


## ERIC DELSON

**E**ric Delson is a professor of anthropology at Lehman College and at the Graduate Center of City University of New York (CUNY). Since its founding in 1991, Eric has been the director of the New York Consortium in Evolutionary Primatology (NYCEP), a multi-institutional graduate training program in biological anthropology. NYCEP reflects Eric's wide range of interests in learning about human (and primate) evolution from a 360-degree perspective. Eric's extensive research includes more than two hundred scientific articles, several books and monographs covering everything from Pliocene monkey evolution to human phylogenies, as well as novel three-dimensional morphometric tools to model ancestral morphologies. As this book goes to press, Eric is retiring from teaching and administrative work to concentrate on research, mainly based at the American Museum of Natural History.

### YOUR BEGINNINGS

 I enjoyed science in high school and in college planned to study physics, which turned out to be very difficult. As I finished the last required course in the physics major, I took a class on human evolution "for fun." William Howells, who taught the class, allowed me to take it without the required prerequisite, and I was hooked. For my last three semesters, I took classes in physical anthropology, Paleolithic archaeology, Pleistocene geology, and biology. I wrote term papers on *Ramapithecus*, Pleistocene climate, Oldowan tools and (in a class on primate behavior) the fossil record of African and Eurasian cercopithecoid monkeys. Howells had me work as a lab assistant, curate the teaching collection, assist with his study of the

Kanapoi distal humerus (the first specimen of *Australopithecus anamensis* ever found) with Bryan Patterson, and serve as teaching assistant when taught the same course on human evolution again; he even allowed me to teach a class on fossil primates. Because there were so many researchers interested in human fossils (almost more than the number of such fossils), I decided to focus my career on the evolution of cercopithecids, and I continued to study human fossils when possible.

#### GAME CHANGER



*Early Man*, a book in the Time-Life science series, was written by F. Clark Howell and appeared in 1965.<sup>1</sup> In it, Howell explained his approach to paleoanthropology, the integrated study of human paleontology, prehistoric archaeology, and the geological background (including dating, stratigraphy, and other aspects) of the study of a site. I read it just as I was taking Paleolithic archaeology courses, and it helped convince me to become a paleoanthropologist and recognize the right way to study that field.

#### TIME TRAVEL



As a science-fiction buff, this question really grabbed me. I can't choose just one destination, so here are several:

(a) The Sima de los Huesos (Pit of the Bones) is a section of the Atapuerca cave system in northern Spain where hundreds of bones representing at least twenty-five individuals have been found. The excavators think the inhabitants (early ancestors of Neanderthals who lived some 400,000 years ago) threw corpses down a "chute" deep inside the cave in some kind of ceremony. Others think the bones may have floated in on flood waters or otherwise arrived naturally. I'd like to travel there to see what really happened and to observe these early humans interacting with each other.

(b) A similar situation existed in the Dinaledi Chamber of the Rising Star cave system in South Africa. The humans who lived in the area were members of the species *Homo naledi*, which looks like early *Homo* of 2 million years ago but has been dated to between 335,000 and 225,000 years ago. Hundreds of bones representing numerous individuals were again found at the end of a long drop-off that can only be reached today by an arduous climb through the cave, but it was probably accessed another way at the time. I would travel there to see if they actually threw corpses into the chamber and also to see what these strange humans looked like.

(c) At several other sites in South Africa much earlier humans, termed australopiths, lived, and some scientists have suggested that two different species were found together. At Sterkfontein (perhaps 2.4–2 million years ago), most fossils are identified as *Australopithecus africanus*, but some have been suggested to represent *Australopithecus prometheus*; it is not clear whether they actually lived at the same time and place or replaced each other across the landscape over time. Later fossils from Sterkfontein (about 2–1.8 million years ago) are identified as early representatives of *Homo*, who made stone tools. Across the Blaauwbank Valley at Swartkrans, within the 2–1.6 million years ago time span, members of a bulkier species named *Paranthropus robustus* are thought to have lived alongside or near other early *Homo* individuals, and it is not clear if one or both species made stone tools. If I could travel there and move forward in time from 2.4 to 1.6 million years ago, I might be able to see if these species were different, if they interacted, and who made tools.

(d) The first site that has yielded well-preserved fossils of *Homo* outside Africa is at Dmanisi, in Georgia, dated to about 1.8 million years ago. There is a great deal of morphological variation in the five known skulls, and some authors think that more than one species lived there. It would be interesting to look at a larger population living there to see whether they were members of a single species or if more than one species lived there over time and space.

(e) More recent populations are also of great interest. For example, the *Homo floresiensis* inhabitants of the Liang Bua cave on the Indonesian island of Flores are colloquially known as “hobbits” because of their small body and brain size. Their morphology indicates that they may have had an ancient divergence from other humans (about 2 million years ago?). They may have become reduced in size over time as do many large mammalian species isolated on islands where food is at a premium. Some authors have suggested that they are merely modern humans with some degenerative disease, but recent dates show that they lived between 100,000 and 50,000 years ago, well before modern humans seem to have reached this area. I would be interested in observing these humans and their way of life and to see if they persisted long enough to interact with *Homo sapiens* once they reached Flores.

(f) Of similar age and size are the less well-known *Homo luzonensis* from the Philippines, and it would be interesting to observe them as well.

(g) Another little-known species of *Homo* are the Denisovans, mainly known from a few bone fragments found at the Denisova Cave in Siberian Russia and one lower jaw from a cave on the high-altitude Tibetan Plateau in China. Study of the DNA of these fossils shows that the Denisovans are most closely related to the Neanderthals (and farther from *Homo sapiens*), but some modern populations also have small amounts of similar DNA. A visit to Denisova would reveal what they actually

looked like and confirm that they interacted with the Neanderthals who also lived locally, between about 100,000 and 50,000 years ago.

(h) The Neanderthals (*Homo neanderthalensis*) are far better known and lived across western Eurasia from about 400,000 (see [a] above) to 40,000 years ago, when modern humans appear to have replaced them in a short period of time. Visits to several Neanderthal sites during this interval would reveal how they behaved, how “modern” they were in cognitive abilities, and eventually how they interacted with the incoming *Homo sapiens*. At the French site of St. Césaire, one Neanderthal fossil is known alongside stone tools called Chatelperronian, which look like those made by later modern humans, and it would be interesting to learn about the relationship between these species.

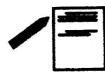
(i) In addition to these questions about fossil human species, I am also interested in looking into questions about the monkey fossils I study. For example, I spent parts of seven summers excavating the site of Senèze, in central France, where mammals came to drink from a lake inside a volcanic crater about 2 million years ago. I would love to visit there and see what it actually looked like. One of the animals known from that site is a large monkey called *Paradolichopithecus*, related to the macaques of Asia and North Africa (and Gibraltar). Similar monkeys are known from fossil sites in Spain, Romania, and Greece, and others (called *Procynocephalus*) from India and China, all dated between 3.5 and 1.5 million years ago. Some of my colleagues think they are really the same animal, but I don’t, and I’d like to watch them all to see if they are different. I also would like to visit a site in India called Kurnool, which yielded a tooth I identified as *Theropithecus*, similar to a species that lives today only in highland Ethiopia. I am not sure how that animal (a young juvenile based on its little-worn tooth) got to India, and that would be fun to track down.

## EVOLUTIONARY LESSONS



I am not at all sure that human evolutionary studies can be helpful for people today, but I find it fun.

## ADVICE



I advise students thinking about studying paleoanthropology to learn all they can about the fields that fit together to make that integrated discipline: biology, especially evolutionary aspects, ecology, and comparative morphology; geology, especially topics like dating

methods, stratigraphic correlation, climate reconstruction, and taphonomy; paleontology (the intersection of geology and biology), especially of mammals; statistics and other mathematical approaches, and computer science; and the major components of biological anthropology (human paleontology, skeletal biology, genetics, and behavior) and prehistoric archaeology (Paleolithic studies, stone tool manufacture, lifeway reconstruction and excavation techniques). After learning about these concepts, a student can put them together and decide which to emphasize in a career in paleoanthropology.

#### INSPIRING PEOPLE?



I'd like to discuss these ideas with Thomas Henry Huxley, "Darwin's Bulldog." He was more interested in human evolution and its paleontological and comparative morphological basis than was Darwin, and he seems to have been far more outgoing in his interpersonal communication. It would take a while to explain a lot of the background, but I imagine he would catch on quickly and have some fascinating reactions.