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Where is “the biological evolution” of “human beings” component in Goudsblom’s *Fire and Civilization*?

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Abstract: *This case study refutes the claim by several figurational sociologists that Dutch sociologist Johan Goudsblom, in his 1992 book, *Fire and Civilization*, shows how biological evolution and social development of humans are intertwined in the development of using, lighting and controlling of fire. When reading the book, it is noteworthy that its author barely drew on 19th- and early 20th-century German-language literature in his work, despite the fact that numerous articles and books were published in German at the time, increasingly describing important insights into the passive and active use of fire in human history. A selection of these German-language works will be discussed here, using author inscriptions and dedications in the works under discussion, as well as a fair number of illustrations, as a kind of guideline.*

German-language works from before 1900 were primarily philosophical in nature. When important paleoanthropological discoveries were made of fossilized human remains by, for example, the Dutchman Eugene Dubois in Java and the Swiss Otto Hauser in France, these philosophical ideas were, as it were, tested against reality.

The German-language books and other texts of four renowned authors from the early 20th century (Wilhelm Bölsche, Adolf Heilborn, Otto Hauser and Carl W. Neumann) discuss a wealth of (paleo)anthropological discoveries and insights. The works also increasingly addressed the technical as well as social aspects of using and controlling fire, but only partially, and still incompletely, the biological-evolutionary changes associated with human furlessness and using tools that made fire use possible. Yet around the mid-1920s Hauser started collaborating with experts on tool use. Sadly, his early death in 1932 prevented the development of a more accurate theory. Bölsche, who had long since stopped writing on paleoanthropological topics, died in 1939.

The importance of the lack of fur was only discussed at length in relation to the use of fire, but not fully explained, by the eugenic anatomist and later Nazi Eugen Fischer. Heilborn, a medical doctor, discussed Fischer’s theory in Klaatsch’s posthumous work, which he edited and published in 1920. Anatomist and anthropologist Klaatsch rejected Fischer’s ideas because he had a different explanation for human ‘nakedness.’ In the second half of the 1930s, Heilborn was banned from publishing. He committed suicide in 1941. After 1932, Neumann no longer concerned himself with the human use and control of fire. He died in 1939.

World War II sowed so much hatred and fear of studying German anthropological theories poisoned by eugenics and racism and distorted ideas of human evolution that all German-language works from before

1945 were not studied anymore by many non-Germans. This most likely led Goudsblom to ignore important German-language works on the development of fire use and control.

Keywords: Wilhelm Bölsche (1861-1939); Norbert Leo Elias (1897-1990); Eugen Franz Leopold Fischer (1874-1967); Hans Wilhelm Carl Friedenthal (1870-1942); Johan Goudsblom (1932-2020); Ernst Heinrich Philipp Haeckel (1834-1919); Rudolf Otto Hauser (1874-1932); Adolf Heilborn (1873-1941); Friedrich Herig (1890-1969); Hermann Klaatsch (1863-1916); Carl Wilhelm Neumann (1871-1939); Carl Johannes Weinert (1887-1967). Control of fire (and smoke); Figurational Sociology.

Statement about possible Conflict of Interests: All references to Note A imply ownership of a work by the author.

FIGURES

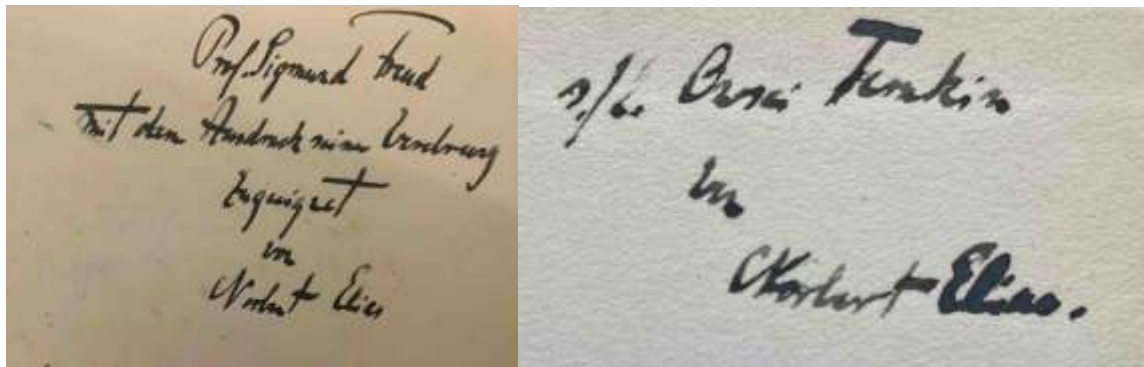


Figure 1 (left): Norbert Elias's dedication in a copy of the *Vorabdruck* (preprint) of the first volume of *Über den Prozess der Zivilisation* (Elias, 1937), sent to Sigmund Freud in Vienna. (Sigmund Freud Collection, Rare Book and Special Collections Division of the Library of Congress, Washington, D.C.). (See Note B).

Figure 2 (right): The inscription of Norbert Elias in a copy of the *Vorabdruck* (preprint) of the first volume of *Über den Prozess der Zivilisation* (Elias, 1937), sent to his friend Oswei Temkin (1902-2002) in the U.S.A. (See Note A).

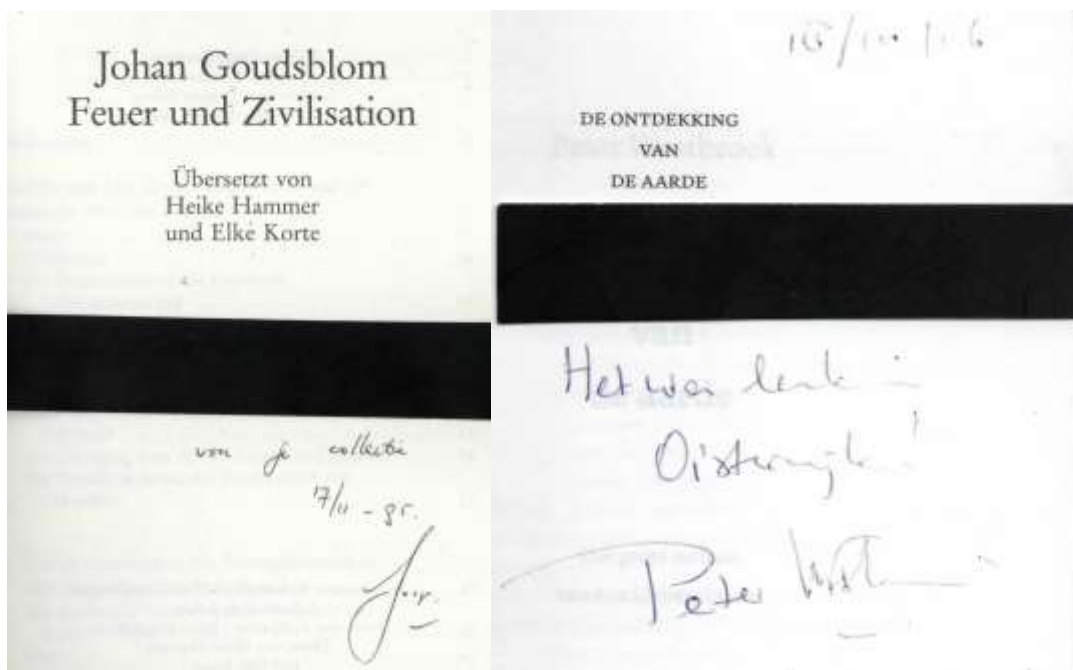


Figure 3 (left): Dedication by Johan Goudsblom for anonymized person in a 1995 copy of *Feuer und Zivilisation* (Goudsblom, 1995). (See Note A and Note C).

Figure 4 (right): Dedication (somewhat fading) by Peter Westbroek for two anonymized persons in a 2013 copy of *De ontdekking van de aarde* (Westbroek, 2013). (See Note A and Note D).

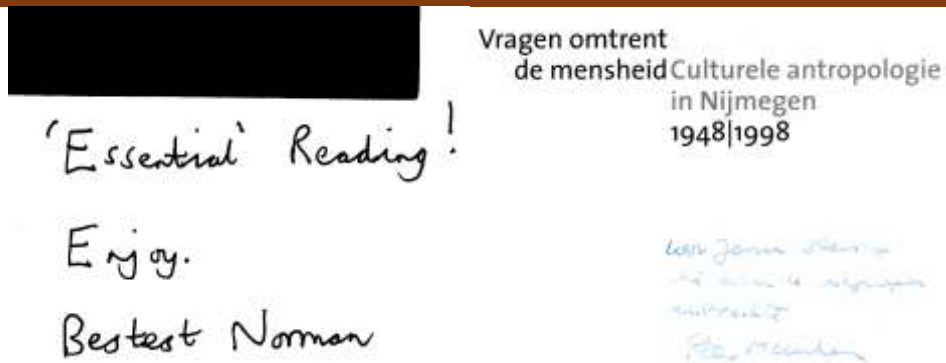


Figure 5 (left): Dedication by Norman (presumably Norman Gabriel) for anonymized person in a 2011 copy of *Norbert Elias and Figurational Research* (Gabriel & Mennell, 2011). (See Note A).

Figure 6 (Right): Undated dedication (fading) by Peer Meurkens in a copy of *Vragen omtrent de mensheid* (Meurkens, 1998). (See Note A and Note E)

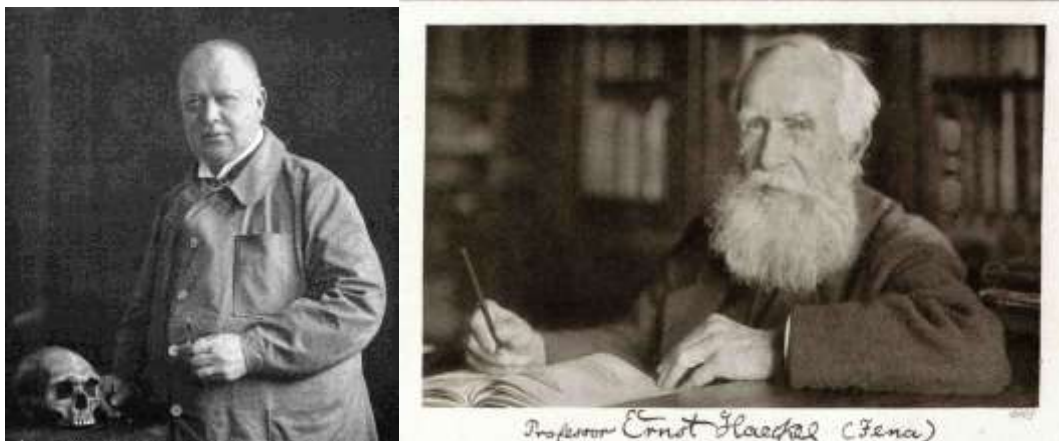


Figure 7 (left): Hermann Klaatsch. (See Note A). **Figure 8 (right):** Ernst Haeckel. (See Note A).

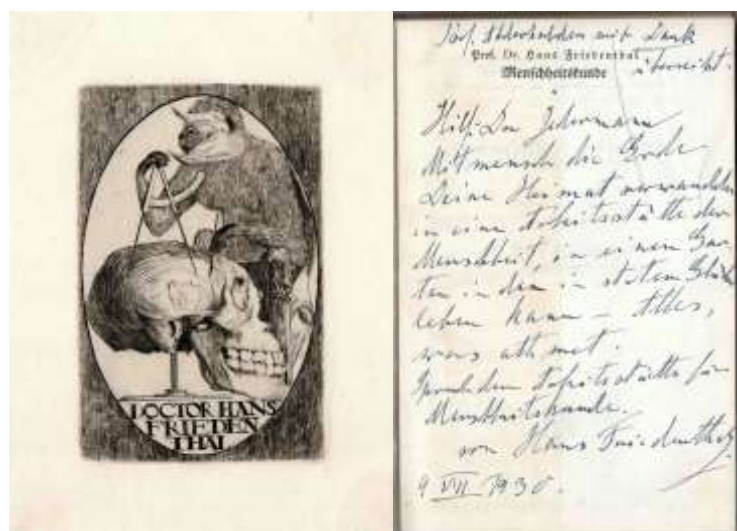


Figure 9 (left): Ex libris Hans Friedenthal. (See Note A).

Figure 10 (right): Friedenthal's dedication for Emil Abderhalden in a copy of *Menschheitskunde* (Friedenthal, 1927). (See Note A and Note F).

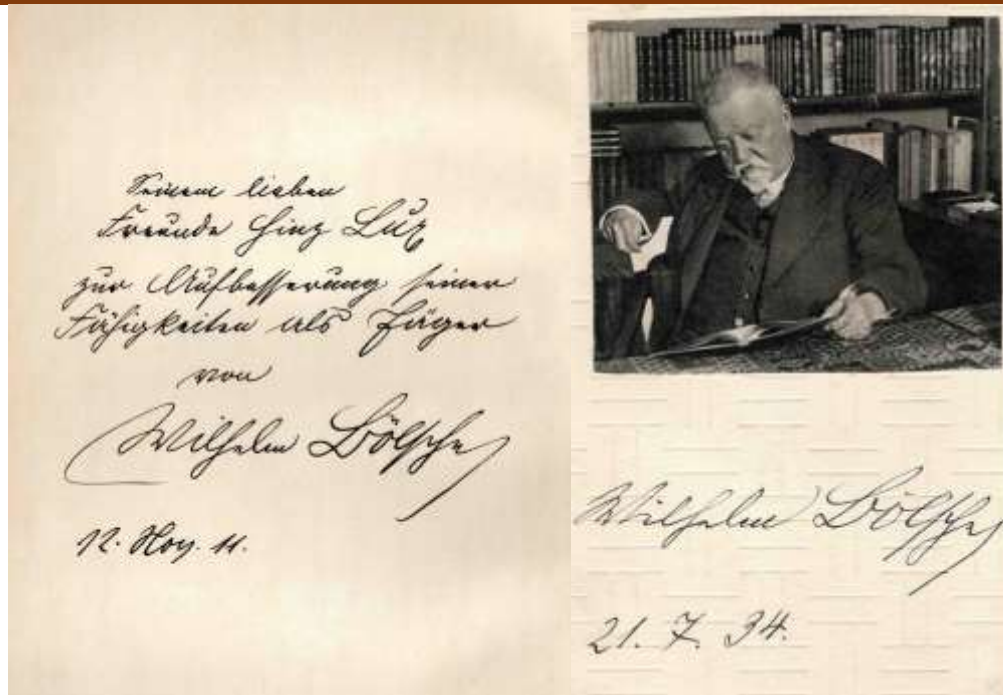


Figure 11 (left): Dedication by Wilhelm Bölsche, dated May 12, 1911, in a copy of *Der Hirsch und seine Geschichte* (Bölsche, 1911b). (See Note A and Note G).

Figure 12 (right): Card with Bölsche's signature, dated July 21, 1934. Portrait photograph (b/w) pasted onto the card, showing Bölsche. (See Note A).

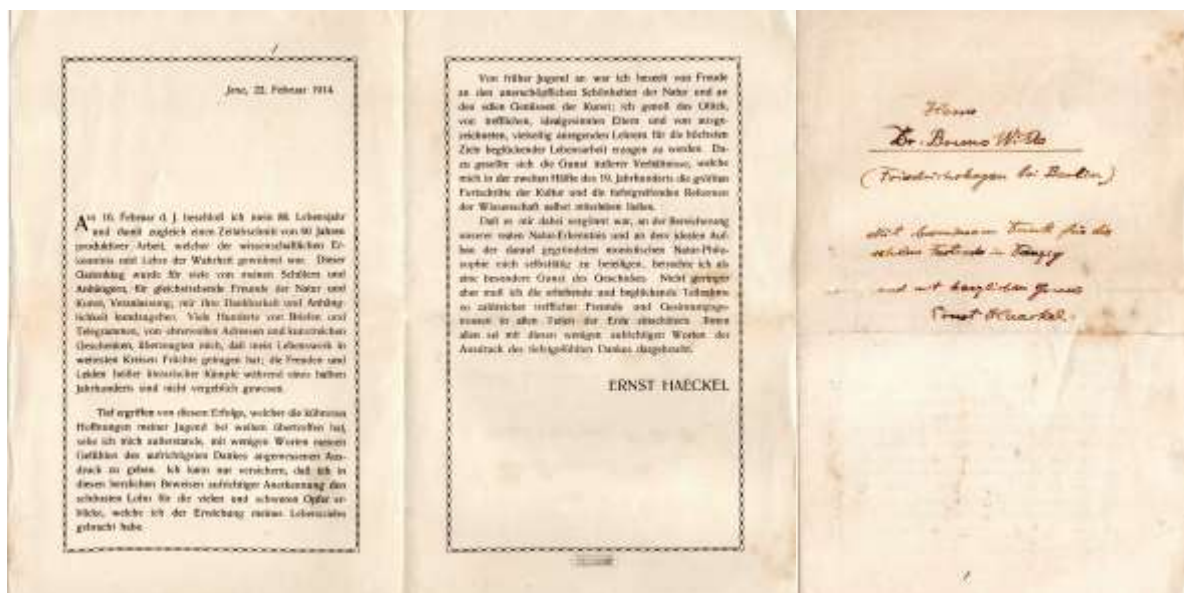


Figure 13 (left): Printed double page sheet with expression of gratitude by Ernst Haeckel for birthday wishes. (See Note A)

Figure 14 (right): Right page of the back of Ernst Haeckel's printed double page sheet, printed in 1914 by Frommann publishing house in Jena, with handwritten text by Ernst Haeckel in which he expresses his gratitude to Bruno Wille, signed by Haeckel. (See Note A and Note H).



Figure 15 (right half): Most of the title page of a copy of *Vom Bazillus zum Affenmenschen* (Bölsche, 1906b) with handwritten text by former owner stating “und den eigenhändigen Unterschrift des Verfassers” (= “and the author’s handwritten signature”).

Figure 15 (left half): Bölsche’s signature is on the lower part; an entrance ticket is pasted above it for a lecture by Bölsche on October 19, 1921, in the Großer Musikvereins-Saal of the Wiener Konzerthaus in Vienna, Austria on the theme ‘The Secret of Instinct,’ organized by the Internationale Konzertdirektion ‘Symphonia.’ (See Note A).

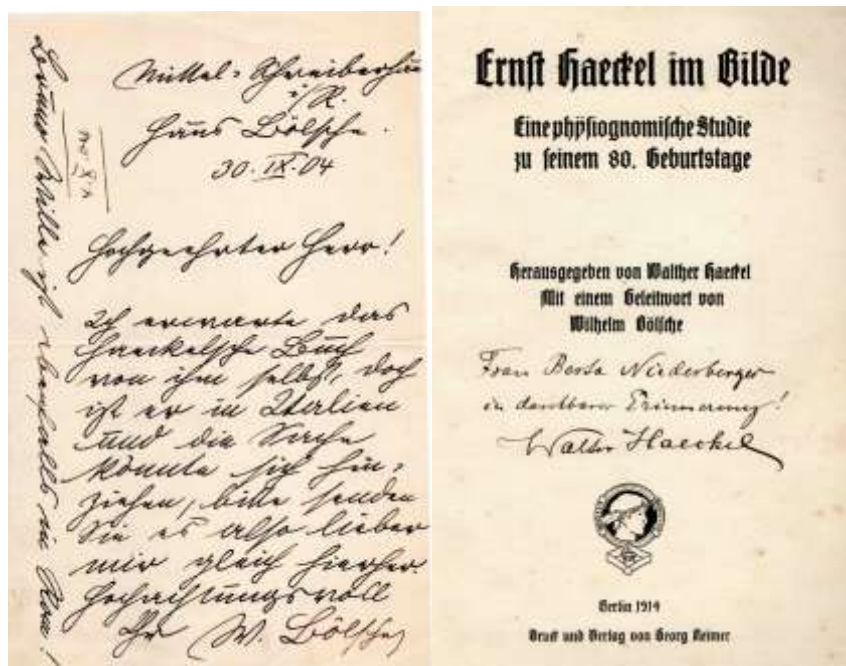


Figure 16 (left): Handwritten signed letter from Wilhelm Bölsche, dated September 30, 1904. (See Note A and Note I).

Figure 17 (right): Walther Haeckel’s dedication for Mrs. Berta Niederberger in a copy of *Ernst Haeckel im Bilde* (Haeckel, 1914). (See Note A and Note J).

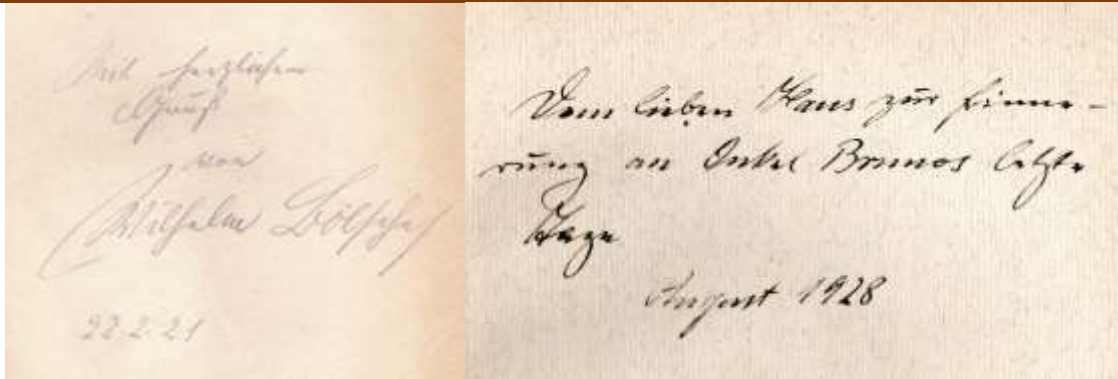


Figure 18 (left): Dedication by Bölsche, dated February 28, 1921, in a copy of the anniversary edition of his *Die Abstammung des Menschen* (Bölsche, 1921b). (See Note A and Note K).

Figure 19 (right): Dedication of unknown member from Bruno Wille's family circle, in a copy of Wille's *Lebensweisheit* (Wille, 1913). (See Note A and Note L).

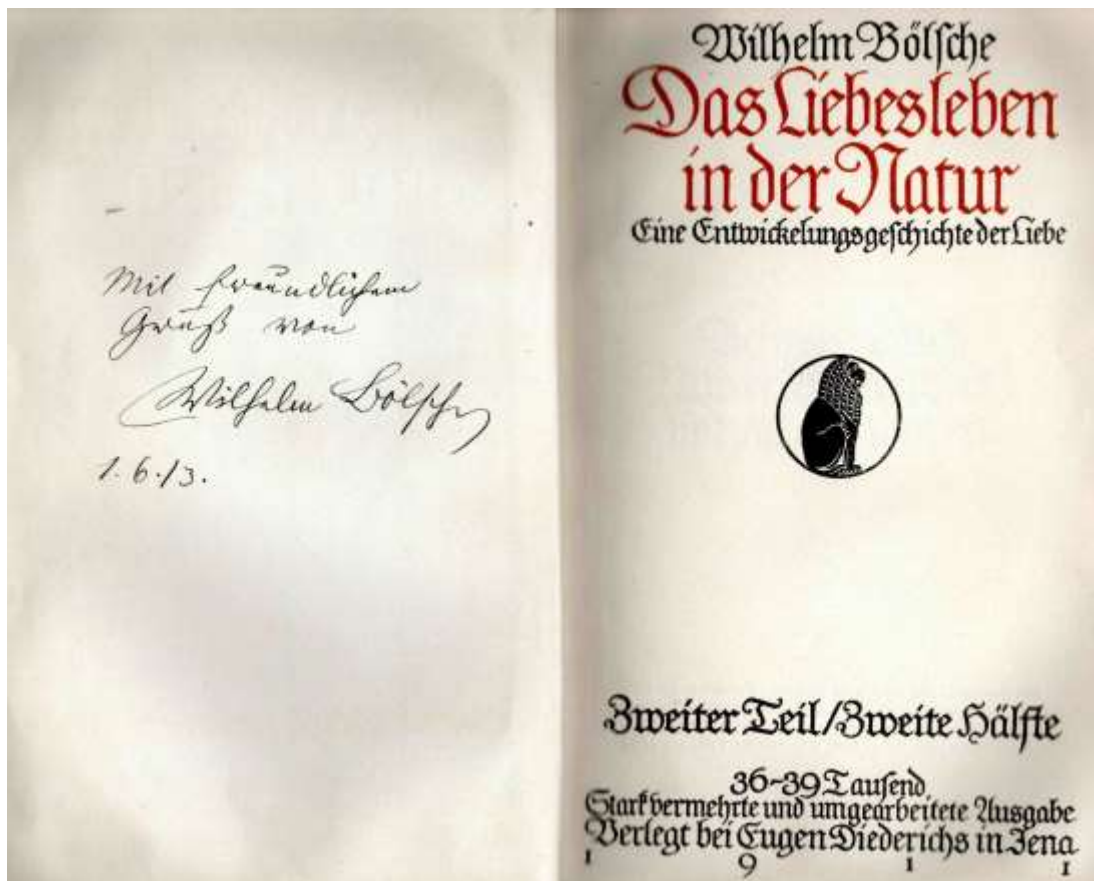


Figure 20 (left half): Bölsche's dedication in a copy of the 1911 edition of his *Das Liebesleben in der Natur* (2nd Part, 2nd Half) (Bölsche, 1911a). (See Note A and Note M).

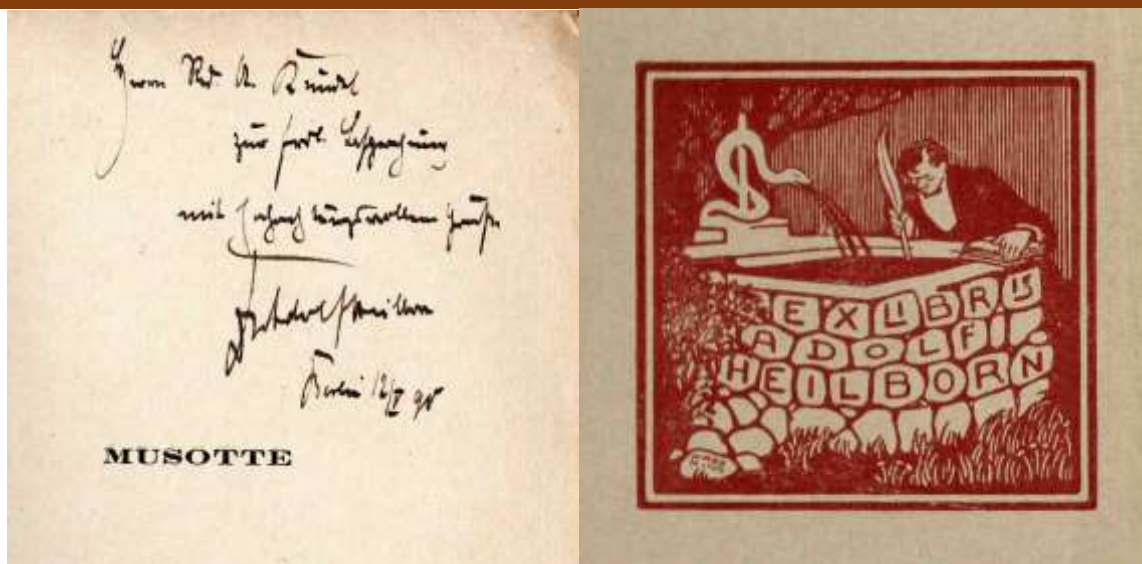


Figure 21 (left): Dedication by Adolf Heilborn in a copy of his early translation work *Musotte* (de Maupassant & Normand, 1898). (See Note A and Note N).

Figure 22 (right): Ex libris Adolf Heilborn in a copy of his *Allgemeine Völkerkunde I* (Heilborn, 1915c). (See Note A).

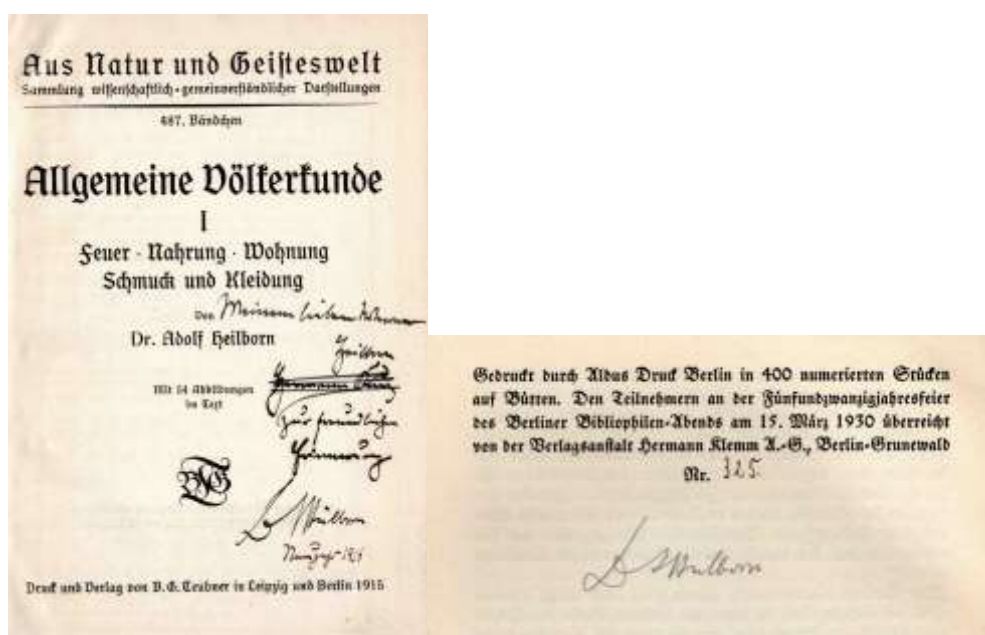


Figure 23 (left): Adolf Heilborn's dedication for Werner Heilborn in a copy of his *Allgemeine Völkerkunde I* (Heilborn, 1915c). (See Note A and Note O).

Figure 24 (right): Adolf Heilborn's signature in a copy of his *Alt-Berliner Konditorei-Allerlei* (Heilborn, 1930). (See Note A).

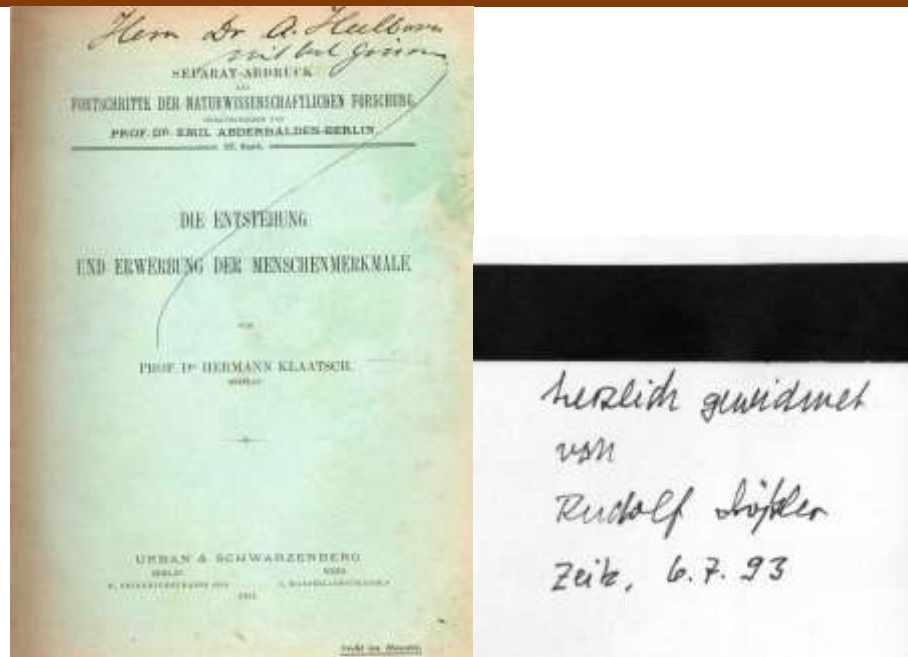


Figure 25 (left): Dedication by Hermann Klaatsch for Dr. Adolf Heilborn on front of a special edition copy of his *Die Entstehung und Erwerbung der Menschenmerkmale* (Klaatsch, 1911a; see also Klaatsch, 1911b). (See Note A and Note P).

Figure 26 (right): Dedication by Rudolf Dröbler in his *Flucht aus dem Paradis* (Dröbler, 1988; (See Note A and Note Q).



Figure 27: Photo of Le Moustier, France, in '*Französischer Vandalismus*' (French Vandalism), published by Adolf Heilborn in the December 10, 1914, issue of *Reclams Universum* (see Heilborn, 1914c; see also Heilborn, 1910c, p. 59; 1918, p. 52). Otto Hauser was the photographer (compare Brandt, 1970, p. 174; Dröbler, 1988a, photo 17; Klaatsch, 1920, p. 291).

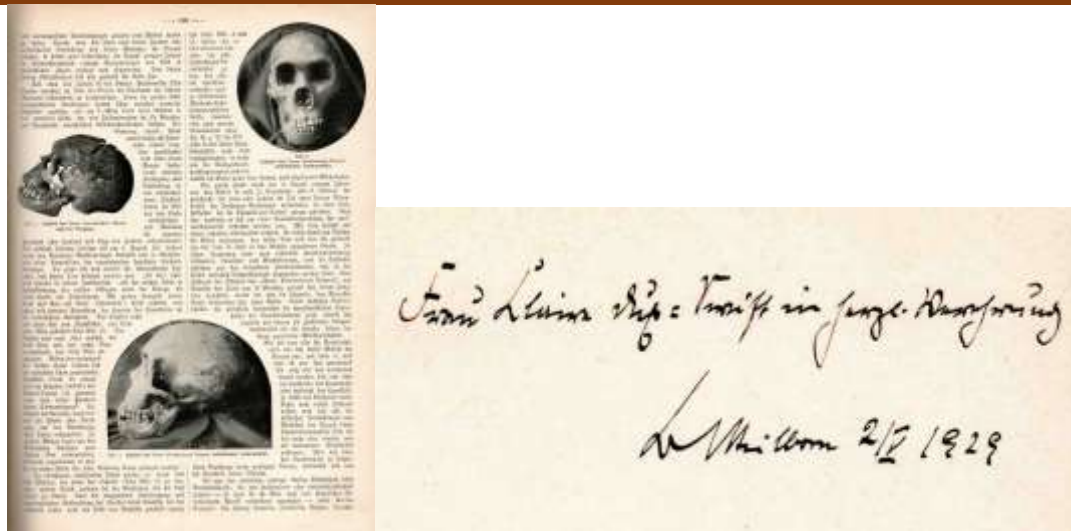


Figure 28 (left): Page 593 in Adolf Heilborn's article *Der Mensch der Vorzeit* in the 1909 *Die Gartenlaube*, showing three photographs of *Homo mousteriensis* Hauseri, discovered by Hauser in March 1908 (Heilborn, 1909c).

Figure 29 (right): Dedication by Adolf Heilborn for Mrs. Kleine Ritz in a copy of *Käthe Kollwitz* (Heilborn, no date 1). (See Note A and Note R).



Figure 30 (left): Hans Weinert's dedication for unknown person in a copy of his *Vom Menschenaffen zur Menschheit* (Weinert, no date 2). (See Note A and Note S).

Figure 31 (right): Front cover of a four-page advertising brochure for Weinert's 1940 book *Der geistige Aufstieg der Menschheit* from 1940. (See Note 13).

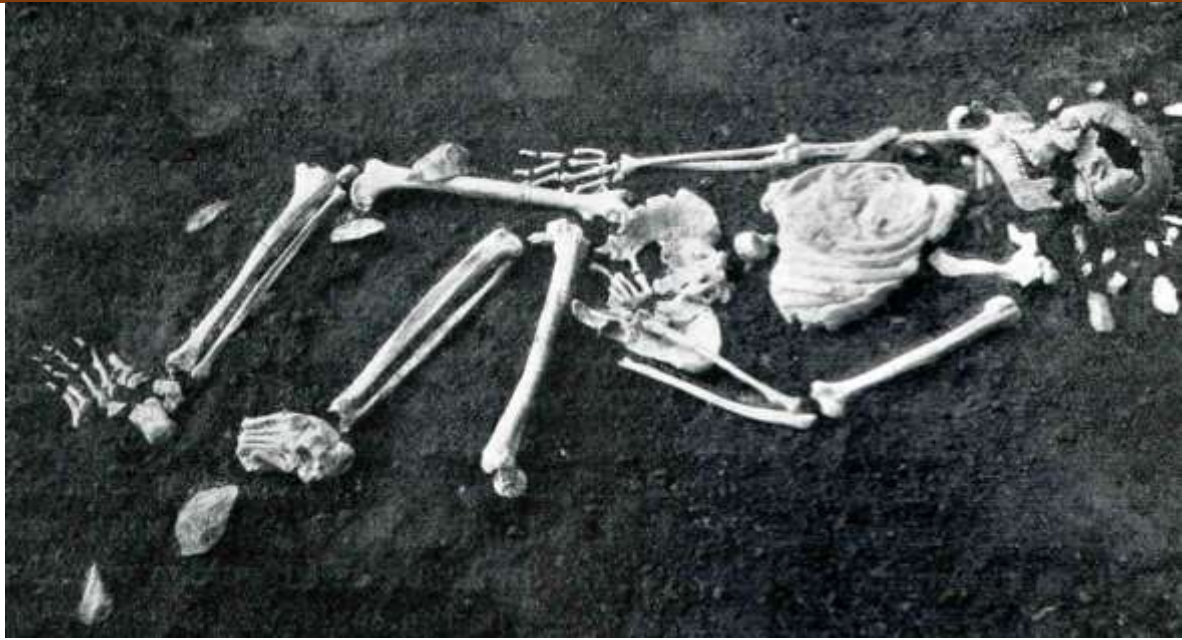


Figure 32. Photo in *Praehistorische Zeitschrift* (Klaatsch & Hauser, 1910, p. 276), showing remains of *Homo Aurignacensis Hauseri* as discovered in 1909, but assembled after excavation (See Drößler & Freyberg, 2000, p. 98; Heilborn, 19010c, p. 82; Klaatsch, 1920, p. XXXIX).

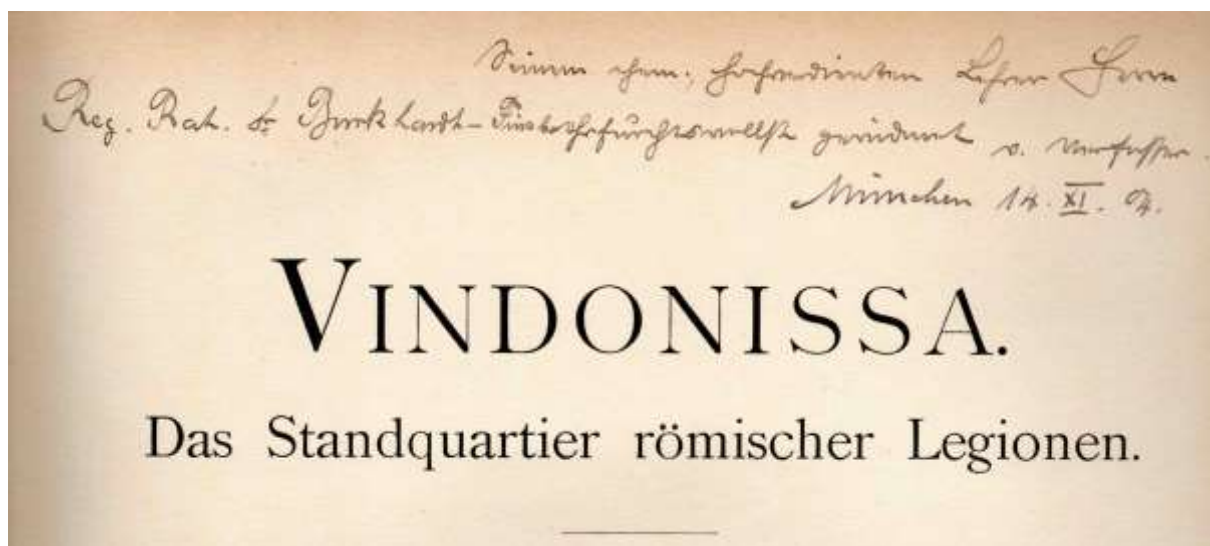


Figure 33: Otto Hauser's dedication for Albert Burckhardt-Finsler in a copy of his *Vindonissa. Das Standquartier römischer Legionen* (Hauser, 1904). (See Note A and Note T).



Figure 34 (left): Friedrich Herig’s expression of thanks to Gerhart Hauptmann — Honorary President of the *Gesellschaft für Manufaktologie* (Society for Manufactology) in *Die gestaltende Hand* magazine (Herig, 1930a). (See Note 27).

Figure 35 (right): Friedrich Herig’s dedication for Dr. Hans Schimank in a copy of his *Menschenhand und Kulturwerden* (Herig, 1934). (See Note A and Note U and Note 27).

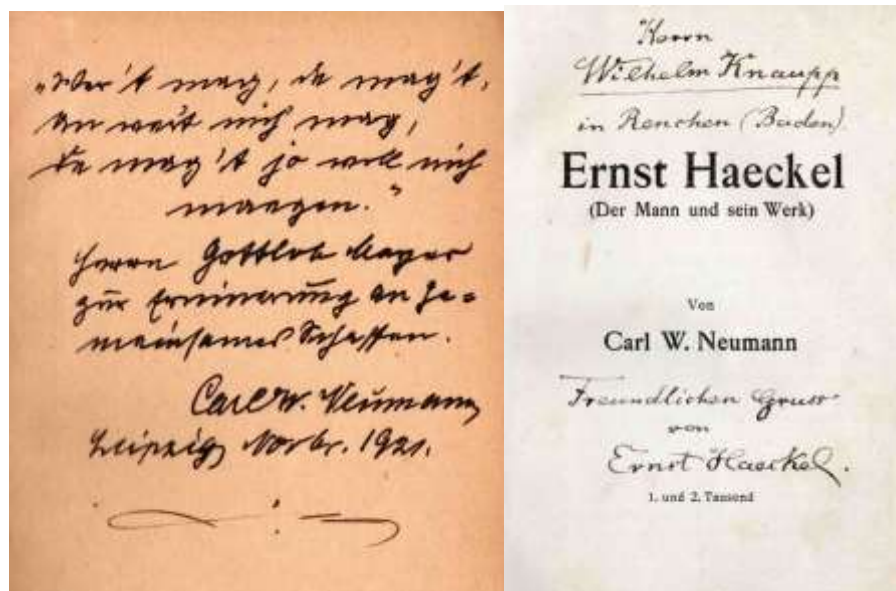


Figure 36 (left): Carl W. Neumann’s dedication for Gottlob Mayer in a copy of Poe’s *Seltame Geschichten* (Poe, 1921) — translated and published by him (See Note A; and Note V).

Figure 37 (right): Text of Ernst Haeckel’s dedication for Wilhelm Knaupp in *Ernst Haeckel. (Der Mann und sein Werk)* (Neumann, 1905). (See Note A; Note W).

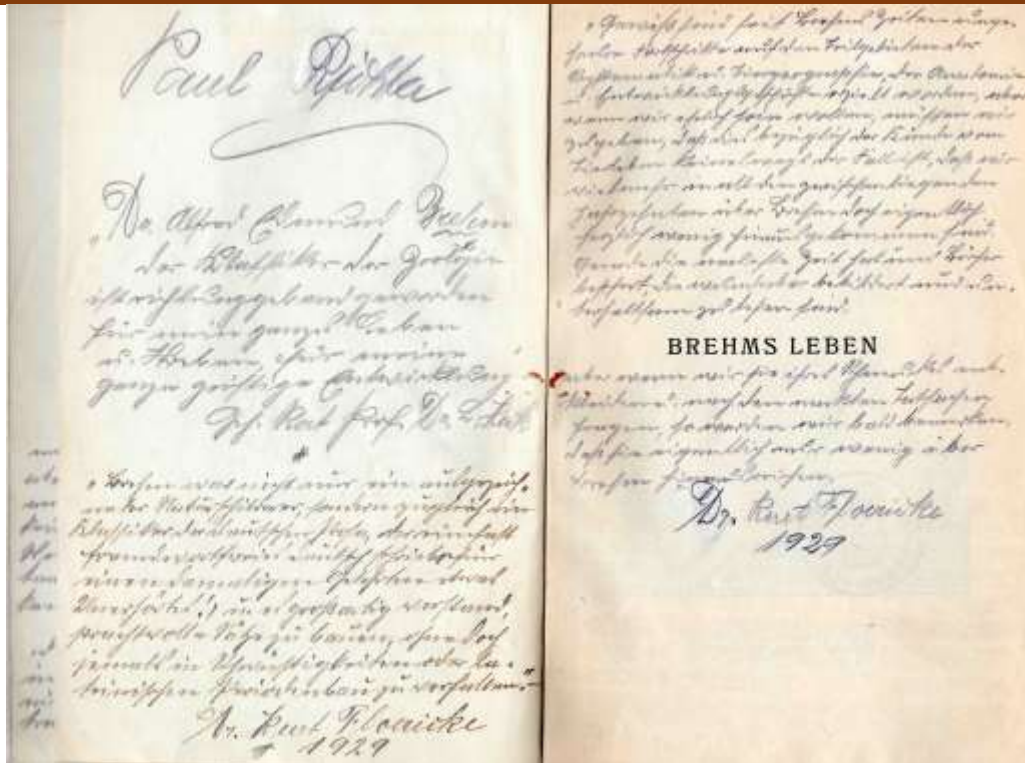


Figure 38: Actor Paul Richter's copy of *Brehms Leben* — Carl W. Neumann's biography of Alfred Brehm (Neumann, 1929b). The figure shows Richter's name marking and three inscriptions; one by Ludwig Heck and two by Kurt Floericke. Zoologist Heck, author of the *Zum Geleit* (Foreword) to the book, was Director of the Berlin Zoo at the time of publication of the book. Floericke was the editor of *Kosmos* magazine and published popular science books. (See Note A).

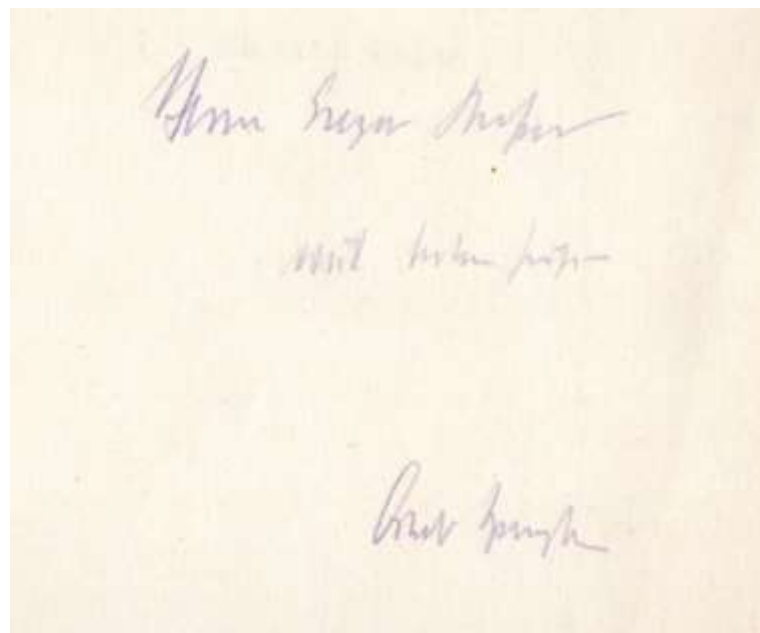


Figure 39: Dedication by Oswald Spengler (in light-purple pencil) in a copy of his 1933 *Jahre der Entscheidung* (Spengler, 1933). (See Note A and Note X).

Introduction

The idea of minimum force as the base line of self-control is expressed in the apocryphal if perfectly logical advice given in ancient Chinese cooking: the cook must learn first to cleave a grain of boiled rice. (Sennett, 2008; p. 167).

In *The Craftsman*, American sociologist Richard Sennett outlines the importance of “minimum force as the base line of self-control” in a section of the chapter entitled ‘The Hand,’ describing various aspects of handling tools and instruments (Sennett, 2008, pp. 149-178). The chapter includes sections on aspects such as grip and touch; the grasping reflex; fingertips and coordination of the thumb(s). Its introduction, which provides a brief overview of works on human hands, begins with a quotation from Immanuel Kant and discusses works by Charles Bell, Charles Darwin, Frederick Wood Jones, Raymond Tallis, John Napier, Mary Marzke, and Charles Sherrington, respectively. Having noted this, the chapter section with the above opening quote about “minimum strength as a baseline for self-control” leads Sennett among other things to compare not only the optimized hand-wrist-forearm coordination during chopping techniques and the handling of knives and cleavers in Chinese cuisine, but also with similar coordination during musical instrument playing. Sennett (2008, pp. 169-171) proceeds, via an outline of using chopsticks at Chinese tables, to changes since the Middle Ages in the handling of knives at European tables, to an approving discussion of *Über den Prozess der Zivilisation. Soziogenetische und Psychogenetische Untersuchungen* (The Civilizing Process. Sociogenetic and Psychogenetic Studies), the first important publication of philosopher and sociologist Norbert Elias, dating from 1937 (Volume I; see Elias, 1937, 1939a; see *Figure 1* and *Figure 2*) and 1939 (Volume II; see Elias, 1939b).

However, Sennett also points to, for example, a *physiological* component in the ‘self-control’ of European people, a component that Elias, according to him, did not pay attention to in his *Über den Prozess der Zivilisation*. By discussing the Suzuki Method for learning to play string instruments and the importance of acquiring ‘prehension’ through it; learning to coordinate independent movements of fingers and thumbs of both hands in, for example, jazz piano playing; and the importance of learning to ‘let go’ and ‘release’ in movement sequences in Taoism and Zen Buddhism, Sennett makes his case. Elias’ explanations about the socio- and psychogenesis of ‘self-control,’ states Sennett (2008, p. 170), are not explanations “that could in any way apply to [...] self-control the craftsman seeks” (see *Note 1*). This is a sad observation, even more so because Elias’s work initially experienced an incredibly poor sales start (see *Note 2*), and later, after a second edition appeared in 1969, it was received with far too stormy a literal acceptance, first in The Netherlands (see *Note 3*), which means that the point Sennett raised in 2008 was never truly discussed within the (figurational) social and cultural sciences.

In 1984, Amsterdam sociologist Johan Goudsblom began a series of articles on ‘Fire and Civilization’ from an Eliasian perspective in the Dutch literary and general cultural magazine *De Gids* (e.g., Goudsblom, 1984). The series was published in 1992 in a more extensive book form, both in Dutch (Goudsblom, 1992b) and in English translation (Goudsblom, 1992a). Three years later a German translation was published (Goudsblom, 1995; see *Figure 3*). At the beginning of this century, a third Dutch edition appeared, in which Goudsblom had made some minor improvements and additions (Goudsblom, 2001), but it was not until the fifth Dutch edition that he added twenty pages of “bibliographical and other notes” in which he refined some of his positions in the earlier editions by referencing newly published literature (Goudsblom, 2015, pp. 251-270). In doing so, he paid proportionally more attention to *Catching Fire: How Cooking Made Us Human* by biological anthropologist Richard Wrangham (2009) than to *Fire: The Spark That Ignited Human Evolution* by anthropologist Frances D. Burton (2009), published in the same year.

Wrongly so! Goudsblom stated,

Several arguments for the strong and ancient connection to fire mentioned by Burton have also been put forward by her colleague Richard Wrangham [...]. He lists a number of changes in body structure that are believed to have occurred around 1.8 million years ago. Hominins became human: they developed larger brains, smaller jaws, a smaller rib cage, shorter arms, and longer legs than their

direct ancestors. All these physical changes were associated with a new way of life, in which humans no longer ate their food raw like other animals, but largely cooked — that is, after it had been exposed to the heat of a fire for some time. (Goudsblom, 2015, p. 254; translation J.S.).

With such a brief summary, Goudsblom did not do justice to Burton's highly physiological, genetic, biological-evolutionary and paleoanthropologically informed expositions on possible relationships between hominin biological-social developmental history and passive and active use of fire (and smoke) by hominins and humans; bipedalism; melatonin and biological rhythms; genetic differences between chimpanzees and hominins/humans; and much more, which I will not elaborate on here. And, at the very least, Goudsblom could have used both Wrangham's and, most certainly, Burton's expositions to clarify his own assumptions and ideas about mutually reinforcing conditions in the genesis of the use of fire (and smoke) by hominins/humans.

Let me explain this observation. In his first article in *De Gids*, Goudsblom (1984, p. 236) made an analytical distinction between pre- and postconditions of human fire control, with postconditions often having a "positive" influence on the preconditions. He listed the following preconditions: (i) upright walking (bipedalism); (ii) dexterous hands; (iii) a highly developed brain; and (iv) a long learning period spent in groups. He gave, however, no examples of how post-conditions acquired through the use of fire (and smoke) "positively" promoted (evolutionary/genetic) changes in bipedalism in humans, or how they "positively" influenced (evolutionary/genetic) changes in the flexibility, leanness, and dexterity of human hands, or an already highly developed brain (see *Note 4*). It seems Goudsblom did *not* quite show that "the ability to control fire was made possible by the concurrent development of specific social, mental and *physical* capabilities" (Goudsblom, 1992a, p. 20; italics J.S.).

Whenever Goudsblom discusses the physical aspects of using the body in fire handling, he falls short or even fails to demonstrate what he asserts (Staring, 2024c). In the English edition of his book of 215 pages of argumentation, the term evolution appears exactly four times: "evolution of human culture" (p. 2); "biological evolution" (p. 7); "evolution of agrarian societies" (p. 9); and "human evolution" (p. 21). We may conclude that Goudsblom used the word evolution only twice in its 'biological sense.'

Yet, his fellow figurational scholars proudly state,

Elias and his followers [have] maintained a keen interest in world history and indeed in the way the biological evolution and social development of human beings intertwined with each other — an interweaving that still seems not quite to have been grasped by paleoanthropologists, but which is beautifully demonstrated in Goudsblom's *Fire and Civilization*. (Gabriel & Mennell, 2011; p. 15; see *Figure 5*).

In the past, in articles on Goudsblom's work (Staring, 1988, 1995, 2024bc), I have already shown that quite a few works have appeared in German since the publication of Charles Darwin's *The Descent of Man and Selection in Relation to Sex* in the second half of the 19th century that explicitly address the history of the human passive and active use of fire (and smoke). The German literature on fire handling contains interesting data that Goudsblom apparently never encountered since he mentions only a few more than a handful German-language works in the bibliography of his book. That immediately takes a toll. For example, Goudsblom notes early in *Fire and Civilization* that anthropologists in Britain, "and even more so in Germany," shared Darwin's assessment that 'the discovery of fire' goes back a very long time, and that they "wrote extensively on the importance of the mastery of fire for the development of civilization" (Goudsblom, 1992, p. 2). He then refers to the British anthropologist Edward B. Tylor, who, Goudsblom argues, has meticulously demonstrated that "all stories about peoples who alleged had not mastered the art of controlling fire were false" (*Ibid.*). Yet the German historian, museum curator and librarian Gustav Klemm (1802-1867) had already drawn the very same conclusion in the 1855 published installment of his *Allgemeine Culturwissenschaft* (General Cultural Sciences) book series (Klemm, 1855, p.66): "*Wir finden die Menschen auf keinem Punkte der Erde ohne das Feuer*" (We do not find people anywhere on earth without fire), while already in 1843, in an installment of his *Allgemeine Culturgeschichte der Menschheit* (General Cultural History of Humanity) book series, he had written that "*Es ist noch keine Nation auf Erden entdeckt worden, welche den Gebrauch des Feuers nicht gekannt hätte, allein es ist auch bis jetzt noch nicht*

möglich gewesen, die Art seiner Entdeckung nachzuweisen” (No nation has yet been discovered on earth which did not know the use of fire, but it has not yet been possible to prove the manner of its discovery) (Klemm, 1843, p. 178). (See Note 5).

Goudsblom apparently had not examined Tylor’s work’s footnotes thoroughly enough, for in the ‘Introduction’ to his work, Tylor (1870, p. 13) referred that he had “drawn largely from the invaluable collection of facts bearing on the history of civilization [contained; J.S.] in the ‘Allgemeine Cultur-Geschichte der Menschheit,’ and ‘Allgemeine Culturwissenschaft’ of the late Dr. Gustav Klemm, of Dresden,” Germany.

German-language literature on the use of fire by hominins and humans

Edward Tylor published the second edition of his *Researches into the Early History of Mankind and the Development of Civilization*, to which Goudsblom referred in his *Fire and Civilization*, in the year (1870) that the Franco-Prussian War broke out, in fact a war between the Second French Empire and the North German Confederation, a confederation of northern German-speaking states led by the Kingdom of Prussia, created after the Kingdom of Prussia defeated Austria in the Seven Weeks War in 1866 and annexed a large part of its territory (Trinkaus & Shipman, 1993, p. 112). The Franco-Prussian War ended in late January 1871. Southern German-speaking states had by then joined the confederation led by the Kingdom of Prussia. The Peace of Frankfurt later that year (on May 8, 1871) marked the victory of the confederation of German-speaking states, which then amalgamated together as the Second German Empire, under Emperor Wilhelm I. Elias wrote in his book *The Germans* about the socio-economic consequences:

Internally, the unification of Germany encouraged economic growth. In a long-term perspective, this in turn can be seen to have strengthened the power-changes of the rising strata, the commercial and manufacturing bourgeoisie and the industrial workforce, in relation to the conventional monarchic-aristocratic establishment. (Elias, 1996, p. 60).

This had a great impact on life within the emerging social strata, but Elias did not elaborate. Theater and music performances could be paid for, as could Sunday visits to the zoo; neat and colorful clothes could be purchased — made possible by the emerging chemical industry; books and magazines were published on a variety of subjects that interested men, women, and children: books about distant peoples; books on the achievements of the German heavy industry; books on biology and the theory of evolution, including books about animals and their (sexual) behavior, including children’s books.

We saw above that both works in which Gustav Klemm (in 1843 and 1855) described — as a ‘armchair anthropologist’ — the history of human use of fire had appeared before Darwin’s *On the Origin of Species* in 1859. By the beginning of the 20th century, then, just a few years before the outbreak of the First World War in 1914, comprehensive, stately series of books appeared in Germany, affordable books series that described science and scientific accomplishments from different perspectives and academic disciplines and that stood on the bookshelves with gold lettering and an almost royal appearance. The subject of one of these series was *Der Mensch und die Erde* (Man and the Earth), ten volumes edited by natural scientist and cultural historian, editor and publicist of richly illustrated standard works Hans Kraemer, published in the early 1910s. The volume *Der Mensch und das Feuer* (Man and Fire) offers an overview of many examples of the use of fire and its influence on the history and cultural and industrial expressions of human societies, including a short chapter on ‘*Feuerfindung und Feuererzeugung*’ (Fire Finding and Fire Production). The chapter title already shows the huge difference between using fire — for example found after a lightning strike and kept going, but once it is extinguished its potential use is over — and actively produce fire, for example by certain spark-producing actions.

Before you could create the fire artificially, you first had to learn how to transmit it further and fan the perhaps just smoldering spark into new embers. In doing so, you learned about the suitable, easily combustible parts of plants: dry leaves, stalks, dry grass and wood chips. This “tinder technique” must have been something completely natural and familiar to Man when he took the step to produce fire himself. The “invention of the lighter,” if one could say so, was not something accidental, but rather it was prepared through the long-held practice of keeping fire, and all that was needed to carry it out

was an impetus, an emergency. Opinions differ widely as to how this process should be thought of. (Niemann & du Bois, 1911, pp. 157-158; translation J.S.).

Ten years before, in the early 1900s, Kraemer had edited another series of books, five volumes, also beautifully produced, under the title *Weltall und Menschheit* (Space and Humanity). The first 338 pages of the total 518 text pages of the second volume were contributed by the German physician, anatomist, physical anthropologist and renowned evolutionist Hermann Klaatsch (see *Figure 7*). Unfortunately, in his long chapter, Klaatsch (1902) did not once discuss the various uses of fire by hominins and early humans. Nor did he in his contribution *Die Stellung des Menschen in der Reihe der Säugetiere, speziell der Primaten, und der Modus seiner Heranbildung aus einer niederen Form* (The Position of Man in the Series of Mammals, Especially Primates, and the Mode of His Development From a Lower Form) in the German illustrated journal for geography and ethnology *Globus* (Klaatsch, 1899ab). Nor did he pay attention to it in his *Die Entstehung und Erwerbung der Menschenmerkmale* (The Origin and Acquisition of Human Characteristics) (Klaatsch, 1911ab; see *Note 6*). He would only elaborate on the subject later, in a posthumously published work — to be discussed in a subsequent paragraph.

In 1862, another German physician, Ernst Haeckel (see *Figure 8*; Haeckel, 1914), was appointed professor of zoology at the University of Jena. Four years later, in 1866, he published the two-volume work, *Generelle Morphologie der Organismen* (General Morphology of Organisms) (Haeckel, 1866ab), in which he argued that the development of animal and human embryos (ontogeny) is, as it were, a repetition of the evolutionary development of their species (phylogeny) — called Haeckel's theory, or law, of recapitulation. The hypothetical 'law' marked a huge leap forward in the discussions surrounding Charles Darwin's theory of evolution. In 1866, Darwin himself, to put it bluntly, had still not made any clear statements or published any works on the applicability of his theory to humans, and had left to speculate on, or to demonstrate, such applicability for others since the publication of his *On the Origin of Species* in 1859. Haeckel (1866a, p. 71) in his *Generelle Morphologie der Organismen* had taken up the challenge but was often criticized in the German-speaking European states for his support of the so-called 'Affentheorie' (monkey theory). The passive use of fire (and smoke) and later the active use of it in human evolutionary development played no role in his work. The word 'Feuer' (fire) does not even appear in his 1866 work, nor is it mentioned in *Natürliche Schöpfungsgeschichte*. (Haeckel, 1868); or in *Ueber die Entstehung und den Stammbaum des Menschengeschlechts* (Haeckel, 1873). The word does not appear in the index of *Anthropogenie oder Entwicklungsgeschichte des Menschen* (Haeckel, 1874); nor in an essay on *Die Urkunden der Stammesgeschichte* in the first issue of the journal *Kosmos* (Haeckel, 1877); or in *Ueber unsere gegenwärtige Kenntniss vom Ursprung des Menschen* (Haeckel, 1898); or (fire) in both volumes of *The Evolution of Man* (Haeckel, 1896, 1897). Even after 1900, no discussion of the origin of human active use of fire (and smoke) in 'anthropogenesis' appears in Haeckel's works, as, for example, in *Das Menschen-Problem und die Herrentiere von Linné* (Haeckel, 1907), *Das Weltbild von Darwin und Lamarck* (Haeckel, 1909), or in the essay 'Entwicklungsgeschichte des Menschen' (Haeckel, 1910) in the first volume of the book series *Weltgeschichte* (History of the World).

In the same volume of the *Weltgeschichte* book series, however, the Haeckel Professor of Geology and Paleontology at the University of Jena, Germany between 1894 and 1906, Johannes Walther (1860-1937), who since 1906 lectured both disciplines in Halle, Germany, wrote in his essay 'Die Vorzeit der Erde' that "Kein einziges Tier und selbst keiner der noch lebenden Menschenaffen versteht Feuer zu machen oder zu erhalten" (No animal, not even living apes, knows how to make or sustain fire) (Walther, 1910, p. 17). However, Walther did not give a broad exposition of the history of the use of fire (and smoke) by humans but listed a number of commonplaces thereon.

The Austrian Moritz Hoernes (1852-1917) also showed nothing remarkable about the history of the use of fire (and smoke) by early humans in his essay 'Die Anfänge der menschlicher Kultur' in the same volume of the *Weltgeschichte* book series. He had already done so elsewhere. In 1892, Hoernes, who lectured prehistoric archaeology at the University of Vienna (Austria), had referred in his book *Die Urgeschichte des Menschen nach dem heutigen Stande der Wissenschaft* (The Prehistory of Man According to the Present State of Science) to the historical works of Titus Lucretius Carus (99-55 BC) who had sketched how early humans might have come into contact with fire: fire caused by a lightning strike or fire

caused by tree branches rubbing against each other and the tree trunk in a strong wind, until the resulting friction heat ignited the twigs and the tree itself (see *Note 7*). Hoernes further discussed the expositions of Lucretius, expressing them in imagery such as “*Das offene Lager ums Feuer ist die erste Heimstätte des Menschen*” (The open camp around the fire is man’s first home). He approvingly rehashed Lucretius’s educational remarks on fire and the division of activities between the two sexes to keep the fire burning (Hoernes, 1892, p. 125). Cooking food over fire was not yet possible for early humans, he stated, although they were familiar with the conveniences that heated stones and ash offered in preparing food. In doing so, Hoernes combined thoughts about life in the ‘Prehistory of Man’ with descriptions taken from contemporary anthropological works on, for example, the original inhabitants of Australia.

In the language of the time Hoernes inventoried, described, catalogued and educated — with all the accompanying judgements and prejudices — an idealized world of ‘Primitive Man’ for both students of prehistoric archaeology and an interested public. He combined teaching prehistoric history larded with contemporary anthropological insights. The big underlying question ultimately was, “*Wann aber erscheint der Mensch zum erstenmal auf die Erde?*” (But when did humans first appear on Earth?) (Hoernes, 1892, p. 161). Hoernes’ answer was: “*erst mit der Diluvialzeit [beginnt; J.S.] das Reich des Menschen*” (*Ibid.*, p. 183), meaning that the ‘Kingdom of Man’ was not established before the ‘Diluvial Period,’ the period when humans could make both stone tools and fire. According to an estimate by Hoernes’ French colleague Gabriel de Mortillet (1883) at the École d’anthropologie in Paris, France this period started as early as about 230 thousand to 240 thousand years ago, as archaeological and fossilized skeletal finds in several European countries seemed to indicate. However, the fossilized skeletal finds (primarily skulls and jaws or parts thereof) did not seem to point to a single human species, as there were significant anatomical differences between, for example, a skull from the Neander Valley (Germany); a skull found near Engis, and a mandible found in La Naulette (Belgium); and skeletal parts of several humans in Cro Magnon, Les Eyzies (France). To put it bluntly, based on these anatomical differences, researchers (in the terminology of the time) preferred to distinguish between different ‘ancestral races’ rather than speculate and explain why such anatomical differences existed among the small number of fossilized human bones that had been found. At the time, no fossil hominin remains had yet been found on the African continent to confirm Darwin’s suspicions about the geographical origin of humans. And although discoveries of fossilized bones and a molar of an early human in Java, Indonesia, by the Dutch army doctor Eugene Dubois (1858-1940) had already been made and briefly reported in The Netherlands, they had not yet been scientifically described and published until 1894 (Dubois, 1894, 1896, 1899).

Hoernes did not elaborate further on the history of passive and active use of fire (and smoke) by early humans in his 1892 book *Die Urgeschichte des Menschen nach dem heutigen Stande der Wissenschaft* (The Prehistory of Man According to the Current State of Science). His next work, *Urgeschichte der Menschheit* (Prehistory of Mankind), published in 1895 and in English translation as *Primitive Man* in 1907, contained only a small collection of nicely formatted but vague statements about the passive and active use of fire by humans, such as “In the earliest times man was well acquainted with fire, which animals fear and avoid. Man is a fire-kindling being, and, in a sense, fire is the mother of all higher civilization” (Hoernes, 1907, p. 11). In a two-volume work of 1909, *Natur- und Urgeschichte des Menschen* (Natural History and Prehistory of Man), Hoernes revealed no new thoughts on the history of human fire handling, nor did he, as mentioned above, do so in his contribution to the first volume of the *Weltgeschichte* book series (Hoernes, 1910). In a much later posthumously published book chapter, he devoted merely one page to the subject (Hoernes, 1923, p. 356).

In an exposition about pottery in prehistoric times, the German physiologist and anthropologist Johannes Ranke (1836-1916) spoke in the second volume of his *Der Mensch* (Man) about “*die Urkunst der Menschheit, die Kunst des Feuerzündes*” (the ancient art of humanity, the art of lighting fire) (Ranke, 1887, p. 433) as steppingstone to a short discussion of various methods of fire-kindling, referring to text and illustrations in the work of British anthropologist Tylor (1870), already mentioned above. Ranke did not refer to the books of Gustav Klemm, which formed the basis for Tylor’s expositions of the use of fire by humans. Nevertheless, it can be concluded that Ranke, by using Tylor’s book, has indirectly hinted at the importance of Klemm’s work.

Finally, in the first volume of his work *Kulturgeschichte der Menschheit in ihrem organischen Aufbau* (Cultural History of Mankind in Its Organic Structure) the Austrian cultural historian Julius Lippert (1839-1909) devoted part of the first chapter to human life without fire (Lippert, 1886, pp. 37ff.); another chapter to ‘*Die Zähmung des Feuers*’ (The Taming of Fire) (*Ibid.*, pp. 250-279); and subsequently several chapters to the influence of the use of fire in the social life of (early) humans, for example, preparing food; producing tools and weapons; as a source of light; or, also, as a means of chasing away ghosts (*Ibid.*, pp. 280-363). *Kulturgeschichte....* is Lippert’s *magnum opus*, a work in which he most extensively discussed the historical and social developments surrounding “the taming of fire.” It is not surprising that it was translated into English, albeit almost half a century after its German edition (Lippert, 1931). Importantly in the context of this case study, Lippert distinguished two aspects in theorizing about the use and control of fire by early humans: a social aspect and a technical aspect:

The extraordinary importance of fire in human history has two aspects, one social and the other technical. The latter seems the more striking, and the progress of the last few centuries has certainly been so great as to dazzle our eyes. Yet we must not for that reason overlook the other aspect. It seems almost paradoxical that it was the difficulty in acquiring and the inconvenience in preserving this exceptionally beneficial element, perhaps even more than the element itself, which paved the way to social progress. It was a great advance on the technical side when man discovered various artificial means of generating fire at will, but it is probable that the social consequences, which have been so extremely important and salutary, would not have appeared if these inventions had immediately followed the first taming of fire. That they did not do so is established by the manner in which the old forms of preserving fire were able to penetrate so thoroughly all the social relations, and embed themselves so deeply in the folkways, even of peoples well advanced in material culture, that throughout the whole of antiquity fire-making tools remained of strictly subordinate importance in practical everyday life. (Lippert, 1931, pp. 148-149).

Of course, possessing and controlling fire played a crucial role in warding off predators. This enabled early humans to expand their habitat and even inhabit inhospitable, cold regions. However, fire also served a disciplinary role, as early humans had to protect it from its dangers (wind, rain, lack of oxygen, etc.). And yes, the technical aspects played a major role in lighting a fire, as opposed to just keeping the fire going: “In any event, it is quite certain that throughout prehistoric times the preservation of fire was of transcendent importance and that, by comparison, artificial generation played a very subordinate role” (*Ibid.*, p. 156). Since fire played a role in early human societies for thousands of generations, one must recognize that it came to play a central role in those societies. Myths and legends from India, the Greeks and Romans, and other cultures point to this, according to Lippert. Maintaining fire formed a significant burden for early humans; it required considerable care; and served as a disciplinary measure. The ability to make fire would likely never have had such a significant impact on early human societies as fire maintenance did when the knowledge of how to light a fire was not yet available and only fires ignited by volcanic or electrical causes were ‘caught’ and subsequently protected from extinction. Fire could be ‘borrowed’ from others, stated Lippert: “Fire is something that can be given away without loss. It is a gift which involves no sacrifice. Moreover, it assures a reciprocal gift in case of need [...]. Thus was tied the first bond of an association extending beyond the family. [...], so also, we must suppose, there was created henceforth a safe-conduct which led securely from tribe to tribe and could open the way to other type of intercourse” (*Ibid.*, p. 146; see also Planck, pp. 29-38).

Finally, Lippert’s mention of the improvement in nutritional aspects of food by the use of fire to roast it by early humans is also interesting: “Roasting made a variety of kernels available as food for infants, even before they had developed a complete set of milk teeth. This shortened the nursing period [...]” (*Ibid.*, p. 131). Until recently, since Lippert, such aspects were hardly discussed in the literature (see Burton, 2009; see Note 8).

Wilhelm Bölsche

Around the turn of the 20th century, it was not just German-speaking academics affiliated with universities who were committing their thoughts to paper about the history of the use of fire by hominins and humans,

but also authors we would now call popular science writers, who earned their living from it and built up extensive oeuvres. One of them was Wilhelm Bölsche (see *Figure 12*).

Bölsche, born in Cologne, Germany in 1861, published a few texts already during his high school years; for example, at the age of 15, he (presumably) made his debut as a writer with a journalistic article in the *Gefiederte Welt* about the flood in the Cologne *Zoologischer Garten* in March 1876 — likely encouraged by his father, who worked as an editor of the *Kölnische Zeitung*. Between 1883 and 1885, he studied philosophy, art history and archaeology at the University of Bonn, south of Cologne. He did not complete his studies, though. He must have been working on his first novel at that time, *Paulus. Roman aus der Zeit des Kaisers Marcus Aurelius* (Paul. Novel of the Time of Emperor Marcus Aurelius) which appeared in 1885.

Well before 1900, Bölsche had become already quite known in European countries and small states where German was spoken and read. He had written several novels and books on literary subjects, such as in 1887 *Die naturwissenschaftlichen Grundlagen der Poesie* (The Natural Science Foundations of Poetry) and *Heinrich Heine*, an analysis of Heine's works and philosophy. After moving to Berlin that same year, he settled in Friedrichshagen am Müggelsee, east of Berlin's city center, where he became a member of the *Friedrichshagener Dichterkreis*, a group of writers inspired by naturalism. The group's first meetings took place at Bölsche's home and at the home of his politically inspired freethinker and writer friend, Bruno Wille, one year his senior. At the time, Bölsche had begun a correspondence and friendship with Ernst Haeckel (who was known as 'The German Darwin') that lasted until Haeckel's death in 1919 (Nöthlich (Ed.), 2002). He also started writing about the evolutionary biology theories of Darwin and Haeckel. In the mid-1890s he also began to publish on natural scientific topics and content, for example *Hausschatz des Wissens* (The Home Treasure of Science) in 1896. *Charles Darwin. Ein Lebensbild* (Charles Darwin: A Life Picture; see *Note 9*) followed two years later, in addition to, before the turn of the century, several other works, including a three-part novel.

Although Bölsche had already written and published a considerable number of works, it was not until 1900 that he really made a name for himself, particularly in German academic circles, with the publication of *Ernst Haeckel. Ein Lebensbild* (Ernst Haeckel: A Life Picture), his biography of Haeckel, the first Haeckel-biography to be published in book form, and, moreover, authorized by Haeckel himself. Bölsche extensively explained Haeckel's scientific work; his ideas and theories; his books; his contributions to zoology, philosophy, the morphology of organisms, evolutionism; and, not least, the great importance that the discussion of Haeckel's work by the assembled scientists at the 38th general meeting of the *Gesellschaft Deutscher Naturforscher und Ärzte* (Society of German Natural Scientists and Physicians) on 19 September 1863 meant for Haeckel.

The biography uniquely marked the transition to new forms of science; to new disciplines within science; to a new century; but also to new forms of publishing, as well especially new forms of publishing books that were (also) available as inexpensive *Volksausgaben* (Public Editions), that is, in addition to the editions with linen covers with gold and blind embossing. The cheap editions were affordable for many and therefore eagerly purchased. While *Charles Darwin. Ein Lebensbild* had still not appeared in English translation, the English translation of his Haeckel biography (Bölsche, 1909d; no date) was published in both England and the United States to commemorate the centenary of Darwin's birth and the fiftieth anniversary of his *On the Origin of Species*, featuring translated works by leading Darwinists from non-English speaking regions.

While the biography had brought him fame (see *Note 10*), another work published at the turn of the 20th century also had a great impact, especially on the way adults, as well as young people, came to view and appreciate their species and its evolutionary physiological development: three volumes of *Das Liebesleben in der Natur; eine Entwicklungsgeschichte der Liebe* (Love life in Nature: An Evolutionary History of Love) (Bölsche, 1898b, 1900, 1903a; see *Figure 20 and Note M*; see also English translation: Bölsche, 1926). After 1901, Wilhelm Bölsche spent most summers in Schreiberhau, present-day Szklarska Poręba in Poland on the Polish German border. He moved there in 1918 and lived there until his death in 1939. During the years between the turn of the century and the end of the First World War, he continued to

write and publish about animals, for example, a book on deer (Bölsche, 1911b; see *Figure 11*), as well as short essays about diverse animals in a series of books on the *Wunder der Natur* (Wonders of Nature) (Bölsche, 1912ab). The emphasis during those years was also on publications in which he described the origin of the universe and the evolution of plants, animals and humans on Earth (e.g., Bölsche, 1903ab; 1904ab, 1909c, and 1911b). One of these publications, *Die Abstammung des Menschen* (The Evolution of Man) from 1904, was enormously popular, and reprint after reprint appeared in the following years. An English translation was published in the United States in 1905 and was reprinted several times too. In 1921, an anniversary edition of the German book was published on the occasion of Bölsche's 60th birthday that also went through reprint after reprint (Bölsche, 1921; see *Figure 18* and *Note K*). By then, Bölsche had become famous not only in Germany, Austria and other German-speaking countries, but also abroad, such as England and the United States, or the Netherlands, where translations of his works had appeared (e.g., Bölsche, 1927abcdef). His writing style, comprehensible to young and old; the engaging topics; the affordable publications — Bölsche had tapped into an entirely new market where he enjoyed great success for several decades. He disseminated his ideas not only in writing, that is, through articles or books, but also in person during lectures he gave, for example, a lecture on 'The Secret of Instinct' in the Großer Musikvereins-Saal of the Wiener Konzerthaus in Vienna, Austria on October 19, 1921 (see *Figure 15*), where he probably also sold and signed his book publications.

But now the big question: did Bölsche also write about the use of fire by hominins and humans; about the 'transition from passive to active use of fire;' and about the influence of using fire on the social life of early humans, on their diet, and on their further biological evolution? Yes, he did. But very sparingly. As if it were fun-facts you might mention every now and then.

In *Von Sonnen und Sonnenstäubchen* (Of Suns and Sundust Particles), Bölsche (1903c, p. 109) speaks of "artificially generated and maintained hearth fires", but nowhere did he ask how the origin of the active use of fire by prehistoric humans can be explained. In another work from 1903, *Vom Bazillus zum Affenmenschen* (From Bacillus to Ape-Man) (Bölsche, 1903b), the word *Feuer* (fire) is not mentioned at all. In his *Eroberung des Menschen* (Conquest of Man), Bölsche (1904, p. 36) indicated that prehistoric humans actively used fire: "[...] *das Herdfeuer lohnte also schon: das künstliche Feuer, zu dessen Gründung vielleicht die Eiszeit genötigt hatte*" ([...] the hearth fire was already blazing: the artificial fire, the creation of which was perhaps necessitated by the Ice Age), but he only briefly suggested how early humans might have come to actively using fire. To this end, he cited a 1778 work in which the French naturalist and mathematician Georges-Louis Leclerc de Buffon described the circumstances of 'man in the state of pure nature:' "*il aura bientôt tiré le feu de [...] cailloux en les frappant les uns contre les autres,*" meaning, "he will soon draw fire from [...] pebbles by striking them against each other" (*Ibid.*, p. 142).

In 1909, *Der Mensch in der Tertiärzeit und im Diluvium* (Humans in the Tertiary and Diluvium), the first volume of *Der Mensch der Vorzeit* (Man of Prehistoric Times), was published, in which Bölsche primarily described and interpreted paleoanthropological discoveries. He opened the work referring to a famous 1719 book about surviving on a deserted island after a shipwreck: *The Life and Strange Surprising Adventures of Robinson Crusoe, Of York, Mariner*. The protagonist, Robinson Crusoe, in order to make ends meet to eke out an existence, to survive, had to build a shelter; grow food; make tools and weapons; catch and breed animals; and, indeed, build and maintain a fire. Through a more or less extensive discussion of what Robinson had to be able to do and what he had to do with his brain, teeth and face, his specially formed hands and feet, and the processing of raw materials into all kinds of tools and weapons such as knives and spears, Bölsche essentially tells the story of the developments that took place during the evolution from hominin to human. And he did not forget to mention and elaborate on what he calls the "*künstliche Feuererzeugung*" (artificial fire generation) in all editions, such as the 1st, 15th (1920) and 20th edition (1921):

As Robinson splits stones with stones, rubs and scrapes wood, he naturally encounters flying sparks and smoldering wood flour. New brainwaves lead him to the extraordinary importance of this possibility of artificial fire production and, subsequently, to immediate, constantly accessible tools and methods in this direction. The artificial hearth flame itself becomes one of his most brilliant tools [...]. With it, he has only just re-elevated himself to the entire foundation of all superior culture.

Consider what this artificial flame means as warmth, as light, on which ultimately all braiding, indeed, even in its embryonic state, all utilization of metals for artificial casting, depends. (Bölsche, 1909c, p. 10; 1920, p. 10; 1921, p. 9; translation J.S.).

Bölsche mentioned about the character Friday in *The Life and Strange Surprising Adventures of Robinson Crusoe of York, Mariner*, Daniel Defoe's book from 1719, "*auch die künstliche Feuererzeugung ist ihm längst geläufig*" (he has also been familiar with actively lightening a fire for a long time) (1909c, p. 13; 1920, p. 13; 1921, p. 12), indirectly processing Defoe's conjecture, but — as I mentioned above — what Gustav Klemm had researched and concluded in 1843, "*Es ist noch keine Nation auf Erden entdeckt worden, welche den Gebrauch des Feuers nicht gekannt hätte*" (Klemm, 1843, p. 178) and how he had put it down his conclusion on paper again in 1855, "*Wir finden die Menschen auf keinem Punkte der Erde ohne das Feuer*" (We do not find people anywhere on earth without fire) (Klemm, 1855, p. 66).

In *Der Mensch der Vorzeit* (Prehistoric Man), Bölsche also referred to and described finds of skeletal remains of *Neanderthals* made from 1899 to 1905 by Croatian geologist and paleontologist Dragutin Gorjanović-Kramberger in Krapina, Croatia. He was also one of the first to refer to and describe the find of a *Neanderthal* skeleton in Le Moustier, France by Swiss archaeologist Otto Hauser in 1908 (see *Note 11* and *Figure 27*; see also Drößler & Freyberg, 2000, p. 98). Finds in Krapina seemed to indicate that *Neanderthals* were familiar with the use of fire, and it was even suggested that they roasted not only animal meat but also human meat (see also Bölsche, 1907ab). Regarding the use of fire by early humans, Bölsche stated in *Der Mensch der Vorzeit*, "*Sie lebten im Vollbesitz der großen Kulturtat künstlicher Feuererzeugung*" (They lived in full possession of the great cultural achievement of artificial fire production) (Bölsche, 1909c, p. 48). Referring to several myths in which 'fire falls from heaven' like a bolt of lightning, Bölsche elaborated on steppe fires that could have been caused by a real lightning event; animals could have been burned; such roasted animals could have been eaten by early humans who also observed that burn marks caused by fires radiated heat and light. At some point, the terrifying fire must have been transformed into a tarnished, artificial tool: the heavenly flame was captured and used at will. And yes, later the evolution from passive use of fire to active use of fire occurred when, in a metaphorical sense, the secret of a lighter was discovered after experiments with sparks created by striking stone against stone. Sparks that could generate fire, similar to fire ignited by lightning bolts in the sky, or found near volcanoes, or arising from other sources.

In the remainder of the book, Bölsche (1909c, pp. 67ff) made no other significant statements about the history of the use of fire by hominins and humans, except to address the origins of human hairlessness. He referred to Darwin, who saw this as the result of sexual selection, but he did not refer to Klaatsch, who stated that he had no valid explanation ready for the cause of the 'furlessness' or 'nakedness' of humans (Klaatsch, 1901, p. 157; 1902, pp. 198-199, 317; Staring, 2024c).

Lastly, in the 1928 *The Amber-Forest Primeval*, translated from his 1927 German book *Im Bernsteinwald*, published in Germany, Bölsche (1928) described how fire can start and spread in a forest after a strike of lightning. Alas! The book is about a forest, not early humans.

Adolf Heilborn; alias A. H.; alias A. Hn.; alias Ernst Abt; alias E. A.; alias Dr. H.; alias Georg A. H. Körbitz

Heilborn, Adolf, Dr.med., geb. 1873 Berlin, gest. 1941 Berlin, [...]. Arzt und Schriftsteller in Berlin; Mitarb. "Berliner Morgenpost" und Red. "Ullstein-Wochenschrift"; Red. "Die Gegenwart"; Hptw.: "Die Zeichner des Volks" (1925); "Käthe Kollwitz" (1929); 1941 Selbstmord. (Walk, 1988, p. 143).

From *Kurzbiographien zur Geschichte der Juden: 1918-1945* (Short biographies on the history of Jews: 1918-1945), Joseph Walk's work quoted under the paragraph title above, containing approximately 4,000 short biographies of Jews in Germany between 1918 and 1945, its publication supported by the Leo Baeck Institute Jerusalem for the Study of German-Jewish History and Culture, we can at least deduce that Adolf Heilborn was born in Berlin in 1873 and was therefore 12 years younger than Wilhelm Bölsche. However, we do not learn much about Heilborn's life and work. In the *Lexikon deutsch-jüdischer Autoren*

(Lexicon of German-Jewish authors) (Heuer (Ed.), 2002), on the other hand, we find a more extensive biography of Heilborn and quite a long list of his publications, including books, book contributions, and articles in a variety of journals. Two pseudonyms are even listed under which Heilborn also published: *Georg Abt* and *Georg A. H. Körbitz*. The second pseudonym is easy to decipher: the “A” stands for Adolf, the “H” for Heilborn, and his mother’s maiden name was Körbitz. The meaning of “Georg” is unclear. On the other hand, Heilborn either extremely rarely used the first mentioned pseudonym, or not at all, as I could not find any publications by a “Georg Abt.” However, an *Ernst Abt* published (apparently exclusively) in books and magazines where Heilborn also appears under his own name, and also under the second pseudonym *Georg A. H. Körbitz*, sometimes even under his own name as well as under the second pseudonym in one and the same book or one and the same magazine issue. Of course this is too much of a coincidence! Furthermore, Heilborn also used the pseudonym *A. Hn.*, or *Dr. H.* as well as *E. A.* (the initials of his pseudonym *Ernst Abt*). An endnote presents a selection from Heilborn’s oeuvre, divided into different categories (see Note 12). It includes various works listed in the *Lexikon deutsch-jüdischer Autoren*, supplemented by a selection of works not listed in the *Lexikon*, and works published under various pseudonyms previously unmentioned in the literature.

After graduating from high school in Berlin, Adolf Heilborn studied medicine and natural sciences, also in Berlin, from 1893 to 1897, receiving his doctorate in medicine in 1897. The *Lexikon deutsch-jüdischer Autoren* states that as a high school student he wrote texts for the Berlin newspaper *Vossische Zeitung*. The year he began his academic studies, 1893, marked his debut year as a published translator with renowned publishers — with his translation from French of a work by Alphonse Daudet, *Briefe aus meiner Mühle. Provençalische Geschichten* (Letters From My Mill. Provençal Stories) (Daudet, 1893; Heilborn, 1893). Five years later, he published *Musotte*, his translation from French of a play by de Maupassant (Heilborn, 1898b; see Figure 21), while in the popular science field he published *Allgemeine Völkerkunde in kurzgefaßter Darstellung* (General Ethnology in Brief), a comprehensive overview of the contemporary ethnographic body of knowledge and theories (Heilborn, 1898a). What is striking about this latter work is that Heilborn, already in the first general chapter, entitled ‘Fire and Cooking,’ described the enormous influence that the active use of fire has within (early) human communities.

We need fire to prepare our food, it drives wild animals away from our camp, we burn our utensils and the bricks for building our houses in the fire, all our tools and machines are made with the help of fire, and many peoples even bury their dead in fire. (Heilborn, 1898a, p. 24; translation J.S.).

This is a nice list to begin thinking about how the active use of fire came about among hominins and humans. Heilborn, like many authors of his time, referred to myths that suggest that the use of fire (whether passive or active) must have originated long ago after experiences with fires caused by lightning strikes. But he offered no clues as to the when or how of the origin of active fire-use by hominins/humans. He suggested that people struck stones together to produce sparks or used tools that generated frictional heat, and he discussed various forms of preparing food with fire, such as boiling and roasting, and stated, “*Ein Volk, das seine Nahrung noch heutzutage stets roh verzehrt, giebt es nicht*” (There exists no people that still eat their food raw) (*Ibid.*, p. 30). Interestingly, he then referred to the work of Tylor (*Ibid.*, p. 31), not to the books by Klemm (1843, 1855), or Lippert (1886), mentioned above.

Heilborn quickly developed into a highly productive writer. Like Wilhelm Bölsche, he wrote about animals and about paleoanthropological topics (Heilborn, 1909e, 1910c, 1914ac, 1917, 1922, 1931). And like Bölsche, he wrote about both Charles Darwin (Heilborn, 1909j, 1927a) and Ernst Haeckel (Heilborn, 1914i) — whose good name and fame he later defended against what he more-or-less described as underhanded attacks (Heilborn, 1920a). What is perhaps interesting in this connection is that in 1912 Bölsche and Heilborn (the latter also under the pseudonyms *Abt* and *Körbitz*) jointly published chapter contributions to the first two volumes of the book series *Die Wunder der Natur* (The Wonders of Nature) (Abt, 1912abcdf; Bölsche, 1912 ab; Heilborn, 1912acdehjk; Körbitz, 1912abcde).

After both his publications in 1898, a period of continuous turbulence began for Heilborn. He sailed the seven seas for a time as a ship’s doctor visiting a large number of countries on different continents. At the turn of the century, back home again, he served as editor for, among others, the newspaper *Berliner*

Zeitung (1899-1902), *Das Schöne* (1902-1903), and publisher of and editor at *Die Gegenwart* (1906-1910), a weekly magazine for literature, art, and public life. Much later, in the late 1920s, early 1930s he was an editor at the newspaper *Berliner Morgenpost*. Between 1900 and 1930, he wrote numerous articles for magazines such as, in alphabetical order, *Der Querschnitt*, *Die Gartenlaube*, *Die Gegenwart*, *Die Koralle*, *Die Woche*, *Globus*, *Moderne Kunst*, and *Reclams Universum*.

In 1904, Heilborn accepted a position as lecturer at the Berlin scientific society *Urania* and at the *Humboldt Academy*, where he gave lectures in anthropology and human physiology to students and teachers. Ten of these lectures actually appear in two books on these subjects (Heilborn, 1904, 1914), while lectures he gave in 1904 for the Berlin-Charlottenburg branch of the *Deutsche Kolonialgesellschaft* (German Colonial Society) were published under the title *Die Deutschen Kolonien* (The German Colonies) and reprinted several times (e.g., Heilborn, 1912f). Around this time, in the early 1900s, he became friends with Professors Gustav Schwalbe and Hermann Klaatsch, both anatomists who had developed into paleoanthropologists through their anatomical research on skeletal remains of, among others, *Neanderthals* and *Cro Magnons*. These friendships led to further publications in the field of paleoanthropology (e.g., Heilborn, 1909c, 1910c, 1914ac, 1919a). Only occasionally, he would publish on other medical/anthropological matters (e.g., Heilborn, 1901a, 1913f, 1925d).

One of the three known bookplates of Heilborn (see *Figure 22*) depicts the Rod of Asclepius, the symbol of medicine, a snake coiled around a staff. In addition to his many writing-related activities, Heilborn practiced medicine. The snake, which can shed its skin, symbolizes renewing vitality and healing. Here it injects its venom into a large container into which a writer, Heilborn I presume, dips his pen. Medicines can be poisonous; the dosage a doctor prescribes determines the healing effect. In the symbolism depicted here: Heilborn saw what he accomplished through his writing, as a physician, as innovative, nourishing and healing for his readers.

As mentioned above, Wilhelm Bölsche was one of the first to publish about the discovery of a *Neanderthal* skeleton in Le Moustier, France, by Otto Hauser in March 1908. As an editor of *Die Gegenwart*, Heilborn was undoubtedly aware of this discovery and as a physician and author in the field of (paleo-)anthropology he had more direct access to anatomist, physiologist and paleoanthropologist Hermann Klaatsch from Breslau (today's Wrocław in Poland), who professionally preserved the skeletal remains in August 1908 during the excavation of these partially fossilized remains in the presence of witnesses (Drößler, 1988a; see *Figure 26*). After Hauser and Klaatsch themselves had published about the discovery in scientific journals (Hauser 1909a; Klaatsch, 1909b; Klaatsch & Hauser, 1909), Bölsche could use drawings of the *Neanderthal* skull found in Le Moustier as early as 1909 in his *Der Mensch der Vorzeit* (Bölsche, 1909, p. 39; see also Hauser, 1922b, p. 218). Heilborn, however, reported Hauser's 1908 discovery with photographs, received from Hauser, not until the end of 1909 in his *Der Mensch der Vorzeit* (see *Figure 28*), an article — with exactly the same title as Bölsche's 1909 book just reviewed — that appeared not in *Die Gegenwart*, the journal he edited, but in the 'family magazine' *Die Gartenlaube* (Heilborn, 1909c). The photographs he used as illustrations in the article were first published in 1909 by Hauser and Klaatsch.

Heilborn subsequently published on Hauser's discovery in February 1910, in the Berlin newspaper *Vossische Zeitung*, an article entitled *Diluvialmenschen-Schicksal. Zu den Hauserischen Funden im Völkerkundemuseum* (The Fate of Diluvial Humans: On the Hauserian Finds in the Völkerkundemuseum), not signed with his own name, but under the pseudonym "Dr. H." (H., 1910; see: Hauser, 1922b, pp. 219-220; see also Drößler & Freyberg, 2000, pp. 106-107, 108-109). In it, he refuted Cuvier's dogma stating that a "fossil man does not exist" by referring to investigations made at the beginning of the 20th century by Schwalbe and Klaatsch on the famous *Neanderthal* skull found in the Neander Valley near Düsseldorf, Germany, in 1856. He also referred to two discoveries by the archaeologist Otto Hauser "from Basel:" the aforementioned discovery of a *Neanderthal* skeleton in 1908, and the discovery of a *Cro-Magnon* skeleton in 1909, also made in France. The existence of both skeletons certainly contradicts Cuvier's assertion. Heilborn asserted emphatically that Hauser worked at 21 sites around Les Eyzies, France where prehistoric settlements had once existed, with skilled laborers, engineers, and a surveyor to excavate and describe the archaeological finds as accurately as possible. He also took photographs of the finds, both *in situ* and after

they had been cleared of sand and clay. With this, Hauser introduced precise (land) measurements and photographic techniques as tools in archaeological research. Thus, he also left the excavation of the *Neanderthal* skeleton to knowledgeable others, after first having a sworn confirmation of the state of the find site drawn up by local notables and later, under the watchful eye of witnesses such as the renowned German professors Gustaf Kossinna and Karl von den Steinen, having the skeleton excavated and preserved by professor Hermann Klaatsch (see Figure 3 in Drößler & Freyberg, 2000, p. 89). This skeleton, along with the *Cro-Magnon* skeleton discovered by Hauser in 1909, had been on public display at the Berlin *Völkerkundemuseum* since late 1909. But Heilborn saved important news for last. Hauser's finds were for sale! While there was already an American buyer, steel magnate Andrew Carnegie, who was willing to offer approximately a third of a million Reichsmarks, the skeletons could be preserved "for German science" at the museum for half of Carnegie's offer, provided that, in addition to the funds already raised, interested citizens could make additional donations. Heilborn added that in the 19th century, the fossil remains of the feathered *Archaeopteryx*, discovered in 1861, were preserved "for German science" thanks to funding from industrialist Werner von Siemens and ended with the following call:

Who among the royal merchants of our day will preserve Hauser's irreplaceable discoveries for German science and thus inscribe his name for all time in the annals of the "science of all sciences," the science of man, in imperishable letters? (H., 1910, p. 15; translation J.S.).

Heilborn's informative newspaper article, which concluded with a call for donations, underscores his opinion that the Berlin museum should buy the two discoveries of early-human skeletons and that these were immensely important for (German) science. It also reveals that Hauser — who introduced groundbreaking innovations in meticulously excavating, classifying, categorizing, and describing finds — conducted nearly two dozen excavations simultaneously (see, for example, Hauser, 1908). Hundreds of hand axes and other artifacts were found, which, after being scientifically described, were sold at archaeological exhibitions organized by him. Hauser — graduated as an archaeologist from a Swiss university — acted partly as a scientist and partly as a merchant of archaeological and paleoanthropological finds. The professional title 'archaeologist' was ambiguous at the time: it could mean archaeologist in the modern sense, and antique dealer. In fact, Hauser was both. The ambiguous meaning of the word led at times, especially in France where the work of the extremely successful Hauser was viewed with disdain, to him often being referred to in a derogatory tone as an antique dealer, always driven by profit. He conducted excavations on leased plots or on land he purchased, funded from his own funds. He hired laborers, whom he trained himself, and, for example, a surveyor who produced precise maps of his excavation sites, among other things, funded from his own pocket. He also investigated the stratification of earth layers, paid for by himself. Since there were no (strict) laws in Switzerland and France in the late 19th and early 20th centuries, selling archaeological or paleoanthropological finds, including important skeletal remains, excavated on leased or private land, was considered a more or less honorable profession. Scientifically sound reporting was a plus, not a requirement. And what Hauser did as a profession was seen as something honorable in German academic circles (including Heilborn), because on the one hand he renewed science and on the other hand he provided solid scientific justifications, for example in two brochures during his student days (Hauser, 1897, 1898) and in a beautifully published book a few years later (Hauser 1904; see *Figure 33* and *Note 14*). It goes without saying that he paid the costs of printing and publishing the brochures and the book.

Exactly the same text which featured in the *Vossische Zeitung* in February 1910, was published in *Die Gegenwart* from March 19, 1910, the magazine of which Heilborn was publisher and editor, but it appeared under a pseudonym, *Ernst Abt* (Abt, 1910). Underneath the article a short note from the editor (i.e., Heilborn himself) stated that at the time when the typesetting of the text was made, it was revealed that "Krupp had signed up for 15,000 Reichsmarks and two unknown others for 10,000 Reichsmarks each" (translated by J.S.).

In the other work from 1910, the second edition of *Der Mensch der Urzeit* (Prehistoric Man), Heilborn (1910c) extensively described, with illustrations, primarily photographs, the discovery of fossilized bones and a molar of *Homo erectus* in Java, Indonesia by Dutch army physician Eugene Dubois, but also several other recent excavations of bony remains of early humans: the lower jaw inclusive teeth and molars of *Homo heidelbergensis* in Germany (pp. 41-47); *Neanderthal* bone remains in Croatia (pp. 54-60); and, of

course, the *Neanderthal* and *Cro Magnon* skeletal remains discovered by Hauser in France (pp. 60-68). It is primarily a book about the physical-anthropological finds during the described skeletal excavations. However, Heilborn also briefly emphasized the importance of the use of fire:

[The *Neanderthal*] already possessed weapons and tools, flint implements, which already exhibit a certain technical sophistication and had grown out of much more primitive and much older forms. He already knew how to use fire to prepare food, or more accurately: to make food more edible, he must have long since learned to create it — presumably guided by the spark phenomenon in the manufacture of his flint implements — and overcome his fear of the destructive element. (Heilborn 1910c, p. 73; translation J.S.).

Der Mensch der Urzeit featured the illustrative photographs of the *Neanderthal* (*Homo mousteriensis Hauseri*) skeletal remains Heilborn had received from Hauser. And it included photographs showing skeletal remains of the *Cro Magnon* (*Homo aurignacensis Hauseri*) he had received after Hauser and Klaatsch published on its discovery first (see Hauser & Klaatsch, 1909).

This was the second edition of his book, a publication that was quickly released after the first edition, due, among other things, to Hauser's spectacular discoveries of *Neanderthal* skeletal remains in 1908 and a *Cro-Magnon* skeleton in 1909, which meant that probably (almost?) no copies of the first edition were actually in circulation (Heilborn, 1910c).

In 1914, Heilborn would write again about paleoanthropological issues, in two articles on Hauser's hasty departure from France (Heilborn, 1914ac), but not on the use of fire by early humans. (These two 1914 articles on Otto Hauser are briefly discussed in the next paragraph). A year later, however, he did address the subject extensively, in the first volume of a two-volume work entitled *Allgemeine Völkerkunde* (General Ethnology) (Heilborn, 1915a), a revised version of his *Allgemeine Völkerkunde in kurzgefaßter Darstellung* of 1898.

Here, attention is focused on the 1915 book (Heilborn, 1915a; see *Figure 22* and *Figure 23*). It is immediately noticeable that in the 'Foreword' to the book Heilborn referred to the work of Tylor, discussed above, and used the expression '*Werdegang der Menschheit*' (Development of Humanity), which half a decade later would form the title of a posthumous work by his friend Hermann Klaatsch (see *Figure 25*), edited and published by Heilborn (see Klaatsch, 1920). It is also striking that in the second chapter of the book, titled '*Das Feuer, seine Erzeugung und Verwendung*' (Fire, Its Production and Use), many sentences from Heilborn's 1898 work reappear verbatim or rewritten, as, for example, in the context of descriptions of the use of fire by indigenous South American peoples by ethnologist Karl von den Steinen (1894, 1897), the same ethnologist who acted as a witness during the excavation and recovery in August 1908 of the *Neanderthal* skeletal remains that Hauser had discovered in Le Moustier, France (see above; see *Note 15*). Heilborn emphasized that after having captured a 'wildfire' (like a wild animal), it was important to keep the fire burning and thus acquire knowledge about the correct ways to keep it burning, using the right fuels, and so on. The fact that his historical account is more sociologically and anthropologically meaningful in his 1915 *Allgemeine Völkerkunde* than in his earlier works is due to Heilborn having studied more ethnological (ethnographic) literature in the interval between his publications in 1898 and 1915 — and especially having studied the work of Julius Lippert (Heilborn, 1915a, p. 12). Nevertheless, there are relatively long expositions in the book on, for example, ways to light a fire, or roast meat and cook meat that give the impression that Heilborn believed it was important to write about these topics as technically as possible. He also speculated about the division of labor between men and women in the way of dealing with fire, for example, when preparing food: men lit the fire; men roasted the meat; women cooked it; women had supposedly invented this method of meat preparation. And, indeed, just as he had declared in 1898, he stated, "*Ein Volk, das seine Nahrung noch heutzutage stets roh verzehrt, gibt es nicht*" (There exists no people that still eat their food raw) (*Ibid.*, p. 24).

During World War I, Heilborn (apparently) published relatively little. He served for a considerable time as a medical officer on the front lines, but it is unknown where or for how long. It is likely that he as a physician had volunteered to join the medical corps to care for the front-line troops, just as Norbert Elias served as a volunteer at the front (Jitschin, 2021; Korte, 2017). In the September 2, 1915, issue of the

Reclams Universum magazine, Heilborn was the author of the 43rd ‘speech’ of the wartime series ‘*Ernste Reden in ernster Zeit*’ (Serious Speeches in Serious Times) (Heilborn, 1915c). At the time, he was probably at home in Berlin, because it was not a text about work as a frontline doctor, but a truly patriotic appeal to readers: ‘*Durchhalten!*’ (Persevere!). Editor of *Reclams Universum* Carl W. Neumann must have asked him for the text; the men knew each other from the time when they both contributed chapters to the three-volume book series *Die Wunder der Natur*, published not long before the war (see Note 16). And also in 1915, Heilborn’s two-volume work on anthropology appeared (discussed above), as did an article unrelated to paleoanthropology — in *Reclams Universum* (Heilborn, 1915d). Later during World War I, he published a paleoanthropological article, again in *Reclams Universum*, titled ‘*Der Mensch von Ehringsdorf. Zu den Diluvial-Menschenfunden bei Weimar*’ (The Ehringsdorf Man: On the Diluvial Human Finds near Weimar) (Heilborn, 1917; see also Hauser, 1922b, pp. 87-94). It was about an excavation of an early human lower jaw and other remains of early humans in the travertine quarries on the outskirts of Ehringsdorf, Germany — not relevant to this discussion of his contributions to the body of knowledge regarding the history of control of fire. The third edition of *Der Mensch der Urzeit* dating from 1918 and dedicated like the previous editions to his friend Ernst Haeckel to a large extent contains reports and descriptions — mainly anatomical and physical-anthropological — of discoveries of early humans made since 1910, but no text on the use of fire other than that already quoted and summarized above from the second edition (compare Heilborn, 1918, p. 70).

Then, in 1920, Heilborn published a book by his good friend Hermann Klaatsch, who had died in 1916, entitled *Der Werdegang der Menschheit und die Entstehung der Kultur* (The Development of Humanity and the Rise of Culture). In his introduction to the work Heilborn commemorated his friend-*confrère* with a short biography which contains among other topics a comprehensive overview of his work to preserve the more or less fragile skeletal remains of the *Neanderthal* and *Cro-Magnon* that Hauser had discovered in 1908 and 1909 (Heilborn, 1920c, pp. XXXI-XXXVI) — interspersed with photographs taken by Otto Hauser. In *Der Werdegang der Menschheit...* Klaatsch explicitly and extensively discussed the importance of the use of fire in the evolution of hominins and humans. He stated that their “acquaintance with fire” was not only responsible for widening “the gap between the human forms and their animal primate relatives” (Klaatsch, 1920, p. 93; translation J.S.), but also that the skill of lighting fires represented “the first step towards independence from external circumstances and towards mastery of the forces of nature” (Klaatsch, 1920, pp. 94-95; translation J.S.). According to him, three phases should be distinguished in the process of acquiring this skill: “1. knowledge about fire in the first place, 2. ability to maintain the fire, 3. ability to ignite fire” (Klaatsch, 1920, p. 96; translation J.S.). Klaatsch believed that early humans were familiar with fire of volcanic origin, fire in the form of forest fires caused by friction and spontaneous combustion of flammable materials, and fire resulting from lightning strikes. Like Niemann and du Bois (1911, p. 158) and Heilborn (1915a) did earlier, he referred to German ethnologist Karl von den Steinen whose *Unter den Naturvölkern Zentralbrasiliens* (Among the Indigenous Peoples of Central Brazil) described such knowledge extensively (von den Steinen, 1894, pp. 219-228; 1897, pp. 212-229). He then listed ways to maintain fires and various methods for building them; the use of fire in preparing food; fire and the hunting of “fellow creatures.” Such hunts represented a “*Schulung des Menscheingeistes*” (training of the human spirit), as tricks had to be devised to overpower the increasingly wary game, tricks that could also be devised to defeat “*Mitmenschen*” (fellow human beings).

Interestingly, Klaatsch (1920, p. 95) used the term “*Beherrschung des Feuers*” (mastery of fire); most others who have written, until now, about the importance of using and being able to light fire use the term ‘use of fire’ in the sense of ‘utilization of fire.’ He illustrated ‘mastery of fire’ by stating that early humans had to be resourceful in protecting fire from, for example, the wind. But Klaatsch and the vast, vast majority of the others who wrote about the control of fire forgot to mention that early humans could also ‘use wind’ to remove very unpleasant smoke. Controlling fire, meaning mastering fire, keeping the fire burning is controlling, mastering, fire *and* smoke! Klaatsch also stated,

Handing over the fire seems to have been one of the primitive signs of friendly greeting others. The natives of Tasmania approached the Europeans who landed on their shores with burning sticks. (Klaatsch, 1920, p. 100; translation J.S.).

Klaatsch did not specify where his information came from. Perhaps it was the Dutch explorer Abel Tasman, who had recorded similar welcome gestures in his ship's log, or perhaps he had consulted Cook's log (see *Note 17*)? While elaborating further on the consequences of the active use of fire, he made a remarkable statement:

The consequences of the acquisition of fire for the primitive culture of prehistoric people were very diverse. From a physical point of view, it is likely that the constant habit of sleeping near the fire has had an influence on the human hair coat. We currently do not know the influences that have caused the reduction of human fur, but it would be quite conceivable that fire has to be given a certain importance in this direction, especially with regard to the great apes, which have retained their fur, and with regard to animal forms that have further increased their coat of hair in adaptation to a cold climate. (Klaatsch, 1920, p. 102; translation J.S.).

Klaatsch also discussed the role of fire and hearths in huts and houses, thus sketching a history of human housing based on aspects of shelter from rain and cold. There he encountered the theory of one of the first leaders of the German Society for Racial Hygiene, the later Nazi anthropologist Eugen Fischer, who saw, according to Klaatsch,

[...] a large number of racial characteristics of humans as “phenomena of domestication,” i.e. as arbitrarily influenced and therefore cultivated by people throughout generations with regard to nutritional and reproductive conditions. “All characteristics that occur as racial differences in humans,” emphasizes the Freiburg anthropologist, “also appear as such in domestic animal breeds, and vice versa, most of the peculiarities of domestic animals can be found in humans as racial characteristics.” He considers such domestication features in humans to be hair, pigmentation (color of the skin, etc.), body size and “proportions, etc.” (Klaatsch, 1920, p. 343; translation J.S.).

It seems Klaatsch did not want to comment on the theory put forward by Fischer in a article from 1914, and later republished, but then in book form (Fischer, 1914, 1927). He probably wished to hold on to his own comment that hair poverty in humans must be seen in relation to the handling of fire and its influence on the heat economy of human bodies. He did not explain why there are differences in the degree of hair poverty among people (see *Note 18*). And perhaps he did not want to support the racists among his colleagues at all (Staring, 2024c), because he stated:

For example, we still know very little about the nature of the transformation of humanity's hair coat. Regression of hair coat on the body occurs to very different extents in the individual breeds. For the change in general, we have already been able to point to the changed heat economy of the human body as a result of the habitation of fire [...], but the reasons for the disparity in hair loss are still completely unknown to us. (Klaatsch, 1920, p. 343; translation J.S.).

These disagreements about the causes of the absence of human fur have already been discussed elsewhere (Staring, 2024c).

Note that Heilborn had been so involved with editing Klaatsch's manuscript that it is difficult to distinguish where Klaatsch speaks in the book and where Heilborn speaks. This has also been a point of criticism in a review of the work (Luschan, 1922; Heilborn & Luschan, 1923). In 1922, the second, revised, and expanded edition of Klaatsch's *Der Werdegang.....* appeared (Klaatsch, 1922), while a year later an English edition of the book was published in London (Klaatsch, 1923; see also *BMJ*, 1923). The 1922 German edition included a separate afterword, titled *Die neuesten Ergebnisse der Paläontologie des Menschen* (The New Developments of Human Paleontology) written by Heilborn himself, in which, as the title suggests, he discussed the latest paleontological discoveries and developments. However, this text by Heilborn (1922) does not address the use of fire by early humans.

From the early postwar years and during ‘*Die Goldenen Zwanziger*’ (the Roaring Twenties) in Berlin, followed by the beginning of the more gloomy years from the mid-1930s, Heilborn published numerous articles and several books on medical, ethnological topics and animals in various magazines and books (see *Note 19*), as well as highly influential art books about his friends Käthe Kollwitz and Heinrich Zille (Heilborn, no date 1, no date 2; Murmann, 1994, pp. 216-221, 247; see *Figure 29*). It is interesting to note that Carl W. Neumann (the then-former editor of the *Reclams Universum* magazine) and Heilborn, after

their collaboration on the *Die Wunder der Natur* book series in 1912 and 1913, and later on *Reclams Universum*, both contributed articles to the magazine *Die Koralle* starting in the mid-1920s (e.g., Abt, 1925; Heilborn, 1925ab; Körbitz, 1925; Neumann, 1925; see also Bendig, 2014), to which zoologist and photographer/filmmaker Lola Kreutzberg also contributed photographs and texts (e.g., Kreutzberg, 1925). She would later invite both men to contribute texts to her 1930 edited book *Wir Tiere...* (Kreutzberg (Hrsg.), 1930). Heilborn also published about Berlin, in the *Berliner Morgenpost*, the newspaper of which he became editor, and for eight years, from 1928 to 1935, published the *Berliner Kalender* in book form, with calendars, one or two pages per week, interspersed with many monochrome and colored illustrations and short stories about Berlin.

The publication of his book *Werden und Vergehen* (Becoming and Passing Away) in 1931 was the last time Heilborn dealt with paleoanthropological matters — as far as I have been able to find out. The book's final chapter entitled *Wir Menschen* (We Humans) (Heilborn, 1931, pp. 268-316) describes the embryology, physical anthropology, some genetics, and some paleontology of humans. Unfortunately, in this work, too, Heilborn paid no attention to the development of human control over fire. Noteworthy, however, is the following footnote concerning the acquisition of the fossil skeletons Hauser had discovered in France in 1908 and 1909 by the Völkermuseum in Berlin in 1910, for which Heilborn had personally championed his two 1910 articles, published under the pseudonyms *Abt* and *Dr. H.* reviewed above (see: Abt, 1910; H., 1910; see also Dröbner & Freyberg, 2000):

Even today, a “bias” towards evidence of human origins and the general animal connection is clearly observable in many circles, even among those who have educated themselves: for example, it was only a small step away from the fact that Hauser's Moustier Man, who also belongs to the Neanderthal race (follow-up examination requested), was not acquired for the Berlin Museum of Ethnology in 1910; the then Prussian Minister of Culture most decisively opposed the purchase because, as he literally said, “the fellow looks like a gorilla” (Heilborn, 1931, p. 295; translation J.S.).

At the start of the second half of the 1930s, Heilborn entrusted the reviewing and updating the text to release a third German edition to, among others, anatomist and anthropologist Hans Weinert, a more or less hardened Nazi (see *Figure 30*, *Figure 31* and *note 13*). By that time, he was most probably already prohibited from undertaking such publishing work because of his Jewish background.

Although the *Lexikon deutsch-jüdischer Autoren* (Heuer (Ed.), 2002, p. 311) states that Heilborn had left the *Jüdische Gemeinde* on April 2, 1901, this had no bearing on the professional ban imposed on him by the Nazi regime in the second half of the 1930s. Apparently, from the end of 1937 onwards, no more of his articles, books or other texts could be published. His *Berliner Morgenpost* newspaper supplement, ‘*Berliner ABC. Allerlei aus 700 Jahren Berlin*’ (Berlin ABC. A Variety of Things From 700 Years of Berlin), on the occasion of Berlin's 700th anniversary, was likely his last publication under his own name (compare Pomplun, 1966, p. 7). Nevertheless, he continued to publish under his pseudonym Georg A. H. Körbitz after his dismissal, for example an article entitled *Loblied der Kartoffel* (Praise of the Potato) in the *Illustrierte Zeitung Leipzig* of 31 October 1940, or his text *Kulturgeschichte um Butter und Käse* (Cultural History of Butter and Cheese) in the June 1941 issue of *Velhagen & Klasing's Monatshefte*. It is possible that the latter was his last published text, although he could of course have published under other pseudonyms; if so, it is not known which ones he used. On September 1, 1941, wearing a ‘Jewish star’ badge by people of Jewish descent was made mandatory in Nazi Germany, and this requirement took effect on September 19, 1941. Two months later, on November 22, 1941, Heilborn chose his *Freitod* (suicide) over life.

Otto Hauser

So I became an archaeologist, and the lectures given by the Basel historian Burckhard-Finsler [sic], who enthusiastically and inspiring showed and explained the Basel Historical Museum's new acquisitions to us every week in the annex to the old Barfüsserkirche [Barfüsser Church] fanned this passion into a bright flame (Hauser, 1917, p. 4; translation J.S.). (See *Figure 33*).

In 2025, a German antique store offered, among other things, a postcard from Heinrich Zille to Adolf Heilborn for sale. The card was dated November 23, 1915, the text reads:

Dear Dr. H.! Thank you very much for both cards. Unless something special prevents me from attending, I will attend the meeting. We wish you, Mrs. Heilborn and Mr. Hauser the best. If you are still struggling with lighting, then getting yourself war light (methyalted spirits) is very good. Goodbye. Yours, H. Zille. November 23. (Translation J.S.; see *Note 20*).

The postcard shows that not only Heinrich Zille visited his friend (and his family doctor) Aldolf Heilborn, in 1915, but also Otto Hauser, the archaeologist mentioned several times above. Now, how did Hauser, a Swiss national who conducted excavations in France from 1898 to 1914, end up visiting Heilborn in wartime Berlin?

From 1892 to 1894, Otto Hauser, born in 1874 in Wädenswil, at Lake Zürich, Canton of Zürich, Switzerland, studied classical philology, history, and archaeology at the University of Basel. He continued his studies at the University of Zürich and at the Eidgenössischen Technischen Hochschule (Federal Technical University), also in Zürich, from 1894 to 1900 (Brandt, 1970; Drößler, 1988a; Drößler & Freyberg, 2000. See *Figure 26*). During his final three years of study, Hauser conducted his first excavations. In 1895, in a forest near Samenstorf, in the Canton of Aargau (Hauser, 1917, p. 4; see *Note 21*) and later, in 1897 and 1898, he conducted excavations at the Roman camp of Vindonissa, near Windisch, also in the Canton of Aargau in northern Switzerland. At ‘Vindonissa,’ he first uncovered parts of a Roman military hospice and later the ruins of an amphitheater, unearthing a precious ‘silver pan’ (Trumm, 2009) and a wealth of artifacts. In December 1898, in accordance with the customs and practices of the time, he organized a sales exhibition of his finds at the Zürich *Helmhaus* (Hauser, 1904, p. 1). He would publish two small brochures about his archaeological work and its results, in 1897 and 1898 — his first publications (Hauser, 1897, 1898). In 1904 he published a truly magnificent and expertly produced book about the excavations and finds at the Vindonissa Roman camp (Hauser, 1904). Following these excavations, many more were carried out at ‘Vindonissa,’ where a great number of archaeological discoveries continued to be made, year after year (see, for example, Simonett, 1939, 1940).

In the spring of 1898, Hauser made a visit to the region on the Vézère River around Les Eyzies in France, where years earlier, the French geologist and paleontologist Édouard Lartet and the British archaeologist and banker Henry Christy had conducted excavations in search of stone hand axes and other artifacts. They described these in their groundbreaking book, *Reliquiæ Aquitanicæ: Being Contributions to the Archaeology and Palæontology of Périgord and the Adjoining Provinces of Southern France, 1865-1875* (Lartet & Christy, 1875; Hauser, 1922b, pp. 62-63). In 1899, Hauser returned to the Dordogne and attempted small test excavations, but it was not until the spring of 1906, during an excavation visit to the ‘station’ (excavation site) La Micoque near Les Eyzies, that he unearthed a variety of stone tools. Then, in 1907, he leased around two dozen plots of land in the region around Les Eyzies where he planned to conduct excavations. In August of that year, he already exhibited his findings at an exhibition at a museum in Cologne, Germany.

Without delving further into the many aspects of Hauser’s archaeological work in France and his sales practices regarding his finds, I will very briefly outline his life between 1907 and 1914, the year he left France in a hurry, leaving behind friends and foes, the excavation workers in his service, his finds and their records, legal documents — in short: all of his working life in France. As described above, the skeletal remains of a *Neanderthal* were discovered by Hauser, in March of 1908, and excavated by Klaatsch later that year. In 1909, Hauser discovered the skeletal remains of a *Cro-Magnon*, excavated later by Klaatsch. News of both discoveries spread worldwide, and much speculation arose regarding their age; the circumstances of their discovery and excavation; Hauser’s alleged lack of honesty and his greed to earn as much money for it as possible by exporting his 1908 and 1909 finds to Germany; and their sale to a Berlin Museum. Fierce debates over these issues — which began after the publication of an unsigned sarcastic article about Hauser in the French newspaper *Le Matin* on 21 September 1910 (*Matin*, 1910) that was subsequently disputed by the French physician, physicist, geologist and prehistorian Adrien Guébbard in the ‘*Pages Libres*’ of the journal *La Grande Revue* on 25 July 1911 (Guébbard, 1911) — continue to this day (see *Note 22*).

Between 1910 and mid-1914, Hauser discovered more early-human cranial remains, including on a newly leased plot near Le Lardin-Saint-Lazare, France, the Abri de Badegoule. According to his 1911 contribution to the *Zeitschrift für Ethnologie* — a letter, dated April 6, 1911 — he had found in 1910 fragments of the skull of an early-human infant at Badegoule. In the same text, he reported having excavated a fragment of a skullcap near Le Moustier, and elsewhere several teeth and limbs of early humans (Hauser 1911). He also thanked the many German scholars who visited him in France for their interest in his work and extended his welcome to future visitors, especially the “*Herren der Berliner Anthropologischen Gesellschaft*” (the prominent gentlemen of the Berlin Anthropological Society) (see Note 23). And he announced the following:

In July of this year, my ‘guide’ to the Vézère Valley, “*Le Périgord Préhistorique*,” will be published. It includes a topography of all the sites excavated since 1859, an overview map of the settlements in the valley (60 sites), sections and profiles, and a bibliography of publications specifically dealing with the Vézère Valley. This short work will be welcome to every tourist in the Dordogne and will significantly facilitate their understanding of settlement conditions in prehistoric times. (Hauser, 1911, p. 310. Translation J.S.).

In 1913 the ‘prominent gentlemen’ Dr. Fritz Wieggers (of the *Preußischen Geologischen Landesanstalt*), professor Dr. Carl Schuchhardt (Director of the *Königliches Museum für Völkerkunde*) and Dr. Max Hiltzheimer (of the *Strasbourg Museum*), members of the *Berliner Anthropologische Gesellschaft*, reported in the *Zeitschrift für Ethnologie* about their 1912 study trip to the Vézère Valley in France (Wieggers, Schuchhardt, & Hiltzheimer, 1913; see also Hauser, 1922b, pp. 82-84).

The whereabouts of the fossilized skull fragments of the juvenile early human found by Hauser in 1910 disappeared from view that same year, 1913, and remained shrouded in mystery for 90 years. In 2003 the mystery was finally solved: they rest under inventory number 199559 in a cabinet at the Field Museum of Natural History, on the shores of Lake Michigan in Chicago, USA. Hauser had sent the fragments to Professor Klaatsch in Breslau for anatomical/paleoanthropological description of them. Someone (a Dr. F. Krantz) viewed them there on July 1, 1913, as a potential buyer and likely purchased them in 1914. He offered them for sale in 1915 but ultimately sold them to Henry Field in 1927 or on some earlier date. The entire detective work into the events was revealed in 2003 (Rosendahl, Maureille & Trinkaus, 2003). Hauser’s income and expenses were unbalanced at the time; he occasionally teetered on the brink of bankruptcy. How much the sale of skull fragments of the juvenile early human unearthed in 1910 and shipped to Klaatsch in Breslau in the meantime generated, or how their 1914 sale rescued him from falling into a financial sinkhole, remains unknown. Public media debates about his financial practices fueled distrust and even a pronounced aversion to him in the Dordogne region. And then, suddenly, the general atmosphere in Europe changed after the outbreak of World War I on July 28, 1914. Hauser saw no other way out than to flee France and return to his native country on August 2 with his family and some belongings. At the time, that was a two-day car trip. On August 4th, his car was seized at the border. He was only allowed to cross the French Swiss border the next day. On August 25, 1914, his entire correspondence in his home in the Dordogne was seized by the French authorities, and later, his real estate in France was also confiscated.

In his Hauser biography *Flucht aus dem Paradies* (Escape from Paradise), Rudolf Drößler mentions a brochure entitled ‘*Ein Attentat auf deutsche Wissenschaft*’ (An attack on German science), published by Hauser in 1914 – no further information about the publisher, etc. (Drößler, 1988a, pp. 263, 348). Adolf Heilborn published an article with exactly the same title in the *Vossische Zeitung* on November 17, 1914. In it, he stated that Hauser had sent “*ein kleines Schriftchen*” (a small document) to German anthropologists. This is followed by Hauser’s account, partially taken verbatim from the text sent to anthropologists (including Heilborn), about the French who treated him, Hauser, aggressively; how he learned of the outbreak of war on August 1st via a mounted courier; that people in the village (Les Eyzies) claimed he was to blame for the war; that he had been bringing strangers into the village for years, strangers who were (German) spies; that the newspapers had been reporting on it for four years; and that he had been hired by Germany to rob and sell France. The mayor and two members of the town council helped Hauser and his family flee the village as quickly as possible on August 2, while bystanders shouted “Prussian” and “Spy”

(compare also Brandt, 1970, pp. 140-145; Delluc & Delluc, 1999, pp. 716-718; Drößler, 1988a, pp. 251-276).

And all this so close to the hard-fought goal: twelve days before the planned acquisition and publication of my last great discovery, which, in cultural history, far surpasses the human skeletons discovered earlier! (Hauser in Heilborn, 1914a, p. 2; translation J.S.).

Hauser did not state what discovery he was referring to. Heilborn did address it in the article he based on the text sent to him (and other anthropologists), but he also failed to mention what paleoanthropological surprise Hauser might have had in store. The rest of Heilborn's account is not really relevant to summarize here (see *Note 23*). Heilborn concluded his text, "German anthropologists and prehistorians should protest as one man in utter indignation against this rape of scientific work, against this vandalism in front of the forum of the scientific world!" (Heilborn, 1914a, p. 3; see *Note 24*). A month later, on December 10, 1914, in the *Reclams Universum* magazine, he followed up with a second text about Hauser's recent experiences, '*Französischer Vandalismus. Zur Zerstörung der prähistorischen Siedlung im Vézèretale*' (French Vandalism: On the Destruction of the Prehistoric Settlement in the Vézère Valley), a two-page long text, well-illustrated with two photos, one of which is depicted here (see *Figure 27*). Heilborn had prepared a nice overview of excavations in the Vézère Valley from 1863 onwards, including Hauser's, as an introduction to a discussion of *Ein Attentat auf deutsche Wissenschaft*, Hauser's brochure published the previous month. Here too, the passage was mentioned in which Hauser makes a kind of announcement of a special find. It seems that Heilborn had contacted Hauser about this, because he let it be known that the discovery would go to an unspecified German museum, and that it will open up "completely new insights into the spiritual life of diluvial humanity," adding that "a publication by the Swiss researcher will soon provide information" (Heilborn, 1915c, p. 215; translation J.S.).

In 1915, in the German paleoanthropological journal *Mannus*, Hauser lifted the veil, referring to two new discoveries. First,

In July 1914, I discovered a parallel phenomenon to animal drawings when I succeeded in discovering definitive evidence of an incipient writing. Today we can say with absolute certainty that at least the primeval tribes of the Vézère Valley possessed a means of communication for themselves and among themselves outside of their language (Hauser, 1915b, p. 192; translation J.S.).

Second,

I discovered the first Paleolithic sanctuary site [...]. I found a large number of hewn stones set up in an 11-meter-long oval. They encircle the entire square, in the center of which lie high piles of skulls and horns from various prehistoric animals. In the center of the square lies a wonderful ornament made of pierced and ornate pieces of bone, rock crystal beads, and an intact fireplace and large bowls carved from stone. On the turf next to it, I found some very rare, large flint knives, some of the famous so-called "*Kommando Stübe*" (command rooms) with engravings. I examined the stones surrounding the site and, to my great joy, discovered the most magnificent animal depictions on about 20 of them. Some were even decorated with animals on both the front and back. Others, however, turned out to be true masterpieces of sculpture: animals up to a meter long, carved from the stone. Near the large pottery bowls, I found bones bearing the aforementioned symbols. The importance of this find is further enhanced by the fact that human figures with unmistakable steatopygia have been carved in three of the stones. At the same spot, I also discovered the first Paleolithic wood. I recorded everything photographically and topographically — then the war arrived. (*Ibid.*, pp. 192-193; translation J.S.).

And then he gave an account of his adventurous flight from France in early August 1914 with his family. He would two years later, in 1917, devote an entire chapter to this discovery in his book *Der Mensch vor 100000 Jahren* (Humans 100,000 Years Ago) (see Hauser, 1917, pp. 86-91; compare Brandt, 1970, pp. 128-132; Delluc & Delluc, 1999, pp. 736-738; Drößler, 1988a, pp. 244-250). After describing both finds which he could not investigate further due to the war, of which the second discovery may be what he had previously announced he would reveal (as it could be moved to a museum), Hauser addressed what is important in this case study: he argued that the early humans who had 'manufactured' both finds were familiar with the active use of fire; that this control of fire constitutes a huge gap between "humans and

apes” that cannot be overstated; that no animal can maintain fire, or even kindle it. Hauser argued that only the use of fire could have caused the many burnt bones he had uncovered, bones that may have been included as grave goods during the burial of the dead (*Ibid.*, p. 197). (See *Note 25*).

This is a graduate archaeologist speaking who had developed into an expert paleontologist, although he naturally left the anatomical-paleoanthropological descriptions and interpretations of his finds to medically trained specialists like Hermann Klaatsch. And, and this is important: this is a practical expert speaking, someone who conducted excavations himself, not an ‘armchair expert.’

Now that this introduction to Hauser’s life has brought us to the topic under discussion, I will refrain from going into too many biographical details about the rest of Hauser’s life. However, it is still important to note that he most likely met Adolf Heilborn (who had so openly supported him), in late 1914, but certainly as early as 1915. In the spring of 1915, Heilborn even published a petition in support of Hauser in the *Frankfurter Zeitung* of April 22nd, signed by more than two dozen influential professors including Prof. Gorjanović-Kramberger, Prof. Haeckel, Prof. Hoernes, Prof. Klaatsch, Prof. Kossinna, and Prof. Schwalbe (M. B., 1915b, p. 294; Drößler, 1988a, p. 266; Hauser, 1922b, pp. 235-236). The year 1916 brought sorrow, but certainly also joy. On January 5th, Hauser and Heilborn’s dear friend Hermann Klaatsch suddenly died; but 2.5 months later, on March 22, Hauser received his doctorate from the University of Erlangen, Germany, with a dissertation entitled *La Micoque. Die Kultur einer neuen Diluvialrasse* (La Micoque. The Culture of a New Diluvial Race) (Hauser, 1916a).

In his dissertation, he focused on the importance of active use of fire in early humans, suspecting that they learned to make fire themselves after having observed sparks generated during the making of stone tools. The skeleton the *Neanderthal* he discovered in 1908, “undoubtedly received *Bison priscus* haunch cooked over fire on his journey to the afterlife; for we find the remains of burnt bones in the immediate vicinity of the skeleton. Coal and ash indicate a fireplace” (Hauser, 1916a, p. 26; translation J.S.). Fires were lit on the bare earth, in front of the entrances of dwelling caves. In later discoveries, no remains of open fires are found on the ground, but heavily charred stones have been discovered that served as a ‘foundation’ for the fires. Remains of ash and charcoal, as well as burnt bone fragments, also point to such fire use. “There is no doubt, we have the first true hearth before us” (*Ibid.*, p. 26). Hauser noted that while such stones had been found before by others, they were carelessly discarded by the discoverers during their excavations. Even finds dating back ten thousand years show that such simple ‘hearthstones’ were used. Finds dating from later periods show that fires burned between two stone layers, where the top surface of the top stone layer served as a baking surface. But fires were then also still lit on the bare ground near caves for warmth and to deter wild animals. That same year, 1916, he published several other texts more or less related to the subject of his dissertation (Hauser, 1916bc).

From 1917 onward, Hauser wrote books, both about his own discoveries and more general works on paleoanthropological excavations and theories. And he published brochures that he sold at lectures he delivered. He even wrote a novel about his adventures and the opposition he had received from the clergy (Hauser, no date; see also Hauser, 1922b, pp. 192-216). These works will be discussed in turn below.

We learn from his *Der Mensch vor 100000 Jahren*, in a discussion of the history of human use of fire, that Hermann Klaatsch had already pointed out that the use of fire forms *the* major distinction between humans and apes. Of course, Hauser cannot truly explain when humans, by using fire, became “masters of this terrible element,” giving them such knowledge that wild animals and mammoths seemed less dangerous to them (Hauser, 1917, p. 76). It could have happened through observation of the effects of lightning strikes or volcanic phenomena, or even through the clashing of stones. Hauser stated emphatically, “The whole problem was never given any attention before I clarified the fire development in my work on the new diluvial race of La Micoque” (*Ibid.*, p. 77). He then gave an extensive account of what he had already written in his 1916 dissertation on La Micoque. According to him, the use of fire also heralded a subsequent ‘cultural event:’ the burial of grave goods together with a corpse, such as food, jewelry, flint objects, and weapons. Some graves were secured with stones, although such graves are very rare. Some of the covering stones were decorated with animal images. Their meaning is open to speculation. Interestingly, Hauser referred to the work of Adolf Heilborn for some explanations. In his later works he would more often refer

to Heilborn, for example in his *Leben und Treiben zur Urzeit* (Hauser, 1921a, pp. 87, 91, 93, 178). The character Klarborn in his 1922 novel *Dort wo der Menschheit Wiege steht* (There, Where the Cradle of Humanity Stands) (Hauser, no date) is even based on Adolf Heilborn.

Shortly after Heilborn published the posthumous manuscript of Klaatsch's book (edited by him) in 1920, Hauser published his book *Urmensch und Wilder* (Primitive man and Savage) (Hauser, 1921b). Although he had already mentioned Klaatsch in *Der Mensch vor 100000 Jahren* (Hauser, 1917, p. 76) when discussing the use of fire by early humans, he addressed many of the issues already raised in Klaatsch's 1920 book devoting an entire chapter to the 'taming' of 'wild fire' (Hauser, 1921b, pp. 47-56), immediately referring to Klaatsch who compared caring for fire to caring for a pet (*Ibid.*, p. 47). In this, he also referred to the work of Lippert when he spoke about the 'feeding' of the captured 'wild fire' (*Ibid.*, p. 51). He told the story he had written in his dissertation in more detail, also referring to others than Klaatsch, for example to a work by von den Steinen to which Goudsblom also referred in his *Fire and Civilization* and from which he drew the same knowledge (see Goudsblom, 1992b, pp. 13-14).

Also in 1921, Heilborn published a book through Bong Publishers in Berlin, where he had previously published the posthumous manuscript of Klaatsch's book. The book was intended for young people and appeared in Bong's Youth Book series: *Unter den Wilden. Entdeckungen und Abenteuer, die unsere Jugend kennen sollte* (Among the Savages: Discoveries and Adventures Our Youth Should Know) (Heilborn, 1921a). In the same series, in that same year, Hauser published his *Leben und Treiben zur Urzeit, das unsere Jugend kennen sollte* (Life and Activities in Prehistoric Times Our Youth Should Know) (Hauser, 1921a). It is amusing that Rudolf Dröbner in 1988 opens his Hauser biography by noting that *Leben und Treiben zur Urzeit* was the first Hauser book he read, while young. He wrote, he found the second half of the title quite imperative (Dröbner, 1988a, p. 9). It is indeed an exciting book yet not only intended for young people.

Hauser suggested at the end of the first chapter in *Leben und Treiben zur Urzeit* (Life and Activities in Prehistoric Times) that prehistoric humans suffered less from the cold than animals because they were 'masters and guardians' of fire (Hauser, 1921a, p. 22). The following chapter of what is actually a work about his excavation adventures in straightforward language was largely devoted to the probable origins of this exceptional human skill. They "laid the fire on the bare earth and shunned neither smoke nor fumes," implying that in addition to better control of fire, they would also develop control over smoke and fumes, in later times, adding that they "soon realized that fire and smoke could best protect" them from wild animals (*Ibid.*, p. 32; translation J.S.). Furthermore, Hauser made it very clear that from his excavations of sites where fire was used by early humans of successive times (*Ibid.*, p. 135), he could deduce that the construction and use of 'fire places' showed that with "the upward movement of all prehistoric cultures the utilization of fire also improved" (*Ibid.*, p. 92; translation J.S.). He concluded, "To my delight, I was able to observe that further development of the human thought process can also be observed in the combustion plants (*Ibid.*, p. 94); translation, J.S.).

Here again, a man from the field speaks. Such 'common' observations, about controlling fire and smoke, and also reporting and theorizing about controlling fire and controlling smoke 'in the same breath,' are absent from writings of the vast, vast majority of authors who have written about the 'history of fire use.' For example, Goudsblom, in his 1992 book *Fire and Civilization*, mentioned above, also discussed only the control of fire, and not the *control of fire and smoke* (Staring 2024c).

Controlling fire and the use of fire is always directly linked to controlling smoke (and combustion gases) and controlling the use of smoke (and combustion gases).

Then, the 24-page 1922 pamphlet *Die Urentwicklung der Menschheit* (The Early Development of Humankind) (Hauser, 1922a) contains no revelations regarding the control of fire and smoke by early humans. A subsequent text, the 23-page brochure *Der Aufstieg der ältesten Kultur* (The Rise of the Most Ancient Culture), also offers no new paleoanthropological insights regarding the use of fire and smoke, as only minimal attention is paid to the control of fire by early humans (Hauser, 1924a, pp. 22-23). And a second short text from 1924, the 22-page brochure *Urzeit und Völkerkunde* (Prehistory and Ethnology) does not offer any new insights into the "fesseln" (taming) of fire by early humans (Hauser, 1924b, p. 11).

In the next year, 1925, the first edition of Hauser's *Die große zentraleuropäische Urrasse* (The Great Central European Ancestor Race) appeared (Hauser, 1925). But only three years later, a second, revised, and expanded edition of the book was already published (Hauser, 1928b). This latter edition is briefly discussed here. *Die große zentraleuropäische Urrasse* offers insight into the many excavation-results Hauser obtained in France, including good bibliographical references and his interpretations, more or less influenced by paleoanthropological and ethnological knowledge. Hauser also discussed the discussion of fire use by early humans and 'hearth-plates' in his 1916 dissertation (see above) (Hauser, 1928b, pp. 46-48). New excavations were also discussed, performed in, among other places, Germany and in the Czech Republic. The most interesting, however, is that excavations in Předmost in the Czech Republic, according to Hauser, showed that fire was used to literally burn piles of rotting bones from killed and butchered prey to ash in order to eliminate the enormous odor nuisance associated with them (see Hauser, 1928, pp. 180-181).

In his 1925 work *Urgeschichte* (Prehistory), Hauser again provided many details about adventurous excavations in Europe, but also in Africa. However, according to the book's index, the term 'fire' appears on only two pages. The following quote illustrates a valuable line of thought from Hauser:

Tools and fire thus became the first and oldest cultural possessions in the hands of the ascending primeval man, and only with this did the twilight of humanity begin. (Hauser, 1925, p. 92; translation J.S.).

Vom Urmenschen und seiner Welt zum Menschen der Gegenwart (From Early Humans and Their World to Modern Humans) of the series of brochures Hauser had available for purchase at lectures, contains many short chapters. This more extensive hardcover brochure is attractively designed, especially for young people. Each small chapter opens with a "*Lebensbild*" (life-like image), an overview drawing of animals in their habitats, as if painted from a diorama of landscape, flora, and fauna from a specific period, flanked on both sides by sketches of paleontological finds from that period. Regarding the significance of the excavation of a grave filled with grave gifts that he had carried out, Hauser wrote:

And the roasted bison shanks that were once given to the dead person show us that that distant man [*Homo mousteriensis* Hauseri; J.S.] had already become master of fire and had been able to subdue the once feared element. (Hauser, 1926, p. 16; translation J.S.).

In 1928, Hauser's overview *Der Erde Eiszeit und Sintflut* (The Earth's Ice Age and Flood) appeared, which primarily provided insight into the history of (European) humanity through excavations carried out primarily from the turn of the 19th to the 20th century. In this work, too, he related in some graphic detail how 'primeval hunters' after observing fires arising from various causes (for example, from thunderstorms, or while making flint tools), learned to 'generate' and maintain fire themselves (see Hauser, 1928a, pp. 128-130; see also Note 26). But then, in the chapter contribution to *Neue Dokumente zur Menschheitsgeschichte* (New Documents on Human History), a book he edited and published in that same year, Hauser had nothing new to say about the history of the use of fire (and smoke) by early humans (Hauser, 1928c; see also Note 27). But in his final book, *Urwelt* (Primal World) from 1929, he again demonstrated that he had studied his findings, which showed that early humans used and had control over fire and smoke (Hauser, 1929, pp. 62-63, 106 and 176). For example, the fact that many fire site traces were also found in the outer zone of his excavation sites of early human habitation effectively means, Hauser argued, that they burned there as protection against "attacks by wild animals" (*Ibid.*, p. 662).

In an article by Hauser, probably his last publication as far as I can tell, in the magazine *Atlantis*, the phrase "*Beherrschung des Feuers*" (the mastery of fire) appears only once — and is not addressed further.

Otto Hauser died on June 14, 1932, at the age of 58 (*Algemeen Handelsblad*, 1932).

Carl Wilhelm Neumann

Not as long as one and a half decade have passed since I first encountered Haeckel's name on a very old copy of one of the first editions of his "*Natürliche Schöpfungsgeschichte*." I was still sitting at a school desk back then. Something like a flame blazed from the then-slim volume, drawing me in with magical force and not

letting me go even when the book began to cause me all sorts of trouble. I had been harmless enough to smuggle the moral contraband into the classroom, and as bad luck would have it, the strict religion teacher found out. As one might expect, I was given a stern talking-to, and since I could not deny that several classmates had already secretly sampled this fruit of knowledge, the next few religious lessons had to be devoted to getting all that “harmful stuff” out of their heads. The “monkey professor” and “monkey fanatic” was branded a half-wit. (Neumann, 1905, pp. 65-66; translation J.S.).

Carl W. Neumann, born on January 19, 1871, in Malchin, Germany, north of Berlin, belonged to the same generation as Hauser (born in 1874) and Heilborn (born in 1873). Just like the latter and Wilhelm Bölsche, he was fascinated by the work of Ernst Haeckel, a fascination with Haeckel’s life and work he described in his undated Haeckel biography from 1905 began in his high school years (see the opening quote of this paragraph above). On the day he was caught smuggling one of Haeckel’s books into the school as he describes, he wrote Haeckel a short letter. To his great joy, he received a reply 48 hours later. This letter is printed as the “*Anhang*” (appendix) in his Haeckel biography and was dated October 20, 1889 (Neumann, 1905, two undated pages after page 80). The result was that, on the one hand, he began to read all of Haeckel’s work, and, on the other, he built up an extensive correspondence with him and became his friend, just like Heilborn and like Bölsche (*Ibid.*, p. 74), “the ardent admirer of Haeckel, the convinced Darwinist and proponent of evolutionary theory” (*Ibid.*, p. 77). And Haeckel greatly valued Neumann’s biography. He likely owned several copies, to send as a gift to friends, acquaintances, or fellow students of evolution (see *Figure 37* and *Note W*).

Little personal information is known about Neumann’s youth, or even about his study of the natural sciences. It is very likely that he debuted in 1905 with his biography of Ernst Haeckel. Three years later, in 1908, his book *Ins Menschenland* (To the Land of Men) appeared, in which he described the geological history of the Earth and the evolution of its flora and fauna. Referring to what must have happened during the last Ice Age, Neumann used poetic language to recount the history of control of fire by early humans:

And once, even real flames rose up, in the distant past, just as real as those flames in the green branches of the Christmas tree over there. Spreading light and warmth, heralding victory and promising further victories. [...] When [early humans] first learned to capture and preserve the flames remains an open question. We only know that [they] had received [their] “baptism of fire” much, much earlier, before the glacier masses finally retreated after their last surge. (Neumann, 1908, pp. 191-192; translation J.S.).

Around 1910, Neumann became editor of the magazine *Reclams Universum* (see *Note V*), in which Adolf Heilborn would also publish. He then quickly developed into a prolific author, because from 1910 onward, he regularly published articles of his own on a variety of topics ranging from art to biology and paleoanthropology in the magazine. One 1910 article, *Wie der Mensch zu seinen fünf Fingern kam* (Neumann, 1910f), also appeared in English translation in the United States as *How Man Acquired His Five Fingers* (Neumann, 1910ab). It is possible that more of his work subsequently appeared in American magazines and newspapers. Regardless, over the 1910s Neumann collected selections of his biological and paleo-anthropological articles published in *Reclams Universum* into small booklets under the title *Wunder der Urwelt* (Wonders of the Prehistoric World). The first (undated) volume probably appeared in 1912, the second in 1914, and the third after the First World War in 1920.

However, before discussing this three-part book series below, it is important to note that in 1912 and 1913 Neumann, together with Wilhelm Bölsche, Ernst Haeckel, Hermann Klaatsch, Adolf Heilborn (also under his pseudonyms *Abt* and *Körbitz*) and others, formed the ensemble of authors that wrote biological chapters for the three volumes of the *Die Wunder der Natur* book series, published in 1912 and 1913 (see *Note 28*). And, also in 1912: Neumann published *Natur und Mensch* (Nature and Man), his second book on Haeckel, this time a selection of six texts from Haeckel’s works, preceded by an ‘Introduction’ by Neumann on the reception history of Haeckel’s work up to that point (Haeckel, 1912b). And once again, a copy of the book Haeckel gave as a gift to someone (see *Note 29*), this time to Edward Laurence Mark (1847-1946), Hersey Professor of Anatomy and Director of the Zoological Laboratory of the Museum of Comparative Zoology at Harvard University in Cambridge, Massachusetts, USA, shows that he greatly appreciated Neumann’s publication (compare *Figure 37* and *Note W* with *Note 29*).

In the text '*Auf den Spuren der Eiszeitmenschen*' (In the Footsteps of Ice Age People) in the first volume of *Wunder der Urwelt*, Neumann more or less compared the excavations in Croatia conducted by Gorjanović-Kramberger where traces of fire and ash were found on the bones of early humans, suggesting cannibalism among them, with Hauser's discovery in France in 1908 where early humans were said to have behaved more 'peacefully' with each other, as Hauser's discovery appears to have been a ritual burial (Neumann, ca. 1912, pp. 42-44). Of course, not all chapters in the *Wunder der Urwelt* book series contain thoughts, ideas, commentaries, or theories about the history of early humans' control of fire (and smoke), whether it concerns a 'doomy-spooky' use of fire or not. Another text, '*Was der Feuerstein erzählt*' (What the Flint Tells), explores the theme of the use of fire by early humans at a different level. It describes the life of early humans in caves around the last Ice Age, how they could have used caves to live in and to make tools in and around them, to use hunting spoils, etc. Neumann stated that they already mastered fire back then. And according to him, this was a "cultural achievement:"

But even in the cave the red tongues of the flame had already risen early, the artificial creation, taming and containment of which, after the invention of tools, was once again a decisive cultural achievement of early man" (*Ibid.*, p. 67; translation J.S.).

He then raised the question of whether a spark generated while working with flint tools might have jumped to flammable material, leading to a breakthrough idea of capturing and mastering the fire.

In the second volume of *Wunder der Urwelt*, an entire chapter appears on the conquest of fire: '*Die Eroberung des Feuers.*' Neumann stated,

The knowledge and use of fire [...] was a fundamentally new achievement, without precedent in the world of living, human possessions in general [...]. And this distinctive fire, this domesticated animal, which no present-day group of peoples lacks and cannot do without, has been a human possession since the most distant prehistoric times, when our ancestors roamed the world as wandering hunters without huts or homes, seeking shelter at night, like animals, in hollows; it was their helper and slave even in those terrible, endless winters [...]. (Neumann, 1914, p. 34; translation J.S.).

Remember that Gustav Klemm had already drawn the conclusion in his *Allgemeine Culturwissenschaft* book series: "We do not find people anywhere on earth without fire" (Klemm, 1855, p.66; translation J.S.) and earlier in his *Algemeine Culturgeschichte der Menschheit* book series: "No nation has yet been discovered on earth which did not know the use of fire, but it has not yet been possible to prove the manner of its discovery" (Klemm, 1843, p. 178; translation J.S. See above and see Note 5).

Neumann wondered whether fire could also be derived from lava; by friction heat; or from a fire caused by a lightning strike. And here too, following Wilhelm Bölsche (see above), he referred to Robinson Crusoe, the protagonist of *The Life and Strange Surprising Adventures of Robinson Crusoe of York, Mariner*, Daniel Defoe's 1719 adventure book. And of course, any cherished fire could eventually go out. But friendships with other groups of early humans could be built on sharing fire in times of need, a cautious anthropological insight. And once again, one could then sit by "the tamed fire, and bathe themselves — like the legendary hero Siegfried in the dragon's blood — in the radiant red glow, and become invincible by it" (*Ibid.*, p. 39; translation J.S.). Neumann told the story of taming the fire in resonant phrases, he also managed to establish some connections between the dangerous domesticated fire and social interaction among early humans; the acquisition of insights into the applications of fire and heat in their (dampy) lives; the improvement of these practices during their play with technology, with growing insights into what happened; and the use of fire in the making of (inorganic) tools and weapons. He ended his presentation of a brief history of human control over fire as follows:

However, what is crucial here is not the sum of the individual, reliably verified facts, but rather the question of how far we can already form a picture of the slow conquest of fire by our ancestors by linking the individual facts of prehistoric research and ethnology, as well as the myths, legends and traditions handed down to us. (*Ibid.*, p. 46; translation J.S.).

Naturally, Neumann wrote texts for inclusion in the *Reclams Universum* magazine he edited, covering a wide range of topics, particularly those inspired by the vast natural world and wild life around us (e.g., Neumann, 1913a, 1919, 1920ab), as well as more extensive texts published by publishers other than

the Philipp Reclam jun. publishing house that produced the *Reclams Universum* magazine (Neumann, 1921ab). In 1920, the third volume of his collected articles, *Wunder Der Urwelt*, appeared. However, this volume did not contain any particularly interesting insights into the control of fire (and smoke) by early humans (see Neumann, 1920, pp. 31, 61). But then, in 1921, something new happened in Neumann's bibliography. Suddenly, the Philipp Reclam jun. publishing house began publishing works by Darwin, translated by Carl W. Neumann (Darwin, 1921abc). From that point on, works by Edgar Allan Poe, translated by Neumann, also appeared. One of the copies, titled *Seltsame Geschichten* (Strange Stories), contains a dated (November 21) dedication to Gottlob Mayer, his fellow editor of Philipp Reclam jun.'s magazine *Universum*. The text reveals that it was a parting gift: “‘Whoever likes it may have it; and whoever does not like it will probably never learn to appreciate it.’ To Mr. Gottlob Mayer in memory of joint creative work. Carl W. Neumann, Leipzig, November 1921” (see *Figure 36* and *Note V*). In 1924, the Philipp Reclam jun. publishers in Leipzig published the *Brehms Tierleben* book series, an edited and revised version by Neumann of *Illustriertes Thierleben*, written by the German ornithologist and naturalist Alfred Edmund Brehm (1829-1884), first published in the 1860s. In the mid-1920s Neumann not only published voluminous books as well as booklets for the Philipp Reclam jun. publishing house, like Alfred Brehm's *In Steppe und Urwald* (In Steppe and Primeval Forest), *Polarstern und Tropensonne* (North Star and Tropical Sun), and *Auf Forscherfahrt in Nord und Süd* (On a Research Expedition in the North and South), but also his own work, such as his book *Vom Liebesleben der Tiere* (The Love Life of Animals) (Neumann, 1926) and articles on animal life, for example in the magazine *Die Koralle* (Neumann, 1925), where Heilborn would also publish articles about nature, ethnological topics, and animal life between 1925 and 1930, both under his own name (Heilborn, 1925ab, 1926, 1927bd, 1929b) and under his pseudonyms *Abt* (1925) and *Körbitz* (1925).

Alfred E. Brehm, author of *Brehms Tierleben* and other works republished by Neumann in the 1920s, was born on February 2, 1829. His 100th birthday was celebrated on February 2, 1929, in Berlin. On that day, several books were published, and the Alfred Brehm Foundation was established to celebrate Brehm's centenary. Neumann and Heilborn were naturally present at the festive commemoration, as they had both written a chapter for the commemorating 1929 *Das Brehmbuch* (The Brehm Book) from the Berlin Brehm publishing house (Heilborn, 1929c; Neumann, 1929b). Also present was Ludwig Heck, director of the Berlin Zoo, who had written an introduction to the book (Heck, 1929a). He was a good friend of Heilborn who regularly wrote and published about the Berlin Zoo, for example, a history of this zoo published that year (Heilborn, 1929c). And also present was Kurt Floericke, friend of Wilhelm Bölsche and author of popular science and biological articles and books and editor of the magazine *Kosmos*. His book *Tiervater Brehm. Seine Forschungsreisen* (Brehm, The Animal Expert. His Research Expeditions) was probably launched on the same day (Floericke, 1929).

And then there was Austrian film actor Paul Richter (1895-1961), who can be seen, for example, in Paul Lamprecht's 1927 film *Schwester Veronika* (Sister Veronika) in the role of Karl the pharmacist. The script for this film came from screenwriter and film-editor Luise Heilborn-Körbitz (1874-1961), sister of Adolf Heilborn — who, by the way, two years earlier had supported the production of a film about the life-experiences of his friend and graphic artist Heinrich Zille: *Die Verrufenen* (The Outcasts), English title: *Slums of Berlin* (*Kinematograph*, 1925ab; Murmann, 1994, pp. 216-218; see also *Note 30*). Many of Heilborn's friends and acquaintances likely attended the Alfred E. Brehm festive commemoration. Neumann's text '*Brehms Leben*' (The Life of Brehm), a biography of Brehm, that is, Neumann's contribution to *Das Brehmbuch*, was also published in a separate booklet, also entitled *Brehms Leben*, by the publisher of *Das Brehmbuch* (Neumann, 1929a). It contains the same foreword by Ludwig Heck as in *Das Brehmbuch* (Heck, 1929b). Actor Richter had invited some of those present at the festivities to write a short, striking text about Brehm on the front endpapers of his copy of Neumann's booklet *Brehms Leben*. Ludwig Heck wrote a short text and signed it, and Kurt Floericke even wrote two texts, also signed (see *Figure 38*).

It is unclear whether filmmaker and photographer Lola Kreutzberg was also present. She, Neumann, and Heilborn had been publishing in the *Die Koralle* magazin since its founding in 1925 (e.g., *Abt*, 1925; Heilborn, 1925ab, 1926, 1927bd, 1929b; Körbitz, 1925; Kreutzberg, 1925; Neumann, 1925). The fact that *Wir Tiere* (We Animals), a book edited by Kreutzberg (Kreutzberg (Hrsg.), 1930) appeared a year after the

commemoration, to which Neumann and Heilborn contributed textual material (Heilborn, 1930; Neumann, 1930), possibly indicates that she was present. Heilborn and Neumann undoubtedly discussed book publication plans during the drinks (and smoke) reception since a sixteen-part children's book series about plants and animals, *Die Brehm-Bücher*, was published shortly afterward. Neumann wrote the series's volumes on dragonflies and on butterflies, while Heilborn wrote the volumes on carnivorous plants; frogs; and sticklebacks.

In 1932, Neumann's illustrated *Das Werden des Menschen und der Kultur* (The Development of Man and Culture) appeared, including a full chapter on the conquest of fire by early humans. In fact, it concerns rewritten and expanded texts previously published in the 1910s and first collected in the *Wunder der Urwelt* trilogy. Expansion of those original texts had become necessary because of the many reports of new discoveries of early human settlements, artifacts and fossilized remains, and interpretations thereof. For example, traces of the use of fire were found on bone fragments at an excavation site in the Alm Valley near Weimar (Germany), in addition to the already known traces from the Krapina (Croatia) and Le Moustier (France) sites. The advantage of mentioning such new finds and referencing ethnological work by Karl von den Steinen, among others, confirms, in a sense, a presentation method that Hauser (1924b) already exemplarily incorporated in the title of one of his brochures: *Urzeit und Völkerkunde* (Prehistory and Ethnology). This was also the presentation method of Heilborn and Klaatsch (see above), as well as Goudsblom's much later (Staring, 2024c). Neumann also listed in his book the above-described ways of harnessing fire found in volcanic environments; after lightning strikes; and caused by frictional heat. He depicted the necessity of asking others who possessed fire for fire and argued that this might eventually have led to a duty to provide fire to those who ask for it. This would have fostered and strengthened relationships between different groups of early humans, which would have promoted the social and cultural progress of "humanity." But early humans also learned to invent various devices to make their own fires. Neumann described such methods in detail, as did Heilborn in his works on early humans. The same applies to Neumann's descriptions of the development of cooking and roasting methods. Neumann (1932, p. 168) then quoted, like Moritz Hoernes (see above), from Lucretius's work. Incidentally, he later mentioned Hoernes by name in his book, "the outstanding Viennese prehistory researcher Moritz Hoernes" (*Ibid.*, p. 174). And he even suspected that early humans might have been able to bake bread.

Several editions of *Das Werden des Menschen und der Kultur* appeared in 1932, 1933, and 1934. After that, the book fell silent. And it became remarkably quiet in German-speaking countries regarding literature that offered a politically and 'human-evolutionary' neutral perspective on accounts of the history of the mastery, use and control of fire (and smoke) by early humans. Hauser died in 1932 — the year Neumann's book appeared; Heilborn had to maneuver more cautiously; and Neumann himself stopped writing about early humans. Neumann did, however, publish a few more works: *Das Buch vom Deutschen Wald* (The Book of the German Forest) in 1935, and *Heimatleben* (Home Life) in 1939. Not long before his death in 1950, he would salute a new edition of his translations of Darwin's works: *Die Entstehung der Arten durch natürlicher Zuchtwahl* and *Die Abstammung des Menschen und die geschlechtliche Zuchtwahl*, both books published in 1949 by Philipp Reclam jun., Leipzig.

Conclusion / Postscript

In 1918, the same year that the First World War ended, Oswald Spengler published the first volume of his *Der Untergang des Abendlandes* (The Decline of the West), and in 1933, the year of Hitler's "Machtsergreifung" (Seizure of Power), he published his book *Deutschland und die Weltgeschichtliche Entwicklung* (Germany and World Historical Development), the first volume of a planned book series, *Jahre der Entscheidung* (Years of Decision) (see Figure 39 and Note X).

Subsequent volumes never saw the light of day.

Books in German language gradually and repeatedly became propaganda material. On the other hand, some books were even banned or burned in public. Following the Nazi seizure of power on January 30, 1933, a mass burning of books by students took place on May 10 of the same year in Berlin's Bebelplatz

and in many other German university cities and towns. Further book burnings followed. Well-known German anatomists/anthropologists who, before this time, had published about hominins and early humans, and also about the history of their control of fire, collaborated with the Nazis and later became party members themselves, such as Hans Weinert, or even slid into active complicity in atrocities as well, such as Eugen Fischer. This may have been one reason why researchers were perhaps reluctant to study German-language anatomical, sociological and (paleo)anthropological literature from the years 1933-1945, and earlier. I suspect that Goudsblom shied away from studying this literature as well (Staring, 2024c; see *Note 31*).

Wilhelm Bölsche is called the ‘*Schöpfer des modernen Sachbuches*’ (creator of the modern non-fiction book). You could also include Adolf Heilborn and Carl W. Neumann as practitioners of that genre. None of them were paleontologists or paleoanthropologists, although they did also write about paleontological/paleoanthropological topics. (Incidentally, an academic discipline of paleoanthropology only emerged around the turn of the 19th to the 20th century). They were passionate and shrewd in articulating many topics, whether, for example, historical, sociological, or evolutionary biological. They were the ones who met the growing need of interested individuals and professionals to be informed by experts on various subjects. At a time when the middle class in German-speaking countries wanted to be informed, book series such as *Wunder der Natur* and magazines such as *Reclams Universum* and *Die Koralie* appeared. And as has been demonstrated above, the authors of such book series and magazine articles were at times the same in both cases, writing under their own names and/or (also) under pseudonyms. While Bölsche, Heilborn and Neumann had common interests — for example, all three had written about Charles Darwin and about Ernst Haeckel — all three also shared a common friend: Ernst Haeckel. They were part of an early form of a ‘citing community’ in evolution theories — in the sense that they referred to each other’s work. At times Heilborn and Neumann collaborated with other science popularizers as well, such as Lola Kreutzberg, Karl Guenther, or Kurt Floericke, like they had previously collaborated with Ernst Haeckel and Wilhelm Bölsche.

Yet, Heilborn, as a medical doctor, was naturally in a better position when it came to writing on anatomical, physiological, or pathological topics — in short, medical matters — related to paleoanthropological subjects. For example, in discussing the relationship between fire use by early humans and human furlessness he could better highlight Klaatsch’s reservations about Eugen Fischer’s (self)domestication theory than, say, Bölsche, Hauser, or Neumann would have done, and he could also better highlight Fischer’s ideas (see Staring, 2024c).

The only true paleoanthropologist among the four authors who were part of the network of (popular scientific) writers discussed above, was the archaeologist Otto Hauser, who, with his feet firmly planted in the clay, guided excavations, camera in hand, capturing images of finds, geological soil conditions, and various excavation stages, and devised and implemented recording methods to improve, for example, excavation reporting. And as the saying goes: costs come before benefits. Hauser financed the excavation work and the associated costs, such as renting or purchasing land, surveying fees, excavation equipment, *etc.*, out of his own pocket. After 1916, that is to say: after his successful PhD trajectory (*cum laude*), Hauser popularized his own paleoanthropological activities by writing and publishing books, brochures and articles, and even a novel about his excavation works starting in the ‘Vindonissa period’ of his life, before 1900. And in some of his more scholarly than popular science books, he followed Lippert’s advice while describing the possible origins and development of the use of fire (and smoke) by early humans, thereby addressing both its technical aspects and their ‘psycho-social’ aspects. While discussing the technical aspects in relation to the social aspects of this development, in line with Lippert’s suggestions, he raised questions such as: Where and why were fires built in camps? What stages can be recognized in the development of ‘hearths?’ What does this mean for the social practices of those who possessed, controlled and caressed fire?

And Hauser came up with original insights during his study of excavated stone tools. For example, he described how he could only truly use a number of excavated hand axes when he wielded them with his left hand. So those were tools for left-handed people, he concluded. This observation could be far-reaching if one could argue *when* speaking and understanding the spoken originated in humans. A rapid

transformation of (using) brain areas must have occurred since, probably at the expense of left-handedness (and ambidexterity).

Although Hauser was recognized internationally as a paleoanthropological expert (except in France), he had a kind of invisible stain on his forehead: he traded his finds. Not unusual practice in those days. He also maintained a private collection of paleolithic artifacts, whereas a ‘public’ collection to one day to donate to museums might have served his reputation better. He was successful and was treated with envy and jealousy. And besides, he, and his fellow (French) archaeologists, paleontologists and paleoanthropologists did not live in a time when state laws (strictly) governed excavations and the resulting discoveries.

Wars between countries and their aftermath can interrupt and ‘poison’ scientific discussions, especially when personal issues may be at stake, as in the case of Eugene Dubois and Otto Hauser. The latter was seen in France as a German spy and a thief of excavated fossilized prehistoric human remains. Eugene Dubois was a military physician to the Dutch colonization troops in Indonesia. A team of about three and a half dozen forced laborers to do (excavation) work for him was assigned to him, guarded and supervised by two *KNIL*-soldiers, that is, soldiers of the *Koninklijk Nederlands-Indisch Leger* (Royal Netherlands East Indies Army).

And yes, who legally owns their ‘excavation loot’ anyway?

Only recently (September 2025), for example, did Dutch authorities officially promise that *all* finds excavated by Eugene Dubois’ ‘team,’ including the human species specimen of *Homo erectus*, discovered in Java, *will be sent home* to Indonesia as soon as possible (see Note 32). In France, Swiss citizen Otto Hauser, is still considered a ‘German’ thief of prehistoric significant discoveries made on French soil. Therefore, the French position is as follows: Hauser’s finds must be returned to France, and ASAP please! But the *Natuurhistorisch Museum* in Maastricht, Netherlands has been waiting for decades for a ‘spoil of war’ stolen from the Netherlands by French troops in 1794, now on display at the *Muséum National d’Histoire Naturelle* in Paris, France. It is the fossilized skull remains of the type specimen of *Mosasaurus hoffmanni*.

This demonstrates that we are still in a kind of transitional phase, a limbo phase, as long as double standards persist. And, seen in the light of double standards: what about the following figurational-scholars’ statement, already quoted above?

Elias and his followers [have] maintained a keen interest in world history and indeed in the way the biological evolution and social development of human beings intertwined with each other — an interweaving that still seems not quite to have been grasped by paleoanthropologists, but which is beautifully demonstrated in Goudsblom’s *Fire and Civilization*. (Gabriel & Mennell, 2011; p. 15; see Figure 5).

That is not the case at all. Goudsblom did *not* address the ways in which “the biological evolution and social development of human beings” interweave or intertwine — at all. If you simply do not write anything about “the biological evolution” of “human beings” then it just will not work (Staring, 2024c). Please explain to me: How can figurational sociologists who do not understand this be so condescending about paleoanthropologists?

Notes A through X

A. Jeroen Staring Collection.

B. Text of Elias's dedication for Sigmund Freud: "*Prof. Sigmund Freud mit dem Ausdruck meiner Verehrung zugeeignet von Norbert Elias.*" Translation of Elias's dedication: "*Prof. Sigmund Freud with the expression of my respect dedicated by Norbert Elias.*"

C. Text of Goudsblom's dedication for an anonymized person: "[...] voor je collectie. 17/11-95. Joop." Translation of Goudsblom's dedication: "[...] for your collection. November 17, 1995. Joop."

D. Text of Peter Westbroek's dedication for two anonymized persons: "18/10/16. Het was leuk. Oisterwijk! Peter Westbroek." Translation of Westbroek's dedication: "October 18, 2016. It was fun. Oisterwijk! Peter Westbroek."

E. Text of undated dedication by Peer Meurkens for Jeroen Staring: "Voor Jeroen Staring die boven de vakgroepen uitreikte. Peer Meurkens." Translation of Meurkens' dedication: "For Jeroen Staring, who reached out above the departments' ranks. Peer Meurkens."

F. Text of Hans Friedenthal's dedication for Emil Abderhalden (with thanks to Harry van der Vliet for his deciphering help): "*Prof. Abderhalden mit Dank überreicht. Hilf Du Jedermann / Mitmensch die Erde / Deine Heimat verwandeln / in eine Arbeitsstätte der / Menschheit, in einen Gar- / ten in dem in stetem Glücke / leben kann - Alles, / was athmet. Spruch der Arbeitsstätte für Menschheitskunde. von Hans Friedenthal. 9 VII 1930.*" Translation of Friedenthal's dedication: "Presented with thanks to Prof. Abderhalden. You help everyone / fellow human being the earth / transform your home / in a workplace of / Humanity, in a gar- / den in which in constant happiness / can live - everything, / what breathes. Saying of the Workplace for Human Studies. by Hans Friedenthal. July 9, 1930."

G. Text of dedication by Wilhelm Bölsche for Hing Luz: "*Meinem lieben Freund Hing Luz zur Verbesserung seiner Fähigkeiten als Jäger von Wilhelm Bölsche 12 * May * 11.*" Translation of Bölsche's dedication: "To my dear friend Hing Luz for improving his skills as a hunter, from Wilhelm Bölsche. May 12, 1911."

H. Text of Ernst Haeckel's short thank you for Bruno Wille: "*Herrn Dr. Bruno Wille (Friedrichshagen bei Berlin). Mit besonderem Dank für die schöne Festrede in Danzig und mit herzlichem Gruß. Ernst Haeckel.*" Translation of Haeckel's thank you text: "Dr. Bruno Wille (Friedrichshagen near Berlin). With special thanks for the wonderful celebratory speech in Danzig and kind regards, Ernst Haeckel."

I. Text of Wilhelm Bölsche's letter: "*Mittel-Schreiberhau, i/R Hans Bölsche. 30. IX. 1904. Hochgeachteter Herr. Ich erwarte das Haeckelsche Buch von ihm selbst, doch ist er in Italien und die Sache könnte sich hinziehen, bitte senden Sie es also lieber mir gleich hierher. Bruno Wille ist ebenfalls in Rom! Ihr W. Bölsche.*" Translation of Wilhelm Bölsche's letter: "From Mittel-Schreiberhau, in his honor, Hans Bölsche. September 30, 1904. Dear Sir. I am expecting Haeckel's book from him personally, but he is in Italy, and the matter might take some time, so please send it to me directly. Bruno Wille is also in Rome! Yours, W. Bölsche."

J. Text of Walther Haeckel's (son of Ernst Haeckel) undated dedication: "*Frau Berta Niederberger in dankbarer Erinnerung. Walther Haeckel.*" Translation of Walther Haeckel's dedication: "Mrs. Berta Niederberger, in grateful memory. Walther Haeckel."

K. Text of Wilhelm Bölsche's dedication: "*Mit herzlichem Gruß von Wilhelm Bölsche. 28.2.21.*" Translation of Bölsche's dedication: "With kind regards from Wilhelm Bölsche. February 28, 1921."

L. Text of dedication written by unknown person: "*Vom lieben Hans zur Erinnerung an Onkel Brunos letzte Tage. August 1928.*" Translation of dedication from unknown person: "From dear Hans in memory of Uncle Bruno's last days. August 1928."

The seller of the book informed the author about its provenance as follows: "The book originates from Bruno Wille's family circle and was given to a close relative in 1928, the year of Bruno Wille's death" (translation J.S.).

M. Text of Wilhelm Bölsche's dedication: "*Mit freundlichem Gruß von Wilhelm Bölsche. 1 * 6 * 13.*" Translation of Bölsche's dedication: "Kind regards from Wilhelm Bölsche. June 1, 1913."

N. Text of dedication by Adolf Heilborn for Mr. Kundel, Editor at Schuster & Loeffler publishing house: "*Herrn Red. A. Kundel zur frdl. Besprechung mit hochachtungsvollen Grüßen Dr. Adolf Heilborn. Berlin 12/V 98.*" Translation of Heilborn's dedication: "To the Editor Mr. A. Kundel for friendly discussions with kind regards Dr. Adolf Heilborn. Berlin May 12, 1898."

O. Text of dedication by Adolf Heilborn for Werner Heilborn: “*Meinem lieben Werner Heilborn zur freundlichen Erinnerung. A. Heilborn Neujahr 1916.*” Translation of Heilborn’s dedication: “*To my dear Werner Heilborn, as a friendly memory. A. Heilborn, New Year's Day 1916.*”

P. Text of dedication from Hermann Klaatsch for Adolf Heilborn: “*Herr Dr. A. Heilborn mit viel Grüßen.*” Translation of Klaatsch’s dedication: “*Dr. A. Heilborn with kind regards.*”

Q. Text of the dedication by Rudolf Dröbner for anonymized person: “*mit herzlichen Gruß gewidmet von Rudolf Dröbner, Zeitz 6.7.93.*” Translation of Dröbner’s dedication: “*warmly dedicated by Rudolf Dröbner, Zeitz July 6, 1993.*”

R. Text of Adolf Heilborn’s dedication for Mrs Kleine Ritz: “*Frau Kleine Ritz = (Vorsicht???) in herzl. Verehrung. Dr. A. Heilborn. 2/V 1929.*” Translation of Heilborn’s dedication: “*(???) With best regards, Mrs. Kleine Ritz. Dr. A. Heilborn. May 2, 1929.*”

S. Text of Hans Weinert’s dedication for unknown person: “*Mit herzlichsten Glückwunsch zum Geburtstag. H. Weinert. 1937.*” Translation of Weinert’s dedication: “*With warmest congratulations on your birthday, H. Weinert. 1937.*”

T. Text of Otto Hauser’s dedication for Albert Burckhardt-Finsler: “*Seinem ehem. hochverdienten Lehrer Herrn Reg. Rat Dr. Burkhardt-Finsler [= Burckhardt-Finsler; J.S.] ehrfurchtsvollst gewidmet v. Verfasser. München 14.XI.04.*” Translation of Hauser’s dedication: “*Respectfully dedicated by the author to his former highly deserved teacher, Reg. Rat [= Government Council; J.S.] Dr. Burkhardt-Finsler [= Burckhardt-Finsler; J.S.]. Munich November 14, 1904.*”

U. Text of dedication by Friedrich Herig for Dr. Hans Schimank: “*Herrn Dr. Schimank zur Erinnerung and den 12. und 13. Mai 1937. Friedr. Herig.*” Translation of Herig’s dedication: “*Dr. Schimank, in memory of May 12 and 13, 1937. Friedr. Herig.*” Herig and Schimank likely knew each other earlier, at least by name. In 1929, they had both published articles in the *Beiträge zur Geschichte der Technik und Industrie. Jahrbuch des Vereines Deutscher Ingenieure* (Herig, 1929; Schimank, 1929). See also Kleinert & Scriba (Eds.), 1984.

V. Text of Carl W. Neumann’s dedication for Gottlob Mayer (with thanks to Herma, Harry and Harrison van der Vliet for their deciphering help): “*‘Wer’t mag, de mag’t, un wer’t nich mag, de mag’t ja woll nich mägen.’ Herrn Gottlob Mayer zur Erinnerung an gemeinsames Schaffen. Carl W. Neumann, Leipzig Novbr. 1921.*” Translation of Neumann’s dedication: “*‘Those who like it can have it; and those who don’t will probably never learn to appreciate it.’ To Mr. Gottlob Mayer in memory of joint creative work. Carl W. Neumann, Leipzig, November 1921.*”

“*Wer’t mag, de mag’t, un wer’t nich mag, de mag’t ja woll nich mägen*” — the first part of Neuman’s dedication — is a dialect saying originating from northern Germany. This folkloric saying appeared in print in 1899 in Rudolph Huch’s book *Mehr Goethe* (Huch, 1899, p. 26).

Regarding the second part of Neumann’s dedication: Gottlob Mayer and Carl W. Neumann were — during the 1910s and early 1920s — the editors of the weekly literary and opinion magazine *Reclams Universum*, published by the Philipp Reclam jun. publishing house (Bove, 2024). Neumann edited the magazin’s *Universum* section, and Mayer edited the *Weltrundschau* section.

Brockhaus’ *Verzeichnis der hauptsächlichsten deutschen Zeitschriften* (List of the Main German Magazines) provides the following information:

“**Universum.** Illustrated family magazine, by Carl W. **Neumann** and Gottlob **Mayer**. 52 issues. (Oct.) Ph. Reclam Jr., Leipzig. [price; JS] 3.50. Rich content and elegant design have ensured this literary magazine an extraordinarily wide circulation in the very highest social circles at home and abroad [...]. In the *Weltrundschau* [= World Review; J.S.] featuring numerous pictures of current events, witty essayists report on outstanding personalities, on politics, the achievements of scholars and technicians, the military and navy, in short on all significant events of the present.” (Brockhaus, 1911, p. 121; translation J.S.).

Seltsame Geschichten, the work by Edgar Allan Poe (1921) which contains Neumann’s dedication, was translated into German by Neumann himself. It was published in 1921 by Verlag Philipp Reclam jun., the publisher of *Universum* and *Weltrundschau*. It was a farewell gift from Neumann to Mayer when Neumann ended his editorial work for *Universum*.

W. Text of Ernst Haeckel’s undated dedication for Wilhelm Knaupp: “*Herrn Wilhelm Knaupp in Renchen (Baden). Freundlichen Gruss von Ernst Haeckel.*” Translation of Haeckel’s undated dedication: “*To Mr. Wilhelm Knaupp in Renchen (Baden). Best regards from Ernst Haeckel.*”

Ernst Haeckel. (*Der Mann und sein Werk*), Neumann's biography of Haeckel in which the dedication appears, was likely a gift from Haeckel to Wilhelm Knaupp (1835-1916) when the latter was named an honorary member of the *Deutsche Monistenbund* (German Monist League) at their general meeting in Düsseldorf in 1913. Of course, it could also be that Knaupp asked Haeckel for a small inscription, at any time.

X. Text of undated dedication by Oswald Spengler (in light-purple pencil) for a Mr. Heyn Nuber (?): "*Herrn Heyn Nuber mit besten Grüßen. Oswald Spengler.*" Translation of Spengler's dedication: "Mr. Heyn Nuber, with best regards. Oswald Spengler."

Notes 1 through 32

1. Sennett had already pointed to a work of Raymond Tallis as an explanation why he discusses such a *physiological* component in the 'self-control' of European people:

Raymond Tallis has given the fullest account we now have of prehension. He organizes this phenomenon into four dimensions: anticipation, of the sort that shapes the hand reaching for the glass; contact, when the brain acquires sense data through touch; language cognition, in naming what one holds; and last, reflection on what one has done. [...]. To Tallis's four I'll add a fifth element: the values developed by highly skilled hands. (Sennett, 2008, p. 155).

It is a pity that Sennett, for example, does not refer to the work of Matthias Alexander and others inspired by him (see Staring, 2005), or to German polymath Oswald Spengler's (1931) vision in *Der Mensch und die Technik*; Fritz Giese's (1928) *Psychologie der Arbeitshand*; or to other German literature that began to discuss this subject of Sennett's "values developed by highly skilled hands" in depth and on an experimental basis from the 1920s onwards (e.g., *Anthropos*, 1932; Eberhardt, 1926; Ewald, 1931; Faust, 1936; Friton, 1969; Herig, 1928, 1929abc, 1930b, 1934; Herig & Herig, 1969; Herig, Schmitt, & Eisele, 1964; *Karlsruher Neue Zeitung*, 1949; Katz, 1925; Klaatsch, 1911ab; Kraft, 1932; Scholtz, 1995, 2006; Stadler, 2021; Weber, 1941; *Weltwirtschaftliches Archiv*, 1934). I will come back to this later in this case study (see also Note 27).

2. After a preprint of approximately 50 copies of the first volume of *Über den Prozess der Zivilisation* was printed in Germany in 1937 (see Figure 1 and Figure 2), both volumes appeared in Basel, Switzerland, in 1939. However, despite review and presentation copies being sent to addresses both within and outside Switzerland (Jitschin, 2021; Korte, 2017; Staring, 2022), sales of the work did not pick up during World War II and indeed did not pick up afterward either. The majority of the books printed in 1939 likely failed to find buyers. A second edition (in German) did not appear until 1969, both in Switzerland and Germany, expanded with an Introduction, written in July of the previous year in Leicester, England (Elias, 1969ab).

3. For the sociological department at the University of Amsterdam, Amsterdam, The Netherlands, see: van El, 2002. For the anthropological department of the Radboud University, Nijmegen, The Netherlands, see: Meurkens, 1998 (see Figure 6).

4. Consult Staring, 1988, 1995, 2024abc. Goudsblom could also have spoken out in his 'Foreword' to the fifth edition of his Dutch publication *Vuur en beschaving* (Fire and Civilization), when he thanked the Dutch emeritus professor of geology Peter Westbroek for his advice Three years earlier, Westbroek had published an article on similarities between two philosophical-anthropological works by astronomer and Marxist theorist Anton Pannekoek, and the 'civilization theory' of Norbert Elias in the first issue of the online journal *Human Figurations* (Westbroek 2012a) and in his book *De ontdekking van de aarde* (The Discovery of Earth), published the same year (Westbroek 2012b; see Figure 4). The strange thing in this case is that Goudsblom (2015, p. 12), on the one hand, thanks Westbroek for his advice, but on the other, does not refer to Westbroek's 2012 discussions of Pannekoek and Elias. In 1988, when discussing my marginalia of the first three articles on *Vuur en beschaving* in *De Gids* (Goudsblom, 1984, 1985ab), I already pointed out the importance of Pannekoek's work (Staring, 1988). And in 1995, after the publication of Goudsblom's book based on his series of articles in *De Gids*, I, among other things, very critically discussed the absence of references to Pannekoek's publications and German literature in Goudsblom's work (Staring, 1995). More recently, I again pointed out the general lack of attention paid to Pannekoek's article and book in Goudsblom's work on the history of the use of fire (consult Staring, 2024abc).

5. For other discussions of the history of fire handling by early humans, compare Alsberg, 1888, no date; Caspari, 1873; Lewin-Dorsch, 1912; Planck, 1884; Reinhardt, 1908, 1913; and Schulze, 1877.

6. Klaatsch (1911ab) published his exposition on the development of the human hand in the third volume of the book series *Fortschritte der Naturwissenschaftlichen Forschung* (Forward Progress of Natural Science Research) edited by Swiss physiologist and biochemist Emil Abderhalden (1877-1950). Abderhalden had considerable influence, partly because he served on the editorial board of many scientific journals and edited book series for which he was the publisher. In the 1910s he astonished the scientific community with the announcement that he had developed a method for early detection of pregnancy and later of cancer as well. The method turned out to be based on fraud (Deichmann & Müller-Hill, 1998).

In this connection it is interesting to note that Ernst Haeckel (1910, p. 28) in his essay in the first volume of the book series *Weltgeschichte* referred to the results of serological research on monkeys, primates and humans by Hans Friedenthal — one of the German physiologists who had great respect for Abderhalden's work most likely because they both did serological research and because Friedenthal ran a marriage guidance council in the 1920s (consult Friedenthal, 1928; see also Staring, 2024bc, and *Figure 9, Figure 10* and *Note F*, above). Friedenthal wrote down some thoughts about the “*Verwendung des Feuers*” (use of fire) in *Menschheitskunde*, the work with his dedication for Abderhalden (Friedenthal, 1927, pp. 54-55, 63-64).

7. Note that the German geographer, zoologist, and ethnographer Friedrich Ratzel (1844-1904) in the first volume of *The History of Mankind* — the translation from the second German edition of *Völkerkunde* — said the following about the very first use ever of frictional heat in making fire: “The discovery of making fire by friction was an act of the intellect which in its own degree demanded as much thinking power as the invention of the steam engine” (Ratzel, 1896, p. 76).

8. I will not go further into Lippert's valuable discussion about ‘fire and civilization.’ I strongly recommend that everyone also study George Peter Murdock's ‘Introduction’ to the book (Murdock, 1931) when reading Lippert's translated work. Lippert's book should not have been missing, and should not have remained missing, from the bibliography of Goudsblom's book on ‘fire and civilization’ in the Dutch, English, and German editions.

9. Later, in 1909, Bölsche published short essays on Darwin on the occasion of the commemoration of Darwin's 100th birthday (Bölsche, 1909ab). His friend Bruno Wille joined him and also published an essay on Darwin (Wille, 1909).

10. Bölsche had the honor of writing the *Geleitwort* accompanying two dozen photos showing Ernst Haeckel at different ages and stages in his life that were individually pasted onto odd pages in the “Physiognomic Study” photo album which Ernst Haeckel's son Walther compiled for his father's 80th birthday, distributed in a limited edition (see Bölsche, 1914; see also *Figure 17* and *Note J*).

Bölsche's friend Bruno Wille had also become a good acquaintance, or friend, of Haeckel. On the occasion of Haeckel's 90th birthday, Wille gave a speech in Haeckel's honor in Danzig, for which Haeckel thanked him heartily (see *Figure 13* and *Figure 14*; see *Note H*).

Bölsche mentioned in his letter of September 30, 1904, illustrated in this case study (see *Figure 16* and *Note I*), that Ernst Haeckel was in Rome, Italy (see also Haeckel, 1911, p. 31), as was Bruno Wille. They were there to participate in the International Congress of Freethinkers, held at the end of September 1904. I do not know whether Haeckel and Wille attended the congress together. One and a half years later, on January 11, 1906, Bölsche and Wille became founding members of the *Deutscher Monistenbund* (German Monist League) in Jena under Haeckel's leadership.

11. See: Hauser, 1908, 1909a; Heilborn, 1909c, 1910c; Klaatsch, 1909b; Klaatsch & Hauser, 1909; L. L., 1909. See also *Figure 27* and *Figure 28*.

12. Heilborn wrote extensively about ‘animals’ under his own name (Brückner & Heilborn, 1929; Heilborn, 1903de, 1905a, 1909d, 1910ae, 1912abcdeghjkm, 1913acef, 1921b, 1925ae, 1926, 1927d, 1930b); under his pseudonym *Ernst Abt* (Abt, 1905, 1906, 1912abcde, 1913abcd); and under his pseudonym *Georg A. H. Körbitz* (Körbitz, 1912abcd, 1913abce, 1925).

Heilborn wrote about ‘literature’ under his own name (Heilborn, 1906a, 1909abh); under the pseudonym *E. A.* (A., 1911b, 1912g); and under the pseudonym *A. Hn* (Hn, 1909).

Heilborn wrote about ‘tourist affairs and art’ under his own name (Heilborn, 1900, 1903af, 1905b, 1908ac, 1909f, 1910g, 1912fin, 1913bg, 1914cdefgh, 1915d, 1927c, 1929abc, 1930ac, 1933a, 1933b, 1936ab, 1937, no date 3; Heilborn & Luschan, 1923); under the pseudonym *E. A.* (A., 1911a); under the pseudonym *Abt* (Abt, 1914, 1925);

under the pseudonym *A. Hn.* (Hn., 1914ac); under the pseudonym *Georg A. H. Körbitz* (Körbitz, 1913d) and together with Max Max Brückner (Brückner & Heilborn, 1929).

Heilborn wrote about ‘(paleo)anthropology, human embryology and physiology’ under his own name (Heilborn, 1898, 1904, 1906b, 1909c, 1910c, 1914abc, 1915ab, 1917, 1918, 1919ab, 1920c, 1921a, 1922, 1924, 1925bd, 1927b, 1931), under the pseudonym *Ernst Abt* (Abt, 1910) and under the pseudonym *Dr. H.* (H., 1910).

Heilborn also wrote on expeditions (Heilborn, 1903bc), on the natural sciences (Heilborn, 1905c, 1920b); on political issues (Heilborn, 1910df); on the history of the oath (Heilborn, 1909k); on mushrooms (Heilborn, no. date 4); on the Willibald Alexis Gemeinde (Heilborn, 1910b); and he wrote on, for example: Darwin (Heilborn, 1909j, 1927a); Filchner (Heilborn, 1910h); Goethe (Heilborn, 1908b); Haeckel (Heilborn, 1920a); Friedenthal (Heilborn, no. date 5); Klaatsch (Heilborn, 1919a); Laverrenz (Heilborn, 1909g); Livingstone (Heilborn, 1913d); Schiller (Heilborn, 1909i; Hn., 1914b); Spitzweg (Hn., 1914d); and Thoma (Heilborn, 1909e).

Heilborn also translated from French (de Maupassant & Normand, 1898; Pergaud, 1912a, 1912b). In addition to his enormous voluminous output, he also published illustrated biographies of Kathe Kollwitz and Heinrich Zille, two artist friends (Heilborn, no date 1, no date 2; see *Figure 29*).

Ernst Abt (= Heilborn) also published in the prestigious 1909/1910 book series *Moderne Kunst in Meister-Holzschnitten nach Gemälden und Skulpturen berühmter Meister der Gegenwart* (Modern Art in Master Woodcuts after Paintings and Sculptures by Famous Contemporary Masters), published in Berlin, by Bong. I have not yet had the opportunity to check out the book series yet, either in print or online.

13. Text under the photo in the four-page advertising brochure for Weinert’s *Der geistige Aufstieg der Menschheit: “Neandertaler-Menschen am Feuer bei der Bearbeitung von Feuersteingeräten”* (Neanderthal People Working on Flint Tools Around a Fire). The photo shows one of Frederick Blashke’s so-called ‘Caveman’ dioramas which were on display in the Hall of Prehistoric Man at the Field Museum in Chicago between 1933 and 1973. Note that Blashke had sculptured the *Neanderthals* with extensive hair all over their bodies. In some ways, the advertising brochure’s illustration of the diorama contradicts Weinert’s own opinion. Weinert traced human hairlessness back to the use of fire as early as 1933: “The fire made it possible to use replaceable clothing made from the fur of the captured animals and thus made one’s own hair coat unnecessary” (Weinert, 1933, p. 31; translation J.S.). Yet he also believed that *Neanderthals* did not know the ‘art of fire making’ (see: Staring, 2024c, pp. 43-46; Weinert, 1940a, pp. 115-119; 1941c, pp. 5-21).

14. Heilborn continued to publish about travel, travel adventures, tourist excursions, and also about sights in Berlin, his birthplace. He also wrote a foreword for the 1925 reissue of Karl Semper’s *Auf den Palau-Inseln*. See, for example, A., 1911a; Abt, 1925; Heilborn, 1909f, 1912bfl, 1913dg, 1914df, 1919b, 1921a, 1925abc, 1927b, 1929ac, 1933ab, 1936ab, and 1937.

15. References to von den Steinen’s works are, incidentally, frequently found in German-language literature. Niemann and du Bois (1911, p. 158) referred in their chapter in *Der Mensch und das Feuer* to the nineteenth-century research of Karl von den Steinen (1894, 1897), while the German anatomist Eugen Fischer referred to von den Steinen’s work, in his 1914 article *Die Rassenmerkmale des Menschen als Domestikationserscheinungen* (Fischer, 1914, p. 487). Interestingly, Goudsblom (1984, pp. 230-231) also referred to the work of von den Steinen (Staring, 2024c).

16. See: Abt, 1912abcd, 1913abcd; Heilborn, 1912acdehkm, 1913cef; Neumann, 1912abcde, 1913bcdef; Körbitz, 1912abcde, 1913abce).

Note that Heilborn also published *Als Kriegsfreiwilliger nach Frankreich 1815. Blätter aus meinen Erinnerungen* (As a War Volunteer to France in 1815. Pages From My Memories), written by German historical novelist Willibald Alexis (pseudonym of Georg W. H. Häring; 1798-1871). The publication of Alexis’ book (Alexis, 1915) — via the so-called *Roman Bibliothek* (Novel-library) at *Reclams Universum*, a division of the publishing house of Philipp Reclam jun. in Leipzig — indicates on the one hand that Heilborn had a good relationship with Carl W. Neumann, the editor of the publishing house division, but also that on the other hand he wanted to make a patriotic gesture.

17. Klaatsch probably got the information from Cook’s ship’s log, because he quoted Cook in a later chapter of his book; compare Klaatsch, 1920, pp. 202-203.

18. Compare Fischer (1914). It is interesting to note that as early as 1902, Klaatsch had expressed his reservations about the idea that the use of the word ‘race,’ as used in descriptions of ‘domestic animals,’ could also be used in anthropology.:

The term “race,” which we use to describe the differences in our “domestic” animals, cannot easily be equated with what we in humanity understand by it. Domestic animals are products of breeding over a few centuries and millennia; of course, completely different periods of time have to be considered and the factors involved in transforming the oldest human horde into races are much greater than in the case of artificial breeding. One would therefore perhaps most appropriately choose the term subspecies for those differences within humanity which are easily characterized as something special. (Klaatsch, 1902, p. 314; translation J.S.).

19. Books, see: Heilborn, 1920a, 1921ab, 1925de, 1927a. Anthropological topics and about animals in the magazine *Die Koralle*, see: Abt, 1925; Heilborn, 1925ab, 1926, 1927bd, 1929; Körbitz, 1925. Topics related to Berlin, see: 1925c, 1929ac, 1930a.

20. See: “3 Autographen: *eigenh. Postkarte mit U., eigenh. Billett mit U. “H. Z.” und eigenh. Notiz mit U. Zille, Heinrich, Grafiker (1858-1929). Sprache: Deutsch*” in:

<https://www.zvab.com/manuskripte-papierantiquitaeten/Autographen-eigenh-Postkarte-eigenh-Billett-eigenh/31657937714/bd>

Note: Last accessed on October 10, 2025.

The text from Heinrich Zille’s postcard to Adolf Heilborn reads: “*Lieber Dr. H.! Schön Dank für beide Karten. Wenn nicht ganz was Besonderes mich abhält, bin ich bei der Zusammenkunft dabei. Wir grüßen Sie, Frau Dr. und Herrn Hauser bestens. Sollten Sie noch mit der Beleuchtung kämpfen, dann schaffen Sie sich Kriegslight (Spiritus) ist sehr gut. Auf Wiedersehen. Ihr H. Zille. 23/11*”

21. Brandt (1970, p. 20), who studied with Hauser in the 1920s and later became Director of the Museum in Herne, Westphalia, Germany stated Hauser’s discovery happened in the Forest of Murimooschau, plus that Hauser discovered a Roman settlement, and found nearby *terra sigillata* shards and tiles with stamps of the 20th Legion.

22. See, for example: Arvieu & Kliebahn, 1986ab; Barrès, 1915; Bégouën, 1915ab; *Courant*, 1913; Delluc & Delluc, 1999; Deniker, 1908; *Deutsche Gesellschaft für Vorgeschichte. Zweiggeseellschaft Berlin*, 1909, 1910; Dröbler, 1988ab; Dröbler, Dröbler & Freyberg, 2006; Dröbler & Freyberg, 1999, 2000; Freyberg, 1991; Goodrun, no date; Guébhard, 1911; Hauser, 1911, 1922; Heilborn, 1914ac; Henke, 2011; Herrmann, 1977; Hoffmann *et al.*, 2011; Kossinna, 1910; L. L., 1909; Leuzinger-Piccand & Leuzinger-Piccand, 2017; *Le Matin*, 1910; *Los Angeles Herald*, 1910; M. B., 1915ab; *Mannus*, 1910; Obermaier, 1908; *Politisch-Anthropologische Revue*, 1908; Ranlett, 2022; Rosendahl, Maureille & Trinkaus, 2003; Shields, 1909; Verneau, 1915; *Washington Herald*, 1910; Wiegers, Schuchhardt, & Hiltzheimer, 1913; White, 2007; Wilke, 1909.

23. Dröbler cited another part of Hauser’s text about his flight, see: Dröbler, 1988a, pp. 252-254; see also Hauser, 1915c.

24. See also Barrès, 1915; Bégouën, 1915ab; M. B., 1915ab.

25. However, the rather precise information in the chapter entitled ‘*Ein noch unbekannter Skelettfund*’ (A previously unknown skeletal find) in his 1922 book *Ins Paradies des Urmenschen*, in which he gave a kind of account of his archaeological and paleo-anthropological discoveries up to that point, raised questions about a still un-rediscovered discovery of early human remains (Hauser, 1922b, pp. 100-101), because in a later chapter entitled ‘*Badegoule. La Rochette mit Resten eines Homo Aurignacensis II*’ (Badegoule. La Rochette with remains of *Homo Aurignacensis II*) (*Ibid.*, p. 126), he most probably did *not* refer to the above-mentioned remains of an early human child.

26. In his presentation, Hauser (1928a, pp. 125-129) also neutrally discussed Eugen Fischer’s so-called ‘domestication theory’ (see Staring, 2024c). Heilborn and he had likely discussed this theory thoroughly. Heilborn briefly reviewed Fischer’s work from 1914 in his *Werden und Vergehen* (Heilborn, 1931, pp. 312-314).

27. Hauser wrote in his *Urgeschichte*, “Tools and fire [...] became the first and oldest cultural possessions in the hands of the ascending primeval man, and only with this did the twilight of humanity begin” (Hauser, 1925b, p. 92; translation J.S.). Around the time of publication of his book, in the mid-1920s, Hauser met two people who, though they had made their mark in fields other than paleoanthropology, would support him with their knowledge and good names: mechanical engineer Friedrich ‘Fritz’ Herig (see *Figure 35*) and the 1912 Nobel Prize for Literature laureate,

Gerhart Hauptmann (see *Figure 34*). The latter became honorary president of the *Gesellschaft für Manufaktologie* (Association for Manufactology), which Herig had founded to promote his work testing the ergonomic properties of tools. In this honorary role, Hauptmann gave the opening speech at the 1932 *Sommerschau* (Summer Fair) in Berlin, where Herig's association had an information booth: "*Die Denkende Hand*" (The Thinking Hand) (Sprengel, 1982, p. 29). Herig applied his tool-testing expertise to the stone tools Hauser had excavated in the Dordogne, France, and elsewhere. Together, they introduced their art of '*Paläotechnik*' (paleotechnology) and '*Urtechnik*' (primitive technology) to gain a clear understanding of what I call the interconnected physiogenesis, sociogenesis, and psychogenesis of hand and tool use, and they published on this topic (see: Hauser, 1928c; 1929, pp. 108-110; Herig, 1928, 1929abc). In the two later books Hauser published (Hauser, 1929; Hauser (Ed.), 1928), much attention was paid to the form and use of hands by humans and the related form and use of tools by early humans (Staring, 2024c).

One of the people in this unique group interested in disseminating the research and ideas of 'Manufactology' regarding paleontology was Georg Kraft, "the leading conservationist of the state of Baden," Germany (Stadler, 2001). His publications regarding the topic date from the early 1930s (e.g., Kraft, 1930, 1932). In 1948, the second edition of his book *Der Urmensch als Schöpfer* (Early Man as Creator) appeared, in which he also discussed Herig's work and wrote extensively about the use and control of fire by early humans (Kraft, 1948, pp. 48-60, 65, 80-82, and 121-136).

28. See: Neumann, 1912abcdefgh, 1913abcdef. See also Bölsche, 1912ab; Haeckel, 1912a; Klaatsch, 1912ab; Heilborn, 1912acdehjk, 1913cef. And see also Heilborn's pseudonyms *Ernst Abt* (Abt, 1912abcdefg, 1913abcd) and *Georg A. H. Körbitz* (Körbitz 1912abcd, 1913abce).

29. See: <https://archive.org/details/naturundmensch00haec/page/n9/mode/2up>

See the title page in the book.

30. Like her brother Adolf Heilborn, Luise Heilborn-Körbitz sometimes used a pseudonym in writing her screenplays: *Hanns Torius*, as can, for example, be seen in the credits of both parts of *Der Alte Fritz* (The Old Fritz), the two-part 1928 Gerhard Lamprecht film about King Frederick II (Frederick the Great) (see, for example, *Illustrierter Film-Kurier*, 1927ab).

31. On June 22, 1905, the *Gesellschaft für Rassenhygiene* (Society for Racial Hygiene) was founded in Berlin by psychiatrist Alfred Ploetz (1860-1940). Ploetz's friend Gerhart Hauptmann and his friend Wilhelm Bölsche were among the founding members of the *Gesellschaft für Rassenhygiene*. Ernst Haeckel was also one of the Society's founding members. Another founder of the Society was Erwin Baur, who, together with Eugen Fischer and Fritz Lenz, would later write *Grundriß der menschlichen Erblichkeitslehre und Rassenhygiene* (Outline of Human Heredity and Racial Hygiene), at the time the German standard work on eugenics (Baur, Fischer & Lenz, 1921ab, 1923ab), which was published in New York in English translation before Hitler's *Machtsergreifung* (Baur, Fischer & Lenz, 1931). Fischer was the leading eugenicist who also wrote extensively on (paleo)anthropological issues, including the history of fire control by early humans. Here is a survey of his main writings related to this subject: Fischer, 1912ab; 1913abcdehij; 1914, 1917, 1921ab, 1923abc, 1924, 1927, 1930, 1931, 1938, 1943. See also Fischer, 1959.

32. See: <https://www.rijksoverheid.nl/actueel/nieuws/2025/09/26/nederland-geeft-dubois-collectie-terug-aan-indonesie>

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