

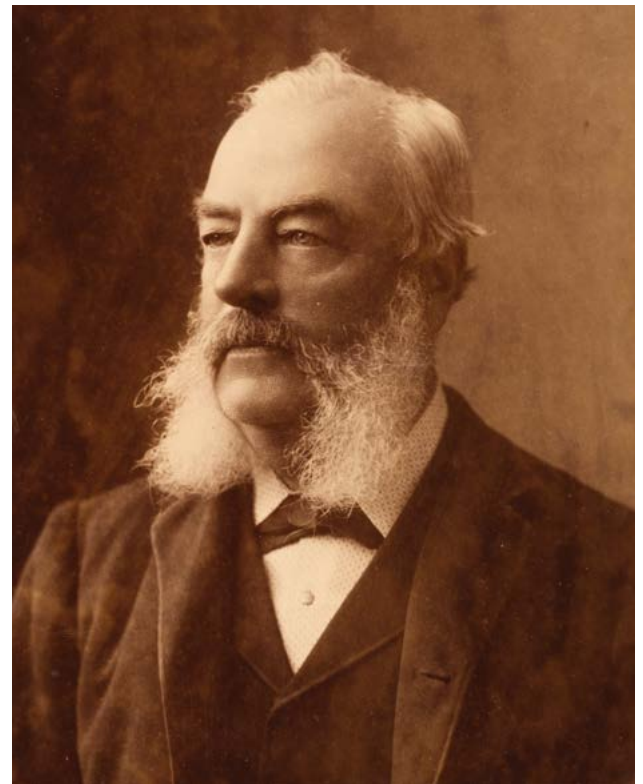
‘Not man, but man-like’

Early 20th-century anthropological plaster casts in the Harry Brookes Allen Museum of Anatomy and Pathology

Rohan Long

Throughout the 19th and 20th centuries, the study of human evolution was the subject of intense interest, and controversy, in the Anatomy Department of the University of Melbourne. The department’s first professor, George Britton Halford (1824–1910), rejected outright the notion of human evolution, and directed various academic skirmishes at T.H. Huxley, the most public contemporary advocate for the theory of evolution. Later, in the 1930s, the Anatomy Department was helmed by Frederic Wood Jones (1879–1954), an unorthodox thinker who accepted the basics of human descent from earlier primates, but rejected the idea that chimpanzees and gorillas are our closest relatives, favouring instead the tarsier—a large-eyed insectivore from Asia.

In his *‘Lines of demarcation’ between man, gorilla, & macaque* of 1864,¹ Halford dryly presented tables comparing the measurements of various bones of the three species, intended to illustrate humanity’s fundamental difference from the apes. Macaques (*Macaca* sp.) are small monkeys, amenable to captivity, and the professor was able to procure at least two for dissections he did himself.² The gorilla measurements, however, were mostly derived from published data obtained first-hand by Richard Owen, Huxley, and French zoologist Georges Louis Duvernoy. On at least one occasion Halford was able to borrow some primate specimens from the National Museum of Victoria, then located on the university campus.³ The museum’s director at the time was Professor Frederick McCoy, who was sympathetic to the anti-Darwinian cause.⁴ (In response to Halford’s primate studies, contemporary William Thomson implied that the professor had staked his reputation on ‘a cursory glance at a stuffed specimen’.)⁵ For or against, there was a clear need for primate specimens as illustrative resources to explore the concepts of human evolution. Gorillas only became known to European scientists in the 1840s, and specimens of them



and other great apes were scarce for decades afterwards. Prehistoric human fossils were even rarer. A market for plaster casts of these bones soon developed among comparative anatomists, gentlemen naturalists and other interested parties.

The Harry Brookes Allen Museum of Anatomy and Pathology (HBA) collection contains about 80 early 20th-century plaster casts of skulls and bones of primates and prehistoric humans (hominins). I am unable to assign exact dates to these casts, but the history of the original

hominin fossils is well documented: all those represented in this collection were discovered between 1848 ('Gibraltar 1' skull) and 1907 ('Mauer 1' jaw).

The primate specimens are derived from chimpanzees (*Pan* sp.), orangutans (*Pongo* sp.), and gorillas (*Gorilla* sp.). The hominins are represented by Neanderthals (*Homo neanderthalensis*),⁶ *Homo erectus*, *Homo heidelbergensis*, and archaic *Homo sapiens*. The plaster casts were manufactured by a commercial dealer in scientific specimens, Dr F. Krantz of Bonn, Germany.⁷ This business was founded in 1833 by Dr Adam August Krantz, a mineralogist who studied in the mining town of Freiberg and started out selling mineral specimens to his professors.⁸ Amazingly, the Krantz business is still active today, and continues to sell anthropological models and scientific teaching equipment. I contacted the business to ask if it could provide any information on its old models. Thinking that I might, at best, get pointed to a public archive or similar lead, I was pleasantly surprised to receive a prompt response from a direct descendent of Dr Krantz, currently working for the company, accompanied by scanned copies of several catalogues from the 1910s and 1920s.

Primate specimens

There are about 40 of these primate skull and bone casts in the HBA collection. The non-skull bones are all long limb bones: femur, fibula, humerus, radius, tibia and ulna.⁹ Specimens were cast from bones originally held in the Museum of Natural History (Museum für Naturkunde) in Berlin. While researching this article, I also found that one specimen which is clearly from this same collection—a cast of a male gorilla skull—has, perhaps unsurprisingly, found its way into the University of Melbourne's Tiegs Zoology Museum. In most cases, the collector and locality of the original bones are written in ink on the specimens themselves. Many specimens

also have numbers inscribed, although it was not initially clear how to interpret them. The key to understanding these inscriptions was a recently published textbook, *Gorilla pathology and health: With a catalogue of preserved materials*.¹⁰ An appendix comprised a list of all known gorilla material, including casts, stored in public museums throughout the world. This list indicated that the J.L. Shellshear Museum of Physical Anthropology and Comparative Anatomy at the University of Sydney has a similar collection of primate casts in its collection, described as being manufactured by 'Krantz of Bonn'. The list also showed that these University of Sydney specimens have exactly the same numbers associated with them as the HBA casts. Correspondence with the Krantz company and the Berlin Museum of Natural History revealed that one set of numbers is the original accession number from the Berlin museum specimens, while the other is a series number from the Krantz catalogue.

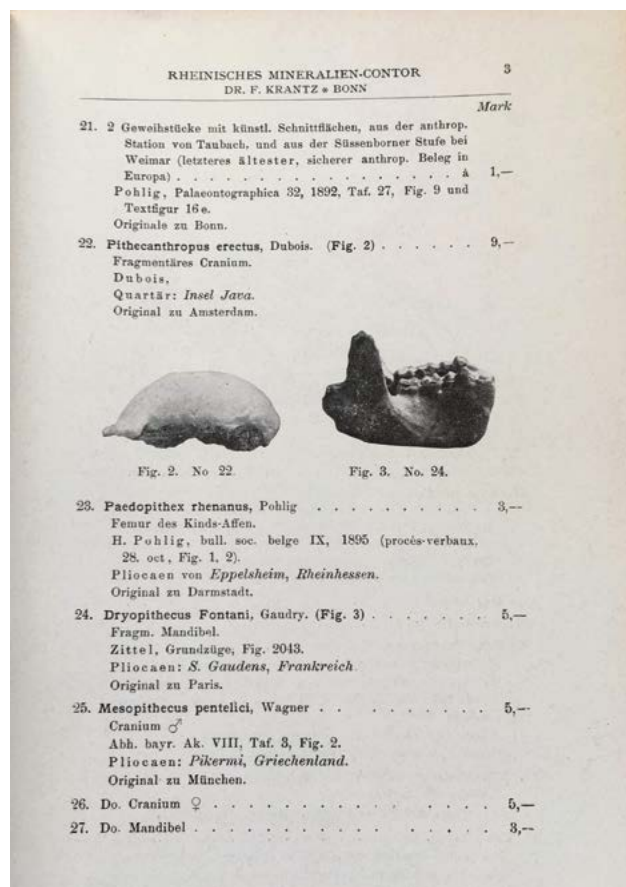
Even with this context established, some inscriptions were misleading. Some gorilla specimens were inscribed with the name 'Grey'. The collector in question was the Austrian explorer and zoologist Rudolf Grauer—his surname being the German word for 'grey'. To make matters worse, in some sources referring to the original bones, the collector is described as 'S. Grauer'; the confusion arising from the German word for collector, *sammler*, being assumed to be a first name.¹¹ A similar linguistic switch had been made for gorilla specimens collected in South Cameroon by one Oberleutnant Schwarz, whose name is inscribed on the bone casts in the HBA collection as simply 'Black'. Comparison with the University of Sydney's list showed that this proactive Anglicisation was a quirk unique to the early custodians of the HBA specimens.

The specimen with the most straightforward inscription to interpret is a chimpanzee ulna marked 'Zenker Yaunde'.

Georg August Zenker was a German naturalist and avid collector, active in Cameroon from 1886 until his death in 1922. He was named the 'Preparator for geological, zoological and botanical purposes' at Yaounde Station, now the capital of Cameroon. Zenker's name is associated with both chimpanzee and gorilla specimens.

The gorilla and chimpanzee specimens with known

geographic data were all collected in Cameroon and Tanzania. It is no coincidence that the Berlin Museum had these specimens; these localities were part of Germany's colonial empire in Africa (at the time, they were referred to as Kamerun and Tanganyika). Although Zenker was a scientist, many of these specimens were collected by German colonial officials such as Oberleutnants Schwarz and Schipper. Far from being a result of scientific interest and discovery only, the collection and dissemination of these specimens was a direct product of German colonialism in the 19th and 20th centuries.



Hominin specimens

The context of the hominin specimens in the HBA collection is best understood by what is absent, as much as by what is present. Although the exact age of the casts is unknown, the specimens in the collection paint a clear picture of palaeoanthropology in the late 19th and early 20th centuries. This was a time when the focus of human origins was squarely on Europe, and the paradigm-transforming fossil deposits of Africa were totally unknown. Like the primate casts, only skulls and limb bones are represented.

European fossil sites have produced numerous well-preserved Neanderthal specimens and, to a lesser extent, specimens of other relatively recent hominin species. However, the Krantz company's casting of specimens that are fragmented or of ambiguous age illustrates the paucity of prehistoric human specimens from European sites in the early 20th century. For example, one of the casts is a partial skull roof of a possible Neanderthal from a site known as Podbaba in Prague, which even contemporary sources described as 'of doubtful authenticity'.¹²

The hominin fossil treasure troves of Africa were not discovered and studied until the mid- to late 20th century. The most significant of these discoveries revealed what

An archaic *Homo sapiens* female skull, 'Cro-magnon 2', in two views. Lithograph by Louveau, printed by Becquet, Paris, Plate V from Edouard Lartet and Henry Christy, *Reliquiæ aquitanicæ: Being contributions to the archeology and paleontology of Périgord and the adjoining provinces of southern France*, London: Williams & Norgate, 1875. Wellcome Collection.

the collectors of these casts would probably have referred to as the 'missing link': *Australopithecus*, an ape-like, close relative of humans, which lived between 4.5 and 2 million years ago and has so far only been found in fossil sites in Africa.¹³ Due to the age of the cast collection, Australopithecine material—and indeed, any hominin material older than *Homo erectus* (the 'Java man' skull cap, dated at around 700,000 years old)¹⁴—is noticeably absent to a modern observer.

Many of the individual specimens of these casts are well known and helped to define palaeoanthropology as a discipline in the late 19th and early 20th centuries. Some of the more significant specimens are described here.

Gibraltar 1 skull (HBA Museum registration no. 516-500399). This is the earliest discovered specimen in this collection. The skull was found in Forbes Quarry in Gibraltar in 1848. At the time of its discovery, its significance was not fully understood, and it was considered merely an unremarkable, ancient human skull. After later finds, particularly from the Spy Cave site, led to the description of Neanderthals, the Gibraltar 1 skull was re-evaluated and found to belong to this group.¹⁵

The Spy Cave site in Belgium. Discovered in 1886, the Spy Cave revealed some of the earliest Neanderthal specimens; it was this material that convinced the scientific community that *Homo neanderthalensis* was a true, distinct and extinct human species. The site is represented in the collection by two skulls, a partial jaw, and two limb bones.¹⁶

Cro-magnon 2 skull (516-500348). First excavated in 1868, the Cro-magnon rock shelter site in France produced a number of human fossils, along with animal bones and flint tools. The fossils were determined to be from archaic *Homo sapiens*, that is, anatomically modern humans, but from strata that are 28,000 years old. The HBA collection contains the cast of 'Cro-magnon 2', a partial skull hypothesised to be from an adult female.¹⁷

Java man (516-500424). Originally described as *Pithecanthropus erectus*, this is the only species of hominin in the collection that came from outside Europe.¹⁸ In 1891, palaeoanthropologist Eugene Dubois discovered the top of a skull, a molar and a femur on the banks of the Solo River in East Java. Dubois was certain that he had found the 'missing link', but had little success in convincing his



Dr F. Krantz (Bonn), casts, plaster and paint, early 20th century. Clockwise from lower left: gorilla femur, 31 × 9 × 6 cm; male orangutan skull, 12 × 17 × 24 cm (516-500375); male gorilla skull, 12 × 14 × 23 cm; Neanderthal skull ('Gibraltar 1'), 14 × 12 × 20 cm (516-500399); *Homo heidelbergensis* jaw ('Mauer 1'), 7 × 13 × 13 cm (516-500342). Purchased by the Anatomy Department, early 20th century. Harry Brookes Allen Museum of Anatomy and Pathology, University of Melbourne. Photograph by Gavan Mitchell. See also inside front cover of this magazine.

European colleagues of this.¹⁹ Over the course of the 20th century, similarities were drawn between *Pithecanthropus* and 'Peking Man'—a hominin discovered in China in the 1920s—and the two were united and renamed *Homo erectus* by evolutionary biologist Ernst Mayr in 1950.

Mauer 1 jaw (516-500342). The collection includes casts of the 'Mauer 1' jaw, discovered in 1907 and which became the holotype for *Homo heidelbergensis*.²⁰ The cast of this jaw in the collection is inscribed with the now obsolete genus name *Palaeoanthropus heidelbergensis*.

In addition to those listed, there are specimens derived from sites in Tilbury, England; Sligo, Ireland; Naulette and Malarnaud, France; and Podbaba and Šlapanice, Czech Republic.

Although the number of prehistoric human fossil discoveries has increased significantly in the late 20th and 21st centuries, the resulting specimens remain comparatively rare, and quality replicas are still sought after for teaching. Real primate specimens are likewise not easy to come by for most educational institutions, and replicas are common for use in teaching evolution and



comparative anatomy. Plaster has long been discarded as a means of copying skulls and bones; modern replicas are made from lightweight plastic resins or can be 3D-printed. Choice of species has changed as well, with emphasis shifting to the exquisitely preserved fossils of Australopithecines and other early hominins from Africa, rather than the scrappy remains of European Neanderthals. The Krantz plaster casts in the HBA Museum are very valuable, however, for illustrating the path that the scientific community took to reach the knowledge we now possess about the origins of humans and our evolutionary story.

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The Harry Brookes Allen Museum of Anatomy and Pathology is on the Parkville campus. It is mainly used by students enrolled in health sciences subjects, although the collection can be searched online, and the museum is open to the public on Open Day. <https://harrybrookesallenmuseum.mdhs.unimelb.edu.au/>.

- 1 George Britton Halford, *Lines of demarcation between man, gorilla, & macaque*, Melbourne: Wilson and Mackinnon, 1864.
- 2 George Britton Halford, *Not like man bimanous and biped, nor yet quadrumanous, but cheiropodous*, Melbourne: Wilson and Mackinnon, 1863.
- 3 Now Melbourne Museum, and located in Carlton Gardens.
- 4 On 29 July 1863, McCoy approved a loan to Halford of a 'specimen of the Orangutan, one of the Chimpanzee, one of the Gibbon and a skeleton of the monkey'. Frederick McCoy to George Britton Halford, 29 July 1863. National Museum of Victoria, Outward Letter Book, 2, 1861 to 1865, vol. 404, Museums Victoria Archives.
- 5 William Thomson, *Not man, but man-like: A reply to 'Not like man' of the professor of anatomy in the University of Melbourne*, Melbourne: Wilson and Mackinnon, 1863.
- 6 Some palaeoanthropologists classify Neanderthals as a species in their own right (*Homo neanderthalensis*), while others consider them a subspecies of anatomically modern humans (*Homo sapiens neanderthalensis*). Neanderthals are very closely related to us (and, indeed, interbred with *Homo sapiens*)

and this distinction is still being resolved. See Ian Tattersall and Jeffrey H. Schwartz, 'Hominids and hybrids: The place of Neanderthals in human evolution', *Proceedings of the National Academy of Sciences of the United States of America*, vol. 96, no. 13, 1999, pp. 7117–19.

- 7 The company name was changed from 'Dr. A. Krantz' to 'Dr. F. Krantz' when Krantz's nephew Friedrich took over its management in 1891.
- 8 *Krantz online, About us, History*, 'Dr. F. Krantz, Rheinisches Mineralien-Kontor', www.krantz-online.de/de/ueber_uns/54.html (viewed 9 October 2019).
- 9 This reflects the casts' use in comparative studies of locomotion and degrees of bipedalism that were at the heart of debates on human evolution in the late 19th and early 20th centuries.
- 10 John Eric Cooper and Gordon Hull, *Gorilla pathology and health: With a catalogue of preserved materials*, London: United Kingdom Academic Press (Elsevier), 2017.
- 11 Christiane Funk (collection manager mammals, Museum für Naturkunde, Berlin), personal communication with Rohan Long, 8 July 2019.
- 12 Hugo Obermaier, *Fossil man in Spain*, New Haven: Yale University Press, 1924.
- 13 It should be noted that the first *Australopithecus* fossil was described in 1924 by Australian anatomist Raymond Dart. However, the scientific establishment was reluctant to accept it as a close human ancestor, not least because it didn't meet the expectations that had been created by the 'Piltdown Man' fossil—which in 1953 was revealed to be a fake. See Rohan Long, 'Skulduggery in the museum: Remnants of Piltdown Man in the Harry Brookes Allen Museum of Anatomy and Pathology', *University of Melbourne Collections*, issue 23, December 2018, pp. 3–9.
- 14 Günther A. Wagner and others, 'Radiometric dating of the type-site for *Homo heidelbergensis* at Mauer, Germany', *Proceedings of the National Academy of Sciences*, vol. 107, no. 46, November 2010, pp. 19726–30.
- 15 Arthur Keith, 'The early history of the Gibraltar Cranium' (Letters to the editor), *Nature*, vol. 87 (7 September 1911), pp. 313–14.
- 16 W. M., 'Reviewed work: *La race humaine de Neanderthal ou de Canstadt en Belgique: Recherches ethnographiques sur des ossements d'une grotte à Spy et détermination de leur âge géologique* by Julien Fraipont', *American Anthropologist*, vol. 1, no. 3 (1888), pp. 286–7.
- 17 Edouard Lartet and Henry Christy, *Reliquiae aquitanicae: Being contributions to the archeology and paleontology of Périgord and the adjoining provinces of southern France*, London: Williams & Norgate, 1875.
- 18 Eugene Dubois, 'On *Pithecanthropus erectus*: A transitional form between man and the apes', *Journal of the Anthropological Institute of Great Britain and Ireland*, vol. 25 (1896), pp. 240–55.
- 19 In 1925, anthropologist Arthur Keith said of *Pithecanthropus*: 'after thirty years of debate, [it] still retains an undecided place in the realm of ape and man'. From *The antiquity of man*, London: Williams & Norgate, 1925.
- 20 Otto Schoetensack, *Der Unterkiefer des Homo heidelbergensis aus den Sanden von Mauer bei Heidelberg*, Leipzig: W. Engelmann, 1908.