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A chimpanzee skull in the devil’s cave

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Paleontological pranks
One hundred years ago, on 18 December 1912 at the reunion of the Geological Society in London Charles Dawson and Arthur Woodward read a paper ‘On the discovery of a Paleolithic human skull and mandible’. Dawson, an amateur archaeologist, and Woodward, a palaeontologist, baptized their discovery Eoanthropus dawsoni, dawn-man, and British media raved about the discovery of this ‘Ancient Briton’. Soon this so-called ‘Piltdown man’ would claim a prominent position in the genealogical tree. Only 41 years later, in November 1953 it was proven that somebody had deliberately planted the ‘fossils’ in a gravel pit in Sussex. The fragments of the skull in fact belonged to a mediaeval human, the mandible to an orang-utan. The bones had been treated chemically in order to look fossilized, the ape teeth had been filed to look more human. We still do not know with certainty ‘whodunit’.

In the devil’s cave
Just one year earlier, in the late spring of 1911, a far less-known prank was played out in the rural area of East-Hessen, Germany in the small towns of Steinau and Schlüchtern. Already in 1905 locals had started to explore the so-called Teufelslohe (devil’s cave). The excavations were directed by A. Lüders, a local dignitary responsible for public road works. At the time, he was also the president of the Verein zur Aufschliessung der Teufelslohe bei Steinau (Association for the exploration of the devil’s cave near Steinau). The motivation of Lüders and his Verein to excavate the devil’s cave was to create an interesting site given that Steinau was off the touristic routes of the time.

One of the members of the Verein was the apothecary of Steinau, Wilhelm Rappe. Local lore has it that Rappe always enjoyed a good laugh. Judging by his hand-written account of the Teufelstrech im Buchenwald (A devil’s prank in the beech grove) he particularly enjoyed his joke at the expense of Lüders and the Verein. Rappe skillfully exploited the ‘prehistoric fever’ that raged through Europe at the turn of the century. In France and Spain spectacular cave paintings had been discovered. In the French Dordogne several fossils of Neanderthals were unearthed, and in 1907, a mandible of an early human was found in Mauer near Heidelberg (baptized Homo heidelbergensis), just over a hundred kilometres away from Steinau.

This Pan-European fossil hunt was ignited and sustained by a broad coverage in both academic publications as well as the mass media. It also explains the excitement of the British media about Piltdown man – finally a discovery of major importance on their own island had been made! At the time, many of the excavators were not professionals not least for the simple reason that the respective disciplines (prehistoric archaeology and paleoanthropology) were only about to be institutionalized.

Rappe’s brother had been to Cameroon, at the time a German colony, about two and a half years earlier and had allegedly shot several chimpanzees himself. Rappe took one of the chimpanzee skulls from his brother’s collection and started to ‘fossilize’ it. First he coated the skull in a sugar-mix and held it in the fire to blacken it. Then he applied several washes of potassium permanganate to the skull in order to make it look ‘thousands of years older’. Finally Rappe planted the skull in the mud surface of the excavation in the devil’s cave when the workers were not paying attention. He was looking forward to all the ‘conjectures’ this might cause. Yet he had not foreseen what was about to happen.

At first the workers did not notice the skull. It ended up in a heap of debris outside the cave. In the process the mandible had gotten lost and part of the nose had been chopped off by a spade. This accident actually helped the prank to gain momentum. The mid-facial part had been thus reduced and hence it was less obvious that the skull belonged to a chimpanzee. After discovering it, the workers handed over the damaged skull to Lüders who immediately informed his fellow members from the Verein. With the recent discovery of Homo heidelbergensis in the back of their minds they were wondering whether they themselves had just made an extraordinary discovery as well. In order to confirm that the Verein needed advice from experts. They took two photos of the skull, a frontal and a side profile and sent them to a number of German scholars. All were invited to come to Steinau and Schlüchtern to have a look at the cave and the skull.

Speculations and scepticism – a spectrum of reactions
The Verein did not suffer from false modesty and promptly wrote to one of the best-known German scientists at the time, Ernst Haeckel in Jena. The ‘German Darwin’, as he was called, was already advanced in age and recovering from an accident at the time. He neither travelled to...
Steinau nor wrote an expert report but would nonetheless later comment publicly on the find.4 While Haeckel was too frail to make the journey, three other scientists jumped at the chance to get their hands on the skull. Rappe’s account, a series of newspaper articles, as well as some surviving letters offer us a glimpse of their reactions.

Lüders also informed Fritz Drevermann from the Senckenberg Institute and Museum in Frankfurt, probably in mid-May 1911. The palaeontologist rushed to Schlüchtern (roughly 50 km east of Frankfurt) the same afternoon. Drevermann would later claim that his first impression of the skull was ‘not fossil, far too well preserved and fresh’.5 Yet it appears more likely that in those early days of the discovery, Drevermann was not entirely sure what to think of the find. It seems that the members of the Senckenberg Institute – despite their serious doubts about the actual value of the skull – did not want to miss out on a possibly fossil-rich site.

A contract with the Verein was quickly drafted and signed on June 10. According to this agreement, the Senckenberg Institute would take charge of the excavations immediately – and cover the costs as well. The Verein would remain owner of the objects found but they would be stored in Frankfurt. The Institute was granted the right to buy them first.6

Soon after Drevermann, on May 21 and 22, two scientists from the University of Göttingen – Friedrich Heiderich and Max Voit – travelled to the cave near Steinau. Heiderich, nowadays a virtually unknown anatomist, took a good look at the skull and told Lüders about his strong doubts about its antiquity. A few days later, Heiderich stated that the skull was ‘a very common skull of an ape’ and of a recent age in a talk at the ‘ Anthropologischer Verein’ in Göttingen. Heiderich asked himself how the creature might have ended up in the cave: Did he escape from a wandering menagerie and stumble into the hole on top of the cave?7

While Heiderich claimed that he had already seen on the photos sent to him that the skull belonged to an ape, the physical anthropologist Hermann Klaatsch was decidedly less sceptical when he scrutinized the very same photos at his office at the university of Breslau (today Wrocław). Full of excitement he responded to Lüders that ‘the creature belongs to the group of fossils that link the race of the Neanderthals with the current apes. Maybe it is also a Nean derthal child.’8 Klaatsch was one of the most prestigious German anthropologists of his time. He had travelled Australia for several years (1904–1907) and subsequently participated in Neanderthal excavations in France. Nowadays he is credited for contributing to the establishment of the validity of the species of Neanderthal.9

Klaatsch’s evolutionary theory changed significantly during his lifetime and it is not easy to sum it up in a few sentences.10 The most relevant feature in connection with the Steinau case is his idea that the human ‘ races’ had developed out of different species of apes. In other words: Klaatsch proposed a polygenetic theory of human evolution.11 After receiving the photos he hastened to Steinau and Schlüchtern over the Whitsun Holidays in early June. Looking at the skull itself – and possibly influenced by Heiderich’s assessment – Klaatsch too concluded that it belonged to an ape and not to an ancestor of Neanderthal, as he had first suspected. Yet unlike Heiderich, Klaatsch considered the skull to be a fossil. Quickly Klaatsch even ‘integrated’ this new find in a footnote of an article that was about to be published. For him the Steinau skull served as further evidence for the presence of apes in Europe not only in the Miocene but also in the Pliocene. Thus he hoped to bolster his polygenetic theory.12 In his later account, Rappe claimed that Klaatsch ‘was rarely sober in these days’ in the Hessian province and would not listen to cautious remarks by Rappe such as ‘errare humanum est’.13

Rappe might have exaggerated Klaatsch’s ecstasy about the discovery. Already on June 11, one day after the Senckenberg Institute had signed the contract with the Verein, Klaatsch wrote to Hans Virchow, the secretary of the Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte (BGÄEU), the leading German society for prehistoric research. In order not to interfere with the ongoing research of the Senckenberg Klaatsch announced that he would suspend for the time being further investigations on the Steinau skull. Therefore he also cancelled a talk at the BGÄEU on the topic he had already planned. The discovery ‘posed some riddles’ and Klaatsch wanted to wait for the results of the ongoing excavation.14

A fourth scientist to get involved was Paul Matschie, the curator of mammals from Berlin’s Zoological Museum – and arguably Germany’s leading expert on primates. He did not come to Steinau and only judged from the two photos sent to him. Matschie pointed out the similarity to a chimpanzee but suspected that it might be from an extinct Miocene ape: ‘I hope that this very important find will get to a museum.

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7 Klaatsch 1911, 415, note.
8 ‘Feuersteinsichel im Buchenwald.’
9 Hermann Klaatsch zu Hans Virchow, June 11, 1911, Archive of the Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte (BGÄEU), WP, no. 16.
where it will be appreciated accordingly, a perhaps not-so-subtle plug for his own museum.  

Due to misleading information in one of the newspaper articles, readers were led to believe that the Hessian Landesmuseum in Kassel already had taken hold of the skull. Immediately the museum received several requests from anthropologists and the like who wanted to 'borrow' the skull for their investigation or at least obtain plaster casts or photographs. This included the anthropologist Gustav Schwalbe from the University of Strasbourg who is today credited with helping to establish Neanderthal as a distinct species in 1901. One can imagine his curiosity after reading about a possible discovery of a Neanderthal ancestor, as the newspaper article suggested. Yet Johannes Boehlau, the director of the museum in Kassel, could only tell them that he did not possess the skull and that his museum had no intention of buying it either.  

A prehistoric jackpot?

The coming and going of these scientists had caused a bit of a stir in Steinau and Schlüchtern. At the end of May 1911 the ominous skull embarked on a brief career in the German media. Several newspapers as well as popular science magazines reported the discovery from the devil's cave. In these weeks the meetings of the Verein brimmed with anticipation and speculation about how much the skull was worth in monetary terms. According to Rappe the Verein received offers of up to 15,000 marks for the skull, an enormous sum for the time. Had they won a prehistoric jackpot?

From the Verein, enthusiasm spread quickly to near and far. Local politicians and dignitaries became excited as well. Even a member of the upper house of the Prussian parliament, the aristocrat politician Bogdan Graf Hutten-Czapski came to the Hessian province to retrieve information. Upon his return to Berlin, he reported to 'the majesties', i.e. the members of the family of the German Kaiser about the seemingly spectacular find. Rappe amused himself in secret about the talk of this Pithecanthropus steinowiensis as he jokingly referred to his prank.

Yet there was of course one little problem. Heiderich did not consider the skull to be old and said so repeatedly in public. Understandably Lüders very much preferred Klaatsch's more daring interpretation. The president of the Verein contacted several newspapers telling them that the matter had not been decided yet and that the specialists differed among themselves. In a masterpiece of PR, Lüders himself published a large article on 24 June 1911 in which he cunningly rehearsed the different arguments that called into question Heiderich's judgement. He quoted at length from Klaatsch's expert report that seemed to leave no doubt that the skull was a fossil. A few sentences from Matschie's letter seemed to confirm this. The zoologist from Berlin pointed out the similarity to a chimpanzee but suspected that it might be 'Dryopithecus raneanus', i.e. an extinct Miocene ape. What Lüders did not mention probably because he did not know was that by that time Matschie had already changed his mind. Already on June 17, 1911 he told his fellow members from the BGAEU in their weekly session that the skull belonged to a chimpanzee from Africa.

Even more suggestive were comments Lüders included from a short letter sent to the Verein by Ernst Haeckel himself. Haeckel regretted not to be able to write up a report yet did not hesitate to make a strong claim: 'In any case the skull belongs to a fossil anthropoid and is of high value.' Lüders toppped off the article nicely by quoting the generous offer of Friedrich Ludwig Robert Krantz, a dealer of natural objects from Bonn. Taking on the air of a responsible citizen, Lüders insisted that the Verein wanted to wait for a conclusive result from the scientists first. With this very selective and quite manipulative presentation of the testimonies he had received, Lüders tried to keep the debate on the actual age of the skull open.

Ironically, it was this PR-stunt that would end the hoax because Rappe read the article too. And he did not like the way Heiderich was treated. After all he was the only one who had recognized the skull for what it was. As a reward for his sharp eye, Rappe revealed himself to the Göttingen professor in a letter in early July 1911, congratulating him. Rappe explained that because the Verein was close to actually selling the skull, he had felt it necessary to reveal the hoax. The prank had gone much further than he had intended. Afraid of possible legal consequences and already in touch with a lawyer, Rappe asked Heiderich not to disclose his identity. On July 21 Heiderich gave his final report to the Anthropologischer Verein in Göttingen. By early August every German newspaper-reader knew that the mysterious skull belonged to a chimpanzee planted by a jester. Although Heiderich had not mentioned Rappe's name, it soon became common knowledge that the apothecary from Steinau had planted the skull.

Minimizing the damage

By the time the hoax was revealed, researchers at the Senckenberg Institute in Frankfurt had already realized that they might have been too hasty in signing the contract with the Verein. Otto zur Strafen, the director of the Senckenberg Institute, had discovered two rusty holes that pointed to a contraption to keep the (missing) mandible in place with nails. It looked like a hoax. What were they  

27 This according to Teufelsstreich im Buchenwald.  
28 Again according to Teufelsstreich im Buchenwald; Hutten-Czapski does not mention this episode in his memoirs which strictly focus on political issues; see Hutten-Czapski, Bogdan von. Sechzig Jahre Politik und Gesellschaft. 2 vols., Berlin: Mittler, 1906.  
supposed to do now? The Institute had already started a full-blown excavation of the devil’s cave and invested a good bit of money. From the correspondence, it seems that the Senckenberg researchers tried to save face by stressing the scientific importance of the excavation regardless of the skull’s authenticity. And in subsequent publications, Drevermann expounded the great value of the hundreds of bones of dogs that turned up (none of them fossil). At the same time he dismissed the ape skull as entirely worthless. It is hard not to smile at his anxious efforts to justify the ongoing excavations.

After the exposure of the prank, Matsche mercifully glossed over the fact that he had taken the skull to stem from a Miocene ape. Instead the prolific zoologist from Berlin was at pains to assert his reputation as an expert on primates. He claimed that he could even determine the subspecies of the chimpanzee (*Tschego or Kolumba* in his nomenclature) because he had a similar skull in his own collection. In order to prove his claim he even *inquired* — mediated through the Senckenberg Institute — with Rapp about the exact geographical provenance of the Steinau specimen (*Lolodorf*).88

The ones who presumably suffered most were Lüders and even more so Klaatsch. Scornc was poured over the anthropologist from Breslau even before the hoax was exposed. On 5 June 1911, an anonymous and scathing letter was sent to the BGAU. The unknown writer called Klaatsch a ‘charlatan’ and ridiculed him for not being able to distinguish the skull of a human from the one of a chimpanzee. He demanded Klaatsch’s expulsion from the BGAU and suggested that instead Heiderich be made an honorary member.29 After the exposure of the fraud in late July 1911 the Verein and Klaatsch wanted to sue Rapp in court, apparently without success. Their vanity had been offended as one journalist remarked. Klaatsch could not escape public ridicule.30 Yet in the long run his reputation did not suffer too much on account of this scandal. The criticisms he received with respect to his polygenetic theory were far harsher.31 The Steinau hoax is neither mentioned in his obituaries — he died only a few years later, in 1916 — nor in the (few) scholarly treatments of Klaatsch’s work.32

### Epistemological anarchy

Already contemporary observers noted that the case of the chimpanzee skull from Steinau provides another telling example of how easily anthropologists get ahead of themselves if a find seems to support their theoretical claims. Yet as we have seen, the reactions of the scholars involved varied from the enthusiasm of Klaatsch and Haeckel to the scepticism of Drevermann and the outright rejection of Heiderich. Between May and July 1911, there was a brief moment of ‘epistemological anarchy’. Because Lüders and his Verein controlled access to the skull, they were in a powerful position to invite anthropologists and anatomists to Schlüchtern and, most significantly, to negotiate with them. The Verein had initially promised Heiderich the skull for more thorough investigations but then withdrew this offer because Klaatsch’s interpretation seemed more ‘promising’.33 Amateurs ruled at least for a brief moment over professionals. Lüders led what we may now call a PR war with Heiderich about the age and hence the value of the skull. The scientific question of how to interpret the discovery was virtually exclusively debated and decided in the public sphere.

### Steinau – an inspiration for Pittdown?

It is impossible to say if the Pittdown forger was inspired by planting of the chimpanzee skull in the devil’s cave near Steinau. And it is of course entirely conceivable that Charles Dawson — the main suspect in the Pittdown case and by that time already an experienced forger of archaeological artefacts — came up with the scheme all by himself.34 Yet the parallels between the two hoaxes are hard to overlook. For starters, there is the chronology. Dawson contacted Woodward in February 1912 to alert him to the hominid fossils he allegedly had found in the gravel pit of Pittdown, merely half a year after the Steinau prank had been exposed.35

Between May and August 1911 the Steinau case was widely reported in the German media but news also reached France and probably also Great Britain. British anatomist Arthur Keith read German fluently and knew Klaatsch’s work very well. In the crucial years around 1911/12 Keith reviewed several of his works in *Nature* including the article where Klaatsch mentions the recent discovery of a fossil ape in Steinau.36 Soon Keith would be heavily involved in the investigation of Pittdown man. He differed in his interpretation of *Eoanthropus dawsoni* from Dawson and Woodward but always strongly advocated the authenticity of the Pittdown fossils. Some scholars suspect that Keith might have been Dawson’s ‘scientist-accomplice’.

Both forgers treated the bones chemically to make them look substantially older. One may say that the Pittdown forger ‘refined’ Rapp’s method, not using the skull of an ape but actually combining remains of man and orangutan. The Pittdown forger also ‘improved’ on the Steinau case.

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36 There are numerous obituaries, for one in English see Oeteking, Bruno. ‘Hermann Klaatsch.’ *American Anthropologist* 18, no. 3 (1916): 422–425.
37 Heiderich to Rapp, July 13, 1911, quoted in ‘Teufelsstreich im Buchenwald.’
39 Russell 2003, 149.
skull (damaged, but in one piece) by smashing the skull into numerous pieces. This allowed for more discussion, different reconstructions and thus more credibility.

Both pranks were born out of the prehistoric fever of the early-twentieth century. Yet while the Steinau case only flourished for a few months and remains a forgotten episode in the history of paleonanthropology, Piltdown man misled the community of human-origins researchers for decades. The skull of the chimpanzee from Cameroon that was planted in the devil's cave and then went through the hands of distinguished members of the German anthropological community ended up in the collection of the Senckenberg Institute in Frankfurt. Whether it has been discarded as valueless or still lingers in the vaults of the museum is not known. The Verein in a sense achieved its goal. With the support of the Senckenberg the cave was fully excavated. No interesting fossils were found but the devil's cave is today known as Germany's smallest stalactite cave and has become a minor tourist attraction.

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