

'PILTDOWN: 100 YEARS ON'

Geological Society, Burlington House, Piccadilly, London



18 DECEMBER 2012

*A History Of Geology Group meeting to mark the centenary
of the reading of the
Piltdown Man paper at the GSL on the 18th December 1912.*



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Programme

Morning: Guided Tours

10.00 -1.30: Tours of the Natural History Museum's "Piltdown Centenary Exhibition" of specimens, manuscripts and papers in the Library.

Three tours will be held at 10.00, 11.10 and 12.20. They will be led by Karolyn Schindler and Paul Cooper: each tour will be restricted to a maximum number of 15 delegates. See registration form.

12.00-13.30: Group viewings of the Piltdown painting at the GSL.

Afternoon: Piltdown Centenary Meeting Geological Society

14.00 – 14.10	Welcome/Introduction
14.10 – 14.45	Anne O'Connor: " <i>Piltdown and the Geological Society</i> "
14.45 – 15.20	Dave Martill: " <i>Arthur Conan Doyle and the Piltdown Forgery</i> "
15.20 – 15.55	Miles Russell: " <i>Charles Dawson: a career fabricating prehistory</i> "
15.55 – 16.15	Tea/Posters
16.15 – 16.50	Christopher Dean : " <i>The Anatomy of the Forgery</i> "
16.50 – 17.30	Chris Stringer: " <i>The Piltdown forgery in context</i> "
17.30 – 18.00	Questions/discussion

Convenor: Professor Richard T. J. Moody
rtj.moody@virgin.net



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Registration Fees:

GSL Fellows, HOGG, GA and OUGS members:	£40.00*
Non Fellows nor members of above group	£50.00*
Students:	£25.00*
(* Reception included)	
NHM Piltdown Exhibition	£8.00
Piltdown Dinner	£45.00

Convenor: Professor Richard T. J. Moody

This booklet has been sponsored by:

HALLIBURTON



ACKNOWLEDGEMENTS

Special thanks are due to Sarah Day, Laura Haywood and Steve Whalley of the Geological Society; Emily Beech, Paul Martyn Cooper and Robert Kruszynski of the Natural History Museum; our speakers and poster contributors; Malcolm Brown of BG and Jonathan Lewis of Halliburton; Edmund Nickless (GS), John Henry and Beris Cox of HOGG; Sarah Stafford of th GA and Linda McArdell of the OUGS.

Front cover: Piltdown Meeting at Burlington House 1912 - © Natural History Museum, London -
Natural History Museum Picture Library 006967_1A

Back Cover: "Geologists at Piltdown" - © Natural History Museum, London -
Natural History Museum Picture Library 011021_AI

INTRODUCTION

This meeting on the 100th anniversary of the announcement of ‘Piltdown Man’ provides an opportunity to re-examine one of the most notorious scientific forgeries, and perhaps help to solve an enduring ‘whodunit’. The Piltdown specimens were hailed as a ‘missing link’ between apes and humans, and fooled some of the biggest names in British science for many years. Who created the forgeries, and why? Since the first exposure of the hoax in 1953 many candidates have been proposed as the forger(s), working singly or in combination. Can we narrow down the suspects, and can we reconstruct their motivation – was it jocular, serious, or vindictive, was it driven by science, ambition, or malice?

Christopher Stringer
December 2012

‘PILTDOWN: 100 YEARS ON’

December 18th 2012

Janet Watson Lecture Theatre
Geological Society of London, Burlington House, Piccadilly, W1J,

This meeting marks the centenary of the reading of the Piltdown Man paper at Geological Society London on December 18th 1912.

It is convened on behalf of: The Geological Society London, The History of Geology Group and the Natural History Museum.

Morning Tours:

10.00 -1.30: Tours of the Natural History Museum’s “Piltdown Centenary Exhibition” of specimens, manuscripts and papers in the Library.

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12.00-13.30: Group viewings of the Piltdown painting at the GSL.

Conference:

14.00 – 14.10 Welcome/Introduction.
President of the Society. David T. Shilston

Session Chairman. John Henry (Chairman of HOGG)

14.10 – 14.45 Anne O’Connor: “Piltdown and the Geological Society”

14.45 – 15.20 Dave Martill: “Arthur Conan Doyle and the Piltdown Forgery”

15.20 – 15.55 Miles Russell: “Charles Dawson: A career fabricating prehistory”

15.55 – 16.15 Tea (Posters) (HOGG AGM)

Session Chairman. Dick Moody (Convenor)

16.15 – 16.50 Christopher Dean: “The Anatomy of the Forgery”

16.50 – 17.30 Chris Stringer, Adrian Lister and Simon Parfitt:
“The Piltdown Forgery in Context”

17.30 – 18.00 Questions/discussion

18.00 – 19.00: Reception

19.30 - Dinner at Getti’s, 16-17 Jermyn Street, London, SW1Y 6LT,

THE PILTDOWN CENTENARY EXHIBITION, DECEMBER 2012

NHM LIBRARY

KAROLYN SHINDLER

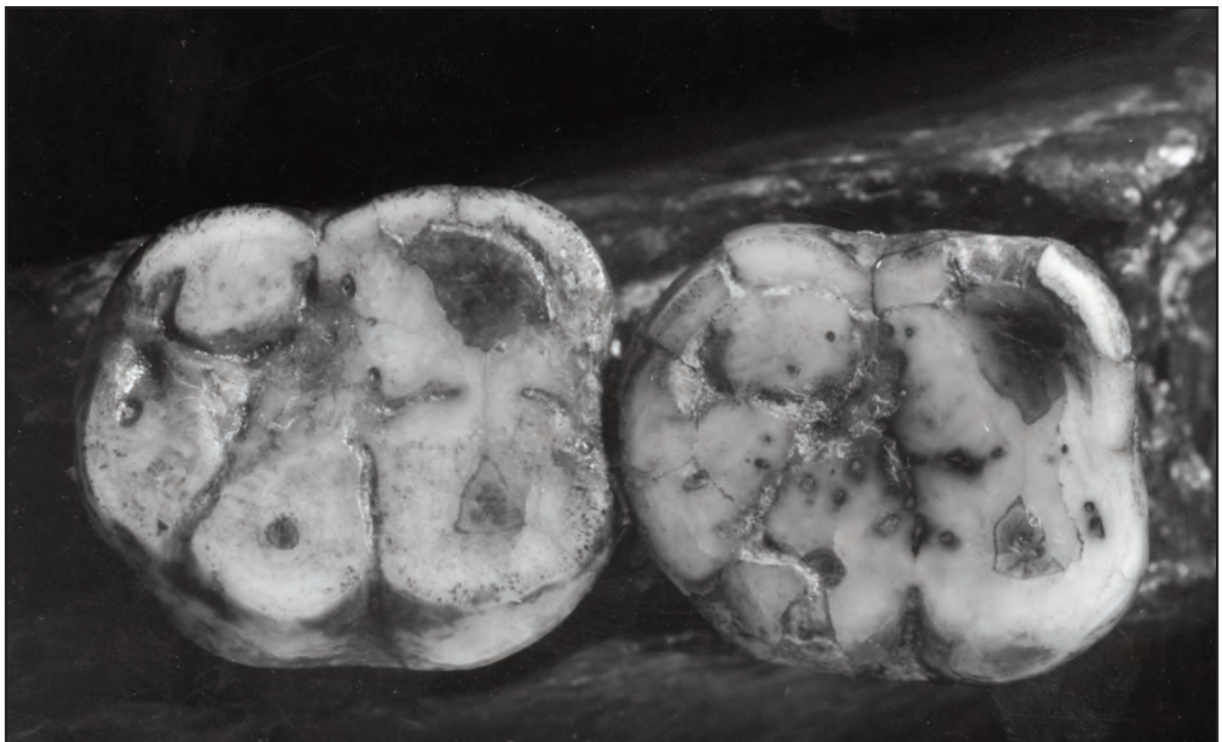
Natural History Museum London

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One hundred years ago, Piltdown man was revealed to the world at a packed and excited meeting at the Geological Society of London on 18 December 1912. It was hailed as a very early species of human – possibly even a missing link between man and ape that Charles Darwin had predicted.

It was of course, as we know now, an audacious hoax that convinced many of the greatest scientific names of the time - but it was very far from harmless. It had pernicious effects not only on scientific research for decades, but also on the reputations of those most intimately involved. Part of what makes this fascinating story so compelling is that, one hundred years on, we still don't know the forger's identity. Perhaps it would lose its magic if we did! There is, as yet, no incontrovertible proof as to who the perpetrator was or why they did it. There is no smoking gun, no signed confession, and a daunting list of possible suspects.

The roots of the forgery began well before 1912, and are embedded in the desire to find the 'missing link' between man and apes. For 40 years, Piltdown Man hijacked – albeit temporarily – the understanding of human origins, until it was revealed as a forgery in the 1950s. The pioneering work of Dr Kenneth Oakley, Dr Joseph Weiner and Professor Wilfrid Le Gros Clark revealed that far from being around half a million years old, as previously thought, the human cranium was just a few hundred years old while the jaw was not human at all, but was that of an orang-utan. Not only that, but everything had been fraudulently planted in the Piltdown gravels, and almost every specimen – including the flint tools and fossil mammal teeth - had been stained to match the gravels and each other. What could not be proved,



Teeth from the Piltdown Collection at the Natural History Museum

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though, was the identity of the perpetrator.

However, with the centenary this year, all the Piltdown material – bone and flint – is being re-analysed, using a range of the most sophisticated high-tech equipment available. The Natural History Museum, University College London, Oxford, Cambridge and Southampton universities are involved. The techniques include CT scanning, DNA and isotope analysis, infra-red scanners and a hugely powerful spectroscope.

At the very least, it is hoped that the re-investigation will show how many hands were at work - and how skilled, and also where the skulls and the mammal teeth may have come from. Whether the analyses will reveal an identifying 'signature' of the perpetrator, however, is too soon to tell. In a few months time, we may well know more.

The 'behind the scenes' exhibition at the NHM is a rare opportunity to view the Museum's unique Piltdown collection of specimens, papers, correspondence and manuscripts.



View of a sculpted head reconstructed by Maurice Wilson for the Exhibition of Britain in 1950. It is based upon the cranium and mandible fossils 'found' at Piltdown.

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‘Pitldown: 100 Years On’

LECTURE ABSTRACTS

LINKS BETWEEN THE GEOLOGICAL SOCIETY AND PILTDOWN

ANNE O'CONNOR

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Over a century ago, supposedly ancient “human remains” were discovered at Piltdown. They were first officially presented to the scientific world at a meeting of the Geological Society on 18 December 1912 by Charles Dawson and Arthur Smith Woodward. The discovery was largely accepted as genuine. We now know that Piltdown was a fraud. But for the purposes of this paper, Piltdown is examined from the perspective of the learned contemporaries of Dawson and Woodward to help understand their response to, and acceptance of, the Piltdown discovery.

The status and connections of Dawson and Woodward indicate why they selected the Geological Society as the venue for their Piltdown presentations. The content of their 1912 and 1913 papers is analysed in detail to identify the lines of argument that persuaded their audience to accept the antiquity of the Piltdown remains. Later developments are also discussed briefly.

Aspects that helped establish Piltdown's antiquity included the geological evidence of stratigraphy and palaeontology; the stone tools associated with the remains; and the anatomical and anthropological evidence, such as the character of the Piltdown skull and its affinities to other fossil humans. This combination of geology and anthropology was not unusual for the time, but most of the anatomists who attended the Piltdown meetings were not Fellows of the Geological Society.

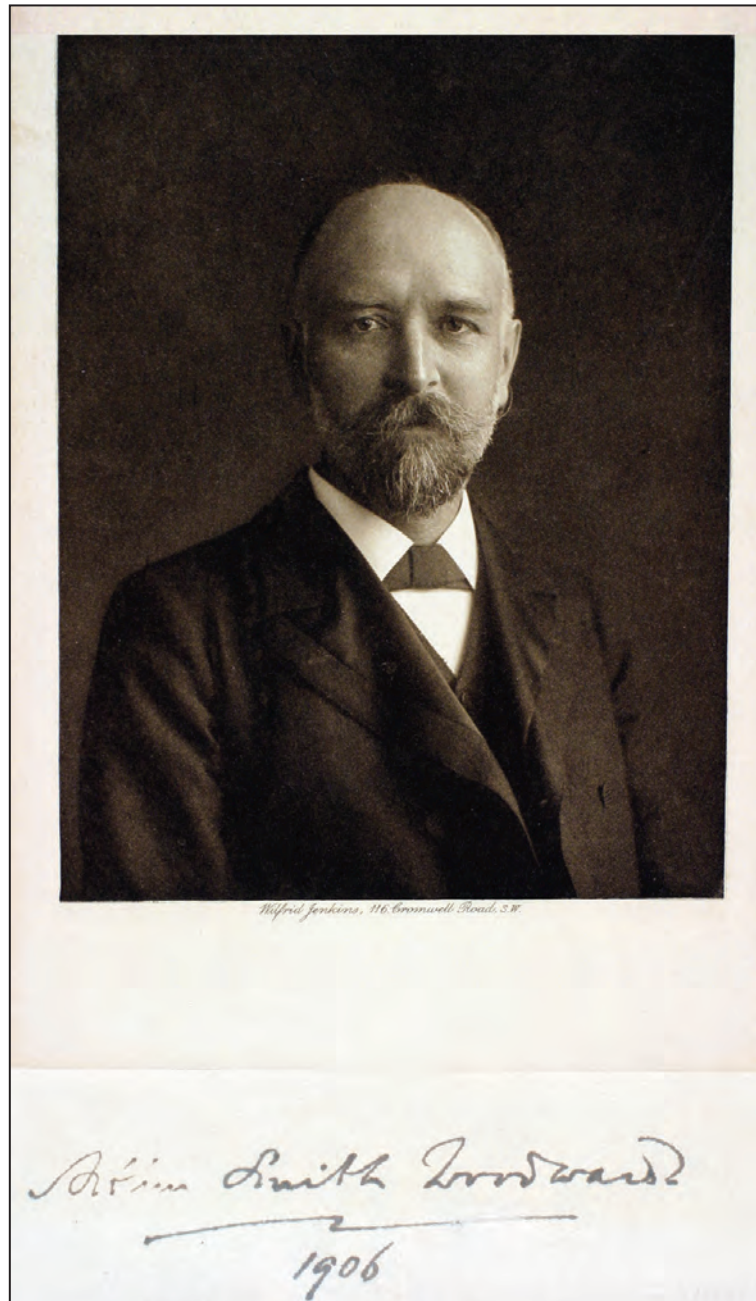
The geological age of the Piltdown remains took up a significant part of the 1912 and 1913 papers. It was crucial to establish the antiquity of the gravels associated with the find before speculating more broadly about patterns of human evolution. Dawson dealt with the geology and stone tools and their implications for the age of the remains. River-terrace morphology, and correlation to the better-known sequence in the Thames Valley, offered a clue to the stratigraphy.



Charles Dawson

""Reproduced courtesy of the Geological Society of London".

Animal bones provided another means to date the Piltdown skull: Woodward, as the vertebrate palaeontologist, supplied the details. Stone tools from Piltdown provided another indication of the age of the gravels. The discussion that followed the Geological Society papers reflected contemporary debates about the use of Palaeolithic tools as a guide to the age of geological deposits, and touched upon recent discoveries in this field. Eoliths had been recorded alongside palaeoliths at Piltdown. It is now widely accepted that eoliths were produced by natural forces, but the Piltdown papers remind us that their origin was once the subject of fierce debate.



Arthur Smith Woodward.

"Reproduced courtesy of the Geological Society of London".

Following Dawson's summary of the geology and stone tools, Woodward presented a detailed analysis of the "human remains". The evidence appeared to support a branching view of human evolution. Piltdown would have a significant influence on future interpretations.

The audience at the Geological Society a century ago did not agree on all the details of the Piltdown papers. But they left the general impression that the scientific world accepted that ancient "human remains" had indeed been discovered at Piltdown.

ARTHUR CONAN DOYLE AND THE PILTDOWN FORGERY

DAVID M. MARTILL

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David Martill <David.Martill@port.ac.uk>*

Sir Arthur Conan Doyle (1859-1930), besides being one of the most talented novelists of his time, was a man of impeccable character. Most biographers find him to have been a caring family man and a most loving husband. He excelled at cricket, but enjoyed other sports too, including football, boxing and golf. He was at ease with the 'common man' as well as with the upper echelons of Victorian and Edwardian society. He possessed long held interests in science, natural history and politics, and he enjoyed foreign travel and adventure. He was sufficiently shrewd with the wealth he amassed from his novels to be able to live a very comfortable lifestyle in the southern English countryside. He fought for his country and he defended its honour against detractors in the national press. In virtually all analyses of Conan Doyle, he is portrayed as a man of great integrity. He made friends quickly in all of his endeavours, be they at school, college, onboard ship, in his disastrous first medical practice, as a pillar of local scientific societies or in his sporting clubs.

Conan Doyle frequently fought for the rights of the downtrodden, those falsely accused of crimes they did not commit, and for the rights of the oppressed. He did suffer some ridicule because of his outspoken beliefs in spiritualism, but even here, most regarded him simply as misguided - although well intentioned - and perhaps rather gullible. This is important, as it reflected Conan Doyle's trust in people, not wanting to accept that fellow citizens might be tricksters or conmen. He died in July 1930 a hero, famed around the world as the man who invented Sherlock Holmes, and is often credited as the inventor of the 'science adventure novel' with his immensely popular *The Lost World*. His literary legacy has survived for more than one hundred years, and it does not look like waning any time soon. There is no single documented event in the thousands of articles written by him or about him that besmirch his character, bar those critical of his support for spiritualism.



Arthur Conan Doyle
(Image sourced from Wikipedia)

In 1983, some 53 years after Conan Doyle was peacefully laid to rest, first in his own rose garden at Little Windlesham and 15 years later in the Christian church yard at Minstead in the New Forest, John H. Winslow and Alfred Meyer made a case for Arthur Conan Doyle as perpetrator of the Piltdown hoax.

Their accusation is based on circumstantial evidence noting coincidental meetings and liaisons with a variety of people both connected and unconnected with the fraud. They note also that Conan Doyle's anatomical and chemistry training provided him with the ability to perpetrate the hoax and, in addition, assert that his travels took him to places that enabled him to obtain the materials necessary to pull off the greatest scientific fraud in history.

Many subsequent analysts of Winslow and Meyer's case against Doyle have found little difficulty in dismissing these claims as either absurd or of trivial value, and certainly insufficient as evidence for a

courtroom. Nevertheless, the hypothesis is made intriguing by their assertion that Doyle had left a trail of clues peppered through his story, *The Lost World*. The quotation from Professor Challenger that "if you are clever and you know your business you can fake a bone as easily as you can a photograph" could very easily be interpreted as a 'nod and wink' to the fraud. But other attempts to find clues within the pages of the novel fall down. Likening *Maple White Land* to the *Weald* because of *Piltdown Man* is not evidence for a fraud: it demonstrates only that Doyle was as aware of *Piltdown Man*'s discovery, as he was with the abundance of *iguanodons* and *megalosaurs* in the area.

Doyle's thinly disguised characters based on real scientists, university professors and heroic explorers is not admission of guilt. Rather, it is an attempt to reflect the real, and sometimes bizarre, personalities that seem to be a trademark of the scientific and learned professions.

Reasons given for Conan Doyle committing the offence hinge on the possibility that he might in some way have been seeking revenge for the scientific communities' attacks on spiritualism, and perhaps to show that if spiritualist believers could be duped by fraudsters, then so to could the scientific establishment.

Subsequent discoveries have shown that the perpetrator of the fraud was Charles Dawson, a man who had committed other acts of scientific sleight of hand, and who was in at *Piltdown* from the very beginning. The rehabilitation of Conan Doyle was undertaken in a highly critical analysis of Winslow and Meyer's thesis by John Evangelist. One by one he picked fault with their 'evidence' and Conan Doyle's reputation was surely restored. Intriguing though the idea might be, it seems a shame that such a damaging accusation can be manufactured on little more than a fanciful (and perhaps career boosting) notion about a dead man, without risking the libel courts.

CHARLES DAWSON FGS, FSA: A CAREER IN FABRICATING PREHISTORY

MILES RUSSELL FSA

*Senior lecturer in prehistoric and Roman Archaeology, School of Applied Sciences
Bournemouth University*

Investigators of the Piltdown Man forgery have frequently treated the find as if it were a single hoax, a 'one off' designed to fool particular members of the scientific establishment. As such, a substantial number of suspects for the fraud have, at various times, been implicated, from members of the original excavation team, to local celebrities, farmers, visitors and even secret agents working for the German Kaiser. It seems that anyone living within 20 miles of the find spot could ultimately (and plausibly) have been responsible for the deception.

When one examines the career of Charles Dawson, original discoverer of the so-called 'Missing Link' *Eoanthropus dawsoni*, however, a more intriguing possibility emerges. Dawson was, by trade, a solicitor, but he was also an amateur antiquarian, giving papers and publishing articles on subjects as diverse as palaeontology, ethnography, anthropology, archaeology, chemistry, mineralogy, anatomy, heraldry, photography, lithics, ceramics, local history, metallurgy, entomology, biology, aerodynamics and physics. He was, in 1885, elected a Fellow of the Geological Society and, from 1895, was also a Fellow of the Society of Antiquaries.

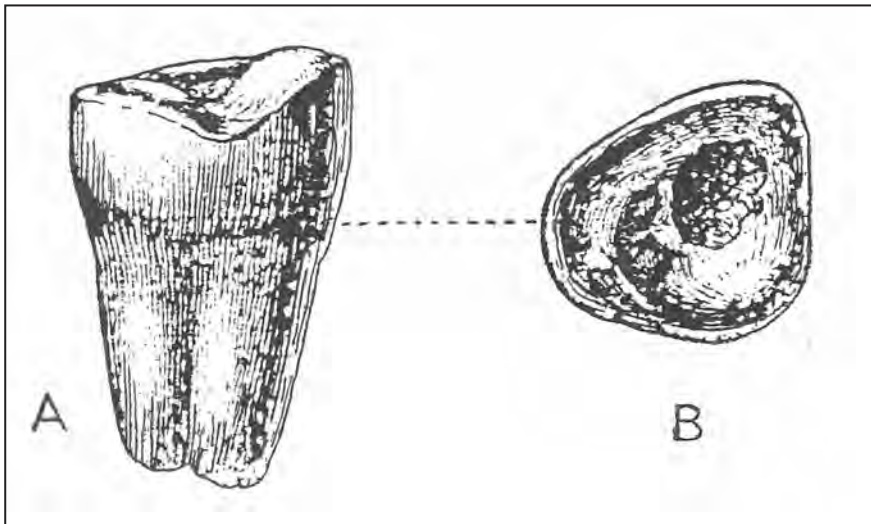
Dawson's name has always featured heavily in the story of Piltdown. He was, after all, the initial finder of the first fragments of skull and was there at all times during the project to supervise the recovery of evidence. Since the 1950s, when the fraud was first revealed, it has however become apparent, through a careful examination of Dawson's artefact collection, that the Piltdown hoax was not the first dubious find with which the solicitor was associated, but rather the most spectacular. Dawson had, it would appear, been fabricating material for at least two decades before Piltdown, the finds from Sussex fitting his modus operandi as arch deceiver, liar and manipulator of the truth. *Eoanthropus dawsoni* was the pinnacle of an alternative career in archaeological, paleontological, historic, anthropological, literary and biological forgery; it was not a one-off, more the culmination of a life's work.

Dawson had the knack of being able to identify just what material various experts in the field required in order to support their particular theories. He could identify the transitional phase or 'missing link' in most subject areas and discover what academics had long been looking for. In short, he gave both the academic community and the public what he thought they wanted.

Why did a man of the law like Dawson, with significant social standing and respect in the community, feel the need for serial forgery and deception? We cannot ever see into his mind, but we can trace the history of frauds and fraudulent behaviour and, at every stage of his many deceptions, understand why each and every 'discovery' was considered necessary. What was Dawson's motivation in all this and what was he trying to achieve? More importantly, perhaps, how exactly did he get away with large-scale fraud for so long when it is clear that there were many people that knew precisely what he was up to?

In 2003, Miles Russell published the results of his investigation into Dawson's antiquarian collection and concluded that at least 38 specimens were clear fakes. Russell has noted that Dawson's whole academic career appears to have been "one built upon deceit, sleight of hand, fraud and deception, the ultimate gain being international recognition". The images below are from the list catalogued by Miles in 2003.

Russell, M. (2003). *Piltdown Man: The secret life of Charles Dawson*, Tempus (ISBN 0752425722).

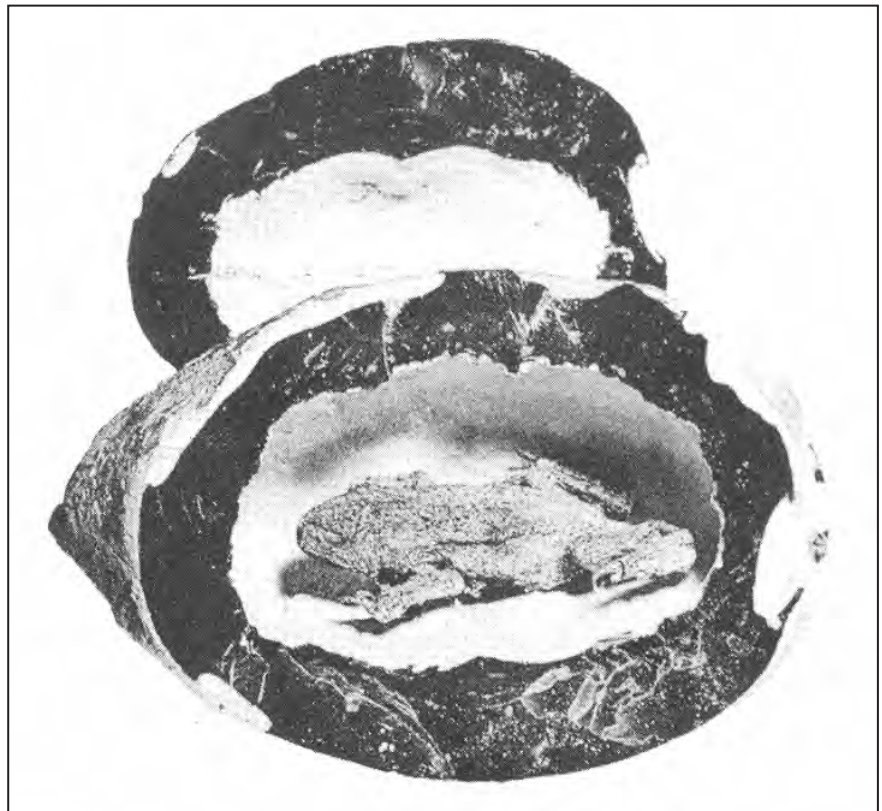


Plagiaulax dawsoni

'The first evidence of a European Cretaceous mammal'. Found by Dawson in a quarry near Hastings and described by Arthur Smith Woodward in a presentation to the Zoological Society in 1891.

'Toad in the Hole'

Presented before the Brighton and Hove Natural History and Philosophical Society on April 18th 1901. One of the 'accidental' discoveries found by workmen near Lewes.



The Bulverhythe Hammer

The Bulverhythe hammer, though unproven as a forgery, contains many elements (including its uncertain derivation, unique appearance and clear signs of modern shaping) that were to be repeated later at Piltdown.

THE ANATOMY OF THE PILTDOWN FORGERY

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***Research Centre in Evolutionary Anthropology and Palaeoecology, Liverpool John Moores University*

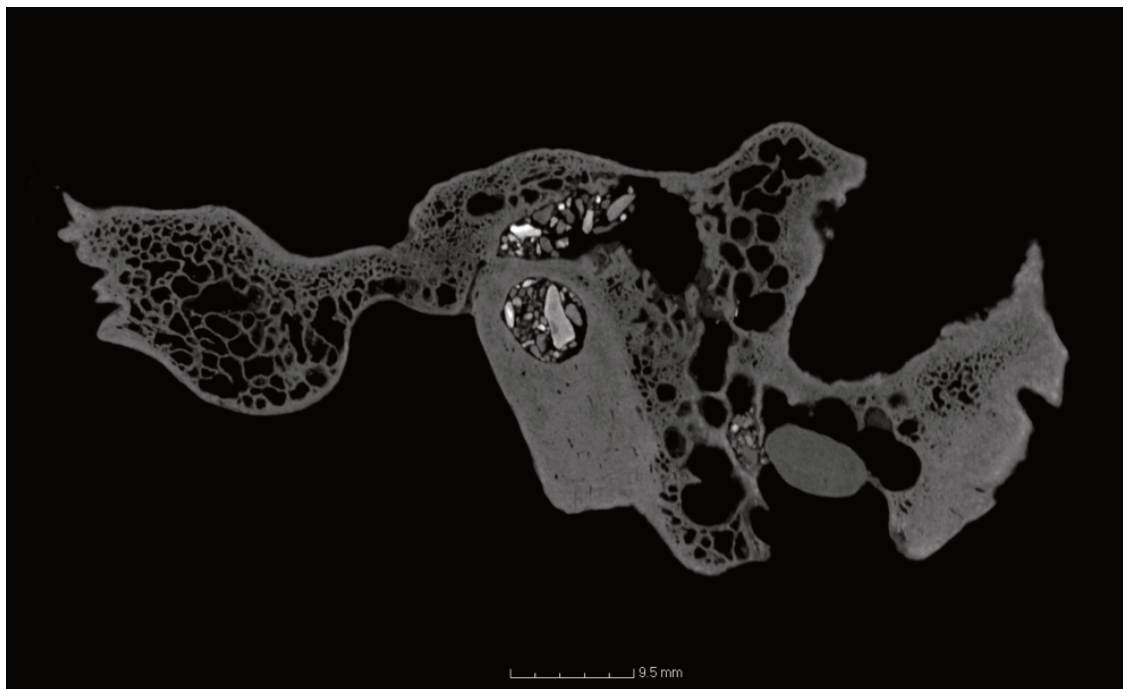
Anatomists and anatomy played a key role in the claims and controversies surrounding the Piltdown forgery from the very beginning. During February 1912 Charles Dawson first wrote to Arthur Smith Woodward telling him of exciting new finds at Piltdown. By April 1912 Dawson had shown one or other of the chocolate brown cranial vault bones to others, including Teilhard de Chardin, a keen amateur geologist and palaeontologist and newly ordained priest, sent to further his studies at a Jesuit seminary near Hastings. It was not until May 1912 that Smith Woodward actually saw the vault bones for himself but in early June 1912 all three were together at the site and witnessed the discovery of more faunal and vault bone material. Late in June 1912, Dawson (witnessed by Smith Woodward) recovered a damaged half-mandible from the same gravel layer as the vault bones. Enough had now been recovered to attempt a reconstruction of the remains, which Smith Woodward and his colleague William Pycraft at the then British Museum (Natural History) set about doing. While apparently undisputedly part of the same specimen the hemi-mandible lacked all but two of its teeth and was damaged in key diagnostic regions (at the chin and at the jaw joint with the cranium) so forcing the team to speculate how an essentially modern human-like cranium might have functioned with what was an essentially ape-like lower jaw. As other anatomists became aware of the remains from Piltdown, both before and after the official announcement at the Geological Society in December 1912, differences of opinion began to surface about how exactly the remains should properly be reconstructed. Professors Arthur Smith Woodward, Grafton Elliot Smith and Arthur Keith were the most senior anatomical figures involved. Each was expert in different aspects of human, primate and comparative anatomy. Almost immediately conflicts arose between them as they each saw unique potential to promote their own anatomical skills and clinch their own unresolved theories on human evolution.

With hindsight we can look back and see how these ambitions and rivalries were acted out with claims and counter-claims about the science of cranial reconstruction, about brain size, brain evolution, the thickness of the vault bones, the pattern of blood vessels on the inner aspect of the vault bones, the incompatibility of the jaw and cranium and especially predictions about the morphology of the missing chin and front teeth of the Piltdown hominid. As excavations began again in August 1913 Teilhard de Chardin rejoined the team and yet more new finds emerged. First, some small bones from the nose and then 2 weeks later the all-important missing ape-like canine tooth was spotted in one of the spoil-heaps surrounding the site. Hailed as a triumph for Dawson and Smith Woodward the ape-like canine represented a real spanner in the works for Arthur Keith who retreated into puzzled acceptance that Piltdown was indeed a stranger amalgam of modern human-like and ape-like traits than he had previously ever thought possible.

But from the start other anatomists were objecting to the view that all the hominid remains from Piltdown belonged to a single individual. David Waterston, Professor of anatomy at King's College London, was forthright in his view that the ape jaw did not belong with the human cranium. Two dental surgeons, W. Courtney Lyne and Arthur Swayne Underwood made some uncomfortable observations about the strange wear pattern on the canine tooth, about it being perhaps from a juvenile, an upper not a lower tooth, or even that it was a deciduous ape tooth. All this forced further soul-searching about whether the Piltdown remains represented just one individual or two – or as Lyne suggested even three. Meanwhile, during a trip to London in 1913, William King Gregory, distinguished vertebrate palaeontologist at the American Museum of Natural History must have heard rumours that Piltdown was a hoax. In 1914 he wrote as much saying that it had been suspected by some, that the Piltdown bones are not old at all and may even represent a deliberate hoax, a human skull and an ape jaw artificially fossilised

and planted in the gravel bed to fool the scientists. He then quickly qualified that extraordinarily accurate observation by writing that none of the experts who had scrutinised the specimens, the site and its surroundings doubted the genuineness of the discovery. Mounting criticism from abroad about the unlikely nature of Piltdown was partially quelled in February 1917, six months after Charles Dawson's death, when Arthur Smith Woodward announced that a fragment of frontal, occipital and a molar tooth closely resembling the finds from Piltdown had actually been recovered by Dawson in 1915 from a second site at Barcombe Mills.

Now with a new look at the anatomical evidence we can re-examine the handiwork of the forger and ask if there are techniques the forger used that might implicate them with both the early finds of 1912 and those announced last of all in 1917? Can we now explain why it was so hard to associate the modern great ape material as belonging to one individual and the modern human material to a second individual? What was it about the choice of material used to fabricate an early fossil hominid that fooled so many for so long?



Micro-CT image of the Piltdown temporal bone

THE PILTDOWN FORGERY IN CONTEXT

CHRIS STRINGER, ADRIAN LISTER & SIMON PARFITT

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Chris Stringer <c.stringer@nhm.ac.uk>

The seeds of the Piltdown hoax were probably sewn by the discoveries of ‘Java Man’ and ‘Heidelberg Man’ in the period between 1891-1907, and it was with great acclaim that Arthur Smith Woodward of the British Museum (Natural History) and amateur antiquarian Charles Dawson announced in 1912 the discovery of a find from Britain that matched or even exceeded them in antiquity and importance: ‘*Eoanthropus dawsoni*’ (‘Dawson’s Dawn Man’). Although the skull and jaw pieces from Piltdown were awkwardly broken, Woodward reconstructed them into a complete skull that combined a modern-looking braincase with very ape-like jaws. On the basis of the associated animal bones and artifacts, Woodward and Dawson argued that ‘*Eoanthropus*’ was more ancient than ‘Heidelberg Man’ – equivalent in modern terms to an age of about a million years. However, the days of Piltdown as a key fossil in the story of human evolution were soon numbered. As other finds of early hominins were made in Africa and Asia during the 1920s and 30s, it was pushed into an increasingly peripheral position, since nothing else resembled it. Finally, in 1953, their suspicions aroused by incongruous chemical analyses of the bones, Oxford scientists Joe Weiner and Wilfrid Le Gros Clark joined Kenneth Oakley of the BM (NH) to apply even more stringent tests to Piltdown Man. Their investigations showed that the site had been salted with bones and artifacts from various sources, most of them artificially stained to match the colour of the local gravels. The ‘missing link’ itself consisted of parts of an unusually thick but quite recent human skull, and the jaw of (apparently) an orang-utan with filed teeth.



The dig at Piltdown, East Sussex, England.

(© Natural History Museum, London - Natural History Museum Image Library - 002909-1A)



Reconstruction of Piltdown Man
© Natural History Museum, London

So who was responsible for this hoax, which fooled some of the most outstanding British scientists for 40 years? At least 15 men have been accused of being involved in the forgery, ranging from Dawson and Woodward through to the eminent anatomists Arthur Keith and Grafton Elliot Smith. Even Arthur Conan Doyle, who lived in Sussex and played golf at Piltdown, has been added to the growing list of suspects. But Dawson, the amateur antiquarian at the centre of the Piltdown discoveries, has been a prime candidate for the forger since 1953. He was the first person to seriously search for, and report, fossils from the Piltdown site and was present when all the main finds were made there. He is the only individual who can definitely be associated with the final 'discoveries' at a second Piltdown site, and subsequent to his final illness and death, no further significant discoveries were made at either Piltdown location. Given Dawson's centrality to the story, why should any other suspects be entertained beyond the most obvious one?

It can be argued that Dawson had too much to lose in such a risky endeavour, and perhaps he also lacked sufficient knowledge and access to materials to create a forgery that deceived some of the best scientific minds of the time. Thus, a covert expert may have secretly collaborated with Dawson in producing the faked fossils, or he was the gullible victim of the scheming of others. An alternative candidate for the forger has recently come to the fore – Martin Hinton. At the time of the Piltdown discoveries, he was a knowledgeable volunteer in Woodward's department at the BM (NH), and later became Keeper of Zoology. In the mid-1970s a trunk bearing Hinton's initials was found at the Museum and among the items unpacked by Andy Currant were mammal teeth and bones apparently stained and carved in the manner of the Piltdown fossils. Separately, similar items were discovered by Hinton's scientific executor, the palaeontologist Bob Savage. Brian Gardiner has argued that the staining procedures in Hinton's materials were the same as those used in the Piltdown assemblages and that Hinton was thus the forger. And yet another suspect has re-emerged recently, according to Francis Thackeray: Teilhard de Chardin. He found the isolated Piltdown canine tooth while sorting gravel, and previous analyses suggested that this specimen had been modified and stained in a different way from the other finds.

Given the complexities of the Piltdown saga and the length of time that has elapsed since its exposure, let alone 'discovery', what can we hope to add to the story by new scientific analyses? Using forensic levels of investigation, including microscopic, spectroscopic, CT, DNA, dating and isotopes studies, we hope to ascertain the different methods of modification employed, how many specimens might be in common between the finds made at Piltdown 1 and 2, and what were their sources. Reconstructing how many hands were at work on the whole suite of Piltdown remains should lead to a narrowing of the range of suspects. In turn we hope light will be thrown on the agenda and motivation behind this remarkable forgery.



Front row: A. S. Underwood, Arthur Keith, W. P. Pycraft, and Sir Ray Lankester. Back row (from left): F. O. Barlow, G. Elliot Smith, Charles Dawson, Arthur Smith Woodward. Group portrait by John Cooke, 1915. "Reproduced courtesy of the Geological Society of London".

POSTER ABSTRACTS

THE PILTDOWN SKULL SITE: THE VERY SHORT STORY OF THE UK'S FIRST GEOLOGICAL NATIONAL NATURE RESERVE

COLIN PROSSER

Natural England

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Today, National Nature Reserves (NNRs) play a major role in conserving and managing many of the most important places for wildlife and geology and approximately 350 have been declared across the UK. On the 19th May 1952, the Piltdown Skull Site became the UK's first geological NNR and was to become the most short-lived NNR in history (Prosser, 2009).

In 1949, after a long campaign from ramblers, conservationists and scientists, for action to protect and secure access to the best of the British countryside and its flora, fauna and geology, the government passed the National Parks and Access to the Countryside Act. This allowed for designation of National Parks and Sites of Special Scientific Interest and the acquisition and declaration of NNRs. In 1949, the Nature Conservancy (NC) was created to implement this Act, and in March 1949 became aware that the site of the Piltdown 'finds' was being offered to the nation by its owner. Given the then scientific importance of the site and with the active participation of Kenneth Oakley of what is now the Natural History Museum (NHM), the NC grabbed the opportunity to declare an NNR. The site was acquired, fenced and paved and a 'witness section' of the gravel was excavated and made accessible for scientific study via a window built into a brick alley (**Figs.1 and 2**). Although not the UK's first NNR (Beinn Eighe, Scotland, was declared in 1951), Piltdown was in the second batch of NNRs and was the first to be declared on geological grounds. It instantly became a showpiece for the conservation of scientifically



Figure 1. The Piltdown Skull Site on 16 April 1952. Taken just prior to declaration as an NNR.

important sites in Great Britain! In November 1953 the Piltdown jaw was proven to be a forgery, but as the importance of the skull remained, so too did the justification for the NNR. By February 1954, Oakley was undertaking further work, via the 'witness section', which by June 1954 had helped to prove that the skull and associated artefacts were also part of a hoax. After less than 3 years as an NNR, this



Figure 2. Showing the window to the ‘witness section’ in the early 1950s.

showpiece site for British science and conservation was revoked on 7 February 1955, the only NNR ever revoked due to fraudulent science. It was quietly returned to the owner, hopefully without too much embarrassment. Conditions associated with the return stated that the owner should: 1) Leave erect and in its present position the memorial stone, 2) Leave intact the bricked up access alley and the windows of the gravel exposure, and 3) Permit scientists duly accredited by the NHM to have access to the site.

The site and the memorial stone still remain today (**Fig.3**) and although the fences and path have gone, the brick alley to what was the ‘witness section’ is still visible. The site is no longer an NNR of great scientific interest but it is still surely of importance to the history of science, geology, archaeology and nature conservation and as such is part of our national heritage. It is currently in private ownership with no obvious immediate threats but it has no heritage recognition or protection. The views of delegates are sought as to whether the site of the Piltdown ‘finds’ should be recognised and managed as a part of our national heritage and if so how this could be achieved?



Figure 3. The site as it is now with the memorial to Dawson and the brick alley still visible.

Reference

Prosser, C.D. 2009. The Piltdown Skull Site: the rise and fall of Britain’s first geological National Nature Reserve and its place in the history of nature conservation. *Proceedings of the Geologists’ Association*, 120, 79-88.

PILTDOWN: A DEVELOPING STORY

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Although it is generally agreed that the main culprit behind the Piltdown forgeries was Charles Dawson, the question of whether anyone else was involved and to what extent has not yet been satisfactorily resolved.

It is here argued that the scope and detailed purpose behind the forgeries changed over time, as Dawson reacted to events, the reactions and actions of others. Others were probably involved, but not as co-conspirators.

It is possible that Dawson may have changed his original plan for the forgeries in response to Smith Woodward's reaction to the objects. The flint collection from Piltdown includes five or six Palaeoliths and 'Eoliths'. The latter were all 'found' prior to Smith Woodward's visits to the site and prior to his initial reconstruction of the hominid chimera. Dawson seems not have required further finds to boost his case. It is possible that an initial plan of a two stage site became a one stage site when Smith Woodward associated the jaw (Fig.1) with the cranium. A more precise date for the first notification of the Piltdown II specimens, certainly a chimera, would help date this possible change of plan.



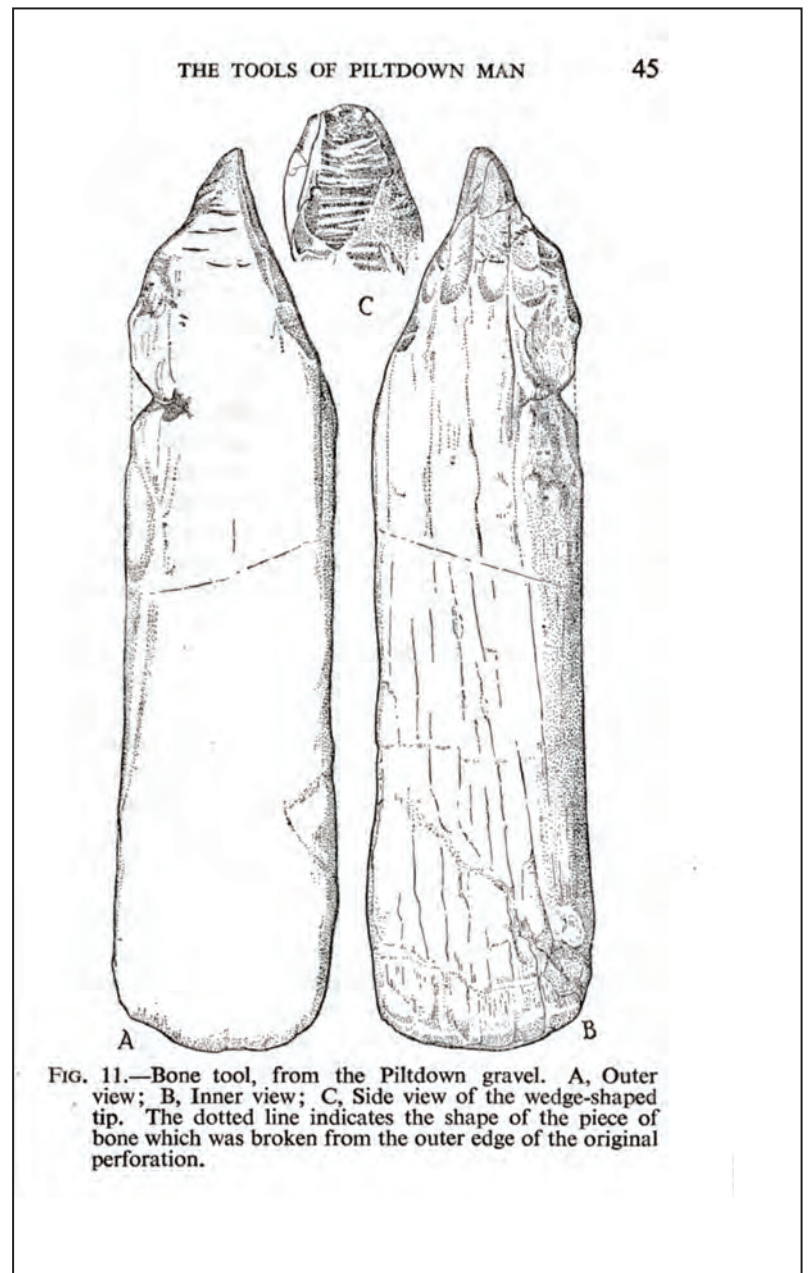
Figure 1. The Piltdown 1 jaw and teeth, showing the distinct difference in colour between the painted canine and the remainder of the teeth.
(© Natural History Museum, London - NHM Picture Library)

The canine tooth also needs to be considered. Not only was this made by a very different and far cruder process than the other fakes, but it was also the only 'hominid' piece not found by Dawson or Woodward, the latter only found the 3rd fragment of the occipital. It is highly unlikely, therefore, that Dawson would have left the discovery of such a crucial piece to someone else. As a result, it appears likely that the tooth had a different source, which must have been either Teilhard de Chardin or someone known to Teilhard. In not giving the game away on that day, August 30th 1913, Dawson demonstrated enormous chutzpah. He had, however, already shown his ability to adapt.

In discussing the staining, much has been made of Martin Hinton's trunk. The contents of this, even if

shown to have used identical techniques, do not prove that Hinton perpetrated any part of the hoax, only that he was aware of it and was investigating the methods used.

Figure 2. The bone implement. Figure 11 from A. S. Woodward, *The Earliest Englishman*. 1948. Drawn by Miss Tassert.



PILTDOWN RE-EXCAVATED

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Underpinning the ‘success’ of the Piltdown hoax was one crucial factor, the utter plausibility of its claimed context, the fluvial terrace gravels of the River Ouse in Sussex. Many aspects of Dawson’s account of discovering the site are convincing, from his identification and interest in rounded gravels, so far from the chalk, to his record of the deposits themselves. Given the elaborate nature of the fraud there were considered good reasons for the Ouse Gravels remaining as the scene of the crime itself! Therefore in the autumn of 2012 excavations were carried out by the Institute of Archaeology at Barkham Manor, the site claimed by Dawson as producing the original Piltdown finds. The fieldwork was undertaken to meet two primary aims: firstly to undertake a modern assessment of the gravels at the site, to determine their age, origin and palaeo-geographical significance. Secondly to compare Dawson’s account of the gravels with our own records in order to bring the claims for the context of the discovery and associated finds under modern scrutiny.



The monolith marking the Piltdown 1 find

Two test pits were excavated, one immediately adjacent to the monolith marking the Piltdown 1 find spot and another to the west in a field where further stone tools were found. The edge of the original pit was exposed and a record which entirely matches Dawson’s observations was recorded. This included

overlying loams, the ferruginous gravels and the 'yellow clay' at the base of the sequence. The work has produced samples for dating, gravel class size analysis and pollen work and we hope in the course of time to produce an account of the gravels which appear to be a genuine Pleistocene sediment. The implication of the gravels constituents, which contain many natural 'eolithic' forms, as well as the identified presence of late prehistoric flintwork across the surface of the site., will be assessed in terms of the progression and interpretation of the hoax by contemporary workers, including Dawson himself.



NOTES