



LETTER TO THE EDITOR – THE KOOBI FORA CHRONICLES

From Coimbra to the Koobi Fora Field School – An evolutionary journey in 2012

Ignazio Lazagabaster^{a,*}

^aInstitute of Human Origins, School of Human Evolution and Social Change, Arizona State University, PO Box 872402
Tempe AZ 85287-2402, USA (Obra Social La Caixa Graduate Fellow)

*Corresponding author: ignacio.aguilar.lazagabaster@gmail.com

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I chose to pursue a Master's degree in Human Evolution and Biology at the University of Coimbra because of the great international reputation of the professors and because it was economically more affordable than other non-public graduate programs in Europe. Coimbra is one of the main centers of the scholar community in Portugal and I was greatly impressed with its beauty. The university (which is among the oldest in the world) dominates the

landscape, sitting at the top of a steep hill and surrounded by a conglomerate of old houses painted in white and grey. Indeed, time seems to have stopped at Coimbra – the weathered stone streets make their way down from the university to the river, forming dark and narrow passages that give the city an obscure and melancholic atmosphere (Figure 1). However, there are students filling every corner and the traditional academic life of Coimbra preserves the spirit of the past. I believe this

is the reason why I felt that engaging in study about the deep history of humanity was even more appropriate there. In classes held at the Department of Life Sciences, I learned about the biology and skeletal anatomy of modern humans, and about the evolutionary paths of species along the hominin lineage that originated us, *Homo sapiens*. It was very exciting for me to learn about the very different and yet somehow similar ape-like relatives that survived in the wild savannas of Africa millions of years ago. Or, later in time, about the lives of much closer relatives that managed to control fire and used it to wander deep into caves where they painted astounding illustrations of the animals and other figures that inspired them.



Figure 1 - the built-on-stone narrow streets of Coimbra, Portugal.

The story of human evolution is as intriguing as the story of paleoanthropology itself. Our view of the origin of our species has often been radically altered with every new fossil discovery and this continues to happen today. Perhaps the most important change in our understanding of human evolution occurred when researchers took their search for human ancestors from Europe and Asia to Africa. Since this geographic focus switch, some of the most important and emblematic fossils of our early ancestors have been found in Africa. The evidence today is overwhelming that the origin of the human lineage, all ‘major events’ (e.g., tool use), and the origin of our species all occurred in Africa. We know these thanks to brave and consistent scientists and explorers over the last 100 years. Biological anthropology textbooks are filled with photographs taken on deserted remote areas in Africa, especially East Africa, where early pioneers in the field adventured in search of human fossils. Learning of these pioneers made my imagination thrive with images of intrepid fossil hunters walking over ancient sediments where groups of early hominins once searched for food and fought for survival millions of years ago. I dreamed of one day joining the pioneers’ ranks and exploring the desolate places of the earth for those yet mysterious and yet-not-discovered human fossils.

Fortunately for me, this opportunity presented itself. Susana Carvalho (Oxford University), a professor in the Master’s program in Coimbra, offered an opportunity for one student to join the Koobi Fora Field School. Koobi Fora is the name of a vast area

of fossil-bearing sediments on the shores of Lake Turkana, in Northern Kenya. It was discovered by the famous Richard Leakey, a paleoanthropologist who was son of the also renowned Louis and Mary Leakey. The Leakey family was among those fossil hunters that pioneered the search for fossils in Africa and they have left their stamp on the history of paleoanthropology. With respect to Koobi Fora, Richard discovered the deposits while he was flying over Kenya in the 1960s. He later established the Koobi Fora Research Project base camp in 1968, right on the beach of Lake Turkana. Koobi Fora is one of those places that are always highlighted in textbooks on human evolution, and one of those places that stimulated my imagination and inspired my curiosity about the origin of humanity as a young student. As I told Susana very soon afterwards, going to Koobi Fora and seeing where the Leakey family and other researchers worked was nothing but a dream.

The Koobi Fora Field School, which was at that time (2012) directed by Rutgers University (USA), not only brings students into contact with the sediments where fossils are found, but also offers a unique experience to learn the most up-to-date research methodologies in the field of paleoanthropology. Courses are taught by eminent professors with very different research interests, like Susana Carvalho, Jack Harris (former director), Rene Bobe, David Braun or Kay Behrensmeyer. PhD students at prestigious graduate programs in evolutionary anthropology also join the school and teach some classes in the field. With the professors and PhD students,

undergraduate students have the opportunity to actively participate in various aspects of their research. In addition, students perform several activities in a wildlife reserve, where they learn the interesting characteristics of modern savanna ecosystems and the nature of the fossil record. The reader at this point can understand why many of my fellow students at the University of Coimbra were as interested as I was in having the chance of joining the Koobi Fora Field School. That is the reason why months later, when Susana and Eugénia Cunha (eminent professor at the University of Coimbra) told me that I was the one selected to go, I reacted with a mixture of incredulity and happiness. The events that happened after that day changed the course of my life forever.

At the Koobi Fora Field School, I learned the skills necessary to survey for fossils and accurately describe their location and geological context. I learned to identify skeletal remains and the taxonomy of the most important faunal groups in Plio-Pleistocene sediments of East Africa. I also learned about the different types of stone tools that were crafted by our early ancestors and the properties of the different raw materials they chose to make them with. I was taught how to recognize the marks left by the use of these stone tools on animal remains and the conclusions that can be inferred about the behavior of early hominins. I learned about the important information that can be gathered from the study of the preservation of the fossils themselves. I learned to take data on modern ecosystems and apply it to the reconstruction

of the habitats that early hominins inhabited. I learned about the geology and sedimentology of the Rift Valley, which is critical to understand the context of fossils and explain how they got there. I was taught different techniques that are used during archaeological excavations, like the use of the total station, a modern digital measuring device that allows to precisely annotate the location of fossils and archaeological items in the three dimensions. I also learned about the contribution of comparative methods and behavioral models obtained from extant close-relatives, like chimpanzees. Through all of this, I realized that to understand the behavior, anatomy, and evolution of early hominins and the origin of our species, it is necessary to integrate the different data and approaches applied by researchers of the

various disciplines that contribute to understanding human origins. Moreover, I learned good practice for science in general – for example, every scientific publication should be read with a critical eye, that sometimes the most fundamental assumptions should be questioned and that I should take nothing for granted. These are very important points. As paleoanthropologists, we try to describe the past as accurately as possible but our conclusions are based on very little and generally scarce evidence. We have learned so much in the past decades about human evolution and, even now, we are far from understanding how we became the unique species we are.

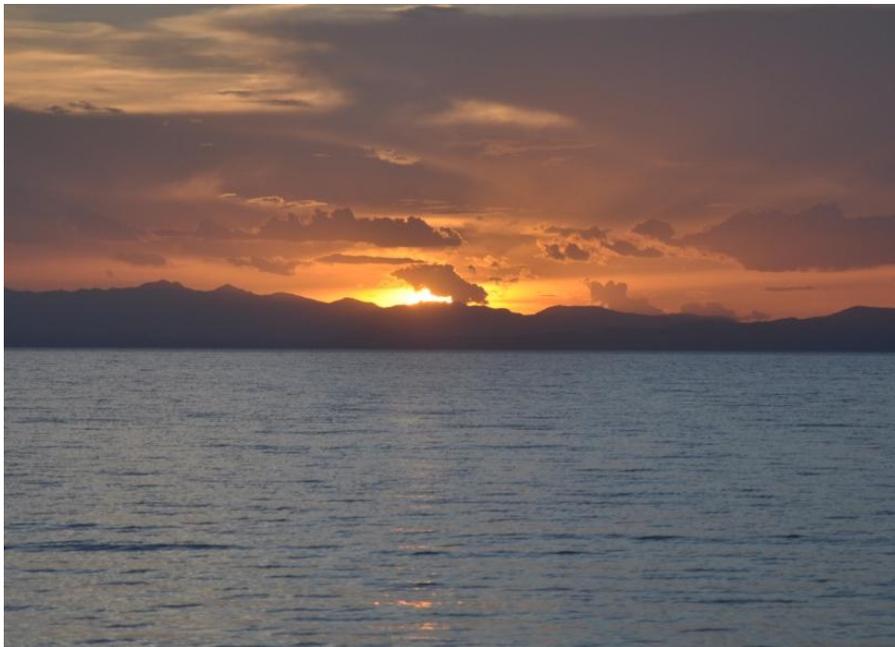


Figure 2 - View of the sunset at Lake Turkana from the Koobi Fora Base Camp, Kenya.

Apart from improving my research skills, the Koobi Fora Field School was immensely important in furthering my academic career. Most importantly it allowed me to engage with various professors that, after getting to know me well over two months' time, encouraged me to apply to programs at universities in the United States. These programs offered the opportunity to join other expeditions to Africa and participate in other interesting projects. Some of these professors actually supported my applications, writing letters of recommendation and advising me on my research interests. Thanks to them, I am currently undertaking my PhD studies in the graduate program of Evolutionary Anthropology at Arizona State University (ASU). I am also affiliated with the Institute of Human Origins (IHO), one of the top research institutes in the world for human evolution and that was founded by Dr. Donald Johanson (the co-discoverer of "Lucy"). My work with ASU and IHO has recently brought me to other hominin-bearing sites in Ethiopia and South Africa, where I participated in the exciting work currently being done there.

But even more important than my academic success, Koobi Fora was a life-changing experience that imprinted an array of memories and feelings deep inside me. For example, I will never forget the feeling I had when I arrived in Nairobi, the capital of Kenya, and I was driven around the busy streets filled with *matatus*, jam-packed vans that serve as public transportation in the city but drive *kind-of-crazily*. I will also never forget the feeling I had when I saw the anthropological, paleontological, and

archaeological collections at the Kenyan National Museums. Their cabinets protect priceless evidence of our past and the fossils that have been collected during the past century. I still remember the excitement of helping load the trucks with all the equipment necessary to spend almost two months in the field, and the feeling of travelling high up onto the flanks of the Rift Valley and then down again into the savanna-type landscape on our way to Lake Turkana. The excitement I felt while driving a 4-wheel drive vehicle in search of wild African game, like elephants. I remember the deep emotions I felt when I saw Lake Turkana for the first time, illuminated by the intense fire-like orange of the sunset (Figure 2). The feeling I had when I found my first fossil in Africa and I immediately started looking for the next one. The feeling I had every night when I looked to the sky and I was gifted with the astonishing view of millions of reluctant stars. I remember perfectly the sound of hyenas near the camp and the elegant movement of the crocodiles that shared a bath with us in the lake. I could never forget the night when rain would not stop pouring and part of our camp was literally washed away. The rain was so heavy that the next day many of the deposits had been eroded down, revealing many of the fossils that were buried. I jumped and laughed at any new fossil discovery that day. I remember the time I spent with the people of the tribes living in that region, which maintain a traditional pastoralist subsistence way of life. I will definitely not forget the day I left Kenya and realized that my view of the world had changed and that my perspective was much wider than before.

The last time I went to Coimbra and walked through its old and narrow streets, I inevitably thought about Africa. After my Koobi Fora experience, it seemed to me that the world was a lot smaller and the origin of humanity was a little less obscure. Early hominins became bipedal, learned how to use stone tools, controlled fire, and eventually went out of Africa and occupied

the world, and I am here thanks to that success. I could not stop thinking of the highly improbable chain of events that happened during the course of human evolution and that they ultimately explained who I was and where I came from. In the fascinating adventure of human evolution, I have had the luck of being in the first row.