Fig. 1. Gran Dolina site in the Atapuerca Mountains. The image shows stratigraphic levels where numerous fossil and archaeological remains have been found. Image by Jordi Mestre, Fundación Atapuerca

MY FAVOURITE PREHISTORIC SITE

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Most prehistoric sites, especially those pertaining to human fossil species, bear no resemblance to the archaeological sites of more recent historic periods. The splendour of Pompeii and Herculaneum, the enigmatic beauty of Chichen Itza, or the astonishing majesty of the Acropolis will not be felt here. Prehistoric sites are often camouflaged against the surrounding nature, some of them as part of cave systems that are at times serendipitously discovered by fortunate archaeologists. To the eye of the visitor expecting to meet one of the few wonders of the prehistoric world, these sites may look rather inanimate and anticlimactic.

For scientists, however, prehistoric sites are full of treasures, as for thousands, even millions of years they have been discreetly preserving secrets that may tell us who we are. A modern archaeologist who finds remains left behind by humans who lived and died long ago has a rare opportunity to travel in time, to look through a unique window into our remote past. In spite of their apparent dullness, this makes prehistoric sites almost magic places where we can connect with our ancestors, where we can fully grasp our grandeur as a species and our insignificance as individuals.

Choosing a single favourite site is not an easy task. Sites come in all sizes, colours and shapes, and their significance differs widely. Some people will be inclined to choose one of the sites that have yielded early human-made stone tools, which represent the first tangible evidence of our humanness. Others will prefer sites preserving evidence of the use of fire, which indicates that humans were capable of controlling and dominating natural forces. And others will pick one showing magnificent pieces of rock art, which reveal an aesthetic sensitivity so similar to our own. The competition is certainly tough, so I would rather let it rely on the personal and subjective factors that make us consider certain places special.

For me, such a place is located in Northern Spain, deep in the Atapuerca mountains. Most of my PhD research focused on the analysis of the human groups that lived in this region hundreds of thousands of years ago, so the sentimental link is pretty obvious. These well-known sites include a number of localities that have been inhabited by different human groups, beginning more than one million years ago up to until recent historical times. They all left behind bones, tools and other material remains that provide clues on the way they lived and interacted with the environment. It is difficult to understand what has made this place so appealing to different human species over such a long period of time. Although this place is nowadays cold —both literally and figuratively— different human groups must have found these mountains a welcoming and resourceful environment where they were able to survive. Luckily enough, their remains have been preserved over time and they now tell us stories of our evolutionary past.

Fig. 2. How will future generations see us? Image by NASA (http://www.nasa.gov/).

The Atapuerca archaeological sites were included in UNESCO's world heritage list in 2000, which triggered an important architectural and economic change of the region because of a strong development of cultural tourism. A few other paleoanthropological sites across the world share this UNESCO distinction, namely those that have yielded a similar wealth of fossil and archaeological remains. The conservation of the cultural heritage of past human species is indeed of utmost importance. It is absolutely irreplaceable, as it is the result of the activity of species that are extinct and that, as far as we can infer, had different ways from our own to process information and to interact with the environment.

Inferring the ways in which these groups led their lives is particularly difficult because the evidence they left is scarce and fragmentary. Part of this evidence includes their own skeletal remains, which provide information on different aspects of early human life. For example, microscopic and macroscopic marks on teeth provide information on dietary habits of the past, whereas bone anatomy can be indicative of the diseases that individuals suffered from and their patterns of activity. Additional evidence includes objects that belonged to humans of the remote past, such as tools they manufactured and remains of the animals they hunted. These objects allow us to formulate questions about human-environment interactions (why did they eat some animals and not others?), or about their cognitive capacities (how did they make their tools? how did young knappers learn tool-making abilities?). Many sites are located in areas that these humans used for shelter and other daily activities, so their very structure indicates the needs and the preferences of these groups, just as modern homes give information on our cultural and social context, and on our own personal preferences.

Thinking about the lives of our ancestors always makes me wonder how future generations will see us. Not those of the next century or the next millennium, as they will have plenty of information to draw from. I am considering people who will be living in 6 million years' time, which is the amount of time that has passed since the human lineage separated from that of the chimpanzee; or in 60 million years' time, which is approximately the evolutionary age of the broader primate group we belong to. Historical, social and technological changes have been so astonishing during the last few centuries that thinking along these extended time-scales leaves us with a profound existential vertigo. Six million years is approximately 30,000 times the modern industrial period. If we assume that the level of technological and scientific development will keep the same pace —which is a rather conservative estimate— implications are mind-blowing. How will humans evolve? How will future

humans shape their own evolution? Will they colonize other planets, thus finding new opportunities for diversification and speciation? Will they find other forms of life? This may sound like science fiction, but it is certain that prehistoric cave painters never foresaw the world we live in today. It is indeed most likely that future societies will change and evolve in ways we cannot anticipate, in response to challenges —both environmental and intellectual— we cannot even imagine. It is our responsibility to preserve our cultural and natural heritage and to make sure that future generations may have the same opportunities to understand us and all those who came before.

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