Knowing ourselves

In the 150 years since the discovery of human fossils at Cro-Magnon, archaeologists and palaeoanthropologists have grappled with the questions of how to recognize our species in the fossil record, and what we should call ourselves.

In the spring of 1868, railway construction in the small town of Les Eyzies in southwest France caused rock-fall from a limestone cliff[1]. The rock-fall exposed a shelter and when railway engineers saw within they realized the cave contained broken bones, knapped flint and human skulls. Such sights were becoming more common in the region: earlier that decade, antiquarians Édouard Lartet and Henry Christy had excavated numerous caves in the Dordogne, such as La Madeleine and Le Moustier, and the antiquity of humankind was dawning on scientific society. Realizing that the site could be important, the engineers halted work and called the authorities. Shortly after, Lartet's son Louis (also a geologist and palaeontologist) received permission to excavate the shelter, which was known as Cro-Magnon, after a local hermit.

In addition to stone tools, hearths and ornaments made from shells and animal teeth, Louis Lartet found four adult skeletons, an infant skeleton and fragmented bones. The skeletons bore evidence of fused fractures and multiple pathologies, were thickset, but recognizably human. Lartet recognized that they were accompanied by the kinds of stone tools that his father had proposed related to an early phase of the Palaeolithic: the era of the mammoth hunters. Evidently the inhabitants of Cro-Magnon were humans of great antiquity. Much later, radiometric dating of one of the shell ornaments to approximately 28,000 years old[2] would reveal that Lartet was right. Yet despite the increasing number of such discoveries at this time in the nineteenth century, relating the ancient human remains to modern-day humankind was a perplexing question both philosophically and scientifically. The question of why the remains from Cro-Magnon are important at all is perhaps most confusing: they were not the first excavated human remains to be attributed to a much earlier time, yet their name is one of the few palaeoanthropological terms to have currency in the wider public.

The confusing issue of precedence is illustrated by a slightly earlier discovery in Germany. Four years before Cro-Magnon was exposed, the Anglo–Irish geologist William King had argued that skeletal material of "unusual thickness", discovered in the 1850s in the Neander Valley near Düsseldorf, should be designated as a sub-species of *Homo sapiens*: *H. sapiens neanderthalensis*[3]. It's a well-known 'what if' story in palaeoanthropology that, had the significance been recognized of a skull recovered in Forbes' Quarry, Gibraltar, in the 1840s, we could well be referring to Gibraltarians or Forbes' Quarryans, rather than Neanderthals. But Cro-Magnon has its own, lesser-known what if. In 1864, the same year William King named the Neanderthals, Richard Owen presented an account of human remains from the site of Bruniquel in Tarn et Garonne, associated with what he recognized were extinct animals, but stopped short of explicitly discussing the taxonomic attribution of the human remains[4].

Perhaps Louis Lartet was inspired by King's taxonomic gumption, or just by the growing atmosphere of excitement that characterized the 1860s in the nascent study of human evolution; Charles Lyell's *Antiquity of Man*, which linked Darwin's theory of evolution, the uniformity of the geological record and the age of humankind, was published in 1863, and Édouard Lartet had influenced Lyell's ideas[5]. Either way, in 1869 Louis Lartet proposed the Cro-Magnon skeletons as *H. sapiens fossilis* — like the new Neanderthals, they were evidently human but just a bit different. As *H. sapiens fossilis*, Cro-Magnon assumed a status in discussing human origins, but this status was not established by any chronological precedence in discovery, as is usually the case in taxonomy, where a holotype or 'type specimen' becomes the baseline for future attributions to the same species.

The issue of whether there is a type specimen for the human species is yet another matter of debate. Linnaeus, in naming *H. sapiens* in 1758, laconically wrote "know thyself", creating a taxonomic conundrum that has so far lasted 260 years. Notton and Stringer discuss the evidence that Linnaeus implicitly regarded himself as the type specimen, though one of limited utility since removing and analysing his bones from Uppsala Cathedral might be frowned upon. But an alternative argument is that there is no type specimen unless the namer of a species explicitly designates one. To a certain extent, then, the importance of Cro-Magnon is that it came to take the place of a conceptual type specimen for *H. sapiens*. It was common practice within the discipline to refer to Cro-Magnon humans as a means of differentiating between *H. sapiens*, 'us', and *H. neanderthalensis*, 'them'[6]. By the 1990s however, the term Cro-Magnon, and to a certain extent, *H. sapiens*, had fallen out of scientific discourse, in favour of a term perceived to be more specific and neutral: 'Anatomically Modern Humans'. Preferential use of this term perhaps reflected our confusing baptism as a species as well as then-current theories about transitional and recent 'revolutions' in cognition and behaviour in the archaeological record[7,8].

Trends ebb and flow, however, and widening appreciation of the bush-like nature of human evolution, within-species variation and introgression, and improved dating, have now sparked a debate on how useful a term 'modern' is. Fossils found at Jebel Irhoud in Morocco have pushed back the origins of Anatomically Modern Humans to over 300,000 years ago[9], yet their long braincases and large teeth look archaic, not modern. Meanwhile the Neanderthal face has come to be regarded as more derived in its evolutionary trajectory than ours in our own. In this context, the terms archaic and modern are losing their value as we come to understand there is no simple temporal split between the two[10]. As such, there are calls to revive use of *H. sapiens* as the simplest and least-loaded term as we grapple with the complexity of the human lineage, and the murky boundaries of our own species[11]. It has taken 150 years after the discovery of Cro-Magnon, and 260 years since Linnaeus urged us to know ourselves, but perhaps we can now agree on our own name. ❐

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