The Piltdown Hoax's Influence on Evolution's Acceptance

Jerry Bergman*

Abstract

The Piltdown hoax history and its importance in convincing the world of evolution is reviewed. Compelling evidence existed from the beginning that the find was a hoax or, at the very least, did not provide support for human evolution. Yet, the Piltdown was touted for decades as one of the most important evidences of human evolution by textbooks, articles and major first class museums such as the American Museum of Natural History in New York.The hoax is an excellent illustration of the difficulties inherent in drawing conclusions about evolution from the fossil record. It was concluded that the hoax served to convince many people of the validity of Darwinism and its final definitive exposure probably did little to alter the views of most Darwinists.

Introduction

Of the many fossil forgeries used to try to prove Darwinism, the most well known was the Piltdown hoax. For close to forty years, *Eoanthropus dawsoni*, a.k.a. Piltdown man (Figure 1) was taught as fact in textbooks throughout the world and was exhibit one for evolution in major museums the world over (Blinderman, 1986, p. 238). Its importance was explained by Walsh:

> The Piltdown hoax—though that is much too mild a word for an event never intended as a lighthearted prank—during the four decades that passed before it was exposed, *played a pivotal role in one of the most critical scientific pursuits of modern times*, the theory of human evolution. Appearing on the scene just as the fossil record of man had slowly begun to accumulate ... It created, as one scientist recently expressed it, what was easily the most troubled chapter in human paleontology, with the fraudulent bones receiving nearly as much attention *as all the legitimate specimens in the fossil record put together*. Young scientists and old alike wasted untold thousands of hours on the Piltdown phenomenon. The laborious study, and the writing and publishing of the several hundred research reports and papers worldwide, the sheer, enormous amount of space in books and articles given to sober discussion of its every smallest aspect, make a picture sad to contemplate (Walsh, 1996, p. xvi emphasis mine).

Many famous scientists were involved in the hoax including Dr. Arthur Smith Woodward, Director of the Natural History Museum of London, and Sir Arthur Keith (1866–1955), Professor of Anatomy at the London Hospital Medical School and later Conservator of the Museum of the Royal College of Surgeons. The Piltdown bone fragments were accepted by many well respected scientists as important proof of evolution for almost half of a century. Furthermore, Piltdown man absorbed the professional attention of many fine scientists [and] ... led millions of people astray for forty years (Gould, 1983, p. 225).

Although several other putative finds existed that were used to prove human evolution, the Piltdown fossils had a major impact in proving the theory of evolution and were used as proof of evolution in textbooks for decades (Baitsell, 1929). It was no minor find, but of central importance to evolution: As Christ was to Christianity, and the atomic theory was to chemistry, Piltdown man was to human evolution. Piltdown even made the careers of some of the most eminent 20th century scientists. When Arthur Smith Woodward retired he found his days were as busy as they were during

> his forty crowded years at the Natural History Museum in London. Still youthful at sixty ... he was to remain active in paleontology for almost another two decades ... The ultimate honor came ... in the spring of 1924: conferral of a knighthood. Woodward's eminence had been fairly won ... by sheer brilliance and unflagging energy he had worked his way upward at the museum, at thirty-seven becoming keeper (director) of its world-famed geology department. Along the way his many out-

*Jerry Bergman, Ph.D., Northwest State College, Archbold, OH 43502-9542

Received 2 June 1999; revised 27 September 1999.

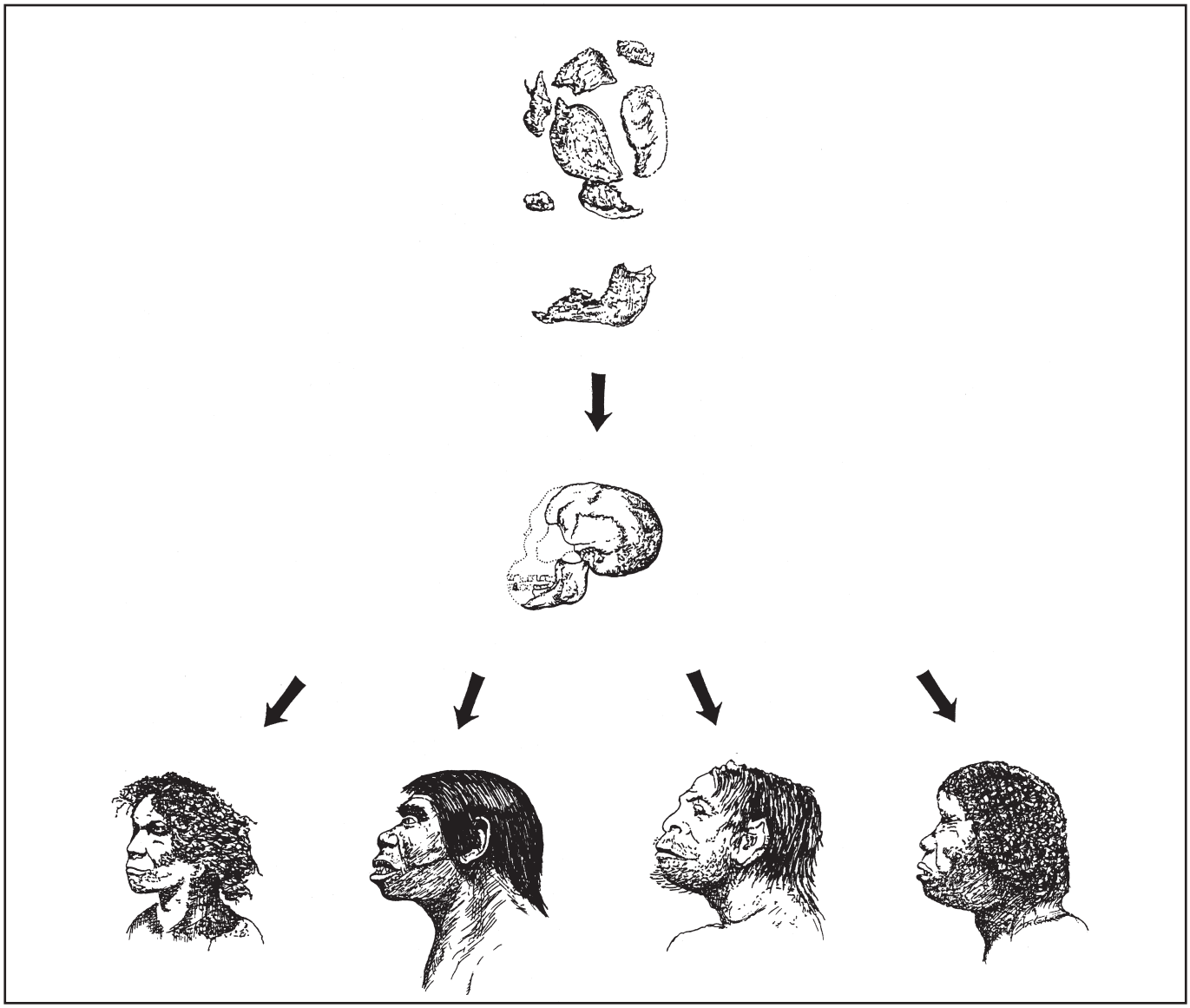

Figure 1. Adapted from Blinderman (1986), Winslow and Meyer (1983), and Walsh (1996) by artist Richard Geer. From the bone fragments and a human jaw shown above the reconstruction shown in the middle was produced (the solid lines represent then actual skull parts, the dotted lines the missing parts). From the skull reconstruction was then produced by four artists the illustrations shown, each which was represented as an accurate depiction of the Piltdown man head.

standing achievements in paleontology... had been fully recognized. A fellow of the Royal Society before he was forty, by the time of his retirement he had been president at different times of three prominent scientific bodies. A recipient of the Gold Medal of England's Royal Society, he had also been awarded the Lyell Medal, the Linnean Medal, the Wollaston Prize, the Prix Cuvier of the French Academy, and the Thompson Medal of the American Museum. Aside from his half dozen technical books, the total of his scientific writings exceeded a remarkable four hundred papers. *Capping all was the association that had brought him fame and secured his place at the pinnacle of his profession, the central role he took in the drama of Piltdown Man*. Hailed by most as evolution's first true missing link, that sensational find since its arresting debut in 1912 had usurped a large portion of his time at the museum, and through his twenty-year retirement it continued to rivet his attention ... To a reporter from a London paper who interviewed him on the day he quit the museum for good, *Woodward readily admitted that the Piltdown discovery had been the most important thing that ever happened in my life* (Walsh, 1996, pp. 3–4 emphasis mine).

History of the Piltdown Discovery

The story began with Charles Dawson, a geologist awarded the coveted fellowship of the London Geological Society at the young age of 21 (Youngson, 1998. p. 53). Dawson claimed that he noticed several small pieces of brown flint when workers were digging gravel from a shallow pit to repair a road near the village of Piltdown in Sussex country, England. Dawson claimed that the flint indicated the site might contain humanoid fossils and so asked the workers to contact him if they found any bones.

He later claimed that the men did find some "old bones" in 1908 and four years later, on December 18, 1912, Dawson and Woodward introduced to the world — to a packed and excited audience at the Geological Society of London — Piltdown man, the most important archaeological discovery of all time (Youngson, 1998, p. 54; Millar, 1972). The find not only fulfilled Charles Darwin's predictions but was the ideal missing link (Millar, 1972, p. 9). The evidence consisted of skull fragments, a jawbone, and a single tooth found in a shallow gravel. The Piltdown brain capacity was at first estimated to be about halfway between that of humans and apes, but later more evaluations indicated that its brain size was closer to about 1,400 cubic centimeters, close to modern Piltdown residents.

Later named *Eoanthropus dawsoni* by Woodward in honor of Dawson, the skull was pieced together from fragments that had been putatively deposited during the Pleistocene era, roughly around the last ice age. Further finds, including a lower canine tooth uncovered in 1913 and cranial fragments at a second site called Piltdown II allegedly found two miles away found in 1915, dispelled much of the doubt about the validity of the original finds (Gould, 1979, p. 87; Lubenow, 1992, p. 41). The bones, teeth, and antlers of a variety of extinct and non-extinct animals including mastodons were also allegedly found nearby Piltdowns grave as were crudely flaked flint stones called eoliths (Winslow and Meyer, 1983, p. 34).

Many scientists—and much of the world—were elated at the discovery. Now many evolutionists felt that for the first time they finally had solid empirical evidence of human evolution. Piltdown bridged the gap between humans and lower primates, and was judged by many of the world's leading paleontologists as neither a monkey nor a human but an ape-man link. Piltdown soon became the basis for many beliefs about the so-called "missing links" discovered since then. The find was soon widely regarded as the earliest known human fossil, older than anything the French or Germans or anyone else had yet found (Winslow and Meyer, 1983, p. 33). A close associate of Dawson, Sir Arthur Smith Woodward, who was then head of the geology department at the British Museum, was so enthusiastic about the find that he widely publicized it at every opportunity. The importance of the find is clear in a contemporary account:

> A GREAT company assembled in the rooms of the Geological Society of London on the evening of December 18th, 1912, to receive the first authentic account of the discovery at Piltdown . . . It was quite plain to all assembled that the skull thus reconstructed by Dr. Smith Woodward was a strange blend of man and ape. At last, it seemed, the missing form—the link which early followers of Darwin had searched for—had really been discovered. No one had ever suspected that a secret of this kind lay hid away in the Weald of Sussex (Keith, 1915, p. 306; emphasis in original).

With the support of many well-known eminent scientists, many of the experts of the day were easily convinced that an important and unique find had been made. Jesuit Priest Pierre Teilhard de Chardin helped Dawson with the digs which improved Dawson's credibility even more. Professor de Chardin, who was then teaching at a seminary in Hasting, soon uncovered another part of the missing link, this time a canine tooth. With the church on his side and further discoveries to come, major challenges to Piltdown Man appeared unlikely.

The importance of Piltdown in convincing the populace of the validity of evolution cannot be overestimated. The other fossil finds of the time included a jawbone found near Heidelberg, Germany (Heidelberg man) and a skullcap, thighbone and three teeth discovered in Java (Java man). These were then the only known fossil evidence of the putative modern human ancestors and for years both remained the subject of intense scientific controversy (Larson, 1997, pp. 11–12). Neanderthals contributed little to the story of human evolution because they came from a later era, were fully human and died out (Larson, 1997, p. 12). This left Piltdown as one of the most important missing links between man and the higher apes (Lawson, 1997, p. 12).

One day after the Piltdown find was announced to the world a headline in the *New York Times* stated that the "Piltdown Bones Probably Those of a Direct Ancestor of Modern Man" (Dec. 19, 1912, p. 6). The very next day the *Times* (Dec 20, 1912 section c, p 1) followed up with an interview of Woodward who stated, "Hitherto the nearest approach to a species from which we might have been said to descend that had been discovered was the cave-man," and that "the authorities constantly asserted that we did not spring direct from the cave-man. Where, then, was the missing link in the chain of our evolution? ... the answer lies in the Piltdown skull, for we came directly from a species almost entirely ape." Many American and European newspapers carried similar claims.

The *New York Times* in its next Sunday edition concluded its coverage of the Piltdown discovery with a page-one summary of the find and its meaning for evolution. The banner headline proclaimed "Darwin Theory Is Proved True" and added the subheadline that the skull was thought to be a woman's. Another subtitle added "English Scientists Say the Skull Found in Sussex Establishes Human Descent from Apes." This article printed Keiths conclusion that the discovery is what anthropologists have been seeking for forty years because it provided proof of a stage in the evolution of man which we have only imagined since Darwin propounded the theory. He adds that

> *there is no doubt at all* that this is the most important discovery concerning ancient man ever made in England. It is *one of the three most important discoveries* of ... [fossil man] *ever made in the world*. The other two were the discovery of the individual known as Pithecanthropus, made in Java in 1892 by Prof. Eugene Dubois. The other, which equals it in instructiveness and importance, is the skull discovered at Heidelberg six years ago (Quoted in *The New York Times*, Dec. 22, 1912, p. C1 emphasis mine).

Note how extremely confident the scientists were in their assessments:

> It is, therefore, generally agreed that the skull belonged to a race of men who lacked the power of speech. A prominent anthropologist ... said that the evidence on that point was convincing, the speech centres in the brain being so feebly developed that brain power was practically nonexistent (*New York Times*, Dec. 22, 1912, p. C1).

The renown of Piltdown man soon rapidly spread throughout the world. Replicas of the famous skull made from the original (which was regarded as priceless and kept safe locked away in the British Museum protected from vandals and skeptical investigators alike) soon found their way into many state museums and college science classrooms (Johnson, 1991, p. 186). In a set of glass cases in the Hall of the Age of Man display at the American Museum of Natural History, for years Professor Henry Osborn exhibited his best case for human evolution. In case No. 2 he mounted a bust of the Piltdown man conceived by Professor J. H. McGregor. Described as a restoration of a missing link, to the uninitiated it was half-ape, half-human which was designed to impress the high school students and their teachers, visiting the Museum in ever increasing numbers, with the conclusion that human evolution is true (McCann, 1922, p. 1).

Lubenow concludes that one reason why the Piltdown hoax was so successful was because it conformed to what certain evolutionists were expecting to find, namely a big-brained human ancestor. "Sir Grafton Elliott Smith had successfully predicted that a fossil very similar to Piltdown would be found." This successful prediction is one reason why he was one of the suspects of the hoax (1992, p. 43). The eminent Sir Arthur Keith even wrote a 520 page scholarly book on the human fossil record, much of which discussed Piltdown man in enormous detail, including extensive discussions of its biology, life habits and even its death. A sample section follows:

> Early in the summer of 1912, when Dr. Smith Woodward commenced his examination of the Piltdown fragments, he realized that the peculiar and characteristic features of this ancient form of man were centered in the region of the chin. Such features had never been found or seen in any mandible or skull to which the term human could be applied . . . It is the lower or muscular part which principally concerns us. There is no projection of the anterior surface at the lower border of the symphysis to represent a chin in the chimpanzee; the anterior or labial surface of the jaw slopes downwards and backwards to a chinless lower border. On the hinder surface of the symphyseal region——the surface directed towards the tongue—there is seen a deep pit, almost large enough to take the tip of the little finger . . . Such is the conformation of the symphyseal or chin region of the lower jaw in apes . . . When a corresponding section is made of the symphyseal region of a human lower jaw, a very different conformation is seen (Keith, 1915, pp. 322-323, spelling modernized).

Reading this work is enormously enlightening about the wild speculations involved in establishing evolution theory. The Nature Conservancy even spent much taxpayer money to designate the Piltdown site as a national monument. Nor were a few loners only involved in accepting the fraud. Gould admitted that the three leading lights of British anthropology and paleontology—Arthur Smith Woodward, Grafton Elliot Smith, and Arthur Keith—had staked their careers on the reality of Piltdown (Gould, 1979, p. 90). So important was the find that Millar claims were it not for his premature death, Dawson would been knighted by the British crown for it (1972, p. 9). Fix claims that for many Piltdown Man was the most important evidence of human evolution (1984, p. 12).

To most creationists and a few critical scientists including Franz Weidenreich, though, the skull and jaw fit did not seem right. The jaw was too much like an apes and the cranium was far too much like an Anglo-Saxon human cranium. Although other persons also eventually came to believe the two did not belong together, evidently most scientists did accept the Piltdown hoax. According to Lubenow

> evolutionists now like to boast that not everyone accepted Piltdown. Technically they are correct.

> There were a few, such as Weidenreich and Hrdlicka, who did not accept Piltdown. But the vast majority of paleoanthropologists worldwide did accept Piltdown as legitimate, especially after the confirming discoveries at Piltdown II (1992, p. 41).

Finally, in 1949 British geologist Kenneth Oakley, who was evidently convinced of the validity of the Piltdown find, read a 1892 paper by the French scientist Carnot. Carnot demonstrated that the fluorine content of bone generally *increases with age*. One can therefore obtain an estimate of the age of previously living bone by ascertaining the fluorine content. Dr. Oakley decided he would test the famous Piltdown skull using this new knowledge to prove *once and for all* that the finding was genuine (Walsh, 1996). Oakley found the fluorine content showed that the Piltdown man had made a monkey out of almost everyone involved in propagating Piltdown. According to this technique, Piltdown man was closer to 10,000 years old and not up to 500,000 years old as was originally claimed. (Modern radiocarbon dating indicates it is only 520 to 720 years old—see Lubenow, 1992, p. 42). This finding raised serious questions about the Piltdown find which led to its eventual exposure (Gee, 1996).

The events leading up to this retesting as told by Walsh are a very revealing part of the story. After Woodward published a book on fossil man, a renewed zest about human evolution resulted. The book, although very technical, served to help trigger

> a lively renewal of interest in the original Piltdown discoveries, and a call soon went up to do something about preserving the site of the excavations. Under government auspices, after some final excavations, the small plot of ground was bricked in, with the precise spot of the discoveries being kept open and protected behind thick glass. Piltdown had become a major event in the unfolding of man's remote past, it was declared, and the ground that had yielded the fossils would have great historical value for unborn generations. When in the spring of 1950 the almost forty-year-old site was thrown open for public viewing, it quickly become a focal point for tourists and school outings. It was in this same year that the first puzzled suspicions, ironically *triggered by a wish to obtain the clinching evidence for authenticity*, began to stir. Late in 1949 the bones were taken from the vault of the Natural History Museum and submitted to a test that had been only recently perfected. The new procedure, it was thought, would settle the vexed question of the jaw-cranium association (Walsh, 1996, pp. 9–10 emphasis mine).

The skull is now known to be from a modern human, and the jaw was from a juvenile female orangutan (Winslow and Meyer, 1983, p. 33). The first rigorous discussion of the hoax was published in a 1953 British Museum bulletin by Dr. Oakley and two scientific collaborators in a paper titled "The Solution of the Piltdown Problem." The paper concluded that the canine tooth had been filed down to articulate better with the skull and it was stained to appear more primitive, and also was impregnated with grains of sand so as to "imitate" fossilization. Joseph Weiner is credited for finally bring the forgery to light (Spencer, 1990, p. xiii).

In light of this background, a 1948 account is enormously revealing about the tendency to reach broad sweeping conclusions from a minuscule amount of data:

> ... Piltdown man, long considered one of mankind's oldest ancestors, is a mere anthropological infant, not more than 10,000 years old, Dr. K.P. Oakley of the British Museum disclosed to the British Association for the Advancement of Science .... Previously considered to be between 100,000 and 500,000 years old, the jawbone and skull are now proved by analysis of their fluorine content to be definitely of the last interglacial period. Fossil animal bones of known geological age, dating from the Pleistocene or glacial period, unearthed nearby the human bones at Piltdown, England, had the same content of the chemical fluorine picked up from the ground water of the locality (Davis, 1949, p.185).

The Piltdown exposure was first covered in *The Times* of London (Nov. 23, 1953) and the *Manchester Guardian* of November 26, 1953, which called the hoaxer extraordinarily skillful. It soon became obvious that the hoaxer was actually extraordinarily sloppy, almost beyond belief (Millar, 1972, p. 228). The scientific world was stunned by the Piltdown exposure partly because one of the most important star evidences for evolution was now lost. One major question remaining was: Who was the culprit? Blame fell first on the putative discoverer, Charles Dawson, but his role was difficult to investigate for he had by then been dead for 37 years. Dawson, an amateur anthropologist with limited experience had putatively made some significant fossil discoveries, and was a member of the prestigious Geological Society (Lubenow, 1992, p. 40). Nonetheless, many authorities still conclude he was the most likely candidate (Walsh, 1996).

Also accused was Father de Chardin who was well known for his religion of evolution and his research into the putative evolutionary origins of humans. Harvard professor Stephen Jay Gould concluded de Chardin, Dawson and possibly others were all involved (1979, 1983). Millar concluded that Sir Grafton Elliot Smith of the British Museum was the hoaxer (1972). Even Sir Arthur Conan Doyle was once a suspect (Winslow and Meyer, 1983). Most early investigators of the various distinguished paleontologists and archeologists who originally took part in the investigations of Piltdown were

either perpetrators or the victims of a carefully planned hoax.

Since then a number of other possibilities have surfaced, but *none* of them has produced conclusive evidence. The latest is Martin A.C. Hinton who was a Curator of Zoology at the British Museum in from 1936 to 1945 (Menon, 1997). A trunk that belonged to him was found to contain bones and teeth artificially stained in a way very similar to the Piltdown hoax bones (Gee, 1996, pp. 261–262). This and other evidence have caused some persons that were close to the case to conclude that the evidence for "Hinton having been the sole hoaxer is now conclusive" (Gee, 1996, p. 262). To others, though, the case still remains a mystery, an unsolved hoax. Nonetheless, the significance of the hoax by far is its importance in understanding both the mind set and the paucity of evidence the true believers in evolution actually had.

Piltdown, Creationists and the Scopes Trial

Creationists especially were critical of the find, often by noting the disagreement that existed among evolutionists themselves about the validity of many of the various interpretations that soon surfaced about the find. Typical of the many creationists critiques was the following by Price:

> Considering the fact that these fragments were not all found together or at one time, some of them having been found in the autumn and the rest in the spring of the next year, the various fragments being scattered over an area of several yards, the difficulty of being sure of the real form and size of this skull will be appreciated. As for the geological age of these remains, Keith calls them Pliocene, while Smith Woodward thinks them Pleistocene. Keith thinks the skull is that of a woman (1923, p. 299).

Assuming much of the information presented in the media about Piltdown was true, Price elsewhere stated he believed that Piltdown Man may be a degenerate human offshoot (1924, p. 110). William J. Bryan argued that the Piltdown man did not prove man's relationship to the anthropoid ape (quoted in Larson, 1997, p. 8). Plaster casts of Piltdown man soon even appeared as evidence for the defense in Scopes' legal challenge to Tennessee's anti-evolution law.

Some creationists such as John Roach Straton openly denounced Piltdown as a fraud (Larson, 1997, p. 32). At about this time creationist Harry Rimmer asserted that the Piltdown hominid consisted mostly of plaster of Paris and imagination (1995, p. 427). William Bell Riley referred to it as imaginatively created (quoted in Trollinger, 1995, p. 101). Unfortunately, evidently no creationists then had carefully analyzed the find and provided a detailed review of it. One reason was because few people had access to the original bones which were carefully guarded by the British Museum.

Probably the most extensive early discussion of the Piltdown man problem by creationists was by Catholic biologist George O'Toole (1929) and Catholic author Alfred McCann (1922). McCann does an excellent job evaluating the evidence, albeit in journalistic prose, showing that the obviously poorly executed hoax was accepted only because of the powerful desire of evolutionists to find support for human evolution. McCann traced the Piltdown discovery from its beginning to about 1920. He confidently concluded that Piltdown was clearly a discredited hoax and that the skull-cap was human, the jaw was the jaw of an ape, and the pair were deliberately designed to look like a man half way along his journey from simian to the human stage (McCann, 1922, p. 1). Professor O'Toole correctly concluded twenty years before it was finally recognized by the scientific world that

> *Eoanthropus Dawsoni* is an invention, not a discovery, an artistic creation, not a specimen. Anyone can combine a simian mandible with a human cranium, and, if the discovery of a connecting link entails no more than this, then there is no reason why evidence of human evolution should not be turned out wholesale (1929, p. 323).

O'Toole also concluded Dr. Woodward's major error was in his

> failure to discern the obvious disproportion between the mismated cranium and mandible. As a matter of fact, the mandible is older than the skull and belongs to a fossil ape, whereas the cranium is more recent and is conspicuously human. Woodward, however, was blissfully unconscious of this misalliance. What there is of the lower jaw, he assures us, shows the same mineralized condition as the skull and corresponds sufficiently well in size to be referred to the same individual without hesitation (1929, p. 322).

Extreme Confidence of Many Leading Scientists in the Find

Many of the leading paleontologists expressed extreme confidence in the importance of the Piltdown find for evolution. William J. Bryans nemesis, Henry Fairfield Osborn, even included several chapters devolved largely to Piltdown Man in his major 1928 book on human evolution. The high level of confidence Osborn had in his conclusion is clear from his forceful prose:

> There has been on the part of anthropologists no conspiracy or hasty acceptance of any of these fossil men. The Neanderthal Stone Age man discovered

> in 1848, the Trinil ape-man of Java discovered in 1891, the Piltdown Dawn Man discovered in 1911, have had in turn a hard struggle for scientific recognition, lasting thirty-nine years in the case of the Neanderthal man, more than thirty years in the case of the Trinil ape-man (*fide* Dubois), and no less than ten years in the case of the Dawn Man of Piltdown (Osborn, 1927, p. 48).

Osborn added that Arthur Smith Woodward had finally established

> ... beyond question the authenticity of the Dawn Man of Piltdown. The confirmation of the reality of the Piltdown man as a veritable dawn man must be followed by renewed and determined effort to fix more precisely his *geologic antiquity*, about which there has also been a great difference of opinion and on which the discovery of Foxhall man, described above, may have some bearing (Osborn, 1927, p. 48).

Sir Authur Keith even stated of those who concluded that the jaw was that of an ape and the skull was that of a human was a mistake that could never have been made if those concerned had studied the comparative anatomy of anthropoid apes (1927, p. 204). A common conclusion was that the jaw and cranium *must* belong together because the chances of the two being found together accidentally was infinitely small (Gates, 1948, p. 239). The extreme confidence of the genuineness of the Piltdown find is commonly found in many pre1950 works on evolution. One scientist in a summary of the current state of support for Piltdown concluded that if the second fossil lower jaw found at Piltdown belongs with the first

> Piltdown skull, as nearly all authorities now believe, it affords a clear case of an ape-like canine belonging in a human jaw; only it should be noted that the Piltdown canine is much more like the lower canines of certain female gorillas, which have not attained the tusk-like stature of male canines. The human canines may indeed be most reasonably regarded as reduced and infantilized or feminized derivatives of a primitive anthropoid type, and the process of reduction and infantilization may well have taken place during the millions of years of the Lower Pliocene epoch, at a period when the fossil record of human remains so far discovered is still blank. The great mass of collateral evidence for the derivation of man from primitive anthropoids with well developed but not greatly enlarged canines, has been reviewed lately with great thoroughness by Remane, who finds no justification for the view that man has avoided the primitive anthropoid stage and has been derived from wholly unknown forms with the canine tips not projecting much beyond the level of the premolars (Gregory, 1929, pp. 141–142).

The Piltdown case is not an isolated example, but only one of many in which the enthusiasm of Darwinists went well beyond the facts. That the hoax occurred is less surprising than the fact that *it was accepted by so many scientists for almost half a century*. Steven J. Gould concluded that one of the most interesting questions about the affair is Why did *anyone* ever accept Piltdown Man [as genuine] in the first place? (1979, p. 86 emphasis mine). Among the many reasons that exist for its acceptance include the fact that the skull was unwittingly shattered by a workmans pick and had to be reassembled, allowing preconceptions to influence reassembly as is true of most putative human fossils (Baitsell, 1929, p. 167). Gould and many others largely ignore what is probably the best answer to the question as to why it was accepted for so long: the often blinding desire of naturalists and others to find evidence for their worldview. The lesson here was well expressed by Hawkes, namely that he found it was shocking to discover how often preconceived ideas have

> affected the investigation of human origins. There is, of course, nothing like a fake for exposing such weaknesses among the experts. For example, to look back over the bold claims and subtle anatomical distinctions made by some of our greatest authorities concerning the recent human skull and modern apes jaw which together composed Piltdown Man, rouses either joy or pain according to ones feeling for scientists (Hawkes, 1964, p. 956).

She adds that there is no reason to suppose that tendencies to error [in this field] have grown very much less since then (1964, p. 952). A major problem for those many leading paleontologists who accepted the hoax was that *the forgery work was extremely sloppy*:

> One reason for believing that the jaw went with the skull was the fact that the tops of the teeth were worn down in a manner which seemed to be characteristic of humans and not of apes. But no one noticed that the teeth had been artificially ground down to look like human teeth. No one noticed the scratches left by the abrasive agent, which the careless perpetrator of the hoax did not polish away. No one noticed that the job of flattening the surfaces of the teeth was overdone and the surfaces were too flat to be realistic. No one noticed that the teeth were so flat on top that the edges were angular instead of rounded. No one even noticed that the job had been done so carelessly that the tops of the different teeth were flattened at different angles. Also, because of the crudeness of the operation, the Piltdown cusps exhibit dentin quite flat and flush with surrounding enamel, a state of affairs explicable only by rapid artificial rubbing down of the surface (Davidheiser, 1969, p. 342).

To help look the part, the bones were painted with ordinary hardware store paint, probably a shade called Vandyke brown (Walsh, 1996, p. 70). Piltdown II fragments—a piece of the forehead and an isolated molar—were later found to be part of Piltdown I skull (Walsh, 1996, p. 70; Millar, 1972, p. 228). Davidheiser adds that x-ray analysis of the loose canine tooth found with the Piltdown skull had been worn down so far that

> the pulp cavity was exposed, a phenomenon which does not happen as a result of natural wear, and someone had filled the pulp cavity with sand! Besides all this, it was an immature tooth which would not have had time to wear down a great deal. All of this was not only overlooked as evidence that something unnatural had happened, but it was rejected when it was pointed out. A dentist named Lyne pointed out that the canine tooth could not have been worn down naturally, but his cogent arguments were brushed aside by Woodward. Professor Woodward let himself be influenced by a Dr. Underwood who spoke in violent disagreement with Mr. Lynes contention of the immaturity of the canine and its paradoxical nature, and who declared that the wear of the canine was indubitably natural (1969, pp. 342–343).

History has proved that Mr. Lyne was correct and Dr. Underwood was wrong as should have been clear to anyone who had a basic knowledge of dentistry. Furthermore, the site where it was found was frequently underwater or damp and otherwise the area appears to be a most unlikely place where bones could last even hundreds of years, not to mention thousands (for photographs of Piltdown gravel pit where the bones were allegedly discovered see Spencer, 1990, pp. 160–163).

Evolutionists today in trying to rationalize the widespread acceptance of the Piltdown hoax often stress that doubters existed from the start, and the process of science eventually worked because the hoax was in due time exposed (Blinderman, 1986, p. 235). The same can be said for most all, if not all, of the evolutionists arguments, both those now discredited such as the vestigial organ theory, biogenesis, homology and many others as well as theories largely discredited but still touted as proof for evolution such as the abiogenesis theory and mutations as the major source of genetic variety (Larson, 1997, p. 30). These dissenters are frequently quoted by creationists to the chagrin of orthodox Darwinists. Both today and in the past, the dissenters of Piltdown man could be explained away:

> G. S. Miller, Jr., who studied, not the original but a cast, came to the conclusion that the jaw and skull could not possibly pertain to the same individual or even the same genus, but that the former was that of a fossil chimpanzee . . . despite the fact that fossil anthropoids were heretofore unknown in England. In this conclusion Mr. Miller has had quite a large American following. The matter has, however, been settled beyond question by the finding of a second specimen of the Piltdown man some two miles distant, consisting of diagnostic cranial fragments associated again with a lower molar of precisely similar character to those in the first jaw, a happening which could hardly occur, according to the law of probabilities, in both of the only known instances if the jaw and skull were not those of the same form (Baitsell, 1929, p. 168).

Another significant fact that illustrates the trend today is the Piltdown hoax appeared for some time in texts published *after* it was exposed. One egregious example of delayed admission is in the 1960 book *Adams Ancestors* by L. S. B. Leakey. In the fourth edition published by Harper it was finally corrected but only by adding a section on the hoax and retaining the internal discussions which in places implies Piltdown was a legitimate find, and other places which, to Leakey's credit, raises major questions about the find. This example is of special note because Leaky was then one of the foremost anthropologist in the world. Similarly, examples of now discredited ideas about evolution are still commonly found in evolution and biology textbooks.

Conclusions

The Piltdown case is an excellent example of how social and cultural expectations can powerfully influence scientific opinion. One researcher concluded that an inquest into Piltdown affair does not

> offer much cheer to those of us who think that science is a legitimate enterprise that has drawn a credible chart of human evolution. Anyone conversant with the Piltdown history will readily, if not eagerly, agree that many of the researchers shaped reality to their hearts desire, protecting their theories, their careers, their reputations, all of which they lugged into the pit with them (Blinderman, 1986, p. 235).

In one of the most insightful assessments of the whole Piltdown affair, Eiseley noted that the amount of subjective speculation

> indulged in for years over the Piltdown fossil, and to which many leading authorities contributed, can now by viewed historically as a remarkable case history in self-deception. It should serve as an everlasting warning to science that it is not the theologian alone who may exhibit irrational bias or give allegiance to theories with only the most tenuous basis in fact. That scientists in the early years of a new

> discipline should have been easily deceived is not nearly so embarrassing as the rapidity with which they embraced the specimen solely because it fell in with preconceived wishes and could be used to support all manner of convenient hypotheses. The enormous bibliography in several languages which grew up around the skull is an ample indication, also, of how much breath can be expended fruitlessly upon ambiguous or dubious materials (Eiseley, 1966, p. 111).

Fix concludes that what was especially embarrassing for paleontology is not that one of its members should have stooped to manufacturing the evidence, but that so many made so much out of so little (Fix, 1984, p. 13).

Keith even said the exposure caused him to have a "loss of faith in the testimony of Man" (quoted in Williams, 1969, p. 286). The fact that it was proven a forgery is somewhat irrelevant now: It influenced millions of persons to accept Darwinism and was even used at the Scopes trial as proof of evolution. Once Darwinism was widely accepted, the fact that most of the evidence for the theory including vestigial organs, homology, the biogenetic law and the putative fossil evidence has been proved false does not now matter. What happened was eloquently stated by Pagel:

> Darwin proclaimed a wholly material explanation for species, based on the principle of descent with modification. Lyell had opened the door, and Darwin showed God out. Palaeobiologists flocked to these scientific visions of a world in a constant state of flux and admixture. But instead of finding the slow, smooth and progressive changes Lyell and Darwin had expected, they saw in the fossil records rapid bursts of change, new species appearing seemingly out of nowhere and then remaining unchanged for millions of years—patterns hauntingly reminiscent of creation. But *there was no turning back*, and biologists have for the past century fought over how best to explain the diversity of life (1999, p. 665, emphasis mine).

Millar (1972 p. 10) estimates some 500 scholarly articles were written about Piltdown during its 40 year lifespan. If references to Piltdown in textbooks and articles about evolution were included, no doubt the count would be in the multi-thousands. Since clear evidence existed from the beginning that Piltdown was a hoax, or at least it was not evidence for human evolution, why did it take almost 50 years for this information to be published? It required almost 40 years before it was conclusively exposed. To answered this question

> ...the great German anatomist, G. Schwalbe, so frequently quoted by Professor Osborn, had to abandon the missing link opinion so picturesquely and noisily voiced as a scientific fact when he declared that the proper restoration of the Piltdown fragments would make them belong not to any preceding stage of man, but to a well developed, good sized *Homo sapiens*, the true man of today. Why are such facts as these withheld from the young student and from his teacher if truth is really an objective? (McCann, 1922, pp. 8–9 Italics mine)

The most important lesson of Piltdown, as adroitly summarized by McCann almost 70 years ago, was that the affair showed the ease that evidence which evolutionarily links apes and men can be fabricated even if it requires

> wide stretches of imagination in support of preconceived opinions. The materialistic evolutionists, who have misrepresented the Piltdown man and all that they have sought to make it signify, are careful not to refer to the English authorities in the biological sciences who discussed all the Piltdown remains upon the first report of their discovery to the Geological Society of London, December, 1912. They avoid all mention of the fact that even at that early date the English authorities refused to accept the cranium and jaw as belonging to the same individual (1922, p. 9).

Unfortunately, many Piltdown type fossils which are not what they are reported to be still exist in the textbooks today. In fact, Lubenow speculates that

> if the australopithecines had not come into favor as the preferred evolutionary ancestors of humans, and Piltdown had not become an embarrassment because it no longer fit the scenario, the fraud might still be undiscovered and Piltdown might still be considered a legitimate fossil (Lubenow, 1992, p. 43).

In a survey of the human fossil record Fix (1984, p. 14) concluded that "the Piltdown fiasco has happened repeatedly" and is still being reenacted today. This is the true lesson of Piltdown (Vere, 1959).

Acknowledgements

I wish to thank John Woodmorappe and Wayne Frair for their valuable insight and feedback on an earlier draft of this paper.

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