

RESEARCH ARTICLE

We Are Not Alone: William King and the Naming of the Neanderthals

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ABSTRACT The story of human history was changed forever in 1863 with William King's proposal that we had not always been the sole members of the *Homo* genus. Yet, more than 150 years after *Homo neanderthalensis* was first named and then summarized in the pages of *The Anthropological Review*, the man responsible for this revolutionary announcement is poorly known in the field of palaeoanthropology today. Following the sesquicentennial anniversary of this seminal event in 2013, a timely reappraisal is given of King's reputation, legacy, and work within the intellectual vortex of his time. [*Neanderthals, human evolution, history of paleoanthropology, William King*]

RESUMEN La narrativa de la historia humana fue cambiada por siempre en 1863 con la propuesta de William King que no siempre hemos sido los únicos miembros del género *Homo*. Sin embargo, más de 150 años después que fue nombrado el *Homo neanderthalensis* por primera vez y luego resumido en las páginas de *The Anthropological Review*, el hombre responsable por este anuncio revolucionario es poco conocido en el campo de la paleoantropología hoy. Siguiendo el sesquicentenario de este evento seminal en 2013, una revaloración a tiempo es dada a la reputación, legado y trabajo de Rey dentro del vórtice intelectual de su tiempo. [*neandertales, evolución humana, historia de la paleoantropología, William King*]

The thirty-third meeting of the British Association for the Advancement of Science was held in Newcastle-upon-Tyne. Local-born William King (Figure 1) traveled from Galway, in Ireland, where he was a professor of geology and mineralogy, to give a presentation on what he believed to be a new and ancient species of hominin that he called *Homo neanderthalensis*. His announcement, first reported in the pages of *The Anthropological Review* (among other outlets) in 1863, would change our understanding of human evolution forever.

In 1856, a skeleton was accidentally discovered among cave sediments extracted from the Kleine Feldhofer Cave, Neander Valley, Germany (Figure 2). The cave, situated 20 m up a steep cliff, was uncovered during limestone quarrying in the valley, a deep narrow gorge that carries the Düsseldorf River and meets the Rhine 13 km to the east in Düsseldorf. The cave was small, “high enough to admit a man,” some 2 m wide, 5 m deep, and filled with 1.5 m of “mud” (Busk 1861,

1861). Because the cave sediments were considered to be a contaminant by the quarrymen, the chamber was emptied of its deposits by two laborers who noticed the bones but did not recognize them as human. They subsequently dumped the contents of the cave on the quarry floor, where, some weeks later, the bones were removed and brought to the attention of a local schoolteacher, Johann Carl Fuhlrott (1803–1877) (Fuhlrott presented these findings in 1857, cited in Busk 1861; see also Hrdlička 1913; Murray et al. 2015). By then, only larger elements remained—the skull cap and some limb bones—of what was in all probability a complete burial (Lyell 1863, 60). Fuhlrott recognized them as human and set in motion a series of events that would culminate in the naming of a new yet ancient human species: *Homo neanderthalensis*.

The scientist who took on this pioneering endeavor was William King D.Sc. (1809–1886). King was the first professor of mineralogy and geology at Queen's College



FIGURE 1. Photograph portrait of William King—one of few confirmed photographs of King in public circulation.

Galway, Ireland, where he was later made professor of natural history. He could scarcely have guessed that his conclusions would spark a debate that would last 150 years (Tattersall 2007, 141). Although the name that King gave to Neanderthals would eventually be accepted, his own name is seldom remembered. Yet this moment represents the first accepted recognition of another species of hominin other than our own: the first realization that we were not alone within our genus, and a key turning point in discussions of the race, species, and the evolution of humans. The recent 150th anniversary of the naming of the Neanderthals has generated a raft of papers considering King's life and contribution to paleoanthropology (DeArce 2020; DeArce and Wyse Jackson 2014; Murray et al. 2015). Here we explore King's pronouncement in the context of the scientific and social milieu of the day and his standing within it.

A FOSSIL WITH NO NAME (1856–1863)

Johann Fuhlrott took the bones from the Kleine Feldhofer Cave to Hermann Schaaffhausen (1816–1893), professor of anatomy at the University of Bonn. On February 4, 1857, Schaaffhausen presented a paper to the Lower Rhine Medical and Natural History Society. This was followed on June 2 by a joint paper with Fuhlrott to the Natural History Society of Prussian Rhineland and Westphalia (both papers cited in Hrdlička 1913). Fuhlrott regarded the bones as fossils, which anthropologist Aleš Hrdlička interpreted as mean-

ing not only mineralized but also belonging to a form of humanity that no longer existed (Hrdlička 1913, 516–17). Schaaffhausen (translated in Busk 1861) shared these views, noting that:

- (1) the form of the skull was natural and not a deformed modern specimen;
- (2) it belonged to a race antecedent to the time of the Celts and the Germans, and probably represented one of the “wild races” of northwestern Europe;
- (3) it was contemporaneous with the last of the ice age mammals, although he admitted that there was no direct evidence to support such an association.

Jointly, Schaaffhausen and Fuhlrott reached the conclusion that the bones belonged to an ancient and previously unrecognized form of human, two years before either Darwin's *Origin of Species* was published or the debate on the depth of human antiquity was fully settled. This was not, however, an entirely unprecedented claim. The question of human variation had fascinated scientists for decades (Trigger 1989). Several theories aimed at explaining human variation and the possibility of transmutation of one variant to another were already circulating among the scientific communities of Europe, but no adequate mechanism had been formulated before *Origins* (that said, many of Darwin's friends knew at least the basics of the theory years prior to publication). In 1817, Julien-Joseph Virey (1775–1846) divided extant humans into two species based on anatomy and culture (Trigger 1989). Ten years later, Jean Baptiste Bory de Saint-Vincent (1778–1846), a proponent of Lamarckian evolution, identified fifteen living human species originating from different homelands (de Saint-Vincent 1827). By 1863, such ideas were still in circulation. At Section E (Geography and Ethnography) of the Newcastle BAAS meeting (where King presented his paper to Section C [Geology]), the president of the Anthropological Society, James Hunt (1833–1869), suggested that Europeans were a different species from sub-Saharan Africans, to the consternation of ethnographers and non-Europeans in the room (Anon 1863a).

To this end, the term *species* in use among the educated and scientific community of the time has a poor correspondence in many cases with the modern biological meaning of a species. For example, in William Smellie's translations of Comte de Buffon's *Natural History* (1785), Buffon provided the definition of *species* common in contemporary usage, which was an open-ended concept used to designate both a categorical difference as well as a biological difference. Referring to Buffon's work, the educated French traveler Montulé (1821, 44) opined that all human *species* may originate from Africa, and despite being changed by natural forces, they are still part of the greater “human species.” These works highlight the persistence of a pre-Linnaean concept of species up to the time of the Feldhofer discovery.

Thus, it was common practice to speak of the human species while at the same time to speak of *species* of humans

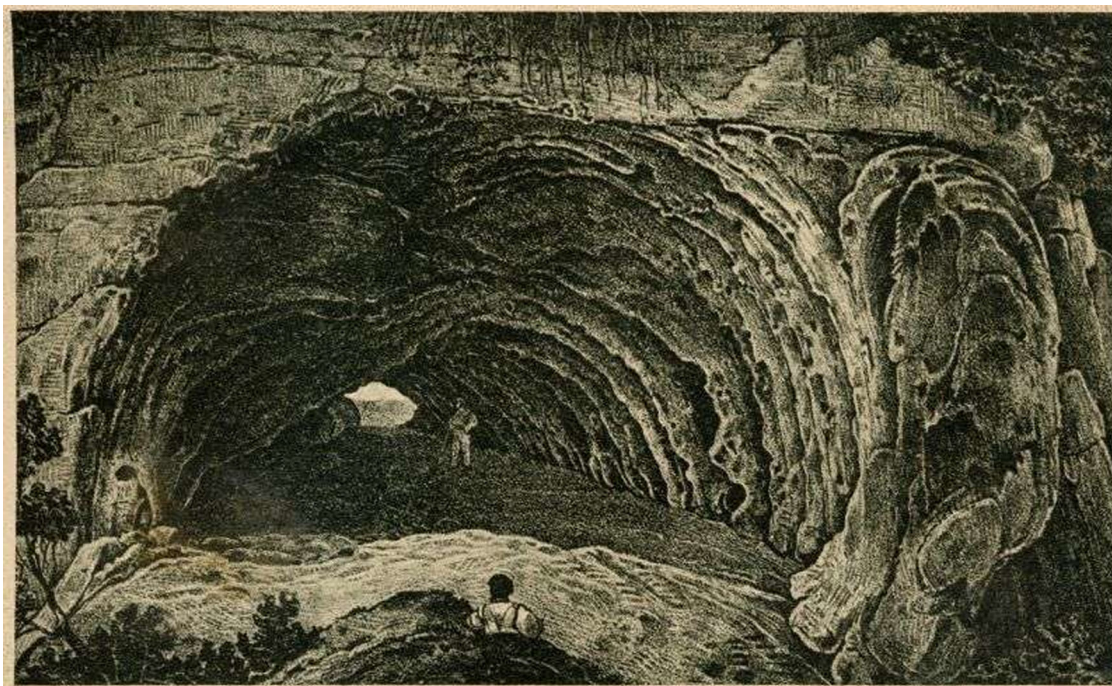


FIGURE 2. “Die Neandershöhle,” a lithograph of the cave in the Neander Valley by an unknown artist. [This figure appears in color in the online issue]

or different categories of humans. Nevertheless, such principles or language were not universally accepted, particularly among ethnographers and geologists. The latter included Charles Lyell (1797–1875), who maintained that all living humans were the same species, although he was receptive to the notion of subspecies (Lyell 1863; Trigger 1989).

Even though the immediate reaction to Fuhlrott’s and Schaaffhausen’s announcement was muted, with some members of the audience insisting that the skull was not even human, their discovery attracted attention. In 1860, Fuhlrott guided the eminent British geologist Charles Lyell to the Feldhofer Cave, which by then had almost been entirely quarried away. Lyell (1863) was still able to generate a basic geological section and satisfy himself that the deposits were probably as old as those at Engis in Belgium, where Schmerling had discovered human fossils in 1829 (although they were not recognized as Neanderthal until 1936). In other words, the Feldhofer Cave human remains were Pleistocene in age. If true, then the skull would exemplify a less advanced stage of development and improvement; if it were recent, it might be a case of atavism (the devolution to an ancestral type). Either way, Lyell saw the skull as representing a primitive state of humanity.

In 1861, George Busk (1807–1886), anatomist at the Royal College of Surgeons, translated Schaaffhausen’s paper into English with a commentary of his own thoughts (Busk 1861), bringing the specimen to the attention of a global audience for the first time (Huxley 1864). Busk opined that the idea of humans coexisting with extinct animals in the deep past was now a matter of fact but noted that this had been worked out from artifacts and not fossils. What, he pondered, would such a “priscan race” look like? Accepting

the “enormous antiquity” of the Feldhofer specimen (1861, 172), Busk was still uncertain whether the form of the skull represented an individual peculiarity (i.e., it was a deformed modern human) or a typical character (i.e., it characterized a separate race of humans). His own examination of the cast given by Fuhlrott to Lyell suggested a “very savage type” of human approaching that of a chimpanzee or gorilla.

The same year, a cast in the possession of Mr. Gregory of 25 Golden Square, London, was examined and exhibited before the Anthropological Society of London by paleontologist and anthropologist Charles Carter Blake (1840–1897). For a twenty-one-year-old parvenu, he was markedly assured in declaring that apart from the brow ridges, the skull bore very little resemblance to the living apes and should be considered as *Homo sapiens*: “man-Man, not ape-Man” (Carter Blake 1861, cited in Carter Blake 1864, clii).

Other fossils soon entered the arena. During 1862–1863, Busk, along with his friend the paleontologist Hugh Falconer (1808–1865), examined the Gibraltar I skull discovered at Forbes’ Quarry in 1848. In a letter to Busk dated August 1864, Falconer suggested to his friend: “My dear Busk, a hint or two about the names which I have been rubbing up for the Priscan Pithecoïd skull, *Homo var. calpicus*, from Calpe, the ancient name for the Rock of Gibraltar. What say you?” In their presentations at the 1864 BAAS meeting at Bath, Busk noted that there were similarities between the Gibraltar and Feldhofer specimens (Busk 1865), but neither man apparently went forward with the idea that the Gibraltar specimen was a new species (it is important to note that the contents of Falconer’s paper are not known as it appears not to have been printed; the BAAS report

consists only of the title). Whether their recognition of these similarities and knowledge of King's priority stayed their hand from proposing Falconer's new name is unknown. Nonetheless, while it may have been stillborn, or even in jest, *Homo calpicus* clearly shows that some highly eminent scientists—both were fellows of the Royal Society, both were connected to the Evans-Prestwich-Lubbock network, and Busk was a member of the influential X Club (Barton 1998)—genuinely entertained the notion that ancient species of humans not quite like ourselves were just waiting to be found (Madison 2020).

Thomas Huxley's examination of Lyell's Neanderthal cast confirmed its peculiarities: "In truth, the Neanderthal cranium has the most extraordinary characters," he wrote in *Man's Place in Nature* (Huxley 1863, 182). He concluded that the Neanderthal skull was "the most pithecoïd of human crania yet discovered" but that the large brain, "as large as a modern human and twice the size of an ape's," indicated that these "pithecoïd tendencies ... did not extend deep into the organisation"; the post-crania were also argued to be of similar stature and proportions to Europeans of medium build. For Huxley, then, brain size was the key characteristic, and he therefore saw no cause for regarding the Neander Valley specimen as a missing link between humans and apes, interpreting it instead as the extreme end of variation within modern races. The common ancestor, he contended, would be much older than the Neanderthal specimen, which he considered to be of "great, though uncertain, antiquity" (120).

This is the arena into which King stepped in August 1863. The Neanderthal skull by then had become well known within both educated and scientific circles, spreading through far-reaching books and essays by scholars such as Lyell and Huxley, and by letter and word of mouth through the private parlors, gentlemen's clubs, and learned societies of Britain. But who was William King, and how did it fall to him to name the Neanderthals?

WILLIAM KING (1809–1886): HIS LIFE IN BRIEF

The main works detailing King's career and contribution to science have largely been biographical (DeArce and Wyse Jackson 2014; Harper 1988a, 2001; Herries Davies 1988). His appointment to the chair of mineralogy and geology at Queen's College Galway in 1849 was a first for the college, and his tenure was marked by considerable developments in both the college's geological collection (Fewtrell and Ryan 1979; Harper 1992; Harper and Parkes 1996) and the broader geological community in Ireland (Herries Davies 1988). While he is justifiably remembered with these affiliations in mind, he never actually became a fellow of the Geological Society of Dublin or London. He was, however, a member of Société Géologique de France (Herries Davies 1988, 26), which may have also helped boost his familiarity with later characters, such as Marcellin Boule.

It was his location on the periphery of the London-centric intellectual elite—both socially and

geographically—that made King's contribution to various debates of the time all the more remarkable (Harper 2001; DeArce 2020; DeArce and Wyse Jackson 2014). Although primarily associated with Galway, King was not Irish. His origins have been the source of some confusion (e.g., Klein 2009, 439; Wolpoff and Caspari 1997, 271), and he was erroneously described by Arthur Keith (1915, 130) as a professor of anatomy, an inaccuracy that has been noted by recent studies (Murray et al. 2015). It has been suggested that his family had roots in western Ireland and Scotland (Harper 1988a, 2), but King was actually born in the northeast of England and grew up in Sunderland (DeArce and Wyse Jackson 2014; Harper 1988a). His father was a coal caster of probable Scottish origin and his mother was of unknown nationality (Brookie 1901; Harper 2001). His origins may be regarded as something of an irrelevance today but are doubtlessly important for understanding the development of his career, given the community in which he spent most of his working life (Herries Davies 1988).

Although little is known about King's mother, she was reputed to have been a genteel lady, and it was likely by her insistence that he was afforded good schooling, during which time he developed an extracurricular interest in the natural sciences (Brookie 1901; DeArce and Wyse Jackson 2014; Harper 1988a, 3). By 1833, King had become the proprietor of a bookshop that attracted various intellectuals from the surrounding region (Harper 1988a). The rise of his reputation in the appropriate circles enabled him to begin publishing research. Following his marriage to Jane Nicholson in 1833, he was appointed in 1840 as the curator at the Museum of Natural History in Newcastle-Upon-Tyne, later renamed the Hancock and now called the Great North Museum: Hancock (DeArce and Wyse Jackson 2014). Before this, King embarked upon research trips to Germany, with funding from the Sunderland Literary and Philosophical Society (of which he was a member) (Brookie 1901; Pettigrew 1979). King also became the first curator of the Sunderland Natural History and Antiquarian Society, in 1836, which would provide much of the material for the Sunderland Corporation Museum when it opened in 1846 (Pettigrew 1979, 328).

Unfortunately, but perhaps inevitably, attention to King's life prior to assuming his post in Ireland is best known for an incident referred to by Harper (1988a, 4) as the "King Affair." Put succinctly, King was not a man of notable finances, and he maintained personal funds and amenities as a dealer through his private collections. Although not at all uncommon for men in King's circumstances, there was concern among his peers at the Museum of Natural History in Newcastle that the museum's collections were suffering at the hands of King, and by proxy that he was therefore dealing in specimens that rightfully belonged to the museum (Harper 2001, 245). The situation became so sour that by the time King was asked to resign in 1847, the museum had already resorted to changing the locks to their collection (Turner 1979). Subsequent inquests into this incident have reflected on King's activities

fairly forgivingly (Harper 1988a; Turner 1979), although the scandal remained a significant shadow over his memory (DeArce and Wyse Jackson 2014). It does seem that when he left his position at the Museum of Natural History in Newcastle, he relocated most of the museum's Permian material in addition to what he regarded as his own collection (Turner 1979, 326). This material is now housed—without dispute, it should be added—in the James Mitchell Geology Museum at Galway (Harper and Parkes 1996), along with King's cast of the Feldhofer specimen.

KING'S CREDENTIALS AS A RESEARCHER

With some seventy publications by the time of his death in 1886 (Harper 1988a), William King made an unquestionable contribution to geology and paleontology in his time. His work challenging the supposed authenticity of Eozoön pseudofossils (King and Rowney 1866), a geological phenomenon falsely believed to represent one of the earliest living organisms on the planet, attracted much attention. His monograph on the Permian fossils of England (King 1850) is regarded as a keystone publication in the development of nineteenth-century paleontology and a work of lasting significance (Harper 2001; Pattison 1977). The Permian system had been established less than a decade before, in 1841. Arguably his most enduring contribution to science lay in the fields of prehistoric archaeology and paleoanthropology, fields that did not at the time exist in any widely recognized or formal manner. Given King's legacy, it is interesting that despite the modest celebration he has received within the geological community, his reputation among the archaeological and paleoanthropological communities is neither widely known nor particularly well regarded, although this assessment is not without exception (e.g., Schwartz 2006). Further, notable efforts have been made to rectify this situation in light of the recent sesquicentenary of his most profound work (DeArce 2020; Murray et al. 2015).

William King has not always been portrayed favorably. The apparent brashness of his assertions regarding the Feldhofer cranium, particularly as a geologist lacking experience in primate craniology, coupled with the ignominy surrounding the circumstances of his departure from Newcastle, lend to the idea of a man with a somewhat cavalier approach to his work (see, for example, the impression of King's role in the history of Neanderthal research in Tattersall [1995, 21] and Trinkaus and Shipman [1993, 88–89]). While King's statements were somewhat audacious, closer assessment of his work belies any characterization of him as a maverick, as demonstrated most recently by DeArce and Wyse Jackson (2014) in their assessment of King's role in various major academic debates throughout his career. The introduction to the inaugural issue of the *Quarterly Journal of Science* in which King's Neanderthal research was published described his work as both “stepping past the most extreme palaeontologists” of the day but also as the work of a “new and apparently careful thinker” (Samuelson and Crookes 1864, 16).

Certainly, while King may not have been such an authority on craniology as Huxley, Busk, and others (e.g., Madison 2020), he did at least take time to investigate a not insignificant collection of human and primate skulls at his disposal in Galway (DeArce and Gapert 2017).

It is also worth qualifying that while King's fascination with the Neanderthal specimen may have been brief, he was no stranger to the principles of taxonomic classification. He was known among his peers for his attention to detail and advocacy of comparing specimens with reference to type material (Harper 1988a, 12; Wyse Jackson, Ernst, and Lisitsyn 2006). Throughout his career, and particularly its earlier stages, King worked extensively on the generic classification of a variety of species, with a notable focus upon brachiopods, a lifelong interest in which his work is regarded as having met an exceptional standard for the time (Harper 1988a, 2001). Indeed, a recent review shows that, although of its time, King's designation of the bryozoan genus *Thamniscus* King (a type of aquatic moss) still conforms with a more modern review of the genus's description (Wyse Jackson, Ernst, and Lisitsyn 2006). Like many of his peers and contemporaries, King was something of a polymath and would often participate in various debates beyond his specialist area, usually with relative proficiency (DeArce and Wyse Jackson 2014; Harper 2001, 251). Formal acknowledgment of his achievements came through the conferral of the first ever D.Sc. to be awarded by Queen's College, in 1872 (Murray et al. 2020), while informal but no less significant recognition can be inferred from his collaborations with the paleontologist Thomas Davidson, a man notoriously choosy about those with whom he worked (Harper 1988a, 12).

King also left direct insights into his views on Darwinian evolution in two commentaries on *On the Origin of Species* published in the *Edinburgh Philosophical Journal* (King 1862) and *Geologist* (King 1863). King accepted phenotypic variation in both living and fossil populations, a position he probably adopted following his work on Permian fossils (Harper 1988a, 12). He did not wholly subscribe to Darwin's theory, though. While he readily admitted to natural selection as a mechanism of evolution, he felt unable to accept it as a single or driving force in the process of long-term or large-scale change with the potential to underwrite the creation of new orders or organizations (King 1862, 255); in this, he was certainly not alone (e.g., Dawkins 1871). King believed that a higher power that created plant and animal life (which he termed “Autotheogeny”), also dictated the laws that framed their ability to modify and adapt to external changes (which he termed “Genetheonomy”) (King 1863, 255). This was, essentially, King's own take on the concept of predetermined evolution, an idea that was popular among the broader scientific community of the time (Ellegård 1990, 136). However, in a review of King's teaching, David Harper (2001) has suggested that King's views on Darwinism may have been unpalatable for many of the more traditional and conservatively minded students at Queen's College.

Taking this approach toward variation within species, King (1864b, 93) compared variation in human skulls (which he regarded as one species) to that within domesticated dogs, remarking that the latter is “artificial” (i.e., a result of domestication) and can be explained merely as a result of Darwin’s process of natural selection, whereas in the case of mankind, such variation is “natural.” This reflects King’s understanding of Darwin’s theory of natural selection as accounting for modifiability (i.e., his concept of “genetheonomy”). His intention, in doing so, was to illustrate the degree of variability capable within a species thanks to this process, while emphasizing that “varieties of mankind are *natural*,” and, presumably, therefore, autotheogenous (93). King’s specific-level designation of the Feldhofer cranium makes sense given his interpretation of Darwinism, and more still, given his belief that “on psychological grounds alone, man must be regarded as isolated from all other organisms,” essentially meaning that in King’s mind, a capacity for advanced cognition marked humans as “autotheogenous” (King 1862, 255).

KING’S ASSESSMENT OF THE FELDHOFFER SPECIMEN AND THE REACTION

King’s interest in the Neanderthal skull seems to have been fleeting, and he had little to no experience with primates or human variability prior to his interest in the Feldhofer remains. Sometime before August 1863, he acquired a cast of the Neander Valley specimen from the fossil and mineral dealer Mr. Gregory of London (Murray et al. 2015). One wonders whether the idea was put in his mind by reading Lyell’s *Geological Evidences of the Antiquity of Man* (1863), which was first published in February of that year and specifically mentions a cast. Although King was in many respects something of an outsider to the burgeoning paleoanthropological community of the day, and known for having created at least a few adversaries over his career, he did nevertheless hold the friendship or favour of a number of influential figures (Murray et al. 2020). To prepare for the task, King familiarized himself with skulls belonging to the major races of humans through collections he could access from his placement in Galway (DeArce 2020).

After examining the cast of the Neanderthal skull, King presented his findings to Section C (Geology) of the thirty-third meeting of the British Association for the Advancement of Science, held in Newcastle-upon-Tyne in 1863. He followed Lyell in accepting an ancient date for the fossil, while his anatomical study concluded that, although the brain was large, the specimen was similar to an infant chimpanzee in shape. It was certainly human, but cranially and cognitively different: “the thoughts and feelings which once dwelt within it never soared above those of the brute,” he concluded (King 1864a, 82). His presentation was published as a communication in the report of the meeting (King 1864a). While there had been discussions and expositions on human *species* for many decades prior to King’s announcement, these *species* were primarily different from the nomenclatural understanding accepted by biologists today. What King did, by

providing a distinct species name, *Homo neanderthalensis*, was usher in a new treatment of human origins and spark a debate over the species status of Neanderthals that persists to this day. Further, the name that King proposed has, in essence, been retained both among those who favor his taxonomic assignment and in the alternative designation of *Homo sapiens neanderthalensis*. Even though his argument was rejected at first, by raising the prospect of other species of human within the homo genus, King must be seen as a forebearer to paleoanthropology as it is today. Moreover, the debate that he stepped into, along with Huxley and others, was essentially the prototype discussion for future discoveries and assertions of new species and genres. His arguments for a new species, based in a premise on anatomical apomorphism (for King, essentially any unprecedented deviation from known populations, particularly in cranial morphology), chronological age, and inferred cognitive ability, all continue to play a major role in discussions of whether fossil specimens constitute new taxonomic designations. King’s views were, however, perhaps because of politicking behind the scenes in the organization of the BAAS meeting, met with a somewhat muted reception, despite being reported on in a number of venues (see DeArce 2020).

Recent research by Miguel DeArce (2020) on the subject of King’s announcement at the meeting shows that a scheduling error in the running of the event in Newcastle probably led to King’s presentation being given at a time contrary to that advertised. King participated in Section C (Geology), and not Section E (Geography and Ethnology), which usually attracted a number of scholars concerned with craniology and the biology of human races (DeArce 2020). This is hardly surprising given the political machinations within Section E and the internecine fighting among anthropologists and ethnographers. Tim Murray (2014) has discussed how the rift between these two groups led to all papers on physical anthropology and deep human antiquity to be rejected out of hand from Section E; simply, section C was where prehistoric people were thought to belong. In the four years prior to King’s paper, Section C had hosted one paper on human fossils, seven papers on stone tools, and forty-three papers on general bone caves and older fossils. During this time, Section E hosted zero papers on these topics. The year of King’s own talk, one other paper on human fossils was presented to Section E, but when Falconer and Busk came to talk on the Gibraltar skull, one was in Section C, the other Section D (Zoology). What is more likely to have stolen King’s thunder on the day was the talk delivered simultaneously to Section E, a presentation by Alfred Russell Wallace, who had just returned from Malaysia (DeArce 2020), but even then, Wallace had spoken at the BAAS the previous year. Nevertheless, a lack of attendance, at least by those who might have immediately objected, perhaps explains the subdued reaction that King’s proposition initially met. He was perhaps a misfortunate victim of politics, both of a grand and personal scale (DeArce 2020). Once

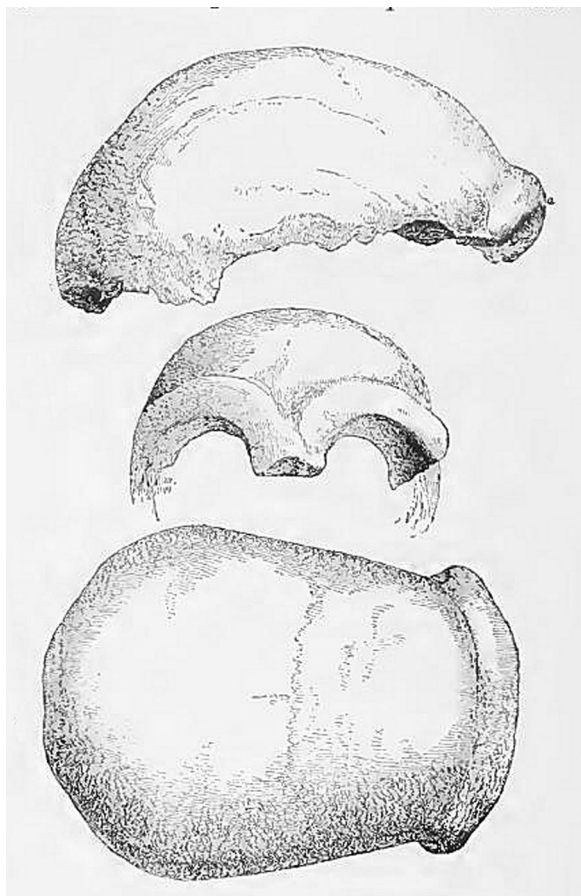


FIGURE 3. The Feldhofer 1 calotte as illustrated in Thomas Huxley's 1863 work *Evidence as to Man's Place in Nature*.

King's words were committed to print, however, his views generated greater response.

King's writing on the subject extended to just two publications: an abstract detailing his presentation at Newcastle in 1863 (King 1864a) and a more in-depth assessment published in the January edition of *The Quarterly Journal of Science* in which he suggested that the cranium may even represent that of a new genus entirely (King 1864b; Figure 3). A third article, an anonymous review outlining the anthropological highlights of the 1863 meeting published in *The Anthropological Review* (Anon 1863a, 393-394), also contains a description of King's paper delivered in the third person. The report of King's presentation in the *Notices and Abstracts* of the thirty-third BAAS meeting was also written in the third person, which means that his *Quarterly Journal of Science* article (King 1864b) may in fact be the only article he authored himself on the matter.

The *Anthropological Review* article, along with others noted by Miguel DeArce (2020), shows that the name *Homo neanderthalensis* can be dated to 1863 in both announcement and in academic print, even if not directly by King's own hand. Details of his announcement were also reported in 1863 in the journals *The Athenæum*, which was the same report that appeared in *The Anthropological Review*, but

rephrased as though from a first person perspective (Anon 1863b), and *The Geologist* in addition to being printed three times in the *Newcastle Journal*, all prior to the formal announcement in 1864 (DeArce 2020). As well as the species designation, King asserted the antiquity of the Feldhofer I specimen through geological association with sediments documented from caverns of the Meuse Valley (King 1864a) and expressed his strong conviction that the specimen likely represented a creature not only specifically but also generically different from that of ourselves (King 1864b). In King's main article "The Reputed Fossil of the Neanderthal Man," he elaborated upon all the claims made in his communication, citing the country's greatest living geologist Sir Charles Lyell (1797–1875) as a point of reference for the geological age of the deposits (Figure 4), affirmed by some of his contemporaries (e.g., Huxley 1864, 431), and described the extent of remains associated with the specimen before proceeding to his own assessment of the cranium (King 1864b), which features several references to Huxley's (1863).

While King's remarks regarding the genus of the specimen were noted and tackled by his peers (e.g., Carter Blake 1864; Huxley 1864; Turner 1864), it is worth noting that he expressly declined to suggest a new generic designation, believing such a move to be "clearly overstepping the limits of inductive reasoning" considering the limitations of the evidence at hand (King 1864b, 96). It follows from what we know of King's views on evolution that in supposing Neanderthals to be a separate species, he also precluded the possibility that they could be ancestral to modern humans (Boule and Vallois 1957, 255). His conclusions were largely rejected by his peers.

The erstwhile existence of other human species was a theoretical possibility at the time (DeArce 2020), but the immediate rejections of King's new species would imply that many of his contemporaries were less willing or ready to accept the physical evidence (Murray et al. 2015, 2). All aspects of King's work were questioned: his conclusions, his methods, and his assumptions. In his review of the Neanderthal literature then available, Huxley (1864, 431) argued precisely the opposite to King, insisting that "among recent humans it is possible to select a series which shall lead by insensible gradations from the Neanderthal skull up to the most ordinary forms." Turner (1864, 257) was more critical of King's methods, arguing against proclaiming specific diversity on the basis of only one specimen (although the identification of subsequent species have also been predicated on single discoveries, e.g., *Australopithecus africanus*, *Paranthropus boisei*, and *Homo heidelbergensis*). Carter Blake (1864) attacked the issue on two main counts: (1) that the antiquity of the skull and limb bones had not been proven, and 1.5 m of "mud" could conceivably accumulate rapidly; and (2) that the anatomical features of the bones gave no cause to assign it to another species, but rather to an idiot with rickets. Anthropologist Franz Ignaz Pruner (1808–1892) was of a similar mind, although he thought the skull was a degenerate Celt; anatomist Paul Broca (1824–1880), though,

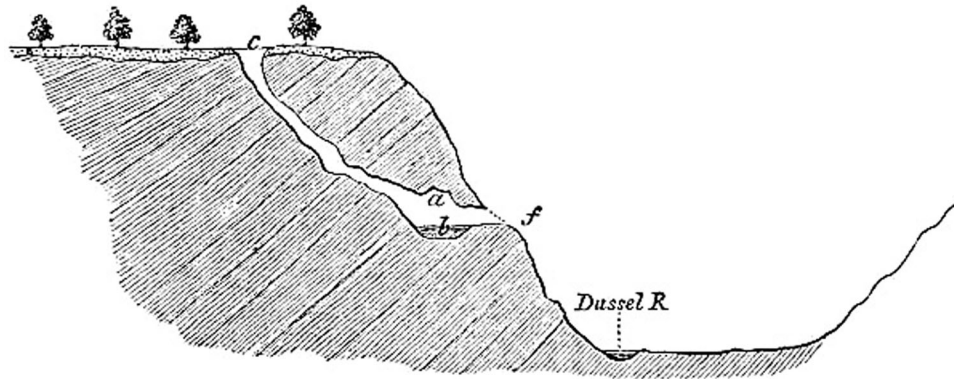


FIGURE 4. Geologist Charles Lyell's sketch section diagram of the Kleine Feldhofer Grotte. King, and several other scholars, followed Lyell's assessment of the antiquity of the remains, despite the circumstances of their recovery.

rejected any notion that the skull was pathological. For Broca, if the skull were pathological, then its morphology could only point to microcephaly, a presumption completely belied by the large brain case. Blake and others were also critical of King's correlation between cranial morphology and a capacity for religious thought and language (DeArce 2020), although this was not, perhaps, an entirely novel assumption for the standards of the time. Ultimately, King's work and remarks should be remembered within their own historical context (DeArce 2020; Schrenk and Müller 2009, 7).

Our reading of his contemporaries' arguments shows that King was not treated lightly, but his ideas were not summarily dismissed as being without merit (Carter Blake 1864; Huxley 1864). Indeed, King may have been the first to formalize the claim of a new species from the fossil in print, but an earlier paper refuting such a notion, posited by Carter Blake (1861, 397–98), confirms our contention that talk of the possibility may have been circulating for some time prior to King's announcement (see also Trinkaus and Shipman 1993, 82). In contrast to the polite refutation King received, Professor Mayer, a colleague of Schaaffhausen's at Bonn, was subjected to a total drubbing from Huxley (1864), even though his opinion—that the Feldhofer remains were those of a rachitic Mongolian Cossack who fled to France to escape the Russians in 1814—was at the time more widely held, at least in Germany. Huxley (1864, 437) thought it ridiculous, sarcastically chastising Mayer for his apparent view that anything was better than admitting the skull's antiquity, even if that involved believing that the “Neanderthal man was nothing but a rickety, bow-legged, frowning Cossack, who, having carefully divested himself of his arms, accoutrements and clothes (no traces of which were found), crept into a cave to die”, carefully burying himself before he finally went.

Interestingly, it has been stated that King later recanted his position on the skull, deferring to prominent German scholar and Neanderthal denouncer Rudolf Virchow (Klein 2009, 439), but we have found no further sources to support this suggestion. King appears to have written no further on

the subject following his 1864 paper (for a *near*-complete bibliography, see Harper 1988b), and while Virchow was a known opponent of Darwin's theory of evolution who, unlike King, Huxley, and Schaaffhausen, favored a pathological explanation of the Feldhofer specimen's condition, his own examination of the skull was not conducted until 1872 (Figure 5) (Ottaway 1973), meaning that his feelings were perhaps less well known outside of his native Germany prior to this point. In short, King's views have easily lent themselves to mischaracterization, but, following closer inspection, were more in keeping with his general reputation as a capable researcher.

THE NEANDERTHAL LEGACY: THE FALL AND RISE OF KING'S *HOMO NEANDERTHALENSIS*

William King did not live long enough to see *Homo neanderthalensis* become adopted and accepted as the name of a new species. He died in 1886, the same year that two complete Neanderthal skeletons were recovered from Spy in Belgium (Figure 5), finds that would finally lend credence to the idea of a new specific distinction (Campbell 1956b, 172). The year after King's death, and following Julien Fraipont's examination of the Spy remains, Augustus Keane (1887, 564) wrote that “King's expression ‘*Homo neanderthalensis*’ may now be confidently applied.” The designation was entertained even earlier by some outside the UK, including influential figures such as French prehistorian Gabriel de Mortillet (1883, 247–248).

Having offered his thoughts on the matter, King's focus returned to more familiar topics (Harper 1988a), perhaps because his moonlighting as a craniologist at Galway was curtailed by the appointment of the anatomist John Cleland in late 1863 (DeArce 2020, 183). It is worth considering, given the rejection of King's proposal, both how the likelihood of a new species eventually came to be accepted and how *Homo neanderthalensis* prevailed as the preferred taxon for Neanderthals. While King's original pronouncement (King 1864a) is sometimes regarded with incredulity by today's standards (Trinkaus and Shipman 1993, 88), the case he made in his follow-up (King 1864b) has been suggested

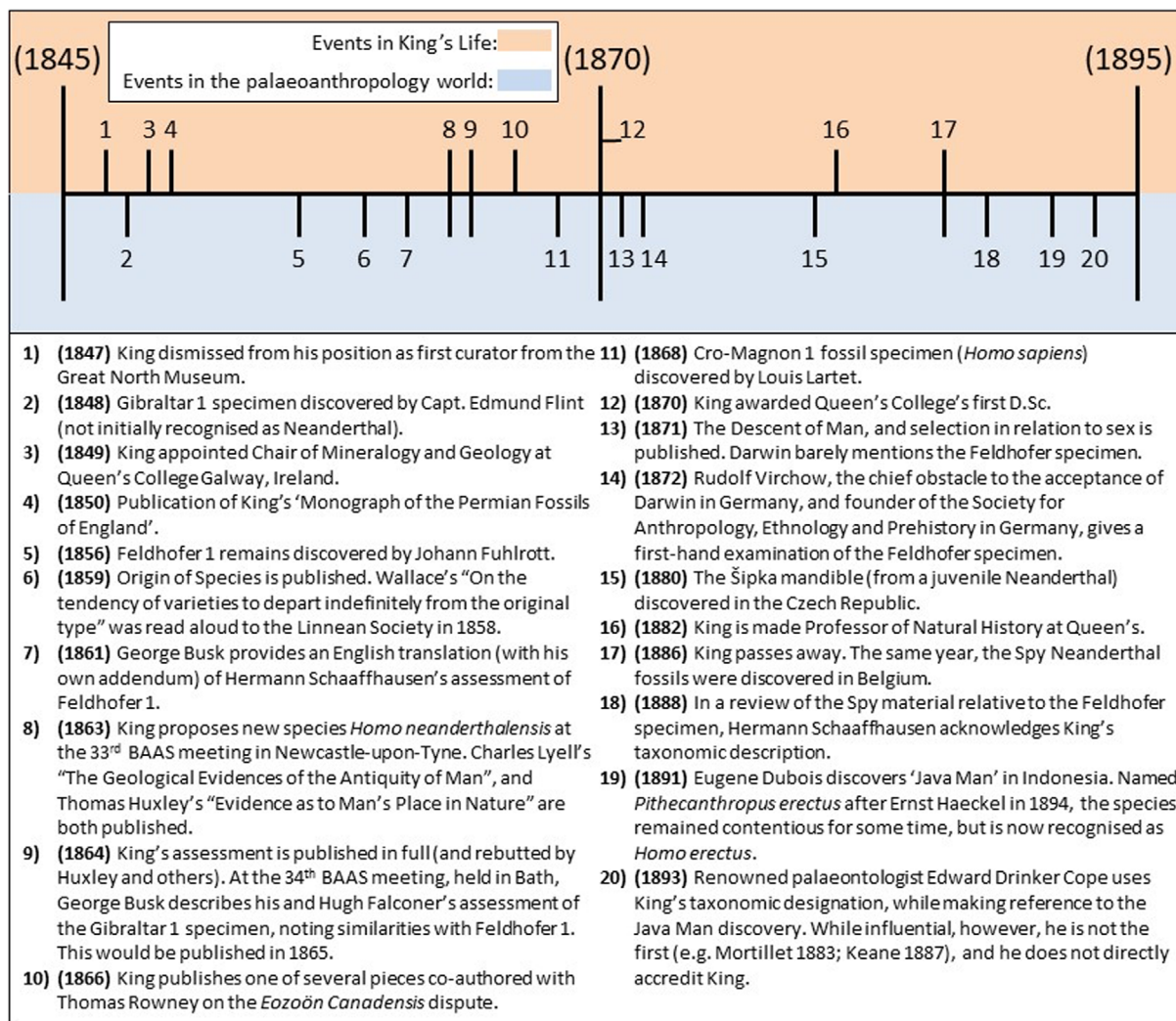


FIGURE 5. Timeline comparing major events within the world of palaeoanthropology and the study of Neanderthals (lower half) alongside key events in King's personal life (upper half), from between 1845 to 1895. [This figure appears in color in the online issue]

by some as sufficient to meet the standards of the International Commission on Zoological Nomenclature (Campbell 1956a). It is important to note that while this organization was not founded until 1895, there were rules in place; the BAAS had their own set, established in 1842 by a committee appointed to consider the rules of zoological nomenclature. The published report (Strickland 1842) was the earliest formal codification of priority in naming species, a fundamental and stabilizing principle in zoological nomenclature.

Still, following King, various hominin designations were proposed as the corpus of fossils increased (Schwartz 2006). Ernst Haeckel's *Homo stupidus* deserves an honorable mention, but by the turn of the twentieth century, it seemed as though *Homo primigenius*, another of Haeckel's suggestions, might prevail as the established moniker, at least in German circles (Campbell 1956b). Interestingly, like *Pithecanthropus*, another of Haeckel's labels, *primigenius*, was originally coined for a hypothetical projection of the ancestral tree of

Homo sapiens (Cartmill and Smith 2009, 342). Schaaffhausen himself committed to this name in his 1880 note regarding the Sipka mandible fragments (see Trinkaus and Shipman 1993, 123) before later reverting to *neanderthalensis* in 1888 when comparing the Feldhofer specimen with the new discoveries at Spy, crediting King as the taxonomic author (see Murray et al. 2015, 9). Johann Fuhlrott (1868, see also 1865) also apparently favoured King's designation. The popularity of *Homo primigenius* in Germany grew, though, mostly due to the work of Gustav Schwalbe, who championed the name, ignoring alternative suggestions, including *neanderthalensis* (see Tattersall 1995, 38), despite being seen by some as having vindicated King's assessment through claiming a specific difference (MacCurdy 1904). In fact, Schwalbe had begun using *Homo neanderthalensis* but then dropped it in favor of *primigenius* not long after the turn of the century (Campbell 1956b). The favoring of *primigenius* over *neanderthalensis* can be seen as a direct rejection of King's original suggestion that Feldhofer I represented a distinct species

from *Homo sapiens*, as the term *primigenius* rather suggests that Neanderthal specimens represent an archaic form of, or an ancestral species to, our own (Boule and Vallois 1957, 255).

King's choice may have not been favored in Germany at this time, but it was revived among the Anglophone world. From several accounts (Murray et al. 2015, 9; Tattersall 1999, 86; Trinkaus and Shipman 1993, 133), it appears that famed nineteenth-century American paleontologist Edward Drinker Cope (1893; 1895, 123) was among those responsible for resurrecting *Homo neanderthalensis* in the English-speaking world when discussing human genealogy and the taxonomic designation of the newly discovered *Homo erectus* fossil Java Man. Murray et al. (2015, 9) note that Cope failed to mention King in his discussions. This fact appears to have been of little significance at the time: "This character taken in connection with the others cited, goes a long way toward justifying the separation of the Caanstadt race as a different species, as has been done by some other author under the name of *Homo neanderthalensis*" (Cope 1893, 331). Given Cope's prominence within the scientific community, it is possible that his use of the name may have given it significant exposure, although both endorsement and attribution of King's designation may also be found from earlier sources (Keane 1887).

While *Homo neanderthalensis* was once again on the radar, *Homo primigenius* was coming toward the peak of its popularity. The tipping point came when French paleontologist Marcellin Boule (1914) used *Homo neanderthalensis* in his work on the La Chapelle-aux-Saints I specimen, a study that would go on to define the framework of Neanderthal research for much of the next fifty years (Hammond 1982). Boule (1914) concluded that the morphology of the La Chapelle-aux-Saints specimen fell well beyond the normal variation of *H. sapiens*, in full accord with that of King's some fifty years earlier. Boule also felt that under the rules of the International Congress of Zoology, *Homo neanderthalensis* should be used and attributed to King (Boule and Vallois 1957, 255). It is also important to note that at the time of the La Chapelle-aux-Saints discovery, it was assumed that the specimen was geologically contemporaneous with known fully modern specimens recovered from European Paleolithic contexts (Hammond 1982). Boule, therefore, would have naturally favored King's nomenclature over one that suggested that La Chapelle-aux-Saints I represented an ancestral form of our own species. Bernard Campbell (1956b, 172), writing on the centenary of the Feldhofer discovery, suggests that Vallois and Movius's 1953 catalog of human fossils gave final closure to the matter. In truth, however, using principles of nomenclature in operation then and now, from the moment King's words were committed to print, *Homo neanderthalensis* was here to stay if it was neither outright rejected nor subsequently found to be in error.

KING'S WORK AND THE QUESTIONS OF RACE, SPECIES, AND WHAT IT IS TO BE HUMAN

As has been shown, King was not alone in asking questions of the Feldhofer specimen that concerned the hot topics of race, variation, and species and the question of what it is to be human (DeArce 2020; Huxley 1863; Schaaffhausen 1861; Turner 1864). His uniqueness comes from the vindication of his assessment coupled with the curious way in which he has (or rather has not) been remembered. Huxley, in contrast to King, is, along with his colleague George Busk (Madison 2020), remembered as one of the greatest elites of Victorian scholarship, and his assessment of the Feldhofer specimen came as part of a much larger work (Huxley 1863) that came to be regarded as a seminal cornerstone text in the nascent field of paleoanthropology. Consequently, had Huxley been the one to confer this distinction upon the Feldhofer specimen, the idea may have stood a better chance of gaining notice and traction and may have come to be remembered more favorably. Indeed, although Huxley was opposed to the idea of designating a new species for the Feldhofer specimen, it has been argued that recognizing such a difference would have been a more logical conclusion to his study (Schwartz 2006, 234).

Jeffrey Schwartz (2006) has also posited that much of the conservatism with which species have been assigned to different hominin specimens from the fossil record may be attributed to an increased sensitivity toward racial diversity among humans around the world today, especially since World War II. The reluctance to champion speciation over variability within a population extends back further, though. As Schwartz also points out, neither King nor Huxley was above ranking human races according to primitiveness, as was indeed par for the time (236).

According to Schwartz, there is a lack of rigorous systematic theory applied in the field of paleoanthropology—in essence, an unwillingness for allowing the thorough cross-examination of specimens and a lack of clarity regarding what are deemed to be changes in expression of various anatomical features, or changes in kind. To an extent, this is an unfortunate side effect of the limited nature of the data sets available at our disposal. If King was wrong to make such a bold assertion on the basis of a single find, as contended by Turner (1864), then we must remember that even today, many new species are argued for from small numbers of individuals, a practice that has brought controversy since Raymond Dart's (1925) discovery of the Taung child. Furthermore, many of the techniques used today were developed from methods and principles pioneered by Huxley and his peers, including King. It was not uncommon for anthropologists to phrase human evolution in the latter 1800s in terms of successive human races, for which their early form of craniometry was devised to judge (Goodrum 2016). This is why Neanderthals were sometimes referred to as the Neanderthal race, an implicit rejection of King's belief that the

degree of distinction between Feldhofer I and other human skulls merited greater differentiation. In an unusual twist, however, King's assertion of the Feldhofer specimen may have actually been partly based on views of racial hierarchies (DeArce 2020, 180).

Certainly, the question of how to define species was a controversial issue at the time, and acknowledgment of this dispute, and the importance it had for the classification of contemporary racial groupings, acted as the segue by which the editors of the *The Quarterly Journal of Science* introduced King's work (Samuelson and Crookes 1864, 16). There is an awkwardly ironic possibility that our own understanding of hominin variability today, centered as it is around our relationship to our closest extinct cousins, rests partly on a specific designation that may have initially helped denigrate racial others (DeArce 2020, 180). This remains, however, a moot point, and we cannot easily be certain as to what King's views on race at the time actually were. What is clear, however, is that the politics of the meeting and time at which King made his pronouncement were just as heightened, if not more so, than they are today, coming at the midpoint of the US Civil War and slavery debate. In their reporting of the heated division within Section E, on Geography and Ethnology, in which King, seemingly and perhaps by design, did not partake (see DeArce 2020), the local newspaper *Newcastle Chronicle* hinted, in the words of Samuelson and Crookes (1864, 16), "that the gentlemen who thus sought to degrade the Negro race, were the tools of the Southern Confederacy, and had been enlisted as the champions of slavery in England."

Beyond the problems of working with limited evidence, the changing definitions and understandings of concepts of race and a gradually growing willingness to entertain the notion of ancestral hominins all have had an impact on how King's assessment may be viewed today. King, in many respects, was actually at the heart of a new debate that continues to this day. Paleoanthropologists, as with all scientists, have to deal with questions relating to methods and analysis, but overall, the broader implications of their research, including the question of what it means to be human, is one that still looms over the discipline.

The distinction between King and Huxley came down to the grounds for which new speciation could be considered, rather than racial variability. The field of paleoanthropology may have advanced in leaps and bounds since these earliest days of Huxley, Virchow, and King, but it has not developed beyond recognition. Many of the dominant issues—and, indeed, foundations—of the discipline today echo not just the debate that King engaged in but the various ideas that he elucidated in his work. It is clear, for example, from reading King's views on Darwin, that he believed "man" to be removed from all other species "on psychological grounds alone" (King 1862, 255), in essence arguing that an advanced capacity for cognition separated us from other animals. This is further emphasized in King's reading of the differences between human skulls and the Feldhofer calvar-

ium relative to the differences seen in the skulls of domestic dog breeds, where the former appear less divergent but entail greater significance (King 1864b, 93). Derivations of this principle have held true in paleoanthropology and archaeology for some time, with ideas such as the "Human Revolution" (Hockett and Ascher 1964; Mellars and Stringer 1989) posited as an explanation for the perceived differences between the cognitive capacities of humans and Neanderthals, which in turn are linked to differences in the ability of these species to engage in complex, "modern" social behaviors that may be recognized archaeologically. Biological anthropologists, paleogeneticists, and prehistoric archaeologists continue to examine their respective bodies of evidence for clues as to how and when these behaviors developed—asking to what extent did anatomically modern *Homo sapiens* differ from other kinds of hominin and just how behaviorally distinct different species were from one another.


The question of what constitutes a species remains as relevant now as it was then. Now that it has been established that there was successful interbreeding between Neanderthals and modern humans, the lines between populations are a little more blurred, and there is renewed questioning as to whether they should be recognized as a separate species or in fact something closer—a subspecies, perhaps. Furthermore, while evidence suggests viable offspring were produced, the disparity between general attitudes toward capacities for advanced cognition and complex social behaviors, rightly or wrongly, largely still remains.

It is not uncommon for various traits, difficult to witness in the archaeological or paleoanthropological records, to be mooted as key distinctions of humanity from other species. The matter becomes much more complex if we accept that we are looking for a matter of degree rather than nature, as we might expect of comparing our own species with that of our former closest relatives. Cooperation, empathy, a sense of equity, a capacity for planning—these are all concepts that have, at various times, featured prominently for primatologists and ethologists seeking to understand what makes humans unique. While current paleoanthropologists use cranial variation to infer cognition and particular behaviors, King (1864b, 96) felt that the cranium of the Neanderthal had "psychical endowments of a lower grade than those characterizing the Andamaner," whom he felt to represent the lowest in a moral hierarchy of human races. This is what he meant when he wrote that the Andamaners stood "next to brute benightedness" (96). Leaving these now unpalatable views of the "Andamaner race" aside, King had what he felt was empirical evidence of the lowest form of what could be considered human, and in his eyes, the fossil cranium did not compare favorably. This theme, of using physical attributes to infer moral capacity—a key indicator of what it meant to be human in the 1800s—is not entirely removed from the inference of behavioral capacities and cognition that is used in paleoanthropology today. Although King and his contemporaries started a debate that continues to this day, it would actually take until toward the end of the nineteenth

century before Neanderthal fossils would begin to be welcomed as an integral part of the debate on human evolution (Madison 2016, 342), with the discussion focusing on other areas, and King being, effectively, too far ahead of his time.

KING OF THE NEANDERTHALS

Through exploring William King's background, and clarifying both his work and its historical context, it is possible to offer a timely reflection upon the man who gave the world *Homo neanderthalensis*. King only published twice on Neanderthal man, and yet left an indelible mark upon the subject. Thanks to works such as Lyell's *Geological Evidences of the Antiquity of Man* and Huxley's *Evidence as to Man's Place in Nature*, the notion of human antiquity was beginning to become more widely accepted, at least among scholarly circles in the United Kingdom (Boule and Vallois 1957, 2; Grayson 1983), but no one had formally claimed to have identified another human species from the fossil record before. King's assuredness regarding the antiquity of the fossil must have contributed to his convictions; few others were willing at the time to certify the specimen's antiquity with such confidence. His work preempted a long trend of debate that continues to this day regarding the nature of our relationship to Neanderthals and indeed other species of hominin. Given the brevity of King's focus on the topic of the Feldhofer specimen, his words have ultimately been remembered out of necessity, not celebration. This is unsurprising considering the lack of fanfare and acceptance his announcements received at the time and the lengthy and curious manner in which, at least in their basic premise, they came to be accepted.

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NOTES

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