

**Review of: Gamble, Clive (2021). *Making Deep History: Zeal, Perseverance, and the Time Revolution of 1859*. Oxford: Oxford University Press. i-xix and 306pp, 51 Figures, and 3 Tables. ISBN 978-0198870692.**

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## Introduction

In general, the message is not new: In 1859, a group of successful English businessmen, members of the new capitalist establishment and fellows of important learned societies, investigated the evidence for the coexistence of humans and extinct animals during the Ice Age.

Their starting point was the evidence of stone implements found a year earlier together with extinct Ice Age animals in the limestone Windmill Hill Cavern above Brixham in Southern England. Despite the growing evidence from various countries, and the results of the investigations at the Cavern, initiated by William Pengelly (1812-94) with the support of the Geological Society and the Royal Society, this did not seem convincing enough to break the biblical belief (DANIEL, 1975, 54; 57-67): According to the King-James-Bible doctrine and to Archbishop James Ussher's (1581-1656) adaptations, the date of creation was estimated at 6000 years before present, and mankind's brief history would be ending soon on Judgement Day. Furthermore, the Bible claims that God created animals and humans as they are now, without biological evolution.

Thanks to the evidence from the Somme Valley's gravel pits investigated by Jacques Boucher de Crèvecœur de Perthes (1788-1868),<sup>1</sup> both Joseph Prestwich (1812-96) and John Evans (1823-1908) were finally able to convince in 1859 the powerful Royal Society, the Society of Antiquaries of London and other learned societies, that humans might have a longer history than the Bible claims. The famous geologist Charles Lyell (1797-1875) and later John Lubbock, 1<sup>st</sup> Baron of Avebury (1834-1913), played a big role in the subsequent acceptance process of the "time revolution" (as Clive Gamble calls it). However, no one could answer the question of how much older the human species was, until the scientific dating methods of the 20<sup>th</sup> century were developed. Therefore, the time span in the "time revolution" initially remained a matter of conjecture.

1859 was also a special year for Palaeontology; Charles Darwin (1809-82) published his "The Origin of Species" that same year, which has contributed to the acceptance of evolutionary biology and

the insight into the evolution of human species. In 2009 the 150<sup>th</sup> anniversary of this "annus admirabilis" for Biology and Archaeology was celebrated. That year the journal "Antiquity" published a series of articles on the issue, including an article by Clive Gamble and Robert Kruszynski (GAMBLE & KRUSZINSKI, 2009), that would become the starting point of the book reviewed here. "Why re-visit such a well known story?" the authors asked, after quoting a widespread version of the story (BAHN, 1996, 85). Their answer was: "... what is well known is not always well understood" (GAMBLE & KRUSZINSKI, 2009, 463). Over time, the making of myths had developed.

A new investigation of all documents helped to clear uncertainties and to correct the contested chronology of the visits to France: First Hugh Falconer (1808-65), then Prestwich and Evans, followed by Lyell, Lubbock and many other investigators (GAMBLE & KRUSZINSKI, 2009, 463s., 473). The famous stone, which Prestwich and Evans had once brought with them from St. Acheul (Amiens, Somme, France) as a testimony, was found again with the help of the co-author Robert Kruszynski, a curator at the Natural History Museum in London. Thanks to Grace Prestwich, her husband's collection had been deposited there in good order. Beside its unequivocal labelling, the authors could reliably identify the stone from the original photographs, which are preserved at the Library of Amiens. So far so good for the article of 2009.

## Content and Concept of the Book

Now, in his 2021 book, Gamble has enriched the story with details of the event and of the personalities involved, and with much more information about the Victorian era. The book is divided into eight chapters that present the story chronologically: starting with the day, the 27<sup>th</sup> April 1859 (chapter 2),<sup>2</sup> continuing with the month (chapter 3), the year (chapter 4), then the first years of the following decade (chapter 5), the last years of that decade (chapter 6), and ending with the legacy of the event (chapter 7). Finally, the author refers to his own empirical investigation of the stone from St. Acheul, "that shattered the barrier of time", offering an unexpected result, thus conferring an ironic touch to the book and to the event itself (chapter 8).

The first chapter, "The Time Revolutionaries of 1859" gives a general and theoretical introduction to the issue. In the history of science, Darwin's theory of biological evolution has always been

at the forefront. Therefore, Gamble intended “to extract the revolution in human antiquity from Darwin’s dazzle and explore the possibilities for human history that it opened up” (p. 1). Regarding the nature of time, he follows Michel Serres and Bruno Latour: “time is always folded”. “I wrote it [the book] to find out what happened when time is folded and two conceptual universes collide” (p. 5). Aware of the problem that historians of science tend to write from the current perspective of development, he tries to present the story with insight into the life and the knowledge of the Victorian era, using contemporaneous metaphors and avoiding “dominant metaphors from the present” (p. 6). The focus of the book is the stone implement of St. Acheul, symbolising the “time revolution”, the human stone tool which united history with geology (p. 2). “My purpose in writing this book is to humanize a story of scientific endeavour characterized by abundant zeal and perseverance... There can be no history of how we came to understand our past without an appreciation of the personalities involved and the constraints they laboured under” (p. 3). To fulfil his purpose, Gamble presents the personalities, the businessmen, involved in the historical and technical circumstances of the Victorian era and its “Zeitgeist”, very nicely visualized in Fig. 1.6. Personal relationships intermixed with business and science in private and in society. They were a group of friends, neighbours, rivals, fellows of gentlemen’s clubs and scientific societies such as the Royal Society, the Geological Society, the Society of Antiquaries of London, the X-Club, or the Ethnological Society of London which became the Royal Anthropological Institute in 1871, after the anti-Darwinian Anthropological Society of London had split up in 1863. Thereby, we learn how they all got to know each other, either through their societies, such as Falconer and Prestwich, or casually – such as Prestwich and Evans – on a train journey during a geology field trip (p. 7).

What has not been part of the traditional, mostly male-dominated, narrative is that women who worked together with those gentlemen should not be considered as their secretaries, but as scientists and as “time revolutionaries” too. What’s more, they wrote scientific works independently. Those wives and close female relatives of the male “time revolutionaries” eventually collected the memory of the story which Gamble’s book is based on. This book is, therefore, also the story of Civil Mary Prestwich (1822-66), the youngest sister of Joseph Prestwich, and of Grace Milne (1832-99), niece of the physician, geologist and palaeontologist Falconer. After the death of Fal-

coner and Civil Mary, Grace became Prestwich’s wife. It is also the story of Nelly Lubbock, born Hordern (1836-79), the wife of John Lubbock, and of Joan Evans, the youngest daughter of John Evans (1893-1977) (p. 7-18).

The end of the chapter (p. 22-32) deals with the ideas of that time: human progress, evolution and biblical chronology, opposed concepts, and, as Gamble is metaphorically speaking, with a ditch between them to be filled. The “Zeitgeist” is also explained with the help of literature. For example, some titles from John Lubbock’s list of his 100 favourite books are analysed, from Samuel Smiles and George Eliot to Charles Dickens and Charles Dodson alias Lewis Carroll, the creator of “Alice in Wonderland”. And more: time was standardized to make railway run (p. 26). Last but not least, the “time revolutionaries” were not equally modern, either in private life or in their scientific ideas; they had no common methodological concepts at all.

In the second chapter “Discovery: The Day 27 April 1859”, the author reconstructs the excursion of Prestwich and Evans to the scientific spheres of the old-fashioned Jacques Boucher de Perthes. However, Gamble has put a lot more into it. As already known from the account of the Britons, Gamble colourfully and with some humour designs the personality of the great but very contradictory man, who descended from the old noble family of the de Crèvecœur, the family who had denied its own status and therefore lost it during the French Revolution, and yet who retained some of its demeanour. Gamble, following Prestwich in his paper for the Royal Society, characterizes him as an antiquary by zeal and perseverance (PRESTWICH, 1860b, 279).

The description of the events of that decisive day reveals the associative narrative that is characteristic of the book. Gamble jumps from the excursion to the pits in the glacial drift (the glacial deposits of the Pleistocene, formerly called diluvial) (p. 47-48) to the history of their investigation from 1837 onwards, beginning with Casimir Picard (1805-1841). Then he returns to the journey through the gravel pits and mentions that Boucher de Perthes paid the diggers (the “terrassiers”) well for finding stone axes (p. 53). Lunch was at the Hôtel de Chépy, the impressive mansion bought by Boucher de Perthes’ father and which was also the domicile of the Société Royale/Impériale d’Émulation de Abbeville, of which Boucher de Perthes was president for a long period. Before lunch, Prestwich and Evans visited Perthes’ enormous private collection at the same Hôtel de Chépy. They saw stone implements and

many other things, such as natural stones in the shape of animals, which Boucher de Perthes believed were human artefacts. Gamble describes in this context the impressions of Falconer and his niece (Grace) during their earlier visit to the collection in November 1858, according to Grace's account. This visit was crucial for the development of the whole story: it was Falconer's advice that prompted Prestwich and Evans to make their trip the following April.

Lunch? Delicious! And suddenly a telegram from Amiens! The evidence Prestwich and Evans were looking for had been found in a pit of St. Acheul. They rushed to the train and arrived in Amiens after 120 minutes (p. 62).<sup>3</sup> For the author this was reason enough to jump to the subject of train travel and its social differences in general (p. 63). And then he switches to the fictional detectives Holmes and Watson, whose creator was born in that special year 1859, and makes an odd connection between British railways, British police and empiricism (p. 65). This is a new clue to return to Prestwich and his happy-go-lucky inductive reasoning and empiricist thinking, a very important point, because "Prestwich and Evans did not like theories" (p. 65). And well, Prestwich was in Amiens the day before without Evans to 'book' the evidence (p. 66), while Evans had to endure a stormy crossing to France. Sadly 394 people died when another ship was wrecked that same night.

Another French colleague, Charles Pinsard, showed Prestwich the Amiens pits and a new investigation history begins, that of the late physician Dr. Marcel-Jérôme Rigollot (1786-1854). Although Rigollot relied on the opinion of two well-known geologists regarding the antiquity of the deposits and published the evidence very accurately with marvellous illustrations of the stone implements, his results were not accepted in 1854 and 1856 either.

Back to the evidence of the then newly discovered axe: Gamble proves that none of the so-called scientific witnesses were present at 3 p.m. on April 26 when it was found. Testimony and photographs of the "higgledy-piggledy" gravel layer (p. 74, Fig. 2.12) were taken more than 24 hours later, to "corroborate our testimony"; as Prestwich wrote: all his points of investigation had been fulfilled.

In the third chapter "Presenting the Evidence: The Month May-June 1859" Gamble doesn't really jump in time or subject. This chapter is dedicated to the first publications of the evidence, the papers read 1859 in the main scientific societies interested in the subject: The Royal Society (PRESTWICH, 1860a) and the Society of Antiquarians of London

(EVANS, 1859). Luckily, in a display case of the latter society, Evans detected stone implements just like those from St. Acheul! He had not previously studied the old volume of "Archaeologia" in which John Frere had published those finds from the parish of Hoxne, Suffolk (p. 89; Frere, 1800). They were found together with extinct animals as early as the end of the 18th century and were well documented for the time: "The time revolution had been confirmed in less than a month" (p. 90) with this early evidence. Prestwich and Evans visited the findspot and then presented the axes from France and Suffolk together. Prestwich's manuscript was recommended for printing by the two geologists Lyell and Roderick Murchison. To convince their colleagues, Prestwich and Evans used very technical and descriptive language without too many interpretations, e. g. stone implement instead of axe (very instructive Table 3.1). Furthermore, they presented better illustrations than those published by Boucher de Perthes, imitating Frere and Rigollot (p. 69, Fig. 2.9; 100, Fig. 3.5; 104, Fig. 3.7). So far - in the end, Gamble jumps to Italy, where Falconer and his niece Grace, along with other English traveller-parties, were escaping the war.

The fourth chapter "Reception: The Year 1859-60" is dedicated to the first reaction in science and society. The preconditions for a quick acceptance were extremely good: "History was taken away from God" (p. 116). Gamble returns to Samuel Smiles' "Self-help", "the power of the well-motivated individual to transform the world" (p. 116). "Religious belief was secondary to individualism in this age of science and relentless innovation" (p. 117). Furthermore, Gamble demonstrates very well that for the European regions with a Roman past, such as England, written historical sources and historical traditions begin with Roman civilisation. However, in other regions such as Scandinavia, they begin in medieval times. Therefore, in Scandinavia the technological stages and monuments from Stone Age to Iron Age and from simple to complex became much more important in establishing a much longer historical tradition. The late acceptance in Britain of this "Three Age System" in the 1860s coincided also with the addition of an older Stone Age (p. 120-23; see below). Evidence grew over time, e. g., John Evans was able to demonstrate through his own experimental manufacture that the stone implements were man-made. Lyell had already visited the pits in the Somme Valley in 1859 and confirmed the stratigraphy, French scientists also began examining the evidence (p. 129), and the results of Boucher de Perthes and Rigollot were finally accepted by the Académie

des Sciences (p. 130-31). But "how old was old?" remained to be resolved (p. 133, table 4.1). Gamble claims the Anglican Church was open to new scientific results, but there were still influential creationists (p. 131-38).

The fifth chapter "Consolidation: The Decade Begins 1860-3" deals mainly with the consequences of the new findings after "the cork in the bottle labelled human antiquity had been pulled" (p. 146). As before, Gamble deals with the reactions in science and society, but also with adventures, religious belief, public debates and the beginnings of the burlesques of human evolution (p. 160, Fig. 5.5). It is amazing that he starts with an overview of the whole new decade (p. 147-50), and that the title of the short chapter "Cherchez les fossiles humains 1860-3" has nothing to do with the content: it is rather dealing with persisting doubts concerning the paragenesis of the geological layers and their interpretation (p. 150-51). But the following pages are really dealing with consolidation: Publications by Prestwich (1860b) and Evans (1860b; 1863) that were better documented than the first preliminary reports read to the societies followed (see above). Furthermore, Lubbock entered the scene with new interpretations (LUBBOCK, 1865). The first more reflective monographs appeared, such as those by Thomas H. Huxley (1825-95) and Lyell (LYELL, 1863; HUXLEY, 1863). The question of human fossils and the human evolution emerged in these two monographs, and with the comparison of recent and fossil human skulls, including those of apes, racism gained a new basis (p. 165, Fig. 5.7; 167, Fig. 5.8). With Lyell's work, rivalry arose between the leading "time revolutionaries", which were reflected in vehemently written published letters. Falconer in particular accused Lyell of having jumped on the bandwagon (p. 168). Lyell, in contrast, had emphasised mainly the French priority and, from the 1830th onwards also his own (p. 164). Despite all this, doubts persisted, intensified by the fake fossil bones discovered in 1863 in Moulin Quignon near Abbeville, and by the French and English disputes on the subject (p. 169-77).

In contrast, the investigations of the Dordogne caves, especially La Madeleine, by Édouard Lartet (1801-71) and Henry Christy (1810-65) in the early 1860s, with their undisputed finds of human remains in a relative chronology, provided convincing hard evidence of human fossils (p. 161, 176, 186-188).

The sixth chapter "Acceptance: The Decade Closes 1864-72" continues with the main points. The scientific results were gaining more and more

certainty, such as in Gibraltar and especially in France (p. 186-89), where the Paris World Exhibition in 1867 presented stone implements (p. 206). During those years the first generation of the "time revolutionaries" began to die (p. 203-07). Gamble turns Falconer's return from his Gibraltar excursion over Spain in 1864 and his subsequent death into a novelistic masterpiece (p. 203).

The new leading figures became Gabriel de Mortillet (1821-98) in France and Lubbock in Britain. Lubbock continued Falconer's fight against Lyell in his important book "Pre-Historic Times" from 1865, but he eventually dropped the subject. He became a leading figure in the X-Club, which Gamble describes as a "scientific ginger group" (p. 201). With its members, the Club occupied the decisive positions in the important scientific societies and other organizations of the emerging prehistorical and anthropological disciplines: "This was how the X-Club and its fellow travellers kept an iron grip on the time revolution and the deep history of race", on the concept of the evolutionary unity of actual humanity, important in the American Civil War against slavery (p. 202). At the end of the decade, the astronomical calculation of cold and warm periods by James Croll (1821-90) allowed first estimates of how old mankind might be (p. 208-15; Fig. 6.9).

In the seventh chapter "A Legacy of Zeal and Perseverance", Gamble examines the impact of "time revolution" on the actors' posthumous fame, on their families, and on the development of history and science. From then on, Archaeology gained an independent role alongside Geology. However, while France celebrated the memory of the French investigators involved, particularly Boucher de Perthes, in England neither Prestwich, Evans nor Lubbock made the "A-lister" of famous scientists, whereas Darwin, Huxley, and Lyell did (p. 224). Prestwich and Evans only have a faint echo in the discipline's history of investigation (p. 226-27).

However, the legacy of the "time revolution" persisted, developing into what Gamble calls the "second time revolution" with new methods such as radiocarbon and potassium-argon dating or the Brunhes-Matuyama reversal (p. 234-238). A profound history remained, and the need to value human evolution and the Neanderthal Man in particular, and unfortunately racism remained (p. 243-247). Finally, the author tries to clarify some clue-terms of his book, especially "time revolution", "big history", "universal history" and last but not least "deep history" (p. 244, 249-253), which he vehemently defends.

The eighth chapter "Afterword" deals mainly with Gamble's investigation of the stone that Prestwich brought with him from Amiens (GAMBLE & KRUSZYNSKI, 2009).

## Discussion

First, it is a very good idea to talk about "Deep History" instead of "Prehistory". In German, the term "Urgeschichte" (Primordial History) developed from the same point of view in the 19<sup>th</sup> century: what we want to investigate is history, regardless of whether there are written sources or only material remains. Unfortunately, in Germany in the last quarter of the 20<sup>th</sup> century, the term "Prähistorische Archäologie" has ruled out the term "Urgeschichte" (HOIKA, 1998). Personally, I would prefer the terms Early History or Early Historical Archaeology in general, as it is difficult to define the boundaries between Early and Primordial or Deep History, which are different in each region. In summary: a "prehistory" never existed in human history (see also SASSE, 2017, 32-35), and Gamble is right.

Secondly, Gamble's remarks on method, theory and philosophy seem to me very important and essential to understand how the "time revolutionaries" worked and which sometimes also give an insight into the working methods of our discipline. I do, however, disagree with the author on some points and these are presented later.

Further, I really appreciate Gamble's emphasis on the importance of archaeology in, what he termed, "time revolution". Making this clear is one of the main aims of the book and a necessary one: without the association of human remains and artefacts with extinct animals in the same stratigraphic layer, this rethinking of the mid-19<sup>th</sup> century would not have happened.<sup>4</sup>

Furthermore, the intention to write science and investigation history from the point of view of the actors and not from our modern point of view is a very interesting but difficult approach. Gamble wrote the history of the Prestwich and Evans investigation, as seen through their eyes, through their sources, their letters, biographies and publications. He seems to succeed in portraying their personalities and their characters, even incorporating their eagerness into the book's title: zeal and perseverance (terms used by Prestwich himself, see above). They were businessmen, paper makers, bankers. Charles Lyell, who was the most famous geologist of his time, studied at Oxford but got his doctorate in law! Gamble

tried to analyse their personal life as well as the "Zeitgeist" on which they, their families and clubs depended. If his main characters had been educated in well-developed academic institutions and in well-developed disciplines, it would have been much easier to investigate their scientific methods and beliefs. A systematic investigation of their general education and of the empiricist positivist philosophy, the spiritual basis of their actions, would have brought even more insight.

In general, the form of the text caused me some problems. The novel-like narrative slows down the action ridiculously at times, such as in the narrative of the train passengers in chapter 2. On the other hand, Gamble enlightens circumstances with details, such as Big Ben at London or the reading lists of Lubbock and his children, including Alice's Adventures.

I wonder what audience the book was written for and whether it qualifies as scientific literature. The notes, bibliography and index speak for a scientific book. Its 'hardware' is a solid investigation. In addition, the philosophical, theoretical and methodological details may be aimed at scientific readers. However, some scientific facts such as his presentation of the Ice Age investigations or dating methods may be directed to non-expert readers. These facts are not fully presented or sufficiently discussed for a scientific audience or for students. The literary excursions, which usually do not present any new facts for an expert, also suggest a broader readership. They enrich the atmosphere of the 19<sup>th</sup> century and increase the entertainment value, as does the amusing choice of words in the book in general. As I read it, I sometimes thought it might be more a work of art than a scientific book, but that's not true: it's a mixture of both. The mixture is also reflected in the beautifully arranged and very instructive pictures and tables throughout the book, providing scientific information (such as Table 3.1; Fig. 2.11, 7.3) and often adding atmospheric or humorous insights, such as in Fig. 2.7, 5.5-5.6. The portraits of the main characters, including the women, are also very nice.

While the "deep history" in the book's title does not appear to be limited by either time or region, Gamble focuses on the "time revolution" of 19<sup>th</sup> century in Britain. Do not expect a complete European or even British history or account of a longer development process of the subject! In particular, chapter 8 with the title "A Legacy of Zeal and Perseverance" contains some of these topics such as the reception of Neanderthals, the Ice-Age investigation and dating methods. For example,

the influence of the evidence of the Neanderthal Man on the rise of racism in Britain is discussed at length and very interestingly, including American wartime propaganda against the German enemy, demonstrated by a 1917 American poster (Fig. 7.4). It is good to read that racism was and is not only a problem in German history! However, the history of investigation and reception of the Neanderthal Man in general is missing.

The focus on Britain is reflected also in the references. Gamble quotes mainly English works and to a much lesser extent the French ones – other European languages and authors are all but absent. The example of the coeval Neanderthal and Ice-Age investigations seems interesting in this context. Apart from two German ‘historical’ works (SCHAAFHAUSEN, 1858;<sup>5</sup> PENCK & BRÜCKNER, 1909), the bibliography does not contain any other German publication. There is much more to add, such as NARR & WENIGER, 2001; SCHMITZ & BONANI, 2006; CONARD & RICHTER, 2011. Considering that many works by non-English authors are published in English today (such as CONARD & RICHTER, 2011), the languages cannot be the only reason to ignore them.

In presenting Ice-Age studies, James Croll (1821-90) is the focus of discussion, while other 19th century Ice-Age investigations are nearly absent such as the Swedish studies and the contradictory investigations of the geologist Louis Agassiz (1807-73) of Swiss origin. The modern investigations are treated very briefly. To give an example: in discussing present-day Pleistocene chronology including the Brunhes-Matuyama boundary (GAMBLE, 2021, 236-238), should we not expect Gamble to mention the stratigraphy and the investigations of Atapuerca (Burgos, Spain), with its uncontested sequence involving different human species?

Furthermore, the lack of a systematic or wider chronological account means that other researchers or subjects remain in the background. Because there is no chapter on important events before 1859, Gamble has to mention Frere’s important discovery of 1797, when he describes how Evans rediscovered these finds in a display case in 1859 (p. 88-89). In the same way Gamble deals with the older discoveries of Boucher de Perthes, of Rigollot or of the French physician Doctor Casimir Picard (SACKETT, 2014),<sup>6</sup> who is mentioned only briefly on the occasion of Prestwich’s and Evans’ trip to Abbeville and Amiens in 1859 (GAMBLE, 2021, 48-49, 51, 57). Picard was the first who worked in the pits, a pioneer of greater scientific merit than Boucher de Perthes but who died prematurely.

An earlier background would also give more insight to the history of British archaeology. During the Restoration period, the innovative development of the 18<sup>th</sup> century British Enlightenment archaeology had come to a standstill. John Frere’s discovery at Hoxne or James Douglas’ (1753-1819) marvellous publication of closed finds from Anglo-Saxon cemeteries in Kent (DOUGLAS, 1793; AKERMAN, 1844, 54), and the 1679s’ find of a flint tool together with the remains of an elephant, preserved in the British Museum were forgotten and had to be rediscovered (EVANS, 1860b, 301-02; LUBBOCK, 1865 [1869], 335; GAMBLE, 2021, 88, 100).

William Buckland played a problematic role in the study of the oldest human remains in the first half of the 19<sup>th</sup> century. In his book “*Reliquiae Diluvianae*”, he denied all previously known cases of the coexistence of human remains and artefacts with extinct animals (BUCKLAND, 1823; GAMBLE, 2021, 87). Gamble refers to this with four lines and some notes and concludes with the fact that Buckland died in 1856. Buckland himself had found a Cro-Magnon skeleton, the so-called ‘Red Lady of Paviland’ and dated it to Roman times, misinterpreting the excavation (on purpose?) (BUCKLAND, 1823, 87ss, 274-276). This is a very important background story to the events of 1858 and 1859. It took more than 30 years until John MacEnery’s (1796-1841) results from the cavern of Kent’s Hole (Torquay) were finally published posthumously in 1859 and Buckland was involved in delaying them (PRESTWICH, 1860b, 278; LYELL, 1863, 97, 105 note 1; LUBBOCK, 1865 [1869], 305-306; SCHNAPP, 1993, 316; GAMBLE, 2021, 110, note 25). This was exactly what the “time revolutionaries” had to revise with difficulty. In Gamble’s book, the ‘Red Lady of Paviland’ is mentioned only once, in a note (GAMBLE, 2021, 216, note 12). Buckland also denied the evidence from German and Belgian investigations, such as the excavations at the Frankish Gailenreuth-Cave published by Johann Friedrich Esper (1774; BUCKLAND, 1823, 99-147; SASSE, 2018, 125-26, 271, 289). Another reason for Buckland’s scepticism, apart from the biblical tradition, was the level of development of archaeological excavation methods (MCFARLANE & LUNDBERG, 2005; see also below).

Finally, I would like to point out the methodological, theoretical and philosophical points of view that, in my opinion, should be discussed more intensively or even questioned.

First of all, I totally disagree with Gambles account of the importance and the acceptance of the Three Age System in Britain. Gamble is very good at pointing out the difference between the

traditional humanistic-antiquarian periodisation and the Scandinavian Three Ages (GAMBLE, 2021, 117-122). In general, Evans still worked in the antiquarian tradition with three peoples, from youngest to oldest (Germanic tribe, Roman, Celtic). So did Boucher de Perthes, who placed an older "race of man" before the Celts (EVANS, 1860b, 306). It is true that antiquarian traditions were strong in England, but not that "Evans and Lubbock largely ignored" the system (GAMBLE, 2021, 249). The humanist Evans spoke of the "so called stone age", but accepted that it existed and that it was younger than the stone implements of the "drift" (EVANS, 1860b, 293). Lyell in 1863 was up to date on this point (LYELL, 1863, 8-33, 372) as well as on the coexistence of man and extinct animals (LYELL, 1863, 62, 68, 105, 264). However, he placed this coexistence and the stone implements of St. Acheul and Hoxne in the post-glacial period (LYELL, 1863, 376). Lubbock greatly valued the Scandinavian work, and both he and Lyell quoted the interdisciplinary excavations of Johannes Japetus Smith Steenstrup (1813-97), Johann Georg Forchhammer (1794-1865) and Jens Jacob Asmussen Worsaae (1821-85) in Danish peat bogs and shell middens, important for the older Holocene chronology (LYELL, 1863, 9-10; LUBBOCK, 1865 [1869], 217). Contrary to the sentence quoted above (GAMBLE (2021, 249), Lubbock worked on and extended the Scandinavian Three Age System by inventing the terms Neolithic and Palaeolithic (LUBBOCK, 1865 [1869], 2-3). However, he was not the first to introduce an older Stone Age Phase of unpolished stone implements (WORSAAE, 1855 [1859], 105; LUBBOCK, 1865 [1869], 235; KUNST [in print]).

Secondly, for experimental evidence that stone implements are man-made, look into the older history of Archaeology! In the book (GAMBLE, 2021, 127-28) you will read that John Evans was the first to prove the fact of the existence of stone tools by making them. In fact, this is not true: the earliest evidence goes back to the work of Michele Mercati (1541-93). This process led to the first "annus admirabilis" in 1734 (Mercati's work was not published before 1717-19), when the existence of a Stone Age was accepted by the French Academy (SASSE, 2018, 187-88, 221-22).

Thirdly, Gamble seems to share a very generalized view on archaeological work, "a different emphasis between geological and historical archaeologists". According to him the latter are mainly interested in national identity (GAMBLE, 2021, 226). On the contrary, there were and are many reasons for doing Archaeology and, yes, finding national identity is one of them. However, the aim does

not depend on the period you are working on, nor whether or not there are written sources, and Archaeology in general shares methods with Geology. And nation and nationalism are historically limited phenomena.

You can observe nationalism in the 19th century where you do not expect it, such as in the case of Worsaae and the Danish War (WAHLE, 1950 [1964], 113; ROWLEY-CONWY, 2007, 66; 80; SASSE, 2018, 330, 370). Worsaae, much more nationalistic than the older Danish generation, was working on "Deep History" too (see above, on Younger and Older Stone Age). History and Archaeology may be national at a time when nationalism is in vogue, but they can equally study larger units - like humanity - in space and time. And what about Classical Archaeology with its humanistic perspective?

Fourthly, "time revolution" or "time revolutionaries" seem to be pithy terms. I wonder if they are the right terms? Gamble speaks of revolution, but he himself is not so strict with the terminology (GAMBLE, 2021, 244), mixing various types of revolution with the "time revolution", a scientific change and a change in society (GAMBLE, 2021, 249-251). However, not each change in history has to be classified as revolution. This is not the place to debate the validity of the way that Childe and others used the term 'revolution' but the fact is that Gamble does not discuss the use of the term in the scientific process and in scientific historical works (such as KUHN, 1962 [1970]),<sup>7</sup> different to an older publication, where he even criticises the more general use of the term (GAMBLE, 2007, 9).

Fifthly, "Scientific truth", Empiricism and empiricist reasoning. I do not think the author really wanted to express extreme scepticism with "Scientific truth, whatever that might be" (GAMBLE, 2021, 4). That would be at odds with the book, which attempts to reconstruct historical truth. We learn how it really was,<sup>8</sup> who was at Amiens on April 27<sup>th</sup> and who was absent at St. Acheul on that April 26<sup>th</sup> when the famous stone implement was found: none of the "time revolutionaries" were actually there.

"Prestwich and Evans did not like the theories" Gamble said, and "Joseph [Prestwich]... preferred the inductive method" and "Unfettered empiricist the [Prestwich] may have aspired to be" (GAMBLE, 2021, 65). Britain has a long and very successful history of empiricism, but Prestwich is a very bad example. Prestwich wanted to work without prejudgement (a priori), but he did not accurately observe the situation he wanted to analyse in situ. What's more, the "time revolutionaries" were not there, they came a day or two later to take their 'proofing' photo-

graphs!“Higgledy-piggledy”：“This was the proof of antiquity by association” (GAMBLE, 2021, 74, 264).

There is an excuse for our “time revolutionaries”: With the exception of the famous Scandinavian antiquarians mentioned above, nobody knew then exactly how to accurately observe and document the association of objects in a complicated excavation, both in a geological situation. Not being there personally, conducting excavations for pleasure or presenting the finds as a gift and distributing them all over the world was normal back then (SASSE, 2018, 272-73). Prestwich was only lucky enough to be right thanks to some older investigators like Frere, Picard, Boucher de Perthes, Rigollot or Falconer. Excavations are not repeatable experiments. However, the accumulated observations of Ice Age layers with continually improving excavation methods<sup>9</sup> confirm what he could not prove and ultimately show the ability of empirical archaeological investigation to change world views.

In summary: It is a very nice book in a handy format to take to bed and read for amusing storytelling. And as you see from this discussion, it is an interesting book, worth reading, not only for the information it conveys, but also for the author’s general purpose, for his interesting remarks and for his intention to tell the history of science. Despite the criticism, I loved it!<sup>10</sup>

## Notes

<sup>1</sup> At the beginning of his studies, Perthes followed biological transformism after Jean Baptiste Lamarck (1744-1829). He published five volumes on creation (GROENEN, 1994, 81).

<sup>2</sup> In the following description of the content, all indications of Chapters, pages and figures are corresponding to the reviewed book.

<sup>3</sup> In the publication of Evans (1860, 295) it sounds different. Here they travelled to Amiens not in the afternoon, but in the morning of the next day. Gamble (243) refers to a lot of chronological contradictions in his sources.

<sup>4</sup> The wide-ranging book entitled “The Invention of Science. A New History of the Scientific Revolution” (WOOTTON, 2015) mentions nothing on the whole subject, nor does it even mention Lyell, unlike Darwin!

<sup>5</sup> Translated into English by Busk (1861). In this case, you will find the two publications in the bibliography!

<sup>6</sup> Chapter “Boucher Confronts the Old Stone Age”.

<sup>7</sup> A rich discussion of the term scientific revolution in Wootton (2015, 15-54). There is likely a further problem with the different definitions of scientific in German and in English. However, there should be consensus that Gamble is not only treating a cultural and social process, but also, and in first instance, a scientific one.

<sup>8</sup> „...bloss sagen, wie es eigentlich gewesen ist“ (RANKE, 1824 [1885], VII).

<sup>9</sup> Newer excavations by Pengelly in the cavern of Kent’s Hole (Torquay) shows the progress in excavation methods (McFARLANE & LUNDBERG, 2005, Fig. 1).

<sup>10</sup> I have to thank Bassima Khoury (Cologne) and Andrew Fitzpatrick (University of Leicester) for proof reading the English text.

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