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From anatomy to palaeo-raciology: Two Neanderthal reconstructions at the NHMW 1924/25

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(with 15 figures)

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Abstract

In 1924 and 1925, anthropologist Egon von Eickstedt from the Natural History Museum of Vienna (NHMW), and Austrian/Hungarian artist Erna von Engel-Baiersdorf created two soft tissue reconstructions of the head of a Neanderthal, based on a cast of the skull from La Chapelle-aux-Saints, discovered in 1908. Eickstedt was to become a leading racial scientist and representative of German interwar and Nazi anthropology. Engel-Baiersdorf established herself as a scientific sculptor, survived the Holocaust, and reinvented herself as an anthropologist in Canada. The two busts were the first hominin reconstructions at the NHMW and initiated the NHMW's reconstruction workshop in the 1920s and 1930s. An original copy of the bust from 1924, which was recently rediscovered in the collection of the University Museum Utrecht, allows a detailed comparison with the 1925 bust in the NHMW collection in methodological terms: Eickstedt aimed at introducing a new method for facial reconstructions of fossil man, producing a 'racial type' or 'racial portrait', adopting and refining the reconstruction method developed by Kollmann & Büchly in 1898. A number of nineteenth and early twentieth century Western scientists discussed Neanderthals and modern Europeans in a triangular relationship with Indigenous peoples from German Pacific colonies. As we will show, the two early NHMW sculptures, as genuine products of German/Austrian interwar palaeo-raciology, combine theories and methods of ethnology, evolutionary and physical anthropology, and anatomy with artistic practices. Thus, they provide interesting new insights for current debates on the entanglements of German colonial history and the interwar/Nazi period.

Keywords: Neanderthal, Egon von Eickstedt, Erna von Engel-Baiersdorf, facial reconstructions, interwar period, scientific racism, German raciology, colonialism, German Pacific colonies, sensitive collection, contentious heritage.

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[3] Humboldt University Berlin, Institute for European Ethnology, Mohrenstr. 40–41 (soon to be Anton-Wilhelm-Amo-Str.), 10117 Berlin, Germany; e-mail: K.Kremmler@gmx.net, PhD candidate, contributed the post-colonial and cultural history perspective and analysis, as well as German and Hungarian archival research.

Introduction

The 1856 discovery of the Neanderthal fossils generated scientific and popular demand for visualization. Attempts were made to reconstruct the appearance of this hominin, based on the fragmentary fossil material. Such visualizations were not only of interest to scientists, but also fascinated and aroused the interest of artists. Thus, the history of early reconstructions is one of mutual interactions and relationships between scientists, artists, and the public. Reconstructions can yield information about these interactions as well as insights about prevalent scientific and popular concepts and perceptions (see Sommer 2006: p. 208). As can be expected, the Neanderthal's imagined appearance was always determined by the particular scientific interpretation of the time (Auffermann & Weniger 2006: p. 188). Many of these reconstructions were created in the institutional contexts of museums and universities.

In 2019, a plaster copy of a small Neanderthal reconstruction was rediscovered in the collection of the University Museum Utrecht (UMU) by Paul Lambers, which could be traced back to the Natural History Museum of Vienna (NHMW). It was the first of two Neanderthal reconstructions made by anthropologist Egon von Eickstedt and Austrian/Hungarian artist Erna von Engel-Baiersdorf at the NHMW in 1924 and 1925.

Both will be discussed in detail. First, we provide an overview of the most important earlier versions for context. We will then discuss the methods and practices applied to examine the methodological innovation. Finally, we will give a short account of how the career trajectories of a German racial anthropologist and an artist of Jewish background intersected in an era of increasing anti-Semitism, before the Nazis imposed their racial regime.

From pictorial to sculptural Neanderthal reconstructions

When the first descriptions of a Neanderthal skull were published (Schaaffhausen 1858; Fuhlrott 1859; King 1864) and it became clear that another human species had lived in Europe besides *Homo sapiens*, the question arose as to how this species might have looked. Most of the early Neanderthal reconstructions were pictorial, in the form of drawings and paintings; the first was published in Harper's Weekly on July 19th, 1873 (Moser 1998). It is a drawing of a Neanderthal man and woman (sleeping) in a cave, interpreted as their natural environment. As Auffermann & Weniger (2006) note, the first pictorial Neanderthal representations drew on European iconographic traditions of the Savage ('der wilde Mann'), and then, based on social Darwinist ideas, took a colonial turn towards representations of contemporary non-European peoples. General denigration of non-European cultures was part of the hierarchical European value system of the time, serving as justification for colonial politics. Indigenous civilizations were looked upon as 'savages' on a low step of human evolution, and the Neanderthal was increasingly imagined according those lines (see Auffermann & Weniger 2006: p. 187).

The first attempt at a pictorial reconstruction of the face (head) by an anthropologist was a drawing by Frank Cushing, published by MACLEAN (1875), described as an *"ideal restoration of the Neanderthal Man"*. Later, in 1888, German anthropologist Schaaffhausen published a drawing of the profile of a male face in left lateral view in his monograph on the Neanderthal fossils (AUFFERMAN & WENIGER 2006; GIACOBINI & MAUREILLE 2007).

Fig. 1. 'Ideal reconstruction' based on the Neanderthal skull by Ward/Mitchell, 1880s. Credit: División Antropología of the La Plata Museum (Argentina).

Interest in 3D-soft tissue (sculptural) reconstruction also started in the 1880s, with a plaster bust of a Neanderthal man, listed in the catalogue 'Human Skeletons and Anatomical Preparations' of Henry A. Ward's Natural Science Establishment (WARD's 1883, 1893). Henry Ward was a geologist from Rochester, USA, and a prominent supplier of natural history specimens in the USA. The bust, an 'ideal reconstruction' by local sculptor Guernsey Mitchell after Ward's instructions (CARUS 1904; SARDI 2021), was declaredly based on the skull of Neanderthal, and depicted as hairy and rather grim looking. (Fig. 1)

The first reconstruction from the 20th century, created by American artist Harriett Hyatt Mayor in 1903 (Fig. 2), was instantly and widely received by SEMAYER (1903), BUSCHAN (1904), WILSER (1905, 1907), and years later by BYSTROW (1923), and subsequently published in many palaeoanthropological publications from Germany, Hungary, and Russia.

Fig. 2. Reconstruction by Harriett Hyatt Mayor in 1903, based on the Spy and Neanderthal skulls. Credit: Syracuse University Libraries, Special Collections Research Center.

In 1908, new findings provided an entirely new basis for reconstruction efforts. A new Neanderthal skeleton had been recovered at the cave named 'Bouffia Bonneval' by

the Bouyssonie brothers in the village of La Chapelle-aux-Saints (Bouyssonie *et al*. 1909). The skeleton was more complete than any other Neanderthal findings known at the time. French anthropologist Marcellin Boule published papers in 1909 and 1911–1913 on the fossil, which became well known as the 'Old Man of La Chapelle-aux-Saints' (Boule 1909, 1911–1913). Boule's reconstructions and interpretation of the skeleton's anatomy as a 'primitive' species with similarities to great apes was widely accepted (Trinkaus & Shipman 1993a: p. 247–252). It had the greatest influence on the scientific image of the Neanderthals until the 1980s (Aufferman & Weniger 2006: p. 188; see also Sommer 2006).

In 1909, Boule more or less supervised an artistic interpretation of the environment and the Neanderthal individual by artist Frantisek Kupka, showing a stooped, primitive, and wild troglodyte. Boule's results were published widely in newspapers and media and contributed significantly to the creation of the popular image of Neanderthals subsequently conveyed to the public (Moser 1992, 1998; Trinkaus & Shipman 1993b) and adopted in all interpretations that followed. Among these interpretations, those from La Chapelle-aux-Saints assumed a prominent place and were in accordance with this popular image.

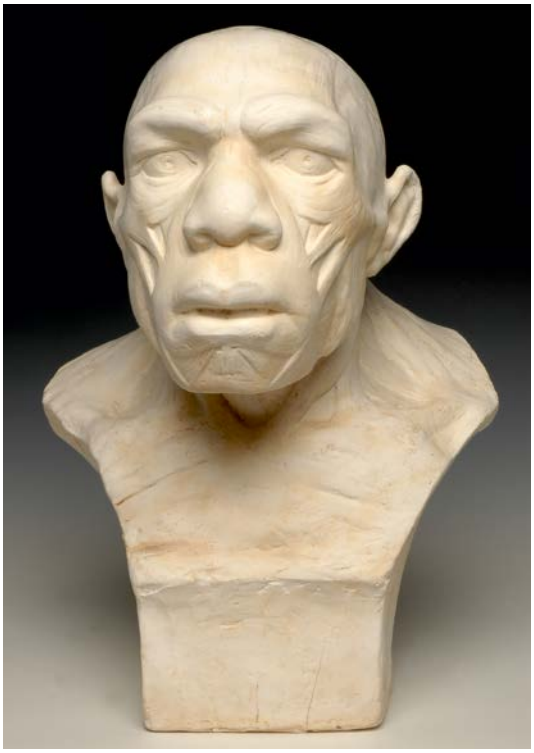

Fig. 3. Reconstruction of the head and neck muscles of *Homo neanderthalensis* from La Chapelle-aux-Saints. Plaster cast sculpture by Joanny Durand, directed by Marcellin Boule (Boule 1921). Credit: Collection d'anthropologie, Musée de l'Homme (Muséum national d'Histoire naturelle, MNHN), Paris.

In 1909, French sculptor Émile Derré presented at the Salon de Paris a bust of a Neanderthal man, highly influenced by Kupka's drawing as *"Les 'ancêtres', étude de l'homme préhistorique, d'après le crâne fossile de la Chapelle-aux-Saints"* (Baschet 1909: entry 3237; Moser 1992). It was reproduced in the Illustrated London News (1909, April 4th) and in Wilser (1910). The 1909 reconstruction by criminologist, physician, and phrenologist Cesare Lombroso and the artist Norberto Montecucco is another striking example (it was not published until 2007; Giacobini & Maureille 2007, 2015).

More reconstructions (bas-reliefs, busts, statues) followed, usually joint efforts between a scientist and an artist, and intended for educational or exhibition purposes. Most were presented and discussed at scientific meetings and published in journals or books. These

Fig. 4. Plaster cast reconstruction on the basis of La Chapelle-aux-Saints showing the face and the supposed thickness of the soft tissue modelled on the right side of the skull, by James Howard McGregor from the AMNH. Reconstruction as of 1919, purchased from R.F. Damon & Co. in 1927. Photo: Sjoerd Popkema, Collection UMU, UP-1211.

were by Swann-Lull (1910; a statue), Martin (1913; with sculptor Charles Bousquet), Rutot in 1914 (see De Bont 2003, with sculptor Louis Mascré), Kormos & Hillebrand (1915, bas-relief, with sculptor Viktor Haberl), Boule (1921; with sculptor Joanny Durand, Fig. 3), Faure (1921; see also Faure 1923, 1935, with sculptor Yvonne Parvillee), and Viktor Haberl in 1924 (Kadić 1922–1925). The German sculptor Ernst-Gabriel Jäger created a full-size statue of a Neanderthal man, supervised by anthropologist Dr. Gustav Fritsch (Wilser 1912; Kormos & Hillebrand 1915; figured by Buschan 1919). Freudenberg (1922, 1923) presented a curious reconstruction of *Homo heidelbergensis* (of which only a lower jaw was known), which was supposedly based on the skeleton of La Chapelle-aux-Saints. In 1915 and 1919, Dr. J.H. McGregor (Fig. 4), from the American Museum of Natural History (AMNH), made restorations of several ancestral human types (Osborn 1915, 1920; McGregor 1926). His busts were exhibited in the AMNH and have been reproduced in many books and papers since. Moreover, these restorations were sold by R.F. Damon & Co. (see catalogue of R.F. Damon & Co. 1950) and can still be found in many collections world-wide.

Also worth mentioning are the statues of a prehistoric man by the sculptors Mikhail Kurbatov and Vasily Vatagin, made between 1917 and 1920 in the Darwin Museum in Moscow. These sculptures were modelled under the supervision of Museum director Alexander Kots and his wife, the primatologist Nadezhda Ladygina-Kots, and based on plaster casts of the original fossils in the collection, without knowledge of any earlier interpretations (Kots 2007; Simpson 2017; Vöhringer 2009).

The Vienna reconstructions

The 1924 model

The first reconstructions of a hominin at the NHMW are two sculptures from 1924 and 1925 of a Neanderthal man. The reconstructions, based on the findings from La Chapelle-aux-Saints, were carried out by German scientist Egon von Eickstedt (1892–1965) and Austrian-Hungarian artist Erna von Engel-Baiersdorf (1889–1967), in a novel mode of collaboration.

In 1924, Eickstedt, recently appointed as 'Museumsanthropologe' (Preuss 2009) at the NHMW, published a paper on the 1924 bust in the popular scientific German weekly 'Die Umschau', pointing out that it was mainly intended as an educational tool.

Erna von Engel-Baiersdorf, born in Vienna into an ennobled Jewish family of industrialists and living in Pécs (Hungary), was an established artist at the time. A supporting member of the Vienna Zoological and Botanical Society with a passionate interest in palaeontology, she had earlier contacted the NHMW and volunteered to make hominid reconstructions for the museum. In a postwar interview (Laurie 1951: p. 9) as well as in her postwar autobiography, Engel-Baiersdorf recalled that her attempt to write a novel on 'the life and occupation of primitive man and his family' (Engel-Baiersdorf n.d., 1926) had motivated her to 'model Mr. and Mrs. Neanderthal'. She showed the sculptures to Dr. Josef Bayer, the director of the Department of Anthropology and Prehistory, who in turn suggested that she modelled a bust under the scientific guidance of the anthropologist of the NHMW. [4,5]

While the original plaster cast of the 1924 Neanderthal reconstruction from the NHMW's collection was lost, a plaster copy, in the collection of the University Museum Utrecht (UMU) is possibly the only one still in existence (Fig. 5).[6,7] It is part of a collection of anthropological plaster casts acquired by the UMU in 1991, when the university's Institute of Physical Anthropology (part of the Anatomical Institute) closed its doors. The bust was registered in 1925 as Nr. 10 in the collection of the then Anatomical Institute of Utrecht University.[8] The head of the institute was Dr. A.J.P. van den Broek (1877–1961), professor of anatomy and embryology from 1909 to 1948. His main field of research and teaching was physical anthropology, and he developed a special interest in palaeoanthropology and human evolution (Mijsberg 1952). Although he never carried out original

[4] Vancouver Museum of Vancouver, File Erna C. von Engel-Baiersdorf, Autobiography, n.d. pp. I–VII.

[5] Two small complete body figures were inventoried in the NHMW before 1930 (NHMW, Department of Anthropology, Inventory book, Abgüsse Inv. Nr. 5892 a and b, little plastilin models of Neanderthal man and woman) but not preserved. Erna von Engel-Baiersdorf however kept a plaster copy of the male figure in her atelier, see Fig. 15.

[6] NHMW, Department of Anthropology, Inventory book, Abgüsse, Inv. Nr. 15.384.

[7] https://umu.nl/museum-online/collectieglimp/collectieglimp-neanderthaler/ (last access 13.3.2022).

[8] http://dspace.library.uu.nl/handle/1874/272554; p. 14 (last access 13.3.2022).

Fig. 5. First reconstruction of Egon von Eickstedt and Erna von Engel-Baiersdorf in 1924. Photo: Paul Lambers, Collection UMU, UP-1126.

research in this field, he published several papers and books for the general public. Over the years, Van den Broek built up a valuable collection of (palaeo)anthropological casts of all known findings, adding casts of every newly found fossil. He purchased these from the well-known suppliers F. Krantz (Bonn) and R.F. Damon & Co. (Chichester/London), but also used his network and contacted researchers personally. A substantial part of the collection therefore consists of first-generation casts of hominid fossils (see STORM & LAMBERS 2017).

The Neanderthal sculpture is a model of the head in half natural size. It measures 19.5 cm in height and 15 cm in width. The statue is signed on the right-hand side of the pedestal: *"Engel Baiersdorf 1924 fec."* and on the left: *"AUTORIS. durch d. NATURHIST. MUSEUM. WIEN"*.

The size of the brain case of the Neanderthal reconstruction appears small in relation to the upper face. The face has prominent brow ridges and eyebrows, pointed ears

Fig. 6. Skull of the Neanderthal skeleton of La Chapelle-aux-Saints. Photo: Jean-Christophe Domenech, Muséum national d'Histoire naturelle (MNHN), Paris.

(macacus ear, see below) and a backward inclined anterior margin of the lower jaw, without a developed chin (mental protuberance). The hair is short, especially on the neck, and looks trimmed. The posture is slightly bent.

The 1924 method: The anatomical turn

The La Chapelle-aux-Saints skull (Fig. 6), a cast of which was present in the NHMW collection, was the basis for Eickstedt and Engel-Baiersdorf's work, for which the reconstruction by Boule & Durand three years earlier (Boule 1921; Aufferman & Weniger 2006) was used as an example (see Fig. 3). Eickstedt and Engel-Baiersdorf's approach followed a conceptual shift in the notion of facial reconstruction towards the modern scientific genre of anatomic specimens and models. Muscles and fat layers were applied layer by layer, while the thickness of the muscles was determined by the size of the attachment marks on the skull. Martin (1913), Faure (1921), and Boule (1921) reportedly took the same approach. From today's perspective, the practicality of this method is unclear, as Giacobini & Maureille (2007: p. 39) point out that there are no muscle markers of the mimetic muscles visible on the original skull. These skin muscles or mimetic muscles, which are important for the representation of the face, leave hardly any traces on the bones of modern humans, let alone remaining visible on fossilized Neanderthal bones (Maureille 1999: p. 90). In contrast, mastication muscles leave distinctly visible marks on the bones.

The pointed ear is shaped as a so-called macacus ear, with an oblique, tapered top edge. This was long considered a primitive, atavistic ear shape for humans, first noted by Darwin (1871, Darwin's tubercle), and described, among others, by Schwalbe (1891, 1916). From today's perspective, the genetic influence on this character is unclear, if present at all, and it is not an atavism (McDonald 2011; Loh & Cohen 2016). As a model for the general appearance Eickstedt chose a young adult man, without beard growth, with slightly trimmed, short hair that looks wet and combed. He thought a beard and a rather fat face might obfuscate the facial characteristics. But Eickstedt also admitted that it was not known if Neanderthals trimmed their hair with their tools. He also expected that

a young Neanderthal man would not be corpulent because of his hard life as a hunter (Eickstedt 1924).

The resemblance to the Boule & Durand's reconstruction (Boule 1921) was noted in the literature of the time, such as Vaufrey (1925), who published a short note about it, mentioning that the muscles were now covered by skin. In the American Journal of Physical Anthropology (Anonymous 1925), Eickstedt's reconstruction was briefly discussed, and the style of representation noted as 'of considerable interest' but unusual for the lack of hair and beard.

The small reconstruction generated some public attention, as it was reported in several Austrian and Hungarian newspapers. In Germany and Hungary, it raised enough interest to be included in several popular papers and science volumes, such as the entry 'Prehistoric Man' in the popular single-volume Hungarian World Lexicon (Bálint *et al.* 1925: p. 622), and in the volume 'Az Ősember' (Prehistoric Man) by Hungarian palaeontologist Lambrecht (1926 and later editions) and Lambrecht (1930). Moreover, H.F.K. Günther, race researcher and eugenicist in the Weimar Republic, included the reconstruction in the 6th (1926) edition of his bestselling book 'Rassenkunde des deutschen Volkes' (Racial Science of the German People).

The reconstruction's first presentation to the public at the NHMW can be traced to 1930, more than 40 years after the opening of the NHMW at the Ringstraße in Vienna, in the then newly established anthropological-prehistoric hall exhibition (Berner 2011). It was displayed in a showcase with casts of human fossils, tools, and drawings of animal life in the Tertiary, from the Pliocene up to the end of the Pleistocene, including a sabre tooth cat, European hippopotamus, cave bear, wooly mammoth, wooly rhino, and musk ox. The Neanderthal was placed at the bottom right of the case, between the cast of the skull of La Chapelle-aux-Saints, on which it was modeled, and the casts of the skulls of Spy (Fig. 7).

The 1925 model: The racial turn

Eventually, the bust turned out to be a first try, a practice run. Eickstedt received requests to reconstruct a life-sized model and did so in 1925, again with Engel-Baiersdorf. The rediscovery of the 1924 bust in 2019 in Utrecht makes it possible for the first time to present and discuss both busts in a comparative manner (Fig. 8).

The 1925 model's different appearance is the result of an entirely different methodological approach. Eickstedt described this second reconstruction in three publications (Eickstedt 1925a, b, 1926–1927; see Berner 2008; Lange 2011; Nagy 2014) and interviews (Mühlmann 1925), which was based on the Kollman & Büchly method (see below), and shows not only the head but also the upper part of the torso (Fig. 9). As previously, Eickstedt saw facial reconstructions as pedagogical models for the general public (1925b), referring to his colleague Mollison (1924), who argued that reconstructions are not only for the layman but also an intellectual exercise for the researcher. But most

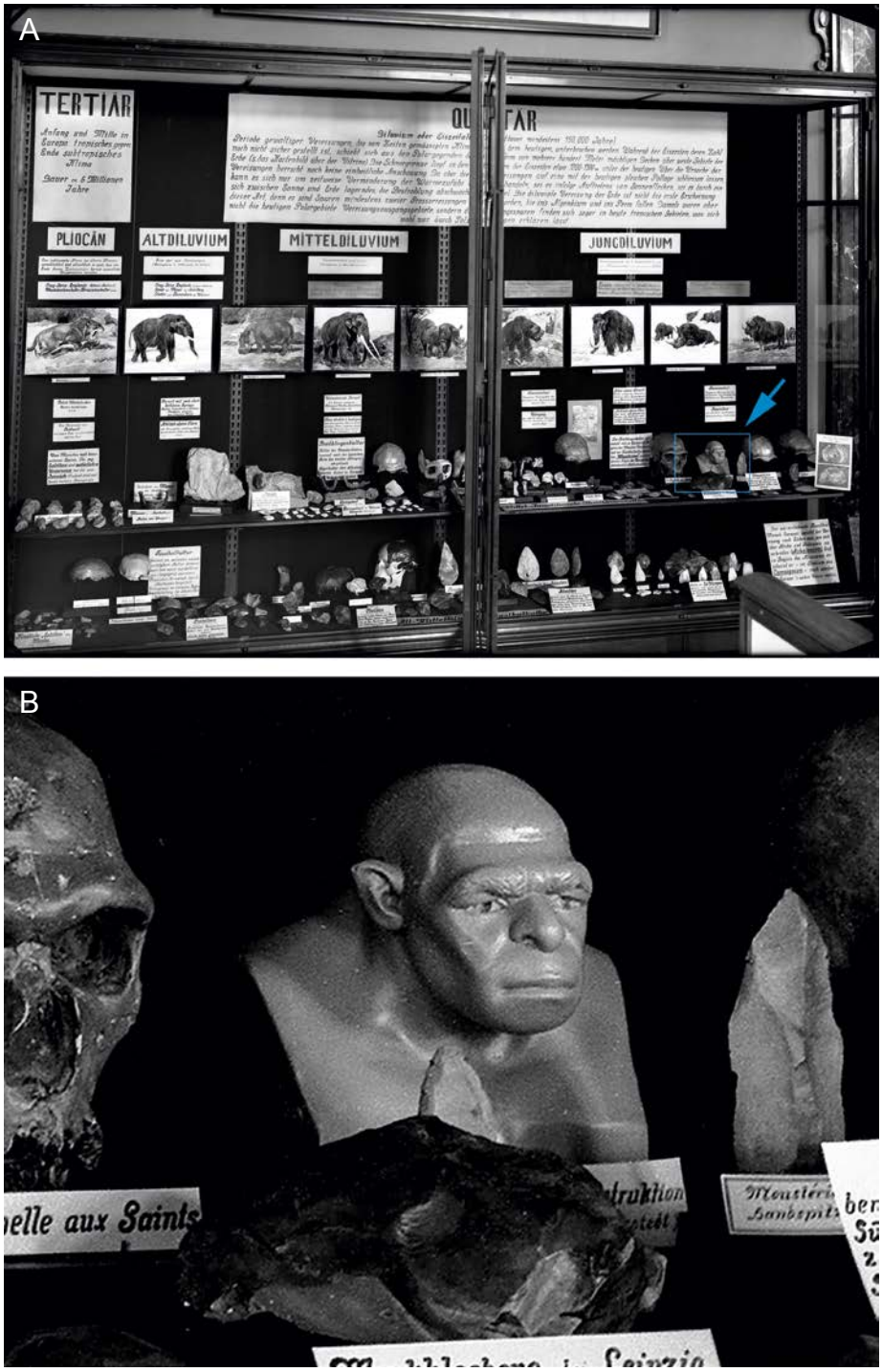

Fig. 7. **A:** The 1924 model next to a cast of the skull of La Chapelle-aux-Saints in a 1930 NHMW showcase. **B:** Detail. Credit: NHMW, Department of Prehistory, Photo collection, 3042.

Fig. 8. The 1924 (right) and 1925 (left) Neanderthal reconstructions by Egon von Eickstedt and Erna von Engel-Baiersdorf in comparison (scaled to size). NHMW, Department of Anthropology, cast collection 21.337. Photos: Wolfgang Reichmann, NHMW and Paul Lambers, UMU.

importantly, as LANGE (2011) has pointed out, Eickstedt aimed at introducing a whole new method for facial reconstructions of fossil man, in the emerging field of European interwar racial sciences or raciology (see MCMAHON 2016, 2019a, b), producing a 'racial type' or 'racial portrait'. Standard methods of visualization that enabled better comparison and serialization were becoming ever more important, and Eickstedt's ambition was to devise a scientific standard method based on empirical data, leaving as little as possible to artistic imagination. Eickstedt gives a detailed account on the method and data he applied, as well as photographic documentation (Figs 9, 10, and 11) of his new technique and work process (EICKSTEDT 1925a, b, 1926–1927, 1934; see also ENGEL-BAIERSDORF 1940, 1949).

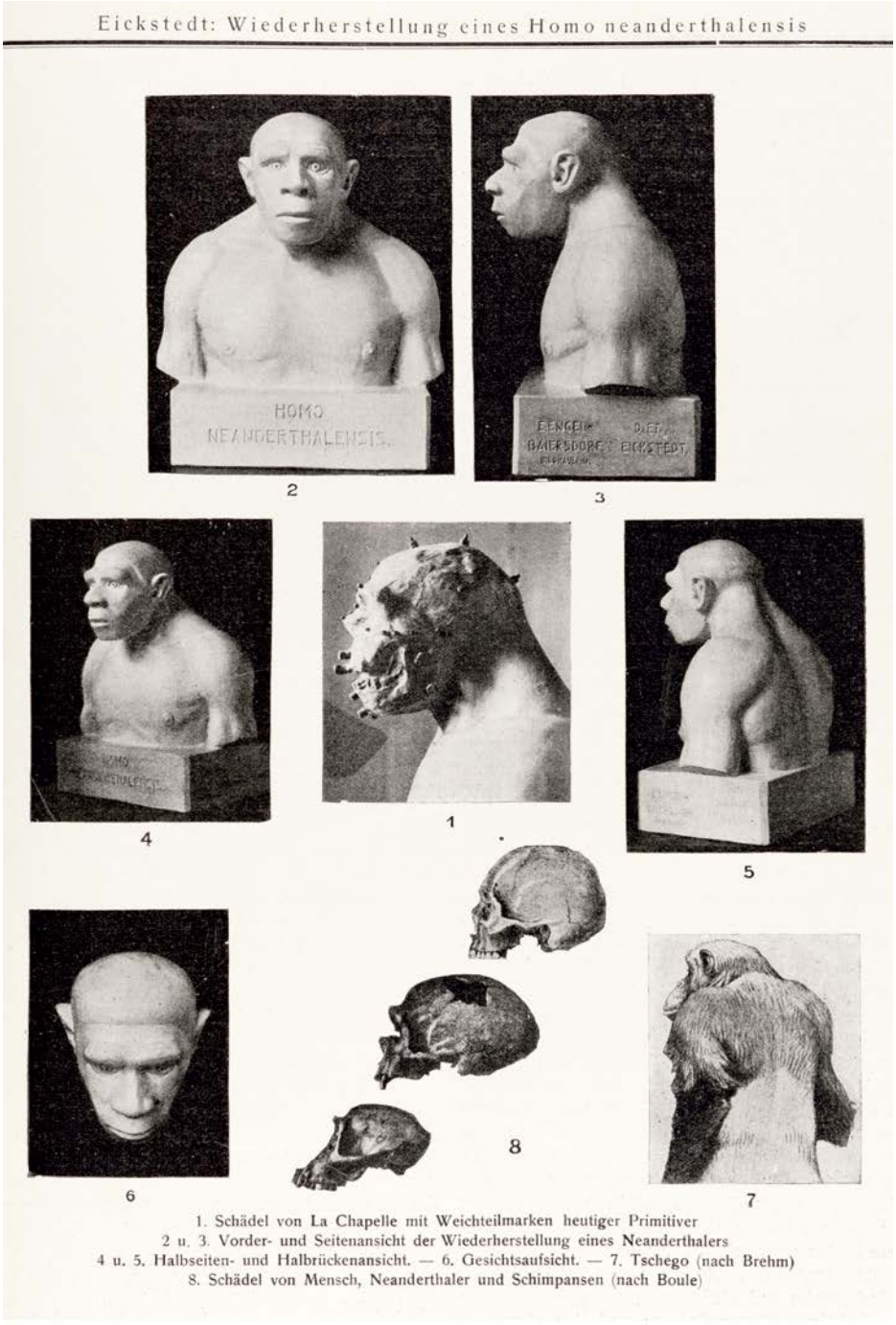

Fig. 9. Illustration of the reconstruction method from EICKSTEDT's 1925b publication in the journal 'Die Eiszeit'. Scale bar equals 15 cm (total length).

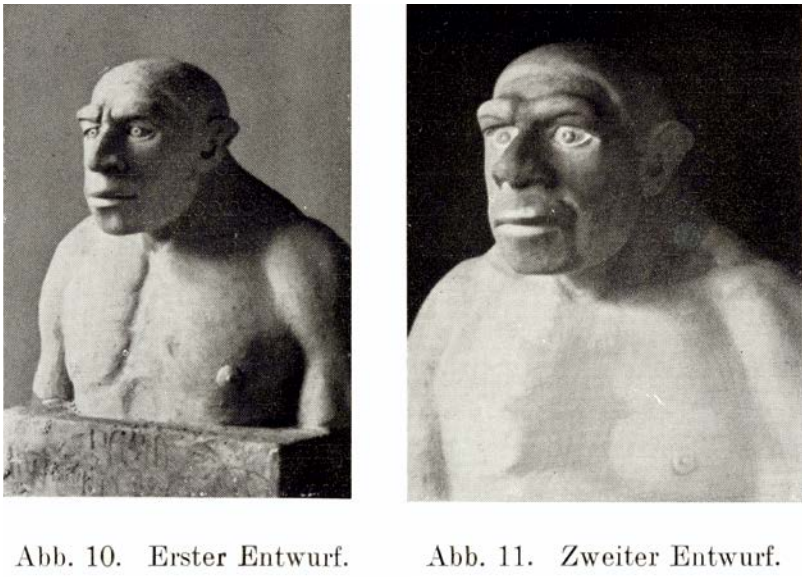

Abb. 10. Erster Entwurf. Abb. 11. Zweiter Entwurf.

Fig. 10. First and second draft of the 1925 reconstruction, nose shape modified by Eickstedt. Illustration from EICKSTEDT's 1925a publication in the journal 'Zeitschrift für Anatomie und Entwicklungsgeschichte'.

Eickstedt considered the Neanderthal neither an ape nor an ancestor of today's humans but a primitive, withered 'side line of human evolution' (MÜHLBACH 1925: pp. 335–336). The interest in not only reconstructing the head but also extending Boule's anatomical interpretation to the neck and shoulder muscles and upper part of the torso. For the latter, a white European model was used (Fig. 11). The aim was reconstructing the posture, which is slightly stooped, another factor visualizing evolutionary difference to *Homo sapiens*. These questions were also discussed in the German discipline of the time: a

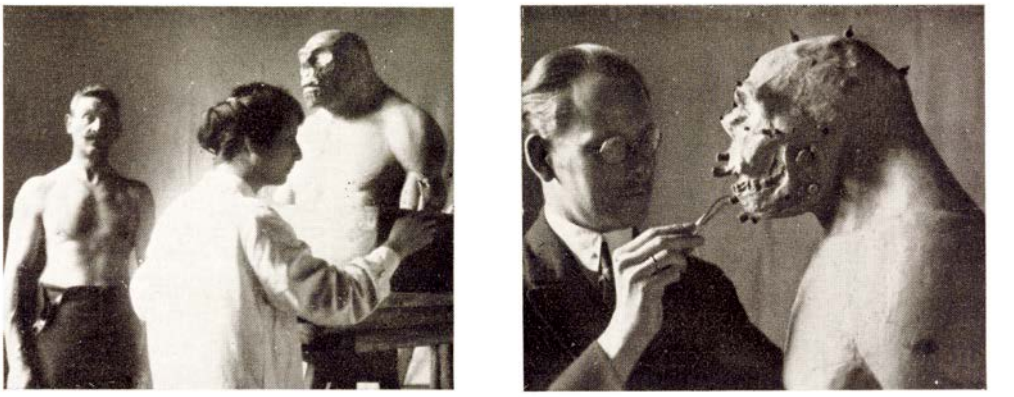

Abb. 1. Anlegen der Muskulatur. Abb. 2. Aufsetzen der Weichteilmarken.

Fig. 11. Erna von Engel-Baiersdorf applying muscles, Egon von Eickstedt applying plastilin markers. This illustration (EICKSTEDT 1925a) demonstrates the division of labor, emphasizing the scientific approach.

1924 publication in the 'Zeitschrift für Morphologie und Anthropologie' (ZfMA), edited by Eickstedt's former employer and teacher Eugen Fischer, in which Eickstedt also published himself (Weidenreich 1924: pp. 188–189), linked *Homo sapiens*' intellectual superiority to cerebrum size and walking upright.

The method Eickstedt and Engel-Baiersdorf now employed was developed by anthropologist Kollman and the sculptor Büchly in 1898, for the facial reconstruction of a neolithic female skull from Auvernier (Switzerland, Kollmann & Büchly 1898). It is based on empirical data, using 22 anthropometric landmarks and plastilin pyramids (markers) for the assessment of soft tissue thickness. Layers of clay were applied between the pyramids, so that instead of building up muscles layer by layer, the soft tissue was applied as one layer. For soft tissue depth, Kollman and Büchly had measured locally available female corpses. The only other bust of a Neanderthal for which this method had been used before was the model made by McGregor in 1915/1919 (Fig. 4, McGregor 1926).

The racialized Ice Age

The Kollmann & Büchly-method was explicitly devised to reconstruct the 'persistence of races', based on the cephalic index as a major taxonomic category of the time (see Hanke 2007). It was adopted and developed further by a number of artists and practitioners. According to Buschan (1904), American artist Harriett Hyatt Mayor might already have used this technique for her early Neanderthal reconstruction in 1903 (Fig. 2). She never published on her work, but in a spring 1903 letter she wrote that the bust was *"an attempt to restore the man of the Neanderthal race. The measurements taken from the Spy & Neanderthal skulls & the fleshy part from photos of Australian Savages [sic] – This gentleman is being introduced to museums here & abroad. Though I believe there are many who are opposed this resembling an Australian"* (see also Semayer 1903: p. 90).[9]

The Neanderthal fossils had been discussed in Darwinian terms of racial evolution by German and English authors from the very beginning. The Western idea that contemporaneous non-European societies were living in a different historical epoch (see Fabian 2014) and also displayed physical characteristics of prehistoric humans was widespread at the time (Maureille 1999: p. 84). In an era of craniometry, studying intelligence in relation to cranial capacity, the Neanderthal was instantly compared with various contemporary racialized populations deemed to be at the bottom of the racial-civilizational hierarchy (Schaaffhausen 1858; Huxley 1863). Thus, the study of Neanderthal fossils added the new concept of evolutionary deep time to notions of human linear progress from 'savagery' to 'civilization' (Drell 2000: p. 4), merged with colonial racial hierarchies.

[9] Letter from Harriet Hyatt Mayor to Dr. Zalinski, Easter 1903. Lisa Unger Baskin Collection (David M. Rubenstein Rare Book & Manuscript Library), Sallie Bingham Center for Women's History and Culture. Duke University.

In visual terms, the popular imagination of the Ice Age was more and more influenced by modern colonial ethnography. Depictions of non-European peoples became a model through which ancient human life was understood (Drell 2000: p. 8). In the 1870s and 1880s, with ethnographic and anthropological photography becoming prevalent, the shift of focus in physical anthropology from skulls and bones to measuring and photographing living people had produced the new scientific genre of the 'racial atlas', using anthropometric photographic portraits to study various 'races', for scientific audiences and popular circulation (Mak 2020). Anthropologists and anatomists were also employed by Western art academies to teach the Western body in racial comparison (Joschke 2014).

Hyatt Mayor used photographs for visual reference and could thus translate from the medium of contemporary colonial-anthropological photography into a 3D-racialized visualization of a prehistoric hominid. Her reconstruction was sold to leading museums of Europe (Stephens & Calder 2006) and, as it turns out, inspired other artwork, with an unknown afterlife in German popular culture even today: in the county town of Mettmann, near the recovery site of the Neanderthal skeleton, Neanderthal tourism was established early on. In 1928, a Neanderthal concrete statue was commissioned for the local 'Neander cave' restaurant's beer garden, made by local artist Franz Moch (1871–1941). Today, the statue stands on the grounds of the Mettmann Neanderthal Museum, together with a disclaimer that it is not a 'scientifically accurate portrayal'. The statue is also displayed prominently on the municipality's website, as part of local cultural heritage.[10] As Drell puts it, *"tracing the sources of the visual vocabulary historically enables us to understand the conditioning to which our imagination is subject"* (Drell 2000: p. 12). The striking resemblance to Hyatt Mayor's bust and its wider implications – that this German local cultural heritage was very likely shaped by a multiple translation of visual templates leading back to 19th century Australian individuals – have not been noticed to date (Fig. 12 A, B).

The 1925 method: Racial anatomy

After Eickstedt's 1924 reconstruction was completed, contemporary professional debates inspired him to revise his method. Already in 1922, a ZfMA-article had offered a detailed recapitulation of Kollman & Büchly's 1898 method for 1920s racial sciences. Medical scientist Franz Stadtmüller demonstrated its merits for creating facial reconstructions of European and non-European skulls (Stadtmüller 1922). In 1925, he extended this to 'racial portraits' ('Rassenporträt') with 'racial anatomic expressions' ('rassenanatomischer Ausdruck') on diluvial skulls, using different soft tissue depths of 'Europeans' and 'Chinese' (Stadtmüller 1925: p. 302). He noted that for the reconstruction, *"available soft tissue depth shouldn't differ too much from those of ancient hominids"* (Stadtmüller 1925: p. 303). Stadtmüller also refrained from modeling hair for a better

[10] https://www.mettmann.de/web/?page_id=10296 (last access 8.1.2022).

A

B

Fig. 12. A: Neanderthal concrete statue made by Franz Moch for the local 'Neander cave' restaurant's beer garden in Mettmann, 1928–1929. Credit: Neanderthal Museum Mettmann. B: Neanderthal statue by Franz Moch today. Credit: Neanderthal Museum Mettmann.

view of anatomic characteristics, although this style was considered 'unusual' at the time (Stadtmüller 1925: p. 311).

Eickstedt's crucial innovation for the 1925 Neanderthal reconstruction was to use data on the soft tissue depth of Indigenous individuals from the Pacific German colonies, referred to as *"members of the Melanesian race"* (Eickstedt 1925a: p. 175), as these people were considered *"the most primitive living races"* (Mühlbach 1925). Whereas

previously the data used for reconstructions had been images – illustrations and ethnographic or anthropometric photographs – or published anthropometric data as in Stadtmüller's reconstruction of a 'Melanesian' (Stadtmüller 1922), Eickstedt's scientific innovation included obtaining the data himself from preserved human remains.

As it happened, Eickstedt was in the position to have direct access to preserved heads of 'Melanesian' individuals from the German Pacific colonies. In 1922–23, before he came to Vienna, he had worked at the Freiburg University's Anatomic Institute under ZfMA's chief editor Eugen Fischer, later one of the most prominent Nazi scientists (Lange 2008; Preuss 2009). The institute's collection included 14 'Melanesian' heads in formaldehyde, the remains of two women and twelve men, sent to Freiburg between 1904 and 1910 from Friedrich-Wilhelmshafen – today Madang, Papua New Guinea – by a government medical practitioner. For most of them, their names, ages, community, place of birth and cause of death are recorded in the literature. Two of the men were executed as murderers; the others died of natural causes in the hospital. On Fischer's initiative, their remains were first dissected in 1918 and again in the 1920s by several researchers, resulting in multiple publications in ZfMA (starting with Harslem-Riemschneider 1921). The literature includes anatomical drawings (Eickstedt 1925c; Harslem-Riemschneider 1921) and photographs (Eickstedt 1925c).[11]

In 1925, Eickstedt personally dissected the noses of the Freiburg 'Melanesian heads' to investigate their relevance for racial anatomy ('rassenanatomische Bedeutung', Eickstedt 1925c). At this point he must have measured soft tissue depths – or might have obtained the unpublished measurements referred to by Harslem-Riemschneider (1921) and used by Stadtmüller (1922). In any case, the practice of taking measurements from corpses as described by Kollmann & Büchly requires needle punctures at 22 points, and the calculation of median values.[12] In the case of the Freiburg remains, this means that a decade after their deaths, they were subjected to further violation by a series of invasive interventions.

In the next step of the Neanderthal reconstruction, these median values were applied to the plastilin markers determining soft tissue thickness, as the basis upon which Engel-Baiersdorf filled up the intermediate areas (Fig. 11). From today's perspective, with raciology scientifically and ethically discredited since the 1990s, this technique is utterly obsolete not only for its racist ideological bias but also for technical reasons. Helmer (1990) analyzed the accuracy of this reconstruction, and considered it a pioneering work, but showed that the soft tissue and skull do not fit properly. He assumed that this might have been caused by using data on soft tissue thickness taken from corpses instead of living people.

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[11] According to Prof. Dr. Dieter Speck, University Archive and Uniseum Freiburg, the human remains in question cannot be located today. Anatomical specimens were not inventoried at the time. Also, parts of the collection were destroyed during the bombing of Freiburg in 1944. (E-mail to Margit Berner, June 9th, 2021)

[12] Radiology to determine soft tissue depth would have been technically available in 1924/25, but Eickstedt does not mention it anywhere.

In a review paper on soft tissue reconstruction of early hominins, Campbell *et al.* (2021) state that mean values of soft tissue depth do not take into account individual variation within populations. Furthermore, they argue that the assumption that soft tissue depth is comparable between different extinct and extant hominin species is false.

The reconstruction of nose, lips, and ears was already considered a matter of speculation at the time (Martin 1914: p. 421), Eickstedt's methodological explanation is crucial here: as he writes, the shape of the nose is rounded, like in children and so-called native and 'primitive' peoples, namely 'the Wedda, Australians and Papuas'; the breadth of the oral fissure and lips are modeled likewise (Mühlbach 1925: p. 335). For this, Eickstedt refers to phylogenetic notions (Eickstedt 1925b: p. 174), based on Ernst Haeckel's widely accepted recapitulation theory ('ontogeny recapitulating phylogeny'), *i. e.*, the development of a single organism successively mirroring the adult stages of successive ancestors of the species to which it belongs (see Preuss 2009: p. 230). He also refers to the Swiss ethnologists Fritz Sarasin and Paul Sarasin, who were internationally known for their work on Sri Lanka, Sulawesi, and New Caledonia (Sarasin & Sarasin 1892–1893; Sarasin 1922). Sarasin's 1922 'Atlas on the Anthropology of New-Caledonians and Loyalty-Insulans', part of an established German colonial anthropological tradition since the early 1900s (Mak 2020: p. 333), to which Eickstedt refers, provided rich photographic reference (Sarasin 1922). These considerations explain the change of nose shape in the second draft (Fig. 10).

Similar comparisons were undertaken by various scientists for different considerations: in a 1913 illustration (Boule 1911–1913: figs 99 and 100), Boule juxtaposed his reconstruction of the Neanderthal skeleton to a modern Australian Aboriginal skeleton, but, as Sommer points out, this was apparently done with the intention of highlighting their obvious 'difference'. This means, Boule was maneuvering in a discursive relationship with ape and *Homo sapiens*, his findings contested by the Catholic church's position on evolution theory, the press, and the audience's expectations (Sommer 2006: p. 209). Thus, his scientific argument was not to declare Indigenous Australians as living descendants of prehistoric primitive races, but on the contrary, that even 'the primitives at the peripheries of the earth' were considerably more advanced, the Neanderthal being closer to the apes than humans (Sommer 2006: p. 214).

By 1924, Sarasin referred to Boule but, as an ethnologist, argued from a different discipline and discursive background (Sarasin 1924). He mapped 'Austro-Melanesians' on a mid-range position between Neanderthals and the 'superior races', modern Europeans, referring to Eugen Fischer. Instead of skeletal comparison, his argument was based on a detailed craniological comparison.

The combination of Sarasin's theoretical and Stadtmüller's practical approaches, both published in the same year and within Eickstedt's own wider scientific community, must have caused him to update his approach. Another of his innovations was the notion of racial progress as not only a temporal, but also as a spatial global dynamic: he describes the relation of Neanderthals and 'Melanesians' in terms of analogy or parallel, withered

sidelines of human evolution displaced by 'superior races' to the most remote and inhospitable places of the earth at different geological eras.[13]

When it was finished, Eickstedt presented his new reconstruction at the annual conference of the German Anatomical Society held 1925 in Vienna (Eickstedt 1925b), which propelled him into the limelight of his professional community. It generated a much bigger media response than the first one, with extensive coverage in the Austrian, Hungarian, and German press, as well as in biographies and overviews of Engel-Baiersdorf's work (Mühlbach 1925; Lengyel 1930).[14] Furthermore, H.F.K. Günther included this reconstruction in the 1928 (12th) edition of his popular book.

Imagining and researching modern Europeans, Neanderthals, and 'Melanesians' in a triangular spatio-temporal relation was persistent in the Nazi era, and not limited to German raciology. A 1938 study by a Polish anatomist on facial muscles, published in Eickstedt's own racial sciences journal 'Zeitschrift für Rassenkunde' compares Neanderthals, 'Melanesian' and 'Polish races', the latter standing for 'recent Europeans' and referring to a 1928 study by a Polish anatomist who dissected preserved 'Melanesian' heads in France (Loth 1938). Dissecting and measuring preserved human remains from colonial contexts seems to have been a transnational European research interest for medical scientists in the interwar period. Together with the emerging interest in blood groups and other physiological measurements at the time, this represented a shift of the Western scientific gaze from measuring body parts and documenting the surface of the racialized body to an invasive, surgical gaze, looking for racial difference under the skin.

After WW2, the discursive link between 'Melanesians' and prehistoric fossils was prevalent in the German literature up to the 1950s.

The Vienna workshop after 1925: Palaeo-raciology

In the 1930s, a laboratory was set up in the Natural History Museum Vienna where artists made sculptures of prehistoric human types and ancient people based on skull remains, mostly from the NHMW's collection and occasionally from other collections (*e.g.*, from Hungary). Despite Erna Engel-Baiersdorf's status as a correspondent of the museum, her cooperation and modest fees, the department wanted to prevent her from gaining a monopoly on facial reconstructions of prehistoric hominids and ancient peoples

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[13] *„Als kümmerliche Randform zwischen feindlichen Umweltmächten zerrieben, kann der Neandertaler mit den heute noch lebenden abgedrängten und abgesprengten Altformen der Menschheit verglichen werden, die bei der Rassenverbreitung in die unwirtlichsten Winkel der Erde bedrängt wurden und sich noch wie ein Schlackenwall um die höher entwickelten Rassen legen."* Eickstedt, quoted in Mühlbach (1925: p. 336).

[14] Dunántúl October 28th, 1925, pp. 5 and 21; Pécsi Lapok June 11th, 1925, p. 3. Pécsi szobrászművésznő történelmi értékű alkotása); Pécsi Napló September 27th, 1925, p. 4.; Pécsi Napló October 15th, 1925, p. 5 (Pécsi portrék. E. Baiersdorf Erna. Az ősember szobra); Pécsi Napló October 18th, 1925, p. 5; Pesti Napló December 25th, 1929, p. 4 (Az ősember és as utolsó ember); Tolnai Vilaglapja February 26th, 1930, p. 18 (Az ősembertől az utolsó emberig); Délmagyarország Vasárnap. July 23rd, 1933, p. 8.

Fig. 13. Neanderthal reconstruction of La Chapelle-aux-Saints carried out by Fritz Fahrwickl by the museum's workshop in 1935, images of the department's photo collection. NHMW, Department of Anthropology, cast collection 21.345, photo collection 10.981–10.983.

(Pawlowsky 2005: p. 70). Besides Engel-Baiersdorf, at least six sculptors are known to have produced various reconstructions (Otto Degner, Fritz Fahrwickl, Egon Grenzer (Gränzer), Hugo Heese, Franz Klinghofer, Rosa Koller). They were advertised in academic and popular journals as teaching and exhibition objects. Although reference is given to the soft tissue thickness method, no information in the archival sources confirms its use. Sometimes, a photo or an underlying racial type is mentioned (Lebzelter 1936, see below). However, the reconstructions made in the NHMW later in the 1930s were conceived in a similar spirit to Eickstedt's and Engel-Baiersdorf's method. Engel-Baiersdorf was an active presence in the field during the interwar period, contributing several (palaeo)anthropological and ethnological reconstructions for the museum, like the so-called *Homo aurignaciensis* and *Homo rhodesiensis* (Lebzelter 1936; Cave 1937; Engel-Baiersdorf 1940, 1949; Teschler-Nicola 2006; Berner 2008; Nagy 2014). The last preserved correspondence before the war is dated to 1936. After Austria's voluntary amalgamation into the German Reich, Engel-Baiersdorf and her fellow artist Egon Grenzer, both of whom were classified as Jewish, were no longer allowed to work for the museum, and her works were no longer exchanged or offered for sale (Pawlowsky 2005). H.F.K. Günther removed her work from all later editions of his bestselling book. Colleagues with Nazi affinities (Rosa Koller, Fritz Fahrwickl, see Figs 13, 14) took over the Vienna workshop, generating some coverage in international science and popular science publications, taking credit for the innovative method without referencing their predecessors (Koller 1935; Anonymous 1935; Thone 1936; Teschler-Nicola 2006).

Thus, a 1935 Neanderthal reconstruction by the museum's workshop (Fahrwickl, see Koller 1935) (Fig. 13), bearing no resemblance to the 1925 version, shows some visual reference to the racial category of 'Australo-Melanesians' of the time. But whereas Hyatt Mayor had used ethnographic or anthropometric photographs in 1903, the Vienna work-

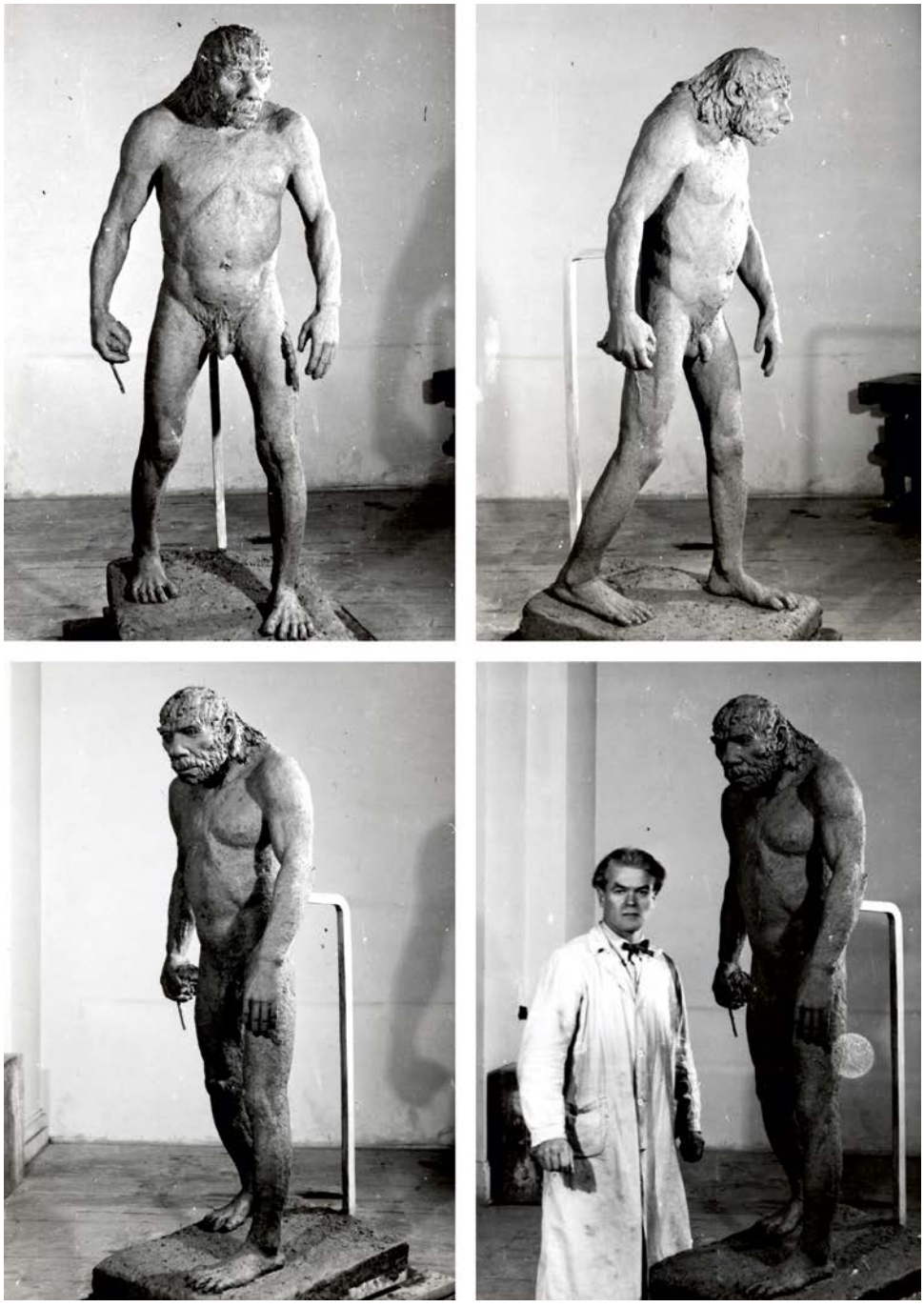

Fig. 14. Full body Neanderthal reconstruction of La Chapelle-aux-Saints carried out by Fritz Fahrwickl in the museum's workshop around 1940. Details on visual sources and reconstruction method are not documented. NHMW, Department of Anthropology, cast collection 21.385, photo collection 40.290–40.293.

shop's artists of the interwar period had the department's own 'scientific' image archive at their disposal, where photos from a variety of sources were collected and systematized as representing global 'racial types', and thus could be translated into 3D-visualizations. In the years that followed, the workshop produced a whole spectrum of prehistoric race types, from Stone Age to the Early Medieval, from a 'Nordic' Viking and Romans to Longobards, 'old Slavs' and others, as a local chapter of a European race classification project, extending nations back into prehistory (see McMahon 2019b: p. 44).

Neanderthal reconstructions after 1925

Prior to 1940, more anthropologists published their interpretations of the Neanderthal: in Germany, Lindig (around 1926, this reconstruction was based on the skull from Weimar/Ehrringsdorf, see Vlček 1993: Texttafel 3), Mollison (Mollison 1931; Bläńkle 1988, with sculptor Herrmann Friese) and Heberer (in the 1920s, Heberer 1940, see Kurth, 1956); in Russia, Bystrow (see Efimenko 1938 with sculptor K.M. Kazansky); and in Hungary, Mottl (Mottl 1936, with sculptor Viktor Haberl jr.). For an overview of most of these reconstructions see Kurth (1956, 1958), Ullrich (1967), and Schlager & Wittwer-Backofen (2015). With the exception of the Russian bust (Gerassimow 1968, see also an earlier paper by Bystrow 1923), however, in none of these cases did the Kollmann-Büchly method seem to have been employed; indeed, it was hardly referred to.

Arguably the most prolific reconstructionist was the Russian anthropologist Gerasimov who, a few years later, developed a method which combined previous approaches (Gerassimow 1968; Ullrich 1967; Ullrich & Stephan 2016). Based on the cast of a skull he applied sculpted facial muscles and eyeballs, and finally modelled the skin surface. As Auffermann & Weninger (2006) have pointed out, Gerasimov's 1948 reconstruction of La Chapelle-aux-Saints is very similar to McGregor's reconstruction, representing *"a human, intelligent and developed image of Neanderthals"*. Gerasimov's take on race in the context of Soviet anthropology is not the focus of this article. But the soft tissue depth values he used were based not on older published data, but derived from his own needle puncture and radiographic studies of fresh corpses (Ullrich & Stephan 2016: p. 100). His method was adopted by forensic facial approximation, and is still in use in modern adaptations today.

Nevertheless, the image of the Neanderthal as a primitive creature remained more or less dominant until new analyses of the skeleton caused Boule's reconstruction to be revised (see Trinkaus & Shipman 1993b). In recent decades, more and more computerized methods have been developed which are widely used in forensics as well as by palaeoartists (Schlager & Wittwer-Backofen 2015). While forensic reconstruction aims to depict individual appearance in order to identify specific individuals, the goal of hominin reconstructions is rather to visualize an 'ancient type'. Nevertheless, some reconstructions try to combine both approaches. Many facial appearance details are not linked to skeletal anatomy, bone surface, or DNA. Digital 3D reconstructions have become an important tool in palaeoanthropology, allowing for the virtual reconstructions

and completion of fragmented fossils, as well as testing functional abilities and movements of extinct species (Zollikofer & Ponce de Léon 2005). Most recently, new insights through DNA analysis that allow conclusions to be drawn regarding eye color or pigmentation have influenced new reconstructions. Campbell *et al.* (2021) analyzed the different methods of facial reconstruction and demonstrated the subjectivity of the results, concluding that a priori decisions (*e.g.*, to make the face apelike or humanlike) influence the result significantly, to the point that various reconstructions based on the same skull look different.

As M'charek notes, some recent Neanderthal reconstructions, especially in German and French museums, were clearly conceived after the 2010 discovery of Neanderthal genes in today's population. At the Neanderthal Museum in Mettmann, they are now framed in a humanizing and contemporary way, embraced as family members by contemporary Europeans.[15] The reconstruction in the pose of Rodin's 'The Thinker' in the State Museum of Prehistory in Halle (Saale) in Germany (with a recent change of skin tone and eye color to a lighter, more 'lifelike', more 'European' look), can also be seen along these lines.

Career trajectories: Nazi career – Auschwitz and Canadian exile

In our discussion of the two reconstructions, we highlighted a complex situation that is curious for various accounts: how the career trajectories of a German racial anthropologist and an artist of Jewish background intersected in an era of increasing anti-Semitism and emerging 'völkisch' raciology and aryanization of science, before the Nazis imposed their racial regime.

Their joint project of creating a prehistoric 'racial portrait' based on anthropometric data of non-European Indigenous peoples was considered innovative at the time. Furthermore, the historical contextualization of their method provides new insights on previously understudied continuities of colonial-imperial practices in post-imperial German/Austro-Hungarian interwar scientific debates.

Eickstedt left Vienna for Munich in 1926 and later became one of the leading race theorists in Nazi Germany. Researching race in its 'spatial and temporal dynamics' – drawing on the older Western imperial tradition of triumphant whites displacing 'inferior' races around the globe (see Drell 2000: p. 12) – he undertook several expeditions to India and South Asia in the 1920s and 1930s, and became most famous for his 1934 book 'Rassenkunde und Rassengeschichte der Menschheit' (Racial Sciences and Racial History of Mankind), and 'Rassendynamik von Ostasien. China und Japan, Tai und Kmer von

[15] M'Charek, A. (2021): Doing Time with Ancient DNA: The trouble with naturalization, race and colonialism. Keynote at the international online symposium Code Narrative History. Making Sense of Ancient DNA in Contemporary Society, Stockholm University, May 11th, 2021. https://conahi.wordpress.com/2021-symposium/ Unpublished presentation, quoted with friendly permission of the author (last access 13.3.2022).

Fig. 15. Erna von Engel-Baiersdorf in her Pécs atelier, mid-1930s, the 1925 Neanderthal prominently displayed on the mantelpiece. On the far-right end of the shelf behind her is the first small full body Neanderthal sculpture from around/before 1924. Credit: Janus Pannonius Museum, (Pécs, Hungary).

der Urzeit bis heute' (Racial dynamics of East Asia. China and Japan, Thai and Khmer from prehistoric times until today), 1944. His theories and publications on race and race classification, especially his concept of 'three major races' (see Eickstedt 1934, 1940), remained influential in Germany until the 1990s (Preuss 2009, 2017). Since then, the German-language disciplines of physical anthropology have explicitly distanced themselves from this tradition.

The two Neanderthal heads were the first of many palaeontological and anthropological reconstructions (Fig. 15) that Erna von Engel-Baiersdorf would later make (Engel-Baiersdorf 1940, 1949; Laurie 1951; Nagy 2014). After the museum terminated their collaboration, and the Hungarian National Museum in Budapest did not require her services either, she continued her work in her private atelier in Pécs, and undertook anthropological studies in London and Paris. During a stay at the Royal College of Surgeons in 1939, and in collaboration with Dr. A.F.E. Cave, she made a soft tissue reconstruction of the fossil human type *Australopithecus africanus* (Engel-Baiersdorf 1949). Her financial situation deteriorated after the death of her husband in 1943. A Hungarian citizen by marriage, in 1944 the Hungarian authorities ghettoized and deported her together with the Jewish population of Pécs. In Auschwitz she was classified a 'Hungarian Jew'. She survived in the Buchenwald satellite camp Lippstadt in Germany and returned to

Hungary in fall 1945. In the following years, she made her house in Pécs available as a location for the newly founded Natural History Museum, of which she was also curator for some time. For the new museum, she made paintings and scale models of dinosaurs and other prehistoric animals. After two years of diplomatic efforts, she managed to emigrate to Canada to rejoin her sister in Vancouver. Although never formally trained in anthropology and palaeontology, her status as a Fellow of the British Royal Anthropological Institute since the 1930s and her contacts with international scientific institutions helped her obtain the position of a curator for palaeontology at the City Museum in Vancouver 1951–1954. She was granted Canadian citizenship in 1953. In Vancouver, she continued her work and expanded it to reconstructions of First Nations, and also performed forensic reconstructions for the police. She remained involved with the museums in Pécs and reestablished contact with the NHMW as an external associate.[16]

Her First Nations and Australian Aboriginal reconstructions – which, as we elaborated here, were conceived and created with her German pre-war notions of raciology, in a continental European knowledge transfer to postwar British colonial contexts – are considered culturally sensitive today and therefore not shown to the public.[17]

Conclusion

The casts and sculptures in the NHMW's anthropological depot are mostly sensitive objects (Berner *et al.* 2011) from colonial and Nazi era contexts. Our brief history of Neanderthal reconstructions has presented the Vienna sculptures within the broader context of scientific and artistic collaborations in different Western disciplinary and discursive contexts. Scientists and artists drew on colonial ethnology, anthropology and anatomy, and interwar palaeo-raciology used colonial-era human remains and images in the NHMW's reconstruction workshop.

The genesis and methodology of the 1925 Neanderthal reconstruction and its afterlife at the NHMW's reconstruction workshop in the 1920s–1940s shaped the popular imagination of race and prehistory in the interwar German-speaking region. Careful historical contextualization and analysis such as that presented here open up a more nuanced understanding of the peculiar entanglements of German colonial history and the interwar/Nazi period in historical scientific practices. It can thus add new historical insights to current scholarly debates applying transatlantic race concepts to the German-speaking region, where the long-term legacies of interwar and Nazi-era raciology are felt even today.

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[16] For 2022, the Janus Pannonius Museum in Pécs/Hungary is compiling a retrospective exhibition and catalogue of Engel-Baiersdorf's work including a comprehensive biography. For the most detailed biographical information to date, see Nagy (forthcoming) and Nagy (2014).

[17] Museum of Vancouver, Aboriginal Australian craniofacial reconstruction http://openmov.museumofvancouver.ca/object/history/h2013431 (last access 13.3.2022).

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