

## A Hoax Deconstructed

### Unraveling Piltdown: The Scientific Fraud of the Century and Its Solution

John Evangelist Walsh. New York: Random House; 1996. xx + 279 pages. Hardcover \$25.95. ISBN 0-679-44444-0

*"Strangely enough, deliberate, conscious fraud is extremely rare in the world of academic science . . . The only well-known case is 'Piltdown Man.'"—J M Ziman, Nature 1970;227:996. Quoted by William Broad and Nicholas Wade in Betrayers of the Truth (New York: Simon and Schuster, 1982).*

If only it were true. As scientific editors and writers, we have all heard of (if not been victims of) fraud and plagiarism. Piltdown Man is, however, an extreme example of a scientific fraud: the perpetrator never confessed, the hoax involved some of the most eminent scientists of the day, it misled the nascent study of human evolution, and it was not revealed for 40 years. The Piltdown hoax is worth studying for those reasons alone, but John Evangelist Walsh had 3 other aims: to present an example of the scientific process and how it can go wrong; to show scientists as less than perfect people, like ourselves; and, most important, to clear the names of the innocent people who have been unjustly accused of the fraud. "The Piltdown forger must finally be brought to book so that the other suspects may go free," he says.

In a similarly melodramatic fashion, Walsh reviews the available data on the Piltdown case, lambastes other writers (some famous scientists) for presenting incorrect theories of who perpetrated the fraud, and presents his own reconstruction of the case. There is a complete list of sources for previously published material, but unfortunately the sources are not cited in the text. The book reads like a mystery story, and the real perpetrator is not revealed until the end. Despite Walsh's somewhat inverted writing style (many sentences begin with adjectives, for instance, "Compelling is one reason in particular . . ."), the book largely meets its

aims. But in doing so Walsh commits some of the evils he accuses others of. Thus, both the book's strengths and some of its weaknesses are relevant to more recent cases of scientific fraud.

Piltdown Man was actually only fragments of a cranium, a jaw, and 2 molars that were found in the ancient Piltdown gravel pit in England in 1912 by Charles Dawson, a solicitor and amateur scientist and historian. Arthur Smith Woodward (whom Walsh irritatingly calls "Woodward"), the keeper (curator) of geology at the Natural History Museum in London and one of the most highly respected paleontologists of his day, and Pierre Teilhard de Chardin, a young French Jesuit priest who went on to become a famous theologian and paleontologist, were present when Dawson discovered some of the fragments.

The cranial fragments looked modern, but the jaw was apelike, although the 2 molars in it had characteristically human wear patterns. This combination refuted the commonly accepted theory that the human brain had evolved slower than the jaw, leading to the appearance of early people with modern-looking jaws but apelike crania. The condyloid process, the piece of bone that connected the fragments and would have unequivocally shown that they came from the different individuals, was missing.

All the leading lights of paleontology, anthropology, and anatomy expressed their opinions on Piltdown Man, some vociferously and in the form of personal attacks on their opponents. (Typical human behavior and business as usual in science, some might say. A colleague still delights in telling of a scientific meeting in which a student presented evidence refuting the theories of Dr X only to have Dr X rise up in the audience and declare, "Me X. You wrong.")

Smith Woodward supported Dawson's claim that he had found the missing link between modern humans and their hominoid ancestors. Teilhard de Chardin initially thought the find was real, but after 1920 he developed a curious reluctance to talk about Piltdown or to cite the find in his profession-

al writings. Sir Arthur Keith, the renowned anatomist, believed Smith Woodward's reconstruction of the Piltdown skull was incorrect, partly because Woodward Smith did not have a scientific or medical degree.

National pride may also have affected the British scientists' judgment. France has its Cro-Magnon Man, and Germany its Heidelberg Man. But no significant human remains had been found in England. (Before we conclude that modern scientists are citizens of the world and unaffected by nationality, we should consider the recent controversy about whether an American team or a French team was the first to isolate the AIDS virus.)

In 1953 the Oxford physical anthropologist Joseph Weiner subjected the Piltdown fragments to more sensitive and thorough studies, and he and the rest of the scientific world concluded that they were a fraud. "Piltdown Man, the most famous creature ever to grace the prehistoric scene, had been ingeniously manufactured from a medieval Englishman and a Far Eastern ape."

The perpetrator of the fraud never confessed, and so over the years various theories and reconstructions of the crime have been presented. At least a dozen men have been accused of the hoax, including Smith Woodward, Teilhard de Chardin, Keith, and the writer Sir Arthur Conan Doyle. Walsh reviews and rejects the evidence against each. His almost indignant defense of the accused is laudable but amounts to an attack on their probably innocent accusers. I believe that the earlier writers had much the same motivation as Walsh in presenting their cases. I was reminded of the recent accusations of fraud against Thereza Imanishi-Kari and David Baltimore, which were made in good faith but damaged Imanishi-Kari's career irreparably, despite the recent conclusions that Imanishi-Kari and Baltimore were innocent. Their accuser acted in good faith and in keeping with scientific standards but was also attacked in the professional and lay press. Who is to blame? All three were victims.

Walsh reveals the real Piltdown bad guy in a reconstruction that is convincing but is

presented too much like fact for my liking. Charles Dawson, the discover of the Piltdown Man, had the means and opportunity to create the Piltdown remains and is probably guilty. While some of his colleagues suspected him, most thought he was too honest and open a man to have perpetrated a major scientific fraud. In fact, Piltdown Man was not his first. There is good evidence that he created and pressed on the British historical and scientific communities other "missing links", among them transitional forms of a horse shoe and an iron Roman sculpture. He was also an accomplished plagiarist who cobbled together books and scientific papers from the work of others. Most of Dawson's writings were definitively shown to be stolen, but unfortunately Walsh seems compelled to present a black-and-white case. The originality of 1 Dawson publication, on a tapestry, has not been examined, but Walsh concludes "It may in fact represent that extremely scarce commodity, original, underived work by Dawson. After all, there seems no good reason why a forger and plagiarist might not, now and then, have a gen-

uine flash of inspiration. Still, common sense counsels otherwise."

In refusing to acknowledge that any of Dawson's work could have been original, Walsh himself ignores what he calls "the responsibility of those who set out not to just express an opinion but to induce us to call it truth." In science there is no truth and no "common sense"; there are only data to support or refute hypotheses. Dawson's previous forgeries and plagiarisms cannot be accepted as evidence of his forging the tapestry manuscript or the Piltdown remains. At best, his past suggests a pattern into which the Piltdown forgery may fit. At any rate, no more tar is needed to blacken his reputation.

We can compare Walsh's conclusions about Dawson with the scientific community's treatment of Robert Slutsky. Commonly regarded as one of modern medicine's most prolific plagiarists, Slutsky was a cardiologist who published 137 medical papers in 7 years, a rate of 1 paper every 19 days. When some of the papers were questioned, a faculty committee at Slutsky's institution examined each of his papers and reported not that

all of his work must be fraudulent, but that 12 papers are fraudulent, 48 are questionable, and 77 are valid.

Cynics may say that such caution is more a result of fear of litigation than professional ethics, but I think it is an example of scientists thinking like scientists: examining each piece of data and arriving at not "the truth" but a theory. However, in some ways, it goes against human nature to say that someone has plagiarized X number of papers; we would rather say he is a jerk. In *Unraveling Piltdown*, Walsh has presented several examples, including his own, of how enthusiastic amateur detectives can unwittingly accuse the innocent (and even the guilty) of crimes they did not commit.

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