the same in Ghana. Your economy depends almost entirely on one or two primary industries, cocoa farming particularly, and the timber trade and one or two others. The task of the cocoa farmer seems to be getting harder all the time. His income is diminishing. Fewer and fewer men want to go and improve the techniques of cocoa farming, the farmers live in isolated villages, many of which have no electricity, no telephone, no proper medical care for anyone. All these amenities are expected (very reasonably), by university graduates. But it is the work of the cocoa farmers that provides most of Ghana's foreign exchange. They sweat to keep this very university going and they built it in the first place. Men don't want to grow cocoa, and they don't want their sons to be cocoa farmers. And why should they? They may support the whole economy, but no-one seems anxious to thank them. Your problem in Ghana is really the same as ours in England.

The national wealth is created by people whom society often ignores, sometimes despises and always underestimates and underpays. The lucky people are administrators, people outside the primary industries and people who make no contribution to the wealth-creating process by which the community lives. This is our problem. It seems to me from what I have seen in Ghana to be your problem. It is certainly the problem of many other countries. I don't believe that anyone should be particularly blamed, but one must consider its implications lest if the present trend continues the whole community collapses because the support upon which it ultimately depends has been eroded. I don't know how my own country can survive. I occasionally tell classes of graduates that it is upon their efforts that I shall depend for my pension.

Somehow it is essential that suitable, well qualified people are persuaded to go into productive industry and help it. I think that all the members of an academic institution such as this one should concern themselves with these things and to see what can be done to help. Is it possible that plans for new road development could be devised specially for the convenience of the villagers? Should more efforts be diverted to giving them all a better water supply, better sewage plants, better houses, better medical care and better schools for their children? At present every bright young man feels that the only thing he can do if he wants to have a decent life is to leave the little village where he might help his father to create the wealth upon which Ghana depends. He has to go to live in the slums of Accra and cease to be a productive worker. The very same difficulties have made it difficult to persuade medical men, nurses and graduate teachers to go up-country and live among the farmers. Some fundamental changes will have to be made in the priorities of government spending if the all-important native industries of Ghana are to become prosperous and if those who work in them are not to feel deprived and perhaps bitterly jealous of the privileges of the universities and their staff and students.

The reforms when they come should owe much to the initiative of the universities for they are places in which informed discussion can take place. They should mould public opinion. Students and dons together must debate the causes and the problems of the community. Some of these problems are very hard to formulate but they are, nevertheless, extremely important. Few people outside the university are as well able to understand and debate these issues as the university scholars. A university is one of the very few places in which free discussion of issues of great public importance is possible. You have the facts, you have a tradition of free discussion and most important of all, the academic staff are among the best informed people in the country.

Universities cannot be sufficient unto themselves. They can only survive if the country can afford to pay for them. The burden is

heavier than we would like it to be because the universities have not proved to be primary sources of wealth. It is true to say, of course, that many of those who are administering Ghana are graduates and that many of the industries which Ghana is now developing have come out of the work of the universities. I have seen new industries springing up near Kumasi which depend upon the graduates and their ideas. They may help to increase the wealth of Ghana, but they are still struggling to be born. For example, looms have been designed in Kumasi which can be built here in Ghana and are cheap enough to be bought by ordinary Ghanaians who can take them home to their villages. An ordinary farmer can double his income by becoming a weaver in his spare time. Ghanaian potters may be just as successful, and if they are, it will be tremendously important for the whole of Ghana. It is possible that some of the herbs whose medicinal properties have been known for hundreds of years may have components in them which will establish a new industry which will make Ghana independent of imported drugs. It might even make it an important supplier of drugs to the rest of the world. About a couple of days before I left England I saw an extraordinary television programme describing the way in which the fertility pill came to be developed. This pill has probably had a greater effect on the social behaviour of the people of every country in the world than any other invention in history. The idea for it came to an American chemist who knew that certain hormones can inhibit fertility; he knew too that these hormones were chemically very like some steroids which are to be found in certain tropical plants. The first tropical country he came to was Mexico. He got on a bus, he went as far as the bus could take him, he went into the jungle, he spent several days searching and he came back with two roots, one of which was confiscated by customs people. He brought the other home. He found the steroids he was looking for. He established a technique for manufacturing hormones from them, he created an enormous new industry based on a particular root which he happened to find in the first tropical country he went to. It seems to me extremely likely that similar industries will grow as a result of the activity of the pharmacists of this country, the organic chemists of this country and perhaps the chemical engineers and the botanists. They might create an entirely new industry and make it possible for Ghana to supply some new drug to the whole of the world as Mexico does today, thanks to the efforts of one individual. This is the kind of contribution that a university can make.

There are other things universities can do. Some Indian universities have suddenly discovered that half of all the goods in India are carried on bullock carts. No-one had attempted to analyse the design of a bullock cart since they were first built about five thousand years ago. University departments have started to investigate how to improve the design of the cart and of the harness, they found that

the harness with which a bullock is traditionally fastened to the cart is inefficient and makes it impossible for the beast to pull hard without hurting itself. They have now improved both the harness and cart in a fundamental, but simple way. They claim they get half as much work again out of every bullock than they ever did before. By this simple investigation they have made it possible to produce a dramatic improvement in transport throughout the whole Indian sub-continent. This apparently simple piece of work may pay the whole cost of all university teaching in India for ever more! It may serve to remind us of the old aphorism "Trifles make perfection, but perfection is no trifle".

Whether we like it or not, the future of the universities in this country can be profoundly influenced by the work they do to analyse the problems of the basic primary industries of the countryside—and to make them more efficient.

When I was in Kumasi they were designing a simple cart to be built by carpenters in the North of Ghana where oxen have just been introduced. I suggested to them that they should do an analytical study with the help of a vet to make sure when the ox pulled on the harness it didn't choke itself. I told them that for two thousand years the harnesses with which horses were fastened to chariots and carts choked them because every time the horse pulled its windpipe was constricted by the harness so that it couldn't breathe properly. It was only when some genius discovered this and invented horse collars that horses were able to pull their weight. I make to you the point that many apparently trivial problems will repay earnest study and may have a dramatic impact on the economy of Ghana.

The problem of making use of scholarly ideas is part of the ancient tradition which, ever since Plato has divided men of letters from men who work with their hands, each group is suspicious of the other and would like to despise it. An ancient Roman once said that all the inventions he most valued—central heating for example and glazed windows, were the inventions of the meanest of slaves. The Bible is full of praise for men who study the law and scriptures as compared with those who follow the plough, or hammer iron in the forge, but every Jewish scholar was expected to serve his apprenticeship to a trade. St. Paul was a tent maker, for example.

But in spite of everything we have been told about the Two Cultures, the fact remains that the astonishing growth of our modern world depended entirely on an alliance between scholars and men of affairs, between abstract thinking on the one hand and practical experience on the other. Anything which weakens these links will weaken our society. Many people in England have been sufficiently worried by the attitude of our own students to urge that schoolboys should spend a year or two in industry after they leave

school and before they go to university. President Mao sent thousands of university scholars, both staff and students, to work in the fields in order to ensure that they recaptured a proper understanding of the problems and the difficulties of ordinary men whose work created the wealth upon which modern China must depend. Anyone who has watched the dramatic growth of the universities in India and is aware of the fate of the thousands of unemployable graduates to whom I have already referred, must wonder in his heart if Chairman Mao was right. The state of Kerala was the first to adopt compulsory education, the first to develop its universities, the first to create a huge army of graduates for whom no work could be found and the first to vote the communists into office. There are lessons here for all of us.

I come back yet again to the fact that somehow it must be made possible for ordinary people upon whom the wealth of the country depends to live a decent life and to live it, furthermore, in conditions which are not much worse than in this university, so that young men do not have to seek their fortune by migrating to a shanty town near to a big city.

The fact is, of course, that some of the people who are denounced as squatters are among the most intelligent, able and enterprising of their generation. They have gone to seek their fortune in a perfectly proper way. They should be encouraged and helped and advised and guided. Who can do this job as a public service better than the universities? Who can talk so well to young people, disillusioned as they are with life in their own little village, and explain to them the jobs they can do and the kind of industry they can go into. University students might even teach these youngsters a little about the literature and the history of their own country. Much, much depends on the relatively few students and their interaction with the majority of the population who have had such a limited opportunity to educate themselves. From a purely selfish point of view, it is important to remember that it is the uneducated majority who will earn the money to maintain the universities and everyone in them.

To create the universities was an astonishing act of faith on the part of those who made the enormous investment which was necessary.

We still have faith in the universities. We know the wonderful work their graduates have done all over Ghana by helping the whole population to understand its heritage and at the same time to improve its way of living. Ghana has created a complex academic machine at great expense in the confident faith that it will help to bring the whole community into the twentieth century. Graduates learned something about the great achievements of human thought; they can help to improve the living standards of the poor. The hopes of society as a whole have been vested in those who are here today.

You have been greatly privileged and much is expected of you. Men know that if students are selfish and neglect their obligations there will be little that any taxpayer can do to recover anything from the investment they have made in a few fortunate young men. In a sense, therefore, it is upon the sense of duty and the charity of the students that everything depends. Two thousand years ago it was written, "Now abideth Faith, Hope and Charity, these three. And the greatest of these is Charity".

Now, I would like, if I may, to conclude by reading to you a little essay which was written in America by an old friend of mine, Dr. Vannever Bush. He wrote it towards the end of his long life when he was Chief Scientific Adviser to President Roosevelt. It is called "The Builders". He says, "The process by which the boundaries of knowledge are advanced and the structure of organised science is built is a complex process indeed. It corresponds fairly well with the exploitation of a difficult quarry for its building materials and the fitting of these into an edifice, but there are very significant differences. First the material itself is exceedingly varied, hidden and overlaid with relatively worthless rubble and the process of uncovering new facts and relationships has some of the attributes of prospecting and exploration rather than mining or quarrying. Second, the whole effort is highly unorganised. There are no direct orders from architect or quarry-master. Individuals and small bands proceed about their business unimpeded and uncontrolled, digging where they will, working over their material and tucking it into place in the edifice."

I think this is very profoundly true. The process by which people investigate new ideas, by which new problems are solved and the process by which they set about solving them, are totally unorganised and are dependent on the individual activities of small groups of people working together for a common purpose.

Bush went on, "The edifice itself has a remarkable property, its form is predestined by the laws of logic and the nature of human reasoning. It is almost as though it once existed and the building blocks had then been scattered, hidden and buried, each with its unique form retained so that it would fit only into its own peculiar position and with the concomitant limitation the blocks cannot be found or recognised until the building of the structure has progressed to a point that their position and form reveals itself to the discerning eye of the talented worker in the quarry."

Bush means that it is no use being twenty years ahead in your research programme. If you haven't got a place into which you can fit your ideas, you are wasting your time.

To resume, "Parts of the edifice are being used while construction proceeds by reason of the application of science, but the other parts are merely admired for their beauty and symmetry and their possible utility is not in question."

"In these circumstances it is not at all strange that the workers sometimes proceeded in erratic ways. There are those who are quite content, given a few tools, to dig away, unearthing old blocks, piling them in the view of fellow workers and apparently not caring whether they fit anywhere or not. Unfortunately there are also those who watch carefully until some industrious group digs up some particularly ornamental block whereupon they fit it in place with much gusto and bow to the crowd. Some groups do not dig at all but spend all their time arguing about the exact arrangement of a cornice or an abutment. Some spend all their days trying to pull down a block or two that a rival has put up. Some indeed neither dig nor argue, but go on with the crowd, scratch here and there and enjoy the scenery. Some sit by and give advice, and some just sit.

"On the other hand there are those men of rare vision who can grasp well in advance just the block which is needed for a rapid advance on a section of the edifice to be possible, who can tell by some subtle sense where it will be found and who have an uncanny skill in cleaning away dross and bringing it surely into the light. These are master workmen, for each of them there can well be many of lesser stature who chip and delve industriously with as little grasp with what it is all about, but, nonetheless, make the great steps possible.

"There are those who give the structure meaning, who can trace its evolution from early times and describe the glories that are to be in many ways that inspire those who work and those who enjoy. They bring the inspiration that all is not mere building of monstrous walls and that there is architecture, even though the architect is not seen to guide and order.

"There are those who labour to make the utility of the structure real, to cause it to shelter the multitude that they may be better protected and that they may derive health and well-being because of its presence.

"And the edifice is not built by the quarrymen and the masons alone, there are those who bring them food during their labours and cooling drinks when the days are warm, who sing to them and place flowers on the little walls that have grown over the years.

"There are also the old men whose days of vigorous building are done, whose eyes are too dim to see the details of the arch or the form of its key stone, but who have built a wall here and there and have lived long in the edifice and have learnt to love it and have grasped a suggestion of its ultimate meaning and who sit in the shade and encourage the young men."

I think that is a simple and moving account of the way in which the total edifice of learning is built. The universities have an all-important task because of the freedom which is offered to people who

study in them to follow their own ideas. They have another extremely important role as creators of professional men. The oldest universities in Europe were devoted to the education of men for the few professions that existed in those days. In all developing countries the universities must try to educate older people who never had a chance to learn in their youth. Universities are among the most important of all the institutes in modern society. I do not believe that a great country can prosper without them. I believe that they will ultimately survive. They have had to withstand the onslaught of emperors and kings and they have survived poverty and they have even survived riches. They are among the most durable of all human institutions; I do not believe that their future is really in doubt, but their future role will be determined by long and anxious thought within the universities themselves and they must always be concerned about the interaction between themselves as institutions and all the other organisations and individuals who together make up the community which supports the universities and has done so willingly and in faith, with hope and *charity*.

THE R. P. BAFFOUR INAUGURAL LECTURES

The Role Of Universities In The Modern World

by

LORD BOWDEN

In the inaugural lectures contained in this booklet, Lord Bowden has scanned the history and development of universities in the Western world—from their humble mediaeval inceptions to their modern complex proportions.

From the oldest School of Jurisprudence in Bologna to the University of Paris and their later offsprings of Oxford and Cambridge, the lecturer has tried to inform the reader about the invaluable role these ancient institutions of higher learning played in the development of their respective societies.

The universities were one of the three indispensable pillars, upon which Mediaeval Societies depended. The other two were the Holy Catholic Church and the Holy Roman Empire. Despite, '800 years of chaos and tumult' that characterized their development, Kings, Emperors and governments could not manage without their universities. They continued to accord the universities 'a divine sanctuary' which no civil authority could defile.

In the Second Lecture, a picture of the practical role that universities can play in the economic, social and technological development of their societies has been vividly presented to the reader.

The departure from the classical traditions (with emphasis on the humanities to the total exclusion of the Sciences), by the founders of the A and M Colleges of the New World, was a bold attempt. Yet it was an attempt in the right direction that was later to bring about a revolutionary thinking on the role of universities in societies, especially developing societies.

Lectures three and four are a bit intriguing in that their titles do not appear to match adequately their subject matter. But Lord Bowden rightly chose to deviate in order to discuss a subject that has bedevilled the economic development of nations throughout the ages. Inflation is the subject. In a lucid, conversational style, Lord Bowden avoids the technical phraseology of the economic expert and treats inflation and its disastrous effects on national economies with the clarity of the pragmatist, and invites universities in Africa and elsewhere to attempt to devise adequate means of containing a troublesome phenomenon that has forced emperors and statesmen into premature retirement 'to grow cabbages'.

Lastly, the Lecturer forecasts 'the future of universities through a glass darkly'. He warns that the future is bleak for universities in developing countries if they continued to be 'islands of affluence in oceans of poverty'.