

The Boldest Hoax

PROGRAM OVERVIEW

NOVA investigates the Piltdown hoax, the people who may have been involved, and the potential reasons for the forgery.



The program:

- reviews Charles Darwin's 1859 theory of evolution that drove the hunt to find the "missing link" in human development—fossil evidence for a species that would bridge the evolutionary gap between apes and humans.
- notes that while Germany, Spain, and France all had evidence of early man, Britain had none.
- relates how the skull and jawbone found at Piltdown, England, in 1912 were purported to belong to the earliest human ever discovered.
- states the early suspicions of some scientists who questioned the authenticity of the artifacts.
- reports subsequent finds that supported the legitimacy of the Piltdown man: a canine tooth discovered in 1913 at the original site and a second skull and tooth unearthed two years later just a few miles away.
- notes how the hoax was exposed in 1953 by Kenneth Oakley, a scientist whose dating technique revealed the Piltdown artifacts were not as old as presumed.
- reports further revelations that the skull had been stained, the canine tooth painted and filed, other teeth filed flat, and the jaw obtained from a common orangutan.
- investigates the potential mastermind(s) of the hoax and what may have motivated each of them.
- reviews the case against Sir Arthur Conan Doyle, the mystery writer whose "Lost World" may contain clues relating to the hoax.
- assesses the character of Charles Dawson, an amateur archeologist who first brought the finds to the attention of the science community.
- presents the evidence against Sir Arthur Smith Woodward, a geologist at the then British Museum of Natural History.
- explores evidence regarding museum volunteer Martin Hinton's role in the forgery.
- theorizes which of the potential instigators might have been involved with the hoax.

Taping Rights: Can be used up to one year after the program is taped off the air.

BEFORE WATCHING

- 1 Have students research the time line of humans. Ask some students to research where Piltdown man was supposed to fit in. (Before the hoax was revealed, Piltdown Man was believed to have lived near the end of the Tertiary period during the upper Pliocene epoch, more than 1.25 million years ago.) Draw a time line on the board and have students present their findings.
- 2 As students watch, have them collect information for the "Great Piltdown Forgery" activity on page 2.

AFTER WATCHING

- 1 Discuss the forgery with students. Who in the program had the means, motive, and opportunity to carry out the forgery? What knowledge and techniques were necessary to pull it off? Would students consider the Piltdown forgery a hoax, a crime, or both? Why? What role might national pride have played?
- 2 Have students contrast the evidence for Piltdown man and that for another startling find, the hominid "Lucy," which was discovered in 1974. Have students research the evidence supporting Lucy's authenticity and evaluate that evidence against the evidence supporting Piltdown man's veracity. How do they compare? (Piltdown man had fewer bones that were found over a longer period of time. Lucy's forearm bone, femur, skull, ribs, and lower jaw were initially found together; two weeks later, several hundred additional bone fragments were recovered. There were no techniques available to date Piltdown man at the time he was found; argon-argon dating was used to date Lucy's remains.)

CLASSROOM ACTIVITY

Objective

To learn more about the Piltdown hoax and who might have been involved.

Materials for each team

- copy of the “Great Piltdown Forgery” student handout

Procedure

- 1 Organize students into five teams. Assign each team a set of four questions from the list.
- 2 Show the video and have students take notes on the parts of the video that relate to the questions they have been assigned.
- 3 After watching, have students write down the name(s) of the individuals they thought committed the forgery. Tell team members not to share their choices with one another. Then ask students to work together in their teams to answer their questions.
- 4 Have students share their responses to the questions. (See Activity Answer on page 3 for possible answers. Accept all reasonable answers from students.)
- 5 Review the evidence regarding the following people’s involvement in the hoax. Ask each student to present his or her reasons for choosing any of the following suspects.
 - Sir Arthur Conan Doyle
 - Charles Dawson
 - Sir Arthur Smith Woodward
 - Martin Hinton
- 6 After all students have presented, ask if anyone has changed his or her opinion about who committed the forgery. If any students changed their choices, ask what evidence prompted the change.
- 7 To conclude, discuss whether students think the Piltdown hoax could happen today. Why or why not? What might compel scientists today to be involved with or taken in by the hoax? What might prevent a hoax from being perpetrated?
- 8 As an extension, have students research other scientific hoaxes and forgeries such as the Tasaday tribe (purported to be a small Stone Age tribe living in complete isolation on the Philippine island of Mindanao) or the alien autopsy (an alleged autopsy on an alien that purportedly died when a flying saucer crashed in 1947 in Roswell, New Mexico). Do they share any similarities with the Piltdown hoax? How are they different? Ask students to share their findings.

STANDARDS CONNECTION

The “Great Piltdown Forgery” activity aligns with the following National Science Education Standards.

GRADES 5–8
Science Standard G:

History and Nature of Science

Nature of science

- In areas where active research is being pursued, and in which there is not a great deal of experimental or observational evidence and understanding, it is normal for scientists to differ with one another about the interpretation of the evidence or theory being considered.
- It is part of scientific inquiry to evaluate the results of scientific investigations, experiments, observations, theoretical models, and the explanations proposed by other scientists.

GRADES 9–12
Science Standard G:

History and Nature of Science

Science as a human endeavor

- Scientists are influenced by societal, cultural, and personal beliefs and ways of viewing the world.

Nature of scientific knowledge

- Because all scientific ideas depend on experimental and observational confirmation, all scientific knowledge is, in principle, subject to change as new evidence becomes available.

*Video is required
for this activity.*

Classroom Activity Author

Developed by WGBH Educational Outreach staff.

ACTIVITY ANSWER

Suggested answers to the questions listed on the student handout:

- 1 What object was initially found at the Piltdown site? **a thick piece of a skull** Who found it? **a laborer**
- 2 What did Charles Dawson claim he noticed about the skull? **that it was extremely thick and appeared rather primitive**
- 3 How does Charles Darwin fit in to the story of the forgery? **about 50 years earlier, Darwin had published the theory of evolution; scientists and others began looking for a half-ape, half-human missing link in the evolution of humans**
- 4 What evidence did Germany, Spain, and France have in relation to the evolution of humans that England did not have? **evidence of early man through Neanderthal skeletal remains and cave paintings**
- 5 How did the time period—ww1—affect the atmosphere surrounding the hoax? **the buildup to the war intensified the rivalry between Britain and Germany; believing itself to be the “greatest empire” on Earth, Britain wanted to prove itself as the birthplace of humans**
- 6 Who was Charles Dawson? **a lawyer by trade; an amateur archeologist interested in fossil hunting**
- 7 Why might Dawson have wanted to be associated with Sir Arthur Smith Woodward? **he may have wanted to align himself with the eminent Woodward to build academic credibility**
- 8 Who was Woodward? **a noted geologist who worked at what is now London’s Natural History Museum** What remains did he and Dawson find at Piltdown? **they found what they believed to be the remains of prehistoric animals, Stone Age tools, and an ape-like jawbone with human-like teeth**
- 9 When was Piltdown man presented to the world? **on December 18, 1912** What was he called? ***Eoanthropus dawsoni*, or Dawson’s Dawn Man; later nicknamed “the earliest Englishman”**
- 10 What was the initial response of the science community to Piltdown man? **some scientists believed the creature was genuine; others questioned whether the jawbone and the skull were from the same creature, since there was no evidence linking the two artifacts**
- 11 What was the significance of the canine tooth that was found? **the tooth helped reassure some doubters that the jawbone and skull belonged together**
- 12 Where was the second Piltdown man found? **a few miles from the first location** Who discovered it? **Dawson** What was the significance of this second find? **it convinced some scientists that Piltdown man was genuine**

ACTIVITY ANSWER

- 13 Who was Kenneth Oakley? **he worked at the Natural History Museum**
What was his role in the Piltdown hoax? **he helped reveal the forgery**
- 14 What items were revealed to be forged? **all 40 or so finds were forged and planted** How were some of the items faked? **the fossils had been boiled and chemically stained and teeth had been filed down; the canine tooth had been painted**
- 15 What evidence points to Sir Arthur Conan Doyle's possible involvement? **he lived near Piltdown; he knew the others and belonged to the same archeological society as Dawson** What might have been his motivation? **the scientific community had made a fool of him for his belief in spiritualism (communicating with the dead); he may have wanted to mock the scientists who mocked him** Describe his character. **he was considered a man of truth and integrity**
- 16 What is the evidence for Dawson's involvement? **he wanted to make a name for himself; many other artifacts he had found had been forged or were of questionable origin** Describe his character. **he treated others without respect to their feelings; he was considered a liar, cheat, and swindler**
- 17 Why might Woodward have been considered a suspect? **he was Piltdown's greatest advocate** Why might Woodward not have conducted more rigorous science tests on the artifacts? **his ambition may have blinded his scientific judgment**
- 18 Who was Martin Hinton? **he was a museum volunteer** What is the evidence of his connection with the forgery? **he was a rival of Woodward's; stained bones were found in his trunk; his letters revealed he knew about the hoax** Include a description of his character. **he was an enigmatic man who attracted attention; considered a bit devious and a practical joker**
- 19 What object was planted that might have revealed the Piltdown hoax? **a cricket bat** What happened when it was found? **Dawson and Woodward wrote it up as a curious bone instrument, a Paleolithic artifact**
- 20 What character traits might have compelled some of the scientists to be involved with or taken in by the hoax? **egotism, pride, ambition, and rivalry**

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LINKS AND BOOKS

Links

Piltdown Artifact Photos
owen.nhm.ac.uk/piclib/www/search.php?search=piltdown

View photos of the Piltdown site and the artifacts discovered there.

Piltdown Man: Britain's Greatest Hoax
cgi.bbc.co.uk/history/archaeology/piltdown_man_print.html

Analyzes the Piltdown hoax and tries to uncover who was involved in the fraud.

The Strange Case of the Piltdown Man
www.autopen.com/piltdown.shtml

Provides an overview of the case and its importance.

The Talk-Origins Archive: Piltdown Man
www.talkorigins.org/faqs/piltdown.html
Examines the Piltdown case and studies the myths and the people involved.

Books

Russell, Miles.
Piltdown Man: The Secret Life of Charles Dawson
Gloucestershire, UK: Tempus, Stroud, 2003.
Considers Dawson's family life and a great deal of evidence on why the frauds took place.

Spencer, Frank.
Piltdown: A Scientific Forgery.
London; New York: Oxford University Press, 1990.
Analyses the original documents and other evidence, and presents a new case about who is responsible for the forgery.

Walsh, John Evangelist.
Unraveling Piltdown: The Science Fraud of the Century and its Solution.
New York: Random House, 1996.
Considers Sussex solicitor Charles Dawson as the perpetrator of the Piltdown fraud.

Great Piltdown Forgery

The Piltdown man, also known as “the earliest Englishman,” was one of the greatest hoaxes in science. The forgery lasted 40 years, and a scientific fraud like it was never seen before or since. But who committed the forgery? Explore the suspects in this activity.

Procedure

- 1 You will be assigned some of the questions below. As you watch the video, take notes on your questions. Answer only the questions assigned by your teacher.
- 2 After watching the program, have each team member write down the name of the individual(s) that he or she thinks committed the forgery. Team members should not share their choices.
- 3 Work with your team members to answer your questions. Choose a member of your team to share answers to your team’s questions with the class.

Questions

Write your answers on a separate sheet of paper.

- 1 What object was initially found at the Piltdown site? Who found it?
- 2 What did Charles Dawson claim he noticed about the skull?
- 3 How does Charles Darwin fit in to the story of the forgery?
- 4 What evidence did Germany, Spain, and France have in relation to the evolution of humans that England did not have?
- 5 How did the time period—ww1—affect the atmosphere surrounding the hoax?
- 6 Who was Charles Dawson?
- 7 Why might Dawson have wanted to be associated with Sir Arthur Smith Woodward?
- 8 Who was Woodward? What remains did he and Dawson find at Piltdown?
- 9 When was Piltdown man presented to the world? What was he called?
- 10 What was the initial response of the science community to Piltdown man?
- 11 What was the significance of the canine tooth that was found?
- 12 Where was the second Piltdown man found? Who discovered it? What was the significance of this second find?
- 13 Who was Kenneth Oakley? What was his role in the Piltdown hoax?
- 14 What items were revealed to be forged? How were some of the items faked?
- 15 What evidence points to Sir Arthur Conan Doyle’s possible involvement? What might have been his motivation? Describe his character.
- 16 What is the evidence for Dawson’s involvement? Describe his character.
- 17 Why might Woodward have been considered a suspect? Why might Woodward not have conducted more rigorous science tests on the artifacts?
- 18 Who was Martin Hinton? What is the evidence of his connection with the forgery? Include a description of his character.
- 19 What object was planted that might have revealed the Piltdown hoax? What happened when it was found?
- 20 What character traits might have compelled some of the scientists to be involved with or taken in by the hoax

