

CHALLENGES IN TEACHING PREHISTORY AND EVOLUTION IN KENYA

by Anne Njenga and Frederick Kyalo Manthi



[Editor's Note: Kenya is one of the very few countries with a long record of fossil discoveries of early human ancestors, dating back to more than 5 million years ago, and there is a need for Kenyan students to know and understand the importance of this early record. In addition, museums, tourist sites, historic conservation projects and scientific research projects need graduates interested in and knowledgeable about prehistory. Furthermore, greater general awareness of the importance of the past can help conserve fossil and archaeological sites and also foster national pride and cohesion. Accordingly, prehistory and evolution are required subjects in the Form I (ninth grade) History curriculum; evolution is also a required part of the Form IV (12th grade) Biology curriculum. Many of the questions from students and teachers in these classes also arise in U.S. classrooms where these subjects are taught. Anne Njenga, who holds Bachelors and Masters degrees in education, is a member of the History Department at Moi Girls [Secondary] School in Nairobi. She presented a version of this paper at a recent workshop on "Human Origins" for Kenyan educators, convened by the Prehistory Club of Kenya, which was established to popularize prehistory among the general public to provide a forum for communication between scientists, museum personnel and the general public, and to enhance learning of life sciences in the schools. The workshop was hosted by the National Museums of Kenya (NMK) and the Kenya Institute of Education (KIE), with sponsorship from the Wenner-Gren Foundation (USA), Heritage (USA), and Colgate Palmolive, Ltd. (Kenya). The KIE is responsible for developing school curricula for Kenya and certifying textbooks, produced by private publishing houses, that meet those criteria. Dr. Frederick Kyalo Manthi of the NMK's Palaeontology Section, who is chairman of the Prehistory Club of Kenya, initiated and led the workshop (ASB).]

Kenya is known all over the world for its rich prehistoric remains. The country boasts of having one of the largest collections of human fossils. This is part of our national heritage of which we are proud, and we are also determined to preserve it. Accordingly, the study of prehistory and evolution is taught in Form I History.

The curriculum has three specific objectives. By the end of the topic, students should be able to:

1. Explain the origin of humans;
2. Identify the stages through which humans evolved; and
3. Describe the cultural and economic practices of early humans.

Accordingly, the curriculum content emphasizes: the meaning and process of human evolution, the stages of human evolution and the stages of cultural evolution during the Stone Age.

In discussing this information with their students, teachers of history have to contend with a number of challenges, both in regard to their personal views and in relation to the curriculum itself and how students react to it.

Our students ask questions and make observations, which may put their teachers in awkward and embarrassing situations: for example:

- Do scientists believe in evolution, or is it just a way of making money and earning a living?
- Are the scientists 100% sure that the fossils they discover are those of early humans or are they early chimpanzees or other apes?
- Is evolution real or a made-up story?
- Do we have to accept it?
- How come apes are still apes while humans evolved?
- Do other animals evolve?
- Is the study of evolution important?
- Where did the ape-like creatures [from which humans evolved] come from?
- At what stage of evolution did different races evolve?
- If humans evolved, does that mean that God did not create the world and humans?
- How come we deny the fact that people in some continents are more brainy than others, yet we talk of overlap in stages of evolution; that is in some parts of the world, human ancestors could be at the stage of *Australopithecus* whereas in another part of the world at the same time, the human inhabitants were *Homo habilis* [a more advanced stage].
- Why do textbooks written by different people sometimes give different information?
- What exactly caused species which were evolving progressively to become extinct?

- What evidence is there that humans might continue to evolve? Just because they evolved in the past does not mean they will continue evolving.
- If evolution is real, doesn't it mean that we should be born ape-like and become human as we grow up?

These questions may not have definite answers even from the most scholarly and are a major challenge for teachers to whom their students look for the ultimate answers.

A second challenge is that the theory of evolution is abstract, and not easily mastered by teachers of history who may not be knowledgeable in some aspects of biology such as genetics. For example, Charles Darwin argued that evolution took place through natural selection and isolation; others noted that mutation and random processes such as recombination, genetic drift or founder effects are also important drivers of evolutionary change. For a teacher of history to explain and illustrate these terms is an uphill task.

Thirdly, to make matters worse, the topic is taught at the form I (9th grade) level, when students have yet to develop higher thinking and argumentative skills that are critical in conceptualizing such an abstract theory.

Students also ask questions relating to the origin of species, which are not explained adequately in the history textbooks. They want information about, for example, the origin of single-celled organisms that lived in water, the emergence of different types of fish, amphibians, dinosaurs and mammals, and the "missing link" where the humans and apes parted ways. Teachers are not well-versed in these details and do not have timetables for the events in question.

Creationism and Evolution

Teachers are also challenged by special creation. More often than not, they have to contend with religious views on creation, widely accepted by world religions such as Christianity and Islam and also presented in traditional myths. Such religious views are simpler and more popular. From early times, religious views have been more convincing, and those going against them or who even suggest alternatives are seen as headed for doom. Students of Form I age are vulnerable to these religious convictions.

In addition, most teachers of history are also responsible for religious education, [a required subject in Kenya in Primary grades as well as in Forms I and II; it is optional in Forms III and IV]] whether Christian (CRE),



Kenyan educators visiting the Olorgesailie archaeological site in Kenya.

Islamic (IRE) or Hindu (HRE) Religious Education. Some students intimidate them with questions such as “Do you believe in God or in evolution?” or “Isn’t evolution just a thought?” Others simply walk out of class. The teachers find themselves unable to reconcile the creation and evolution theories. They appear to the students to have no principles.

Textbook Problems

Kenyan textbooks also present teachers with many challenges. For example, the different approved texts do not agree on the date at which different species of human ancestors evolved, they leave out important information, and give long binomial species names that we teachers may not be able to pronounce with confidence. Sometimes they even present incorrect conclusions. Some examples from our current texts include:

- Inconsistencies between history texts: “*Homo erectus* lived between 2 million and 200,000 years ago” vs. “*Homo erectus* lived between 500,000 and 350,000 years ago.”
- Inconsistencies between the history and biology texts: A biology textbook states that there is no evidence of culture associated with *Australopithecus*, yet in the history curriculum we teach that Oldowan tools were associated with both *Australopithecus* and *Homo habilis*.
- Difficult names: *Australopithecus afarensis*.
- Incorrect conclusions: “*Homo sapiens sapiens* is the modern man, whose evolution brought to an end the struggle for man to better himself.” What does this mean? Should we sum up that human evolution is finished?
- Inconsistencies between secondary curricula and recent scientific journal articles. For example, what is referred to in our curriculum as *Homo habilis* is sometimes called *Homo rudolfensis*.

Additional Issues Raised at the Workshop

As noted by Dr. Emma Mbua, head of Earth Sciences at the NMK, Kenya has very few trained scientists in prehistory and palaeontology and faces difficulties in recruiting university students to study these fields if appreciation of Kenyan prehistory is not nurtured in secondary school. Participants from Uganda, Tanzania, and South Africa, noted similar problems in their countries—in South Africa,



Dramatic performances by a South African theater troupe.

a private foundation supports performances in the schools by a travelling drama troupe, which enacts imaginary encounters with our fossil ancestors in South Africa’s caves.

Discussion centered around two related themes: how best to communicate complicated ideas to students, and how to get teachers the most up-to-date information. In Kenya, many schools and teachers do not have Internet access, and, as David Kyule, lecturer in history at the University of Nairobi, pointed out, much of the information available on the Internet is also out-of-date or incorrect. Researchers do not know how to reach teachers and their students, or may not be interested in doing so, while teachers lack the time to dig the relevant information out of the scientific literature. The NMK and the KIE could each play an important role in getting out the latest information to teachers: the NMK by sending out a regular newsletter to schools and by encouraging the Prehistory Club of Kenya to expand its outreach activities, and the KIE by sponsor-

ing/requiring in-service workshops for teachers to which researchers could contribute. Participants also called for more concrete approaches to teaching prehistory in Form I, including class visits to prehistoric sites, song and dramatization, and more use of teaching aids such as fossil casts. A German Foundation (Uraha) is helping to provide these materials; for each fossil cast ordered by a European institution, the Foundation supplies two duplicate casts to schools in Kenya and/or Malawi.

Summary and Recommendations

As can be seen from the above, Kenyan students are experiencing difficulties in understanding prehistory and evolution for several reasons. They challenge the teachers to be more knowledgeable about this subject and also challenge the curriculum developers and textbook authors to consult more closely with palaeontologists and archaeologists to provide more up-to-date information. Students rarely have a chance to visit a museum or prehistoric site, which would be helpful in making the subject more concrete, and they need teachers to use approaches that would generate more interest in the subject. Many students also feel that prehistory interferes with their faith and should be taught only to those students who want to pursue careers in research. Teachers join with their students in urging scientists, both local Kenyans and international visitors, to carry out more research in Kenya but also to visit schools to popularize prehistory and respond to some of the questions teachers are unable to answer. The Prehistory Club of Kenya is encouraged to continue with the good work it has been doing to provide casts and related artifacts to schools and to organize excursions to prehistoric sites, seminars for teachers, and international discussion forums. We hope that the museum can be brought closer to our schools through this and other avenues. We need to work together to achieve the common goal of establishing the “Where from” and “Where to” of man.

Note: The Prehistory Club of Kenya (website www.prehistoryclubkenya.org) can be reached at prehistoryclub@yahoo.com. Those wishing to join and/or support this organization can contact The Prehistory Club of Kenya, c/o Grants and Programs Officer, LSB Leakey Foundation, San Francisco, CA, 94129. Anne Njenga can be reached c/o Moi Girls School, P.O. Box 43112, Nairobi Kenya.