

New Piltdown hoax analysis points to work of 'lone forger'

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The faked fossilized remains of Piltdown man (stained to look old), newspaper articles from the 1950s exposing the fraud. Inset: Charles Dawson, who the new article claims is probably the sole fraudster. Credit: Natural History Museum

The Piltdown Man scandal is arguably the greatest scientific fraud ever perpetrated in the UK, with fake fossils being claimed as evidence of our earliest ancestor.

Published 100 years on from Dawson's death, new research reveals that the forgeries were created using a limited number of specimens that were all constructed using a consistent method, suggesting the perpetrator acted alone.

It is highly likely that an orang-utan specimen and at least two human skeletons were used to create the fakes, which are still kept at the Natural History Museum.

Between 1912 and 1914 Museum palaeontologist Arthur Smith Woodward and the amateur antiquarian Charles Dawson announced the discovery of fossils from Piltdown in Sussex. These were supposedly a new evolutionary link between apes and humans. They indicated a species with both an ape-like jaw and a large braincase like a modern human. Before he died in 1916, Dawson claimed to have discovered further evidence at a second site.

The forgeries helped misdirect the study of anthropology for decades. While doubts were raised from the start, it took 40 years for the scientific community to recognise that the remains had been altered to seem ancient and had been planted in the sites.

The new research, published in *Royal Society Open Science*, was

undertaken by a multi-disciplinary team from institutions in Liverpool, London, Cambridge and Canterbury. They used the latest scientific methods to test the Piltdown specimens to uncover more about how the forgery was done.

DNA analyses show that both the canine from the first Piltdown site and the molar from the second site probably came from one orang-utan, related most closely to orang-utans now occupying south-west Sarawak (Borneo). In addition, the shape and form of the molar from the second Piltdown site was almost certainly from the other side of the jawbone planted in the first site.

3D X-ray imaging (Micro-CT scans) show that many of the bones and a tooth were filled with Piltdown gravel and the openings plugged with small pebbles. Holes in the skull bones were filled with dental putty, which was also used to re-set the teeth in the jaw and to reconstruct one of the teeth that fell apart while it was being ground down.

Dr Laura Buck co-author on the paper from the Division of Biological Anthropology, University of Cambridge commented on the project's importance. "Even today, over a hundred years after the Piltdown fraud was perpetrated, it remains relevant because of the huge impact it had on the course of Palaeoanthropological research at the beginning of the twentieth century."

"Fossil human remains from Africa, such as the Taung child from South Africa, were largely ignored when first found because they didn't fit with preconceptions of what an early human relative would look like, based on Piltdown Man. This serves as an important reminder to researchers today to study what is there and not what we think should be there," Buck said.

Dr Isabelle De Groote from Liverpool John Moores University and lead

author on the paper, thinks the results point to a clear conclusion:
"Although multiple individuals have been accused of producing the fake fossils, our analyses to understand the modus operandi show consistency between all the different specimens and on both sites. It is clear from our analysis that this work was likely all carried out by one forger: Charles Dawson."

More information: *Royal Society Open Science*. [DOI: 10.1098/rsos.160328](https://doi.org/10.1098/rsos.160328)

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