



The British Model, ‘Africanization’ of the Curriculum and Other Issues: The Influence of Professor D. W. Ewer (1913-2009) on University Teaching in Ghana and on Biological Education in Africa

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Abstract

Dennis William Ewer was Professor of Zoology during the formative years of tertiary education in Ghana and served as a distinguished academic in three African universities. In Ghana, he made an outstanding contribution to tropical biology and biology education. This historical account of one man’s attempt to improve the teaching of biology to African students is noteworthy for several reasons. He was an enormous influence for change in how and what biology was taught at both secondary and tertiary levels. Anxious for radical change and to break the mould of the Oxbridge tradition, he worked tirelessly to put an end to the British system of teaching biology and alter the course material to make it relevant in an African context. He believed that the transplantation of the British model was inappropriate for Africa. He emphasized the need and importance of training technicians and placed teaching before research in his priorities. In terms of the curriculum, ecology should, in his view, be the central integrating theme in Africa with a preferred slant towards applied biology rather than the pure science courses of the developed world. Ewer was also a prime mover for change at the secondary school level, helping to improve the biology syllabus, editing textbooks, and providing teacher’s guides. He was critical of the then current school teaching in biology because it bred passive students with bad work habits and believed there was a need to challenge students intellectually, both at school and university. This led him to clamour for new approaches in both secondary and higher education.

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Résumé

Dennis William Ewer était professeur de zoologie durant les années où l'enseignement supérieur était à l'état embryonnaire au Ghana et a servi comme universitaire de haut rang dans trois universités africaines. Au Ghana, il a apporté une contribution exceptionnelle au domaine de l'enseignement de la biologie et de la biologie tropicale. Ce récit historique de la tentative d'un homme pour améliorer l'enseignement de la biologie aux étudiants africains est remarquable pour diverses raisons. Il y a été pour beaucoup dans le changement apporté au contenu et à la façon dont la biologie est enseignée aux niveaux secondaire et supérieur. Soucieux d'un changement radical et de briser le moule de la tradition d'Oxbridge, il a travaillé sans relâche pour venir à bout du système britannique d'enseignement de la biologie et pour modifier les supports de cours et en améliorer la pertinence dans un contexte africain. Pour lui, il était inapproprié de transposer le modèle britannique en Afrique. Il a souligné la nécessité et l'importance de la formation des techniciens et a prôné la priorité de l'enseignement sur la recherche. En termes de programme, l'écologie devrait, à son avis, être le principal thème intégrateur en Afrique avec un accent particulier sur la biologie appliquée contrairement à l'enseignement des sciences pures dans les pays développés. Ewer a également été une force motrice qui a impulsé le changement au niveau de l'enseignement secondaire, en aidant à améliorer le programme de biologie, l'édition des manuels scolaires, et en fournissant des guides de l'enseignant. Il était critique à l'égard de la façon dont la biologie était enseignée dans les établissements scolaires, car cette approche ne formait que des étudiants passifs ayant de mauvaises habitudes de travail ; de ce fait, il croyait qu'il était nécessaire d'inciter les élèves intellectuellement, tant dans les établissements secondaires qu'universitaires. Cela l'a amené à réclamer l'adoption de nouvelles approches dans l'enseignement secondaire et supérieur.

Introduction

'It is primarily on biology that the future of Africa depends; and the same is true of the rest of our tropical possessions' (Huxley 1936).

This paper is based largely on staff files held at Oxford University, on other previously unpublished work and on the personal recollections and reminiscences of former members of staff, who had worked in selected African Commonwealth countries. The Oxford Development Records Project Report, held at the Bodleian Library of Commonwealth and African Studies, University of Oxford, houses documents on higher education in anglophone tropical Africa.¹ In an 'Aide Memoire' sent by the Project staff at Oxford in 1982, former staff were asked to complete a form and encouraged to write more fully about their experiences during this pioneering period of Higher Education in Africa. Amongst these papers are several from university pioneers who, in

addition to their reflections, deposited university documents relating to their time in Africa. Further files were written by Professor Ewer after he returned to the UK in 1974, in which he prepared comprehensive notes about his work during his time in Africa. A departmental brochure by Don Thomas gives details of the Ghanaian department up to the early 1960s: 'University of Ghana, Department of Zoology, retrospect and prospect' (Thomas 1962). The present paper relates to the period from 1948, when the University College of the Gold Coast² was founded, to 1973 when Professor Ewer retired.

Tropical African university education based on the British model³ saw its real beginnings in the late 1940s and early 1950s. It was viewed as the commitment to political advance or as Peel (1984) has described it: 'the local rise of the educated led directly to their assumption of the key role in the movement for national independence' and thus regarded education as a vital move towards colonial self-government. The Elliot and Asquith Commissions⁴ laid down the ground rules. Like similar colleges in Nigeria and Uganda, University College, Gold Coast was based on the British model, and had, in the early years, very close links with British universities and a 'Special Relationship' with the University of London. This latter arrangement allowed graduates from these colleges to obtain degrees from the University of London. Firm foundations for higher education had thus already been laid. In Sierra Leone, Fourah Bay College had been established by the Church Missionary Society in 1827 and on the Gold Coast there was Achimota School which formally opened in its new buildings in 1927 (Williams 1962). In Uganda, Makerere was founded as a Technical School in 1922 and Yaba Higher College, Nigeria, opened in 1934.

Virtually all of the early staff in Ghana were expatriates from Britain, filling between 80 and 100 per cent of the posts in Zoology in 1960,⁵ and almost all had little or no experience of Africa. The courses in biology, although initially at sub-university standard (Intermediate BSc, or roughly A-level today), were based on the British system, and in zoology included dissection (of dogfish, frog and rabbit or rat), with comparative morphology and anatomy dominating the curriculum. There was virtually no mention of the protection neither of natural resources and the environment, nor of wildlife conservation and management as we have in the curriculum today. When asked about courses in these areas, Ewer commented 'In the time I was at Legon, the ideas were still very vague...Remember I am a laboratory rat and uneasy with the sort of "scientific natural history" which lacked proper controls'.⁶ The curriculum gradually became Africanized as it was realised that the 'imitation of imported conventions and models will not do' (Habte & Wagaw 1993), but at first there were few student textbooks and little information was available about the flora and the fauna of the region.

Around the time of Ewer's appointment, movements for the Africanization of the science syllabus in universities was gaining pace and being implemented in some institutions where it was felt that 'the content in particular must be more closely related to the needs of Africa' (Green 1962). Basic training, it was reported, should be 'inspired and guided by local conditions...based on local nature and culture'.⁷ There were however huge problems in trying to achieve this. There was an urgent need for scientific journals and scientific supplies; there was a lack of trained technicians, too heavy a teaching load, a shortage of suitable textbooks and limited budgets (Green 1962), as well as the absence of a history and culture of scientific activity. In addition to changes being made in the curriculum, in the early 1960s attempts were made to Africanize the staff, despite 'clumsy intervention' and 'bluster' by politicians and the press (Ashby 1964).

What therefore motivated staff to go to Africa? What experience did they already have? What were their early impressions? What were the facilities like for teaching biology? What attempts were made to develop a syllabus relevant to Africa? These were the questions raised in the above-mentioned Aide Memoire, and this paper will attempt to answer some of them.

From University College, Gold Coast (1948) to the University of Ghana (1961)

The establishment of the first higher education colleges in anglophone tropical Africa took place in 1948 in Ibadan, Nigeria and at Achimota, Gold Coast. The University College of the Gold Coast, as it was then called, was established on the Achimota estate near Accra, and the Department of Zoology was one of the original science departments. The college moved to its present purpose-built campus at Legon in 1960 and became the University of Ghana in 1961. At Achimota the department was housed in a temporary, borrowed, single storey building with one teaching laboratory and some rooms for staff. There was one professor, who was head of the department, and two lecturers or senior lecturers. By the early 1960s the staff had increased to a professor, one senior lecturer, five lecturers and one demonstrator. Apart from the technical staff, many of whom were Ghanaians, the academics were all British.

In 2009 the Zoology Department assumed a new name, Animal Biology and Conservation Science to indicate its changing role, encompassing not only zoology and conservation but other areas in the fields of medicine, agriculture and veterinary science – reflecting those applied and vocational aspects Professor Ewer had been keen to develop almost fifty years earlier. There is also now a Department of Biochemistry, Cell and Molecular Biology and one of Marine and Fisheries Sciences, both staffed by Ghanaians, 'researching the kind of problems Jakes [Ewer] would have approved of'.⁸

The Early Professors and Heads of Zoology

E. E. Edwards (HoD 1948–1960), who obtained a DSc from the University of Wales for his work in entomology, was the first Professor of Zoology. He was an applied entomologist, but had also worked on ticks in Wales. On arriving in Ghana (then still Gold Coast) he began to diversify his research into tropical diseases of domestic animals and humans such as Onchocerciasis ('river blindness') and Trypanosomiasis ('sleeping sickness'). Edwards had been a research student at the University of Wales, later becoming Advisory Zoologist at Harper Adams Agricultural College in Shropshire, and in 1934 was appointed Advisor in Agricultural Zoology and then lecturer in entomology at University College, Cardiff.⁹

Edwards stayed at Legon until 1960 and was replaced by Professor R. D. Purchon (1961–1962), a marine biologist and molluscan specialist who had been Raffles Professor of Zoology in Singapore (1950–1960). Purchon is probably best known for his book on molluscs (Purchon 1968). He stayed in Ghana for only one session before being appointed Head of the Department of Botany and Zoology at the Chelsea College of Science and Technology,¹⁰ and was described as being 'more concerned with moving on than building up'.¹¹ He died on 17 October 1992 and his obituary is in the *Independent* newspaper dated 26 October 1992. Professor D. W. Ewer arrived to replace him in mid 1963.

Professor D. W. Ewer (1963–1973)

Born in London in 1913, Professor Ewer, known as 'Jakes' Ewer, was educated at University College School, London and Trinity College, Cambridge, where he read Natural Sciences. He then undertook doctoral studies at Birmingham under H. Munro Fox. He gained an MA (Cambridge) followed by a PhD (Birmingham), prior to World War II.

Professor Ewer was an important pioneer in African universities and an innovator in African education. Described as 'an absolutely exceptional scientist and teacher' and an 'important role model at Rhodes University in the 1950s',¹² Professor Ewer's career has been summarised by Hodgson (2009) and Hodgson and Craig (2005). In addition to his organisational abilities, these authors described him as an outstanding lecturer: 'each lecture was a performance, carefully researched and rehearsed' (Hodgson and Craig, 2005). The Ewer papers at Oxford on his time in Ghana are held at the Bodleian library under MSS. Afr.s.

Ewer's Experience in Africa prior to Ghana

Following a distinguished war service, Ewer joined what was then still Natal University College¹³ as a lecturer in 1946 and was promoted to Senior Lecturer

in 1948. His research at that time involved the neuro-muscular physiology of invertebrates. His wife 'Griff', also a biologist, taught in the same department and worked mainly on mammalian behaviour and palaeontology. In 1955, Ewer became Professor of Zoology and Entomology at Rhodes University, Grahamstown where he remained until the middle of 1963. His final move was to tropical Africa as Professor and Head of the Zoology Department at Ghana, a department which had by then been in operation for fifteen years. During his time in Africa, Ewer corresponded widely with other zoological colleagues and friends,¹⁴ and was able to keep in touch with developments in the UK on the visits he made there from time to time.

Ewer's time at Rhodes was not without incident. Even before arriving he had noted, as an external examiner, that 'there was no balance to the courses' offered and he was 'determined to modernize the curriculum' after arrival (Hodgson and Craig 2005). He introduced physiology, final year student projects, and a language translation test for students. The research publication record began to increase and diversify and the department established a good reputation in a comparatively short time. Both he and his wife, 'did much to stimulate more rigour in experimental zoology and animal behaviour' (Hodgson and Craig 2005). They left South Africa 'after regular struggles against the University' (Hodgson 2009) both academic, administrative and political, and moved to Ghana.

The Ewer Period in Zoology at Ghana

Professor Ewer's move to West Africa was due in part to the political unrest in South Africa but also because Griff had visited Ghana and the department on her way back to South Africa in 1962, and she influenced him, having liked what she saw. Walter Pople, one of his former students, was already there. Indeed, Griff (Dr R. F. Ewer, née Griffith), played an enormous part in Jakes Ewer's life and work. They had two children, Bidy and Paddy, both of whom eschewed zoology when they went to university, saying that they had had enough of it at home!¹⁵ Jakes and Griff had met while they were working under Professor Munro Fox in Birmingham. Griff's academic interests were quite different from Jakes's, being mainly in mammalian palaeontology and animal behaviour, as well as evolutionary genetics. She was a leader in these fields and had published extensively. She also taught these subjects in both South Africa and Ghana.. She was awarded a DSc for her work by Birmingham University. Hodgson and Craig (2005) list her publications and describe several incidents involving her and her animals, both in the department and at home. She was regarded as being 'wonderfully eccentric'. The Ewers' mutual interests also included drama – Jakes was a consummate Shakespearian actor, and

Griff was in charge of the lighting at many university 'dram soc' productions. Together they were a formidable and deeply inspiring pair.

In June 1963, as he was about to leave South Africa, Ewer wrote, 'everything is now packed and Griff and I are waiting...You ask whether I would not really prefer to come home. I think the answer is very definitely no. Africa is very exciting and full of problems which are not zoological but human and political. I have now seen the one side of the picture at great length but it would be failing to finish the story if I did not take the opportunity which offers of looking at the whole thing from the other side. It is my hope that Ghana will prove to be interesting not only zoologically, but above all in terms of making scientists or at least answering the question as to whether one can really train Africans to be good scientists within the outlook of Western European thinking'.¹⁶

By the time Ewer arrived, the department was well established, housed in a large new building with generous space, equipment and facilities, and with a staff of ten involved in teaching and research. However, at the beginning, in 1948 it had been rather different. Ronald Bassindale was seconded to the department, at the age of 42, in January 1949 from the University of Bristol, where he had spent the previous ten years as a lecturer. He was involved in the initial ordering of equipment, books and journals, preparing schedules and teaching material, planning laboratory space for the new building as well as with the recruitment and training of laboratory staff. There were many initial problems including, for example, material ordered from the UK sometimes taking six months to arrive. In the first year of teaching (1948–1949) at Achimota, there were about 25 students following the Intermediate BSc under the old regulations, but by the second session, six students had embarked on degree work for the London General BSc. In 1961–1962, the year before Ewer arrived; numbers were BSc General 41 and Special 8 (Thomas 1962). The BSc General involved three subjects for one year, followed by zoology and another subject for a further two years.

The early staff were pioneers, but by 1963 everything seemed to be in place. Teaching was in full swing and several staff members were actively involved in research, often based on the 'rich local fauna which offered new and interesting possibilities' (Thomas 1962). Facilities were very good – three teaching laboratories plus a postgraduate laboratory as well as an 'experimental lab' for physiological work, large enough to accommodate 48 students. In addition there were private staff laboratories, two lecture rooms, a departmental library, a dark room, constant temperature rooms, a cold room, a museum, an underground aquarium with circulating freshwater and cooled seawater, and many other facilities, including the use of a field station and game reserve (Thomas 1962).

However, according to Ewer, the reality was quite different, and on arrival he was highly critical of the conditions he found. There had been an ‘unthinkable waste of money’ (Ewer 1982) and Ewer spent part of his time at Legon ‘trimming away grandiosities which could not be maintained’ (Ewer undated) – partly because the price of cocoa had slipped badly in 1962. According to Ewer, buildings were badly designed, equipment did not work, an aquarium had been made redundant because of corroded metal pipes, and, because of lack of ventilation, was one of the hottest rooms in the department! Spare parts needed for the CT rooms had not arrived, and the marine aquarium was not working. ‘When something stops working you put it back in store and get another... I find that instrument after instrument we possess is broken. It is quite unbelievable’ (Ewer undated). There were few if any departmental records. The students had a passive approach to their work and bad work habits. Teaching was of less importance to the academic staff than research, and virtually no training was being given to the technical staff. The academics worked as isolated individuals on their own research. ‘The way back to a post lay not in building the Zoology department at Legon, but in publication’ (Ewer undated), by which he meant that, in order to return to an equivalent post in the UK, staff realised that they would be judged not on their teaching skills but on their research output, thus research was seen as a stepping stone back to England.

Ewer was not prepared to accept the status quo and wanted change. The main challenge was to create a less casual attitude on the part of staff, whose emphasis had been on the importance of research at the expense of teaching. Ewer also believed in the importance of proper training for the Ghanaian technical staff, a very necessary change as there was ‘disinterest on the part of the expat; ignorance and fear on the part of the Ghanaian technical staff’ (Ewer undated).

Reflecting on his career when in his 80s, Ewer wrote to the author, ‘When I look back, I think how lucky I have been to be so uneasy a person and look with astonishment at some of my Cambridge friends who had hardly moved beyond Cambridge in their lives’.¹⁷

Students, Teaching and Research

In the late 1940s and early 1950s the teaching staff had to rely on preserved material, sent from England and the United States, for dissection, until suitable alternatives could be identified and captured locally. The staff realised the absurdity of importing the standard European type species, so the dogfish was replaced by small sharks from the market, local toads were collected by the cleaner, and sewer rats from Accra were supplied by corporation workmen and used as the ‘type’ mammal. Specimens collected locally were preserved in alcohol made from palm wine.

When Ewer arrived, there was a heavy teaching load with no tradition of Ghanaian students assisting with practical classes and it was assumed that the staff would teach only their own discipline. Ewer believed you should use the best teachers for Year 1, 'so he taught a large part of the course and led the practicals'.¹⁸ Ewer also believed that the Oxbridge model or 'mink ideal' (Ewer undated) as he called it, was inappropriate for Ghana, because the students' background, both social and intellectual, was 'quite different – homes where parents were unable to read or write'. The previous system had bred 'passive students with bad work habits'. It was essential to make the teaching relevant, as would be true in any developing country, as well as not to 'marginalise' the students. School reforms were also needed if students were to be successful in higher education or in their subsequent careers (Ewer undated).

At his first staff meeting Ewer insisted that teaching should come first and research second, and that staff should keep to their teaching timetables. There was no scientific tradition in Africa and he saw the need to take teaching seriously¹⁹ and was impatient with poor teaching as well as with rote learning. He later wrote 'The staff have been nurtured upon the British mythology that good research workers make inspiring teachers and that provided one did research, there would be, in some mysterious manner, an intellectual "brush off" which could raise the standard of teaching – a gross oversimplification' (Ewer undated). Initially Africans 'wanted a replica of the British university at its best; the expatriate staff had no other model to offer' (Ashby 1964).

In the early years of the college, virtually all of the staff were expatriates on contracts. They worked in isolation in their teaching and especially in their research; 'Each man was an island', not as preferred, a 'critical mass of people working in a single field' (Ewer 1982). He later wrote that 'With a scientific community in any field as tiny as that in Ghana, the university departments cannot diversify their efforts and still hope to produce viable results. There must be concentration of effort so that, within a circumscribed field, there are several people at work to act as a stimulus to each other' (Ewer 1968). However, he did encourage individuals to do research. Malcolm Edmonds arrived in the department in Ghana in 1963 to teach and carry out research in entomology, and referring to Ewer wrote: 'In my early years he critically read every paper I (and colleagues) submitted for publication, and encouraged any local research...he was not against taxonomy, because he recognised it was necessary in the tropics where so many species were undescribed and unnamed, but he did not support taxonomic studies elsewhere with no relevance to Ghana.' He also encouraged the best students to do their postgraduate work in Ghana, on Ghanaian topics of applied ecological importance such as the insect pests of crops, rather than go abroad to do this.²⁰

Ewer's approach was, in several ways, similar to that of Kenneth Baker's as head of Geography at Makerere in that both 'directed the department through many phases of growth with single mindedness and thoroughness' (Baker 2003). To make the institution valuable in a developing country, it was essential, in Ewer's view, to train the students in applied aspects such as entomology, fisheries, and agriculture.²¹ He decided, after considerable thought – and rejection of his own speciality (he was a physiologist), – that a common core was required in the teaching and that it should be ecology, but it had to be experimental and 'translated into local terms' (Ewer 1982). They would no longer be teaching 'academic zoology'. The victims of this curriculum purge were the 'classical and perhaps inapplicable' subjects which included embryology, palaeontology, and much taxonomy. But what would be the consequence of throwing out the past, 'lock, stock and dogfish?' (Ewer undated). He saw the role of zoology as 'finding out how animals worked and how we could co-exist',²² not in describing new species and creating species lists. Ewer saw merit in fine dissection, which formed part of his research, when as Head of Department he was immersed in meetings and administration. He wrote, 'the way forward lay in fine dissection as the preparation would wait until one had done some other chores...I do commend fine dissection as a wonderful tranquiliser after some heated committee meeting'.²³

Ewer pursued the argument for radical curriculum change in his inaugural address, given six years after he arrived in Ghana: 'Zoology: should it exist?' (Ewer 1970). In it he developed the idea of an integrated ecological approach. He made a powerful argument for change, forecasting also the tremendous growth in the development of cellular and molecular biology. He argued that ecology must be the major area of biological research in Africa, and that the 'classical core of zoology can become a hindrance to advance'. He concluded that the existence of zoology as a distinct discipline was not really justified, and wrote: 'the contemplation of Ghana and her biological problems has broadened my thinking wonderfully. Having once been highly critical of ecology as a scientific discipline, I find myself fully converted to a different outlook', and ended his address with these words: 'Ecology in all its ramifications must be the major area of biological research in Tropical Africa' (Ewer 1970), and from this an integrated approach to teaching would follow.

The experiences of Other Expatriate Zoology Staff in Ghana

Apart from Professor Ewer, other former staff members (Ronald Bassindale and Nicholas Jago) submitted documents to the Oxford Project, and two others, Walter Pople and Malcolm Edmunds, have provided information used by the author. Some of their comments are discussed here.

Unlike many of the Ghana University appointments, Ronald Bassindale (1949–1952) came with a good deal of experience in teaching and research. In his first session at Achimota he taught a class of twenty to thirty students doing Intermediate BSc, but in his second session began the first year of degree work with a mixed class of the previous Intermediate students together with new ones. Bassindale's interest was in marine invertebrates. A sea-going motor boat was ordered, for collecting specimens by trawl and to dredge in deep water, and he later published an important work 'On the Marine Fauna of Ghana' (Bassindale 1961), becoming a specialist on barnacles.

Nicholas David Jago (1959–1965) on the other hand, was a raw recruit, arriving in Ghana as an assistant lecturer, after two years as a doctoral student in London. He came with 'the self-centredness of youth to enjoy travel and the opportunity to carry out research and service through teaching' (Jago 1982). He stayed for six years, coming under the influence of Professor Ewer, to whom he felt 'a debt of gratitude' and whom he described as 'a benign autocrat who taught his staff to master a wide range of disciplines and to hone their course material to its essentials in a Ghanaian context' (Jago 1982). In 1965 he moved to the Department of Zoology at Dar es Salaam, Tanzania (Bodleian library, Oxford MSS.Afr.s. – see Note 1).

While in Africa, Jago developed research interests on the systematics and zoogeography of West African locusts and grasshoppers and had close links with the Anti-Locust Research Centre in London (now the Centre for Overseas Pest Research) and the Desert Locust Control Organization in East Africa. By the time Jago moved to Tanzania he had formulated his own ideas and, influenced by Ewer, was 'especially keen' that terrestrial ecology and conservation should be included in the curriculum (Jago 1982). He wrote, again reflecting the influence of Ewer, that 'African Colleges are better equipped in every way with ecologically centred research' (Jago 1982). His insect collections, many new to science, and his drawings are held at the Natural History Museum, London and his obituary is in *The Telegraph* on line of 19 May 2005.

Malcolm Edmunds arrived in the department in 1963 as an entomologist following an Oxford doctorate, where 'the challenge of a young university and a new tropical country' appealed to him. He and his wife Janet, also a zoologist, 'wanted to experience...[this]... before we were tied down by children'. He had already spent six months at the University College in Jamaica doing research as a postgraduate student and so was looking forward to exploring the natural history of Africa'.²⁴

Ewer and the Wider Aspects of Biological Education in Africa

Ewer was at the forefront of changes to biological education in schools and universities in Africa in the 1960s and 1970s. He had worked full time in three

African universities, at Natal, Pietermaritzburg; Rhodes, Grahamstown and at Legon, Ghana, and had visited others as an external examiner. He had not only the necessary wide experience but also the determination and strong will to bring about change. He was a fighter and never one to accept the status quo. He published widely on this theme, wrote standard school textbooks (Ewer and Hall 1972, 1978, 1981; Ewer, Hall and Clerk 1978), practical books (Ewer, Hall and Mitchelmore 1975a, 1975b; Ewer and Hall 1980) and teacher's guides published by Longman (now Pearson Longman), as well as learned papers in educational and scientific journals on these educational matters (Ewer, 1968, 1969, 1974, 1980). He was the driving force in developing a new school biology syllabus based on the needs of West African pupils and was President of the Ghana Science Teachers Association in the mid 1960s. He was also an advocate for science for non-specialist students, 'to equip them more fully to meet those problems of development in whose solution a scientific judgment may play a key role' (Ewer 1968).

Critical of the then current school teaching in biology because 'it bred passive students with bad work habits' (Ewer 1982), Ewer believed there was a need to 'challenge students intellectually', both at school and university, and to 'break down their vision of science as simply a collection of fragments of information' (Ewer n.d.) where biology was viewed only as an accumulation of facts. Radical changes were therefore required, not only in higher education but in the school system, and in teacher training also. Ewer was one of the leaders of a study group on new approaches and techniques in biology teaching in Africa.²⁵

In the integrated approach to university teaching in countries like Ghana, where solving practical and social problems was fundamental to success, Ewer asks the question 'what should we be attempting to teach?' (Ewer 1968). He emphasises the importance of the applied and the vocational, rather than the academic science courses of the developed world. According to Jago, Ewer was convinced that the College should have been developed as a technical university and not one dominated by the Arts, and the Oxbridge mentality. He called for 'Relevant Ecology' (Ewer 1980b) which, according to him, had its true roots 'in agriculture and fisheries and not in that singularly tedious work *The Natural History of Selborne*' (Ewer 1980b). Ecology should be the central theme, with autecology, the study of a single species in all its facets. Using the cod as an example, this would introduce the students to food webs, communities, migration, behaviour and nutrition rather than anatomy, morphology, descriptive embryology and other 'dead wood'.

Recognising that the 'type system' in use at the time had serious shortcomings, Ewer was looking for a more rigorous and experimental approach to biology (Ewer 1974). In particular, there were to be guiding principles to

having ecology as the central theme in school biology teaching; the content should be suitable for those whose education would go no further in biology, rather than being a background for further study at university level; emphasis would be placed on experimental investigation in practical work; and there would be a quantitative and analytical approach to the subject rather than a descriptive one (Ewer 1969). He and others began creating a 'new look' syllabus for schools with West African-based textbooks and teacher's guides.

Conclusion

There is little doubt that over the period under consideration, biology teaching was evolving rapidly in the western world and led to curriculum reforms but early efforts at 'Africanization' of the biology curriculum in Africa were at an early stage. Contemporary challenges remain on the design and reform of the curriculum in African universities, and although these issues are not considered here, in order to understand the present situation it is important to look at the subject in an historical context. Ewer's major contribution was in adapting the biology syllabus and style of teaching to meet the needs of Africa. The traditional British system was not the only option and Ewer rejected this as the most appropriate one for Africa. He placed teaching before research and produced a syllabus which would challenge the students intellectually at school and university level. In biology there is now a greater emphasis on ecology and the environment, including nature conservation and on the more applied aspects of the subject relevant to Africa such as fisheries and wildlife management. Ewer was an academic ahead of his time and the fact that these topics are now an important part of the curriculum in Africa is a clear indication of Professor Ewer's astute judgment and innovative thinking.

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Notes

1. The Bodleian Library of Commonwealth and African Studies, University of Oxford houses papers which were classified by Penny Tolmie in 1985 under 'Higher Education in Anglophone Tropical Africa, List of documents'. This is part of the Oxford Development Records Project Report 14 and is classified under MSS. Afr.s. 1825. All three files used were received in 1982, the date quoted in the text. Professor D W Ewer's papers are in Box X (32) ffx+1–81, Ronald Bassindale's in Box 111 (5) ffiii+1–30 and Nicholas Jago's in Box XL (60) ffiv+1–42.
2. 'Gold Coast' was the name of the country now called Ghana, from 1874 to 1957.
3. Higher education in the colonies became an increasingly important issue in Britain in the 1940s, and the Asquith and Elliot Commissions (1943–45 and 1945 respectively), together with other reports, were seminal in developing university education in colonial tropical Africa. Members of the Elliot Commission were unable to agree on the way forward and a minority report was accepted by the Secretary of State in 1946, stating that only one college would be created in Nigeria, to be fed by territorial colleges in neighbouring countries. University College was thus established at Ibadan, Nigeria, in 1948. However, national ambitions led to protests in the Gold Coast and the local legislature insisted on the establishment of a separate institution. This was eventually agreed to, and a second college was founded, at Achimota, in 1948, later moving to new buildings on Legon Hill. In East Africa, Makerere had been established as a government Technical School in Kampala, Uganda in 1922, and, as a result of recommendations in the Asquith report, was recognised as a university college in 1949. Thus, by 1950, three higher education colleges had been established in anglophone tropical Africa. In addition, Fourah Bay College in Sierra Leone, established in 1827, became affiliated to the University of Durham in 1876.
4. Report of the Commission on Higher Education in West Africa (known as the Elliot Report), Cmd. 6655, HMSO, London, 1945 and the Report of the Commission on Higher Education in the Colonies (Asquith Report), Cmd. 6647, HMSO, London, 1945.
5. Report of the Commission on University Education, December 1960 – January 1961, Ministry of Education, Accra, 1961.
6. Ewer to author, 8 November, 2000.
7. The teaching of sciences in African universities. *Report of the Seminar on the Teaching of Basic Sciences in African Universities*. Rabat 13–22 December 1962. UNESCO, Paris.
8. Pople to author, 28 May 2013. Walter Pople, who now lives in South Africa, was on the zoology staff in Ghana when Ewer arrived and had been a student of Ewer's at Natal, and subsequently a lecturer there and at Rhodes in Ewer's department. His interests were in marine invertebrates, and Ewer and Pople collaborated on physiological research.

9. University of Wales (UCC/FN/Sal/5'6): Edwards is listed on the 1934'35 and 1946'47 payrolls as an Adviser in Agricultural Zoology, Cardiff. In the University College Cardiff prospectus he is listed as an Adviser from 1936'1937 and 1945'1946 (UCC/R/Pub/Pro/31'40), as previously, and as Lecturer in Entomology. He was also on the Agricultural Advisory Board in Wales, soon to be replaced by the National Agricultural Advisory Service, attending a Special Meeting in December 1946 when the work of the Board came to an end. Information from Caroline Walker, UCC, to author 20 May 2013.
10. Richard Denison Purchon was born in 1916 and died in 1992, aged 76. From 1966 to 1981 he was Professor of Zoology at the University of London and then Emeritus Professor from 1981'1992. He was Zoological Secretary of the Linnaean Society (1970'1973) and President of the Malacological Society of London (1969'1971). He is best known for his book **The Biology of the Mollusca** first published in 1968. <http://www.shelfari.com/authors/a1819414/R-D-Purcon/>
11. Ewer to author, 26 September 2000.
12. V. C. Moran to author, 29 August 2000; and to B. Greene (Ewer's daughter), 2 August 2013. Professor Cliff Moran was a student of Ewer's at Rhodes University in the 1950s. He described both Ewers as 'brilliant role models and outstanding scientists. Their research was cutting edge stuff ' when no one else's was. Their lectures were fascinating and up-to-the-minute'. Moran was Dean of Science at the University of Cape Town from 1986 to 1999.
13. NUC was granted independent university status in 1949, becoming the University of Natal.
14. For example, the correspondence between Professor D W Ewer and Professor H G –Mick' Callan, Professor of Zoology at St Andrews University, Scotland, held in the Special Collections at St Andrews at ms38367/ H/18/6/1'52. The letters deal, amongst other matters, with a vacancy for a zoologist in the department at Rhodes University; enquiries about obtaining and exchanging specimens for the museum at Rhodes; External Examinership of Professor Callan at Legon, including his examiners report and other topics. Information from Sam Gilchrist at St Andrews University library.
15. B. Greene (Ewer's daughter) to author, 16 July 2013.
16. Ewer to Callan, 27 June 1963. Special Collections at St Andrews University H/18/6/41.
17. Ewer to author, 8 November 2000.
18. Edmunds to author, 23 June 2013. Malcolm Edmunds trained as a zoologist at Oxford University and arrived in Ghana in 1963. He has wide ranging interests in natural history, has worked as a zoologist in many parts of the world and is currently active in wildlife conservation. His wife, also a zoologist, went to Ghana with him.
19. Pople to author, 15 May 2013.
20. Edmunds to author, 23 June 2013.

21. There is clear evidence that this was not Ewer's view earlier and that he was now adapting to the requirements of a developing country. He wrote in 1956 about his teaching, when in South Africa, 'I must spin some fine web to keep my own interests alive – otherwise Zoology becomes fisheries and pest control.' Letter to Callan dated 12 June 1956. Special Collections at St Andrews University H/18/6/27.
22. Pople to author, 15 May 2013.
23. Ewer to author, 27 November 2000.
24. Edmunds to author, 23 June 2013.
25. Progress Report for Permanent National Study Groups dated 1966 (UNESCO/AVS/DST/66/36(6145/2) – concerning a pilot project on 'New Approaches and Techniques in biology teaching in Africa'. This involved assessing the present state of biology teaching, identifying the problems, assessing the manpower needed, clarifying the objectives, and studying new advances. UNESCO, Paris.

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