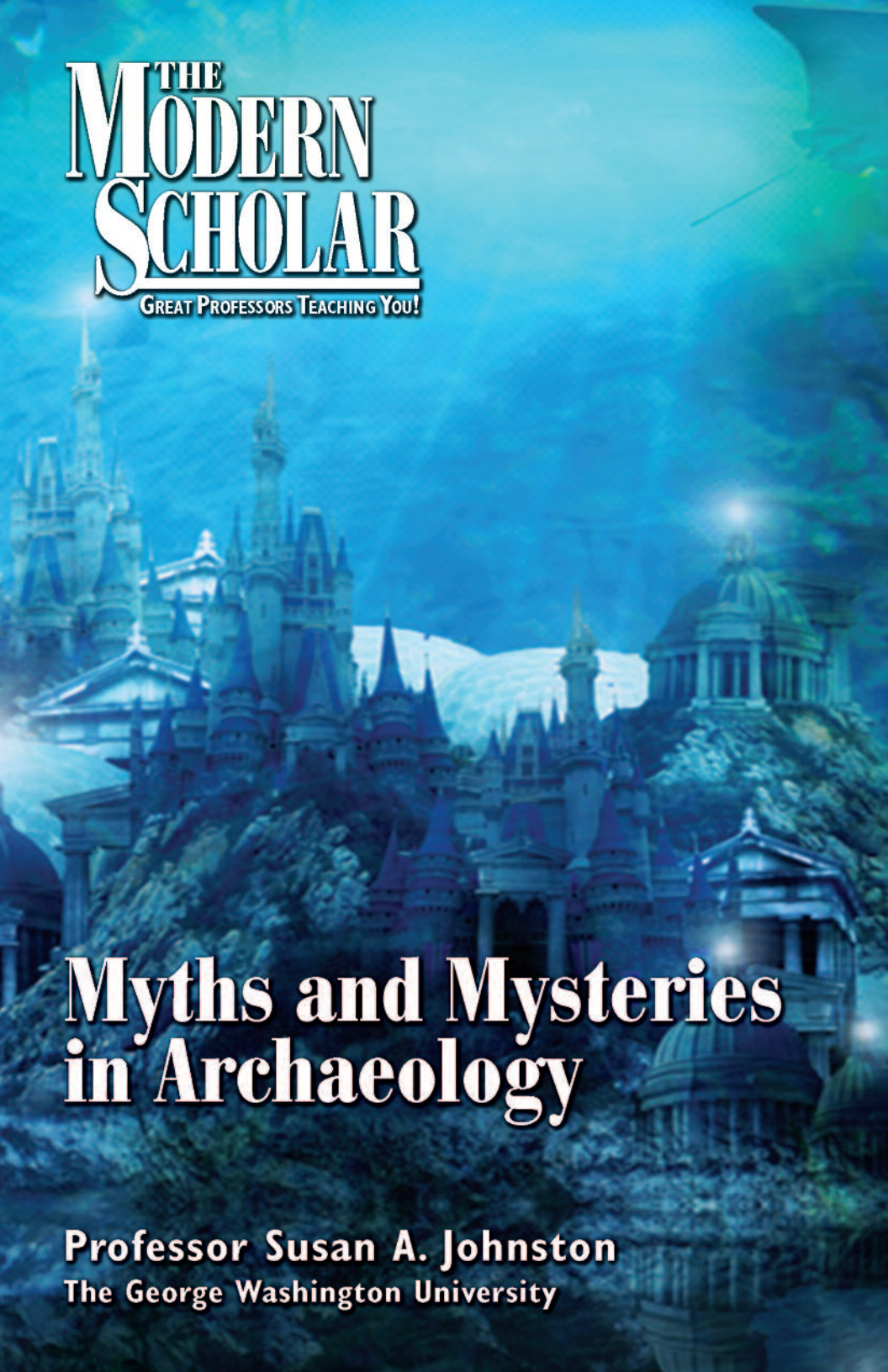
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Myths and Mysteries in Archaeology
Professor Susan A. Johnston
The George Washington University

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Course Syllabus

Myths and Mysteries in Archaeology

Photo courtesy of Susan A. Johnston

About Your Professor

Susan A. Johnston

Susan A. Johnston is a part-time faculty member in Anthropology at the George Washington University in Washington, D.C. She teaches a variety of courses in anthropology and archaeology, including the archaeology of the Celtic peoples, archaeological myths and mysteries, and the anthropology of religion.

Professor Johnston has carried out archaeological research in Ireland since the 1980s, when she did her PhD dissertation on Irish rock art of the Neolithic and Bronze Age. She has also done archaeological work in such varied places as India, England, and Rhode Island.

She is currently conducting research at the site of Dún Ailinne, County Kildare, Ireland. This site, which saw a variety of uses between 3500 BCE and 400 CE, was one of the royal sites of the Irish Iron Age, and in that period was the ceremonial center of the rulers of the ancient kingdom of Leinster. She has published a number of articles and research reports, but her most recent publication, with Dr. Bernard Wailes, was on excavations carried out at Dún Ailinne, a book entitled *Dún Ailinne: Excavations at an Irish Royal Site, 1968-1975*.

You will get the most from this course if you have *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology* (6th ed.; McGraw-Hill, 2007) by Kenneth L. Feder and William H. Stiebing, Jr.'s *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past* (Prometheus, 1984).

The Lost City
by Karen Koski

Introduction

People have a wide range of beliefs about the world in which we live. Sometimes these beliefs are grounded in direct experience, sometimes they are based on evidence, and sometimes they are otherworldly and reflect more what people want to be true rather than what is likely to be true.

Who built the pyramids? Could a city as large and accomplished as Atlantis have disappeared from history without leaving a single material trace of its existence? What about the mystery of Stonehenge? Of King Arthur? Of ESP?

In these lectures, Professor Susan A. Johnston of the George Washington University applies an archaeological perspective to the biggest myths and mysteries in world history. Examining prominent theories in terms of the available evidence, Professor Johnston provides tools to help evaluate the many and varied claims about the past. Using the scientific method, she suggests the most likely scenarios for interpreting our shared past in a way that is true to the evidence and highlights the accomplishments of our ancient human ancestors.

Lecture 1

How Do We Know Things?

The Suggested Readings for this lecture are Kenneth L. Feder's *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*, chapters 1 and 2, and William H. Stiebing, Jr.'s *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*, chapter 7.

liens built the pyramids? Stonehenge is an ancient observatory? The Maya predicted that the world would end in 2012? This is a course that looks at some of the ideas about the past that are part of popular culture in the United States today. Most people at some point in their lives think about the past—What was it like? Would we like to have lived then? How different were they from us? This interest is illustrated by the popularity of books, movies, and TV shows on all aspects of the past. And there is a lot of information out there. Archaeologists, historians, and others are doing research all the time, and people, both professional and not, are taking that information and interpreting it in a huge variety of different ways. This has produced a sometimes bewildering array of material about our past that appears in books, websites, and various other media.

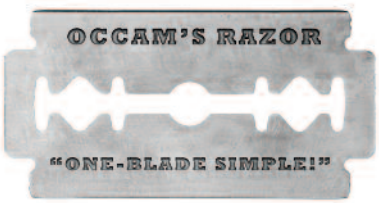
How are we to sort through all of this? Is everything you read about the past reliable? How do we know the reasonable interpretations from the more fanciful ones? How can we tell facts from outright lies? This course looks at these issues using examples from a number of different times and places. It is mostly based on archaeology, though we'll talk a little bit about written history, too. At the end, I hope that you will have some tools for approaching the understanding of the human past. It may not change your mind about what you believe happened then, but hopefully it will get you to think about why you believe it, and why archaeologists sometimes have different ideas about the past than other people.

The study of how we know things is called "epistemology," that is, how we know what we know. Knowledge can come from any number of sources. We can experience things directly. More likely, we can learn them indirectly, by reading something, or hearing it from someone, or using intuition or imagination. But for indirect knowledge, we are relying on other people to provide information. In a literal sense, we don't actually "know" these things; technically, we only "believe" them. I "know" that I am typing right now on my laptop, and I "believe" that what I am writing makes sense, and might even be interesting. From this perspective, most of what we think of as knowledge is really information that we believe to be true. I may say that I know that there is a country called Tibet, but I've never actually been there. Many sources of information that I trust say that there is such a place. I've seen pictures and read

books, and I've talked to people who say they have been there. I also "know" that there are other galaxies in the universe. In this case, I've never talked to anyone who has claimed to have been there, but there are people who say that they have seen them, albeit from a distance. Now, I'm not saying that we don't really know anything, but I am saying that, when I say I know something, what I really mean is that I believe the information that I have learned through a variety of different means.

Adding the dimension of time makes this even more complicated. Depending on different factors, you might expect to live perhaps seventy to eighty years. Beyond this, no one can tell us from direct observation what happened. No one alive saw who made the first stone tool, or was there to ask why a pyramid was built or what the designs on a pot meant to the Mayan artist who painted them. So there is even more uncertainty in terms of what we "know" about the past because there is little direct knowledge to help us along. I say I know that Julius Caesar conquered Gaul (what is now France) in the mid-first century BCE because there are indicators that it happened. There are documents and artifacts surviving from that time period, and in this sense we have some direct knowledge. But it's possible that our understanding of these is somehow mistaken. If we are being honest, although we often say that we know what happened in the past, in fact we really only have interpretations, what we think happened in the past.

Does this mean, then, that all ideas about the past are equally likely? I'd say no. While we can't ever really know what happened, there are interpretations that are more or less likely, based on the knowledge that we do have. So which ones are which? There is a famous principle that can help to get us thinking about this problem. It's known as Occam's Razor after the fourteenth-century friar, William of Occam, who is said to have formulated it. The original version goes something like "entities must not be multiplied beyond necessity," and it is often understood more popularly as "the simplest explanation is the best." But I'm not sure this exactly captures what he was trying to say. So with apologies to William, I would say that the best explanation is the one that accounts for the most evidence, does violence to the least evidence, and makes the fewest assumptions. If you have to ignore and distort a lot of evidence and make a number of sweeping assumptions, then your explanation probably isn't the most compelling one out there.



I would also use science as a way to evaluate ideas about the past. We will talk about science in the next lecture, but for now it's worth noting that, while there have been various critiques about science in recent years, it still seems to be the best way we have to investigate the world in the most objective way possible. And objectivity is important. While direct experience is very compelling, humans aren't always the best observers. Archaeologist Ken Feder, in

his book *Frauds, Myths, and Mysteries*, tells the story of a panda that escaped from a zoo in Rotterdam, Holland, in 1978. It was a red panda, an unusual type that was very distinctive and not easy to confuse with any other animal likely to be seen in that part of the world. Hoping that publicity would help find the panda, they published pictures and a description in the newspaper, but just as the paper came out, the panda was found dead. Nevertheless, as a result of the newspaper story, the authorities received over one hundred reports of panda sightings. All were obviously mistaken, since the animal was dead by then, so if we assume that only some of the people who reported seeing it were outright lying, then the rest were showing how difficult it can be to make accurate observations. Psychology experiments have consistently supported this idea, demonstrating over and over that it is relatively easy to manipulate both our perceptions and our memories in order to change what we think we know. So it is useful to have a method that allows us to put our own perceptions in some kind of larger context.

There are many disciplines that use scientific methods to help us understand the past. Archaeology, which we'll discuss in detail later, is the major one, and others such as geology, astronomy, and biology also have data to contribute. History, which is the study of written documents, has its own rules for evaluating things that have been written down. Writing has only been available for about one-tenth of one percent of the human past, and for most of that it was confined to a small number of cultures and individuals. But it is out there for us to study. Anthropology, which is the study of human culture and biology, also adds significantly to our analysis of the past. It can tell us what is typical of human societies, and expand our understanding of how people behave by looking at cultures other than our own. Taken together, these and other disciplines provide a wealth of research that can add evidence to our understanding of the past.

So does the fact that someone says they are using science to write about the past necessarily help us to know which sources are valid and which might not be? Well, yes and no. There are scientists and non-scientists who write about the past, and sometimes those who aren't scientists claim to use scientific information in their interpretations. So how do we sift through all this information? Unfortunately, there isn't any foolproof way, but there are some things that are useful to keep in mind. I list them here as questions you might ask about something you are reading, in order to assess how reliable it might be.

First, who is the person writing? This can be a tricky issue, because there are scientists who write silly things and amateurs who have very good insights. But in general, the person who is writing should have some credentials in the field on which they are commenting. On the one hand, if someone is writing about ancient Egyptian culture, they should be an archaeologist or a historian, and not a geologist, a science writer, an explorer, or physicist. Now I'm not saying that no one else can possibly have anything relevant to say about the past, but I am saying that a lack of such credentials should make you pause and

think. Archaeology and history require knowledge and training, and you can't really get that just from reading a few books. It's an odd thing that archaeology in particular is often treated as a game anyone can play, as though we have no expertise that has been accumulated through years of school and practical experience. So if the person has no formal training in a relevant discipline, then you should at least wonder about what they are saying.

Second, could you verify what they are saying? Anyone who makes claims about the past should provide you with ways to examine for yourself the evidence that they are using. So is there evidence that they are using, and what is it? Has it been published somewhere that you could, at least in theory, go and look up and read for yourself? Or is it a website that only provides links to other websites by the same person, or a newspaper article about something that someone saw in another country that no one else can vouch for? Or is it based on a photograph or video that has never been authenticated and could have been faked?

Third, does it require either a scientific or government conspiracy? I am hesitant to raise this point, but I think it's worth making. Whether you believe the government or not is a personal issue. Myself, having lived through the Watergate years, I am not impressed with the government's ability to keep widespread secrets, so I am skeptical when a claim rests on a government conspiracy. As for scientists, however, making discoveries is what it's all about, and making groundbreaking ones is what gets you recognition, grants, jobs, and all the other rewards that science has to offer. Yes, there is a hierarchy of scientists, and yes, there are always people trying to break through what is accepted wisdom. But in the end, if you have the evidence to back it up, then your idea will be heard. So I am also skeptical when someone claims that scientists are involved in a cover-up of some particular theory, and that's the reason that it has been rejected by the scientific community.

Finally, does it require that everything we thought we knew about the past, or even the world, is wrong? Obviously we are far from knowing everything. But there are some places where we have extensive knowledge of the past. If someone is saying something that completely overturns decades or even centuries of research, then the evidence had better be really, really good. There are too many scientists working in too many places using too many methods to all be wrong. There will continue to be new, groundbreaking evidence—that's what makes it fun. But something that requires that we all be wrong should be treated with some doubt.

There are other principles that we can use as we talk about knowledge, archaeology, history, and the past, but these are some basic ones. Keep them in mind as we consider what has been said about our shared history—even the things I tell you! It isn't an infallible approach, but it might begin to help sort out what we know from what we believe about our shared human history, and why we think we know or believe it.

FOR GREATER UNDERSTANDING

Questions

1. What is epistemology?

2. Why is direct experience not always the most reliable evidence?

Suggested Reading

Feder, Kenneth L. *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*. 6th ed. New York: McGraw-Hill, 2007.

Stiebing, William H., Jr. *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*. New York: Prometheus, 1984.

Other Books of Interest

Frazier, Kendrick, ed. *Science Under Siege: Defending Science, Exposing Pseudoscience*. New York: Prometheus, 2009.

Websites of Interest

The Skeptic's Dictionary by Robert T. Carroll provides an entry on pseudoscience. —http://www.skepdic.com/vondanik.html

Lecture 2

Science and How It Works

The Suggested Reading for this lecture is Kenneth L. Feder's *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*, chapters 1 and 2.

The question of how we know things and the best way to gain knowledge about the world have concerned humans for probably all of their history on Earth. Over our collective cultural lifetime, we have devised many ways to investigate things, and many of these have provided important insight into and understanding of the human condition. Indeed, it makes sense that different kinds of knowledge require different methods of investigation. In terms of understanding humans and our place in the physical world, I think that science has been one of the most significant approaches to gaining knowledge. This is particularly important in investigating the past because we no longer have people we can talk to. Instead, we have to rely on what we know about human behavior and how that results in the physical evidence that has been left behind.

Science is partly a way of thinking about the world. In that sense, it is a worldview, a way of understanding the nature of reality. Like all worldviews, the science view is really based on a series of assumptions that are beyond our ability to prove. First, science posits a concrete universe that is independent of our perception. In other words, the world exists outside of any particular observer, and so is independent of that observer. This is something that must simply be accepted, because there is no way a human being can see outside his or her own perception. It's simply impossible. Yes, this world could all be a figment of my imagination. But it doesn't seem to be under my control, and so I doubt if that's the case. Instead, the world is separate from my particular view of it.

Second, the world operates according to regular principles that, assuming that conditions are the same, are true regardless of time and place. This is something called "uniformitarianism," meaning that the world is a uniform place that operates according to uniform rules. If you drop something and there is nothing to nullify gravity, then it will fall. It doesn't matter whether you dropped it an hour ago or fifty thousand years ago, or if you drop it in Costa Rica or Ireland; it will still fall.

This is particularly important for archaeology, since we can no longer observe what happened in the past. If you strike a stone of a particular kind in a particular way, then it will take a certain shape. This is true now, and it was true then, and this allows us to gain some insight into the making of stone tools.

Third, these principles can be known. This means that there are no aspects of reality that are beyond our understanding. We may not understand now, because we aren't thinking about the questions the right way, or because we don't have the technology to investigate them. But in the end, it is possible to know the answers; there are no ultimate mysteries in science, just questions we don't yet have the ability to investigate.

This worldview, which is the outcome of particular historical circumstances beginning around the seventeenth century in Europe, has provided notable successes in understanding how the world works. Recently, however, it has been critiqued in various ways as being particularly "Western," or as being only one way to know that world. In particular, the subjectivity of knowledge that I mentioned last time has been noted as a challenge to science, which tries to be objective. Remember those assumptions I just mentioned? They are assumptions, and can't be proven in any real sense. And if they can't, then is science even possible? To this I would say two things. First, while reality may be subjective, it sure feels real and objective. Honestly, if there wasn't an independent world and you were creating all of this in your own head, wouldn't you do it differently? Second, we do know more about the world now than we did one hundred years ago. There are diseases that are no longer dangerous, we have been to the moon, we have probed the depths of the ocean, and we are able to describe the basic makeup of matter. So even if science isn't objective, it has advanced our knowledge, which is what it is designed to do.

This doesn't mean that science is always right, perfect, or satisfying. Scientists make mistakes, go up blind alleys, and draw incorrect conclusions. They sometimes tell us things we might not want to know or that don't fit in with our vision of a good life. Sometimes they even make things up. But science is ultimately self-correcting; while we might be wrong at times, if everyone follows the rules of science then eventually the errors will be revealed. That's how science is supposed to work.

The method that science uses and the rules that scientists are supposed to follow are part of what is known, appropriately, as the "scientific method." There are many books and other resources that outline this in detail, so I will only summarize it here and talk about its particular application to archaeology next time. Science begins with an observation, something you'd like to investigate. Based on this observation, you then construct a hypothesis, which predicts what should be true if the hypothesis is correct. You then test your hypothesis, and if your predictions are correct, then your hypothesis is confirmed. You then publish the results so that others can both evaluate your work and use your results to further other research. Simple, right? Well, sort of. We need to think about the parts of this method in some more detail.

One of the most important aspects is the hypothesis. Many of you may remember being taught that a hypothesis is an educated guess, and that is certainly one aspect of it. But a hypothesis is more than that. It is a prediction of what you think the results will be, and it also has specific characteristics. First, it must be testable. This means that it must be possible to carry out an actual test or series of tests that can evaluate the hypothesis. The idea that God exists is not a hypothesis because, since God is usually seen as existing outside the laws of the physical universe, there is no test that can be devised to evaluate God's existence. Second, the test of a hypothesis must be repeatable. That means that you should be able to do the same test again and again and always get the same result. Any given study is interesting, but if it hasn't been repeated then I wouldn't stake my life on the results.

The third aspect requires a little more discussion. A hypothesis should also be falsifiable. This means that not only is your hypothesis confirmed if the predicted results of your test happen; it also means that, if the predicted results *don't* happen, then you can conclude that the hypothesis is incorrect. This idea can be a little tricky to understand, but here's an example. Suppose you leave your house one morning and your car isn't there. You hypothesize that it has been stolen, and you test your hypothesis by looking in your garage, in your driveway, and along the curb in front of your house. If it isn't in any of those places, can you conclude that it has been stolen? Obviously not. Perhaps your spouse took the car and didn't have time to tell you. Maybe you forget to set the parking brake and your car has rolled down the street a few hundred yards. Maybe the police discovered all those unpaid parking tickets and, when they cruised by, they impounded your car and towed it to the station. The reason you can't conclude that your car was stolen is that your hypothesis wasn't falsifiable. Falsifiability is particularly important in archaeology, as we'll talk about later.

Finally, you have to publish your results. There are several reasons for this. It allows your work to be examined by your peers. This is important because others may see things in your work that you missed, which can be positive or negative. If you've made a mistake, then it will be noticed, but it's equally likely that others will see ways of interpreting or applying your research that you might not have thought of. Discussion of results is usually very fertile ground for new ideas, both when you have to defend your own ideas and when others devise research to challenge them. Also, what is the point of research if you don't tell others what you've done? You may provide new ways to think about something, or cause someone else to think in new ways. In either case, this is how science progresses. Without that progression, then all we are doing is reinventing the wheel. And that's simply no fun at all.

FOR GREATER UNDERSTANDING

Questions

1. What is uniformitarianism?

2. What are the various components of the scientific method?

Suggested Reading

Feder, Kenneth L. *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*. 6th ed. New York: McGraw-Hill, 2007.

Other Books of Interest

Frazier, Kendrick, ed. *Science Under Siege: Defending Science, Exposing Pseudoscience*. New York: Prometheus, 2009.

Websites of Interest

An explanation on what the scientific method is and does is provided in an article entitled "Introduction to the Scientific Method" by Frank Wolfs at the University of Rochester. — http://teacher.nsrl.rochester.edu/phy_labs/AppendixE/AppendixE.html

Lecture 3

Archaeology

The Suggested Reading for this lecture is Pam J. Crabtree and Douglas V. Campana's *Exploring Prehistory: How Archaeology Reveals Our Past*, chapter 1.

There are a lot of different ways to try to understand what happened in the past. Previously, I mentioned archaeology, history, and other disciplines like geology, biology, and anthropology. All of these approaches work in somewhat different ways. They all have different things to contribute to interpreting the past and the more sources of information we have, the better our chances of doing so. The discipline we are going to focus on here is archaeology. It is the only one that is applicable to all of human history, and therefore is in some ways the most useful (though it can't do it alone).

Archaeology is the study of the human past using material remains. Most of these remains are the result of past human behavior, things people left behind either deliberately or accidentally. This is known as "the archaeological record." Other types of remains can also tell us something relevant, such as biological remains like plants and animals and geological remains. These can also reveal useful information like climate or available resources. What allows us to use this information to reconstruct human behavior is the fact that cultural behavior is patterned. While there is enormous variability among humans, there are also a considerable number of shared aspects. At one level, this is about being human—all humans get food, reproduce the next generation, dispose of the dead, and engage in ritual. At a more detailed level, it's about culture. Those of us who share the same culture tend to do things in similar ways—bury our dead instead of cremating them, hunt instead of growing our own food, build temples instead of worshipping in the forest. It's part of what allows us to

A human skeleton photographed *in situ* was excavated during the Eyre Square Enhancement Project in Galway, Ireland, in 2004. The skeleton was radiocarbon dated from between 1205 and 1305 CE. The person died as a result of head trauma, as indicated by the large hole in the skull.

distinguish between, say, Americans and Europeans, or the English and the French, or Londoners from those in northern England. We don't all do exactly the same thing, but if we share a culture, then we share certain similarities.

This is useful for archaeology because some of those patterned behaviors also produce patterned physical remains. If we typically bury our dead while our neighbors typically cremate theirs, then this leaves different patterns in the archaeological record. This is also true across time. One thing that is clear is that humans are messy people. If we are in an area for any amount of time, we leave stuff behind. So if we find no evidence of something, we either have to explain why it's all gone or we have to conclude that it was never there. Usually, we do this formally through the use of models. For example, if I'm trying to understand what it was like to hunt all my food, what would be better, to look at modern agricultural people or at modern hunting people? Obviously the latter. That's where anthropology comes in. It gives us ideas about human cultural behavior that might be different from what we are used to. Unfortunately, there are no perfect models. If I am looking at a grave with weapons in it, is it likely that the person was male or female? It's hard to say just on the basis of the weapons. In some cultures, only men had weapons while in others, both genders had them. Since I can't choose clearly between the two, I am left with some uncertainty. Sometimes in archaeology, all we can be certain about is that we can't be certain, and this is an important principle. For many of the examples I will be talking about, the problem is not the interpretation per se, but rather the fact that there are alternatives that are just as valid.

In general, archaeologists try to be scientific about the collection of data and the testing of hypotheses. However, it can be tricky when we have to factor in preservation, which can make it difficult to falsify a hypothesis. In some cases, there may be a valid argument that evidence has decomposed and so, as the saying goes, absence of evidence doesn't equal evidence of absence. There's also a lot that can happen between the time when material remains go into the ground and when archaeologists recover them. Animals, water, and other natural processes can move things around as well as cause them to decompose. Land can change shape and have equally significant effects on the artifacts within it. These are called "depositional factors," things that affect artifacts in the ground other than the human behavior we are interested in. These also have to be accounted for in the interpretation of the archaeological record.

Most people know that the primary data for archaeology are artifacts. These, as mentioned before, are the material remains that form the basis of the archaeological record. But there are other sources of data that are important too. Another type of evidence is what's called a "feature." This is also part of the archaeological record, but it is usually distinguished from artifacts by the fact that you can't remove it. Features are things like pits for burial or waste disposal, the holes left behind when posts rot in the ground, trenches for

walls, and other evidence of human behavior that you can't dig up and take back to the lab. Things like walls and foundations are also considered features. I also mentioned other data like plant remains and various animal remains like bones. These also can provide important information about the past.

In addition to the objects themselves. their position in the ground is also important. This is what we call "context," and it means everything about an artifact's location—where it was found, its position in the ground, what was found with it, what was found above and below it, anything that might add to our understanding of what the artifact means. If I find a bottle buried in the ground, I might think it was simply discarded because it was empty. However, if I find it buried upside down near a house dated to the American colonial period, then I might wonder if this is a "witch bottle." This was a method of cursing someone where you filled the bottle with a variety of objects and then buried it upside down. If the person who recovered the bottle didn't pay attention to its context, then I might not be able to suggest this interpretation.

The main ways archaeologists recover data are through survey and excavation. Excavation is pretty well-known, but it means digging up artifacts and features in a systematic way, being very careful to record their context. We need to be extremely careful because, once a site is excavated, you can't do it again if you missed something or made a mistake. This is what makes excavation something that requires special skills and experience. Anyone can carefully dig

Archaeology students from an American university dig and record data on artifacts found at a medieval Viking archaeological site being worked by Danish and American teams in Skibstedgård, Denmark.

up an artifact, but it takes a trained archaeologist to know what information might be important so that every potentially important detail is recorded. Artifacts can also be collected from the top of the ground. A surprising number can be found at or just below the surface, and can be revealed in a recently plowed field, for example. Systematically collecting these can also indicate where sites are, how many sites there are in an area, and what resources they are close to.

Along with its context, an artifact's date is also important. We can get some idea of the relative date of an artifact by noting what is buried above and below it. If there is something in a layer and we know its date, then anything that is buried below it must be older and anything above it must be younger. However, we don't always know how much older or younger it might be. So we have other techniques that can allow us to be more precise. Most of these are based on well-understood principles of physics, such as radiocarbon dating. This is probably the most widely used because it is relatively simple and covers a very useful time range. It would take too long to explain here how radiocarbon dating works, but it is based on the fact that different forms of carbon decay at a known rate, and carbon is in all living matter. We can use that information to work out when something that used to be alive died, like a person, the plant material used to make a basket, or the wood that was burned to make a cooking fire. If something was never alive, like a stone tool, then we can't use radiocarbon dating on that object. But we can extend a date from one thing to other things that share the same context. So if there is a pit that has charcoal in it (once alive) mixed with the waste from making stone tools (never alive), we can use the charcoal to date the stone tool waste and probably the pit as well.

So on the one hand, we actually have an enormous amount of potential information available to us about the past. Using survey and excavation, as well as other methods, we can recover artifacts and features and their context, obtain a date for them, and then apply models of human behavior to try to understand how they came to be where we found them. However, it is often not that simple. How close do artifacts have to be to be considered in the same context? How many contexts can we date with a single radiocarbon date? What is the most appropriate model to use in interpreting a particular context? And what else have archaeologists and others who study the past said about this site or region or culture? There is an enormous amount of potential data, but the process of understanding what that data means is never straightforward. That's why archaeologists don't always agree on interpretations, and why it is possible to get things wrong. But in the end, if we are careful, if we pay attention to all of the things I've mentioned (as well as the myriad things I didn't!), and if we share our data with other archaeologists and discuss our results, archaeology still provides the best, indeed, perhaps the only, way to get a picture of what life was like for the majority of the human past.

FOR GREATER UNDERSTANDING

Questions

1. What are some examples of "features"?
2. How can radiocarbon dating be used to determine the age of objects that were never living?

Suggested Reading

Crabtree, Pam J., and Douglas V. Campana. *Exploring Prehistory: How Archaeology Reveals Our Past*. 2nd ed. New York: McGraw-Hill, 2006.

Other Books of Interest

Bahn, Paul. *Archaeology: A Very Short Introduction*. New York: Oxford University Press, USA, 2000.

Bahn, Paul, and Colin Renfrew. *Archaeology Essentials: Theories, Methods and Practice*. London: Thames & Hudson, 2007.

Websites of Interest

The *Archaeology* journal archive provides an article entitled "An American Witch Bottle" by Marshall J. Becker in their online "Uncanny Archaeology" section. —
http://www.archaeology.org/online/features/halloween/witch_bottle.html

Lecture 4

The Discovery of America

The Suggested Readings for this lecture are Kenneth L. Feder's *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*, chapter 5, and William H. Stiebing, Jr.'s *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*, chapter 6.

We will begin our discussion of archaeological myths and mysteries here at home, in North America. The question of when and how people arrived here has long been of interest, ranging from oral histories of Native Americans to archaeological research on the earliest sites in North America. Such different approaches to this question will, naturally, give different answers, but we will be focusing on archaeology here. From the perspective of the Europeans who began arriving here in the fifteenth century, North America was a "New World," which offered resources of all kinds for exploitation. While the European arrival is often described as a "discovery," Native peoples were of course already here, and so any discovery should properly be credited to those groups.

Within archaeology, there is a consensus that the first people to arrive here did so sometime before about twelve thousand years ago. That is based on an emerging pattern of sites with dates before this time that are found in both North and South America, though some of these dates are disputed. The origin of those who created these sites is generally less in dispute, though the details are subject to discussion. Based on shared physical characteristics such as blood types and dental traits, there is a significant overlap between Native American and Asian populations. We know that temperatures in the past fluctuated, causing sea levels to rise and fall as polar ice either froze or melted. This in turn caused areas of land that weren't too deep under the ocean to be exposed, sometimes connecting places that had been separated by water. One of these places is the Bering Strait, which, at various times in the past, dropped and exposed a land connection between Alaska and Asia. This is most likely how human populations entered North America. There are also other potential routes for humans to have crossed, including across both the Pacific ocean and the north Atlantic, but these routes have potential difficulties. If they were used, they likely only provided a few isolated human groups here and there; the bulk of the population is believed to have originated in Asia and arrived via the Bering land connection.

We are all familiar with the subsequent arrival of the Spanish, Dutch, and English beginning in the fifteenth century. But were there others in North America between the arrival of Native Americans and the later arrival of these European groups? Many people have made claims to that effect, both

about specific groups and about more nebulous ones—Phoenicians, Iberians, the Welsh, the Chinese, the Irish, the Vikings, and unidentified groups from Africa and even from parts unknown. We only have time to talk about a few of them. But once you start examining these claims, you start to see a general pattern emerging that you can then apply to other cases. We can group the ones we will talk about into, first, known and unknown groups. The former includes people like the Vikings and the Irish, who had seafaring technology and were known to travel. The other group includes a series of sites and objects whose contents are not typical of Native Americans, but whose specific cultural origins are unknown or uncertain. In theory, even if we couldn't identify the culture of origin of something like this, it might still suggest that there were people here in addition to Native Americans and later Europeans.

Let's start with the last group, where two examples, the Grave Creek Stone from West Virginia and the tablets from Davenport, Iowa, provide good examples. Both were found in the nineteenth century and are claimed to be inscriptions in stone dating prior to the later European arrival. If true, this would be significant since none of the indigenous cultures in North America ever found the need to develop a writing system. Alas, neither of these examples holds up to scrutiny. Both have inscriptions, but the language is unknown; however, the Grave Creek Stone seems to be a motley collection of symbols culled from a variety of ancient languages, all conveniently listed in the 1872 edition of Webster's dictionary. Neither inscription can be translated with any consistency: there are at least three translations of the Grave Creek Stone, all very different in content. Also, in both cases, the person who "found" the artifacts had apparently excavated a real Native American burial, probably from the early centuries CE, and associated with the Adena or Hopewell cultures. However, the inscriptions themselves were supposedly recovered from the dirt that had been discarded during the excavation, and not in their supposed original context; the Grave Creek Stone was found five years after the excavations, while at Davenport it was three years later. Apart from the inscriptions, there were no other artifacts or features that were different from typical Native American burials of the period. Now it's not impossible to miss something during excavation. But if you're

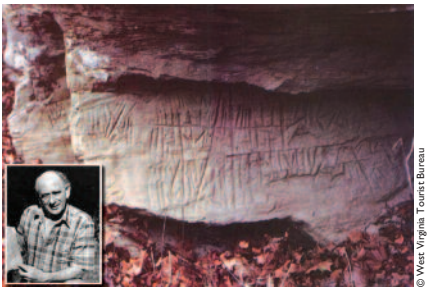
Public Domain

Top: A wax impression taken from a casting of the Grave Creek Stone, which is now on display at the British Museum in London.

Bottom: One of three slate tablets from the Davenport, Iowa, collection now housed at the Putnam Museum in Davenport, Iowa.

going to claim that you've found evidence of a previously unknown culture, you'd better have a really good knowledge of the context of the artifacts. In both cases, the most reasonable explanation is that they are fakes.

Similar claims have been made about a series of "sites," mostly from New England, recorded by the late Barry Fell. Fell was a marine biologist who appears to have had no training in either archaeology or ancient languages. Yet he found himself able to translate inscriptions found on rock surfaces, claiming that they were examples of "ogham." Ogham is a well-known writing system that was used in the early centuries CE in Ireland. It is written as a carefully carved series of lines around a central stem line, which is formed by the edge of a squared stone. Each letter is indicated by the number of lines and their relationship to the stem (do they cross it, are they straight, or are they oblique). Ogham inscriptions are in ancient Irish, and have a very strict formula, which is usually confined to names; one example reads in part "Coillabbotas, son of Corb." By comparison, Fell's "ogham inscriptions" are quite different. They rarely occur on the edge of a rock, they lack a central stem, and they are usually irregular and overlapping. Some examples are on the flat face of a rock, and are at many different angles. These are almost certainly marks accidentally left by plowing. Others are parts of ancient drawings known as petroglyphs. One, which Fell translates as the name for a kind of ram, is clearly the rib cage of the animal depicted. He also uses a wide variety of ancient languages to translate them; the word for "ram" above is taken from ancient Norse, while another is taken from Phoenician. If you search the Internet, you can find many photographs of genuine ogham and compare these to Fell's claimed examples. None of Fell's inscriptions look like Irish ogham; they don't use the same language or the same formula, and so they are unlikely to be evidence of ancient Irish writers in North America. Further, there are no Irish artifacts from these sites, so we would have to believe that there were Irish people here who left absolutely nothing identifiably Irish



Above: Barry Fell (1917–1994) and the face of a rock in Boone County, West Virginia, he called the "Horse Creek Petroglyph." Fell claimed the markings were three-line Ogham text.

Below: Portion of an upright Ogham stone in County Kerry, Ireland.

behind—no pottery, no tools, nothing. As I noted when I talked about archaeology, this rarely if ever happens in human societies.

Another claim for an Irish presence in North America involves St. Brendan, a real Irish monk who died around 575 CE. A description of a series of events in his life was written some two hundred years after his death, and includes a series of voyages to various islands to the west of Ireland in a small boat with a group of companions. At the end of these voyages, St. Brendan finds himself in a mysterious land to the far west, shrouded in mist, where he meets a youth who tells him that this is the Promised Land, and that he would return there when he died. This land, which is described as a huge island in the text, has been claimed to be North America, suggesting that St. Brendan sailed there some one thousand years before Columbus. In this example, there are several problems. First, the land to the west doesn't really sound like North America. There is very little detail about the landscape, but it is made clear that it is an island, and St. Brendan and his companions walked all the way around it—hardly possible for an entire continent! Also, the details of the journey that are given place it between two other islands, also inaccurate for North America. Finally, there are many fanciful details about the journey that make it clear that this isn't a factual account. They say mass on the back of a giant fish, they eat grapes that are so nourishing that a single one is enough for an entire day, and they encounter a giant who hurls large flaming stones at them. Why would only one part of the text be factual while the other seems clearly to be about the miraculous life of St. Brendan?

Finally, there are the Norse, some of whom were known as Vikings, who lived in Scandinavia from the late eighth to the early eleventh centuries. The Norse are known from both archaeological and historical evidence to have penetrated into North America at least as far as Newfoundland. Did they get any farther? Evidence for the Norse has been claimed from many sources, and most of it doesn't hold up to scrutiny. However, one which may suggest they made it to Minnesota is the Kensington Runestone. The stone has an inscription in ancient Norse telling about a battle between a party of Norse traders and a group of Native Americans, where ten of the Norse were killed. Is it real, or is it a forgery? The story of this stone is long and complicated, and Alice Beck Kehoe has written a very interesting book about it that examines both sides of the evidence. The argument rests on details of the language and the letters used to write the inscription, the likelihood of a party of Norse getting this far inland, and whether the people who claimed to have found it could have produced such a forgery. While the case is far from certain, it does seem possible that, unlike the other examples I've described, the Kensington Runestone may be the only convincing evidence of the presence of at least one group other than Native Americans on the continent at this period. For most of the others that have been claimed, however, the evidence is not convincing, and in the absence of convincing data, we must conclude that this was largely a Native American continent until the arrival of Europeans in the fifteenth century.

FOR GREATER UNDERSTANDING

Questions

1. What evidence is there that the Grave Creek Stone and the tablets from Davenport, Iowa, are fakes?
2. Are Fell's "ogham" convincing evidence of an early Irish presence in North America?

Suggested Reading

Feder, Kenneth L. *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*. 6th ed. New York: McGraw-Hill, 2007.

Stiebing, William H., Jr. *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*. New York: Prometheus, 1984.

Other Books of Interest

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Websites of Interest

1. The Irish Cultural Society of Villanova (University) provides an article entitled "In Saint Brendan's Wake" by Robert Sullivan. — http://ics.villanova.edu/in_saint_brendan.htm
2. Ohio State University website "The Grave Creek Stone" by J. Huston McCulloch. — http://www.econ.ohio-state.edu/jhm/arch/grvcrk.html

Lecture 5

All Things Egyptian

The Suggested Readings for this lecture are Kenneth L. Feder's *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*, chapter 9, and William H. Stiebing, Jr.'s *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*, chapter 5.

One of the most enduring mysteries in archaeology is the widespread fascination with ancient Egyptian culture. Don't get me wrong—the Egyptians produced beautiful art, impressive tombs, a sophisticated written system, and overall a very interesting culture. But many other civilizations did, too. Yet, when I tell people I'm an archaeologist, one of the most common things I am asked is whether I've ever been to Egypt. Maybe it's the fact that they have so many exotic elements in a single cultural package, or maybe it's just that Egypt is often the first ancient place kids learn about in school. Whatever the reason, Egypt attracts considerable attention in popular archaeology. And that means that it has also attracted its fair share of space aliens, mystic numerology, and cosmic technologies—or so some claim. While we can only begin to look at some of these claims here, hopefully it will get you started in evaluating some of what has been said about Egyptians and their past.

The use of writing in ancient Egypt allows us to have a more precise understanding of chronology there than in many other places. Several lists of rulers, which were produced at various points in Egyptian history, have been compiled to produce the basic backbone of Egyptian chronology, which is divided into three major periods. These are the Old Kingdom, the Middle Kingdom, and the New Kingdom, each of which is divided into a series of relatively stable dynasties. In between are the intermediate periods, when central control

A portion of a bas relief carved into the wall of the Medinet Habu Temple of Ramses III dating from ca. 1184 to 1153 BCE.

largely broke down. Together, the three kingdoms and the intermediate periods span almost 2,500 years, from about 3100 BCE to about 650 BCE. This is the core of what we usually think of when we talk about ancient Egypt; after this period, Egypt was changed by both internal conflict and foreign conquest, though it continued as a political entity for many centuries.

I could probably do a whole course on all the things, likely and unlikely, that have been said about ancient Egypt, but since I'm only doing one lecture on it in this course, I'm going to focus on three areas: the pyramids, the Sphinx, and King Tut's curse. These three areas give us good examples of how knowledge about ancient Egypt has been misunderstood, manipulated, and outright fabricated. However, in passing, I will just mention one other thing, just because it also provides a good object lesson. In the tomb of Ptah-Hotep, a priest who was buried in north Saqqara, there is a painting that appears frequently on Internet websites. Most photos of this panel are somewhat blurry, but they appear to show a figure that looks surprisingly like one of the "grey aliens" that have become iconic in modern American culture. Were the ancient Egyptians in the habit of entertaining aliens? Alas, no. If you go to the website *Catchpenny Mysteries of Ancient Egypt* (http://www.catchpenny.org/alien.html), you can find a clearer photo of the panel. The "alien," in fact, is a vase of lotus flowers. It's always a good idea, whether you are using the Internet or published sources, to make sure you go to the original source and look at a clear photo.

The pyramids are probably the most famous archaeological feature in the world. They are symbolic of ancient Egypt as a whole, but in fact they were mostly built during the Old Kingdom. A few are dated to the Middle Kingdom, but after this period pyramids went out of fashion. As tombs, they are a classic example of using money and power to make a statement. Whatever else they might have symbolized, they sent the message that the owner had the resources to put up such an imposing structure. Among pyramids, the most famous are

those at Giza. There are three large ones on the plateau there, providing burial for three pharaohs who ruled in the Old Kingdom. The largest, the Great Pyramid, was built for Khufu, and the other two were for his son and grandson.

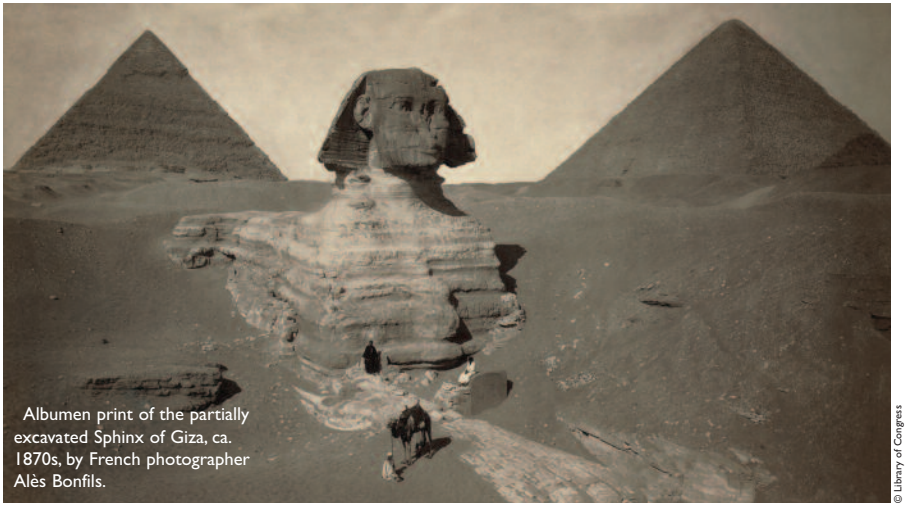
There is ample evidence for the person each pyramid was intended for, the fact that they were built by the Egyptians, and their function as tombs. Khufu's name, for example, appears on a stone of the Great Pyramid, in a place where it would have to have been written before the tomb was completed. There is a clear developmental sequence from earlier types of tombs to pyramids; in the earliest pyramids, these tombs appear in the core, and the pyramid was built on top. There are workers' villages near some pyramids, and sometimes they left graffiti on the inner surfaces of the stones where it wouldn't be seen; my favorite identified a group as "the drunks of Menkaure." We don't have any depictions of pyramids being built, but we do have some showing large objects like statues being moved by gangs of workers. Cemeteries associated with workers' villages show that they did the actual work, and often suffered injuries in the process. The place of pyramids in ancient Egyptian society is one of the most well-documented things in archaeology.

And yet this has never stopped speculation. Despite evidence that it was for burial, the Great Pyramid has been suggested to function as a water pump, part of a star map, and apparently a device for sharpening razor blades. The desire to take the achievement of pyramid building away from the ancient Egyptians is inexplicably strong. Probably the most common suggestion is that they were built by aliens. Apart from the evidence of their place in Egyptian culture, the question I've always wondered is why aliens would build something that looks so much like it belongs in the Egyptian context—why not build something alien? Similarly, it has been argued that there are secret messages encoded in the pyramids, such as numerological measurements. For example, the base divided by the width of one of the casing stones is 365, the number of days in a year. The problem with such ideas is that there are too many numbers to play with—the dimensions of the pyramid, the stones in it, the rooms inside it, and the range of scientifically significant numbers like the distance to the sun, π (pi), or the atomic weight of oxygen. How can you possibly prove that this wasn't an accident? And again, why would aliens do this? The pyramids are impressive testaments to the skills of Egyptian builders. Why not give credit where it is due?

Similar attention has been paid to the Sphinx, the large stone lion with the king's head that is part of the pyramid complex of Khafre (Khufu's son). Most recently, there was the argument from a geologist that, rather than dating to the reign of Khafre, the Sphinx is some ten thousand years old. This was based mostly on an assessment of weathering of the rock the Sphinx is made from. Because he believed that the weathering patterns were the result of rainfall and because there hasn't been that much rain in Egypt since ten thousand years ago, he concluded that the Sphinx must date to such a rainy period. However, there are alternative interpretations of the erosion—it doesn't

require continuous rain (and it does rain sometimes in the desert); the Sphinx has been covered with sand several times during its history, and wet sand can also cause similar patterns of erosion; and, since the statue is carved out of an existing body of rock, it may be the rock that is eroded rather than the carving itself. In addition, the Sphinx is well integrated into the pyramid complex of Khafre, suggesting it was all built at the same time. The head of the king wears the *nemes* headdress that is widely seen in Old Kingdom representations of Egyptian kings and not in those from earlier periods, and the face is even said to look like the king, who it is supposed to represent (I don't see it myself, but I mention it anyway). Finally, there was no society in Egypt ten thousand years ago complex enough to build the Sphinx. So if it were true that it was ten thousand years old, then pretty much everything we know about ancient Egypt must be wrong. Personally, I'd be more inclined to examine the theory closely rather than reject all that research from all those archaeologists over all that time.

Among Egyptian kings, the most famous has to be Tutankhamen, or King Tut. Ironically, Tut was a minor king who doesn't seem to have done much while he was king. He was about nine years old when he became king, and he died about ten years later. However, he had the good fortune to be buried in the Valley of the Kings in a tomb whose entrance was largely covered by a later tomb, and so it was mostly intact when it was found in 1922 by Howard Carter. The contents of the tomb are themselves almost legendary, and, if this is the wealth that was buried with a relatively insignificant king who seems to have died unexpectedly and was buried hastily, then we can only imagine what was buried with those who were important rulers who ruled for several decades. Unfortunately, tomb robbery was a popular activity in ancient Egypt, and most royal tombs were emptied long ago.



Albumen print of the partially excavated Sphinx of Giza, ca. 1870s, by French photographer Alès Bonfils.

The idea that there was a curse in King Tut's tomb that affected people who entered the tomb began with the death of Lord Carnarvon, who financed Carter's work. He died in 1923, probably as the result of an infected insect bite. Several uncorroborated (his dog died at the same moment in England as Carnarvon did in Egypt) or unremarkable (the lights went out in Cairo) events were associated with his death. But the most long-lived was that he was the first victim of a curse. Curses are known from some Egyptian tombs, but the fact is that there wasn't one in King Tut's tomb. It appears to have been made up by a newspaper writer at the time. Anyway, if there was a curse, it was a pretty lame one. Evelyn Herbert (Carnarvon's daughter and one of the first people in the tomb after its discovery), Harry Burton (the photographer who took most of the original photos of the tomb's contents), D.E. Derry (the physician who performed the original autopsy on the body), and Carter himself all lived long and healthy lives. Based on their material remains, I have a healthy respect for the abilities of the ancient Egyptians. If they had wanted to curse someone, I bet they would have done a more effective job.

The inner golden coffin of Tutankhamen on display at the Egyptian National Museum in Cairo.

FOR GREATER UNDERSTANDING

Questions

1. What evidence is there that the pyramids were built by Egyptians?
2. What reasons might there be to explain the erosion of the Sphinx?

Suggested Reading

Feder, Kenneth L. *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*. 6th ed. New York: McGraw-Hill, 2007.

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Jordan, Paul. *Riddles of the Sphinx*. New York: New York University Press, 1998.

Silverman, David P., ed. *Ancient Egypt*. New York: Oxford University Press, USA, 2003.

Websites of Interest

Catchpenny Mysteries of Ancient Egypt provides links to many articles discussing myths and unsubstantiated theories about ancient Egypt. — http://www.catchpenny.org

Lecture 6

Ancient Astronauts?

The Suggested Readings for this lecture are Kenneth L. Feder's *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*, chapter 8, and William H. Stiebing, Jr.'s *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*, chapter 4.

One of the most significant mysteries of our time is whether there is life on other planets. Perhaps the reason this is so compelling is because there is such enormous potential for it to be true, and yet so little actual data to support it. Certainly there is nothing inherently impossible about alien life—if we managed to evolve, then why not life on other planets? However, despite its allure, there has never been any evidence that such life exists, at least none that has managed to gain general acceptance. Even more problematic is the idea that alien life has visited Earth. Finding evidence for life on other planets is largely about distance—they are very, very, very far away, and so it's extremely difficult to know what might be happening out there. On Earth, there is at least the possibility that we could recover evidence for alien visitors. But so far, nothing that has held up to scientific analysis has been found.

Nevertheless, the Internet is full of claims that aliens visited Earth, and, for our purposes, that they did so in the past, leaving behind artifacts, features, buildings, and a whole host of other things. We only have space to look at a handful of examples, but it's worth making a few general points that we can apply to the idea in general. First, the whole notion that some ancient sites and artifacts are best explained by invoking aliens violates Occam's Razor. On the one hand, we have the hypothesis that ancient people were very clever, that they had the time and the interest to try different methods of construction, and that they wanted to make beautiful and impressive things. They had the same brain capacity as we do, which means that they could solve problems in ingenious ways, even if their technology was not as sophisticated as ours.

With a little work on the computer, a pharaoh's head at the Luxor Temple in Egypt can be depicted as an alien.

Alternatively, we have aliens. If they did it, then we have to assume that they exist, that they have mastered space travel over really mind-boggling distances, that they had some desire to travel, that they traveled here, that they were interested in intervening in our cultures, and that they left nothing behind except a relatively small handful of sites and objects that are not radically different from what the local peoples could have produced—not a single piece of plastic, no alien metals, no rocket fuel, nothing that can't be explained as originating on Earth. Now which of these makes fewer assumptions?

The other point that's worth raising is that invoking the presence of aliens always rests on the idea that what we are looking at couldn't have been produced by the local people. At the heart of this notion is one that suggests our ancestors weren't very smart, or creative, or curious, or skilled. How could they have built Stonehenge, or the pyramids, or the great stone figures on Easter Island, without alien help? My answer would be that they could because they were smart, creative, curious, and skilled. I don't see our ancestors as primitive and stupid, and so incapable of achievement. Instead, I am impressed by what they accomplished, and it seems kind of insulting to our ancestors to suggest that they couldn't have done what they so clearly did.

Despite these arguments, there are many who require aliens to explain some aspects of the archaeological record. One of the most well-known is Erich von Däniken, though others like Robert Blauvel have become popular on the Internet. These and probably hundreds of others have used visitors from space to explain what they see as the unexplainable aspects of the human past. Among all of these, it's difficult to choose which to discuss, but I have picked four that illustrate some of the problems with this kind of approach. The first two, the stone statues on Easter Island and the giant outlines on the Nazca Plain in Peru, are examples of the "how could they have done it?" approach. The story of Sodom and Gomorrah from the Bible illustrates the dangers of approaching myth as history, and the stone covering the tomb of Pakal at the Maya site of Palenque shows similar perils when art is taken as photograph.

As I noted before, many seem to think that people in the past were not particularly intelligent. So when confronted by something like the famous stone statues on Easter Island, in the middle of the Pacific Ocean, they often revert to the idea that aliens must have done it. The statues are certainly impressive, reaching 30 to 70 feet in height and about 50 tons in weight. They are often described as heads because the bodies are proportionally much smaller and have become buried over time, leaving only the heads visible. Archaeology indicates that they were made six to eight hundred years ago, when the island was inhabited by farmers using mostly stone tools. Because of their size and the available technology, some are skeptical that the indigenous people could have produced them. So how would you go about testing this? One way has been through experiments. Using the same technology that would have been available, researchers have found that it would have required about 180 people to move the stones from the quarry using poles and ropes. This method is not

only effective, it is the way that the stones are said to have been moved in the oral history of the indigenous people. There are also partially quarried stones and partially completed statues in the quarry, showing the methods of obtaining the stone and carving the statues. The statues are believed to have represented ancestors, something also indicated by oral history. So while they are impressive, they aren't really so mysterious if you look carefully.

The same can be said of the large figures that appear on the Nazca Plain in Peru. Some of these are straight lines and others form giant animal figures—a monkey, a hummingbird, a spider, and others, some 150 to 200 feet across. They were made between 200 BCE and 600 CE by digging the darker surface material away to expose the lighter surface underneath. Because they are large and completely visible only from the air, there has again been some skepticism—how did they do it, and how could they have viewed them? Archaeologist Maria Reiche spent much of her life investigating the Nazca figures, again carrying out experiments to see what would have worked using the available technology. She found that they could have been produced using rocks and long chords to lay out the figures, based on smaller versions. And smaller versions have been found near some of the larger figures. As for viewing them, there is no reason to assume that they were intended for people to look at; perhaps they were to please deities who lived in the sky, or it was enough simply to know that they were there. But it has been shown that it would be possible to make a hot-air balloon using the available technology, and this might have enabled a human viewer to see them, without requiring the intervention of an alien rocket.

Another fertile area for aliens has been ancient stories. All cultures have them in the form of myths and legends, and their importance lies in their meaning rather than their factuality. They speak to what we consider important about the human experience. But people like Erich von Däniken are not satisfied with this explanation. Instead of appreciating them for the wonderful complexity of their meaning and imagery, they are seen as garbled accounts of events people of that time couldn't understand. Such is von Däniken's discussion of the story of Sodom and Gomorrah. In the story, God allows Lot and his family to go to a nearby village in order to escape the destruction of these two towns. Against God's instructions, Lot's wife watches the destruction and turns into a pillar of salt. This is a story of punishment and reward and what happens when you disobey God, but von Däniken is unsatisfied with this interpretation. Instead, he sees this as a description of a group of aliens who have

Left: The design of a spider is clearly visible in this enhanced image taken from 2,000 feet above the Nazca Desert in Peru. Right: Moais of Ahu Akivi on Easter Island, Chile.

Moais: © Jose Alberto Tejo/Spider figure: © Jaime Gonzalez Zarrionandia/shutterstock.com

an excess of atomic material (he never explains why) and decide to detonate it (again, why?). It isn't God, but a nuclear explosion that Lot and his family saw, and they were just too primitive to understand. A close reading of the actual biblical story shows that von Däniken has to alter many details in order to make it fit his version, not the least of which is that looking at a nuclear explosion from close up doesn't turn people into salt; it obliterates them completely. In the context of its culture, this story makes all kinds of sense in terms of its meaning; as a description of a nuclear explosion, well, not so much.

Finally, there is artistic representation, where the main confusion seems to be between artistic representations and photographs. Art is intended to use images to create a feeling, to convey a message, to tell a story. It is not a photograph, which is a visual representation of something that was in the photographic field. The first is created; the second is recorded. Photos can of course be art, but that's not quite what I'm talking about here. Consider the stone slab that covers the tomb of Pakal, the ruler of the Maya city of Palenque who lived from 603 to 684 CE. Carved on the slab is Pakal, lying between the underworld, represented as the jaws of the Earth Monster, and this world, represented by a corn plant, on top of which is a quetzal bird. These are very stylized images, but they make more sense than von Däniken's interpretation—that Pakal is riding a rocket ship! Leaving aside the issues already raised about the likelihood of aliens and the meaning of art, this still doesn't quite work. Pakal is wearing little clothing, and his head sticks out of the top of the "rocket." He has no helmet and, while I agree the image isn't obviously a corn plant, it also doesn't look like the control panel for a space vehicle. It isn't a photograph; it's an artistic interpretation of something profound in all cultures—life and death.

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Relief carving of the Mayan king Pakal from the Temple of Inscriptions at Palenque, Mexico. This image is of a reproduction of the original, discovered by Albert Lluillier in 1952, which is nearly twelve feet in length.

I don't know if aliens have visited Earth. It would be wonderful if true, but there's no evidence that they did and that makes me think it's unlikely. But I do know that our ancestors created impressive representations in stone, in earth, and in words, reflections of the meaning to be found in their lives. Their use of symbols and images was complex, rich, and nuanced, and they can even speak to us today about the ways ancient peoples experienced their world. Our ancestors created such wonderful things—do we really need to invoke other wonders that might not be true?

FOR GREATER UNDERSTANDING

Questions

1. What methods might have been employed for indigenous people to create the statues on Easter Island?
2. How does Erich von Däniken explain the story of Sodom and Gomorrah?

Suggested Reading

Feder, Kenneth L. *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*. 6th ed. New York: McGraw-Hill, 2007.

Stiebing, William H., Jr. *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*. New York: Prometheus, 1984.

Other Books of Interest

Achenbach, Joel. *Captured by Aliens: The Search for Life and Truth in a Very Large Universe*. New York: Simon & Schuster, 1999.

Websites of Interest

The Skeptic's Dictionary by Robert T. Carroll provides an entry on "ancient astronauts" that cites the writing and theories of Erich von Däniken. — http://www.skepdic.com/vondanik.html

Lecture 7

Stonehenge

The Suggested Reading for this lecture is Christopher Chippendale's *Stonehenge Complete*, chapter 17.

The last time I entered "Stonehenge" into Google I got over five million hits. This monument, which has stood on the Salisbury Plains of southern England for thousands of years, has probably been the subject of speculation for almost that long. Evidence such as coins suggests that the Romans visited it, and the stream of tourists has continued ever since; Stonehenge gets over a million visitors a year, making it one of the most popular sites in England. Archaeologists have wondered about it too, pretty much since the beginning of archaeology. It remains one of the most well-known archaeological sites in the world, and also one of the most enduring of mysteries.

The monument that we see today is actually the culmination of continuous building and rebuilding over about fifteen hundred years. Although the most iconic elements are the massive stone uprights and the "lintels" that join them across the top, these are actually part of a complex of other features. There is an earthen bank and ditch around the outside that encloses a concentric series of holes. These might have held timber uprights in an earlier phase of the monument, or they might have been filled and left flat. Within this is the circle of thirty uprights joined by stones across the top, inside of which are five "trilithons" set in a U shape; these are free-standing pairs of uprights joined across the top. These stones are called "sarsen" stones, and were brought to the site from about 30 kilometers away. This arrangement of large stones is mirrored by one in the same pattern composed of smaller stones called "bluestones." While the sarsens weigh up to 45 tons and are up to 30 ft. high, the bluestones are only about a tenth the size. There are other stones in other arrangements both inside and outside the bank and ditch, including the Heel Stone. This sits just outside the entrance to the circle, and is placed so

Stonehenge as it appears today looking from the Heel Stone to the south.

that the sun rises over it on the longest day of the year. The whole monument is approached by an avenue outlined by a bank and ditch, which ran for some 3 kilometers from the River Avon to the site entrance.

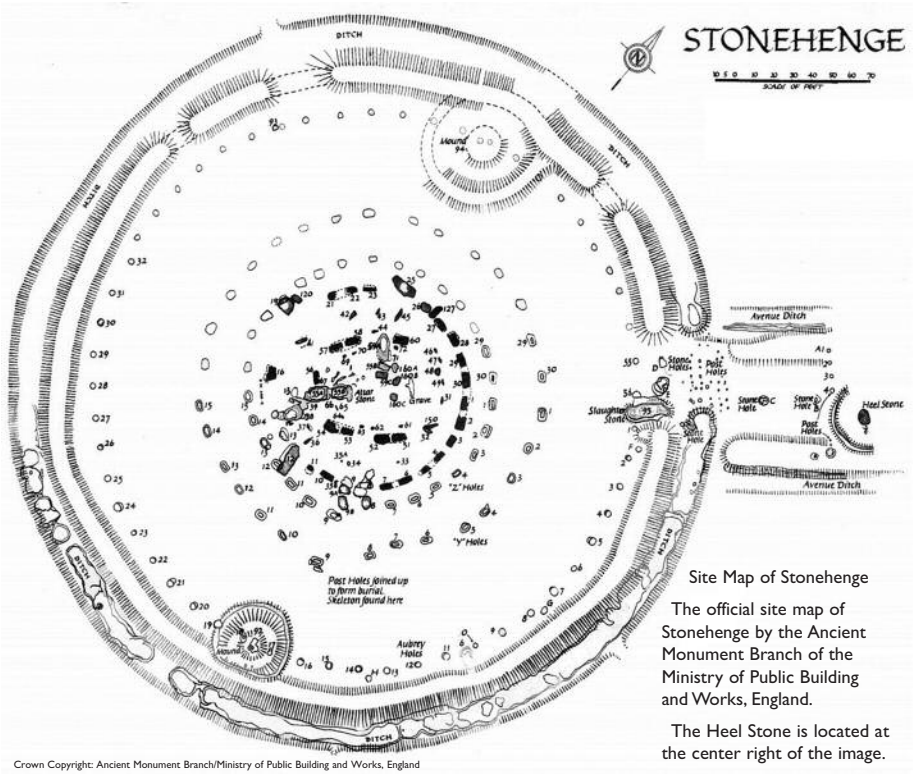
These are the basic elements that are visible today, but there were earlier phases of construction. The details are uncertain, but there were at least four major phases of building, with only the final one including the massive sarsen stones. The earliest phase probably dates to about 3000 BCE, while the final phase was erected around 1600 BCE. There is also some evidence that the site was used before the stone construction was begun. Post holes have been dated to as early as the ninth millennium BCE. While they aren't formally part of the monument, they do indicate that the site was of interest to the indigenous people for as much as six thousand years before they began to build there in stone.

Parts of Stonehenge have been excavated over the centuries, and there is active research going on there now. In all that time, the only artifacts recovered have been those of the indigenous people, including pottery and stone tools, some of the latter having been used in the construction of the monument. However, that hasn't stopped speculation that it actually represents the efforts of a vast array of other cultures. Among those suggested have been the Romans, the Phoenicians, the Egyptians, the Danes, and the Saxons. More exotic builders have included aliens and refugees from Atlantis, while a twelfth-century book suggests that Merlin was responsible. However, all of those cultures have distinct styles of architecture as well as material cultures. If you're going to argue that it was built by one of those groups, then you need to explain why they built a monument that actually looks like others built by the indigenous Britons, and how they did it without leaving behind a single potsherd to indicate their presence. Structures built of large stones, called "megaliths," were built all over western Britain, and while Stonehenge has some unique features, it is still clearly a part of this group. As for aliens, I've already talked about why I'm skeptical of them, but it's worth noting they didn't leave anything characteristic behind either. We'll get to Atlantis later, but the same argument applies—if someone other than ancient Britons built Stonehenge, then why did they build it in the local style and how did they manage to leave nothing behind from their own culture?

Probably the most well-known fact about Stonehenge is that it is aligned on the longest day of the year, June 21. As noted, the sun rises over the Heel Stone on that day, and there is some evidence that this stone might have been one of a pair, the sun actually rising between the two. Building a monument to face a particular astronomical event is impressive, though it requires patience and skill more than sophisticated technology. You have to watch the movement of the sun, moon, and stars over many years, and you have to keep track of their positions. The society that built Stonehenge didn't have writing, so they couldn't keep written records. Instead, they had to mark those positions relative to the horizon, perhaps with sticks on the ground. The sun's

cycle is a short one, recurring every year, and so it wouldn't have taken long to realize the pattern. The same is true of the stars. The moon's pattern is more complex and could have included its phases as well as its movement, and the planets are even more irregular. But with persistence these patterns too could have been remembered.

The incorporation of midsummer into Stonehenge seems clear. The Heel Stone is there, the monument clearly points in that direction, and it's an astronomical pattern that would have been relatively easy to document. However, there have been claims for other alignments in the monument, including both lunar and stellar positions that could have been seen through and/or over other stones. None of these are inherently impossible, though it is more difficult to prove deliberate intent. Things in the sky typically move in circular patterns, and so any circular monument on the ground is likely to line up with something due simply to coincidence. There is also the fact that some stones are now leaning, weathered, or missing altogether, and so where exactly one should measure is easily adjusted to fit a preconceived hypothesis. Some of these are certainly possible, just hard to prove.



Site Map of Stonehenge

The official site map of Stonehenge by the Ancient Monument Branch of the Ministry of Public Building and Works, England.

The Heel Stone is located at the center right of the image.

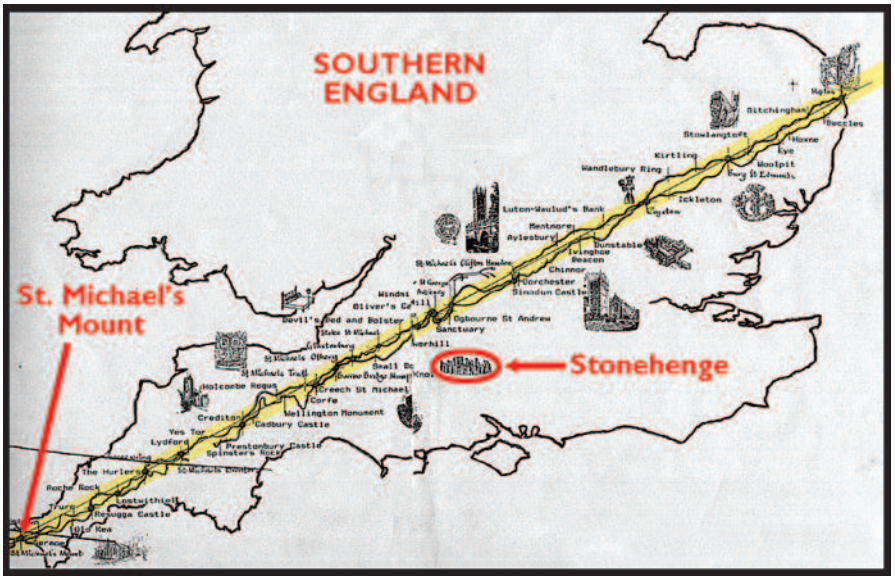
Rather trickier is the idea that Stonehenge was built to predict eclipses. There are cycles in eclipses too, and in 1965, astronomer Gerald Hawkins published a book suggesting that one of them was also encoded at Stonehenge. This particular cycle recurs every fifty-six years, and Hawkins noted that one of the rings of post holes, the "Aubrey Holes," has fifty-six holes. So he devised a way that one could move markers around the Aubrey Holes in order to predict eclipses. As with the other possible alignments, this one also isn't impossible, but I'm a bit more skeptical about it. You'd have to watch it happen several times to know it's a cycle, so if we figure on three times through, that's already over 150 years. For a culture with no writing it would have been difficult to keep track accurately, particularly since they wouldn't have been looking for it. You would have to envision that they were watching something else and happened to stumble on it, and then started watching it. Also, there are problems with weather, like cloudy or rainy days (a perennial problem in England), which would have interfered with consistent observation. Again, while it's possible, I don't think it's likely.

Beyond astronomy, other aspects of Stonehenge have been claimed to warrant further attention. Various kinds of power, including magnetism and something called "earth power" have been said to emanate from the stones, but so far none of these have been measurable using scientific equipment. During the height of the "crop circle" phenomenon in the 1990s, when fields of wheat were bent into interesting patterns by what turns out to be hoaxers, many of these appeared near Stonehenge as well. The monument also features prominently in what are called "ley lines." These are based on the original observation of Alfred Watkins in the 1920s, that a number of ancient sites line up, and that the lines often passed near villages with the word "ley" in the name. He interpreted them as trackways or trade routes, but this idea was largely dismissed because the sites were all from different periods and they often weren't the best routes through the area (sometimes passing through wetlands instead of going around them, for example, or crossing ravines or the roughest part of a river).

This idea was revisited in the 1960s, but rather than trackways, the apparent lines of sites were believed to mark lines of "earth energy" (presumably something related to "earth power"). The belief was that ancient peoples could somehow detect these lines of power and so chose to place their sites along them. Finding these lines was then a matter of looking at a map and joining up the sites that seemed to make lines. You can probably imagine by now some of the questions I have about this. First, the "earth energy" isn't measurable by any instrument science has to offer. Second, given the density of archaeological sites in a place like England, it's not possible to know when you are looking at ley lines and when you are looking at coincidence. This is particularly true when you get to choose from sites ranging in date from Stonehenge to Salisbury Cathedral, and when the line doesn't have to actually go through the center of the site but rather only has to touch any part of it (or indeed, in

one case, simply pass relatively near it). One thing I remember from geometry is that it only takes two points to make a line, so when you have literally thousands of points on a map to choose from, I'd be surprised if there weren't equally thousands of lines you could make. The key point here is that you are making them, not the ancient builders.

Stonehenge is one of my favorite archaeological sites. I first visited it when I was eight years old, and I have been fascinated with it ever since. There is a lot that is still to be discovered about it, and we will talk about it again toward the end of the course. It has no obvious utilitarian function, so we believe it is a ritual site. Some of those rituals undoubtedly involved observing the rising of the midsummer sun, and perhaps more of the constant movements of the moon, stars, and planets. Even eclipses are possible, though I'm less convinced of that. But one thing is true—it was a major achievement of the ancient Britons who lived in that region some three to five thousand years ago. I don't need aliens, Egyptians, or mysterious powers to see it as an impressive testament to the ingenuity and passion of our ancient ancestors in their quest to derive meaning from the world.



A map showing the "St. Michael's Ley Line," which is claimed to run from the southwestern tip of England at St. Michael's Mount, to a point on the east coast of England. "Earth energy" locations (such as Stonehenge) are plotted along (or near) the line.

FOR GREATER UNDERSTANDING

Questions

1. Why is it hard to imagine that Stonehenge was used to predict eclipses?
2. What is remarkable about the Heel Stone?

Suggested Reading

Chippindale, Christopher. *Stonehenge Complete*. 3rd ed. Chapter 17. London: Thames & Hudson, 2004.

Other Books of Interest

Brown, Peter L. *Megaliths and Masterminds*. New York: MacMillan Publishing Co., 1980.

Burl, Aubrey. *A Brief History of Stonehenge: One of the Most Famous Ancient Monuments in Britain*. New York: Running Press, 2007.

Schnabel, Jim. *Round in Circles: Poltergeists, Pranksters, and the Secret History of Cropwatchers*. New York: Prometheus, 2002.

Watkins, Alfred. *The Old Straight Track: The Classic Book on Ley Lines*. London: Abacus, 1994 (1925).

Websites of Interest

1. Ancient-Wisdom.co.uk website provides detailed information on Stonehenge (Henge-circle), including photographs from the nineteenth century, early archaeological information, and site plans. — http://www.ancient-wisdom.co.uk/englandstonehenge.htm
2. *The Skeptic's Dictionary* by Robert T. Carroll provides entries on crop "circles" and ley lines. — crop circles: http://www.skepdic.com/cropcirc.html; ley lines: http://www.skepdic.com/leylines.html

Lecture 8

King Arthur: Historical Fiction or Reality?

The Suggested Reading for this lecture is Alan Lupack's *The Oxford Guide to Arthurian Literature and Legend*.

One of the most enigmatic figures from literature is King Arthur. He features in everything from ancient poetry to modern Sunday comics, and appears in stories from France to Wales. Was there a historical person behind this common literary figure? This is a question that takes us into written history and away from archaeology proper. While most of our past happened before writing was developed, written documents are nevertheless significant for understanding the human experience. Although writing was limited for a very long time to only a few cultures and only a few groups within those cultures, they are the only way to approach those aspects of ancient cultures that are difficult or impossible to recover through archaeological remains. While the latter have certain advantages, documents also have advantages, and in some ways the best situation is when you have periods where there are both. With writing, there is the possibility that you will get information on things of the mind, ideology, motivation, names, dates, and other things that don't usually appear in the archaeological record.

Working with historical documents brings along a whole new series of things that need to be considered when interpreting them. Some of them are obvious, like the fact that people only wrote about things that they thought were important, and that they wrote from their own particular biases. They also often had different rules about how to convey

King Arthur standing with shield and crowns showing the names of thirty kingdoms, from *Chronicle of England* by Peter Langtoft, 1325.

information, sometimes not worrying whether they could verify things they said were fact. Those documents that weren't literally written in stone often don't survive, and so we have only a fragment of all the written material produced in the past. There are also issues of translation, even in languages that are relatively well-known. Caesar is widely credited with noting that the ancient Britons dyed their skin with woad, and yet he never actually said that. Instead, he said they used *vitro*, which is actually a kind of glass. Now, you can't dye your skin with glass, so obviously he meant something else (probably using the word to indicate the color rather than the substance). At some point it occurred to someone that woad, a vegetable dye, might have been used, and it may have, but Caesar didn't say *woad*, and in fact we really don't know exactly what he was referring to.

Then there is the issue of dates. In a literal sense, the calendar we use only started in the sixteenth century, though this was a reformed version of several earlier calendars that were similar in structure. But the fact remains that something dated August 12, 1580, actually refers to a different specific day than August 12, 1582, which is when the current calendar was introduced. This of course becomes even more complicated the further back we go, and when we start thinking about other cultures, even more wrinkles are introduced. Some groups, like the Maya, had a consistent calendar that was used for noting important historical dates, while others, like the Egyptians, often used formulas like "the sixth year of the reign of Hatshepsut." You have to know when Hatshepsut reigned to know what the actual date is. So while documents are often associated with dating information, it isn't always evident what the date is in our modern calendar.

Investigating King Arthur brings in most of these issues at different points in the story. All of the stories about Arthur place him in the time between the end of the Roman occupation of Britain in the early fifth century and the establishment of the Saxon kingdoms, ca. 600. All of the basic elements of Arthur's story—his fraudulent conception, his magical sword, the bringing of peace to the kingdom, the marriage to Guinevere, his knightly companions, his ultimate defeat at the hands of Mordred, and his end on the Isle of Avalon—all appear in the twelfth-century book *The History of the Kings of Britain*. This was written by a man named Geoffrey of Monmouth, and obviously is much later than any historical Arthur might have been. However, Geoffrey claimed to have a number of earlier sources that were closer in time, one by a sixth-century British cleric named Gildas and another book whose name he didn't provide. Gildas is fairly easily dealt with. While his text would have been nearly contemporary with a historical Arthur and it has some of the material that is, in later times, associated with him, such as the Battle of Badon Hill, Gildas never mentions him by name. Instead, he simply notes that the battle was won, and doesn't say who led the winning forces.

More complex is the issue of Geoffrey's unnamed source. Assuming he was telling the truth and not just trying to give his story more authority, there are

two possible sources he might have had. One is the collection of documents gathered and organized in the ninth century by a Welsh monk named Nennius. He lists a series of battles (including Badon Hill) fought by Arthur against the Saxons, and he names him as war leader (not king). However, we don't know where his information came from; he is writing several centuries after any historical Arthur, and it may be that he is reporting legend as historical fact. Another possibility is something called the *Annales Cambriae*. This document contains an Easter Table, which was used to calculate the date of Easter. Monks were in the habit of occasionally recording important events in the margins to one side of the table, and there are several references to Arthur and his battles there. Again, however, the date is uncertain, and the Easter Table may have been made anywhere from the fifth century to the tenth. Even if there was not a historical Arthur, the legend of Arthur may have been around by the latter date.

Two other historical sources that are worth mentioning also are relevant here. One is call *Y Gododdin*. This is a Welsh poem which notes, about another warrior, that "he glutted black ravens on the wall of the fort, though he was not Arthur." This means that, while he killed a lot of people and thus "fed the ravens," he wasn't as good as Arthur. There was no need to explain who Arthur was presumably because he was a well-known person. Again, however, we stumble on the dates. The poem may have been composed as early as the sixth century, but it wasn't written down until somewhere between the ninth and the thirteenth centuries. So the version we have may be authentic, but it may also have been changed from its original version, perhaps to incorporate the legendary Arthur figure. The other information which might be relevant is that, around 600, a number of royal families named their sons Arthur. It may just be fashion, but then again it might reflect a desire to name their offspring after a famous person.

Thus the historical sources provide us with information that is tantalizing, but also hazy, not well dated, and uncertain in its relevance. There may have been a King Arthur, but who he was and when he lived are still in doubt. Does archaeology help at all here? For archaeology to be relevant there has to be some object that has very specific associations with King Arthur. There are any number of sites that date to the correct time period, and some of them have become associated with Arthur. Tintagel (Cornwall) has remains dating from the fifth to sixth centuries, and is said to have been the place where Arthur was conceived. Some excitement was generated in 1988 when a slab associated with sixth-century pottery turned out to have the name "Artognov" inscribed on it. This is the Latin form of the Celtic name "Arthnou," and derives from the same root ("arth") as Arthur. However, it isn't really the same name, and the rest of the inscription indicates that Artognov is descended from someone named "Coll," a name not found in any of the Arthurian stories. So it's unlikely to indicate a historical basis for Arthur.

The site of Glastonbury, also in England, has long-standing associations with King Arthur. This site has seen several periods of use, including occupation in the fifth to sixth centuries and an abbey dating to the tenth century. In the twelfth century, the monks at Glastonbury Abbey apparently stumbled across a burial while doing some construction. There are several accounts of the burial that disagree in detail, but agree that there were two skeletons in a coffin accompanied by a flat lead cross. One observer recorded the inscription on the cross as saying, "Here lies buried the famous King Arthur, with Guinevere, his second wife, in the Isle of Avalon." A seventeenth-century drawing of the cross shows the name of Arthur, but not that of Guinevere. Alas, the physical evidence is now gone. The human remains were reburied in the abbey and were moved in the thirteenth century. Then the bones were dispersed in the sixteenth century when Henry VIII took over the monasteries. The drawing of the cross was published in the seventeenth century and it was supposedly seen at Wells in the eighteenth century, but there is no record of it after that.

Was this the burial of King Arthur? It is possible that it was the burial of someone, but evidence from the inscription suggests that this was a fake. If the drawing is accurate, then the shapes of the letters belong to the tenth to eleventh centuries, not to the time of Arthur. It may be that the forger knew enough to make the letters look old, but not enough to shape them in the correct way. Perhaps the monks wanted to boost tourism at the monastery and thought that finding the burial of King Arthur would be a good way to do that. Or maybe they, too, found this figure fascinating, and simply wanted to make a connection with the past. Either way, the archaeology seems to leave us in the same position as the documents—perhaps there was a King Arthur, but if there was, the details of his life have faded with time. We get glimpses, but not enough to say for sure whether he was a myth or one of the more interesting historical mysteries we have yet to solve.

Site marker at the ruins of Glastonbury Abbey indicating the location of the tomb of King Arthur and his queen.

FOR GREATER UNDERSTANDING

Questions

1. What is meant by "glutting black ravens"?
2. What should be noted about the letters on the seventeenth-century drawing of the cross that lay atop Arthur's supposed coffin?

Suggested Reading

Lupack, Alan. *The Oxford Guide to Arthurian Literature and Legend*. New York: Oxford University Press, USA, 2007.

Other Books of Interest

Alcock, Leslie. *Arthur's Britain*. New York: Penguin, 2002.

Gidlow, Christopher. *The Reign of Arthur: From History to Legend*. Gloucestershire, UK: The History Press, 2007.

Websites of Interest

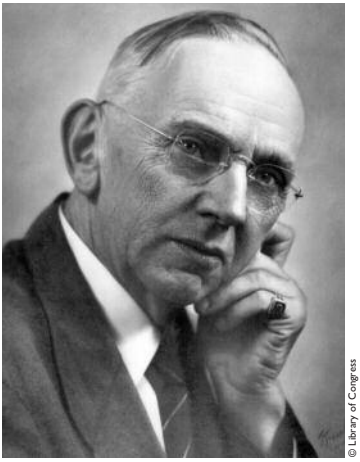
1. The *Britannia History* website includes extensive information on King Arthur as a literary and possible historical figure. — http://www.britannia.com/history/h12.html
2. The *Bad Archaeology* website provides a short article by Keith Fitzpatrick-Matthews about King Arthur's possible existence. — http://www.badarchaeology.net/controversial/arthur.php
3. *The Camelot Project* at the University of Rochester provides a comprehensive listing of historical texts, modern texts, and images surrounding the King Arthur legend. — http://www.lib.rochester.edu/CAMELOT/arthmenu.htm

Lecture 9

ESP and Archaeology

The Suggested Reading for this lecture is Kenneth L. Feder's *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*, chapter 10.

Do you know what I'm thinking? Probably not. But one of the most widespread beliefs that persists despite a lack of scientific support is in the phenomenon variously known as "psi" or ESP (extrasensory perception). In the most general sense, ESP refers to the idea that thoughts can leave your brain and have an effect outside it. This includes the supposed ability to move objects, predict the future, or communicate without any physical input (vocal or body language). There are many reasons why this idea is so common—it is emotionally appealing; it seems to fit with experiences like dreams, visions, or hallucinations; and it is widely thought that there is scientific evidence that proves it. In fact, there is no experiment that is generally accepted by the scientific community that supports the existence of ESP. All studies that have been offered have been challenged on the basis of methodological and other flaws, and so ESP remains unproven.



Edgar Cayce, 1940
(1877–1945)

Despite the lack of evidence, however, there have been various claims that psychic phenomena can be used to understand the past. One of the most prolific was Edgar Cayce, who used "self-induced hypnosis" to enter a trance and thereby access psychic sources of information. This earned him the title of the "Sleeping Prophet." Some of his sources were supposedly people who had lived before, including refugees from Atlantis (more about that later). For example, he claimed that Atlanteans built a number of mound sites in North America that archaeologists have shown were built by Adena and Hopewell peoples (see the discussion on the discovery of America). He also invoked Atlanteans after the Piltdown skull was found (more about that later, too). Cayce's sources told him that the skull was from one of a group of ancient Atlantean settlers who had reached England. By the time the Piltdown skull was definitively proven to be a fake in the 1950s, Cayce had died, so he never found out that his psychic sources were apparently in error.

A more recent writer on "psychic archaeology" is David Jones, whose book *Visions of Time* came out in 1979. In this book he claimed to have communicated with various ancient peoples whose cultures are now long gone. For example, he was given artifacts, including a stone spear point, from Lindenmeier, a site in Colorado dating ten to eleven thousand years ago. The site belongs to the Folsom culture, one of the earliest in North America. Jones made various statements about the site, including the observation that the point he had been given had been used to shoot "bison or an elephant, or mastodon, or something." Now maybe he can be forgiven for not knowing that mastadons, large elephant-like creatures, lived in eastern North America, while mammoths, their cousins, lived in the West, where Lindenmeier is located. But even so, this seems a little vague. There is a big difference between a mastodon and a bison, and you'd think that the people he was supposedly getting information from, who hunted them for a living, would know the difference. But more significantly, Lindenmeier is a Folsom site, and Folsom points are exclusively associated with bison remains, not mammoths. By the time the Folsom hunters came along, the mammoths were gone, and it's likely that the Folsom hunters had never seen one. It seems that Jones was reflecting popular ideas about prehistoric hunters without knowing the details of actual prehistoric life. But don't you think the people from the past that he was supposedly hearing from would know those details?

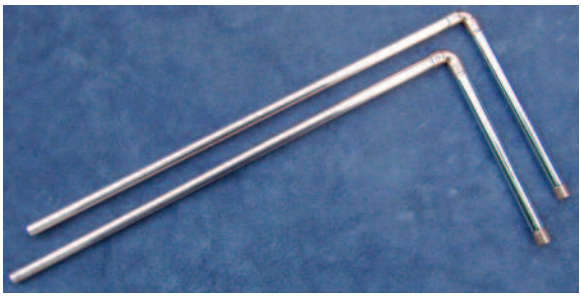
A Folsom point found at the Lindenmeier site near Ft. Collins, Colorado, dates from ca. 8000 BCE.

Another foray into communicating with the dead was carried out by Frederick Bligh Bond. An amateur archaeologist in the early twentieth century, Bond worked at the abbey at Glastonbury, in England, that we talked about last time. He was a practicing architect and was well-read in medieval architecture, having restored several churches. Bond's archaeological work at Glastonbury was apparently quite solid for the time, and if his circumstances had been different, he would have made a good professional archaeologist. But in addition to standard methods, Bond decided to try his hand at psychic archaeology. He worked with Captain John Allen Bartlett, who supposedly channeled former inhabitants of the medieval abbey. Bond would put his hand on Bartlett's and then ask questions; answers would come when Bartlett began writing, supposedly without his conscious volition. The information he got ranged from stories behind the various features and artifacts he found to the location and configuration of buildings with no standing remains. In particular, one of Bond's ghostly monks told him where to find the sixteenth-century Edgar Chapel, whose existence was recorded but whose location was not known.

So how did he do? Well, he was right about the Edgar Chapel and several other buildings as well, but the problem is that there is no way to prove that

he got the information from psychic sources. Bond had extensive knowledge of medieval ecclesiastical architecture, which is fairly standard in layout. We also don't have any objective account of the information that Bond got. All he reports are the times when he was given good information. But if this was part of a huge amount of incorrect information, then it becomes less impressive. Random chance would suggest that sometimes he would get something right, particularly given his architectural knowledge, even if most of the time he got it wrong. And if we only hear about the former, then we can't evaluate this aspect.

Psychic approaches have also been used to locate archaeological sites. This is one of the trickiest aspects of archaeology, since most sites are below the ground and leave no trace above it. Locating sites in archaeology is usually done by looking for artifacts on the ground surface, which can indicate nearby sites, or by using more sophisticated technology to "see" under the ground. More generally, possible locations can be identified by things like the availability of resources; if you are looking in a desert, it's likely that you'll find the sites near available water sources. But some have claimed that it's possible to go beyond this and use psychic methods to locate sites. One of these is "dowsing." This is probably more familiar as a way of locating water using wooden implements in various configurations. But it's been applied to archaeology too. Crossed sticks and forked branches have been used, as well as bent wires, in the belief that these tools enhance the dowser's natural sensitivity. But so far, when tested, dowsers perform no better than chance.



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A pair of copper and chrome-plated L-shaped dowsing rods sold by a home-based manufacturer who states they were "designed around the Atlantean Power Rod." They are further claimed to enable the user (with proper practice and dowsing procedures) to "find the edge of a person's aura or almost anything."

A high-tech version of dowsing was offered by a woman named Karen Hunt. She claimed to be able to read something called "electromagnetic photofields." These EMPFs were supposedly left behind by any building that had stood for more than six months. Hunt claimed that "particles" (of an unspecified nature) bombarded the Earth and were blocked by anything above ground. This disturbance in the particles somehow left a trace that could be detected by manipulating metal rods, and so the operator could then see what buildings had been at a particular location. But this all seems, again, a little vague. How do the particles distinguish between buildings and, say, rocks or trees? And if everything that had ever stood in a spot is recorded, then how

can you untangle what had been there at a given time? Nevertheless, when the Australian government needed to see if there were important archaeological remains in an area that was scheduled for development, they hired Hunt to do the work instead of a more expensive archaeological group. Hunt produced a plan of a town that she said had been there. Her plan was never tested archaeologically to see if the remains were as she described them. But it's interesting that the plan looked very much like an American frontier town, and very little like an Australian one. The fact that Hunt is an American should give you some clues about what this might really be about.

I absolutely agree with Ken Feder, who comments in his book *Frauds, Myths, and Mysteries* that it would be really great if psychic archaeology worked. Someone once asked me at a party who I would like to talk to, if I could talk to anyone from any place or time in human history. My immediate answer was any person who used the archaeological site I'm currently working on. I would just love to be able to hear that person's description of the site, see it through their eyes, know what rituals and ceremonies were carried out there and what they meant to those who participated. This is every archaeologist's dream. While material remains can give us a host of interesting insights into ancient cultures, the people themselves are gone. If we could know what they were thinking, why they did what they did, what they hoped for and dreamed of, our understanding of the past would be immeasurably richer. But so far, that isn't possible. Psychic archaeology only gives us superficial or incorrect readings of the past that are more about the people doing the reading than they are any actual communication from ancient times. We'll just have to rely on our usual methods of seeing into the past, and so be satisfied with the uncertainty that goes along with them.

FOR GREATER UNDERSTANDING

Questions

1. Why is the belief in ESP so common?
2. How are archaeological sites usually located?

Suggested Reading

Feder, Kenneth L. *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*. 6th ed. New York: McGraw-Hill, 2007.

Other Books of Interest

Hyman, Ray. *The Elusive Quarry: A Scientific Appraisal of Psychical Research*. New York: Prometheus, 1989.

Jones, David E. *Visions of Time: Experiments in Psychic Archeology*. Adyar, India: The Theosophical Publishing House, 1979.

Articles of Interest

McKusick, Marshall. "Psychic Archaeology from Atlantis to Oz." *Archaeology*, September/October, 1984, pp. 48–52.

Websites of Interest

1. The *New Scientist* magazine provides an article entitled "Ariadne" from issue number 1789, October 5, 1991, that contains information on Karen Hunt and her use of electro-magnetic photo-fields (EMPFs). — http://www.newscientist.com/article/mg13217897.300-ariadne.html
2. A personal website by Rasmus Jansson (a Swedish engineer in applied physics) provides a page with an article entitled "Dowsing—Science or Humbug?" — http://www.lysator.liu.se/~rasmus/skepticism/dowsing.html

Lecture 10

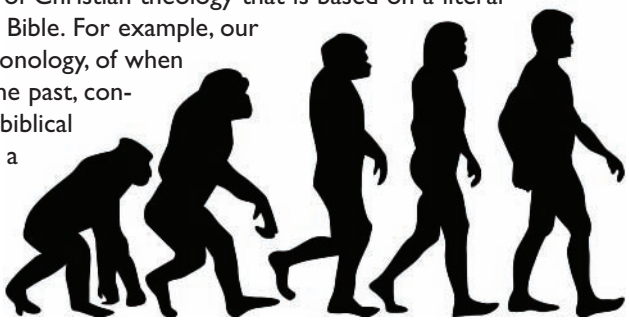
That Old Time Religion

The Suggested Readings for this lecture are Kenneth L. Feder's *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*, chapters 4 and 11, and William H. Stiebing, Jr.'s *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*, chapter 1.

Religion is a universal in human experience. All human societies have some aspects of behavior and ideology that can be considered religious, and since many religions began in the past, archaeology has often played a part in religious knowledge. Such knowledge generally takes two forms. Where it is the result of mystical experiences, revelations, and miracles, it is outside the scientific arena. Science by definition doesn't allow for miracles. But when validation for some aspect of religious knowledge is sought in scientific archaeology, then it too must abide by the rules of science. We can look at some examples where this has happened to see how the two might fit together.

One of the more emotive issues that is related to archaeology is the origins of life and, specifically, human life. An overwhelming majority of scientists accept the evidence that all life-forms are the result of evolution. Through a slow change in the genetic traits of a population over time, successful characteristics are encouraged, less successful ones are weeded out, and, eventually, new species can be produced. This process applies to humans too; through evolution, we have achieved the particular biological configuration we have today. Through the millennia, as our ancestors changed, we also developed different forms of material culture, and archaeologists have been able to correlate, at least broadly, particular kinds of artifacts with particular forms of our ancestors. While artifacts don't evolve as biological creatures do, our biological natures go hand in hand with our cultural side, each influencing the other in many different ways. In this sense, the principle of evolution is crucial to understanding our shared past.

However, evolution is seen by some as undermining the special place of humans in that form of Christian theology that is based on a literal interpretation of the Bible. For example, our understanding of chronology, of when things happened in the past, contradicts a reading of biblical history that suggests a much shorter time span for human life. This view seeks to compress our



archaeological past into about six thousand years, rather than the one to two million years archaeologists have demonstrated. From this perspective, then, anything that can challenge archaeological knowledge is seen as potentially supporting this particular worldview.

One example of this is the claim that there are dinosaur tracks alongside human footprints in several places in North America. If this were true, then it would be a problem for archaeology—dinosaurs have been mostly gone for 65 million years; humans didn't begin walking upright until about 5 million years ago; and a 60-million-year mistake would be a big one. Probably the best known of these places is the bed of the Paluxy River in Glen Rose, Texas, where there is a series of marks that have been known since the 1930s. Some of them are relatively clear dinosaur tracks, while others are harder to see; the latter may be marks left by dinosaurs that have been modified by in-filling or collapse, while others may be natural features caused by erosion. However, none of them looks like a human foot, which has a very characteristic imprint that results from the way we walk, putting our heel down first and pushing off from our big toe. So the consensus among scientists is that this provides interesting evidence of dinosaurs, but says nothing about the human past.

Another example often cited to undermine archaeological knowledge is the (in)famous Piltdown skull I mentioned in the last lecture. This skull turned out to be a hoax, but for several decades it was accepted as legitimate by some anthropologists. This is usually raised to suggest that, if we could be wrong about this, then maybe we are wrong about other things too. But there are several points worth making about Piltdown. The original skull was found in Sussex, England, by Charles Dawson, a lawyer and amateur scientist, in 1908. Other fragments followed, and in 1912, the jaw that apparently went with the skull was uncovered. The jaw was incomplete, lacking the parts where it would attach to the skull. The skull looked very human-like, but while the jaw resembled that of an ape, the wear patterns on the teeth left by the creature's chewing matched those of a human rather than an ape (these differ because our teeth are somewhat different than an ape's, causing us to chew differently). So it appeared that Piltdown had a mix of human and ape traits.

This fit with ideas about human evolution that were current in the early twentieth

© Glen J. Kuban, 1984

Taylor Site, Paluxy Riverbed, Glen Rose, Texas, 1984

The Taylor Site contains several trackways of largely infilled, metatarsal dinosaur footprints once considered human by some, and a trail of deeper, more typical digitigrade dinosaur tracks.

century, and so many scientists accepted the Piltdown skull as genuine. But there were many who didn't, and there was never certainty about it within the scientific community. Eventually, those who doubted the fossil increased in number, and finally, in the 1950s, dating tests were developed that settled the question. Not only were the jaw and the skull not particularly old, but they were not the same date; they couldn't have been from the same individual. So rather than Piltdown being a black mark on the archaeological record, one could argue that it shows that the scientific method worked. The hoax was revealed and the error was corrected. Interestingly, however, mystery remains—to this day, no one knows for sure who created the Piltdown hoax.

The other place where archaeology and religion sometimes meet is when proof of religious history is sought in archaeological evidence. Scientific support has been claimed for everything from Noah's Ark to the parting of the Red Sea, but most of the time this doesn't work well. Where these are miraculous in nature, they typically can't be understood in a scientific framework. One of the most well-known examples of this is the Shroud of Turin, a cloth said to be the burial shroud of Jesus. It carries two images, which represent the front and back silhouette of a man. The Shroud first appeared in historical documents in the fourteenth century, and the presence of apparent blood stains, wounds on the man's wrists, and the general match between iconic images of Jesus' face and the face on the Shroud added support to its identification as the original burial cloth. The image is believed by some to have been caused by some mystical process in which Jesus' body was taken by God, an event that is at the heart of the resurrection. If this were true, then it might add validity to this core concept of Christianity. However, there are a number of problems with this idea. There is no mention of the Shroud before the fourteenth century, and it doesn't match in any detail with the biblical description of the burial of Jesus. The apparent blood stains are not in fact human blood, and the image is two-dimensional, where something wrapped around a body should have produced a three-dimensional image. Finally, in the late 1990s, the Shroud was radiocarbon dated; it produced dates ranging from 1260 to 1390 CE, just about the time the Shroud appears in historical documents, and long after the death of Jesus.

A somewhat different case is provided by the more recent claims of evidence of a historical Jesus. In 2002, an announcement was made that an ossuary had been found. An ossuary is a box used to hold the bones of the dead, though this particular one was empty. What made this ossuary significant was that it carried an inscription that said "James, son of Joseph, brother of Jesus." Were these the remains of the brother of the Jesus of the Bible? Like the Shroud of Turin, there are reasons to be skeptical. While the style of the box and the writing in the inscription are correct for the time period when Jesus would have lived, the man who owned the box was a known forger, which prompted a closer look. It would have been unusual to mention a brother in an inscription at this time, and interestingly, while the inscription

itself is clear and fresh, the other carved decoration on the box is worn and eroded. Further, chemical tests showed that the "patina" on the box surface (that is, material left on the surface when it eroded) was chemically different than the patina in the inscription. Both of these suggest that the inscription was added later, and the consensus among experts is that, while the ossuary is real, the inscription is a fake.

But such artifacts keep appearing. In 2007, another group of ossuaries was found; again, one of them had the inscription "Jesus, son of Joseph," while others apparently belonged to "Maria," "Mariamne," and "Judah, son of Jesus." Analysis of the DNA from the Mariamne and Jesus ossuaries suggested that, at least on the mother's side, the two were unrelated. Some suggested that this implies that the two were married, and that perhaps Mariamne was the mother of Judah. Is this evidence that the biblical Jesus married and had a son? Possibly, but unlikely. The name Jesus was very common in this part of the world at this time. For example, there are twenty-one people named Jesus in one history by Josephus, written in the first century CE, and one scholar has noted an ancient letter that was written by a man named Jesus to a man named Jesus about a man named Jesus. Also, there are relationships other than marriage that would allow Mariamne to have been buried in that tomb. She could have been this Jesus' daughter, or his cousin on his father's side, or a sister from a second marriage; indeed, she could have been a valued family friend or servant who had nowhere else to be buried. So there is no particular reason to associate this tomb and the ossuaries in it with the biblical Jesus.

Ultimately, it is worth considering why there is interest in validating religious knowledge with scientific evidence. Perhaps it is because both provide important frameworks for experiencing and understanding the world, and for some, it would be more satisfying if the two could be reconciled. But many people, even the majority, seem to have no difficulty living with both, using each to define a separate aspect of experience. The human brain is a wonderful thing in that it can take large amounts of disparate data and form it into something that makes sense. Maybe we should let it do its job, and not work so hard to force different realms of experience into the same mold.

The "James ossuary" while on display at the Royal Ontario Museum in 2002. Inset: The enhanced inscription from the middle right side of the ossuary.

FOR GREATER UNDERSTANDING

Questions

1. What is the relationship between dinosaurs and people's interpretation of the Bible?
2. What cause is there for doubt about the authenticity of the inscription on the "James ossuary"?

Suggested Reading

Feder, Kenneth L. *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*. 6th ed. New York: McGraw-Hill, 2007.

Stiebing, William H., Jr. *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*. New York: Prometheus, 1984.

Other Books of Interest

Cline, Eric H. *From Eden to Exile: Unraveling Mysteries of the Bible*. Washington, DC: National Geographic Press, 2008.

Nickell, Joe. *Inquest on the Shroud of Turin: Latest Scientific Findings*. New York: Prometheus, 1987.

Websites of Interest

1. The *Paluxy Dinosaur/"Man Track" Controversy* website by Glen J. Kuban provides details of his investigation into the dinosaur tracks discovered at the Taylor Site in the Paluxy riverbed at Glen Rose, Texas, and includes a gallery of photographs of the tracks at the site. — http://paleo.cc/paluxy.htm
2. The *Archaeology* journal archive provides an article entitled "Faking Biblical History" by Neil Asher Silberman and Yuval Goren from volume 56, number 5, September/October 2003. — http://www.archaeology.org/0309/abstracts/ossuary.html

Lecture 11

New Age Archaeology

The Suggested Reading for this lecture is Kenneth L. Feder's *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*, chapter 11.

Right now, my TV is running a commercial advertising a new movie called *2012*. I'm unsure what the actual premise is (apart from a good venue for some cool special effects), but it presumably has to do with the common idea that the Maya, an indigenous culture in Central America, predicted the end of the world in that year. Based on Internet reading, this idea is variously greeted with dread or with hope, depending on how you see the outcome. But either way, it is very characteristic of how archaeology is sometimes used in support of what are sometimes called "New Age" religions. While these religions vary, many of them are based on a notion that ancient cultures had special wisdom that we have now lost. If we were able to recover it, then we would be able to cure much of what ails today's world.

For many reasons, the Maya are one of the more common cultures believed to have such secret knowledge. The Maya culture, which had its height between 250 and 900 CE, was located around a series of cities and smaller sites in Mexico, Guatemala, and other countries in Central America. As all cultures do, it rose and fell; its first major collapse was around 900 CE, when most of the cities in the south were depopulated or abandoned, but other Mayan cities such as Chichén Itzá continued to the north. The second impact

A *Chac-Mool* statue stands silent guard at the beach in Cancun, Mexico.

The name Chac-Mool is attributed to Augustus Le Plongeon, who excavated one of the statues at Chichén Itzá in 1875. Le Plongeon named it Chaacmol, which he translated from the Maya as "thundering paw." Le Plongeon claimed the statue was a depiction of a former ruler of Chichén Itzá.

came when the Spanish invaded in the sixteenth century, but of course the Maya still inhabit the area today. Despite what sometimes appears in books and other sources, there was no "mysterious disappearance" of the Maya.

Maya material culture is well-known among archaeologists. Their cities have impressive stone architecture, including pyramids, and they produced beautiful murals, painted pottery, and ornaments in jade and other materials. The recent movie *Indiana Jones and the Kingdom of the Crystal Skull* focuses on one category of these, noted in the title—crystal skulls. Small skulls carved out of clear crystal have been known from vaguely Central American contexts since the nineteenth century. Some were drilled through from the top to the bottom, and while the earliest ones known were only one to two inches high, others that turned up later are much larger. It is unknown whether all of these were actually produced by the ancient Maya, and there are pros and cons that can be cited. On the one hand, the Maya were experts at working stone, and clear crystal is certainly known in the form of beads. However, none have ever been found in an excavation, and at least some of them have shown modern tool marks when examined microscopically. So some of them may be ancient while others appear to be modern. Until we find one in a legitimate archaeological excavation, I'd say the jury is still out.

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Eugène Boban, a controversial antique dealer in pre-Columbian artifacts during the second half of the nineteenth century, was the probable source of many crystal skulls.

The skull above, at the Musée du quai Branly, in Paris, was sold by Boban to Alphonse Pinart, a young explorer. Pinart later donated it to another museum in Paris.

In 2009, scanning electron microscopy (SEM) analysis indicated the use of lapidary machine tools in its carving. The results of a new dating technique known as quartz hydration dating (QHD) further demonstrated that the Paris skull had been carved later than a reference quartz specimen artifact, known to have been cut in 1740. The researchers conclude that the SEM and QHD results indicate it was carved in the eighteenth or nineteenth century.

The Maya also had writing, which allows us that extra insight into the culture that I mentioned before. Aspects important to Maya rulers, such as their names and the names of their deities and their cities, were all recorded on stone monuments. They also had books, but sadly, all but a handful of these were destroyed by the Spanish. Along with the written inscriptions there are also dates. The Maya had a series of calendars that were used in both sacred and secular contexts. The former was used for organizing events important in religious life, while the latter was used to record the dates of things important to the elites, such as births, deaths, and ascensions to the throne. Having multiple calendars is pretty common in human society; we have our ordinary

calendar (the Gregorian calendar) and then we also have others such as the Hebrew calendar and the academic calendar that are important in other parts of our lives. The Maya also had a grand calendar that kept track of events from the time they perceived the current world to have begun. This is called the Long Count, and began in 3113 BCE (more or less—the exact correlation between our calendar and the Maya one isn't entirely certain). Also like our calendars, the Maya calendars were cyclical, that is, they started over again when the count ended. Just as we mark the end of a month, or a year, or a century, they noted endings in their perception of time as well. It's also important to note that, just like our calendar, the Maya calendar is a projection into the past. Our calendar has been through various versions, but was eventually hooked to a date that was decided in the early days of the Christian church as the year 0 (zero), the year when Jesus was born (though even that has now been changed, and the usual date given for this is 33 BCE, not the year 0). The Maya also projected their calendar back based on their particular understanding of the universe, in order to hook it to things seen as important to those who constructed the calendar. This is important to remember because that is the nature of calendars—they are usually projected back, not forward.

A replica of a Maya long-count calendar is on display at Hacienda Yaxcopoil Maya Museum in Merida, Yucatan Mexico.

So is the world going to end soon? Well, if you project the Maya Long Count into the future, and you make certain assumptions about how our calendar fits with it, then you come up with a date of December 21, 2012, as the end of the current Long Count cycle. However, before you do anything permanent on the assumption that there will be no 2013, there are a few points to be made. For one thing, the Maya themselves didn't calculate this date as far as we know; it only appears in one inscription, and it isn't attached to any particular notation of impending doom. So there's no reason to think that they attached any particular significance to it, other than it being the end of the cycle. Also, the calendar was constructed largely in order to look back, not forward. It was designed to do things like present the current rulers as the inheritors of the best of all possible worlds, not predict future calamity. Finally, while there are many admirable aspects of Maya culture, their ability to predict catastrophes does not appear to have been one of them. They were seemingly unable to predict the coming of the Spanish, which had a devastating impact on their culture.

Moving north, Native Americans also get their fair share of interpretations of hidden wisdom. While most of this falls on modern peoples and so is outside of our discussions here, there are some who have given special significance to

artifacts of ancient Native American cultures. I was on a tour of Petroglyph National Monument in New Mexico some years ago, led by a park ranger of Navajo descent. Petroglyphs are designs in a wide variety of shapes carved into rock surfaces by many ancient peoples in many times and places. At this particular site, we were shown a petroglyph with a horizontal oblong shape and a short line leading down from it. Our guide told us that some people (though not the Native Americans whose ancestors made it) apparently decided that this was a spaceship, and believed that it marked the place where aliens would return in order to take the Navajo people back to their home planet. Our guide found this rather problematic; she didn't believe it, but if it was true, she wanted it known that she was rather enjoying her life and didn't particularly want to go!

A rock on which an oval petroglyph was carved has been interpreted by some as a spaceship.

Similar significance is given to the spiral petroglyph on a rock surface at Fajada Butte. This landform rises above the archaeological site of Chaco Canyon, which was a major focus of occupation and ceremony from 700 to 1130 CE. After this, the area experienced a series of severe droughts, and the various groups who lived there moved to the south and east (and so also not a "mysterious disappearance"). On the butte are three slabs of rock positioned such that, when the sun shines on them, a sliver of light strikes the spiral in interesting ways, depending on the time of year. On midsummer, the longest day of the year, it bisects the spiral, while on the equinoxes it falls just on the edge to one side. The slab itself fell from the cliff and so wasn't placed there deliberately. But the petroglyph may well have been carved to take advantage of this happy accident. There's really no reliable way to date petroglyphs in the absence of an associated archaeological site, so it may well be ancient. But I'm uncertain whether it indicates any unusual wisdom or insight. It's very cool, but keeping track of the movement of the sun's light doesn't require secret knowledge, just skill and persistence.

A "sun dagger" intersects the center of the spiral petroglyph in Chaco Canyon at Fajada Butte in New Mexico during the summer solstice.

Finally, moving to the Old World, I thought I would also mention the belief that ancient societies, particularly in Europe and the Near East, were organized around female power. These beliefs don't just suggest that women had greater status than they do in some modern societies, but rather that they were "matriarchies," that is, that women ran them. The evidence cited for this idea is in the form of female figurines and other artistic media that are interpreted as representing women. If women are commonly represented, particularly more so than men, then it indicates that women had greater power in society. Such an idea often also goes with a vision of society that is peaceful, environmentally sensitive, and generally a better place to live since women are in charge. So what happened? Women lost their power when men realized that they could take over society through warfare, and that's the way it's been ever since. But if we understand this history then perhaps we can return to the way it was.

Untangling things like gender roles is a very tricky business in archaeology. The sex of a figurine can be difficult to determine, and many of those labeled female actually have no sexual characteristics at all. But if they are female, then what does this mean? If they are religious figures, then perhaps it says something about status. Of course, just because there are, say, goddesses, does this mean that women have high social status? Kali, a Hindu deity, is one of the scariest figures I know, and yet the status of women in India is not usually considered high. And there are figures of Mary in many countries where no one would argue that women are in charge, so the correlation isn't always true. And what if they aren't religious, but rather toys? Or secular art? Or models to demonstrate childbirth? All of these have been suggested, and they are all possibilities. This doesn't mean that women didn't have high status in some ancient societies, but it does mean that we really don't know. The power of this particular interpretation of history seems to be the idea that if women had higher status in the past, then that is a basis on which to reclaim it now. But really, if we want to change society that way, can't we just do it because it is right, and not because it's something that our ancestors may (or may not) have done?

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Statue of the Hindu Goddess Kali from Naihati, a town in West Bengal, India, during Kali Puja, a festival dedicated to Kali in Bengal, India.

Kali is the Hindu goddess associated with eternal energy. Her abode is the cremation ground. The name Kali means "black," but has, by folk etymology, come to mean "force of time." Kali is today considered the goddess of time and change. Recent devotional movements largely conceive Kali as a benevolent mother goddess.

Kali is represented as the consort of the god Shiva, on whose body she is often seen standing.

FOR GREATER UNDERSTANDING

Questions

1. What is the Long Count?
2. What roles might female figurines play in a society?

Suggested Reading

Feder, Kenneth L. *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*. 6th ed. New York: McGraw-Hill, 2007.

Other Books of Interest

Aveni, Anthony. *The End of Time: The Maya Mystery of 2012*. Boulder: University Press of Colorado, 2009.

Eller, Cynthia. *The Myth of Matriarchal Prehistory: Why an Invented Past Will Not Give Women a Future*. Boston: Beacon Press, 2001.

Websites of Interest

1. The *Archaeology* journal archive provides an article entitled "Legend of the Crystal Skulls" by Jane MacLaren Walsh from volume 6, number 3, May/June 2008. — http://www.archaeology.org/0805/etc/indy.html
2. A personal website by Anna Jones provides an article entitled "Fajada Butte: Home of the Sun Dagger" originally published by P. Charbonneau, O.R. White, and T.J. Bogdan. — http://www.angelfire.com/indie/anna_jones1/fajada_butte.html

Lecture 12

Plato's Atlantis

The Suggested Readings for this lecture are Kenneth L. Feder's *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*, chapter 7, and William H. Stiebing, Jr.'s *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*, chapter 2.

If there is a grandmother of all myths and mysteries in archaeology, it is the story of Atlantis. I got over five million hits on Google for Stonehenge, but when I did the same for Atlantis, I got six times that. It has been featured in books, on TV, and in Disney. There is a Las Vegas casino named after it. There are regular claims by various individuals that they have "solved" the mystery of Atlantis. And yet, while there is widespread knowledge of this story, it seems that relatively few people know much about its actual Greek context. In this lecture, we will look at Atlantis as it was originally written, and see if there is reason to believe that the story represents a real historical event. In the next lecture, we will look at the various places that have been claimed as the original location of Atlantis, and see if there is evidence to support such claims.

The story of Atlantis begins with Plato, a Greek philosopher who was a student of Socrates, and who lived and wrote in the fourth century BCE. One of his major works was *The Republic*, which was a response to what he perceived as the decline of Athens, where he lived. *The Republic* described the ideal society as Plato saw it, and it is clear that it is quite different from the Athens of his time. It was written as a dialogue in which several characters were brought

together and, through their discussion, the description of the ideal republic unfolded. Most of Plato's dialogues feature Socrates, who was dead by the time Plato wrote most of his works; many of his other characters were also people from the past, who had lived in different times and places, and this is usually taken to indicate that their discussions were not supposed to be seen as factual. This structure has been described as analogous to someone today getting Abraham Lincoln, Adolph Hitler, and Teddy Roosevelt together to have a political discussion.

Around 355 BCE, Plato began a series of three dialogues, each named after the main speaker: *Timaeus*, *Critias*, and a third one probably to be named *Hermocrates*. The first was completed and the second survives in draft form, but the third one was never written. *Timaeus* is set the day after *The Republic* ended, and the same characters are assembled to continue their discussion of the ideal state. After some summary, Socrates notes that he would like to hear about a real-life version of his ideal state, particularly in the context of how it would behave in conflict. Critias, one of the participants, replies that he was up all night trying to remember a story that his grandfather told him about Athens and a city called Atlantis, which came into conflict with Athens. The story is said to come from Solon, who got it from Egyptian priests who swore it was true. Critias provides a summary, but then is reminded that the discussion was supposed to have a particular order, and he is out of turn. The dialogue then continues on to other matters. The full story of Atlantis and Athens was supposed to be told in the next dialogue, *Critias*, but this dialogue is incomplete. There are a fair number of details given, but then *Critias* ends literally in mid-sentence, before the end of the story is reached.

Putting together the information from these two sources, we get a narrative that is said to have taken place nine thousand years ago. This date is given in several places in both dialogues, so it isn't some kind of error. Both Athens and Atlantis begin as wonderful places. The specific location of Atlantis is given as outside the Straits of Gibraltar in an area not now accessible because the strait is blocked with mud, and its size is noted as larger than Asia and north Africa combined. The city itself was circular and was surrounded by alternating rings of land and water. The architecture is described as being opulent, and the city was filled with art (and, as a side note, there is nothing unusually high-tech or out of place in the description of the material culture—it all fits with what we know of Greece at the time). The inhabitants were descended from the gods, and so were honorable and admirable, but then their divine blood was diluted and they became increasingly corrupt. Eventually they began a campaign of conquest, gaining ever more territory until they were stopped by plucky little Athens. Athens had retained the admirable qualities that Atlantis had started with, and so they were able to defeat Atlantis. Then, rather inexplicably, Zeus gets involved. There is a meeting of the deities, and, for reasons that are not given, they decide to destroy both Athens and Atlantis. The Athenians are swallowed up by an earthquake while Atlantis sinks into the sea.

It's not a bad story (Ken Feder has compared it to *Star Wars*), though the ending is a bit odd. But did it really happen? Are there clues that we can use to make a decision? On the one hand, we are told explicitly that it is true, and there were ancient writers not long after Plato died who also believed this. However, Plato's student Aristotle, who probably knew Plato well, famously said that Plato created Atlantis and also destroyed it. The setting in which the story is told and those who tell it are both essentially fictional. And, it seems highly coincidental—just at the moment that Socrates wanted to hear such a story, Critias conveniently remembered one that he just swears is true. In other writings, Plato says that facts are not as important as the meaning of the story being told, and in other parts of the dialogue there are inconsistencies that support the idea that Plato wasn't worried about absolute accuracy.

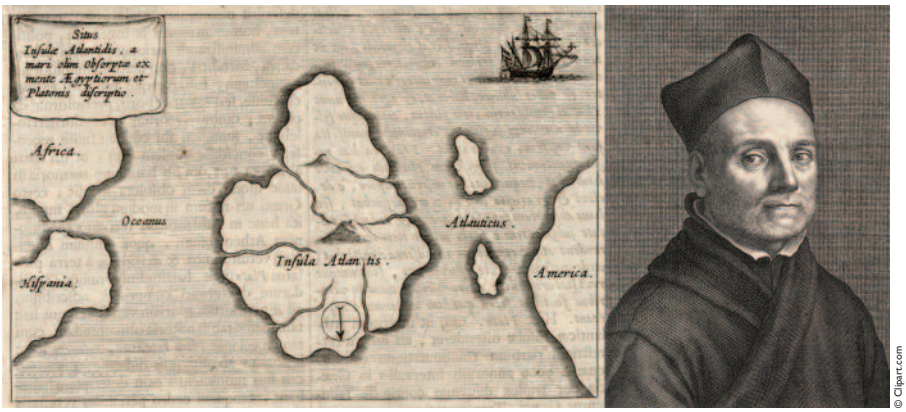
Within the story, too, there are things that don't make sense. The Egyptians were famous for not caring much about other societies, so the idea that they would remember a story from the Greek past doesn't ring true. In all the documents that we have from Egypt, there is no mention of anything resembling the Atlantis story—indeed, there is no mention anywhere of Atlantis until Plato's writings. The date is also a problem—nine thousand years before Plato wrote, or about 10,000 BCE, Greece was characterized by hunting and gathering peoples who didn't live in permanent villages, much less cities. So if the Atlantis story is true, then literally everything we think we know about Greek prehistory must be wrong—*everything*. Moving beyond the story, there is also no evidence of anything that would indicate Atlantis existed, particularly in the place where Plato said it was. There are no artifacts, there is no geological evidence, and there is no known process that could destroy a land mass the size of Atlantis. Small islands can sink quickly and large areas of land can become submerged slowly, but rapidly sinking continents just don't occur. If there was a city of the size Plato describes, on a land mass larger than Asia, that sank beneath the waves, then we certainly would expect something in the way of physical evidence. But there's nothing.

Many have tried to reconcile these problems by suggesting that Plato got some of the details wrong—the land mass wasn't that big, it didn't happen that long ago, or it wasn't exactly outside the Straits of Gibraltar. If the story is true, then it's certainly possible that Plato garbled some of his facts. But this is a slippery slope—how do we know which facts are wrong and which are right? The most common answer would seem to be that any facts that don't support a particular theory are claimed to be wrong, while those that support it are claimed to be right. We will revisit this issue next time, but for now I would note that it isn't sound research methodology. If you're going to argue that Plato got some things wrong, then you need a better reason than the fact that it doesn't fit your current theory.

If we apply Occam's Razor here, what makes fewer assumptions, the idea that Plato made up the story to make a point about the current situation in Athens, or that Atlantis fought Athens in an epic battle that was never mentioned before

Plato, and for which there is not a shred of archaeological or geological evidence? Rather than thinking about *Timaeus* and *Critias* as history, a better analogy might be *Aesop's Fables*. Those stories make important points about proper behavior, and we are better served trying to understand their meaning rather than trying to manipulate biological knowledge in order to demonstrate that, in fact, animals could talk back then. Atlantis as fiction also explains better why Plato never finished his trilogy. We don't know how it might have ended, but he had clearly written himself into a corner. He had to get rid of Athens because his version of history didn't fit with what was commonly believed about its origins. So he had to fiddle with the date, making it a really long time ago, and he had to destroy the city so that it could develop in the way that Athens was believed to have grown. But then he had an unsatisfying story—punishing Atlantis was one thing, but why destroy poor, noble Athens when they had just defeated evil Atlantis in a truly epic victory? It has also been suggested that, in creating Atlantis, Plato had produced what is common among authors—a villain that was far more interesting than the hero. This is certainly borne out by history, where Atlantis is remembered but rarely in the context of Athens.

Plato seems to have scrapped the whole thing, and went on to write *Laws*, a dialogue in which he describes the laws he would devise for a new city. He never returned to the trilogy, and he died around 348 BCE at the age of eighty. It is clear from the stories in *Timaeus* and *Critias* that Plato wanted us to root for Athens, to admire her spirit and her nobility in the face of overwhelming odds. It also seems certain that he would have been horrified that Atlantis, corrupt and dissolute, is the one that is remembered. But then, perhaps not—Plato became disillusioned in the latter part of his life, and maybe he wouldn't have been surprised at all.



In his *Mundus Subterraneus*, Athanasius Kircher (1601–1680), a seventeenth-century German Jesuit scholar who published around forty works and has been compared to Leonardo da Vinci for his enormous range of interests, correctly postulated "fires" raging inside the earth, but linked the tides to the interaction with an underground ocean. Included in the work was a map of Atlantis, placing the lost island (or rather mini-continent) between Spain and America. For some unknown reason, the map is oriented upside down, with the south on top. The main island of Atlantis is accompanied by two smaller, unnamed ones to its right (west).

FOR GREATER UNDERSTANDING

Questions

1. In what way could Plato's story of Atlantis be compared to *Aesop's Fables*?
2. How might Plato feel about the ongoing fascination with Atlantis?

Suggested Reading

Feder, Kenneth L. *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*. 6th ed. New York: McGraw-Hill, 2007.

Stiebing, William H., Jr. *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*. New York: Prometheus, 1984.

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Jordan, Paul. *The Atlantis Syndrome*. Gloucestershire, UK: The History Press, 2004.

Plato. *Timaeus and Critias*. Trans. Robin Waterfield. Introduction and notes Andrew Gregory. New York: Oxford University Press, USA, 2009.

Websites of Interest

The Internet Classics Archive at the Massachusetts Institute of Technology provides Plato's *Timaeus* and *Critias* translated by Benjamin Jowett. —
http://classics.mit.edu/Plato/timaeus.html
http://classics.mit.edu/Plato/critias.html

Lecture 13

Where in the World Is Atlantis?

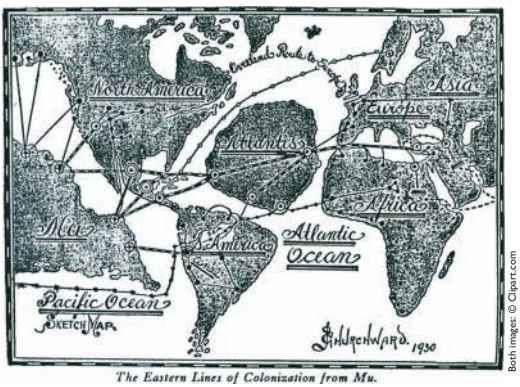
The Suggested Readings for this lecture are Kenneth L. Feder's *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*, chapter 7, and William H. Stiebing, Jr.'s *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*, chapter 2.

I argued in the last lecture that the most likely scenario is that Plato made up the story of Atlantis. It was a morality tale originally designed to make a point about how far Athens had declined from the glory days, when they took on enemies like Atlantis and won. But when the story didn't work out the way he planned, he scrapped it and went on to something else. However, this argument hasn't stopped anyone from looking for Atlantis, in places as far apart as Turkey and Wisconsin. On a regular basis, the news reports that someone has finally found Atlantis, or at least explained how it could have happened. What are some of these places, and is it possible that Atlantis was once there?

Before looking at some suggested places in more detail, there are a few general points worth making. In his recounting of the story, Plato is quite explicit about where Atlantis was located, giving all of the pertinent facts that should be required to find it. Atlantis was outside what Plato called the Pillars of Hercules, which was the ancient name for what we call the Straits of Gibraltar. Admittedly "outside" is a rather vague term, but by implication it couldn't have been too far away. This is supported by the fact that he notes it is now inaccessible because of mud which resulted from Atlantis's sinking, again implying

James Churchward (1851–1936) was best known as a British-born occult writer. However, he was also a patented inventor, engineer, and expert fisherman. He discussed his belief in the existence of a continent he called "Mu" with Augustus Le Plongeon and his wife in the 1890s. In 1926, at the age of seventy-five, he published *The Lost Continent of Mu: Motherland of Man*, which he claimed proved the existence of the lost continent in the Pacific Ocean. Renowned ethnographer and anthropologist Alfred Métraux (1902–1963) undertook research on Easter Island in the 1930s, and in 1940 published a monograph on Easter Island that included a rebuttal of the hypothesis that Easter Island was a remnant of a sunken continent, as Churchward had claimed.

In the second half of the twentieth century, improvements in oceanography, in particular understanding of seafloor spreading and plate tectonics, left no scientific basis for geologically recent lost continents such as Mu.



The Eastern Lines of Colonization from Mu.

Right: Map by James Churchward from 1930 showing the location of Mu in the Pacific Ocean with "colonization routes" to the rest of the world, including Atlantis between North America and Europe.

Both images: © Clipart.com

that it was relatively close by. As for its extent, we are told in *Timaeus* that it was the size of Libya and Asia put together, so it was massive indeed. The city contained extensive material culture, including palaces, temples, baths, and other buildings; statuary and altars, many covered in gold and silver; a wide range of livestock (including elephants), groves of trees, and cultivated land; and a large population ranging from kings on down the social ladder. Using this description, Atlantis was a prosperous and productive society, and from an archaeological perspective it tells us where to look and what to look for.

You may well already know that there is no evidence of Atlantis ever having existed in the place where it is supposed to have been. It's been examined thoroughly, and there is not only no archaeological evidence of this well-heeled society, but there is also no geological evidence that such a large land mass ever existed. So how can people claim to have found it? Mostly because they change the details (or ignore them altogether) to suit their particular theory. I mentioned this in the last lecture, but it's an important point. Certainly information gets lost when it is conveyed over time and space, and if the Atlantis story is real, then it's possible that information has been garbled. But without any objective way to determine what is accurate and what isn't, there is no way to judge whether a particular detail should be used or discarded. If you do so based solely on whether it fits your theory, then that's cheating, particularly when the facts that support your theory are simultaneously touted as crystal clear and absolutely reliable. This is the kind of cherry picking that is an insult to cherry pickers everywhere. Either you have to come up with valid reasons independent of your theory as to why Plato was wrong on some things and right on others, or you have to accept all of his details as essentially accurate.

Examples of the variety of possible locations claimed for the lost continent of Atlantis are shown in the two books above.

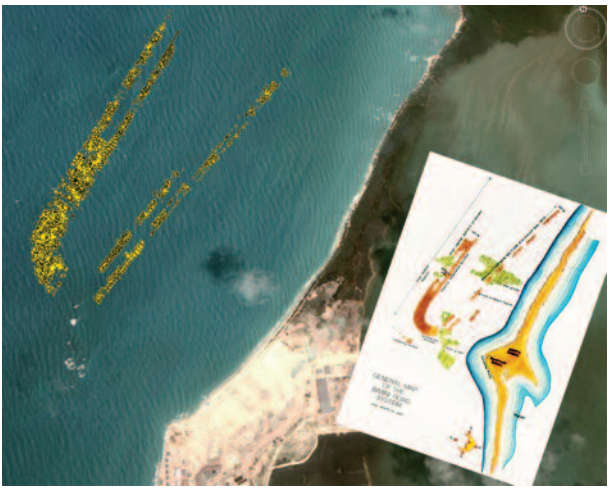
Top: Author Frank Joseph is the editor-in-chief of *Ancient American* magazine and the author of numerous books, including *Atlantis in Wisconsin*, *The Lost Pyramids of Rock Lake: Wisconsin's Sunken Civilization*, and *Last of the Red Devils*.

Bottom: A book by historian Peter James, *The Sunken Kingdom: The Atlantis Mystery Solved*, theorizes that Atlantis was located in the vicinity of Manisa in Turkey.

But as the saying goes, these rules are more honored in the breach, and Atlantis has been "found" in at least dozens, if not hundreds, of places. One of the old standards is around Bimini, an island not far off the coast of Florida. This location was supposedly predicted by Edgar Cayce, who I mentioned when I discussed "psychic archaeology." Cayce claimed that many of the people living there were "former Atlanteans," though it's unclear if he literally meant actual refugees or their descendants. Now Bimini is in a very general sense "outside" the Straits of Gibraltar, but the main reason Bimini

was identified is because of something called the "Bimini Road." This is a rock formation on the ocean floor composed of flat rocks lined up in a way that resembles paving, and some believe this represents the remains of a sunken city. There seems to be a common belief that nature never produces anything regular, so this formation is taken to be artificially created. But there are many examples of regular features both in biology and geology (crystals and snowflakes come to mind immediately), so this is difficult to support. The Bimini Road is in fact something called beach rock, which forms when fused rock is regularly submerged and then fractures along regular lines. That this isn't related to Atlantis (which you will remember was said to have sunk some ten thousand years ago) is also indicated by the fact that the fused rock has been shown to contain a range of material including modern bottles, and a recent radiocarbon date of twenty-two hundred years ago was obtained from the core of one sample.

Even more "outside" the Straits is Antarctica, where Rose and Rand Flem-Ath (an oddly appropriate name) have placed Atlantis. Their argument shows some truly skilled manipulation of Plato's text. If you change the perspective of a world map so that Antarctica is in the center and see the Pacific and Atlantic as essentially one continuous ocean, then Antarctica is in the middle of the "world ocean" and is also, sort of, "outside" the Straits of Gibraltar. Then they use some outdated (and never widely accepted) geological interpretations that suggested that the earth's crust has slipped, causing a catastrophic climatic change, to be able to claim that Antarctica was once warm and green. The model isn't very compelling given all the sleight of hand that has to happen, and of course Antarctica is conveniently under miles of ice now, so we can't follow up archaeologically.



Background: © Google Earth/Inset: © Greatdreams.com
Overlay: "Ancient Archaeology" @ www.altarcheologie.nl

The "Bimini Road" can be seen in this satellite view as dark areas under the water just offshore of the North Island of Bimini. A diagram (in yellow) of many of the beachrocks that form the "road" is superimposed over the area, which corresponds well to the shoreline of the island and also on the inset map that is claimed to show "proof" that the road was man-made.

One of my favorite identifications of the "real" Atlantis is that it was in Ireland. This was offered by a geographer named Ulf Erlingsson. Again, Ireland is indeed "outside" of the Straits of Gibraltar (in the same sense that the rest of the world is outside them!), and Erlingsson does some impressive contortions with the Irish archaeological evidence to shoe-horn it into Plato's description of Atlantis (and, of course, where it doesn't fit, he simply changes Plato or ignores him). I like this one in particular because Irish archaeology is my specialty, so I can easily recognize all the errors and misrepresentations in his argument. For example, Ireland isn't even close to the size of Atlantis, so Erlingsson makes up something called the "megalithic stadium" to make the measurements work, which is a combination of the Greek stadium (a well-known unit of measurement) and the "megalithic yard" (a theoretical unit of measurement that may have been used by some builders around 2000 BCE). Now leaving aside the fact that the megalithic yard isn't even demonstrably real, there is no reason to think that Plato would have known about it; if it existed, it hadn't been used for over a thousand years. And if he had known about it, why would he use it instead of the Greek measurement system? Then there's the material taken from Irish mythology that is used to bolster Erlingsson's argument. These stories date to the early centuries CE, over five hundred years after Plato had died. Plato was an impressive writer and philosopher, but even Plato wasn't that good.

Not all of the attempts to identify Atlantis are as shifty as these. A French scientist has suggested that the story of Atlantis was based on the rise in sea level that is known to have occurred at the end of the Ice Age around eleven thousand years ago. Apparently there was a small island in the Straits of Gibraltar that was inundated by rising sea levels over a relatively long period of time. This argument at least has us looking in the right place, but there are two major problems with it (not to mention the fact that there was no prosperous ancient city located on this island). First, the island was only 14 kilometers by 5 kilometers in area, much smaller than Atlantis was said to be. And second, the sea level rise at the end of the Ice Age was not a catastrophic event. Evidence varies in terms of how quickly it might have happened, but even the shortest estimates are on the order of decades. This is unlikely to have been interpreted as a "flood" by any ancient peoples, familiar as they were with the processes of the natural world.

Atlantis has also been derived from the ancient Minoan culture that flourished on the island of Crete between about 2000 to 1400 BCE. This is a well-known culture that, with the Mycenaean culture, forms the Greek Bronze Age. The Minoan culture collapsed around 1400 BCE, and it was once thought that perhaps this was related to the explosion of the volcano under the island of Thera, modern Santorini. The effects of this explosion were severe and widespread. Apart from the catastrophic impact on the island itself, in which it was blown into three parts, there was the fall of ash and pumice that would potentially have affected both land and sea. Ash from the Thera explosion has been

found as far away as Egypt and Israel, and the amount of material in the air probably had an effect on worldwide climate. Did the severity of this disaster get combined with the Minoan collapse to form the basis of the Atlantis story?

Perhaps, but there are a number of reasons to question such an equation. First, Atlantis sank (it didn't explode), and Thera, again, isn't nearly as large as Atlantis was said to have been. Second, there are a number of sources of evidence that suggest that the explosion happened around 1650 BCE. Not only does this not match the date given by Plato, but it's a good 150 years before the Minoan collapse. If this was the cause, why did it take so long to have an effect? Also, the Egyptians, who supposedly told Solon the story that was recorded by Plato, knew the Minoans and the Mycenaeans. They traded with them, and while they may not have known the difference between the two cultures, they had a name for them, the Keftiu. So why use the name Atlantis when they already had another name for these groups? And, of course, Thera isn't in the Straits of Gibraltar.

In the end, all of the attempts to locate Atlantis have run up against the fact that they simply don't match all the details that Plato gives us. Some are very different, while others are only a little different, but none fit the story completely. So this raises a point that has been noted by other writers—how much do you get to change in the Atlantis story and still be able to call it the Atlantis story? Plato was pretty clear about what happened, when it happened, and where it happened. Given the amount of material that should have been left behind, both archaeological and geological, it is hard to believe that, if Atlantis were real, we wouldn't have found something that we could attribute to it. Instead, all we have are manipulations of Plato in an attempt to make his story something other than it was—a lesson in what happens when you lose sight of the moral foundations of your culture. Plato had a significant impact on Western philosophy, and his truths are still relevant today. Doesn't his story therefore deserve better?

A Landsat image of Santorini Island in the southern Aegean Sea clearly shows the remains of the volcanic explosion that occurred around 1650 BCE. The inset shows the island's location in the Aegean Sea in relation to Greece.

FOR GREATER UNDERSTANDING

Questions

1. What kinds of "cherry picking" have been used to support various theories about Atlantis?
2. What arguments did Ulf Erlingsson put forward to locate Atlantis in Ireland?

Suggested Reading

Feder, Kenneth L. *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*. 6th ed. New York: McGraw-Hill, 2007.

Stiebing, William H., Jr. *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*. New York: Prometheus, 1984.

Other Books of Interest

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Jordan, Paul. *The Atlantis Syndrome*. Gloucestershire, UK: The History Press, 2004.

Joseph, Frank. *Atlantis in Wisconsin.* Lakeville, MN: Galde Press, Inc., 1995.

Websites of Interest

1. *Atlantis in Antarctica* is the official website of Rand and Rose Flem-Ath, authors of *When the Sky Fell: Atlantis in Antarctica*, *The Atlantis Blueprint*, *The Forbidden Manuscript*, and *Field of Thunder*. — http://www.flem-ath.com
2. *Greeka.com* website provides an article entitled "Atlantis Santorini: The Legend of Atlantis and Santorini Greece." — http://www.greeka.com/cyclades/santorini/santorini-volcano/atlantis.htm
3. A *BBC* website entry in their "Sci/Tech" section from 2001 is titled "Atlantis 'Obviously near Gibraltar'" reporting on information from Jacques Collina-Girard of the University of the Mediterranean in Aix-en-Provence, France. — http://news.bbc.co.uk/1/hi/sci/tech/1554594.stm
4. *Fun and Sun* (a commercial Florida tourism website) provides background history and information on the possibility of Atlantis having been located in Bimini. — http://funandsun.com/1tocf/inf/bim/bimini.html

Lecture 14

Genuine Archaeological Mysteries

The Suggested Reading for this lecture is Pam J. Crabtree and Douglas V. Campana's *Exploring Prehistory: How Archaeology Reveals Our Past*, chapters 12, 20, and 23.

Archaeology is full of unknowns. Because we are studying the past, which can't be seen directly, we have to rely on partial and incomplete information. On the one hand, this means that we have large gaps in our knowledge about the lives our ancestors led. However, we also know a great deal, certainly far more than we did even ten years ago. Advances in dating technologies, the development of new analytical techniques, even changes in the ways we approach archaeological data have all contributed to our understanding of the past. We know a lot. We know many of the things that happened and we know when they happened, at least broadly and sometimes in great detail. We know the general outline of how societies changed, and how the many places that humans lived varied in terms of their cultural organization. We know how human technology developed, and we know both what all humans share and some of the ways that they were different. More specifically, there are things that we are as close to certain about as we can be—the Sphinx was built as part of Khafre's pyramid complex, the slab covering Pakal's grave at Palenque doesn't represent an astronaut in flight, and Atlantis hasn't been (and probably won't ever be) found anywhere in the real world. When you think about it, there is a lot we really know about our shared past.

Importantly, we also know what we *don't* know. Much of what we've talked about in this course is about things we can't be sure of—what female figurines meant to those who made them, who exactly King Arthur might have been, or how far into North America the Norse might have penetrated. I argued that this doesn't mean that any interpretation is therefore possible, at least if you are going to follow the rules of science. Some things are more likely than others, and we have to consider all of the knowledge that we do have in our evaluation of any new ideas. But there are lots of mysteries that still remain to be explored, and we are far from knowing everything. There are many areas that we could talk about to illustrate this, but I have picked three areas that I find particularly interesting. These examples are intended to show how archaeologists approach the interpretation of the past, in contrast to those who come from a different point of view.

Two of these examples we've already talked about before. The first is Stonehenge, one of my favorite archaeological sites. Sitting on the wide open Salisbury Plain, the massive stones of Stonehenge still defy complete

understanding. That it was important is clear. The monument was built and rebuilt over some fifteen hundred years, beginning in 3000 BCE, so it seems either that they really, really wanted to get it right, or that the idea of "right" kept changing over the centuries. Planning the monument would have taken skill and dedication, though as I pointed out it wasn't particularly difficult. But given the sheer size of the stones, executing the plan is what I find so impressive. Moving around stones that weigh even a few tons is no small feat; the dedication required to move stones weighing up to 45 tons is simply awesome. So there is no doubt that the purpose of Stonehenge was important, at least to some of those who lived in that ancient British society.

So what was that purpose? As I noted, there's no evidence that anyone lived in the monument itself, though there is emerging evidence that people lived nearby, as shown in recent excavations. There's also no evidence for any other everyday function for the site, so that puts it in the category of ritual. But what ritual? Presumably it involved at least the association with the summer solstice, and it isn't difficult to imagine ceremonies connected with that and perhaps other seasonal events. But there may have been other possibilities as well. For one thing, it was about status. It takes some social clout to convince people to spend that much time and effort to construct something like Stonehenge, and that speaks to someone's power. So it was a status symbol, intended to make a statement about the social power of those who organized and supported the monument's construction. One person who has been pointed to as a person of interest in this regard is known as the "Amesbury Archer." The Archer was buried around 2300 BCE about 3 kilometers from Stonehenge, in a grave that was, compared to the others of the time, pretty elaborate. There's no real way to know whether or not he was involved with the monument, but he certainly does

The Amesbury Archer's grave is the richest of any found from the Early Bronze Age (about 2400 to 1500 BCE). He was buried with a large number of items at a time when the first metals were brought to Britain, including two gold hair tresses that are the oldest securely dated gold ever found in Britain.

seem to have been someone of importance. It has also been suggested recently that the monument and/or the stones themselves may have been seen as having healing power. There are burials associated with the monument, most of them cremations placed in some of the holes within the circle of stones. Did people come to the monument for healing and, if it didn't work, were they then buried there? Many of the remains excavated at Stonehenge showed signs of traumatic injury and illness, maybe suggesting that only the sickest came there. Of course, it's hardly surprising to find that the dead were not in good health, so this may not be terribly significant. But it's yet another possible interpretation of the monument that seems to have been terribly important to those who built it, and that retains some of that power even today.

A second mystery is the exact timing and nature of the peopling of the Americas. How early did people arrive here and where did they come from? Did they arrive in several different parts of North and South America, or did they only come to one part and then spread from there? Most archaeologists accept a number of early sites that date between fourteen and twelve thousand years ago, but there are a handful of sites that have dates that are much earlier. Monte Verde, in Chile, was extensively and very carefully excavated in the 1970s and 1980s. It is an extraordinary site not only because of its age but also because of the state of preservation of the remains. The site was flooded with water, and that often leads to things surviving better than usual. Monte Verde produced not only things like stone tools and food remains, but also footprints, tent stakes, and even a leaf that had been chewed, possibly for medicinal reasons. Most of the dates from the site are in the range I just noted, but there was one level that returned a date of thirty-three thousand years ago. Is this real, or was it a mistake? Some other sites have also been claimed to be early, including the Topper site in South Carolina (fifty-five thousand years ago); Meadowcroft, Pennsylvania (nineteen thousand); Bluefish Caves, Canada (forty thousand); and Pedra Furada, Brazil (forty-eight thousand). There are reasons to dispute some or all of these very early dates, but they are not completely rejected by all archaeologists.

Archaeologists probe the ground at Monte Verde near Puerto Montt in southern Chile, in 1985.

The Monte Verde site has been researched and excavated by American and Chilean archaeologists since 1977. The principal investigator between 1977 and 1988 was Thomas D. Dillehay, an American archaeologist from the University of Kentucky.

The site was first discovered in 1975 by local men clearing a path through shrublands along the small Chinchihuapi creek.

The latest evidence to emerge from the Monte Verde archaeological site in southern Chile has confirmed that the earliest known Americans migrated down the Pacific Coast more than fourteen thousand years ago and had a tradition of existing on marine life.

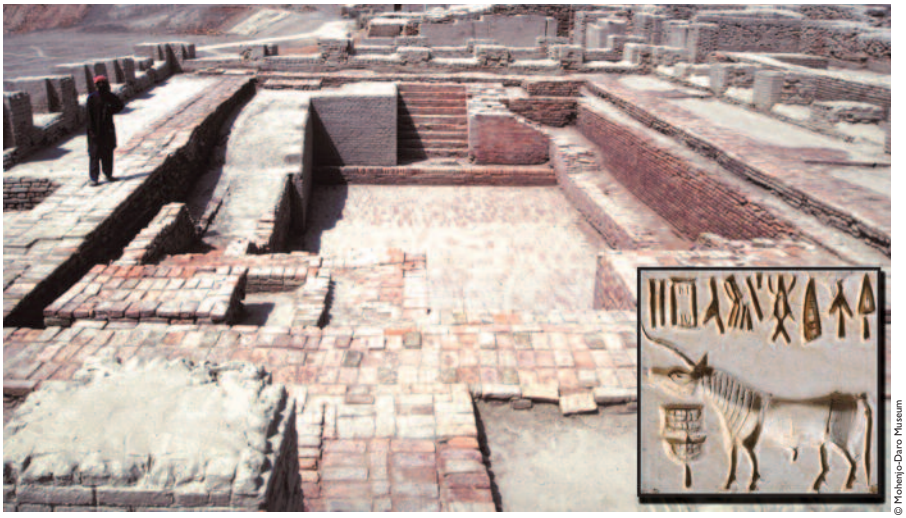
There is also the issue of where those earliest people came from. As I noted before, the bulk of evidence suggests that a substantial portion of the population originated in Asia, from regions across the Bering Strait. But there is no clear pattern of early sites that would allow us to trace a specific route, and this has opened up the possibility that they may have come from other directions. Archaeologists at the Smithsonian, for example, have argued that there is a potential route across the Atlantic, moving from western Europe across pack ice to the east coast of North America. Others have argued for a route across the Pacific to South America. While these latter have not been generally accepted by archaeologists, the evidence is still not entirely clear. Why can't we be sure about the location of the earliest sites? There are many possible reasons. Those early groups would have been mobile, moving with the appearance of particular plants or animals. This is the type of society whose sites aren't easily found since they are typically scattered and shallow and don't have extensive above-ground remains. Also, there wouldn't have been many of them to begin with, so we don't expect there to be many of these very early sites to find. And there may be other factors, such as the effects of glaciers on the ground surface in the north, along the route they might have followed. These tend to destroy sites that are shallow and have few remains. So while we can sketch broad outlines of how people arrived in this New World, we still aren't sure about the specifics. This is an area that cries out for more archaeological research.

Finally, another mystery that I find interesting lies in India and Pakistan. Between about 3200 and 1900 BCE, in the valley of the Indus River of Pakistan and the regions around it there and in India, a society arose that was located around at least two (and probably more) great cities. The ones we know well are Mohenjo-Daro and Harappa, and the culture itself is known as either the Harappan or the Indus Valley culture. There's some really fascinating archaeological research about this culture, which has been known since the nineteenth century, and in particular through excavations beginning in the twentieth century. Harappa and Mohenjo-Daro were enormous, with populations between twenty and forty thousand people, and they produced an impressive material culture that included jewelry, figurines, pottery, and metalwork. They were also part of the international trade network that linked places like the Near East and the Persian Gulf. The people of Harappa and Mohenjo-Daro traded with the societies of Mesopotamia, who referred to them as the Meluhha, which may have been their version of a name the Harappans called themselves.

We know a fair bit about this culture, but if they had written documents, it would add significant layers to our knowledge. Did the Harappan culture have writing? It would seem so. There is an extensive series of symbols that are found almost exclusively on seals, small square objects that were designed to be stamped onto a wet surface to leave an impression. Around three thousand of these inscriptions are known, 87 percent from Harappa and Mohenjo-Daro.

While they appear to be a writing system, they have some unusual characteristics. Many of the symbols are found only once or twice, and a large proportion are confined to Harappa and Mohenjo-Daro. Is this because these sites are the most thoroughly excavated, or because they were largely a phenomenon of these cities? And is this a writing system at all, or were they instead some other kind of symbolic system? We don't know, in part because they can't be read. We don't know what they are saying, so we can't say whether this is true writing or something else. It remains a mystery.

What was the past like? What did our ancestors think about? Were they like us or were they different? And if they were different, how different were they? We have lots of mysteries to solve about the past, and there are many ways to go about it. Archaeology is a major medium through which we seek to understand our ancestors, and it is the only way to understand the past for the vast majority of human history. I'm not going to say that there aren't other ways to think about history, and some of these may be satisfying. But I will stand by the idea that we owe it to our ancestors to do the best that we can to portray them accurately. This means giving them credit for what they've done, playing by the rules of evidence, being honest when we don't know, but also being honest about what we do know. There are mysteries about the past, but we can't just make up answers to fill the gaps. There is too much evidence that our ancestors were creative, skilled, inspired, talented, and dedicated people. If we don't acknowledge that, but instead undercut their achievements, then we take that away from them. Our ancestors deserve better, and I, for one, think they've earned it.



The "great bath" at the Mohenjo-Daro site in Sindh, Pakistan, is located on a Pleistocene ridge in the middle of the flood plain of the Indus River. The ridge is now buried by the flooding of the plains, but was prominent during the time of the Indus Valley Civilization. The site occupies a central position between the Indus River valley on the west and the Ghaggar-Hakra (now dry) on the east. Inset: An example of a stamp discovered in Mohenjo-Daro with symbols that may possibly be part of a writing system.

FOR GREATER UNDERSTANDING

Questions

1. What statement does Stonehenge make about the people who supported its construction?
2. What seems to be the fairest way of approaching the world's many mysteries from an archaeological standpoint?

Suggested Reading

Crabtree, Pam J., and Douglas V. Campana. *Exploring Prehistory: How Archaeology Reveals Our Past*. 2nd ed. New York: McGraw-Hill, 2006.

Other Books of Interest

Adovasio, J.M., and Jake Page. *The First Americans: In Pursuit of Archaeology's Greatest Mystery.* New York: Modern Library, 2003.

Dillehay, Thomas D. *The Settlement of the Americas: A New Prehistory*. New York: Basic Books, 2001.

Fagan, Brian M. *The Great Journey: The Peopling of Ancient America*. Updated ed. Gainesville: University Press of Florida, 2004.

Possehl, Gregory L. *The Indus Civilization: A Contemporary Perspective*. Lanham, MD: AltaMira Press, 2003.

Wright, Rita P. *The Ancient Indus: Urbanism, Economy, and Society*. Cambridge: Cambridge University Press, 2009.

Websites of Interest

1. The *Tech Herald* website provides an article by Rich Bowden entitled "Earliest Known American Settlers Had Beachcomber Tradition." — http://www.thetechherald.com/article.php/200819/931/Earliest-known-American-settlers-had-beachcomber-tradition
2. The *Wessex Archaeology* website provides extensive information on the "Amesbury Archer." — http://www.wessexarch.co.uk/projects/amesbury/archer.html
3. *Archaeology* magazine provides several articles concerning the Monte Verde, Chile, excavations. Tom Dillehay (University of Kentucky) was the director of the site in 1999 and provided details of work. The article "Monte Verde Under Fire" (October 18, 1999) discusses disagreements with conclusions made about the site and provides several links at the end to other articles. — http://www.archaeology.org/online/features/clovis
4. The *Mohenjo-Daro!* website by Jonathan Mark Kenoyer of the University of Wisconsin, Madison, provides 103 images taken over a thirty-year period of the site. — http://www.mohenjodaro.net

SUGGESTED READINGS

Chippindale, Christopher. *Stonehenge Complete*. 3rd ed. Chapter 17. London: Thames & Hudson, 2004.

Crabtree, Pam J., and Douglas V. Campana. *Exploring Prehistory: How Archaeology Reveals Our Past*. 2nd ed. New York: McGraw-Hill, 2006.

Feder, Kenneth L. *Frauds, Myths, and Mysteries: Science and Pseudoscience in Archaeology*. 6th ed. New York: McGraw-Hill, 2007.

Lupack, Alan. *The Oxford Guide to Arthurian Literature and Legend*. New York: Oxford University Press, USA, 2007.

Stiebing, William H., Jr. *Ancient Astronauts, Cosmic Collisions and Other Popular Theories About Man's Past*. New York: Prometheus, 1984.

These books are available online through www.modernscholar.com or by calling Recorded Books at 1-800-636-3399.

ABOUT THE ARTIST
KAREN KOSKI

Photo courtesy of Karen Koski

An artist with a clear vision that knows no bounds, Karen Koski expresses her inner emotions using a delightful array of colors, varying themes, subjects, and mediums. Her artistry captures the senses and invokes our imagination by bringing to life elements of fantasy, dreams, myths, and legends. A self-taught digital artist for the last six years, her creativity began at an early age, pencil to paper, as she discovered art as a way to deal with difficult situations experienced during her childhood in the UK.

Taking that knowledge and personal experience, Karen continually delivers a passionate appreciation for art, giving a visual voice to distant lands, lost worlds, fairytale creatures, and so much more.

Today, she resides in Northern Ontario, Canada, surrounded by the very essence of nature, which constantly inspires her. Her vision for color and her delight in imagery has won several local competitions, publications, commissions—both personal and commercial as well as ongoing Web-development projects. She continues to produce art regularly, most of which is available for print and can be viewed at her personal gallery at **http://enchantedcanvas.com** or at **http://inertiaK.deviantart.com**.