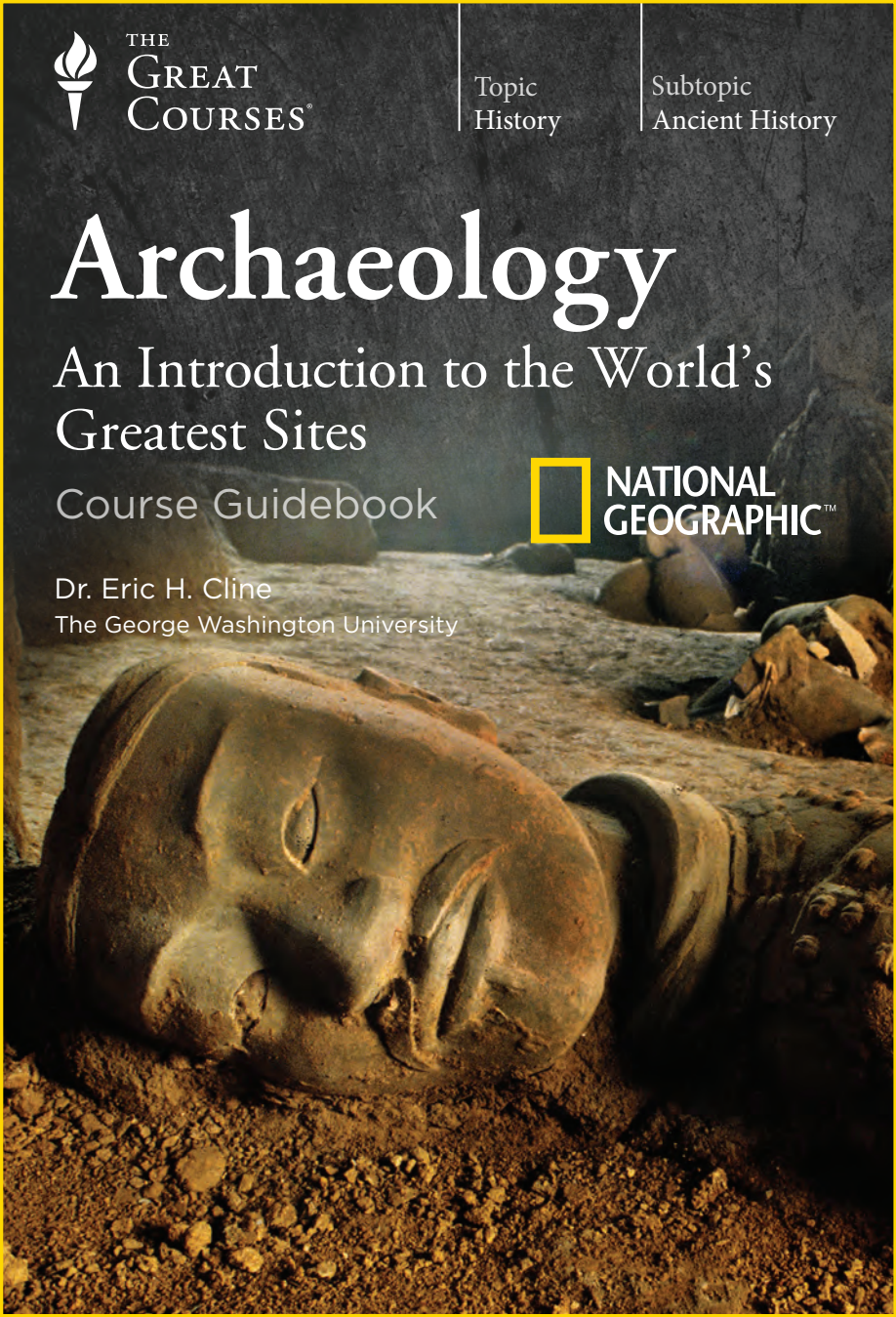
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An Introduction to the World's Greatest Sites
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NATIONAL GEOGRAPHIC™
Dr. Eric H. Cline
The George Washington University

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Dr. Eric H. Cline is a Professor of Classics and Anthropology, the former Chair of the Department of Classical and Near Eastern Languages and Civilizations, and the current Director of The George Washington University (GWU) Capitol Archaeological Institute. He is also a National Geographic Explorer, a Fulbright Scholar, a National Endowment for the Humanities (NEH) Public Scholar, and an award-winning teacher and author. He holds a Ph.D. in Ancient History from the University of Pennsylvania, an M.A. in Near Eastern Languages and Literatures from Yale University, and a B.A. in Classical Archaeology modified by Anthropology from Dartmouth College. In 2015, he was awarded an honorary doctoral degree (*honoris causa*) from Muhlenberg College.

An archaeologist and ancient historian by training, Dr. Cline's primary fields of study are biblical archaeology, the military history of the Mediterranean world from antiquity to the present, and the international connections among Greece, Egypt, and the Near East during the Late Bronze Age (1700–1100 B.C.E.). He is an experienced and active field archaeologist, with more than 30 seasons of excavation and survey to his credit in Israel, Egypt, Jordan, Cyprus, Greece, Crete, and the United States. Dr. Cline is currently codirector of the renewed series of archaeological excavations at the site of Tel Kabri in Israel, which began in 2005. The project is run by the University of Haifa (with Assaf Yasur-Landau) and GWU. Dr. Cline was also a member of the Megiddo Expedition in Israel, excavating at biblical Armageddon for 10 seasons over a 20-year period, from 1994 to 2014. In 2015, Dr. Cline was named a member of the inaugural class of NEH Public Scholars, receiving the award for his next book project.

At GWU, Dr. Cline has won the Oscar and Shoshana Trachtenberg Prize for Teaching Excellence and the Oscar and Shoshana Trachtenberg Prize for Faculty Scholarship; he is the first faculty member at GWU to have won both awards. He also won the national Excellence in Undergraduate Teaching Award from the Archaeological Institute of America. Dr. Cline teaches a wide variety of courses at GWU, including Introduction to Archaeology, History of Ancient Greece, History of Egypt and the Ancient Near East, and History of Ancient Israel, as well as various smaller honors and freshmen seminars. He has also served as the advisor to undergraduate archaeology majors at GWU since 2001.

Dr. Cline's most recent book, *1177 B.C.: The Year Civilization Collapsed*, received the 2014 Award for the Best Popular Book from the American Schools of Oriental Research and was considered for the 2014 Pulitzer Prize. Three of his previous books have won the Biblical Archaeology Society's award for Best Popular Book on Archaeology. His books have also been featured as a main selection of the Natural Science Book Club, a main selection of the Discovery Channel Book Club, a *USA TODAY* "Books for Your Brain" selection, and a selection of the Association of American University Presses for Public and Secondary School Libraries.

A prolific researcher and author with 16 books and more than 100 articles and book reviews to his credit, Dr. Cline is perhaps best known for such books as *The Battles of Armageddon: Megiddo and the Jezreel Valley from the Bronze Age to the Nuclear Age*; *Jerusalem Besieged: From Ancient Canaan to Modern Israel*; *From Eden to Exile: Unraveling Mysteries of the Bible*; *Biblical Archaeology: A Very Short Introduction*; and *The Trojan War: A Very Short Introduction*. His books have been translated or are being translated into 14 languages. His research has been featured in *The Washington Post*, *The New York Times*, *U.S. News & World Report*, *USA TODAY*, *National Geographic News*, CNN, the London *Telegraph*, the London *Mirror*, the Associated Press, and elsewhere, His books have been reviewed in *The Times Literary Supplement*, *Times Higher Education*, *The Jerusalem Post*, the *Cincinnati Enquirer*, the *History News Network*, *Jewish Book World*, and many professional journals.

Dr. Cline has also appeared in more than 20 television programs and documentaries, including those on ABC, the BBC, the National Geographic Channel, HISTORY, and the Discovery Channel. Dr. Cline has been interviewed by syndicated national and international television and radio hosts on such shows as ABC's *Good Morning America*, Fox News Channel's *America's Newsroom*, the BBC World Service's *The World Today*, NPR's *Public Interest*, and *The Michael Dresser Show*. In addition, he has presented more than 300 scholarly and public lectures on his work to a wide variety of audiences both nationally and internationally, including at the Smithsonian Institution in Washington DC, The Metropolitan Museum of Art in New York, and the Skirball Cultural Center in Los Angeles. ■

Table of Contents

SUPPLEMENTAL MATERIAL

Archaeology: An Introduction to the World's Greatest Sites

Scope:

What, exactly, is it that archaeologists do? Although tremendous numbers of people are fascinated by the idea of archaeology, many have little idea what is involved. Indeed, many people picture an archaeological excavation as an Indiana Jones movie.

This course is meant to set the record straight. It is an introduction to archaeology for the general public that provides answers to the questions archaeologists are asked most frequently: How do archaeologists find ancient sites? What happens during an actual excavation? How do we know how old something is?

In answering these questions, this course provides the inside story of what it is that archaeologists actually do and how they do it. We will learn how what began as a haphazard search for famous sites of ancient history evolved into a highly organized, professional, and systematic study of the peoples and cultures of the past—progressing from the first crude excavations at Herculaneum to the high-tech methods being used at Teotihuacan today. We'll also get firsthand insight into how cutting-edge technology has forever changed the field.

In addition, we will discuss some of the most famous archaeological discoveries of all time, including the tomb of King Tut, the Uluburun shipwreck, the Nazca Lines, and the amazing terracotta warriors. These discoveries are arranged thematically, both chronologically and geographically. We'll travel the world—from Ur in Mesopotamia to China's Shanxi Province, from Masada in Israel to the ancient town of Akrotiri in Greece, from Sutton Hoo in England, to Machu Picchu in Peru. We'll

also include forays into Spain and France, Italy and North America, Africa, Mexico, and Turkey.

Whether you're new to the subject or you're an archaeology enthusiast, this course will provide an unparalleled glimpse into a critical source of historical knowledge. ■

Lecture 1

The Origins of Modern Archaeology

The field of archaeology began as a haphazard search for ancient statues and famous sites of history but has evolved into a highly organized, professional, and systematic study of the peoples and cultures of the past. In this course, we'll explore some of the most famous archaeological discoveries of all time, and we'll look at how cutting-edge technology has changed the field. By the end of the course, you'll be an expert in excavation, and you'll possess a deeper appreciation for why saving the past matters. Archaeology not only teaches us about the past, but it also connects us to a broader range of human experience and enriches our understanding of our present and our future.

Ancient Archaeologists

- The first archaeologist we know of lived more than 2,500 years ago. He was the Neo-Babylonian king Nabonidus, who ruled in ancient Iraq and Syria during the middle of the 6th century B.C. Nabonidus is known to have excavated ancient buildings and even set up a museum so that he could display the objects he found.

- Nabonidus wasn't the only person in antiquity who was interested in what had come before him. The Greek writer Hesiod, who wrote a poem called *Works and Days* in about 700 B.C., before the time of Nabonidus, referred to the earlier periods in Greece as the Age of Gold, the Age of Silver, and so on. Hesiod lived during a period of regeneration after centuries of the world's first Dark Age, and he called his own time the Age of Iron. Archaeologists still call that period the Iron Age, thanks in part to Hesiod.

Early Modern Archaeologists

- In terms of the modern world, one of the first people to try to look back at the stretch of human history was Archbishop James Ussher. In the 1600s, he went through the Bible and added up the various dates for people mentioned there, such as Noah, Joshua, Abraham, and so on, and came up with the idea that the world had been created about 6,000 years ago—specifically, on October 23, 4004 B.C.

- The origins of modern archaeology probably go back to the early 1700s, when people first started exploring the ancient Italian ruins that had been buried by an explosion of Vesuvius in 79 A.D.
    - Credit here usually goes to a man named Emmanuel Maurice de Lorraine, who was the prince (and, later, duke) of Elbeuf, in Austria. He was living in Italy near Naples at the time and underwrote the first efforts to tunnel into the ground at Herculaneum, a town near Pompeii.

    - His men happened to dig right into the ancient Roman theater at Herculaneum and were able to extract a number of marble statues. Most of these were used to decorate Emmanuel Maurice's estate; others were distributed elsewhere in Europe, including to some museums. Proper excavations at Herculaneum and Pompeii began a few decades later.

- Interestingly, Thomas Jefferson also did a bit of archaeology in the late 1700s. In fact, some think that what he did should count as the first real archaeological excavations conducted in the New World.
    - In about 1784, he excavated a Native American burial mound on his property in Virginia. He was able to tell that there were different layers in the mound and that the bodies in it had been buried at different times.

    - In this, Jefferson was far ahead of his time. Today, the idea of separate layers is known as *stratigraphy*, but it wouldn't become an established part of archaeology until the time of Sir William Matthew Flinders Petrie, who excavated in Egypt and Palestine a century later.

Archaeology in the 19th Century

- By the mid-1800s, serious excavations were underway at a number of ancient sites in the Near East, underwritten by such institutions as the British Museum and the Louvre and conducted by Sir Austen Henry Layard, Paul Émile Botta, and others. They excavated in what is now Iraq at such places as Nineveh and Nimrud and shipped magnificent pieces back to the museums for display. These

pieces include the colossal winged bull and lion statues from the palaces of Sargon II and Ashurnasirpal II that are currently on display at the British Museum.

- Other 19th-century archaeologists, such as John Lloyd Stephens, went exploring in the New World. Stephens, along with a British artist named Frederick Catherwood, traveled in the Yucatan, in modern-day Mexico. They published beautiful books about their travels in the 1840s, in which they reported the discovery of previously unknown Maya sites.

- The fledgling field of archaeology, as it began to grow and solidify, borrowed heavily from other disciplines, especially geology. James Hutton and Charles Lyell, considered to be among the fathers of geology, had suggested theories concerning the stratification of rocks.
  - They believed that the lower down in the earth one went, the earlier the rocks would date; that is, the earlier rocks had been laid down in the strata first, with later levels coming in on top of them.

  - This is similar to what Thomas Jefferson had concluded; it's also a premise that would form the basis of Petrie's excavations.

- Another advance came from a Danish museum curator named C. J. Thomsen, who began cataloguing the objects in the National Museum of Denmark in the 1830s. His results were published in an English edition just before 1850. Thomsen split the museum's collections of antiquities into three periods: the Stone Age, the Bronze Age, and the Iron Age.
  - This system—known as the *three-age system*—was soon adopted throughout Europe and remains in use to this day, though it now has a number of subdivisions. For instance, the Stone Age is divided into the Paleolithic, that is, the Old Stone Age; the Mesolithic, which is the Middle Stone Age; and the Neolithic, the New Stone Age.

- The Bronze Age is frequently subdivided even further, according to location. The timing of the Bronze Age varies depending on where you are in the world; for example, the Bronze Age in China took place at a different time than either the Bronze Age in Europe or the Bronze Age in the ancient Near East.

- By the 1860s and 1870s, Heinrich Schliemann was searching for the legendary city of Troy. Going against the scholars of the day, most of whom didn't think the Trojan War had taken place, Schliemann began excavating at the site of Hisarlik in northwest Turkey and soon announced to the world that he had found Troy. Later, he also announced that he had uncovered the ruins of Mycenae, home to Agamemnon, who led the Greek army in its assault on Troy.

- At around the same time, various people were working to decipher ancient languages. Probably the most famous person in this field is Jean-François Champollion, the brilliant French scholar who is credited with deciphering Egyptian hieroglyphics in 1823.
  - Another language scholar was Sir Henry Rawlinson, who helped to translate the cuneiform script in Mesopotamia in the 1850s. Cuneiform is a wedge-shaped writing system that was used to write Akkadian, Babylonian, Hittite, Old Persian, and other languages in the ancient Near East.

  - Rawlinson cracked the cuneiform system by translating a trilingual inscription written in Old Persian, Elamite, and Babylonian. Darius the Great of Persia, in about 519 B.C., had carved the inscription into a cliff face at the site of Behistun in what is now Iran.

Sir William Matthew Flinders Petrie

- By the end of the 19th century and into the 20th, some of the great early archaeologists began to appear on the scene. One of the most important of these was Sir William Matthew Flinders Petrie.

- Petrie first dug in Egypt, where he trained a group of workmen from a village near modern-day Luxor. To this day, the descendants

of those men, known as *guftis*, still provide much of the skilled labor for archaeological excavations in Egypt. Each *gufti* does the same task that his family has always done; some are pickmen, some are trowelmen, and so on.

- Petrie also dug in what is now modern Israel but was Palestine in his day. Here, he was responsible for the introduction or popularization of a number of concepts that are taken for granted in archaeology today. For example, he applied the concept of stratigraphy, adopted from geology, and argued that earlier things are usually found lower down than more recent things, especially in the man-made mounds known as *tells* that can be seen throughout the Middle East.
    - Of course, Petrie was right; tells are actually made up of one ancient city on top of another, built up over centuries or millennia, and the earliest city is always at the bottom.

The tell (ancient mound) at Megiddo, which is the site of biblical Armageddon, is made up of 20 different cities in layers.

- For example, at Megiddo, the 70-foot-tall mound has no fewer than 20 different cities hidden within it, with the first one, at the bottom, dating back to at least 3000 B.C. and the most recent one, at the top, dating to about 300 B.C.

- Petrie is also one of the people responsible for realizing that broken pieces of pottery removed while digging can be used to help date different levels of a mound. Because styles of pottery go in and out of fashion, certain types can be correlated, especially in conjunction with radiocarbon dating, with fairly specific dates and periods. Petrie also realized that if the same type of pottery is found at two different sites, the levels in which they are found at each site are probably equivalent in time. This has proven to be an extremely useful point.

The idea of separate layers representing successively earlier periods on an archaeological site is known as stratigraphy.

Sir Mortimer Wheeler and Dame Kathleen Kenyon

- Sir Mortimer Wheeler excavated at Maiden Castle in England and Harappa in India. At both sites, he excavated in 5-meter squares, with a 1-meter-wide balk in between the squares, on which excavators could walk, push wheelbarrows, and so on. Wheeler's student Kathleen Kenyon, who is probably best known for digging at Jericho and Jerusalem, brought this method with her when she began excavating in what was then Palestine in the 1930s. It is now known as the Wheeler-Kenyon or Kenyon-Wheeler method.

- This method allows the archaeologist to keep control of the stratigraphy, by looking at the interior sides of each square to see what has already been dug through and to get a visual idea of the history of the area.

- At the end of each season, most archaeological teams in the Near East draw and photograph each of these sections so that they can publish a record of it for others to see and discuss. The reason for this step is that archaeologists destroy the very things they are studying as they dig; thus, it's important to record every detail of the process.

Suggested Reading

Bahn, *100 Great Archaeological Discoveries*.

Fagan, ed., *The Great Archaeologists*.

Fagan and Durrani, *In the Beginning*.

Questions to Consider

1. Might there be a better way to divide and subdivide the periods of antiquity rather than the three-age system that Thomsen created?

2. What do you think of the excavation techniques introduced by Petrie, Wheeler, and Kenyon? Can they be improved upon?

Lecture 2

Excavating Pompeii and Herculaneum

Mount Vesuvius is located near the modern city of Naples, Italy. It is the only active volcano on the mainland of Europe today; as we know, it erupted on August 24, 79 A.D., killing at least 2,000 people in Pompeii, plus others in nearby towns, such as Herculaneum. At the time, Pompeii was a wealthy Roman town; in fact, it may have been something of a resort city—used as a getaway for wealthy members of society wishing to escape from Rome. Herculaneum, too, was a wealthy city, perhaps even more so than Pompeii. In this lecture, we'll look at the destruction and later excavation of these sites.

The Eruption

- We actually have an eyewitness description of the eruption of Mount Vesuvius, contained in two letters written by Pliny the Younger and sent to the Roman historian Tacitus. Pliny was 17 years old at the time and had been staying with his uncle, Pliny the Elder.

- The elder Pliny was in charge of the Roman fleet, which was stationed across the Bay of Naples from Vesuvius, at Misenum. During the eruption, the older Pliny attempted to sail to the rescue and save some of the fleeing survivors, but he died while doing so. The younger Pliny remained at Misenum, watching the eruption. His letters are full of details, based both on what he observed and what was later told to him by the men who had been with his uncle on the ships.

- Pliny's second letter, in particular, brings the story of the eruption to life:

  > Behind us were frightening dark clouds, rent by lightning twisted and hurled, opening to reveal huge figures of flame. … I look back: a dense cloud looms behind us, following us like a flood poured across the land. … [Then] a darkness came that was not like a moonless or cloudy night, but more like the black of closed and unlighted rooms. You could hear women lamenting, children crying, men shouting. … Many raised their hands to the gods,

and even more believed that there were no gods any longer and that this was one last unending night for the world.

- As we know, for centuries afterward, Pompeii, Herculaneum, and other towns lay buried beneath several meters of ash and rock. Pompeii was the first of these towns to be discovered (in 1594), but Herculaneum was the first to be excavated. In the early 1700s, the duke of Elbeuf ordered his men to tunnel into the ground at Herculaneum after he bought the site specifically because ancient pieces of marble had been recovered from the area. The workmen happened to dig into the Roman theater and extracted a number of ancient marble statues.

- The earliest excavations at Pompeii were unprofessional, to say the least, frequently involving simply digging tunnels until something ancient was unearthed. Rather than archaeology, it was more like looting, but it was the first known excavation done in the modern era. However, proper excavations at Herculaneum and Pompeii began a few decades later and have essentially been ongoing ever since.

Herculaneum

- In addition to being hit with ash and pumice, Herculaneum seems to have been the victim of a 30-foot mudflow, known as a *lahar* in geological terms. This filled up the buildings and completely buried the city. Being buried in such a manner essentially preserved Herculaneum, freezing it just as it had been on that August morning in 79 A.D.

- Archaeologists working in 1981 discovered that Herculaneum had suffered yet another horror during the eruption of Vesuvius.
    - Until that point, relatively few human remains had been found, and it had long been assumed that most people had successfully fled or been evacuated. However, in excavations that year and again in the 1990s, archaeologists found the bodies of at least 300 people who had taken refuge in what seem to be boat houses on the shore.

- The people were probably waiting to be picked up by ships from the Roman fleet; however, a blast of heat, estimated at 1000° F, swept through the area. According to forensic anthropologists, the people were probably killed instantaneously. Only their skeletons remained; their skin and internal organs were destroyed by the heat and the hot ash that covered the bodies almost immediately.

- The same intense heat and ash also destroyed other organic material in the town, including private libraries and documents written on scrolls. These were turned into what are described as "cylinders of carbonized plant material." Up to 300 of these scrolls were found intact during the earliest excavations at Herculaneum (in 1752) in a villa that probably belonged to the family of the father-in-law of Julius Caesar.
  - In looking at photographs of these scrolls, it's difficult to see how they could possibly be unrolled or read in any way. But recent investigators have discovered a technique for making out letters written on the scrolls without unrolling them.

  - The technique involves using X-rays in a "laserlike beam," which allows researchers to detect "the … contrast between the carbonized papyrus … and the … ink." It is not yet known whether the technique will work well enough to allow the carbonized scrolls to be read in their entirety, but it is an exciting development in archaeology.

Pompeii

- Excavations at Pompeii first began around 1750. Here, the ash and pumice that covered the town mixed with rain and eventually hardened into the consistency of cement, encasing hundreds of bodies. Over time, the flesh and inner organs of each body decayed slowly, forming hollow cavities in the ash in the shape of the body that had once been buried there.

- In 1863, Giuseppe Fiorelli, the Italian archaeologist in charge of excavating Pompeii, directed his team to pour plaster into these

Early excavators in Pompeii found a town frozen in time from 79 A.D.; bread was still on the tables, a dog remained chained up outside, and bodies were in the streets, some still clutching jewelry and other objects.

cavities, yielding an exact cast of what had originally formed the cavity. In this way, Fiorelli's team recovered the remains of hundreds of bodies, as well other organic materials, such as wooden furniture and loaves of bread. They also recovered nonorganic objects, ranging from jewelry to silverware to jugs made of precious metals.

- The houses in Pompeii were quite elegant, and just as in Herculaneum, they are extremely well preserved. One called the House of the Faun features a bronze statue of a faun, the satyr-like creature that is usually depicted playing the double-pipe. This same house also has the famous Alexander Mosaic, which uses hundreds of thousands of small stone tesserae to depict Alexander the Great fighting the Persian king Darius III.

- The eruption of Vesuvius also buried the gardens that belonged to some of the houses in Pompeii. In 1961, the archaeologist Wilhelmina Jashemski excavated an open area in Pompeii and found the remains of root cavities from the plants that had once been there. In fact, she was able to figure out the planting pattern in what was once a vineyard.

- Elsewhere in Pompeii, archaeologists have uncovered the remains of bath houses, tanneries, shops, and other dwellings that one would expect to find in a city from the period. Some of the most recent findings come from the excavations of Steven Ellis, a professor at the University of Cincinnati. In 2014, after digging in an area by the Porta Stabia, one of the main gates into the city, Ellis announced that he had found 10 separate building plots with 20 shopfronts from which food and drink were sold or served. Such an arrangement seems typical in Pompeii, where even the private houses frequently had shops installed on the street.

- Even more interesting, perhaps, were the drains, latrines, and cesspits that Ellis and his team excavated. In these, they found the remains of "grains, fruits, nuts, olives, lentils, local fish, and chicken eggs, as well as minimal cuts of more expensive meat and salted fish from Spain." In another drain, they found the remains of "shellfish, sea urchin, and even delicacies, including the butchered leg joint of a giraffe."

Paintings, Advertisements, and Graffiti at Pompeii

- The sudden burial of Pompeii preserved the paintings on the walls of the houses and buildings, including scenes that now give their names to the structures. For instance, the Villa of the Mysteries—referring to the mystery cult of Dionysus—gets its name from a scene of bacchanalian revelry on the walls of a small room.

- Outside some of the shops in Pompeii, we can also see written advertisements. One promises a gladiator combat on April 8 through 12, featuring 20 pairs of gladiators and "a full card of wild beast combats." Another specifies the market days for Pompeii, Nuceria,

Atella, and other towns. Outside a pub, yet another advertises the types of drinks and ales served 2,000 years ago.

- Hundreds of campaign notices from a recent or upcoming election have also been found. These notices concern people who were running for vacant offices, such as the office of aedile, which was a relatively lowly job in charge of public buildings, baths, water, sewers, and public festivals. Another was the office of duovir, which was a higher judicial office. Some of these endorsements include: "The goldsmiths unanimously urge the election of Gaius Cuspius Pansa as aedile," and "I ask you to elect Marcus Cerrinius Vatia to the aedileship. All the late-night drinkers support him. Florus and Fructus wrote this."

- Perhaps most interesting are the graffiti that we would usually think of as scrawled on bathroom walls today.
  - For example, one reads: "Take your lewd looks and flirting eyes off another man's wife, and show some decency on your face!" Another was obviously written by someone whose heart had just been broken: "Anybody in love, come here. I want to break Venus' ribs with a club and cripple the goddess' loins. If she can pierce my tender breast, why can't I break her head with a club?"

  - Finally, signaling that some things never seem to change, we find what is apparently a prostitute's sign: "I am yours for 2 asses cash."

- Indeed, looking into the past at such sites as Pompeii and Herculaneum—sites that have been frozen at a precise moment in time—we note a great number of similarities between the past and the present. Of course, we now have iPads and cell phones, but our houses today are not all that different from theirs back then; our food is similar; and we have the same dependence on roads, elected officials, and stores that stock items we need. On the whole, the excavations at these two sites teach us that the ancient inhabitants of the Mediterranean were not that different from people in the same area today.

Suggested Reading

Beard, *The Fires of Vesuvius*.

Berry, *The Complete Pompeii*.

Ellis, *The Making of Pompeii*.

Questions to Consider

1. If we did not have the words of Pliny the Younger, would archaeology alone be enough to reconstruct what happened in Pompeii when Mount Vesuvius erupted in 79 A.D.?

2. What are some of the similarities between life in Pompeii during the 1st century A.D. and life today in terms of diet, housing, elections, and other aspects of city life?

Lecture 3

Schliemann and His Successors at Troy

Our information about the Trojan War comes to us mainly from the Greek poet Homer. According to Homer, during the Late Bronze Age, the Greeks believed that Helen, the wife of a king named Menelaus, had been kidnapped by Paris, a prince of Troy. For their part, the Trojans claimed that Helen went with Paris willingly because she was in love with him. Led by Menelaus and his brother Agamemnon, the Greeks sent a fleet to besiege Troy and get Helen back. After 10 years, the Greeks destroyed Troy and returned with Helen. The question Heinrich Schliemann and others sought to answer was: Was there a historical Trojan War that served as a basis for Homer's epic?

Heinrich Schliemann's Quest and "Discovery"

- The classical scholars of the 19th century in Europe were pretty firmly convinced that the Trojan War had not taken place and was completely invented by Homer. Thus, when Heinrich Schliemann, an amateur in the field of archaeology, decided that he was going to go look for the site of Troy, he was going against the thinking of most scholars of his day.

- By all accounts, Schliemann was not a man whose word could be entirely trusted. But by the time he was in his 40s, he had earned enough of a fortune so that he could retire and devote himself to finding evidence for Troy and the Trojan War.

- In 1868, Schliemann traveled to Greece and Turkey, searching for a site that would match the description of Troy given by Homer. In his travels, he met the American vice consul to Turkey, Frank Calvert, who had also been looking for Troy and believed that he had found it. In fact, he had already bought the ancient mound, which now had the modern Turkish name Hisarlik, meaning "Place of Fortresses."

- Calvert had already begun excavations at the site but didn't have enough money to continue the work. Schliemann had plenty of

Heinrich Schliemann was intent on finding Troy and proving that the Trojan War had taken place, claiming that the quest had been a childhood dream.

money and was happy to join forces with Calvert. However, once they began excavating and Schliemann decided that the mound was indeed the site of ancient Troy, he deliberately left Calvert's name out of all subsequent official announcements, lectures, and publications, thereby claiming the fame and glory for himself.

Schliemann's Early Excavations

- In 1872, Schliemann began his greatest assault on Hisarlik. Using a large team of local workmen, he dug a huge trench across most of the mound and down to a depth of about 45 feet. Although archaeology was a relatively new field at the time, there were still people who were knowledgeable enough, including Calvert, to warn Schliemann that such reckless digging might result in catastrophe—and they were right.

- Schliemann and his men dug deeper into the trench, through buildings and stratigraphic levels. It turned out that there were nine cities buried on top of one another in the mound, although Schliemann thought at first that there were only six.
    - He stopped at what turned out to be the second city from the bottom, which he called the Burnt City. He was convinced that this was the city ruled by the Trojan king Priam, and his discoveries the next year confirmed to him that he was correct.

    - We now know, on the basis of pottery and carbon-14 dating, that Schliemann's Burnt City dates to 2400 B.C., during the Early Bronze Age, which is more than 1,000 years before the Trojan War would have been fought.

    - If you stand at the bottom of Schliemann's Great Trench today, at the level where he and his men stopped digging, and look straight up, you can see a level that contains a building made out of huge blocks of stone. This building dates to the period of city VI and was reused in city VII. It is all that's left of a palace that dates to the Late Bronze Age, that is, the time period for which Schliemann was looking.

Priam's Treasure

- What convinced Schliemann that city II was Priam's Troy? For one thing, he found a huge city gate, which he identified as Homer's Scaean Gate. He also reported that he had found Priam's Treasure.

- According to Schliemann, he and his wife, Sophia, dug out the treasure themselves. The objects they discovered included gold jewelry, bronze tools, gold and silver cups and bowls, a golden vessel in the shape of a pomegranate, and stone hilts that probably belonged to bronze swords. The Schliemanns brought the objects home from the site and catalogued them.

- They subsequently smuggled the treasure back to their residence in Athens. But soon thereafter, Schliemann donated it to the Berlin Museum. The treasure disappeared in the aftermath of World War II and was presumed lost for nearly 50 years. In the early 1990s, the Russians admitted that they had taken it as part of the spoils of war.

- Today, Priam's Treasure is in the Pushkin Museum in Moscow. It remains there despite the fact that four countries now lay claim to it: Turkey, Greece, Germany, and Russia. Interestingly, the question of who owns the treasure is irrelevant because it's neither Priam's nor a treasure.

- Given that the objects were found in city II, which dates back to about 2400 B.C., they are 1,000 years too early to have belonged to Priam. In addition, some scholars have suggested that Schliemann didn't even find the treasure in one place. Instead, they think he gathered the best of his finds from the season and announced that he had found them all together. In fact, we may never know what actually transpired.

- The objects bear a great deal of resemblance to objects found elsewhere, from the islands of the northeast Aegean to the so-called Death Pits of Ur. The gold earrings, pins, and necklaces that Schliemann found may not have belonged to Priam, but they did belong to a class of jewelry that was in fashion across

much of the Aegean and the ancient Near East at the end of the 3rd millennium B.C.

The Excavations of Dörpfeld and Blegen

- Schliemann continued to dig at Troy throughout the 1870s and 1880s with the assistance of Wilhelm Dörpfeld, an architect with some previous archaeological experience. Dörpfeld eventually persuaded Schliemann that they should investigate city VI or city VII. Schliemann made plans for an additional attack on the mound, focused on these later levels, but he died in 1890.

- Dörpfeld concentrated on excavating the remains at Hisarlik that Schliemann had left untouched, mostly around the edges of the mound. He unearthed tall stone walls, each several meters thick, and large gateways allowing entrance to the interior.

- These were the remains of city VI, which seems to have lasted from about 1700 B.C. to 1250 B.C. Dörpfeld found numerous phases to the city, which he categorized A through H. The last phase, Troy VIH, showed signs of almost complete destruction. For Dörpfeld, this was definitive evidence for the Trojan War. He ended his excavations and published his results.

- However, Carl Blegen, an archaeologist at the University of Cincinnati, examined Dörpfeld's results and correctly concluded that an earthquake, not warfare, had caused the destruction of Troy VIH. Blegen believed that city VII had been besieged and destroyed by an army; thus, he reopened the excavations at Hisarlik in the 1930s.

- Blegen found enough evidence, including arrowheads, bodies, and other indications of battle, to convince himself that city VII had been destroyed by humans in a protracted siege.
    - He also found that the large buildings and palaces of the previous city had been subdivided to allow several families to live where only one had been previously. Further, he noted that the storage capacity of the city had been increased tremendously, with large jars buried up to their necks in the ground.

- To Blegen, all this indicated a city that was under siege, just as Homer had said. The fact that the city had been destroyed about 1180 B.C. also put it in the timeframe suggested by the ancient Greeks.

- Moreover, the material culture of the city showed continuity between Troy VI and VII. In other words, there was no evidence of a new group of people in city VII; rather, it appeared that the people in city VI had rebuilt their city. For these reasons, Blegen was convinced that an earthquake had destroyed city VI, while the Mycenaean Greeks had destroyed city VII during the Trojan War.

Recent Excavations

- Beginning in 1988, an international team of archaeologists decided to investigate the mound of Hisarlik again. This team was led by two men: Manfred Korfmann from the University of Tübingen, investigating the Bronze Age remains, and Brian Rose from the University of Cincinnati, investigating the post–Bronze Age remains.

- Korfmann's team surveyed the agricultural fields around Hisarlik using a magnetometer, which enabled them to detect walls, ditches, and buildings lying below the surface of the earth. Thanks to this device, the researchers realized that they had found an entire lower city of Troy beneath the agricultural fields. All the earlier archaeologists had simply been excavating the citadel—or upper part—of the city. The remains found by Korfmann's team increased the size of the city at least tenfold and established it as a site that would indeed have been worthy of a 10-year-long siege.

- Although Korfmann's team misinterpreted some of their initial results—mistaking a large ditch for the great wall of the city—some of their findings seemed to confirm Blegen's work. For example, in both the citadel and the lower city, they also found evidence for earthquake destruction in city VI and human destruction—warfare—in city VII.

- In addition, Korfmann's work confirmed Blegen's findings that after the city was destroyed in about 1180 B.C., the next city was occupied by what seem to be new people. In this phase, called Troy VIIb, we see new types of pottery, new architecture, and other material culture—all indications that the inhabitants of the previous city had been replaced by a new group.

- As the Hisarlik digs continued, the post–Bronze Age team, led by Brian Rose, found a great deal of material, too, including a statue of the Roman emperor Hadrian and a marble head of Augustus. The Hellenistic Greeks and then the Romans had built on the citadel and established a nicely gridded city below. These later inhabitants were also convinced that this was the site of ancient Troy; in fact, they gave it the name New Troy in both Greek and Latin.

- Korfmann died suddenly in 2005, but the international excavations continued. Interest both in digging and remote sensing in and around the site continues even now, which means that Hisarlik may reveal even more secrets about the ancient town that inspired one of the greatest epics ever written.

Suggested Reading

Cline, *The Trojan War: A Very Short Introduction*.

Strauss, *The Trojan War: A New History*.

Wood, *In Search of the Trojan War*.

Questions to Consider

1. Do you believe that Schliemann actually found Priam's Treasure?

2. Do you think that Troy VIh or Troy VIIA is more likely to be Priam's city?

Lecture 4

Early Archaeology in Mesopotamia

The site of ancient Ur is situated on the Euphrates River in modern Iraq, north of where the river empties into the Persian Gulf. This is the region known as ancient Mesopotamia, a name that means "between the rivers"—that is, the Tigris and Euphrates. Ur was a site famous in antiquity, with all the typical features of a Bronze Age Mesopotamian city, including religious structures known as ziggurats. Beginning in 1922, the site was excavated by Sir Leonard Woolley and his right-hand man, Max Mallowan. But it wasn't until the fifth field season, in 1926–1927, that they began digging the cemetery at the site—the famous Death Pits of Ur that had captured the attention of Europe.

Royal Burials at Ur

- Between 1927 and 1929, Sir Leonard Woolley and Max Mallowan uncovered 16 royal burials at Ur. The royal burials date to about 2500 B.C. and were quite impressive compared to the many other burials found in the cemetery at Ur. Each tomb usually had a stone chamber, either vaulted or domed, into which the royal body was placed. The chamber was at the bottom of a deep pit, with access possible only via a steep ramp from the surface. Precious grave goods were mostly found in the burial chamber with the body, while wheeled vehicles, oxen, and attendants were found in both the chamber and in the pit outside.

- Numerous attendants were found in the Death Pits: One tomb had more than 70 bodies that went with their master or mistress into the afterlife. Most of these were women, but men were present, as well. Woolley assumed that they had drunk poison after climbing down the ramp into the pit, but CT scans of some of the skulls done in 2009 indicate that at least some of these people had been killed by having a sharp instrument driven into their heads just below and behind the ear while they were still alive. Death would have been instantaneous.

Scenes on the Standard of Ur found in the Death Pits seem to depict a battle, followed by presentation of loot to the king and a victory banquet.

- The grave goods that Woolley and Mallowan found with the royal bodies were amazing, despite the fact that many of the graves had been looted in antiquity. Among the finds were gold tiaras, gold and lapis jewelry, gold and electrum daggers, and a gold helmet. There were also delicate sculptures, the remains of a wooden harp with ivory and lapis inlays, and a wooden box with inlays that Woolley dubbed the Standard of Ur.

Henry Rawlinson and Paul-Émile Botta

- Among the first modern scholars and archaeologists who worked in Mesopotamia was Sir Henry Rawlinson, who helped to decipher and translate cuneiform script in the 1830s. Cuneiform is a wedge-shaped writing system that was used to write Akkadian, Babylonian, Hittite, Old Persian, and other languages in the ancient Near East.
  - Rawlinson, who was a British army officer posted to what is now Iran, cracked the secret of cuneiform by translating a

trilingual inscription that was written in Old Persian, Elamite, and Babylonian. Darius the Great of Persia had carved the inscription 400 feet above the desert floor into a cliff face at the site of Behistun in about 519 B.C.

- By 1837, about 10 years before the copying of the entire inscription was completed, Rawlinson had figured out how to read the first two paragraphs of the part that was written in Old Persian. It reportedly took him another 20 years to decipher the Babylonian and Elamite parts of the inscription and successfully read the whole thing.

- Along the way, however, Rawlinson was able to use his knowledge of cuneiform to begin translating some of the inscriptions that British archaeologist Sir Austen Henry Layard was finding at his excavations in what is now Iraq. In fact, Rawlinson was able to confirm that Layard had found two ancient sites that, up until that point, had been known only from the Bible.

- Paul-Émile Botta was an Italian-born archaeologist who worked for the French. In December 1842, he began the first archaeological excavations ever conducted in what is now Iraq. Botta's first efforts were concentrated on the mounds known as Kuyunjik, which are across the river from the city of Mosul. However, he didn't find much there and quickly abandoned his efforts.
  - From one of his workmen, Botta learned that some sculptures had been found at a site called Khorsabad, which was located about 14 miles to the north. In March 1843, he began excavating there and, within a week, began to unearth a great Assyrian palace.

  - At first, Botta thought that he had found the remains of ancient Nineveh, but now we know that Khorsabad is the ancient site of Dur Sharrukin, the capital city of the Neo-Assyrian king Sargon II (r. 721–705 B.C.).

Austen Henry Layard

- Beginning in 1845, Sir Austen Henry Layard undertook his initial archaeological efforts at Nimrud, which he first thought was ancient Nineveh. Amazingly, on the first day of digging, his team of six local men found not one but two Assyrian palaces! Today, they are usually called the Northwest and Southwest Palaces.
    - From the inscriptions Layard found, it eventually became clear that the Northwest Palace was built by Assurnasirpal II (r. 884–859 B.C.), and the Southwest Palace was built by Esarhaddon (r. 680–669 B.C.). Later, a Central Palace was discovered at the site, built by Tiglath-Pileser III (r. 745–727 B.C.). Shalmaneser III (r. 858–824 B.C.) also had buildings and monuments constructed at the site.

    - Layard published a book about his amazing discoveries at Nimrud. The book was called *Nineveh and Its Remains*, but when the inscriptions from the site were finally deciphered, they confirmed that it was actually ancient Kalhu (biblical Calah), rather than Nineveh.

    - As it turns out, Kalhu was the second capital city established by the Assyrians, the first being Assur itself. It served as their capital for almost 175 years, from 879 to 706 B.C. After that, Sargon II moved the capital to Dur Sharrukin for a brief period, and then Sennacherib moved it to Nineveh.

- In 1849, Layard returned to Mosul for another round of excavations, but this time, his primary focus was Kuyunjik, the mound that Botta had abandoned seven years earlier. Layard's men immediately began unearthing walls with reliefs and images, and translation of the tablets found there confirmed that this was the actual site of ancient Nineveh. By the time Layard and several other excavators were done, a palace of Sennacherib (r. 704–681 B.C.) had been uncovered, as well as a palace of Assurbanipal, Sennacherib's grandson (r. 668–627 B.C.).
    - Sennacherib, who had moved the Assyrian capital from Dur Sharrukin after he came to the throne, built what he called the

Wall reliefs and tablets found by Austen Henry Layard helped confirm the identity of Kuyunjik as the ancient site of Nineveh.

Palace without Rival at Nineveh. Today, the palace is probably most famous for the Lachish Room. Here, Layard found wall reliefs showing Sennacherib's capture of the city of Lachish in 701 B.C. At that time, Lachish was the second most powerful city in Judah; Sennacherib attacked it before proceeding on to besiege Jerusalem.

- The capture of Lachish is described in the Hebrew Bible, as is the siege of Jerusalem. Layard's discovery was one of the first times that an event from the Bible could be confirmed by extrabiblical sources.

- Twentieth-century excavations at the site of Lachish, in what is now Israel, not only confirmed the destruction of the city in about 701 B.C. but also revealed an Assyrian siege ramp,

built of tons of earth and rocks and looking similar to ramps depicted in Sennacherib's reliefs.

- The Nineveh reliefs are full of gruesome scenes, including captives having their tongues pulled out and being flayed alive, along with decapitated heads displayed on a pole. It is universally accepted that the Assyrians actually committed such atrocities, but the depiction of them in Sennacherib's palace is most likely meant as propaganda—a means to deter other kingdoms from rebellion.

- It's important to note that Layard was not a trained archaeologist. He frequently left the middle of rooms unexcavated and wasn't particularly interested in any of the pottery his men uncovered. He was, however, interested in the inscribed slabs that made up the walls of rooms, as well as the colossal statues. Many of these were shipped back to the British Museum, where they can be seen today.

Continuing Excavations

- In 1853, Hormuzd Rassam, Layard's protégé and successor at Nineveh, discovered Assurbanipal's palace, literally under the nose of Botta's successor, Victor Place, who was digging in the same spot.
  - Rassam and his men dug secretly for three straight nights in disputed territory on the mound; when their trenches first revealed the walls and sculptures of the palace, Place could do nothing but congratulate them on their finds.

  - Within the palace, Rassam found a tremendous library of cuneiform texts, just as Layard had done previously in Sennacherib's palace. In fact, it is generally considered that the state archives were split between the two palaces, even though they were two generations apart. Apart from state documents, Rassam found religious, scientific, and literary texts, including copies of the Epic of Gilgamesh and the Babylonian flood story.

- In 1872, nearly 20 years after Rassam first found the tablets, a man named George Smith was employed at the British Museum, sorting out the tablets that Rassam had sent back from Nineveh.
    - At one point, Smith discovered a large fragment that gave an account of a great flood, similar to the deluge account found in the Hebrew Bible. When Smith announced his discovery at a meeting of the Society of Biblical Archaeology in December 1872, all of London was abuzz with excitement.

    - The problem, though, was that a large piece was missing from the middle of the tablet. A reward was promised to anyone who would go look for the missing fragment, and Smith himself decided to take on the challenge, even though he had never been to Mesopotamia and had no training as an archaeologist.

    - Amazingly, just five days after he arrived at Nineveh, Smith found the missing piece by searching through the back-dirt pile of previous excavators. He also found about 300 other pieces from clay tablets that the workers had discarded.

- The 19th-century excavations at Nimrud, Nineveh, Khorsabad, Ur, Babylon, and other sites began an era of excavation in the region that continues to this day. As recently as 1988, spectacular discoveries were made at Nimrud by local Iraqi archaeologists. They uncovered the graves of several Assyrian princesses from the time of Assurnasirpal II in the 9th century B.C. Foreign excavations were suspended in Iraq around 1990 but are now being resumed and may lead to yet more exciting discoveries.

Suggested Reading

Fagan, *Return to Babylon*.

Lloyd, *Foundations in the Dust*.

Roux, *Ancient Iraq*.

Questions to Consider

1. Was it proper for the British Museum and the Louvre to sponsor expeditions to acquire material for their collections?

2. How can we protect antiquities in lands that are ravaged by civil wars and/or invaders bent on destruction?

Lecture 5

How Do Archaeologists Know Where to Dig?

In their textbook *In the Beginning: An Introduction to Archaeology*, Brian Fagan and Nadia Durrani define a *site* simply as a place "where traces of past human activity are to be found." Some sites are fairly obvious. For example, when you look at the Athenian acropolis or the mound of Megiddo in Israel, you know that you're looking at an ancient site. But other sites can be almost indiscernible—as small as a scatter of flakes where someone once made a stone tool. In this lecture, we'll explore the concept of archaeological surveying, that is, the process of looking for sites. We'll also learn about the various types of remote sensing now being used by archaeologists.

Ground Reconnaissance

- There are two basic ways to find sites: doing reconnaissance on the ground and doing it from the air or from space. Ground surveys first began to be popular in the 1960s and 1970s and gained speed in the 1980s, in part because they are usually a much cheaper alternative to digging and can cover a great deal more ground. They also allow archaeologists to ask and answer different types of questions than they can when digging a single site.

- For instance, we might want to investigate how intensively a specific area in Greece was occupied during the Bronze Age. Did that settlement pattern change during the following Dark Ages? What happened when things began to return to normal and we get into the eras of Archaic and Classical Greece? What happened in the region when the Romans arrived? What was it like in the Byzantine period, the Ottoman period, or the modern period?

- Ground surveys can help answer these kinds of questions. By doing surveys and identifying various sites from different periods in the area, we can construct a history of the region without ever digging at a single site. Of course, many surveys lead to an excavation afterwards.

Aerial Surveys

- These days, instead of leading with a ground survey, it generally makes more sense to start with aerial surveys. This type of survey can be as simple as buying aerial photographs or satellite images or as complicated and expensive as arranging for overhead flights using light detection and ranging (LiDAR. a remote-sensing technology) to survey an area. Among the images that can be purchased are declassified military satellite images, high-resolution images sold by private companies, and images taken from the space shuttle.
    - Interestingly, buried walls, earthworks, and other large constructions associated with settlements can often be seen more easily from the air than they can be seen on the ground, even if you are walking right over them. Often, aerial images reveal *crop marks*, which mark the precise locations of buried items, such as ditches, walls, and other structures.

    - Such buried structures affect the soil and, thus, the vegetation that grows directly above them. Very simply, if there is a buried ditch below the modern surface, the vegetation growing directly above it will be higher and more lush than the surrounding vegetation because there are more nutrients in the soil in that spot. If there is a buried wall below the modern surface, the vegetation growing directly above it will be less dense and lush than the surrounding vegetation because there are fewer nutrients in the soil.

    - Although these differences in height and density might be almost imperceptible at ground level, from the air, they are immediately obvious, especially in the spring.

- Recently, archaeologists who have enough funding have been using LiDAR, a remote-sensing technology that works like radar but uses light from a laser to produce highly accurate measurements. LiDAR is especially useful in such places as Central America, because it can quite literally see through the trees in a jungle or rain forest and can provide images of lost temples, buildings, and even cities that are completely overgrown and almost inaccessible.

- Some archaeologists are now also using small drones to fly above areas of interest. These allow investigators to take either low-level or high-level photos of a region and have the results sent directly to a computer.

Other Remote-Sensing Techniques

- Ground-penetrating radar works exactly as you might imagine, by having radar signals bounce back from buried objects, such as walls. The newest versions of this technique are extremely powerful and able to "see" down nearly 4 meters (about 12 feet). This has resulted in some incredible discoveries being reported from the area of Stonehenge in England in 2014 and 2015, including the fact that Stonehenge was apparently once a complete circle.
    - Using ground-penetrating radar, as well as magnetometers and other remote-sensing techniques, archaeologists have been involved in the Stonehenge Hidden Landscapes Project. In just a few years, they have detected Bronze Age burial mounds, Iron Age shrines, and enclosures for cows and other livestock that are either Bronze Age or Iron Age, none of which had ever been noticed before. Most exciting is that they have also found another megalithic monument that is less than 2 miles from Stonehenge and probably dates to about the same time, that is, 4,500 years ago.

    - Some are now calling this site Superhenge. It consists of more than 50 giant stones that formed a large C-shaped enclosure. The stones are each about 10 to 15 feet long and about 5 feet wide. All of them are buried horizontally, rather than standing upright, and are about 3 feet below the surface, which is why they hadn't been spotted before. It is only through remote-sensing techniques that they have now been discovered and recorded.

- In addition to ground-penetrating radar, another technique involves electronic resistivity or conductivity, which basically works by running an electric current through the ground between two poles. If a buried wall or similar structure is in the way, it will

interrupt the current; if there is nothing buried in the location, the current won't be interrupted. The result is a rather fuzzy picture of what is belowground with little information about its exact location under the surface.

- Magnetometers measure the magnetic field in areas that are of interest to archaeologists. Buildings, ditches, or other archaeological features that are buried underground may show up on magnetometer readings because such things affect the magnetic field in the area. In some cases, however, these structures may not appear; the success rate depends on characteristics of the soil and the type of magnetometer in use.
    - At David Schloen's excavations at Zincirli in Turkey, for example, using a magnetometer worked so well that the results look like a photograph of excavated ruins—except that the ruins are still buried!

    - In contrast, attempts to use a magnetometer at Tel Kabri in Israel have failed rather miserably so far, probably because of the nature of the soil at the site. Sometimes, archaeologists just have to dig to find out what is beneath the surface.

Ground Surveys

- In cases where satellite imagery and other high-tech solutions don't work, archaeologists must resort to the tried-and-true methods of finding sites by conducting ground surveys, usually on foot.

- There are two types of ground surveys. One is the large-scale *reconnaissance survey* that is intended to cover a large area quickly. The other is the *intensive survey*, which usually involves returning to a single site or a small area that was identified during the reconnaissance survey as being particularly promising.

- In areas where the number of sites or the time period is unknown, archaeologists usually start with a general reconnaissance survey. Typically, this involves team members painstakingly walking over every square meter of an area.

- The team may divide into groups of about six people each. After identifying the site, the group members spread out, about 30 feet apart, and start walking forward. Usually, they cover about 100 yards at a time in this fashion. This technique is known as *walking a transect*.

- As they walk, the group members look at the ground for pottery sherds, stone tools and flakes, ancient walls, or anything else that might mark the remains of an ancient settlement. They keep track of the number of artifacts they find using "clickers," and by the time they reach the end point of the transect, they have a record of the number of the artifacts seen during each stage of the 100-yard walk.

- Pottery is not biodegradable, and broken pieces always work their way to the surface of the ground. Thus, if you're walking across a site that was inhabited in the Bronze Age, the Iron Age, Roman times, and Byzantine times, you will see sherds from all those periods on the ground. And as you record the sherds on your clicker, the numbers will increase as you enter the boundaries of the site on one side, then walk through the middle of what had been the inhabited area. Then, after you exit the boundary of the site on the other side, the numbers on the clicker will drop.

- The team members give their numbers to the team leader, who records them in a notebook and marks the probable site on the map for later examination by the follow-up team.

- This process is repeated in 100-yard increments until the team reaches the end of the designated area for the day. Once the team members have reached that end point, they turn around and repeat the process, going back toward where they started. In this way, a team can traverse and record all the sites in a chosen area.

- Back at camp, the results of each day's survey are recorded, and from these results, a running list is developed. The list indicates how many sites have been found, the periods they represent, and where they are located. The most promising of these possible sites then receive a visit from a team of experienced surveyors.

- There are many variations of this kind of surveying, including those that cover specific portions or randomly chosen portions of an area that is simply too large to survey in its entirety. In such cases, statistics are used to decide the areas to be sampled.

- Finally, targeted surveys involve revisiting sites that have been previously discovered; essentially, a targeted survey is similar to the second half of the ground survey just described, except that the sites may have been found by more than one project and over a number

Surveyors collect diagnostic pottery sherds, including rims, handles, bases, and anything decorated, to allow pottery experts to identify the periods represented at a site.

of years. The goal of such a survey may be to confirm or refine the dating previously assigned to a site or answer similar questions.

Suggested Reading

Howard, *Archaeological Surveying and Mapping*.

Leach, *The Surveying of Archaeological Sites*.

White and King, *The Archaeological Survey Manual*.

Questions to Consider

1. What do you think of the increasing use of satellite photographs, LiDAR, and other high-tech imaging to find ancient sites? Is it a good use of resources?

2. Is it enough to simply find and locate ancient sites, then end the project? Should excavating always follow surveying?

Lecture 6

Prehistoric Archaeology

In this lecture, we'll explore prehistoric archaeology, otherwise known as paleontology or palaeoanthropology. This field allows us a unique glimpse into the earliest times of hominid and human history. In particular, we'll look at several discoveries of hominid remains and footprints, and we'll explore paintings on the walls of caves in France and Spain dating to at least 30,000 years ago. As we'll see, palaeoanthropology is a fast-moving field of research, with more discoveries made every year.

Hominid Finds

- The most famous family in prehistoric archaeology is the Leakey family, with Louis and Mary in the first generation; their son Richard and his wife, Meave, in the second generation; and their daughter Louise in the third generation.
    - Louis was the founder of the dynasty, along with Mary. He was one of the first people to argue that human origins should be sought in Africa rather than in Asia, which had been the generally accepted theory. He turned out to be correct, though it took a while for others to adopt his point of view. His case was helped by the finds that he and Mary made beginning in 1948 and, later, in 1959. At that time, they were working in a canyon or ravine known as Olduvai Gorge in Tanzania.

    - Here, Louis and Mary found skeletal fragments that they identified as coming from a new species of hominid, which they ultimately named *Australopithecus boisei*. The Leakeys originally thought that it dated to about 600,000 years ago, but another dating technique showed that it was closer to 1.75 million years old. The Leakeys promptly followed this discovery by another one the next year of another new hominid species, *Homo habilis* ("handy man").

    - After Louis died in 1972, Mary made what is considered to be her most significant discovery: the hominid footprints at

Laetoli, found in 1978 and 1979. The site is located about 45 kilometers southeast of Olduvai Gorge. The famous footprints were made by several individuals who were walking across freshly fallen ash from a nearby volcano about 3.5 million years ago. In all, Mary Leakey and her team found about 70 human footprints that go on for almost 90 feet. It is usually suggested that the footprints were made by hominids called *Australopithecus afarensis*.

- These are not the only footprints that we have now, however. A team led by Dave Braun and Brian Richmond found another series of footprints in 2007 and 2008 at Koobi Fora. These are about 1.5 million years old and were probably made by *Homo erectus*, a direct ancestor of modern humans.

- In 1974, Donald Johanson found Lucy at the site of Hadar in Ethiopia. Lucy died about 3 million years ago at about the age of 20. She has been identified as an *Australopithecus afarensis*, similar to the individuals who left their footprints at Laetoli 500,000 years earlier. It is believed that she would have stood about 3 feet, 6 inches to 4 feet tall and weighed about 65 pounds.

- Today, the discoveries keep coming. The October 2015 issue of *National Geographic* magazine featured a story about a find made by Lee Berger and his team in a South African cave called Rising Star. They discovered more than 1,500 bones from at least 15 individuals, which Berger thinks belong to previously unknown hominin species, now named *Homo naledi*. These bones may be up to 2.8 million years old.

- Just a few years earlier, Berger had announced another discovery of early hominin fossils from a cave near Johannesburg in South Africa. These were excavated in August 2008 and were officially named *Australopithecus sediba* in 2010. Berger dates them to about 1.78 to 1.95 million years ago.

Cave Discoveries

- Dorothy Garrod is widely recognized as one of the most important early female archaeologists; she specialized in the Paleolithic period, or Old Stone Age (from about 2.6 million years ago to 12,000 B.C.). In the 1920s and 1930s, she investigated a cluster of caves located on the slopes of Mount Carmel, south of the modern city of Haifa.
    - From 1929 to 1934, Garrod excavated the Tabun Cave and another cave, known as el-Wad. She showed that the two caves were occupied almost continuously for about 500,000 years. Tabun Cave was occupied first, from about 500,000 years ago to 40,000 years ago; the occupation of el-Wad began just before Tabun was abandoned, about 45,000 years ago.

    - In Tabun Cave, there is a burial of a Neanderthal woman, dating to about 120,000 years ago. Although the skull indicates that her brain was about the same size as ours today, she had no real chin and a very low forehead, which means she probably looked similar to Hollywood's depictions of Neanderthals.

- There are also burials from nearby Skhul Cave. However, these burials, about 14 in all, are what are called *anatomically modern people*, that is, *Homo sapiens sapiens*. These have generated much discussion among scholars, who include this evidence in the debate about whether Neanderthals and modern humans lived side by side for a time.

- From 1982 to 1989, Harvard archaeologist Ofer Bar-Yosef excavated in Kebara Cave. There, he and his team found a Neanderthal burial: an adult male who lived about 60,000 years ago. Nicknamed Moshe, he may be the most complete Neanderthal skeleton found to date. The bones in his throat indicate that he was probably capable of speech.

Cave Paintings

- Even closer to us in time are other caves with evidence for Neanderthals and other hominid inhabitants. In particular, three are rightfully famous for their cave paintings: Chauvet Cave in France,

The exquisite paintings in Chauvet, Lascaux, and Altamira caves depict a wide variety of animals, including horses, lions, woolly rhinos, owls, mammoths, bears, and many others.

dating to at least 30,000 B.C., if not 6,000 or 7,000 years earlier; Lascaux Cave, also in France, dating to approximately 15,000 B.C.; and Altamira, in Spain, dating to about12,000 B.C.

- Lascaux Cave is located near Bordeaux in southern France. It is about 650 feet long, with at least 600 paintings and another 1,500 engravings on the walls. When Willard Libby was first experimenting with the technique of radiocarbon dating in 1949, one

of the first trials of the new method was done on a piece of charcoal found at Lascaux. In part as a result of the new technique, the cave is now generally dated to about 17,000 years ago, or 15,000 B.C.

- The current entrance—possibly the original entrance—leads into the huge Hall of the Bulls, which has four bulls more than 5 meters long painted on the cave wall. Straight ahead is the Axial Gallery, which has paintings of cattle, deer, and horses. A passageway to the right of the Hall of Bulls has almost 400 more engravings, mostly of horses. Lascaux also features the Chamber of the Felines, which has six large felines among dozens of other engravings.

- The cave was never really excavated but was simply prepared for tourism and opened to the public in 1948. However, having more than 100,000 annual visitors quickly began to take its toll on the paintings. Today, a replica of the cave has been built nearby that the public can visit instead.

- The paintings in the cave at Altamira, in northern Spain, are usually dated to about 12,000 B.C., the end of the last Ice Age, though some have argued that they could be a good deal older.
  - The cave at Altamira is about 300 meters long, with a number of passages and chambers. Of the animals that are painted or engraved on the walls, the most famous are those on the Polychrome Ceiling, which include a herd of bison, horses, a deer, and possibly other animals.

  - Like those at Lascaux, the paintings in the cave at Altamira have suffered damage as a result of too many tourists. A nearby replica of the cave attracts up to 250,000 people per year, while a very limited number of visitors are allowed to tour the actual cave for brief periods.

- Chauvet, located in the Ardèche region of southern France, is the oldest of these three caves, but it is also the most recently discovered. The cave may be as much as 400 meters long and cover more than 8,000 square meters.

- Nearly 4,000 artifacts and animal bones have been found in the cave so far, as well as 1,000 images on the walls. The drawings and paintings here include some of the earliest and best-preserved cave art in the world, depicting at least 13 different species, ranging from lions, horses, and woolly rhinos to owls, mammoths, bears, and other animals.

- The generally accepted dates for the paintings from radiocarbon analysis put most of them in the Aurignacian period, between 30,000 and 32,000 years before the present. The cave was then abandoned for several thousand years before being reoccupied during the Gravettian period, between 25,000 and 27,000 years ago, at which time dozens more paintings were added. However, even these dates have been pushed further back as a result of DNA and radiocarbon tests on the skeletons of cave bears found inside; these confirm that they date between 37,000 and 29,000 years old, after which a rockslide closed off the cave entrance so that nothing could enter.

- The cave has a number of different parts. The original entrance chamber leads into a huge area, named the Brunel Chamber for Éliette Brunel, the first person to enter the cave in 25,000 years. Next is the Chamber of the Bear Hollows, which has evidence of occupation by cave bears.

- Two galleries can be reached from the bears' chamber: the Cactus Gallery and the Red Panels Gallery, so-called because most of the paintings here are in red. Turning left from the Red Panels Gallery leads to the Candle Gallery, which is the beginning of the second part of the cave system.

- The system also includes the Hillaire Chamber; the Skull Chamber, where a bear skull was carefully placed on a stone fallen from the ceiling; the Gallery of the Crosshatching; the Megaloceros Gallery, with depictions of an extinct type of giant deer; the End Chamber, featuring a painting of 16 lions

hunting a herd of bison; and the Sacristy, which has drawings of a horse, a bison, a large cat, and a rhinoceros. This chamber is the end of the cave system, at least as it is currently known.

- In late April 2015, a replica of Chauvet Cave was opened to the public. Each of the images is an exact replica of the original, created by using three-dimensional models, digital images, and other techniques, ranging from scientific to artistic. The original limestone walls are now reproduced in concrete, and the stalagmites and stalactites have been re-created in resin. Reportedly, the results are stunning.

Suggested Reading

Curtis, *The Cave Painters*.

Johanson and Edey, *Lucy*.

Leakey and Lewin, *Origins*.

Questions to Consider

1. Do you think it was a good idea to build replicas of all three caves so that tourists can see what was in the original ones without unintentionally destroying them?

2. Can you come up with a list of equipment and personnel that you would want if you were to excavate at a place such as Koobi Fora?

Lecture 7

Göbekli Tepe, Çatalhöyük, and Jericho

In this lecture, we'll explore three sites from the Neolithic period: Göbekli Tepe, Jericho, and Çatalhöyük. The Neolithic period, or New Stone Age, started about 12,000 years ago, in about 10,000 B.C., in the ancient Near East. The period is often associated with the term *Neolithic Revolution* because it saw the beginning of a completely new way of life. Not only did stone tools change, but plants and animals were domesticated for the first time. However, we are still in the process of learning about the Neolithic. As we will see, much remains to be found at Göbekli Tepe, Jericho, and Çatalhöyük, which will undoubtedly change our understanding of the Neolithic period.

Göbekli Tepe

- Göbekli Tepe is a site in modern Turkey that dates back nearly 11,000 years ago, to about 9600 B.C. This date puts it in the pre-pottery Neolithic period—the first 4,000 years or so of the Neolithic, before pottery as we know it had been invented. Göbekli Tepe appears to be one of the oldest pre-pottery Neolithic sites with evidence for religious beliefs.

- Göbekli Tepe is located on the northern edge of the Fertile Crescent, an arc of sites that runs from the top of the Persian Gulf across to where Turkey meets Syria and down the Mediterranean coast to Egypt. Göbekli Tepe seems to be one of the earliest sites from this period. In fact, it seems to have been inhabited just before the domestication of plants and animals.

- Göbekli Tepe has the oldest known examples of monumental architecture in the ancient Near East. So far, archaeologists have uncovered at least five stone circles of various sizes, one of which is 65 feet across. According to the German archaeologist Klaus Schmidt, there are at least 16 other stone circles still buried, which he detected using remote-sensing techniques.

- Each of the circles that has been excavated so far contains a number of standing stones, including two large T-shaped stones in the middle, with smaller standing stones around them. The larger stones can be up to 16 feet tall.

- Most of the standing stones have figures or scenes carved on them, including pictures of lizards, scorpions, bulls, lions, vultures, and possibly dogs or wolves, in addition to other species. Some of these images may even be pictographs, that is, images that tell a story.

- It is not at all clear what the inhabitants of Göbekli Tepe were trying to do at this site, but Schmidt was convinced that it was a holy place, perhaps the earliest with architecture deliberately built by humans.

- It has long been thought that humans were able to settle down because of the domestication of plants and animals, but such sites as Göbekli Tepe might indicate the opposite. It may be that because so many people were gathered at this site—creating the stone rings, carving the standing stones, and so on—that greater supplies of food were needed, beyond what the usual hunting and gathering methods could supply. For this reason, Göbekli Tepe is considered an extremely important site; it may shed light on the earliest practice of religion.

Jericho

- Jericho is located in the West Bank, in the region of Israel and the Palestinian Territories. It is familiar to many because of the biblical story concerning Joshua and the Israelites, who invaded Canaan at the end of the Exodus from Egypt. Jericho is located in an oasis situated in the middle of what is otherwise a desert. The water supply allows for drinking and irrigation, enabling people to survive and even flourish here.

- From 1930 to 1936, a British archaeologist named John Garstang conducted excavations at Jericho and identified one of the layers

within the mound as the city captured by Joshua and the Israelites. However, his conclusion came under fire; it was suggested that he had misdated the pottery found in the level and, therefore, had misinterpreted his findings.

- Eventually, Garstang invited archaeologist Kathleen Kenyon to reexamine the pottery that he had found. She returned to Jericho in 1952 and began her own series of excavations, which lasted until 1958. The stratigraphy at the site, documenting four different levels and periods of occupation, turned out to be more complicated than expected. Her drawings of the sections that she excavated show a tangled mess of walls, floors, destructions, and other archaeological remains.

- Kenyon also found evidence, particularly more pottery, indicating that the destruction found by Garstang actually dated to 1,000 years before the time of Joshua; the remains of that city were from the Early Bronze Age, not the Late Bronze Age. Moreover, Kenyon believed that the city had already been abandoned by the middle of the 2nd millennium B.C. and would have been deserted, if not completely in ruins, by the time that Joshua and the Israelites invaded the region. Not everyone accepts her findings, though, and a debate continues to this day about whether or not there is archaeological evidence for Joshua's destruction of Jericho.

- Perhaps the most important find made by Kenyon is the Jericho Tower, which dates to about 7500 B.C. This is about 2,000 years after the Göbekli Tepe remains but is still in the pre-pottery Neolithic period. Jericho at that time probably had a population of about 2,000 to 3,000 people. It was protected by a thick stone wall, as well as the 26-foot-tall tower, giving rise to the notion that Jericho is the first known walled town. However, the actual use of the tower is a matter of dispute among archaeologists.

- The inhabitants of Jericho buried their dead under the floors of their houses during this period. Kenyon found almost 300 burials, but what was especially strange was what the inhabitants did with the

skulls of their dead during the second half of this period, which lasted down to about 6000 B.C.

- During this time at Jericho, and at about a dozen other sites elsewhere in the Near East, the inhabitants would remove the skull from the rest of the skeleton, presumably after the body had decayed enough to allow the removal of the skull easily. They would also remove the lower jaw, then plaster the rest of the skull with clay. In essence, they were basically restoring the flesh of the face with clay.

- They would also put seashells, especially cowrie shells, where the eyes had once been, thereby creating a lifelike appearance. Frequently, they would then place the skulls in a prominent place, such as in the living room of their homes. It is generally thought that this practice reflects some sort of ancestor worship, but we cannot know for certain.

- More recently, a joint Italian and Palestinian team of archaeologists excavated again at Jericho, from 1997 to 2000. They found additional interesting information, including evidence for a large lower city dating to the Middle Bronze Age, but their work came to a halt when tensions in the region made it unsafe to continue.

Çatalhöyük

- Çatalhöyük, in modern-day Turkey, dates slightly later than Jericho, flourishing from 6500 to 5600 B.C. Excavations at the site first began in the early 1960s under the direction of James Mellaart, a British archaeologist. He uncovered about 160 houses belonging to a village with a population between 3,000 and 8,000.

- These houses are all interconnected, with party walls serving two houses at a time. All the walls are made of mudbrick, but none of the houses has either doors or windows. There are also no streets or alleyways between the houses. It is believed that the inhabitants used ladders to climb up to the roofs of the homes and to get down into the interior. A possible explanation for this unusual arrangement comes from a wall painting depicting a large animal

Wall paintings at Çatalhöyük seem to indicate that large wild animals roamed the area outside the village, which may explain the fact that ladders were used to access homes, rather than doors.

being hunted by a group of much smaller humans. It may be that the lack of access to the homes served to protect the villagers from possible predators.

- In addition to this and other hunting scenes, Mellaart found a number of other wall paintings during his excavations. One shows large-scale men running, clad only in loincloths. Another has a pleasing geometric pattern above a number of white hands on a red background. A number of the paintings show bulls, and clay sculptures of bulls' heads or horns have been found in some of the rooms.
    - One wall painting seems to depict a landscape, perhaps the view that inhabitants would have seen when gazing out from the village in the direction of a large mountain in the distance. This large mountain is actually a volcano and may have been the source for all the obsidian found in the region.

- An additional scene shows large birds that look like vultures that seem to be attacking a human figure who is lying prone. This has led some scholars to hypothesize that dead bodies may have occasionally been left out in the open deliberately, so that the flesh would be consumed by carnivores before the skeletal remains were buried.

- Ian Hodder of Stanford University renewed excavations of Çatalhöyük in 1993. Before coming to Stanford, Hodder had been a professor at Cambridge University, where he initiated *post-processual archaeology*.
  - Processual archaeology was developed by Lewis Binford in the 1960s in an effort to make archaeology more explanatory and scientific, rather than merely descriptive. Binford wanted archaeologists to use scientific processes and try to develop universal laws or generalizations to explain their findings.

  - In the 1980s, the movement known as post-processual archaeology, or post-processualism, emerged in reaction Binford. Ian Hodder and others rejected, at least to an extent, Binford's reliance on science, which they said "dehumanized" archaeology. Post-processualism maintains that we can't understand the past unless we try to understand people and their possible motivations.

- In addition to some fairly typical figures of animals, figurines of women have also been found at Çatalhöyük. The women are usually seated and have rather voluptuous proportions. They fit into a category of female figurines that are found across Europe from this particular time period. Marija Gimbutas, who was a professor at UCLA, saw these as mother goddess figurines, meant to symbolize fertility and motherhood, but we don't actually know what the figurines represent.

Suggested Reading

Balter, *The Goddess and the Bull*.

Hodder, *The Leopard's Tale*.

Kelly and Thomas, *Archaeology*.

Kenyon, *Digging Up Jericho*.

Questions to Consider

1. What do you think Göbekli Tepe was used for?

2. How would you interpret all the bull representations at Çatalhöyük?

Lecture 8

Pyramids, Mummies, and Hieroglyphics

Everyone seems to be fascinated by the ancient Egyptians and knows a little something about them, especially about pyramids, mummies, and hieroglyphics. Or do they? In fact, the amount of misinformation people seem to have about ancient Egypt is astounding. It's not true, for example, that the pyramids were built by the Israelites or, for that matter, by aliens. In this lecture, then, we'll look at three popular topics related to ancient Egypt—pyramids, mummies, and hieroglyphics—to help us sift through the often-dubious claims made about them.

Geography of Egypt

- Egypt is split into two parts: The Nile and the area immediately on either side of it is one part, and the desert is the other. The Egyptians referred to these two parts as the Red Land for the desert and the Black Land for the land on either side of the Nile, so-called because of the life-giving silt that was deposited during the annual flooding of the river.

- Egypt is also split another way, with Lower Egypt in the north and Upper Egypt in the south. This division results from the fact that the Nile flows from south to north, rather than from north to south. It eventually empties into the Mediterranean Sea via the delta region, where the once-large river splits into many smaller tributaries.

- Upper and Lower Egypt were first unified sometime around 3000 B.C. by a man known variously as Menes or Narmer. An artifact called the Narmer Palette may depict this unification. Found in 1897, the object looks somewhat like an artist's palette, but we don't know whether it was actually used for that purpose. It has long been suggested that the images on the palette are intended to show the unification of Upper and Lower Egypt under Narmer, although not all scholars agree with this interpretation.

The Decipherment of Hieroglyphics

- To understand the decipherment of hieroglyphics, we must go back to 1799, a year or so after Napoleon and his troops had invaded Egypt as part of the campaign to capture the Near East. The French troops were in the village of Rosetta, in the Delta region, when they discovered an inscription that turned out to date from 196 B.C. It had been written to honor the pharaoh Ptolemy V and was in three different scripts: Egyptian hieroglyphics at the top; demotic—essentially, Egyptian cursive or handwriting—in the middle; and Greek on the bottom.

- Using this trilingual inscription, a brilliant French scholar named Jean-François Champollion was able to crack the code of Egyptian hieroglyphics. He did so in part by identifying two royal names, Ptolemy and Cleopatra, in the Greek text. Using this as a basis, he looked for repetition in the Egyptian hieroglyphics and was eventually able to use this as the key to his decipherment.
    - With Champollion's work, it suddenly became clear that all the pretty pictures painted on tomb walls and inscribed elsewhere were, in fact, texts containing the biographies of nobles.

    - It also turned out that the signs could be read in various ways. For instance, a hieroglyph could be a word sign and stand for the item being pictured, such as a bird or a bull; it could stand for a single sound, such as the first letter of the word for that animal; it could be a syllabic sign representing a combination of consonants; or it could be used as a determinative to tell how the word next to it should be read.

- Although many of the inscriptions we have today have survived because they were carved into stone, the Egyptians frequently wrote on sheets of papyrus, using black and red ink created from carbon and other materials. One text often found written on papyrus, as well as on tomb walls, is the Book of the Dead, or the Book of Going Forth by Day. This manual held the answers to questions people would be asked before being allowed to enter the afterworld.

Mummification

- In Egypt, staying in the underworld entailed keeping the physical body intact, even long after a person had died. This requirement resulted in the development of mummification.

- The first step in mummification was to place the body into a type of desiccating salt called *natron* and leave it there for 70 days. The inner organs were removed by means of a slit cut up the side of the body and placed in canopic jars. Then, sweet-smelling herbs and spices would be stuffed into the body cavity, and the slit would be sewn up.

- The heart would be left in the body because the ancient Egyptians thought it was the center of intelligence and would be needed in the afterlife. The brain was not understood and was simply discarded.

***Mastabas* and Pyramids**

- In addition to mummifying the body, ancient Egyptians also had to protect the mummy from the elements. That's why, before about 3000 B.C., we find *mastabas*, or low benches made out of mudbricks, placed above graves. Even if a sandstorm hit the cemetery and all the sand was swept away, the *mastaba* would remain in place and the mummy would not be exposed to the elements or scavengers. The idea of the *mastaba* may have been what led to the pyramids several centuries later.

- It seems to have been Djoser (or Zozer), a pharaoh who lived during the 3rd Dynasty (just after 2700 B.C.), who first asked Imhotep, his vizier, to create a majestic burial place. Thus, the Step Pyramid was constructed, the first pyramid ever built in Egypt.
    - If you look at the Step Pyramid, it appears that Imhotep simply placed about six *mastabas* one on top of the other, decreasing in size toward the top, so that he ended up with a pyramid built in stages or steps.

- It was just a short hop from that Step Pyramid to the huge, smooth-sided pyramids that we know from outside of Cairo today.

- How exactly the pyramids were built is still a matter of debate. The workers may have used blocks, tackles, and pulleys, or they might have pulled the blocks into place via earthen ramps that ran in a spiral around the pyramid.

- The pyramids were not built in isolation but were usually part of a much larger funerary complex that also contained ceremonial courts, religious shrines, and other buildings, all dedicated to keeping the king's memory alive. This is the case at Giza, outside of modern-day Cairo, where the three greatest Egyptian pyramids were built.
  - These three pyramids date to the 4th Dynasty, the so-called Pyramid Age, during the Old Kingdom. They were built one after other by a father-son-grandson combination named Khufu, Khafre, and Menkaure, or as the later Greeks called them, Cheops, Chephren, and Mycerinus.

  - The first one, built by Khufu, is the earliest and largest and is known today as the Great Pyramid. The second pyramid, built by Khafre, is the one to which the Sphinx probably belongs, because the Sphinx sits at what was originally the entrance to the funerary complex for Khafre. The third one is also the smallest, built by Menkaure.

- The Great Pyramid probably took 10 to 20 years to build, but it probably wasn't built by slaves, as most people think. In fact, Herodotus tells us that it took 100,000 people working in four shifts per year to build such a pyramid. The general thinking today is that the workforce probably consisted of peasants, farmers, and other members of the lower classes who worked for pay during the off season, after the harvest had been brought in.

- The number of stone blocks used in each pyramid was tremendous. For example, the Great Pyramid was originally probably about 480 feet tall and about 755 feet on each side. There are 2.3 million blocks in the Great Pyramid, some of them weighing several tons. Originally, the pyramid would have been finished off with an outer casing of white limestone, but those limestone blocks are long gone, with many of them reused in later buildings.

- Within the Great Pyramid is a series of passageways and chambers. These are still much debated, but it seems that the original entrance and passageway led down to a chamber where the king would have been buried underneath the ground. However, it is possible that this customary plan was changed, because another passageway leads upward, to what is called the Grand Gallery and the King's Chamber, in which a large granite sarcophagus is still in place.

- As mentioned, the Sphinx stands at the entrance to the second pyramid, the one built by Khafre. It dates to about 2550 B.C. It sits in one of the quarries from which the Egyptians got the blocks for the pyramids, but it was left because the core of the body was "rotten"; that is, the stone wasn't good enough to be used as building material. Thus, the core was shaped to look like a body, and blocks were added to form the paws, as well as the head and face.
    - In about 1400 B.C., the pharaoh Thutmose IV left an inscription claiming that, when he was still a young prince, he had fallen asleep in the shadow of the Sphinx, which was buried up to its neck in sand. In a dream, the Sphinx told Thutmose that if he removed the sand, the Sphinx would make him king of Egypt.

    - He excavated the sand away, fixed the blocks where they were crumbling, and when he eventually became king, left what is now known as the Sphinx Dream Stele between its paws, where modern Egyptologists found it.

Although Napoleon's troops used the Sphinx for target practice, it's not true that they shot off its nose; the nose may have been removed by a Muslim ruler in 1378 A.D. because the Egyptian peasants were treating the Sphinx as a pagan idol.

Suggested Reading

Bard, *An Introduction to the Archaeology of Ancient Egypt*.

Fagan, *The Rape of the Nile*.

Wilkinson, *The Rise and Fall of Ancient Egypt*.

Questions to Consider

1. Do you agree that building pyramids can be viewed as the equivalent of large-scale public works projects today in terms of pumping money back into the economy?

2. Why are we so fascinated today by the ancient Egyptians?

Lecture 9

King Tut's Tomb

On November 26, 1922, Howard Carter peered into the tomb of King Tutankhamen for the very first time. In fact, it was the first time that anyone had looked into the tomb in more than 3,000 years. Everywhere in the room, there was the glint of gold. Carter and his benefactor, Lord Carnarvon, had finally found the tomb for which they had been searching, right underneath where they had been pitching their tents for the past five or six years. In this lecture, we'll discuss their amazing discovery in the Valley of the Kings.

The Search for Tut's Tomb

- The story of the discovery of King Tut's tomb opens in about 1907. Howard Carter was already a well-known Egyptologist at the time, but he was out of a job when Lord Carnarvon first approached him. Carnarvon had been ordered by his doctor to spend his winters in Egypt rather than England and sought out Carter to do some digging during his time there.

- Carter and Carnarvon spent about 10 years digging in various locations in Egypt. Then, in 1917, they settled on the idea of looking in the Valley of the Kings for the missing tomb of King Tut. Tut had come to the throne of Egypt in about 1330 B.C., when he was only about eight years old. Ten years later, he died unexpectedly and was buried in the Valley of the Kings, but his tomb had never been located.

- It was in this valley, located across the river from the modern town of Luxor, that most of the New Kingdom pharaohs of Egypt were buried.
    - Much earlier, during the Old Kingdom period in the 3rd millennium B.C., Egyptian kings had begun the practice of constructing pyramids for their tombs. Pyramid building continued into the early 2nd millennium B.C., but pyramids were easy targets for tomb robbers.

- By the New Kingdom period, beginning with the 18th Dynasty in about 1500 B.C., pharaohs were buried in tombs dug into the hillsides in the Valley of the Kings. Most of those tombs were also found and robbed in antiquity, but a few had eluded discovery, including King Tut's tomb.

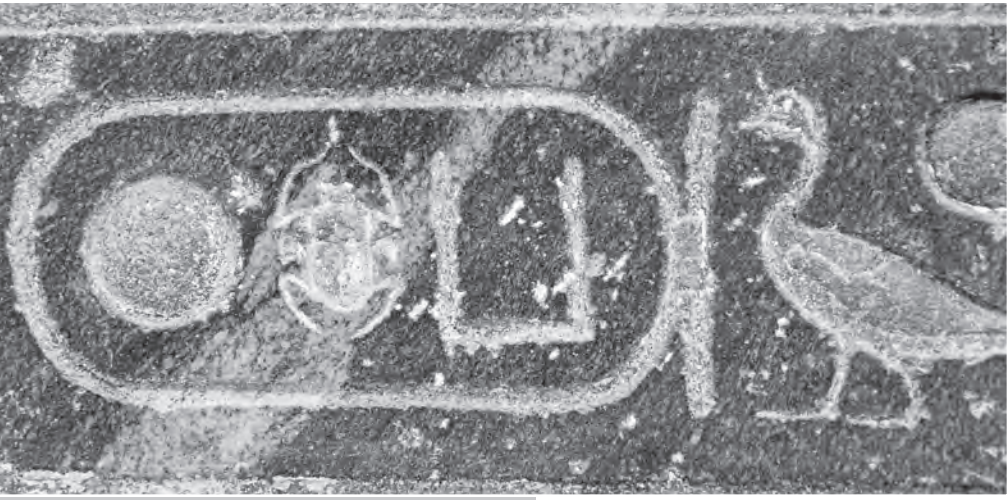
- Carter and Carnarvon spent five years searching the valley for Tut's tomb but with no real luck. Eventually Carnarvon began to run out of money, interest, or both and informed Carter that they would have to stop. Carter asked for one more season of funding, realizing that there was only one place remaining in the Valley of the Kings where they had not yet looked: their campsite. Carter ordered his men to begin digging there, and within just a few days, they found the first steps leading down to Tut's tomb.

Inside the Tomb

- Carter followed the steps to the tomb entrance and saw the seals stamped into the clay by the necropolis guards near the top of the door. He immediately stopped digging and summoned Carnarvon, who was in England at the time. Carter promised that he would wait to open the tomb until Carnarvon arrived. In the meantime, Carter also alerted the world media. But what Carter failed to mention to anyone was the fact that he could see that the tomb had been broken into in antiquity. For all he knew, it might be empty.

- When Carnarvon arrived in Egypt two weeks later, Carter and the workmen began excavating where they had left off. When they cleared the rest of the entrance, they realized that they had found Tut's tomb; seals with his cartouche could be plainly seen on the door below the seals of the necropolis guards that Carter had seen previously.

- When Carter and Carnarvon opened the first door to the tomb on November 23, all they could see was a rubble-filled passageway. It took three days to clear the corridor; they finally reached the door to the first room, now known as the antechamber, on November 26.



A cartouche is an oval that contains hieroglyphics representing a monarch's name.

According to Carter, when Carnarvon asked him if he could see anything inside, he replied, "Yes, wonderful things."

- The first room held at least one disassembled chariot; along with several beds, some with sides in the shapes of animals; chairs; stools; boxes; and other items. An annex behind this first room contained even more grave goods, as did another small room off the burial chamber, usually called the Treasury. It included a statue of the jackal-headed god Anubis and four canopic jars that should have held King Tut's internal organs.

- Finds in the Treasury included a statue of the Tut harpoon fishing, made of ebony overlaid with gold; a vessel of alabaster or calcite that may have served as a lamp; inlaid pieces of furniture; jewelry; and an unguent jar in the shape of a lion that probably held some sort of perfumed oil.

The Burial Chamber

- There were so many artifacts stuffed into the tomb that it took Carter almost three full months to catalogue enough of the grave goods in the other rooms and remove them so that he could enter the burial chamber. That didn't happen until February 1923. And it was not until almost a year after that, in January 1924, that he was able to reach the sarcophagus of the king.

- The burial chamber contained four shrines, one within the other, surrounding the sarcophagus. The first two outer coffins were of wood, with gold leaf on them, but the third coffin was of solid gold, weighing nearly 250 pounds. It reportedly took eight men to carry it out of the tomb! Of course, the gold mask covering Tut's actual mummy, which is probably the best-known piece from the tomb, was also of solid gold, inlaid with lapis lazuli and blue glass.
    - The three coffins and the gold mask do not all look the same; in fact, it seems that at least one of the coffins was originally made for another recipient, quite possibly Queen Hatshepsut, rather than Tut.

    - This may also have been the case for a number of other artifacts found in the tomb that bear traces of other royal names. It may be that Tut's sudden death resulted in some haste in gathering the grave goods.

The King Himself

- It was not an easy task for Carter to get King Tut out of his coffin because a thick layer of bitumen (tar) had been poured over the mummy's legs, below where the gold mask ended. Carter used a crowbar to no avail, though he may have broken a few of Tut's bones in the process of trying. He even lit a fire underneath the coffin in an effort to melt the tar.
    - In the end, Carter was able to remove the mummy from the coffin and extract it from the gold mask. An X-ray taken sometime soon afterward shows the bones of a young man, confirming that Tut was probably between 18 and 22 when he died. A bone sliver within the brain casing was thought for a

long while to have been the cause of Tut's death, but now that is more usually thought to have been a byproduct of Carter's efforts to get Tut out of the coffin.

- The broken bones, however, are more debated. Carter may have caused some of them, but a CT scan done in 2005 indicated that Tut may have suffered a compound fracture of one of his leg bones, perhaps leading to an infection and death. After the study appeared, many believed that he had perhaps fallen from his chariot and broken his leg. Such a scenario would put to rest speculation that he was murdered.

- Also in 2005, three teams of forensic anthropologists were given the task of trying to re-create what Tut might have looked like before he died. Another set of about 2,000 CT scans done in 2014 resulted in a "virtual autopsy" that concluded that Tut had buck teeth, a club foot, and various genetic disorders and had perhaps suffered or died from malaria.

- DNA testing on Tut's mummy has also shed light on the question of his parentage, strongly indicating that Akhenaten was the father of the boy king. However, the debate continues about his mother, who may have either been Akhenaten's sister or his more famous wife, Nefertiti.

King Tut and Akhenaten

- A number of other mysteries still surround King Tut and his tomb. Principal among these is the question of the tremendous number of grave goods that were buried with him in the various chambers of the tomb.

- Both Egyptologists and members of the public have wondered at this display of extravagant wealth. If all this was buried with a young man who ruled for only 10 years, what must have been in the tomb of such a ruler as Ramses II, who was pharaoh for decades?

- Some scholars, however, believe that Tut's tomb might have been the exception rather than the rule. Although he ruled for only 10 years, he is the pharaoh who undid all the reforms of his father, Akhenaten, who is perhaps better known as the heretic pharaoh.

- Akhenaten had outlawed the worship of Egypt's numerous gods and goddesses, with the exception of the god Aten, represented by the disk of the sun. The temples of all those deities were ordered closed, and their treasuries were confiscated by Akhenaten.

- It is sometimes suggested that Akhenaten was, in this way, responsible for the invention of monotheism. However, this was not monotheism as we understand it because the ordinary Egyptian was not allowed to worship Aten directly. Instead, he or she had to worship Akhenaten, who then prayed to Aten on behalf of all

One reason that King Tut's tomb was full of such rich grave goods may be the times in which he lived; when he came to the throne in about 1330 B.C., Egypt was at the height of its power and wealth.

others. Thus, for the ordinary Egyptian, there were effectively two gods: Akhenaten and Aten.

- It also seems likely that Akhenaten's decree was not motivated by religion but, instead, was a calculated political move that ensured the pharaoh more power, control, and wealth.
  - Some of the priests, especially those of the god Amun, had been getting more powerful and richer. In outlawing the gods and goddesses, closing the temples, and confiscating the treasuries, all while making himself the main spokesman to and from Aten, Akhenaten flipped the tables.

  - He increased his wealth and his political and religious control even as he decreased the power and wealth of his competitors. He was already the head of the army and the head of the government; now, he was the head of the religion, as well.

- King Tut undid all of Akhenaten's religious reforms, allowed the worship of all the traditional gods and goddesses to resume, and restored the priests to power. With his early death, the newly restored priests may have filled his tomb with grave goods as thanks for what he had done for them while he was alive.

Suggested Reading

Hawass, *Tutankhamun and the Golden Age of the Pharaohs*.

Reeves, *The Complete Tutankhamun*.

Reeves and Wilkinson, *The Complete Valley of the Kings*.

Questions to Consider

1. How and why do you think Tut died at such a young age?

2. Is there anything left to find in the Valley of the Kings now?

Lecture 10

How Do You Excavate at a Site?

In this lecture, we'll look at a fundamental question of archaeology: How do you excavate at a site? This question actually involves two issues: (1) How do you, as a team member, physically excavate at a site? (2) How do you, as a dig director, attack an ancient site as part of a concerted plan? The first question is easier to answer; although you won't be an expert right away, you could probably learn how to dig in about 15 minutes. The second question, however, is much more difficult. How do you plan to excavate a site, then execute your strategy as a dig director? We'll talk about both of these questions in this lecture.

Archaeological Tools

- The archaeologist Israel Finkelstein has been known to say, "Used properly, a pick [pickaxe] can be the most delicate instrument on the tell." In fact, pickaxes are used for almost every kind of archaeological work. You can use one to dig quickly but carefully through a certain number of centimeters of dirt, or you can use it to straighten up the balks, that is, the interior sides of the 5-by-5 square in which you're digging. The secret to using a pickaxe correctly is not to raise it higher than your hips and to let the pick head drop down into the soil because of its own weight, rather than raising it above your head and swinging wildly.

- Another important tool is a trowel, preferably a Marshalltown trowel (in America) or a WHS trowel (in Europe). If you're going on a dig, bring your own trowel rather than depending on the tools provided at the dig, which may be cheap brands. You might also want to bring your own *pastiche*, a small hand pick. Dustpans, brushes, and measuring tapes will all be provided by the dig.

- Some archaeologists also carry a set of dental tools, which are useful if you're excavating something very delicate, such as a skeleton.

Common Finds and Systems

- If you're excavating at a site in the Mediterranean, you will probably find broken pieces of pottery with almost every trowel of dirt. These are called *sherds*. Because pottery is not biodegradable once it's fired, you'll find either whole pots or many pieces from broken vessels. Remember, these are the types of pieces that you also found while surveying, which marked the existence and location of a site; now you are finding them still in context, within the site itself.

- You'll also find animal bones, dirt, and rocks. Some of these rocks are random finds; others are parts of walls and buildings. Before you throw any rocks away, keep in mind this archaeological maxim: One rock is a rock; two rocks is a feature; three rocks is a wall; and four rocks is a palace. Of course, that's not always the case, but

Discerning the difference between a random rock and one that's part of a wall or building can be tricky; excavators need to be careful to avoid discarding pieces of structure.

you should be aware that if you start coming across rocks that are in a line, that's probably not accidental. Also, be aware that small rocks and pottery sherds may resemble each other. It can take some time to learn to tell the difference, but you can always asked a more experienced team member.

- Many sites use a color-coded bucket system. For instance, you might put dirt in black buckets, pottery in orange buckets, and animal bones in green buckets. Every so often, the black buckets are emptied at a dump site.

- As you're digging, if you see a change in the color of the soil or the texture of whatever it is you're digging through, stop and alert somebody before continuing to dig, because you might be going through a floor or some other important feature. Your supervisor will probably have you change buckets, just in case the change you noted represents an actual change back in antiquity, such as a new level within the mound. If this is the case, you'll also see that change in the balks when you look at the stratigraphy.

- Another important rule is to never pull anything out of the ground when it first starts appearing as you dig. It is more important to know where the bottom of an object is than where its top is, because it may be resting on a floor, for instance. You need to know the context of the object. If you come across something, tell your square or area supervisor. Then, continue digging until the object, and whatever other objects might be related to it, are sitting as if they are on top of your dining room table.
    - Only when you are able to simply pick them up and take them away should you begin to think about removing any objects.

    - But before you do that, if the objects are significant enough, the supervisors will probably want to photograph and perhaps even draw them while they are still *in situ* ("in place").

A Team Member's Day

- A normal workday for archaeologists on a dig begins by 5:00 am. You'll dig until 8:30 am, then stop to have breakfast. The digging continues until 1:00 pm, when everyone piles on to the bus and heads back to wherever you're staying for lunch and an afternoon rest.

- You then reconvene at 4:00 pm, at which point you may wash pottery or animal bones, enter data into the computer, or do whatever other task you might have been assigned. Dinner is usually served around 7:00, followed by a lecture at 8:00, because many people go on digs for college credit.

- The next day, you're out at the site by 5:00, and the whole routine begins again, usually for five or six days per week and anywhere from four to seven weeks per field season. Many of the volunteers at digs are college students, but you may also meet retired doctors, lawyers, nurses, schoolteachers, and others.

Acting as Site Director

- As site director, you immediately have some choices to make that will determine your first steps. For example, do you want to start with *selective digging*; that is, doing a few probes or test pits here and there to try to get a feel for the chronological sequence or extent of the site?
    - In that case, you'll probably want to conduct *vertical excavation* (digging deep in a few selected areas). This approach can be a good way to get an idea of the stratigraphy that you might encounter if you later decide to expand your excavations at the site.

    - However, you might instead want to conduct *horizontal excavation*, in which you expose one layer over the entire site, then record it, draw it, and photograph it.

- If you're doing vertical archaeology or even if you're just going reasonably deep while doing horizontal archaeology, you will

see interesting stratigraphy in the side sections of your excavated squares. If you've excavated properly, then you should see a mirror reflection of any changes in soil color or texture in the balks of your area. For instance, one layer of the balk may be gray and black with ash, indicating a fire; another may be sandy, indicating a period of abandonment; still another may show the outlines of mudbricks from building walls.

- The complications of stratigraphy prompted Kathleen Kenyon and Mortimer Wheeler to create the Kenyon-Wheeler (or Wheeler-Kenyon) method of digging. You'll recall that this method involves excavating in 5-meter-by-5-meter squares, with a meter-wide balk in between the squares. This method not only gave Kenyon and Wheeler a record of what they had dug through, but it also enabled them to publish detailed drawings and photographs of the excavated sections for other archaeologists to study.

Organizing an Excavation

- An archaeological dig may have has many as 60 to 200 people, including excavation staff, such as area supervisors, square supervisors, and their assistants; specialists, such as botanists, geologists, and zoologists; and laboratory and other staff members, including artists and on-site conservators and pottery restorers. A dig also needs an administrator, who is basically the person who makes sure the dig has all the supplies it needs and runs any necessary errands.

- Of course, even before you put a team together, you first have to get permission to excavate at a site. This frequently involves drawing up a research plan and submitting it to agencies, including the government agency that will issue the permit to dig. That agency will want to know all the details, from how you plan to excavate to how you will conserve what you have found once the season is over.

- You'll also probably use the same research plan to raise money for your expedition. This will involve applying to such agencies

as the National Science Foundation, the National Endowment for the Humanities, National Geographic, universities or museums, and private donors. Each of these groups will to want to know what you are looking for, what your larger research questions are, and exactly how you plan to spend the money.

- Unless you are fortunate enough to get a multiyear grant or a sponsor who will underwrite your entire dig for its duration, you'll probably have to scrounge for funding in between every field season. And it's not just for money to cover the work in the field; money is also required for the work that needs to be done afterward, including carbon-14 dating, petrographic analysis, pottery restoration, illustration of the objects you find, and so on. All these costs can add up to between $120,000 to $150,000 for a six-week season for a team of 60; a larger dig, with 90 to 120 team members, can easily cost $250,000.

- The best objects you find will go to a museum, but most of the material will go into bags and boxes and be stored at a local university or museum. You and your team will study that material during the months that you're not in the field. In fact, a six- or seven-week field season can yield enough material that it may take two years or more to properly study and publish it.

- As you may have surmised, archaeology is not always as romantic as it is portrayed in the movies. It usually involves dirt, sometimes blood, always sweat, and occasionally tears. However, the rewards are great, whether you are having a unique experience on your first dig, returning to a dig for the second time, or publishing the results of your dig. There is something majestic about an archaeological project with all the planning that is involved and all the hard work that so many people perform during the season. In a way, it's a bit like a symphony orchestra performing a major piece; it doesn't work unless everyone plays his or her part.

Suggested Reading

Catling, *Discovering the Past through Archaeology*.

———, *A Practical Handbook of Archaeology*.

Drewett, *Field Archaeology*.

Questions to Consider

1. It costs a great deal of money to excavate a site these days. Can you think of ways to keep the costs down while maintaining the quality of both the excavation and the analyses afterward?

2. Why might you not want to excavate 100 percent of a site even if you could do so?

Lecture 11

Discovering Mycenae and Knossos

Heinrich Schliemann, the "discoverer" of Troy, is frequently referred to as the father of Mycenaean archaeology. The reason for this is simple: After he excavated at the site of Hisarlik from 1870 to 1873 and announced to the world that he had found Troy, he decided to go looking for Mycenaean sites, specifically, those related to Agamemnon, Menelaus, Odysseus, and others. In this lecture, we'll follow Schliemann as he attempted to find the grave of Agamemnon, before turning to Sir Arthur Evans and his excavation at Knossos.

Excavation at Mycenae

- In 1876, Schliemann took a break from digging at Hisarlik and tried his hand at excavating Mycenae, the city in the Greek Peloponnese where Agamemnon had once ruled. Schliemann believed that he knew where to look for Agamemnon's grave because of some detective work he had done two years earlier.

- According to ancient Greek sources, Agamemnon had been murdered by his wife, Clytemnestra, and her lover, Aegisthus, after he returned home from 10 years of fighting at Troy. The men who were with him were killed, as well. Pausanias, a 2nd-century-A.D. traveler to the area, wrote that Agamemnon and his men were buried inside the city limits of Mycenae, but he didn't give a specific location for the graves.

- When he returned to Mycenae in early August 1876, Schliemann assigned a large team to work in an area just 40 feet inside the famous Lion Gate. Within two weeks, the men found a well-marked grave circle with five deep shafts marked at their top by fragmentary tombstones depicting warriors and hunting scenes. This is now known as Grave Circle A; another grave circle was later found further down the hill and is known as Grave Circle B.

- The shafts that Schliemann found led down to graves with multiple burials and tremendous numbers of objects, including swords, bronze daggers, objects of rock crystal and semiprecious stones, and an amazing number of gold and silver objects, including gold masks covering the faces of several of the dead men.

- However, it is now considered unlikely that these are the graves of Agamemnon and his men. Their deaths would have taken place sometime between 1250 and 1175 B.C.—if the original story is true—but the pottery and other objects in the graves date from 1600 to 1500 B.C., which means they are from a period 300 or 400 years earlier than the time of the Trojan War.

- In fact, it is now thought that these are the graves of one of the first dynasties to rule at Mycenae. The city rose to prominence around 1700 B.C., and these would have been dug within a century or two of that rise. However, at some point near the end of the Late Bronze Age, probably about 1250 B.C., the fortifications of the city were rebuilt to enclose a larger area than previously, which is when the Lion Gate was constructed. At that time, Grave Circle A was brought inside the walls, when it had previously been outside.

- The graves in Grave Circle B are slightly earlier but overlap with those found by Schliemann in Grave Circle A. They date to 1650 to 1550 B.C. and may be the first kings and queens to have ruled at Mycenae.

- There are also a few large beehive-shaped tombs, built from huge blocks of stone, known as *tholos tombs*. Several of them have names given to them in relatively modern times, including the Tomb of Clytemnestra and the Tomb of Agamemnon (also called the Treasury of Atreus). Given that these were built about 1250 B.C., Agamemnon could have been buried here, but these tombs were all found completely looted and empty.

- Schliemann excavated at Mycenae for only one season. Thus, it was left to later archaeologists to uncover the rest of the site.

- What was left of the palace at the top of the citadel has now been completely excavated. Its interior, and possibly the exterior, was covered with brightly colored plaster, with scenes of hunting and other activities garishly painted on the walls.

- The rooms around the palace had multiple purposes, ranging from what were probably residential quarters for the royal family to workrooms for the craftsmen. There was even what appears to have been a cult center, possibly where religious rituals took place.

- It is not clear why Mycenae came to an end soon after 1200 B.C., but it did, in the general calamity that ended the whole of the Late Bronze Age in this region. Mycenae is built directly over a

There is no doubt that Mycenae was a wealthy city with international connections; objects imported from Italy, Egypt, Canaan, Cyprus, Turkey, and even as far away as Mesopotamia have been found there.

seismic fault line, and at least one earthquake, if not more, caused destruction during this period. Or it may have been drought and famine, followed perhaps by either internal revolt or external invasion, that finally brought down this once-great city.

Excavation at Knossos

- Partway across the Aegean on the island of Crete, Schliemann also tried to purchase land at a site that he thought might be the capital city of the legendary king Minos. Because the landowner refused to sell to him, it was left to another archaeologist, Sir Arthur Evans, to excavate the site and bring the other great Bronze Age Aegean civilization, the Minoans, to light, beginning in 1900. The city Evans excavated is known as Knossos.

- At Knossos, Evans found a civilization that was a little older than that of the Mycenaeans and had influenced them when they were on the rise. For instance, a number of the objects that Schliemann found in the shaft graves at Mycenae were either of Minoan manufacture or bore the stamp of Minoan influence.

- The Minoans (a name given by Evans to this people) flourished at the end of the 3rd millennium B.C. and through most of the 2nd millennium B.C. Around 1700 B.C., a major earthquake hit Knossos, but the inhabitants survived and rebuilt the palace. Probably sometime about 1350 B.C., the Mycenaeans from the Greek mainland seem to have invaded and taken over, bringing with them a new way of writing, new types of scenes for wall paintings, and a more militaristic way of life that lasted for about 150 years, until everything collapsed soon after 1200 B.C.

- Evans made amazing discoveries at Knossos, but he also made an error in reconstructing things as he went along. For example, based on the remains of staircases, he imagined that the main part of the palace had three stories. He therefore reconstructed part of the palace with three floors, and because he used cement and other permanent materials, it is nearly impossible to undo his reconstruction today. He may well have been correct in part but

not in everything, which is why today, such reconstructions are generally not permitted.

- Evans and his team found a large, essentially open-air palace, with a huge central courtyard. It not only served as headquarters for the ruler but also as a center for redistribution of produce. Locals would bring their goods for storage, such as wheat, barley, wine, grapes, and so on, and the palace would redistribute them as needed.

- Two things about the site remain a mystery. One is the fact that there are no fortification walls around the palace at Knossos. Why weren't the people on Crete afraid of attack? Many theories have been put forward to explain this situation, but none has been completely satisfactory. The second mystery is who ruled at Knossos. It might have been a king or queen, priest or priestess, or the community.

- The interior walls of the palace were ablaze with color in the form of many wall paintings. From these, we can tell a fair amount about the Minoans, including their dress and hair styles. However, Evans's reconstructions of some frescoes were completely wrong, including those of the Dolphin Fresco and the Priest-King Fresco.

- The central court at Knossos was undoubtedly used for large ceremonies, but it also seems to have been the site of a rather unusual event, depicted in a small wall painting in one of the buildings. The painting shows three people—one male and two female—leaping over a bull. Other finds at Knossos suggest a similar event involving bull-leaping and, perhaps, rituals in which stone bulls' heads were deliberately smashed. This focus on bulls brings to mind the Greek myth of Theseus and the Minotaur.
    - According to the myth, in the Bronze Age, King Minos demanded a sacrifice each year to the Minotaur, the half-man/half-bull creature who lived in the basement labyrinth of the palace. Each year, the king of Athens had to send seven boys

The Dolphin Fresco at Knossos, reconstructed by Arthur Evans, should probably have only two dolphins, rather than five, and should be on the floor, not the wall.

In the painting of the bull leapers, the man is in midflight, while one woman is in front of the bull, grasping his horns, and the other is behind, perhaps ready to catch the man when he lands; it's also possible that all three are in the process of leaping over the bull.

and seven girls to King Minos, who then sent them down into the labyrinth; no one had ever emerged alive.

- One year, Theseus, the son of the king of Athens, volunteered to go, so that he could try to kill the Minotaur and put an end to the annual sacrifice. Once Theseus arrived in Knossos, he befriended Ariadne, the daughter of King Minos, who provided him with a sword and a ball of string. As he went through the maze, he unwound the string to help find his way back out. He then killed the Minotaur with the sword, retraced his steps, and emerged victorious.

- It's possible that the story was created by later occupants of the area to explain the ruins of the palace of Knossos and the stories they vaguely remembered about the Minoans and bulls. However, there might be another explanation of the myth entirely.

- In the early 1990s, a huge wall painting was found, depicting multiple bulls and numerous bull leapers in action in front of a maze or labyrinth. It is a painting that we would expect to find at Knossos, except that it's in the Nile Delta region of Egypt, at the site of Tell el-Dab'a. And it dates to somewhere between the 17th and 15th centuries B.C., that is, right in the middle of the 2nd millennium, during the Bronze Age.

- Thus, it may be that the myth of Theseus and the Minotaur is much earlier than anyone expected and was not invented later to explain the ruins of Knossos. But the fact that such a painting is in Egypt, with a Minoan motif created by Minoan artists using techniques that were quite different from those of the Egyptians, is even more interesting—showing direct contact between Egypt and Crete at the time.

Suggested Reading

Cline, ed., *The Oxford Handbook of the Bronze Age Aegean*.

Fitton, *Minoans*.

Schofield, *The Mycenaeans*.

Questions to Consider

1. What do you think the lions (or, rather, lionesses) on the Lion Gate at Mycenae represent?

2. Why do you think that there are no fortification walls at any of the Minoan palaces on Crete?

Lecture
12

Santorini, Akrotiri, and the Atlantis Myth

Nearly every year, the lost island of Atlantis is "found"—everywhere from the Bahamas to off the coast of Cyprus—but in fact, it may be that the island is in plain sight. Many archaeologists suspect that the kernel of truth underlying the myth of Atlantis is the volcanic eruption of the Greek island of Santorini in the middle of the 2nd millennium B.C. But even if that eruption is not what underlies the story of Atlantis, the excavation of the site of Akrotiri on Santorini has shed important light on the Bronze Age Aegean at a time when the Minoans were engaged in contact and trade with such places as Egypt and Canaan in the Eastern Mediterranean.

The Island of Santorini

- The island of Santorini is about 70 miles north of Crete by boat. The name Santorini is rather recent; the island was named that by the Venetians after Saint Irene. An older name, frequently used by archaeologists, is Thera; according to the Greek historian Herodotus, this name comes from a Spartan commander who was the leader of a colony established there during the 1st millennium B.C.

- Sometime during the mid-2nd millennium, most likely in either the 17th or 16th century B.C., the volcano on Santorini erupted, scattering ash and pumice primarily to the south and east. Archaeologists and geologists have found the pumice in excavations and at the bottom of lakes in places ranging from Crete to Egypt to Turkey.

- As a result of the eruption, the entire middle part of the island is gone, with only the outer part remaining as an incomplete circle of land. The caldera, which is hundreds of feet deep, was filled with water from the Aegean Sea. That, in turn, most likely created a tidal wave or tsunami that affected places as far away as Crete.

In the middle of the caldera of Santorini today are several small islands that have popped up in the last century as a result of ongoing volcanic activity.

Akrotiri

- Akrotiri is frequently called the Pompeii of the Aegean because the ancient town was buried under a deep ash layer by the volcanic eruption. The houses are still standing to the second story in some places, and it is as if life simply stopped in a single instant more than 3,500 years ago.

- However, it is clear from some of the remains found that the site may have been nearly abandoned by the time of the eruption. There are indications that a major earthquake or, perhaps, multiple earthquakes may have hit the island about a decade before the final destruction and that at least some of the inhabitants had tried to repair the damage. We know that earthquakes frequently precede eruptions, and the ancients may have known that, as well. Given that no human remains and only a few objects made out of precious

materials have been found, it's possible that most of the inhabitants left the island before the final eruption.

- The Greek archaeologist Spyridon Marinatos directed the excavations of Akrotiri from 1967 until his death in 1974. The excavations continued after his death and are today led by the well-known archaeologist Christos Doumas. Even though the site has been continuously excavated for nearly 50 years at this point, it is estimated that only about 10 percent of the ancient town has been uncovered.

- In many places, a similar situation to that seen at Pompeii was encountered, in which the original wood or other organic material had decomposed, leaving an empty space in the now-hardened volcanic ash. Into these spaces, excavators have poured either

Volcanic ash filled every nook and cranny of the site of Akrotiri, but as a result, it preserved everything as it was at the time of the explosion, including pottery, storage jars, and furniture.

cement or plaster of Paris, which is then colored brown to imitate the original wood. In this way, the buildings remain preserved up to their second story, just as Marinatos and Doumas found them, and are still rendered safe for both tourists and archaeologists.

- The excavation techniques used at Akrotiri are standard, with digging done using trowels, pickaxes, and dental tools. There is not really any stratigraphy to speak of, because the excavators are simply digging straight down through a very deep ash layer that was all laid down at the same time.

- Quite a bit of pottery has been recovered during the excavations, as well as objects made of stone and other materials. Some of these, especially the pottery, are painted with marine scenes, featuring dolphins and octopi.

Wall Paintings of Akrotiri

- The wall paintings of Akrotiri are among the best preserved from the Bronze Age Aegean. One is the so-called Nilotic Fresco, which features a scene that might be depicting the Nile in Egypt. It has a leaping feline in it, which might be chasing a duck or goose. On both sides of the river or stream are what look like palm trees or, perhaps, papyrus plants. This painting was found in the West House along with several other frescoes that have nautical or, perhaps, non-Theran scenes, suggesting that the house belonged to a ship captain or someone who had traveled overseas.

- Another rather exotic-looking wall painting shows blue monkeys with white cheeks swinging from trees. A similar wall painting at Knossos also shows blue monkeys, and blue monkey figurines with yellow cheeks have been found at Mycenae and Tiryns on the Greek mainland. As it turns out, there is a particular species of monkey in Africa called a green guenon, whose fur ranges from blue to green and who have yellow or whitish cheeks. These monkeys were prized as pets by the pharaohs of New Kingdom Egypt, who occasionally sent them as gifts to rulers of other countries.

- Other paintings depict human figures. One shows two young boys who seem to be boxing. They wear what look like loin cloths and have shaved heads with clumps of hair hanging down in curls. Another painting shows a naked young man holding two long strings of fish that he has just caught. Other pictures show women engaged in a variety of activities, such as picking flowers.

- Also in the West House is a painting known as the Miniature Fresco or the Flotilla Fresco, which includes a number of fascinating details.
    - On one end of the scene, we see warriors marching off to battle. They are dressed like some of the warriors whom Homer describes in the *Iliad*, wearing boar-tusk helmets and carrying tower shields. Behind the warriors is a large building, with women standing on the roof, apparently waving goodbye.

    - There are also what look like herd animals and a herdsman in the distance, above the warriors; below them is a scene with a few boats and men who are sideways or upside-down, which is the way dead and drowning men were depicted. This is usually interpreted as a naval battle, though one archaeologist has suggested that it might be a scene of sacrifice.

    - The fresco continues with a flotilla scene, showing as many as a dozen or more ships departing a port on an island that may or may not be Santorini. The men are rowing across the sea, accompanied by cavorting dolphins, toward a second city.

Redating the Eruption

- Santorini has been at the forefront of a debate among Bronze Age Aegean archaeologists since about 1987, when a radical redating of the eruption was proposed. It used to be thought that the Santorini eruption took place in about 1450 B.C. It also used to be thought—and actually still is—that the eruption took place at a time when a certain style of pottery, known as Late Helladic

or Late Minoan Ib pottery, was in vogue. Thus, wherever LH/LM Ib pottery has been found, the level at that site has been dated to about 1450 B.C.

- However, as a result of new studies of radiocarbon data, as well as information based on ice core analysis and several other techniques, it was proposed that the eruption actually took place in or around 1628 B.C. Given that the eruption and LH/LM Ib pottery are still tied together, that means that any level at any site that has such pottery actually dates to the 17th century B.C., not the 15th century B.C. This became known as the High Chronology.

- Many archaeologists acknowledge that there are problems with radiocarbon dating; thus not everyone has accepted this change in chronology. Some are willing to accept a bit of a change but only pushing the date of the eruption back to 1550 B.C., rather than 1628 B.C.

- It's important to note that even when we have buildings, pottery, and other artifacts from a site and we have an idea of when that site was flourishing, we cannot always be certain about the absolute date.

The Legend of Atlantis

- The story of Atlantis comes to us from the Greek philosopher Plato. In two of his shorter works, the *Timaeus* and the *Critias*, Plato tells us about a place with awesome warriors who dared to fight against Athens, but whose home sank beneath the waves, never to be seen again. In the *Timaeus*, he writes, "There occurred violent earthquakes and floods; and in a single day and night of misfortune all your warlike men in a body sank into the earth, and the island of Atlantis in like manner disappeared in the depths of the sea."

- The initial story of Atlantis, according to Plato, was told by an Egyptian priest to a visiting Greek lawgiver named Solon sometime after 590 B.C.; the priest told Solon that the events had taken place 9,000 years before their time, though many today

think that 900 years fits better, because that would put the events at about 1500 B.C., rather than in the Neolithic Age. The story was then handed down until it reached Plato sometime around the year 400 B.C.

- Plato also gives a detailed description of what Atlantis looked like, including that it was built of concentric and alternating rings of land and water, with specific measurements of various parts of the city and so on.
    - It's true that Plato uses the people and the island of Atlantis in these two short pieces to describe what he thinks the perfect city and society might look like, which means there is no reason to believe that we could actually find the island.

    - However, it's also true that the eruption of Santorini would have been both heard and felt as far away as Egypt. Egyptians would also have seen the cloud resulting from the eruption, and eventually, they would have seen pieces of pumice floating on the water and ending up on the northern shores.

    - Moreover, if the Minoans and the Cycladic islanders, from such places as Santorini, stopped coming to Egypt at least temporarily after the eruption, as seems quite likely to have happened, then to the Egyptians it would have seemed as if a great island empire had "disappeared in the depths of the sea … in a single day and night of misfortune."

Suggested Reading

Doumas, *Thera*.

Luce, *End of Atlantis*.

Marinatos, *Art and Religion in Thera*.

Questions to Consider

1. What (or where) do you think is being represented in the Miniature Fresco? What islands or port cities are shown? Could this be a visual depiction of an actual event?

2. Could the eruption of Santorini be the kernel of truth underlying the myth of Atlantis?

Lecture
13

The Uluburun Shipwreck

The Uluburun shipwreck, which sank off the coast of southwestern Turkey around 1300 B.C., is one of the most important archaeological discoveries of all times. It was found with a full cargo of raw materials and finished goods that shed light on the international trade and relations that took place more than 3,000 years ago. The fact that it was found in 1982 by a 17-year-old sponge diver on his first season of diving and that archaeologists conducted more than 20,000 dives to explore it over the course of a decade without a major accident makes it an even more amazing story.

George Bass: The Father of Underwater Archaeology

- In 1959, while he was still a graduate student, George Bass did the first underwater excavation on what is now known as the Cape Gelidonya shipwreck. The Gelidonya shipwreck is actually located reasonably close to the Uluburun shipwreck, though of course, Bass didn't know that at the time. It also dates from almost the same time period, about 1200 B.C.

- On the Gelidonya wreck, Bass found artifacts indicating that this small ship had probably been "tramping" around the Mediterranean, that is, going from port to port and buying and selling goods as it went. It does not appear to have belonged to a wealthy merchant or a king but, more likely, to a private individual trying to earn a living. Among the objects that Bass retrieved were ingots of solid copper that are now called *oxhide ingots* because they are in the shape of a cow or ox hide that someone might hang on a wall or use as a rug.

- Based on the artifacts he excavated, Bass also identified the wreck as a Canaanite ship, possibly on its way to the Aegean. This went against the scholarly thinking of the day because it was generally thought that only the Minoans on Crete might have been sailing the seas. Thus, when Bass published his book on the shipwreck in 1967, it was met with derision and disdain in some scholarly quarters.

However, Bass was not only correct on all counts, but he was far ahead of his time in recognizing that others besides the Minoans had sailed the seas.

- In 1972, Bass founded the American Institute of Nautical Archaeology; the institute is now located at Texas A&M University and has dropped the "American" from its name to reflect the international nature of its work.

Discovery of the Uluburun Shipwreck

- In 1982, news of the discovery of an oxhide ingot by a young man diving off the coast of Turkey made its way to Bass's institute. The next summer, Bass and his colleagues conducted preliminary dives and identified artifacts that dated the wreck to the Late Bronze Age. They had found what is now known as the Uluburun shipwreck.

- Sponsored by National Geographic, the excavation of the Uluburun shipwreck began in earnest during the summer of 1984, under Bass's direction. The next year, in 1985, he turned the project over to Cemal Pulak. From then until 1994, excavations were conducted virtually every summer, with a team of professional archaeologists and eager graduate students. Collectively, the dove on the wreck more than 22,500 times in 10 years.

- The top part of the wreck was 140 feet below sea level, but it continued down to 170 feet. The front part of the 50-foot-long ship had broken off and plunged off a cliff or ledge; it has never been recovered.

- The divers removed their flippers when they got to the bottom to avoid accidentally excavating by swimming too close to the sand on the sea floor. Team members used vacuums and their hands to remove loose sand.

- Each part of the wreck and each of the objects found within it were meticulously mapped by the archaeologists. Bass claimed that their final plans were as accurate, within a matter of millimeters,

Work on the finds of the Uluburun shipwreck was done at Turkey's Bodrum Museum of Underwater Archaeology.

as any plan done at an archaeological site on land. The teams found so many objects that the final report is still being written and will take up several volumes when it is finally published. In the meantime, Bass and Pulak have published numerous preliminary reports and presented papers at many conferences. They were also featured in a cover story in the December 1987 issue of *National Geographic*.

- In order to dive on the wreck, the team lived all season long in wooden buildings that they constructed on the cliff face of the promontory into which the Uluburun ship had probably slammed before it sank

more than 3,000 years ago. There was also some space on their dive boat, the *Virazon*, which was permanently moved directly above the shipwreck. Every morning, a man from the port town of Kas sailed out to bring them fresh water, food, and oxygen tanks.

History of the Ship

- The ship sank in about 1300 B.C., about 30 years after the time of King Tut in Egypt and perhaps a few decades before the time of the Trojan War. This date was arrived at through several independent methods.
  - First, a gold scarab of Queen Nefertiti was found. She ruled with Pharaoh Akhenaten sometime around 1350 B.C., which means that the ship cannot have sunk before that time.
  - Second, some of the wood from the hull of the ship was recovered, and the tree rings on some of these pieces can be counted and linked to the broader scheme of dendrochronology. The rings indicate that the last time the tree was growing before it was cut down was about 1320 B.C.
  - Third, the Mycenaean and Minoan pottery on board is of a style called Late Helladic IIIA2, which archaeologists date to the last part of the 14th century B.C.
- When the wreck was first found, the excavators thought that the ship had probably been sailing around the Eastern Mediterranean and Aegean regions in a counterclockwise direction. They envisioned it tramping as the Gelidonya ship would do a century later, but with a cargo that was much richer. Since then, other suggestions have been made, including the possibility that it carried cargo meant as a royal gift from one king to another, perhaps being sent from Egypt, Canaan, or Cyprus to Greece.
  - In every case, it is agreed that the ship was heading to Greece because, although there are objects on board that come from at least seven different cultures and that are clearly meant as cargo, the only objects from Greece are a number of Minoan and Mycenaean ceramic vessels that are used, rather than new,

and two personal seals that would have been worn by someone from the Aegean.

- Thus, it is generally agreed that the ship was heading for the Aegean with a cargo of goods that was primarily from Egypt and the Near East. On its return trip or, perhaps, on the continuation of its trip counterclockwise around the region, it probably would have carried a full cargo of Mycenaean and Minoan goods, including ceramic vessels full of wine, olive oil, and perfume destined for Egypt, Canaan, and Cyprus.

- Of course, it never made that return voyage because it sank at Uluburun. Interestingly, no bodies or partial skeletons have been recovered from the shipwreck. It may be that the survivors swam to shore or that their bodies fell victim to wildlife in the sea.

Finds on the Ship

- At the bottom of the ship and running the length of the hull were approximately 14 large stone anchors. These were used as ballast for most of the journey, but as one was needed, it was put to use. If one of the anchors got stuck on a rock or a reef, the sailors could simply cut the rope and let it go, then retrieve another one from the cargo hull.

- The main cargo was 350 oxhide ingots of 99 percent pure raw copper from Cyprus. All told, there was more than 10 tons of copper on board this one ship. The Uluburun shipwreck also contained more than a ton of tin, ranging from fragments of oxhide ingots, to a smaller type of ingot called a *bun ingot*, to plates and other vessels made of tin. The origin of the tin seems to have been the Badakhshan region of Afghanistan.

- Also on board was approximately 1 ton of terebinth resin, which was used as incense and for making perfume, among other things. The resin was stored in some of the 140 Canaanite storage jars that

were on board. Other jars held glass beads and probably food, such as figs and dates.

- One jar held a small folding wooden tablet with ivory hinges, known as a *diptych*. It probably floated into the jar by accident after the ship sank. Inside the tablet, the two sides would have originally held wax, on which messages could be written. By the end of the excavations, two such tablets had been found, but the wax was gone in both.

- Other raw goods on the ship included approximately 175 bun ingots of raw glass; most were dark cobalt blue, but others were light blue or amber. When chemically analyzed, these ingots of raw glass matched objects of glass in both Egypt and Greece from this time period, indicating that all these regions probably got their raw glass from the same source, possibly in northern Syria or Egypt. The ship also carried raw ivory, including both elephant tusks and hippopotamus canines and incisors.

- Among the finished goods on board the ship were large jars filled with new pottery, such as plates, bowls, jugs, and oil lamps. At least three swords were found on board, probably personal possessions of the crewmembers. There were also arrowheads and spearheads, various bronze tools, fishhooks, and lead weights. A strange-looking stone item may be a mace from the Balkans. Also found were a few fancy drinking cups, made of faience and in zoomorphic shapes. These are usually identified as items used by royalty, which may support the idea that the ship was carrying a gift from one king to another.

- The gold scarab of Queen Nefertiti mentioned earlier was one of many pieces of jewelry, ranging from silver bracelets to gold pendants, found by Bass, Pulak, and their team members. The scarab is inscribed with Nefertiti's name in hieroglyphics: Neferneferuaten. However, she used this version of her name only during the first five years or so of her reign, when her husband, the heretic pharaoh Akhenaten, was outlawing the worship of all gods

except Aten. This is an extremely rare find and one, as we have noted, that helps date the ship; it cannot have sunk before the scarab was made—prior to about 1348 B.C.

Suggested Reading

Bass, "Oldest Known Shipwreck Reveals Splendors of the Bronze Age."

Pulak, "The Uluburun Shipwreck."

———, "Shipwreck."

Questions to Consider

1. Considering how much the discovery of this single ship has affected our knowledge of the Late Bronze Age in the Aegean and eastern Mediterranean, how likely is it that additional discoveries will significantly alter our understanding of the region and area? In what ways might such discoveries change or enhance our understanding?

2. Why weren't any bodies found on board the Uluburun shipwreck?

Lecture
14

The Dead Sea Scrolls

The Dead Sea Scrolls are about 2,000 years old and constitute the oldest extant copies of the Hebrew Bible. The earliest of the scrolls dates to the 3rd century B.C., while the latest dates to the 1st century A.D. Most scholars believe that the scrolls were the library of a settlement called Qumran, whose members belonged to one of the three main groups of Jews at the time: the Essenes. The inhabitants of Qumran probably hid the scrolls during the First Jewish Revolt (66–70 A.D.), with the intent of retrieving them after the Romans had left. However, the revolt was put down, the settlement was abandoned, and the inhabitants never came back for the scrolls.

Discovery of the Scrolls

- The first few Dead Sea Scrolls were found in 1947 by three Bedouin boys who were tending their flocks of sheep and goats. The boys found 10 pottery jars in a cave. According to them, most of the jars were filled with dirt, but one had several rolled-up scrolls in it, made of leather. The boys took the scrolls but left the jars in the cave.

- According to the usual version of the story, several weeks later, after the boys' Bedouin group had made their way to the outskirts of Bethlehem, the scrolls were taken to the shop of a man named Kando. He sold antiquities but also made shoes and other leather goods. Kando purchased the scrolls, thinking that he could always make them into sandals if he couldn't sell them as antiquities. An alternative version of the story holds that Kando bought four scrolls, while another Bethlehem antiquities dealer named Salahi bought three others.

- News of the scrolls ultimately reached a scholar in Jerusalem named Eliezer Sukenik, who traveled to Bethlehem and purchased three scrolls. When Sukenik translated the scrolls, he was startled to find that one of them was a copy of the book of Isaiah from the Hebrew Bible. To his astonishment, it was nearly identical to another copy of

Isaiah from a synagogue in Cairo that was dated almost 1,000 years later, to the 10th century A.D.; it differed from the modern version by only some 13 minor variants, probably all the result of scribal errors.

- The other two scrolls Sukenik had are now known as the Thanksgiving Scroll, which recorded the hymns and prayers of thanks of the Qumran community, and the War Scroll, which described the community's anticipation of Armageddon—the final battle between good and evil. Indeed, the inhabitants of Qumran called themselves the Sons of Light and envisioned a battle against the Sons of Darkness. The War Scroll outlines how they were to act and live their lives, all while waiting and planning for this battle.

- Soon, four more scrolls appeared on the antiquities market. These were being sold by Archbishop Samuel, who was with the Syrian

The inhabitants of the community at Qumran may have been Essenes; according to ancient sources, the members of this Jewish group were celibate and lived almost like monks in a monastery.

Orthodox Monastery of St. Mark in Jerusalem. He had bought them from Kando, reportedly for $250. He offered them to Sukenik, but they were unable to reach an agreement.

- In January 1949, the archbishop smuggled the four scrolls into the United Sates, where they were secretly kept in a Syrian Orthodox church in New Jersey for several years. Then, on June 1, 1954, he placed an ad in *The Wall Street Journal*, offering the scrolls for sale. As it happened, Yigael Yadin, a preeminent Israeli archaeologist and the son of Sukenik, was in the United States at the time. The advertisement was brought to his attention, and with the help of a middleman, Yadin purchased the four scrolls for the State of Israel. These seven scrolls are now kept in the Shrine of the Book at the Israel Museum in Jerusalem.
    - Of the four scrolls that Yadin purchased from Archbishop Samuel, one was another copy of the book of Isaiah. Another is now known as the Manual of Discipline; it contains the rules and regulations for the Qumran community.

    - The third scroll was an important commentary on the book of Habakkuk from the Hebrew Bible. It presents us with three figures: the Teacher of Righteousness and his two opponents, the Wicked Priest and the Man of the Lie. None of these figures has been definitely identified, but some scholars have suggested that the Teacher of Righteousness might be James the Just, the brother of Jesus.

    - The fourth scroll is known as the Genesis Apocryphon. Written in Aramaic, this is an alternative version of the book of Genesis. The scroll records a conversation between Noah and his father, Lamech, that is not found in modern Bibles.

- News of these remarkable documents shook the world of biblical scholarship and set off a race to find more scrolls during the 1950s and 1960s. Ultimately, multiple copies of nearly every book from the Hebrew Bible were found (except for the book of Esther), along with numerous other scrolls that were not religious in nature.

The original seven scrolls found at Qumran are now reunited and housed in the Shrine of the Book in Jerusalem.

The Copper Scroll

- The third cave, discovered in 1952, contained a scroll written on sheets of copper, broken into two parts. This scroll is a treasure map—a detailed set of instructions for finding 64 treasures.

- Because the Copper Scroll could not be unrolled, it was cut into small sections using a high-speed saw. The cuts went through the middle of some of the letters, but on the whole, the technique worked, enabling the rolled-up scrolls to be laid flat.

- Most of the Copper Scroll is written in Hebrew, but there are also some Greek letters and what appear to be numbers. The directions

to the treasures it provides are bizarre; for example: "In the ruin which is in the valley, pass under the steps leading to the East forty cubits …: [There is] a chest of money and its total: the weight of seventeen talents. In the sepulchral monument, in the third course: one hundred gold ingots."

- The Copper Scroll continues in this fashion for column after column of text. Little wonder, it seems, that no one has ever found any of the treasures. If the treasures described were real, they were most likely the annual tithes that people sent to the Temple in Jerusalem; of course, during the First Jewish Revolt, it would not have been safe to send such tithes, and they might have been hidden.

Studying Scroll Fragments

- The scrolls found in cave 4 had all fallen from their shelves and disintegrated into a mass of fragments on the floor. The scrolls were in tens of thousands of pieces, some smaller than a fingernail. The original scholarly committee that was formed to piece the fragments together worked on them for more than 40 years, with few other scholars even allowed to see them. This created both ill will and conspiracy theories about what might be contained in the texts.

- In the early 1990s, however, it was revealed that photographs of the fragments had been taken at some point and were stored in a vault at the Huntington Museum Library in Los Angeles. In subsequent years, a new group of scholars was assembled to work on the fragments and publish their results. These scholars brought new backgrounds, approaches, and insights to the study of the scrolls. New techniques were also used on the scroll fragments, such as taking infrared photographs, which allowed for much clearer reading of some of the writing.

- Studying the Dead Sea Scrolls, ranging from the whole ones to the completely fragmentary, has since become a cottage industry within academia and has yielded some remarkable observations.

Other Finds in the Region

- Archaeologists found additional caves in the region of the Dead Sea during their various searches. Some of these also had remnants of scrolls and ancient writing, as well as other objects, but they are probably unrelated to the main body of the Dead Sea Scrolls.

- One of the best known discoveries is a cave in a *wadi* (canyon or valley) called Nahal Mishmar. In what is now known as the Cave of the Treasure, archaeologists found a tremendous hoard of about 400 copper objects dating to the Chalcolithic period (about 3500 B.C.). We have no idea what most of the objects were used for, but some of them resemble crowns and scepters.

- Two other caves are even more famous. They are in a *wadi* called Nahal Hever, about 25 miles south of Qumran, and are called the Cave of Horror and the Cave of Letters. Both had a Roman siege camp built on the top of the cliff directly above them. Both caves were first discovered in 1953 but were not truly excavated until 1960 and 1961.

- The Cave of Horror is so-called because of the grisly discoveries made there. Archaeologists found 40 skeletons in the cave, all dating to the time of the Second Jewish Revolt (the Bar Kokhba Revolt, 132–135 A.D.). The bodies found in this cave are thought to have been refugees or rebels who were unable to escape because of the Romans camped above them. They may well have starved to death.

- The Cave of Letters yielded rich finds from three different periods: the Chalcolithic; the 1st century A.D., perhaps during the time of the First Jewish Revolt; and the 2nd century A.D., that is, the time of the Second Jewish Revolt.
    - The cave has two narrow entrances, both leading into what is called Hall A. Here, archaeologists found a fragment from a scroll with part of the book of Psalms and a hoard of metal objects.

- In another part of the cave, known as Hall C, the most important and grisly finds were made: a basket with human skulls in it, along with a skeleton wrapped in a blanket and a child buried in a box lined with leather; actual correspondence written by the leader of the Second Jewish Revolt, Bar Kokhba; and an archive of letters and other objects belonging to a woman named Babatha, also dating to the time of the Second Jewish Revolt.

- The discoveries in the Cave of the Treasure, the Cave of Horror, and the Cave of Letters contributed dramatic new material to the field of biblical archaeology. However, the discovery of the Dead Sea Scrolls completely revolutionized the field of biblical studies by shedding light on the Hebrew Bible according to actual texts that date more than 2,000 years ago.

Suggested Reading

Davies, Brooke, and Callaway, *The Complete World of the Dead Sea Scrolls*.

Magness, *The Archaeology of Qumran and the Dead Sea Scrolls*.

Vermes, *The Complete Dead Sea Scrolls in English*.

Questions to Consider

1. Do you think the Dead Sea Scrolls originally belonged to the library at Qumran, or are they more likely to have been brought from elsewhere, such as Jerusalem?

2. What do you think is the actual reason that none of the treasures mentioned in the Copper Scroll has been found?

Lecture
15

The Myth of Masada?

The ancient site of Masada in Israel has been a tourist attraction since Yigael Yadin first excavated the top of the mountain in the mid-1960s. It is the second most popular tourist site in Israel after Jerusalem and was named a World Heritage Site by UNESCO in 2001. Overall, Yadin's excavations at Masada served as a milestone for archaeology in Israel, especially in terms of his use of multinational volunteers and numerous other aspects of the logistics of the operation. The excavations remain significant today for tourism and because they are at the heart of recent discussions regarding the nature of interpretations made by archaeologists.

Milestones in Archaeology

- The work conducted by Yigael Yadin at Masada from 1963 to 1965 was a milestone for archaeology in several ways. For example, Yadin was the first to use international volunteers to help dig the site. The sheer number of volunteers who took part—no fewer than 300 at any given moment—was also amazing.

- In addition, the logistics of running the dig were staggering. Helicopters were sometimes commandeered to fly tools and equipment to the top of the mound, though the more usual route was to carry everything up via the Roman siege ramp. In the case of heavier equipment, a cable system next to the ramp was used.

- And the excavation itself has become the stuff of legend. Yadin says that when they first began planning the excavation, they couldn't see any structures with a recognizable plan on top of Masada. The entire area, he says, was covered with "mounds of stone and rubble." In actuality, though, many of the buildings could be plainly seen in aerial photographs.

- By the time the excavations were finished, the archaeologists had discovered an elaborate site with two palaces, one on the northern end of the rock plateau and one on Masada's western side.

- In addition to the two palaces, Yadin's team found rooms and buildings that served as tanneries, workshops, and a synagogue. They also found numerous storage areas to hold food and other provisions, some of which had jars that still contained charred grain from the final destruction, and many cisterns for holding water.

- Some of the walls were covered in plaster painted with colorful images, and a few of the floors were inlaid with mosaics featuring elaborate designs. Only fragments of these artworks remain.

- Yadin reconstructed some of the original buildings from fallen stones, including a large complex of storerooms in the northeastern part of the site. Here, just the lower portions of the walls were left, but the stones from higher up in the walls were all lying where they had fallen. Yadin and his team reconstructed the rooms and walls, which turned out to be 11 feet high.

- According to Yadin, his team also put "every grain of earth … through a special sieve"; close to 50,000 cubic yards of dirt was sifted. This was the first time that every single bucket of dirt had been sifted at an excavation in Israel. As a result, the team found numerous small items that would probably otherwise have been missed, including hundreds of coins, pieces of pottery, and small items of jewelry. The coins allowed Yadin to date the remains very precisely, particularly the coins that had been made just a few years earlier, during the First Jewish Revolt.

- However, Yadin's excavations at Masada have also been the subject of much debate in recent years, especially over his interpretation of the remains and his use of them in reconstructing the ancient narrative of what happened at the site.
  - Masada serves as an example of how archaeologists use historical information to supplement what they find during their excavations and to flesh out the bare details provided by their discoveries.

- In this case, Yadin made particular use of the writings of Flavius Josephus, the Jewish general who became a Roman historian and wrote two books about the Jews in the 1st century A.D.

The Siege at Masada

- Masada is located at the southern end of the Dead Sea, at the opposite end from Qumran. Here, the Romans mounted a siege against a small group of Jewish rebels in 73 A.D. Josephus is perhaps our main source for information about the siege, relating the story of a mass suicide by the Jewish defenders.

- In 66 A.D., in the First Jewish Revolt, the Jews in what is now Israel rose up against the Romans who were occupying their land. That revolt lasted until 70 A.D., at which point the Romans captured Jerusalem and burned most of it to the ground, including the Temple that had been built there by Herod the Great to replace the original one constructed by King Solomon.

- When the rebellion ended, a group of rebels managed to escape the destruction of Jerusalem and settled at Masada. Led by a man named Eleazar ben Yair, these were the Sicarii, or "dagger men." They took over the fortified buildings and palaces that Herod had built on top of Masada as a place of last refuge for himself and his family, should they ever need it.

- In his account of events at Masada, Josephus gets some details wrong, leading scholars to suspect that he wasn't there himself but used someone else's notes. Other details, however, are correct; for instance, Josephus describes the floors in some of the buildings that "were paved with stones of several colors" and the many pits that were cut into rock to serve as cisterns.

- The rebel group held out at Masada for three years, raiding the surrounding countryside, until the Romans decided to put an end to the final remnants of the rebellion.
  - According to Josephus, the Romans, led by General Flavius Silva, surrounded Masada with a wall that encircled the

mountain, with separate garrisons or fortresses built at spaced intervals to prevent escape.

- Next, the Romans began constructing a long ramp of earth and stones, making use of a natural ridge that reached from the desert floor to within "300 cubits" of the top of Masada. Once the ramp was finished, siege engines, such as a battering ram, catapults, and ballistae, could be wheeled up its length and used against the walls of Masada.

- Again, according to Josephus, General Silva ordered the battering ram to be dragged up the ramp and set against the wall. The Romans expected that the great piece of pointed wood that formed the battering ram would allow them to breach the wall quickly.

After Yadin's excavations at Masada, the Israeli army held induction ceremonies there for new recruits, making them swear that "never again; never again" would they allow such a thing to happen.

- However, the Jewish defenders had created their own wall just inside, which was made of wood and earth so that it would be soft and yielding. This second wall, set up against the stone fortification wall, helped to absorb the blows of the battering ram. Thus, it took the Romans far longer than they expected to break through the outer wall. And when they did, they were faced with the thick inner wall.

- In the end, the Romans simply set fire to the wall, Josephus says, and made preparations to enter the city. However, by the time the flames had died down, night had fallen, and the Romans returned to their camps; they prepared to overrun the defenders in the morning.

- This brief respite from the Roman attack gave the Jewish defenders the time and opportunity to decide to kill themselves rather than be killed or taken prisoner by the Romans. Josephus says that Eleazar ben Yair, their leader, asked each family man to kill his own wife and children.

- The men then drew lots, choosing 10 of their number to kill all the others. One man was then selected to kill the remaining 9 and himself, thereby becoming the only person to technically commit suicide, which is against Jewish law. When the Romans entered the next morning, they were greeted by silence. Only when some women and children emerged from their hiding place in a cistern did they learn the truth of what had happened. According to Josephus, 960 people died that night.

- The story is quite dramatic and has reverberated down through the ages; however, Josephus's account has a number of flaws. For example, if the Romans had punched a hole in the wall even as night was falling, they would never have returned to their camp. It's much more likely that when the Romans breached the wall, they poured in and massacred the Jewish defenders. Josephus, writing later back in Rome and using notes from the commanding officers who were actually present, was probably asked to whitewash the whole affair, and he used his own experience of a mass suicide at a site called Jotapata in 67 A.D. to do so.

Interpreting the Finds at Masada

- As mentioned, Yadin's interpretation of the objects he found at Masada remains a matter of great debate. For instance, among the objects found were belt buckles, door keys, arrowheads, spoons, rings, and other items made of iron, in addition to a great deal of pottery and many coins. Yadin interpreted these as belonging to the Jewish defenders of Masada, and they may have, but some of these items might have belonged to the Roman besiegers or even to later inhabitants or squatters at the site.

- Yadin's team also found fragments of scrolls, including a fragment with text identical to one found in the caves at Qumran. This find led Yadin and many other scholars to wonder whether there was any connection between the defenders of Masada and the Essenes at Qumran.

- Perhaps most importantly, Yadin also found bodies at the site, though fewer than 30 in all. Twenty-five of these were in a cave near the top of the southern cliff face, and 3 others were found near a small bathhouse on the lower terrace of the northern palace. Yadin believed that these three—a man, a woman, and a child—formed a family group.
    - This belief has been the focus of much debate over the years, as have the pottery sherds with names written on them in ink that he found, including one that says "ben Yair." To Yadin, these bodies and the sherds confirmed Josephus's story and the existence of Eleazar ben Yair.

    - However, more recent forensic analysis indicates that the bodies Yadin wrote about were only a few years apart in age and couldn't possibly have been a family.

- Some scholars have reviled Yadin and others have revered him, but overall, his excavations in Israel were remarkable for their use of volunteers and their ingenuity in facing logistical challenges, as well as the discussions they sparked about the nature of archaeological interpretation.

Suggested Reading

Ben-Tor, *Back to Masada*.

Ben-Yehuda, *The Masada Myth*.

Yadin, *Masada*.

Questions to Consider

1. Do you think Yadin's personal beliefs influenced his interpretation of the finds at Masada?

2. What do you think actually happened that night on top of Masada—a mass suicide or a mass slaughter?

Lecture
16

Megiddo: Excavating Armageddon

Megiddo is a 70-foot-high manmade mound. Inside the mound are at least 20 separate cities, built one on top of another, with the earliest dating back 5,000 years ago and the most recent dating to about the time of Alexander the Great. Many famous people have fought at Megiddo or in the surrounding Jezreel Valley, from the pharaoh Thutmose III in 1479 B.C. to Deborah, Gideon, Saul, and other figures from the Bible. The Romans fought here, too, as did the Crusaders, Mamluks, Mongols, Napoleon, and General Allenby in World War I. But of all the battles fought at Megiddo, the most famous is still to come: the battle of Armageddon, mentioned in the Book of Revelation.

Gottlieb Schumacher's Excavations

- In Hebrew, *Har Megiddo* means the "mound" or "mountain" of Megiddo; in Greek, the word was originally written *Harmageddon*, but over time, the initial *H* was lost, and it became *Armageddon*. A man named Gottlieb Schumacher conducted the first excavations at Megiddo from 1903 to 1905. He was actually an engineer by training, but he used the archaeological excavation methods current in his day.

- One of those methods involved employing hundreds of workmen to dig a huge trench through the middle of the mound. This trench yielded a tomb from the Middle Bronze Age that held the bodies of a number of men and women, along with gold objects and other finery.

- Schumacher also found one of the most famous objects ever to be discovered at Megiddo, an oval seal about 1.5 inches wide made of a type of stone called jasper. It has a lion on it and the name "Shema, servant of Jeroboam." It's not clear which Jeroboam this is because there are two mentioned in the Bible. Unfortunately, the seal is now missing.

- Schumacher's workmen also missed or discarded things while they were digging, including stones from walls that they took apart. One of these stones turned out to have the cartouche of the Egyptian pharaoh Shoshenq on it, but the workmen didn't notice it. Later, the stone was recognized for what it was—part of a monumental inscription that probably stood about 10 feet high. It would have been erected at the site as a victory inscription after Shoshenq captured and occupied the city.

University of Chicago Excavations

- A team from the University of Chicago dug at Megiddo for approximately 15 years, from 1925 to 1939. This project was under the direction of James Henry Breasted, founder of the Oriental

The Jezreel Valley is a perfect place for a battlefield, which may explain why at least 34 battles have been fought there over the past 4,000 years, most for control of Megiddo or nearby areas.

Institute at the University of Chicago, with a series of field directors who included Clarence Fisher, Gordon Loud, and P. L. O. Guy.

- The Chicago expedition was at the forefront of a new type of archaeology that was more careful and scientific than the type practiced by Schumacher. Courtesy of Sir William Matthew Flinders Petrie, archaeologists now knew about stratigraphy and pottery seriation, that is, the changes in pottery styles over time; thus, they could tell one city from another and do more accurate dating.

- Funded with money from John D. Rockefeller, the Chicago team started out doing horizontal excavation, in which they exposed one layer over the entire site, recorded it, then picked it up and removed it all so that they could expose the next layer. This approach was used for two full layers before the team started to run out of money and switched to vertical excavation. In a few areas, the digging goes much deeper—all the way to bedrock in some cases—which is how we know that there are at least 20 cities within the mound.

- The Chicago team was still prone to use the biblical account to buttress their findings at the site. Thus, when they were excavating a series of structures that looked like stables for horses, they turned to the book of 1 Kings to help with their identification.
    - There, they found two passages that they thought were relevant, in 1 Kings 9 and 1 Kings 10, both of which mention construction ordered by King Solomon. Combining the passages, the Chicago team decided that Megiddo must have been one of Solomon's cities and that the structures were stables dating back the 10th century B.C. Still today, the tour guides refer to these structures as Solomon's Stables.

    - However, similar structures have been found at other sites. Although those at Megiddo may indeed be stables, it is also possible that they were used as storehouses, as barracks for soldiers, or even as a *suq*, or marketplace.

- Moreover, radiocarbon dating and pottery found within these structures now indicate that they are unlikely to have been built during the time of Solomon. They probably date to at least a century later.

Yigael Yadin's Excavations

- The next person to lead an excavation at Megiddo was Yigael Yadin, who went there for a few brief seasons in the 1960s and 1970s. One of the things that Yadin and his team uncovered were the foundations of what appeared to be a large structure that he called Palace 6000.

- Only the foundations were left because the building lay directly underneath the northern set of "stables" that the Chicago team had found. The large blocks from Palace 6000 had been reused in the later building to make the troughs in which to put food for the horses.

- Yadin believed that this palace, not the stables above it, had been built by Solomon, but he had no proof beyond the same biblical passages cited earlier and the fact that he thought the palace was built at the same time (in the 10th century B.C., during Solomon's rule) as a large entrance gate to the city itself.

- A later archaeologist, Israel Finkelstein, used pottery found at the site to date both the gate and the palace to the 9th century B.C., although this date is still debated.

Recent Excavations

- Finkelstein has been leading the new set of excavations at Megiddo since 1992, with a series of codirectors. This team re-excavated the area in which both Yadin's Palace 6000 and Chicago's "stables" were located.

- In the part of the site called Area H, the buildings now on the surface are two palaces that date to the Neo-Assyrian period (the 8th century B.C.). The Chicago team exposed them but didn't dig any deeper in the area. The recent team has excavated a *step trench*

down the side of the mound here to get a glimpse into the history of the site. As of 2014, the team had reached back into the Middle Bronze Age, in the middle of the 2nd millennium B.C. Along the way, they encountered several layers of ash, burning, and other signs of destruction, marking the dramatic end of several of the cities that once occupied the site.

- Among the finds in this area of the site was a small ceramic jar, discovered completely intact but filled with earth. When the earth was removed, out came a cache of gold jewelry, including earrings and many small beads that had probably once been part of a necklace or bracelet. Stylistically, these all date to about the 11th century B.C. and undoubtedly belonged to a fairly wealthy woman.

- In another area, dating back to the 3rd millennium B.C. and the Early Bronze Age, is perhaps one of the largest temples ever found in the ancient Near East. It stretches across an area where a famous round altar is also located. Contrary to many of the tour guides' assertions, there was no child sacrifice done on this altar by the Canaanites.

- In Area K, one of the most interesting levels is a destruction level that seems to be from the late 10th or 9th century B,C. When it became clear that excavators were digging the remains of a house that had been destroyed, they used a technique known as *fine gridding*.
    - Here, the standard 5-meter squares are divided into 1-meter squares, allowing excavators to reconstruct the locations of their finds very precisely. Using this technique, excavators identified the function of each room of the house, from the kitchen to the living room to the bedroom. Several skeletons were found in the house, as well, including that of a woman and several children.

    - What caused the destruction of this level and of the house? Some thought that it might have been done by invaders, such as King David or some other group of Israelites; others

suggested that this might have been the city that was destroyed or captured by the Egyptian pharaoh Shoshenq when he left his inscription at the site. Still others believe that the destruction was caused by an earthquake.

- Another area at Megiddo does have evidence of a battle but not from the time period that excavators initially expected. In a part of the site that the University of Chicago team had excavated in 1925 and 1926, a large number of bullet casings were found that were stamped with dates of 1948 or earlier. Modern excavators also noted that the rocks of the Neo-Assyrian buildings in this area had been moved to form foxholes and firing pits. It was not known, however, who had fired the bullets—Arabs or Israelis.
    - Mostly 8-millimeter bullets were found, which would have been fired from one or more machine guns, most likely placed in the firing pits. Excavators were able to narrow down the type of machine guns that would have been available in 1948 to three specific types, two of which were German and one of which was Czech. They didn't have access, however, to any of those types of machine guns to try a ballistic comparison.

    - Ultimately, the Bureau of Alcohol, Tobacco, and Firearms got involved in the question and helped identify the bullets as being shot from the Czech machine gun.

- In 2009, Israel Finkelstein was awarded a large grant from the European Union Research Council that allowed him to incorporate newer scientific advances into biblical archaeology. One of the places where he used these techniques was at Megiddo, where he brought in specialists to look at specific features, such as vegetative material found on floors after the buildings were abandoned. These types of studies are referred to as *micro-archaeology* and are now being included in many excavations in Israel and elsewhere.

- The excavations at Megiddo are continuing, and recent work by one of the new codirectors, Matt Adams, has now identified the site of the Roman camp that was established next to the ancient mound in the 2nd century A.D. His excavations there are yielding interesting finds, including roof tiles and armor scales, in addition to walls and buildings.

Suggested Reading

Cline, *The Battles of Armageddon*.

Davies, *Megiddo*.

Silberman, Finkelstein, Ussishkin, and Halpern, "Digging at Armageddon."

Questions to Consider

1. Why have so many battles been fought in and around Megiddo?

2. If you could participate in the excavations at Megiddo, what would you most hope to find?

Lecture
17

The Canaanite Palace at Tel Kabri

Tel Kabri is an amazing site—the third or fourth largest in ancient Israel and the only site at which a Middle Bronze Age Canaanite palace, dating to almost 4,000 years ago, is easily accessible for archaeological excavation. However, much about Tel Kabri remains a mystery. No writing has been found at the site, including any tablets that might have documented trade with other areas. Archaeologists are also still trying to learn what caused the destruction or abandonment of the site after 300 years of profitable living—perhaps an earthquake or the drying up of water sources. Whatever it was, the site was forgotten so thoroughly that we now have no clue what its ancient name might have been.

Trial Excavation and Area Survey

- The palace at Tel Kabri was first discovered in the 1960s and excavated in the 1980s, but those initial excavations ended in 1993. In 2003, archaeologist Assaf Yasur-Landau of the University of Haifa conducted a small remote-sensing survey and had found indications that there was more to dig at Tel Kabri. The magnetometer and the electric conductivity tests indicated the probable presence of walls and floors, though it didn't indicate how far down they were.

- In 2005, a small team was assembled to conduct a trial excavation to see if the results of the remote sensing were accurate and if there were enough remains left at the site to merit a multi-season excavation. After about 10 days of digging, the archaeologists came upon walls and floors in the trenches. The remote sensing had been correct; there was architecture present. After that, the team quickly found enough material to justify a multi-season excavation.

- Before embarking on that, though, they decided to spend two summers surveying the region around the site, that is, much of the western Galilee north of Haifa, 'Akko, and Nahariya. The aim was to see the context for Tel Kabri, especially because previous excavations

had shown that it was essentially a one-phase site, occupied only in the Middle Bronze Age, from about 1700 to 1500 B.C. The team wanted to know what else was around in the area at that time.

- Because numerous surveys had already been carried out in the area during the past 30 years or more, the researchers decided to simply revisit sites in the region that previous surveys had already identified as dating to the Middle Bronze Age. They rechecked the pottery at those sites and re-measured the scatters that had been found to see if any of the sites were larger or smaller than previously thought and if they could specifically identify when during the Middle Bronze Age they were occupied.

- Although there may well be other sites in the area that have not yet been found, Tel Kabri is probably one of the largest sites, if not the largest. It was probably the center of a polity of some sort—that is, a small kingdom or a large estate—during most of its existence, until it was suddenly destroyed or abandoned about 1500 B.C.

- In 2009, in another limited season, the archaeologists opened up a few trenches and were able to establish a good stratigraphic sequence and determine that the palace had probably been occupied for 250 or 300 years. They were also able to determine where they should dig when the full team came together in 2009.

Painted Plaster

- In 2009, excavations began in earnest. The archaeologists found the first fragments of painted plaster, which established that finds at the site would give them insight into the international connections and, perhaps, the economics of the ancient palace.

- The fragments of painted frescoes, which came from both wall paintings and a painted floor, were not the first to be found at the site. In fact, it was the earlier discoveries that had brought Kabri to the attention of the Bronze Age archaeological world in the late 1980s and early 1990s. The previous excavators had found an intact painted floor and more than 2,000 fragments from a wall painting

that had been torn off the wall and reused as packing underneath a threshold during a renovation of the palace.

- Both the painted floor and the fragments of the wall painting were done in a technique that was not local to Canaan but was more usually found in the Bronze Age Aegean, such as at Knossos and Akrotiri.

- The painted floor had squares on it, inside of which were painted flowers, such as irises and crocuses. In all, it was a very Minoan-looking floor, more at home on Crete than in the Levant. Similarly, the 2,000 fragments from the wall painting looked more like the frescoes found at Akrotiri, though it is nearly impossible to reconstruct the original picture.

- Most of the fragments of Aegean-style painted plaster found in 2009 seem to be from another wall painting. Although it's not certain what is being portrayed, a few pieces that fit together may form the fin of a flying fish of the wing of a griffin.

The Orthostat Building

- In 2011, the excavators planned to begin digging outside of the palace to compare the inside and outside areas, but they discovered a structure to the west of where they had been digging that had not shown up with remote sensing. Here were the remains of what must have been a beautiful building, or set of rooms, with an entranceway, a large central room, and a smaller back room. The entranceway and the central room had a thick plaster floor. The smaller back room also had a plaster floor, but here, the plaster was laid on blocks made of beach stone that had been carved and placed flat before being plastered.

- These same sorts of stone blocks were also placed upright along the entire length of both the large central room and the smaller back room, just inside the walls on all sides. In each of the blocks was carved a small square dowel hole to enable a vertical rod to be inserted; onto these vertical rods were lowered flat slats of wood.

The end result was rather like Venetian blinds in a modern house, only here, the wooden slats covered up the rock face of the walls, thereby creating a "wooden" room.

- This was an expensive and time-consuming architectural feature. Such carved blocks, especially with dowel holes, are known as *orthostats*; thus, the structure was dubbed the Orthostat Building. Interestingly, although they are known from elsewhere in the ancient Near East, the best parallels for those found at Kabri are in the palaces and sites of Minoan Crete.

- It's not yet clear what this building was used for. It looks a bit like a tripartite temple, but if it was a temple, it wasn't still being used in that manner at the end of its existence, because nothing was found in it except for three smashed storage jars in the back room. Remains of animal bones in and around the building also suggest that it might have been a feasting hall.

The Wine Cellar

- Possible confirmation of that hypothesis may come from finds during the 2013 season, when excavators began to uncover the storerooms of the palace, immediately to the west of the Orthostat Building. Here, they found 40 jars, each 3 feet tall. Each would have held about 100 liters of liquid—or 4,000 liters in total—making this the largest wine cellar discovered from the ancient Near East!

- LiDAR was used as part of the recording at Kabri. LiDAR works somewhat like radar, using light from a laser to produce highly accurate measurements. It's mostly used from an airplane to see through overgrown jungles in Central America, but it can also be used on the ground as a quick and accurate way to measure and record an archaeological situation. In this case, LiDAR yielded a huge amount of data that researchers could later analyze, including the precise location of every jar, accurate to within about 3 millimeters.

- At the same time that archaeologists were excavating and recording the jars, other researchers were conducting organic residue analysis to see what each had held. This process entailed taking a sherd from near the bottom of each jar, then boiling it in a solution that allowed extraction of the residue that had seeped into each sherd when the jar was full. All the jars tested contained either tartaric acid or syringic acid or both, and both of these acids are commonly found in wine.

- The team conducting the organic residue analysis also found indications of numerous additives in the wine. For example, methyl syringate, which was present in many of the jars, usually comes from honey, which means that much of the wine would have been sweetened. Other additives included moronic acid, which comes mostly from the pistachio tree and was used as a resin; cineole acid, which probably comes from either juniper berries or mint; and cinnamic acid, which comes from something called storax and was used as a resin to either help preserve the wine or to coat the inside of the jars.

- Interestingly, the Kabri wine seems to match, at least to a certain degree, the types of wine that are described by a king of Mari named Yasmah-Adad, who lived at approximately this same time, in the 18th century B.C., on the banks of the Euphrates. This king seems to have participated in a "wine of the month" club in which he exchanged wines with a king of Carchemish. This means it's possible that the Kabri wine was shipped from Mesopotamia to Canaan, but it's more likely that it was locally produced.

- In terms of quantity, 4,000 liters of wine would be the equivalent of about 5,300 bottles today, yet it's not enough to consider this a distribution center. Instead, this is probably the king's personal supply, which would have lasted for about a year. However, excavation in 2015 revealed additional storerooms that may have held at least 16,000 liters of wine, or the equivalent of about 21,000 bottles. If that's the case, then the storerooms at Kabri probably represent more than just the king's private supply!

- Eventually, researchers hope to take samples for ancient DNA analysis to determine the type of grapes that were used in making the wine. If they know that and know the additives that were introduced during the production process, they might be able to re-create the wine.

- If, on the other hand, the jars turn out to have held olive oil, wheat, or some other commodity, then the researchers will finally be able to explore the economy of the palace and the ancient site of Kabri.

Suggested Reading

Cline and Yasur-Landau, "Your Career Is in Ruins."

———, "Aegeans in Israel."

Cline, Yasur-Landau, and Goshen, "New Fragments of Aegean-Style Painted Plaster from Tel Kabri, Israel."

Questions to Consider

1. Why would the Canaanite ruler at Kabri have wanted some of the walls of his palace decorated by Aegean artists?

2. Do you think it serves any purpose to try to re-create such items as ancient Canaanite wine?

Lecture
18

Petra, Palmyra, and Ebla

Petra, Palmyra, and Ebla are three amazing sites that have been excavated in Jordan and Syria. Built by the Nabataeans, Petra is a UNESCO World Heritage site, known for its buildings carved from living rock. Palmyra, another Nabataean site, is an oasis in the Syrian Desert. And Elba is a huge site, covering about 140 acres, with a history dating from the 3rd millennium B.C. to 1600 B.C. There are also many other sites in this region, including Jerash and Pella in Jordan and Mari and Ugarit in Syria. Unfortunately, conflict in the Middle East has resulted in destruction at some of these sites, reminding us of just how precious—and fragile—these fragments of the past can be.

Petra

- Petra is located in the Jordanian desert a few hours south from the modern capital city of Amman. Although there were earlier people in the area, the city rose to prominence with the Nabataeans beginning in the 4th century B.C. It flourished for more than 500 years, especially during the time when the Romans were in this area, from the early 2nd century A.D. on. Then, after an earthquake destroyed nearly half of Petra in the mid-4th century A.D. and a second one hit in the 6th century A.D., activity there came to a halt.

- The Nabataeans are still a bit mysterious to us, but Petra seems to have been the center of their confederation of cities, which were focused on controlling the lucrative trade across the Arabian Peninsula. They are known for their hydraulic engineering, among other things, which allowed them to bring water from the occasional flash floods in to Petra through a series of dams, canals, and cisterns.

- The Wadi Musa, usually called the Siq, is the way that most tourists enter Petra today. It's a narrow canyon that twists and turns through sheer rock towering above on both sides. This was probably a ceremonial entrance, rather than the main entrance to the city. The

narrow canyon walls suddenly open up onto a huge open space in front of what is now called the Treasury, more formally known as the Khaznah.

- The Nabateans carved the Khaznah out of the cliff face, as they did with many other buildings and structures at Petra. It was probably built to serve as a tomb but is called the Treasury because of a local tradition that gold or other valuables were hidden in the large urn on the façade; however, the urn is solid stone.

- Heading into the heart of Petra, visitors pass along the Street of Façades, which are tombs carved into the cliff face. On the western side are the remains of the Roman theater, which could hold more than 8,000 people. A little further on are the so-called Royal Tombs, which are, again, carved into the cliff face. The original occupants

In an Internet poll conducted in 2007, Petra was named one of the New Seven Wonders of the World, and indeed, the view of the Treasury as visitors exit the canyon is breathtaking.

of these tombs are debated; we don't even know if they were actually royal. The only tomb whose occupant may be known is that of Sextus Florentinus, who was the governor of the Roman province of Arabia in the 2nd century A.D.

- Along the Colonnaded Street, which gets its name from the columns lining it, is the so-called Great Temple. This might not be a temple at all but the major administrative building for the city.

- On the hill opposite is the Temple of the Winged Lions. It was probably built in the early 1st century A.D., then destroyed in an earthquake a little more than 300 years later. It was first found in 1973 using remote sensing and has been excavated by American teams ever since.

- In the nearby church, which is built over Nabataean and Roman ruins and dates to the 5th and 6th centuries A.D., mosaics were found. In 1993, while in the process of building a shelter to protect the mosaics and the remains of the church, archaeologists uncovered at least 140 carbonized papyrus scrolls.
    - Dating from the 6th century A.D., the scrolls had been caught in a fire that, ironically, preserved some of them, although most are now illegible.

    - Papyrologists have been able to read a few dozen of the scrolls and to determine that they are written in Greek. Most of them have to do with various economic matters, from real estate to marriages, inheritances, divisions of property, and so on, including a case involving stolen goods.

- From this part of Petra, visitors can proceed via a long stairway to the upper reaches of the site, the location of the huge temple known as the Monastery. Like the Treasury, the façade of the Monastery is carved into the living face of the rock. It is approximately 130 feet high, just like the Treasury, but 60 feet wider.

Palmyra

- Palmyra is considered by most archaeologists to be the second most famous Nabataean site. It is an oasis located deep in the Syrian Desert, to the northeast of Damascus. It is also a UNESCO World Heritage site.

- Known as Tadmor in antiquity, this city was active already during the Bronze Age in the 2nd millennium B.C. but had its heyday during the time of the Roman Empire, especially during the 1st through 3rd centuries A.D. It served as a major stop on the caravan routes leading across the desert, connecting the Roman Empire to India and China. Its architecture reflects foreign influences, especially Greco-Roman and Persian. However, the city rebelled against the Romans in the early 270s A.D. in what is known as the rebellion of Queen Zenobia. After putting down the revolt, the Romans destroyed Palmyra in 273 A.D. It was rebuilt but was never the same again.

- The first major excavations at the site, especially of the Roman period ruins, began in 1929, by French archaeologists. The remains they uncovered, including the Temple of Bel and the Agora (marketplace), are impressive, especially the parts that have been partially reconstructed. Swiss and Syrian archaeologists have also excavated there, but the most consistent presence has been that of Polish archaeologists, who were working right up until 2011, when they were forced to leave at the beginning of the civil war in Syria.

- Some of the archaeology at Palmyra is similar to that at Petra. Like Petra, Palmyra has a Roman theater that could seat thousands of people. It also has a long colonnaded street, running from the Temple of Bel at its eastern end to a huge funerary temple at the western end.

- A monumental arch stretches across this main street near its eastern end. The arch was built by the Roman emperor Septimius Severus around the year 200 A.D., possibly to celebrate his victory over the Parthians in Mesopotamia. At about the same time, a *tetrapylon*

On the columns of Palmyra's colonnaded street are small ledges, where statues of the donors who paid for the construction of the street were once placed.

(a type of Roman monument) was built at an intersection about halfway down the street. Of the four pylons now visible, one is original.

- In addition, there is a huge Temple to Bel, or Ba'al, who was originally a Canaanite god from the 2nd millennium B.C. The altar in the temple was consecrated in 32 A.D., but the temple as it looked until fairly recently was probably completed about 100 years later, in the 2nd century A.D. Unfortunately, this temple was destroyed by ISIS in late August 2015.

Elba

- Paolo Matthiae from the Sapienza University of Rome and his team have been excavating the ancient city of Ebla (modern Tell Mardikh) since 1964. The site is absolutely huge, covering about 140 acres. There is a huge lower city and a citadel—a higher

mound—in the middle of the site. On the citadel are the royal palaces, administrative buildings, and so on.

- Four years after starting the excavation, Matthiae's team found a statue dedicated by a local man named Ibbit-Lim. In the inscription, this man said that he was the son of the king of Ebla. This was quite a revelation because previous scholars had thought that Ebla was located further north in Syria, not at Tell Mardikh. However, after further digging, the archaeologists confirmed that they had indeed found ancient Ebla. We now know that Ebla is an extremely important site, with a history dating from the 3rd millennium B.C. to its destruction in about 1600 B.C.

- In 1973, when Matthiae's team began to work on the earlier phase of occupation (dating from about 2400 to 2250 B.C.), they began to discover clay tablets that sparked a controversy.
    - There may be as many as 20,000 tablets in total, mostly dating between 2350 B.C. and 2250 B.C. (Early Bronze Age). The tablets made headlines when the initial decipherment by the original epigrapher of the expedition, Giovanni Pettinato, suggested that Sodom and Gomorrah were mentioned, as well as figures from the Bible, including Abraham, Israel, David, Ishmael, and others.

    - It subsequently turned out that the tablets said nothing of the sort. The mistake in interpretation had been made because the tablets were written in a previously unknown language, now called Eblaite, which made use of Sumerian cuneiform signs. Because he knew Sumerian, Pettinato thought he could read the text, but he ended up completely mistranslating it.

    - Although they contain no biblical references, the Ebla tablets are extremely important. They include lists of kings who ruled at Ebla, treaties, place names, evidence of international trade, and evidence for a scribal school. They also proved that Ebla was a major center, ruling over a kingdom no one previously knew had existed.

- A number of the palaces and buildings at Ebla were destroyed by fire, preserving the ruins and some of the artifacts within them. The smaller artifacts range from a human-headed bull figure made of gold and steatite to fragments of ivory that once adorned pieces of wooden furniture. There is also a fragment from the lid of a stone bowl that has the name of the Old Kingdom Egyptian pharaoh Pepi I inscribed on it, which implies some sort of connection, even if indirect, between Egypt and Ebla at some point.

- Matthiae and his team stopped digging at the site in 2011, because of the Syrian civil war. Since then, it has been looted mercilessly by soldiers and locals. Tunnels have been dug, burial caves full of skeletons have been ransacked, and incalculable harm has been done. It will only be when the current violence racking the country has been reduced and it is deemed safe to return to the area again that we will know the extent of the damage.

Suggested Reading

Amadasi and Schneider, *Petra*.

Matthiae, *Ebla*.

Smith, *Roman Palmyra*.

Questions to Consider

1. What can we do to help prevent the destruction of antiquities during wartime?

2. The excavation of Ebla yielded evidence for a kingdom or empire that we didn't previously know existed. Do you think there are other such ancient kingdoms or small empires still left to be discovered in the Middle East?

Lecture 19

How Are Artifacts Dated and Preserved?

Archaeologists are frequently asked three questions: how they date the objects they find, how ancient objects can still be preserved, and how much are ancient objects worth. The answer to the first question depends on the relative age of the site being excavated. In this lecture, we'll explore several dating techniques used by archaeologists, such as radiocarbon dating, thermoluminescence, and potassium-argon dating. We'll also look at what types of objects are commonly preserved from antiquity and the environments that contribute to their preservation. Finally, we'll close with the reason that responsible archaeologists don't answer the last question: the serious problem of looting antiquities.

Common Dating Methods

- Common methods used to date ancient objects include radiocarbon dating, thermoluminescence, and potassium-argon dating. These techniques are used to determine the *absolute date* of an object, in other words, its date in calendar years, such as 2015 A.D. or 1350 B.C. Because it's not always possible to determine an absolute date, archaeologists sometimes settle for a *relative date*. For example, an object that comes from level 3 at a site must be older than one from level 2, but we might not have an absolute date for either, especially at an early stage in excavation.

- The lab technique used to determine an object's absolute date depends on the relative age of the site being excavated. For instance, if you're trying to date a stone tool from Olduvai Gorge, you might use potassium-argon dating. This technique measures how much potassium is in the rock versus how much argon is in it, because potassium decays and becomes argon over time. Because it takes a very long time for this to happen, this method is best used when the object in question is between 200,000 and 5 million years old.

- Thermoluminescence might be used on certain objects found at sites with a "younger" relative age. Thermoluminescence can

measure the absolute age of something made from clay, such as a storage pot, by measuring the amount of electromagnetic or ionizing radiation still in it. Specifically, this method can tell you how long it has been since the object was baked or fired in a kiln.

- A similar but newer and still experimental method is rehydroxylation, which measures the amount of water in a piece of pottery. When a piece of pottery is fired in a kiln, all the water in the clay is removed during the process. But as soon as the pottery is removed from the kiln and cools off, it begins to absorb water again from the atmosphere at a constant slow rate, regardless of the environment of the vessel. Thus, measuring the amount of water in a particular sherd can determine the last time it was fired and, thus, probably its age.

- A similar method, obsidian hydration, can been done with pieces of obsidian. Obsidian is volcanic glass that was highly prized in antiquity for its sharpness. It also absorbs water at a constant and well-defined rate once it is exposed to air; thus, measuring the amount of water in a particular piece of obsidian can date stone tools and other items.

- Probably the most commonly used dating method is radiocarbon dating, otherwise known as carbon-14 dating. This has a "plus-minus" factor, as in "1450 B.C. plus or minus 20 years"; thus, it is more useful for things that are at least several hundred (or several thousand) years old, rather than things that are relatively close to us in age.
    - The basic idea behind radiocarbon dating is that all living things ingest, either through breathing or eating, a radioactive isotope of carbon. This radioactive isotope, which is called C-14 and is constantly being created in the atmosphere as part of a natural process, combines with oxygen to form a radioactive version of carbon dioxide.

    - Plants incorporate C-14 into their systems during photosynthesis; animals and humans then get it by eating

plants. When the plant, animal, or human dies and stops ingesting the radioactive carbon, then radioactive decay sets in. C-14 has a half-life of just over 5,700 years; that is, half of the original amount will have decayed and disappeared in a little more than 5,700 years.

- By measuring the amount of C-14 that is in something that was once organic, we can figure out when it died (in the case of a human or animal), was cut down (in the case of a tree), or otherwise ceased to exist (as in short-lived plants and weeds). Thus, such items as human skeletons, animal bones, pieces of wood, and burnt seeds can be dated with this method.

- However, there are some known problems with the technique, most of which are linked to the fact that the amount of C-14 in the atmosphere has not always been constant. Thus, calibration curves accounting for such fluctuations have been created, as have other means of correction.

- For large fragments of wood, such as a beam that was once used in a ceiling or as part of a ship, dendrochronology, or tree-ring dating, is used. This technique, of course, involves counting the rings that can be seen in the wood.

- Finally, another way to date something is as simple as noting what was found with it. For instance, if you are excavating a grave in Israel and find a coin in it minted by the Roman emperor Vespasian, you know that the grave cannot date from before his time. Thus, everything in the grave along with the coin should also be from about the same period (unless it was an heirloom at the time that it was buried, which happens).

Preserving Objects

- As mentioned at the beginning of the lecture, people often wonder how ancient things can still be saved. Why haven't they crumbled to dust?

- The answer is that many ancient things have crumbled to dust or have been otherwise destroyed. We probably have only a small percentage of what once existed. But inorganic materials, such as stone and metal, frequently survive. In addition to metal objects, clay objects or fragments of clay objects are often preserved because clay becomes non-biodegradable once it is fired in a kiln.

- Other items that are made of organic or perishable goods are not as durable, though, and it can be difficult to find such items as textiles or leather at most archaeological sites. However, these objects can survive in very dry conditions. In King Tut's tomb in Egypt, for example, all the wooden furniture, boxes, and chariots were found completely intact. The wooden boats buried by the pyramids have also survived for the same reason, as have so many mummy coffins and pieces of papyrus from ancient Egypt.

- Organic materials can also survive in waterlogged conditions. One small wooden writing tablet that dates back to the 8th century B.C. was found submerged in a well at the site of Nimrud in Iraq, and as mentioned, pieces of two more tablets were found in the Uluburun shipwreck. The so-called Bog People, who have been found in such places as Denmark and England, are also good examples of organic materials that have been preserved in a waterlogged environment.

- In addition, organic materials can survive in extremely cold conditions, such as sites in the Arctic, as well as mountains in Peru, Argentina, and Italy. For example, Ötzi the Iceman was found in the Alps in 1991, and the so-called Ice Maiden was discovered in Peru in 1995.

- Finally, organic materials also survive in areas with little or no oxygen. Obviously, such areas are pretty rare, but they exist in such places as deep in the Black Sea, below 200 meters (650 feet), where the water is very still and oxygen doesn't circulate to the bottom. Because there is really no oxygen, there is nothing alive even at the microscopic level that could do damage to artifacts.

Valuing Objects

Matrix, Provenance, and Context

Matrix = Physical Surroundings

Provenance = Physical Surroundings + Time

Context = Physical Surroundings + Time + Associations

- Every object is found in a *matrix*, the physical substance surrounding it, such as dirt, sand, mud, gravel, cement, or water. In addition to a matrix, every object also has a *provenance*, or *provenience*. This is its position both vertically and horizontally at the site, that is, where it sits in time, as well as in space. If you're trying to figure out an object's absolute date in calendar years, you'll have to settle for a relative date in the beginning—before proceeding further—but this

The interpretation of an artifact's context helps us reconstruct the human behavior that led to it being deposited where it was found and can frequently help to determine the absolute date of the object.

is usually obvious; for instance, it's pretty clear if you're digging in Late Bronze Age levels or in Roman levels. Finally, every object has a *context*, which is the combination of its matrix, provenance, and the other things that are found in association with it.

- It is the context of an ancient object that is a large part of what makes it important. In fact, archaeologists estimate that ancient objects that have been ripped from their archaeological contexts and sold on the art market lose about 90 percent of their value, because so little information is now attached to them.

- Looting is nothing new; some of the Egyptian pharaoh's tombs were looted in antiquity. But we are now seeing an upsurge in looting worldwide, including in Afghanistan, Egypt, Iraq, Jordan, Syria, and even Peru.

- On a small scale, illegal digging for antiquities has always been a way of life in some areas and cultures, usually done by impoverished people hoping to supplement their meager incomes. But it now seems that wholesale looting operations have swung into action, including in Syria, where ISIS is reportedly sponsoring and participating in the antiquities trade, including looting entire sites and destroying parts of others, such as Nimrud and the Mosul Museum.

- When the Iraq Museum in Baghdad was looted, some of its most famous pieces were stolen. Many were returned or have been recovered, but others are still missing. Some ended up on eBay, until pressure mounted and such sales were forbidden.

- Subsequently, the looting went beyond the museum and extended to actual archaeological sites in Iraq, with reports of as many as 400 men armed with both shovels and machine guns illegally digging at sites across the country. At least one site, the ancient city of Umma, has been so thoroughly looted that all you can see in the photographs are looters' pits, rather than ancient buildings.

- Lawmakers in the United States have long been interested in stopping the trade in looted antiquities. In fact, one of the earliest laws concerned with antiquities was passed in 1906, specifically because of a huge trade in painted pots from the American Southwest. There are many other such laws on the books now, and additional pieces of legislation are being passed, not only about artifacts found in the United States but also for those found elsewhere and smuggled into this country.

Suggested Reading

Bogdanos, *Thieves of Baghdad*.

Taylor and Aitken, eds., *Chronometric Dating in Archaeology*.

Questions to Consider

1. Can you think of any other methods that might be useful in dating ancient artifacts?

2. Do you think purchasing antiquities, even in places where it is legal, contributes to looting?

Lecture
20

The Terracotta Army, Sutton Hoo, and Ötzi

Considering that many remains from the ancient world have simply vanished, perhaps we should consider ourselves lucky that we have as much as we do. Sometimes it is the absence of something, such as oxygen deep in the Black Sea, that contributes to the preservation of ancient ships. Other times, it is the presence of something, such as peat, that preserved the bog bodies in England and Denmark or ice, which preserved Ötzi in the Alps and the Ice Maiden in Peru. And sometimes we just get lucky and have something unexpectedly preserved or can reconstruct the original by working from the pattern of what has been left. We will discuss all these situations in this lecture.

The Terracotta Warriors

- In 1974, farmers digging a well in China's Shaanxi Province were the first to discover the famous terracotta army. The soldiers, horses, and chariots that make up this army were buried more than 2,000 years ago, in 210 B.C. They were meant to accompany the first emperor of China, Qin Shi Huang, into the afterlife.

- So far, Emperor Qin's terracotta warriors have been found in three large pits, with much more still to be uncovered. There are estimated to be between 6,000 and 8,000 warriors, as well as several hundred horses and perhaps dozens of chariots in these pits.

- About a mile from the pits is Emperor Qin's tomb, which has not yet been excavated, though its location is fairly obvious; the huge mound that covers it is about 140 feet tall.
    - According to the writings of the grand historian of China, which date to about a century after the death of the emperor, it took more than 700,000 men working for about 36 years to construct the tomb and probably the pits, as well.

    - The interior of the tomb is supposedly magnificent, with a three-dimensional map that includes flowing rivers made of

mercury. However, it is also supposed to contain many traps for the unwary tomb robber.

- Someday, archaeologists will probably excavate the tomb, but in the meantime, the surrounding pits are amazing! The first pit to be discovered (pit 1) has about 6,000 terracotta warriors, all life-sized. They are standing in rows, as if at attention in a parade drill. Most of the paint that originally colored their faces, mustaches, beards, and uniforms is now gone, probably because of exposure to the air after they were excavated.

- Pit 2 has at least 1,000 more warriors, as well as horses and chariots. Pit 3 has fewer than 100 warriors, plus some horses and a chariot,

The terracotta warriors found in pits near Emperor Qin's tomb may have been constructed on site in a sort of assembly line, with the head, arms, legs, and bodies made separately, then attached.

but it also has some intact weapons. Some scholars have interpreted this last pit as possibly the headquarters for the army commanders, in part because the figures are taller and are drawn up in battle formation.

- Overall, each of the figures in these pits appears to be an individual, distinguished by facial hair or a uniform or by something he is holding, such as a spear, a sword, a shield, or a crossbow. In reality, though, it seems that there are only about eight different facial types, though there are as many as 25 different styles of mustaches and beards.

- Interest in the terracotta army has led to other discoveries in Shaanxi Province, including the tombs of a later emperor and his wife, buried with 10,000 to 1 million terracotta figures; pits near Qin's tomb that contained figures of acrobats, musicians, courtiers, and officials; and the tomb of Emperor Qin's grandmother.

Anglo-Saxon and Viking Ships

- The Sutton Hoo ship in Suffolk, England, is 27 meters long and was found in 1939. The ship probably dates to sometime between 620 and 650 A.D., during the Anglo-Saxon period. Interestingly, the wood of the ship is no longer present, yet we can see it perfectly. There are stains in the dirt where the wood has disintegrated, there are raised ridges running the width of the ship, and there are rusted iron nails that once held the pieces of wood together. What we've got is almost the shadow of the boat.
    - Most scholars think that the boat was buried with its owner, probably a warrior, a king, or a similar hero. However, no body has been found in the boat or anywhere near it. It's possible that the body and bones decomposed so much that they simply vanished. Another possibility is that there never was a body on the ship. If that's the case, then this is a *cenotaph*, that is, a monument to someone who is actually buried elsewhere.

    - Though it didn't yield a body, the Sutton Hoo ship proved to be a treasure trove in other respects. In the center of the boat

One of the objects in the Sutton Hoo ship that excited a great deal of interest was an iron helmet, complete with a face plate with holes for the eyes and both a nose and a mouth made of metal.

was what seems to be a ruined burial chamber, full of objects, including shoulder clasps made of gold and with enamel inlays, a solid gold belt buckle, and a metal lid with enamel inlays that was probably part of a purse.

- In 2011, a similar discovery was made on the western coast of Scotland. Here, in a burial that is probably about 1,000 years old, is what appears to be a Viking warrior entombed in his boat. The grave is 5 feet wide and about 17 feet long, which is just enough to hold the entire boat. Just as with the Sutton Hoo ship, the wood of this boat has also decayed and is now almost completely missing. There is no body here either, but in this case, archaeologists have found a few teeth and some fragments from the warrior's arm bone.

Bog People

- The so-called bog people have been uncovered in a variety of peat bogs in England and Europe. These once-swampy areas contain peat, which is a deposit of dead and decayed plant material. It can be used as fuel, as insulation for cottage roofs, and so on. The workers who dig in these peat bogs have occasionally found human remains that have been almost completely preserved because of the acidic conditions and the lack of oxygen in the bogs.

- One such body, known as Lindow Man, was found in northwestern England in 1984. The autopsy indicates that he was about 25 years old when he died. He had been hit twice on the head with a heavy object, then strangled by a thin cord, and finally, had his throat cut. He may have been murdered or ritually sacrificed. The man was killed about 2,000 years ago, sometime during the 1st or early 2nd century A.D.

- Another preserved body was found in 1950 by two men cutting peat in a bog in Denmark. Known as the Tollund Man, he dates to the 4th century B.C. In his case, we can see every detail of the leather cap that is still on his head and the belt that is around his waist, as well as the stubble on his face and the rope around his neck that was used to hang him. The man may have been murdered, sacrificed, or

put to death because of a crime. He was probably about 40 years old at the time of his death.

Other Preserved Bodies

- In 1991, another ancient body was found, this time preserved in ice. Called Ötzi the Iceman, he has been the subject of much analysis and discussion since he was accidentally discovered by hikers in the Alps on the border between Austria and Italy. He died in about 3200 B.C.
    - When Ötzi died, his body was among some rocks that were in a gully or hollow. When a glacier crept down the hill, the ice pack went right over the rocks and his body, so that he was preserved under many feet of ice and snow for thousands of years.

    - Initially, hikers and police hacked the body out of the ice, causing damage to Ötzi and his belongings. More scientific archaeological excavations were subsequently carried out in 1992, which retrieved additional artifacts belonging to Ötzi, including his bearskin cap. Since then, detailed studies have been made of Ötzi and his belongings, including a complete workup of his DNA.

    - Scientists determined that Ötzi had brown hair and deep-set brown eyes, a beard, and sunken cheeks. He was probably about 5 feet, 2 inches tall and weighed about 110 pounds at the time of his death, which occurred when he was between 40 and 50 years old. His death must have been a murder because there is an arrowhead embedded in his back.

    - Among the possessions and equipment found were a number of fascinating objects that shed additional light on Ötzi and his environment and way of life. He had 14 arrows with iron tips and a kit to repair them, plus a quiver full of half-finished arrows; he also had a partly finished long bow, a dagger with a flint blade, and an axe with a copper blade. Archaeologists also recovered a firestarter kit and a bone needle. Ötzi had a backpack in which he carried many of these possessions.

- He was quite the well-dressed man, with three layers of clothing. Underneath everything, he wore undergarments made from goatskin. He had leggings made of fur, a coat of leather, and a grass cape, plus a hat made of fur from a brown bear. On his feet, he had leather shoes insulated with straw.

- Ötzi is not the only ancient person to have been found preserved by ice. In 1995, anthropologist Johan Reinhard found a mummy of a 12- to 14-year-old Inca female on Mount Ampato in Peru. She is occasionally called the Ice Maiden or Juanita. She had been buried more than 500 years ago and may have been an Inca sacrifice. Reinhard also found a boy and a girl mummy on Mount Ampato. One PBS television show estimated that there may be hundreds more such Inca children encased in what are now ice tombs on top of peaks in the Andes, where more than 115 Inca sacred ceremonial sites have been found.

- Surprisingly, mummies have also been found in China. What is unique about these is that they have Caucasoid or European features; they are buried with textiles that look similar to plaid; and their DNA suggests that they are of Western origin, with links to Mesopotamia, the Indus Valley, and possibly even Europe. These may be the remains of travelers along the Silk Road.

Suggested Reading

Aldhouse-Green, *Bog Bodies Uncovered*.

Portal, *The First Emperor*.

Spindler, *The Man in the Ice*.

Williams, *Treasures from Sutton Hoo*.

Questions to Consider

1. What do you think archaeologists will find inside Qin's mausoleum when it is excavated?

2. What do you think the boat at Sutton Hoo was used for; was it an actual burial or a cenotaph?

Lecture
21

Discovering the Maya

Thus far, we've been looking at Old World archaeology, that is, the archaeology of Greece, Rome, Egypt, and the Near East. In the next few lectures, however, we'll shift our attention to the New World, exploring such civilizations as the Maya, Inca, Moche, and others. We'll begin in this lecture with Maya civilization and the early explorations of John Lloyd Stephens and Frederick Catherwood.

Stephens and Catherwood

- The earliest discoveries of Maya ruins, at the site of Palenque in what is now southern Mexico, were already being made by 1750 A.D. However, the initial discovery of Palenque went almost unnoticed by the Western world until John Lloyd Stephens's accounts of his travels introduced it to a broad audience in 1841. His travels in Central America with the artist and architect Frederick Catherwood resulted in bestselling travel books.

- In 1839, Stephens and Catherwood set off with a goal of visiting three ancient Mesoamerican sites: Copán, Palenque, and Uxmal. Rather than doing much excavation at these sites, however, the two men explored, cleared away trees and underbrush, surveyed, and drew. But because of their subsequent accounts, they are generally considered to have brought the Maya to the attention of the external world, and in the process, they established the beginnings of what we now call New World archaeology.

- Stephens was an incredibly astute observer—someone who could compare and contrast what he had seen in the Old World with what he was now discovering in the New World. For example, based on his previous experiences traveling in the Middle East, he concluded—quite correctly—that such cities as Copán and Palenque were not built by Egyptians or, as a few had suggested, survivors of Atlantis but by the indigenous people of the area, the Maya.

- Stephens and Catherwood faithfully recorded the hieroglyphics that were engraved on monuments at Copán and elsewhere. Stephens was convinced that once they were decoded, these hieroglyphics would reveal the history of the Maya. In this, he was again correct. When the hieroglyphics engraved on the monuments were finally deciphered, they recorded the history of the Maya in all its gory detail.

- It took the concerted efforts of a number of individuals to crack the Maya writing system, including an Englishman named Sir Eric Thompson, a Russian-American scholar named Tatiana Proskouriakoff, and a Ukrainian scholar named Yuri Knorosov. Knorosov made the ultimate breakthrough in reading the texts by using a manuscript on the Maya written by the 16th-century Spanish bishop Diego de Landa. Although Landa's own understanding of Maya writing was misguided, his manuscript served as an essential key to Knorosov.

- Stephens and Catherwood spent a total of 13 days at Copán, during which time they found 14 inscribed standing stones, or stelae. Catherwood drew all of these, as well as a structure called Altar Q, a fairly small, box-shaped stone, with the names of rulers depicted four to a side. They also cleared the undergrowth from other ruins at Copán, including the Temple of the Hieroglyphic Stairway and the sacred ball court.

Tikal

- After a break in their travels, Stephens and Catherwood went in search of Palenque in April 1840. Along the way, they bypassed the chance to visit a site lost in the jungle that was probably what we now know to be Tikal.

- Had they gone to Tikal, they would have received credit for finding one of the largest Maya cities in the region, with a population of as many 100,000. It wasn't until 1848, about a decade after Stephens and Catherwood came through the area, that Tikal was properly discovered, at least in the eyes of the Western world.

George Stuart, a former National Geographic archaeologist, estimated that there may be another 10,000 buildings from periods before 200 A.D. still buried at Tikal.

- The University of Pennsylvania conducted the first large archaeological project at Tikal from 1956 to 1970. There are approximately 3,000 buildings still visible at the site, though many are still covered by the forest. They include temples and palaces, dating to the period from 200 to 900 A.D.

- There are six temple-pyramids at Tikal, including Temple 1, the Temple of the Grand Jaguar. This temple held the tomb of the great Maya ruler sometimes referred to as Lord Chocolate, who ruled Tikal for 52 years, on either side of 700 A.D. Within his grave were found pieces of jade, shell ornaments, and ceramic vessels originally filled with food and drink. There were also some unusual carved bones, with scenes that appear to be from a Maya creation story.

Stephens and Catherwood in Palenque

- Stephens and Catherwood reached Palenque in May 1840. They stayed at the site for three weeks, although again, they spent most of their time clearing away the jungle growth, rather than actually digging. Among the buildings they uncovered was what we now call the Temple of the Inscriptions, which stood on top of an 80-foot-tall stone pyramid. The temple is famous for three huge tablets with more than 600 hieroglyphics on them.

- Unbeknownst to the explorers, the 80-foot-tall pyramid on which the Temple of the Inscriptions stood also served as the burial place for Lord Pakal, who ruled at Palenque from 615 to 683 A.D. His tomb was not found until 1952, by a Mexican archaeologist named Alberto Ruz Lhuillier.
    - Lhuillier discovered an entrance to the Temple of the Inscriptions at the top of the pyramid. The entrance led to a stairway filled with rubble and, ultimately, Pakal's tomb, 80 feet below the top of the pyramid. It is now thought that the tomb was built first and the pyramid was constructed around it.

    - Pakal was found accompanied by the skeletons of six other people, who had apparently been sacrificed to accompany the ruler into the afterlife.

    - Pakal himself was laid to rest within a limestone coffin or sarcophagus that is 13 feet long. Within the coffin, Pakal's skeleton rested undisturbed, a jade mask still on his face, where it had been placed 1,300 years ago. An amazing number of additional jade objects were also found, including necklaces, ear ornaments, two statuettes, and more.

- Stephens and Catherwood found and described many other buildings at Palenque during the short time that they were there, including the Palace and the Temple of the Cross. There is also, as at so many Mesoamerican sites, a large ball court.

- Palenque has been a magnet for more recent explorers and archaeologists, as well, with discoveries of new buildings and burials from 1993 to 2000. Among the discoveries is the tomb of the Red Queen, which included a tremendous cache of grave goods in Temple XIII. This temple is close to Pakal's burial pyramid, and it has been suggested that the Red Queen may have been Pakal's wife.

Chichén Itzá

- Stephens and Catherwood made a second journey to the Yucatán region in October 1841. The highlight of this journey was their exploration of the site of Chichén Itzá. It wasn't until 1895, however, that a systematic exploration of the site was conducted by Edward Thompson. His excavations covered a period of 30 years and included dredging the sacred cenote, pulling up both artifacts and human remains.

- Chichén Itzá flourished later than most of the other Maya sites we have discussed, reaching its peak from 800 to 1200 A.D., in part because of the arrival of the Toltecs during the midpoint of this period.

- Stephens described the cenotes of the Yucatan as "immense circular holes, from sixty to two hundred feet in diameter, … and having at the bottom a great body of water." There were two at Chichén Itzá; the larger one was in the middle of a thick forest. Stephens was well aware of the tradition that human victims had been thrown into it.

- During the dredging and exploration of the sacred cenote by Thompson and others, human remains were indeed found, including the skeletons of at least 50 victims. Objects of jade and gold disks were also found, as were copper bells and other items. It is clear that sacrifices of many different kinds were made at this cenote over the years—and not just by the Maya; many of the objects are of Toltec manufacture, dating to the last two centuries or so of occupation at the site (ca. 1000–1200 A.D.).

- A large number of buildings have been found at the site, including the Temple of the Jaguars, the Temple of the Warriors, the Pyramid of Kukulkan, and the Platform of Venus. Some of these, including the Temple of the Jaguars and the Temple of the Warriors, contain murals and scenes depicting the conquest of this area by the Toltecs.

- Also at the site is an astronomical observatory, a long stone rack featuring numerous skulls carved in stone, and a huge ball court. Many of these structures date from the time of the Toltec period at the site.

The Use of LiDAR in the New World

- As far as the future of Maya studies goes, one of the most exciting developments in recent years involves the use of LiDAR for mapping known sites, discovering new ones, and discovering

The stone skull rack at Chichén Itzá features numerous skulls carved in stone, undoubtedly to simulate the genuine article.

previously unknown buildings at known sites. The problem with many of these Maya sites is that the forest grew over them and hid them from the outside world for long periods.

- As we've said, LiDAR is a remote-sensing technology that works like radar but uses light from a laser to produce highly accurate measurements by bouncing the laser beams off the ground and, thereby, creating three-dimensional images using hundreds of thousands of data points. It's usually used from an airplane and is especially useful in Central America, because it can quite literally see through the trees in a jungle or rain forest and provide images of lost temples, buildings, and even cities that are completely overgrown.

- Probably the best-known example was the use of LiDAR to map the Maya city of Caracol in Belize in 2009. Using an advanced LiDAR system, a huge patch of what looked like jungle from above was shown to contain buildings, roads, and other parts of a massive city that was hidden from sight.

- However, what is still a mystery is why the Classic Maya civilization came to an end just after 900 A.D., with all or most of the great sites abandoned and subsequently lost to the rest of the world. A favorite suggestion has been that the Maya were unable to deal with a century-long drought, but this is by no means certain. Numerous other hypotheses have also been put forward, including explanations that involve overpopulation and deforestation. But for this mystery to be resolved once and for all, more investigation is definitely needed.

Suggested Reading

Coe, *The Maya*.

Koch, *John Lloyd Stephens and Frederick Catherwood*.

Stuart, *The Order of Days*.

Questions to Consider

1. Do you think that Stephens's background in the Middle East helped him to recognize that the Egyptians or people from Atlantis did not build the Maya cities?

2. If new cities or even simply buildings are now discovered through the use of LiDAR, should we excavate them or leave them for future archaeologists who might have better techniques?

Lecture 22

The Nazca Lines, Sipán, and Machu Picchu

In terms of archaeology in South America, the Nazca Lines in Peru resonate with the general public more than almost anything else. These huge figures drawn in the dry desert soil—technically known as *geoglyphs*—include a spider, a dog, birds, monkeys, a tree, and what appears to be an ancient astronaut. Although they had been known since the 1920s, they became famous worldwide beginning in the 1960s with the publication of Erich von Däniken's *Chariots of the Gods*. In this lecture, we'll explore the Nazca Lines, along with the Moche culture and the royal tombs of Sipán and Machu Picchu.

The Nazca Lines

- In his book *Chariots of the Gods*, Erich von Däniken decided that ancient astronauts must have been responsible for the Nazca Lines in Peru, in part because of one strange figure that looks like an astronaut and in part because he identified some of the lines as "landing strips" for ancient aircraft or spaceships. Almost all archaeologists disagree with von Däniken's conclusions, but a considerable portion of the public seems to have taken his theories seriously.

- The Nazca Lines are located in the high desert of southern Peru, about 200 miles from Machu Picchu. Rather than being the handiwork of ancient astronauts, they were probably made by an indigenous group known as the Nazca. The Nazca lived in this area between 200 B.C. and 600 A.D., and their graves and other ancient settlement remains are located near the lines.

- This theory of the origin of the lines is in part backed up by the similarity of the lines with designs found on Nazca pottery, including designs of animals, birds, and humans in red, white, and black paint on the vessels. In addition, carbon-14 dating done on the wooden stakes that were found at the ends of some of the lines indicates a date of about 525 A.D., plus or minus 80 years

(sometime between 445 A.D. and 605 A.D.), which matches well with the known date for the Nazca presence in this area.

- Interestingly, the Nazca may not be the first people to create such lines in this region. An earlier culture known as the Paracas, from which the Nazca might have evolved, also created geoglyphs in the desert just a bit further to the north, near the modern town of Palpa. These date hundreds of years earlier in some cases. They are mostly found on the sides of hills rather than on the desert floor and include enigmatic human figures, as well as more of the "landing strips" to which von Däniken refers.

- The Nazca Lines drawn in the desert are huge, and there are hundreds of them, ranging from simple lines that go for miles to complex and stylized depictions of creatures. The lines and pictures were created simply by removing the oxidized rocks that form the top layer in the desert and digging down about a foot to reveal the lighter-colored sand that lies underneath. By doing this as a series of narrow lines, either straight or curved, designers can develop the outline of whatever they are interested in depicting and can create a picture that is easily seen from above, even if it isn't always readily identifiable.
    - In fact, in some cases, it's not clear at all what is being portrayed. For example, one animal is definitely a monkey, but it has no eyes or nose and has four digits on one paw and five on the other.

    - In contrast, there is a very convincing—and rather scary—spider that is 150 feet long. One of its hind legs goes way out of the bounds of the picture, perhaps representing the silken thread to which the spider is attached.

- Many people have put forth theories about the Nazca Lines since they first were noticed in the 1920s. Most recently, a joint German-Peruvian expedition has been documenting and studying the geoglyphs in both the Nazca area and the Palpa region. These researchers have found the ruins of many Nazca villages, with glyphs near virtually every settlement.

The figure of the astronaut in the Nazca Lines is almost 100 feet tall, with a bubble head and large, owl-like eyes.

- These findings suggest that there is a long history of such glyphs in the region, with some superimposed on others. It is also now clear that the earliest lines were created on hillsides, where they could be seen from the plain below, rather than from the air.

- Even the more complex lines have now been shown to be single-line drawings; a person could start walking at a specific point and walk along the line without ever having to cross another line. Thus, it has been suggested that the lines were used in ceremonial processions.

The Moche Culture and the Royal Tombs of Sipán

- In 1987, a royal tomb dating to about 250 A.D. was found in the area of Sipán in northern Peru. This was where the Moche culture flourished from 100 to 800 A.D. The tomb was excavated by a Peruvian archaeologist named Walter Alva.
    - At the time, Alva had received a call from the local police station near Sipán. It seems that several tomb robbers had had a falling out after finding a wealthy tomb and were fighting over the objects they found. Rather ironically, one of them called the police for help. The police confiscated the objects and called Alva.

    - Alva was amazed at what the police showed him and took a team of archaeologists back to where the robbers said they had found the tomb, which turned out to be in a huge pyramid made of mudbricks.

    - Alva hoped that there might be other tombs in the area that the looters had missed; thus, he and his team began a proper excavation. Soon, they did indeed find several other tombs, including one that belonged to the Lord of Sipán. Objects from these tombs, especially the Lord of Sipán's, were the New World equivalent of finding King Tut's tomb in terms of sheer quantities of valuable objects.

    - Subsequently, much archaeology has been done at a variety of Moche sites in northern Peru. Additional graves were found in 2001, and yet another grave in 2006, this time of a warrior woman, all of which were published in *National Geographic*.

- The Lord of Sipán's tomb is basically a large room measuring about 5 meters by 5 meters. After entering, excavators first found the body of a man whose feet had been cut off, possibly to ensure that he would stay in the tomb to protect the occupants, rather than walking away in the afterlife.

- The Lord of Sipán himself was found in the middle of the chamber, with additional burials on all sides of him. Counting the man whose feet had been cut off, there may have been as many as 11 people in the tomb besides the lord himself.

- There was also a total of more than 450 objects buried in the tomb, many of precious metal. Among the most interesting of these objects is a set of ear ornaments that features what appears to be a three-dimensional representation of the Lord of Sipán himself, complete with a spear or scepter, shield, ear ornaments, and a necklace of what may be skulls. If the lord wore this set of ear ornaments as part of his outfit when he was dressed up, then he'd be wearing a miniature of himself.

- In addition, several *backflaps* were found in the tomb, made in silver, gold, and bronze/copper. These were worn, as the name suggests, as part of the backside of an outfit. On several of these, the so-called Decapitator God is pictured, standing on what looks like a row of skulls.

- As for who this important person in the tomb actually was, Moche specialists have suggested that he may have been the Warrior Priest, who is known from pictorial scenes found on Moche pots and painted on murals. One of the most famous themes in these scenes is the so-called sacrifice ceremony.
    - In this ceremony, sacrificial victims had their throats cut and their blood poured into goblets for priests and other participants to drink.

    - The Warrior Priest is always shown wearing such ornaments as a helmet and headdress, backflaps, and earrings and carrying a large goblet or scepter, just like the Lord of Sipán has in his tomb. If that is the case, then the scenes that are portrayed on the pottery and in the murals apparently represent real events and people.

Machu Picchu

- The city of Machu Picchu is located in the southern part of Peru, directly east from the region of the Nazca Lines. It was first built about 1450 A.D. and was abandoned less than a century later, around 1532 A.D., at the time of the Spanish Conquest. It was an Inca site, located about five days walk from Cuzco, which was the Inca capital at the time. However, its exact purpose and function are still debated. Was it a winter or summer residence for the Inca king, or was it some sort of astronomical observatory?

- Hiram Bingham, who was a professor at Yale, gets credit for the discovery of Machu Picchu, which was first brought to the attention of the world in 1911. He didn't really discover it, though; it was basically just shown to him by the locals, who had always known it was there. Bingham excavated at the site in 1912, 1914, and 1915, then began writing books and articles about his

Looking out over the site of Machu Picchu, you can clearly see that it is split into an upper and a lower town.

discoveries. He actually thought that Machu Picchu might have been the lost Inca city of Vilcabamba, but that is now thought to be located elsewhere.

- The site of Machu Picchu is spectacular, like few others in the world. It encompasses a residential district, presumably where the regular people lived, as well as what seems to be a royal district. There are also temples, warehouses, channels for water, and many agricultural terraces. Within the so-called Temple of the Sun, there is a massive tower known as the Torreon, which was possibly used as an observatory (but that is still debated).

- All these buildings were constructed using the standard Inca technique. The stones were cut and fitted together so well that there was no need to use any mortar to bind or seal them. Most of the doors and windows are neither square nor rectangular but, rather, trapezoidal. Obviously, this was a deliberate architectural feature, and some people have suggested that it was to help prevent the buildings from collapsing during an earthquake.

- After his excavations at Machu Picchu, Bingham brought many artifacts back to Yale, where they remained for the next 90 years. Most of the objects were not returned to Peru until 2012. The objects that were returned are now displayed in a museum and research center in Cuzco.

Suggested Reading

Adams, *Turn Right at Machu Picchu*.

Alva and Donnan, *Royal Tombs of Sipán*.

Hall, "Spirits in the Sand."

Questions to Consider

1. How would you interpret the Nazca Lines?

2. How can we stop looting at such sites as Sipán?

Lecture
23

Archaeology in North America

In this lecture, we'll visit a few sites in North America. We'll move around quite a bit—ranging from the shores of South Carolina to the Pueblo ruins in the American Southwest, but this tour will accomplish two goals: First, it will deepen your appreciation for the rich archaeological heritage of North America. Second, it will give you an idea of how legislation has been used in the United States to preserve that distinctive heritage.

CSS *Hunley*

- The Confederate vessel *H. L. Hunley* was the first submarine to fire on a ship in North American waters. However, the *Hunley* didn't really fire its torpedo; rather, the torpedo was attached to a 16-foot-long metal spar at the front of the sub. The target ship was the USS *Housatonic*. In addition to sinking the *Housatonic*, the *Hunley* itself also promptly became the first submarine to sink in North American waters. The incident took place off Sullivan's Island, near Fort Sumter in Charleston Harbor, during the Civil War in February 1864.

- When the *Hunley* rammed the *Housatonic*, the torpedo was left inside the ship, as designed. It was long thought that the crew then backed off about 150 feet before detonating the torpedo via a wire. However, recent evidence indicates that they may have only been about 20 feet away, which means it may have been directly detonated. The Confederates also may not have figured on the concussion shock wave caused by the detonation, or the detonation may have knocked loose a latch on the forward conning tower.

- In any case, when the torpedo went off, the *Housatonic* sank, but so did the *Hunley*, in 30 feet of water and with all eight men on board. It was actually the third time that the *Hunley* had sunk and men had drowned as a result, but this time, it was lost for good, at least until 1995.

- The excavation of the *Hunley* was conducted under the Abandoned Shipwreck Act, which was signed into law in 1988. The act is meant to stop the looting of shipwrecks that sank in either state or federal waters. It gives authority to the federal government and to the state in which the wreck was found.

- The 40-foot-long sub was found on its side, at a 45-degree angle, sunken into the silt of the sea floor, 30 feet below the surface of the water. Raising it involved a feat of engineering, but once it was safely in the laboratory, excavation began almost immediately. The first human remains were soon found, as were scraps of textile, part of a belt, and a corked glass bottle. The matrix of silt had protected the remains from the currents and the seawater, while the relative lack of oxygen had preserved the bodies and other artifacts.

- Excavation and investigation of the *Hunley* has continued since 2000. By now, the complete skeletons and skulls of all eight men have been recovered. One of the crewmembers, Joseph Ridgaway, has been positively identified through a DNA match. Another, the commander, Lieutenant George E. Dixon, has been tentatively identified through a coin he kept with him as a good-luck charm and through a healed bullet wound.

Jamestown, Virginia

- Excavations at Jamestown, Virginia, have been under the direction of William Kelso since the 1990s and have been subsidized in part by the National Geographic Society. They are an excellent example of traditional excavation methodology now enhanced by cutting-edge technology.

- Jamestown was the first permanent settlement to be established by British colonists in what would later become the Commonwealth of Virginia. The settlement was begun in 1607 by about 100 men. Reinforcements, including some women, arrived a few years later. The settlement is probably most well-known to people today because of Pocahontas, the Native American woman who

reportedly saved the life of Captain John Smith and later married a colonist named John Rolfe.

- The site of Jamestown had almost vanished over the centuries. The writings of Captain Smith and others, a small sketch of the site, and a single church tower dating from a later period led Kelso to determine where to place the first trenches. Within hours of beginning excavation, his team found the first artifacts and remains of buildings.

- Immediately, the excavators came up with weapons and armor, as well as pottery, glass, coins, and other artifacts dating to the 17th century. They also found a line of postholes, which was all that remained of the wooden protective palisade wall belonging to the original fort. The wooden posts had long since disintegrated, but the holes in the ground were still plainly visible.

- As the excavations continued, the team found the outline of the whole fort and the remains of five additional buildings. By 2007, the researchers had also found numerous graves and skeletons in a variety of places, ranging from an actual cemetery to single graves underneath the church. The skeletal remains indicated that the men had mostly died before the age of 25. The women didn't live much longer than that.

- Four skeletons in particular caught Kelso's interest. The four bodies had been found in November 2013 in an area of the church. In late July 2015, the media reported that the remains had been positively identified as belonging to some of the early leaders of the colony.
    - According to some of those media reports, the skeletons had been taken to the Smithsonian's National Museum of Natural History, where the world-famous forensic anthropologist Doug Owsley worked on them. He and his team were able to identify the Jamestown skeletons using a combination of forensic analysis and historical records.

- Owsley's team also did chemical testing to determine the diet and such factors as the level of lead in the bones. The results indicated that the dead people were most likely English and of high status, because of their high-protein diet and their exposure to pewter bowls and glazed pottery, both of which contain lead. Their high status, or at least their importance in the colony, was also indicated by the fact that their graves were found under the chancel of the church.

- Two of the four men, Captain Gabriel Archer and Reverend Robert Hunt, were from the original group that arrived in 1607. The other two, Sir Ferdinando Wainman and Captain William West, were from the group of reinforcements that arrived in 1610.

- Kelso and his team uncovered some other human bones in 2012 that they thought merited further investigation.
  - The bones included fragments from a mutilated and incomplete skull and a severed leg bone. Kelso found them in the cellar of a Jamestown house, in a context with the discarded bones of butchered horses and dogs. Owsley had previously found evidence that the settlers at Jamestown had practiced cannibalism on at least one occasion; thus, he was called to study the bones further.

  - Owsley identified the bones as belonging to an English girl who was about 14 years old. Based on a variety of evidence, Oswley, Kelso, and others concluded that she died during the so-called Starving Time—the bleak winter months of 1609 to 1610; they also think that the other colonists ate her after she died.

Kennewick Man

- Owsley was also responsible for examining the skeleton of the Kennewick Man. This skeleton has been the subject of debate since its discovery in 1996, near Kennewick, Washington. In particular, Kennewick Man has stoked the controversy surrounding the Native

American Graves Protection and Repatriation Act (NAGPRA) of 1990.

- NAGPRA required every federally funded American museum and similar institution to provide an inventory of their Native American artifacts, including human remains, funerary objects, grave goods, and so on. Each institution that had such artifacts or remains was required to determine if there were any living Native Americans who could claim a relationship with the inventoried objects. If so, then the institution was required to offer to repatriate the objects, whatever they were.

- Kennewick Man, who died about 8,500 years ago, was discovered in July 1996 and has been the subject of litigation almost since the moment he was found. Native American groups argued that he was

The ruins at Mesa Verde, which include the famous Cliff Palace, are now protected by U.S. law and designation as a UNESCO Heritage site.

Native American and should be repatriated to them, while a number of prominent scholars argued that the remains were too old to be related to any of the current Native American tribes and should be cared for by the federal government. The case was settled in 2002 and affirmed by an appeals court in 2004 in favor of the scholars, although it is still debated today.

Southwestern Sites

- Lawmakers in the United States have been passing legislation aimed at preserving ancient sites and antiquities for more than a century now. In fact, one of the earliest laws concerned with antiquities was passed during the presidency of Theodore Roosevelt, specifically because of a vast trade in looted painted pots and other antiquities from Anasazi sites in the American Southwest. This is known as the Antiquities Act of 1906.

- As a result of this legislation, protection was given to such sites as Chaco Canyon in New Mexico. This site has amazing Pueblo ruins built by the Anasazi, dating between 850 and 1250 A.D.

- Here are a number of *great houses*—huge structures with multiple rooms and multiple stories. One of the best examples is Pueblo Bonito, which had between 600 and 800 rooms and was five stories tall. It was built in stages between 850 and 1150 A.D. It covers three acres, and estimates of its population range from about 800 to several thousand.

- The Chacoan culture covered portions of New Mexico, Colorado, Utah, and Arizona. Imported goods that have been found, including seashells and copper bells, attest to trade with areas as far away as Mexico. It is, however, unclear why Chacoan culture disappeared by about 1200 A.D., though both drought and migration have been suggested, among other factors.

- Also in 1906, an act of Congress established Mesa Verde National Park in southwestern Colorado. Within the park are more Pueblo ruins, including nearly 5,000 sites that date between the 6th and 13th

centuries A.D. There are about 600 cliff dwellings here, running the gamut from small storage rooms to impressively large villages with as many as 150 rooms.

- Other laws followed, including the Historic Sites Act of 1935, which gave the National Park Service the right to identify, protect, and preserve cultural property, such as Native American sites or sites from the colonial era. Another important piece of legislation is the Archaeological Resources Protection Act, which protects archaeological sites on federal land. Such laws are designed to help, rather than hinder, archaeologists, and in fact, have created innumerable jobs in archaeology, as well as opportunities to volunteer on archaeological projects.

Colonial Williamsburg is one North American archaeological site that welcomes visitors and has occasional volunteer opportunities to help excavate at the site.

Suggested Reading

Fagan, *Chaco Canyon*.

Kelso, *Jamestown*.

Ragan, *The Hunley*.

Questions to Consider

1. Are you in favor of using forensic anthropology to try to reconstruct what the people in the *Hunley* or at Jamestown would have looked like?

2. Do you think the legislation passed in the United States regarding the protection of antiquities has been successful, or are there other actions we can take?

Lecture
24

From the Aztecs to Future Archaeology

Some of the most recent discoveries in New World archaeology have taken place at the site of Teotihuacan, about 50 kilometers northeast of Mexico City, and in downtown Mexico City itself. The discoveries in downtown Mexico City have revealed previously unknown remains of Tenochtitlan, the capital city of the people whom we usually call the Aztecs. The city flourished from about 1325 A.D. until its destruction by the Spanish conquistadors in 1521. Of course, it's always been known that the ancient site lies underneath Mexico City, because the Spaniards destroyed much of it before building their own city right on top of the ruins.

Tenochtitlan

- Tenochtitlan was originally built on an island in the middle of Lake Texcoco, with causeways connecting it to the mainland. The actual space available for living was expanded by creating *chinampas,* or floating gardens, which eventually became firmly enough anchored and covered with enough soil that houses and other structures could be built on them. It looks as if the city was then split into four quarters and may have housed as many as 250,000 people.

- Even though modern Mexico City covers the ancient city, buildings and artifacts are constantly being discovered during various construction projects that shed light on what used to be there.
    - For example, the great Calendar Stone was discovered in December 1790, when the Mexico City Cathedral was being repaired. This huge stone is almost 12 feet across and weighs about 24 tons. It may have been used as either a ceremonial basin or an altar. The face in the middle might be the Aztec deity of the sun, which is why some people call this the Sun Stone.

    - The Calendar Stone was probably originally located on or in the Great Temple, usually called the Templo Mayor. Portions of the Templo Mayor itself were originally found in the mid-1900s, with more accidentally discovered in 1978. Since

then, several entire city blocks of houses and shops were torn down in the center of the city so that the archaeologists could investigate the remains.

- The Templo Mayor is actually a double pyramid dedicated to two gods: Huitzilopochtli, who is one of the two main gods of the Aztecs, and Tlaloc, who is the rain/water god. In addition to the actual remains of the temple pyramid, the archaeologists found artifacts of gold and jade, plus many animal skeletons and a rack of human skulls carved in stone. They also found that the Aztecs had buried objects from previous Mesoamerican civilizations!

- In 2006, archaeologists found a stone altar depicting Tlaloc that dates to about 1450 A.D. They also uncovered a monolith—a stone slab—made of pinkish andesite. The monolith depicts the earth goddess Tlaltecuhtli, originally painted with ocher, red, blue, white, and black. It was found lying flat but would have stood 11 feet tall, unless it was meant to lie flat. It weighs 12 tons and dates to the last Aztec period, from 1487–1520. The team that discovered the monolith thought that it might still be in its original position, perhaps at the entrance to a chamber or even a tomb, even though it had broken into four large pieces.

- Two years later, in a stone-lined shaft located beside the monolith, the archaeologists began finding additional Aztec religious offerings, including sacrificial knives made of white flint; objects made of jaguar bone; and bars of copal, or incense. Beneath these, in a stone box, were the skeletons of two golden eagles, surrounded by 27 sacrificial knives. And beneath these were yet more offerings; by January 2009, the archaeologists had found six separate sets of offerings in this one deep pit, which reached 24 feet below street level.
  - Back at the 8-foot-deep mark, the archaeologists found a second stone box, containing the skeleton of a dog or a wolf that had been buried with a collar made from jade beads. It also had turquoise plugs—like earrings—in its ears and bracelets with little gold bells around its ankles.

- The skeleton is also covered with seashells and other remains of marine life, such as clams and crabs. The lead excavator of the dig thinks that the six sets of offerings mark the Aztec cosmology or belief system. For example, the dog/wolf with the seashells would represent the first level of the underworld, "serving to guide its master's soul across a dangerous river."

Teotihuacan

- Teotihuacan actually predates Aztec civilization, although the Aztecs gave the city its name, which may mean the "birthplace of the gods." However, it's still a matter of debate about who actually lived there and what they called their city. It was inhabited from about 100 B.C. to about 650 A.D. and probably had a population of at least 25,000—perhaps even up to 150,000 people when it was at its largest. Teotihuacan influenced hundreds of other Mesoamerican communities during its period of greatness and served as a beacon for later civilizations.

- It used to be thought that the Toltecs built the site, but that doesn't seem to be accurate because the site is earlier than the time of the Toltecs. For the moment, the inhabitants are simply referred to as Teotihuacanos.

- The site is dominated by a long central avenue, called the Avenue of the Dead, along which pyramids and temples were built. These include the Pyramid of the Sun and the Pyramid of the Moon, as well as the Temple of the Feathered Serpent. This last temple probably dates to about 200 A.D. Beginning in the 1980s, a series of pits was found in front of the temple that contained the bodies of nearly 200 warriors, both male and female, as well as their attendants. All of them had their hands tied behind their backs and were obviously ceremonial victims.

- In 2003, a tunnel was detected, leading from one of the plazas near the edge of the city to the Temple of the Feathered Serpent. It has since been mapped using remote sensing devices.

- The tunnel is more than 330 feet long, ending at least 40 and perhaps as many as 60 feet directly below the temple. It was sealed up about 1,800 years ago, with at least six walls erected to block the tunnel at various points along its length.

- During their excavations in the tunnel, the archaeologists have found more than 70,000 ancient objects, including jewelry, pottery, obsidian blades, rubber balls, and hundreds of large conch shells from the Caribbean.

- At the bottom of the tunnel are three chambers and offerings that include four large figurines of green stone, remains of jaguars, jade statues, and significant quantities of liquid mercury, which may have represented an underworld river or lake. The area beyond has yet to be investigated.

The Temple of the Feathered Serpent gets its name from the heads of the feathered serpents that stick out from the façade of the building, which weigh up to 4 tons each.

- We're not sure why, but Teotihuacan was eventually abandoned, probably sometime in the 7th or 8th century A.D. Even so, the location of this site was never forgotten. We know, for example, that the Aztecs used to come to Teotihuacan and were well aware of the people who had once lived there. It is this idea of layers of civilization—that each culture is built on the culture that came before it—that is at the very heart of what archaeologists do.

"Future Archaeology"

- As a thought experiment, try to imagine what such structures as the Washington Zoo, the Smithsonian Museum, or even a Starbucks will look like in the next 200 or 2,000 years. As archaeologists, what would we find in their ruins? Would we identify them properly? And if we misidentified them, in what way would we do so?

- Of all these places, it seems most likely that Starbucks and McDonalds might potentially cause the most confusion. Specifically, there may be a good chance of misidentifying Starbucks as a religion, complete with a goddess wearing a crown. Although this seems like a joke, if enough relevant records do not survive, those could be the kind of interpretations made by future archaeologists.

- Future archaeology is interesting to think about, especially given that we spend so much time looking at previously vanished cultures and don't usually consider what our culture will look like to future archaeologists. Think, for instance, about the fact that so much of our interactions are now online. Most of those interactions will vanish without a trace or will be inaccessible to future archaeologists. What will they conclude about our rate of literacy, for instance?

- It is worthwhile thinking about the fact that our current culture may be wildly misinterpreted by future archaeologists and that we may occasionally or, perhaps, even often misinterpret the past. That is an occupational hazard, but usually, once enough data is found, we

come to a scholarly consensus about the proper interpretation of a building, a site, or even a civilization.

Doing Future Archaeology

- The future of archaeology is likely to see continued advances in technology that will allow us to peer even more easily beneath the earth or beneath the tree canopies in Central and South America. Apart from LiDAR, most of the techniques that we are using, such as magnetometers, resistivity, and so on, are now decades old. It is time for new developments.

- For example, might it be possible to detect plaster or other specific materials through a layer of earth, just as we can now detect buried walls and ditches? Would it make sense to partner with gas and oil exploration companies to use new techniques that might allow us to peer deeper into the depths of a mound or to do so in a series of slices at specific depths?

- At the same time, it seems fairly safe to say that the actual process of physically digging— that is, excavating with picks, shovels, trowels, and dental tools—will continue as it has since the first days of archaeology. There are only a limited number of ways that we can use to dig without actually destroying the remains that we have come to study.

- In this course, we've gone from the earliest archaeologists to the most recent archaeological discoveries, from the first crude excavations at Herculaneum to the high-tech methods being used at Teotihuacan today. We've learned what it takes to find sites and what it takes to dig them. Yet we've only just literally scratched the surface, because archaeology never ceases to yield remarkable discoveries. Every year, we uncover a few more pieces in the puzzle of human history and are able to glimpse a little bit more of the past.

Suggested Reading

Draper, "Unburying the Aztec."

Macaulay, *Motel of the Mysteries*.

Weisman, *The World without Us*.

Questions to Consider

1. How do you think future archaeologists will interpret such places as museums or hotels if they don't actually recognize what they are?

2. Do you think more of downtown Mexico City should be excavated by archaeologists, or do we know enough about the Aztecs already?

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Cline, Eric H., Assaf Yasur-Landau, and Nurith Goshen. "New Fragments of Aegean-Style Painted Plaster from Tel Kabri, Israel." *American Journal of Archaeology* 115/2 (2011): 245–261. Discussion of painted fresco fragments found at Kabri during the 2009 season, published in one of the leading archaeological journals.

Coe, Michael D. *The Maya*. 7th ed. New York: Thames and Hudson, 2005. Classic book on the Maya by a preeminent scholar.

Curtis, Gregory B. *The Cave Painters: Probing the Mysteries of the World's First Artists*. New York: Knopf, 2006. A highly regarded and eminently readable overview of the painted caves in southern France and northern Spain, such as Lascaux, Chauvet, and Altamira.

Davies, Graham I. *Megiddo*. Cambridge: Lutterworth Press, 1986. A small book—almost a guidebook—to the history and ruins of Megiddo; almost nothing else is available at the moment in book form.

Davies, Philip R., George J. Brooke, and Phillip R. Callaway. *The Complete World of the Dead Sea Scrolls*. London: Thames and Hudson, 2002. These

three respected scholars describe the world of the Mediterranean and the ancient Near East at the time of the Dead Sea Scrolls.

de Rojas, José Luis. *Tenochtitlan: Capital of the Aztec Empire*. Gainesville: University Press of Florida, 2012. An up-to-date examination of what we know about the ruins of Tenochtitlan, currently buried underneath modern Mexico City.

Doumas, Christos G. *Thera: Pompeii of the Ancient Aegean: Excavations at Akrotiri, 1967–1979*. London: Thames and Hudson, 1983. An accessible book on the ruins found at Akrotiri on Santorini, written by the current director of excavations at the site.

Draper, Robert. "Unburying the Aztec." *National Geographic* 218/5 (November 2010): 110–135. A fabulous article on the discoveries being made in downtown Mexico City, with great photographs.

Drewett, Peter. *Field Archaeology: An Introduction*. 2nd ed. Boston: Routledge, 2011. A good introduction for beginners on how to conduct excavations and other aspects of field archaeology.

Ellis, Steven. *The Making of Pompeii: Studies in the History and Urban Development of an Ancient Town*. Portsmouth, RI: Journal of Roman Archaeology Supplemental Series, 2011. Written by the current director of the University of Cincinnati excavations at Pompeii, this is a scholarly examination of the city at the time of the eruption of Mount Vesuvius.

Fagan, Brian A. *The Rape of the Nile: Tomb Robbers, Tourists, and Archaeologists in Egypt*. Boulder, CO: Westview Press, 2004. Written by an archaeologist and master wordsmith, this is a wonderful overview of archaeology and archaeologists in Egypt.

———. *Chaco Canyon: Archaeologists Explore the Lives of an Ancient Society*. Oxford: Oxford University Press, 2005. In this book, Fagan brings the ruins of Chaco Canyon to life in a masterful exploration of the buildings and the people who once lived in them.

———. *Return to Babylon: Travelers, Archaeologists, and Monuments in Mesopotamia*. Rev. ed. Boulder, CO: University of Colorado Press, 2007. In this compelling volume, Fagan takes a look back at the early archaeologists and their discoveries in Mesopotamia.

———, ed. *The Great Archaeologists*. London: Thames and Hudson, 2014. Fagan has collected a series of brief vignettes on famous archaeologists, written by their students, close colleagues, or other archaeologists; well worth purchasing and reading time and again.

Fagan, Brian A., and Nadia Durrani. *In the Beginning: An Introduction to Archaeology*. 13th ed. Boston: Pearson, 2014. One of Fagan's bestselling textbooks, used in introductory courses across the United States, this is now in its 13th edition and has been updated with additions by Nadia Durrani, a British archaeologist.

Fash, William L. *Scribes, Warriors and Kings: The City of Copán and the Ancient Maya*. Rev. ed. London: Thames and Hudson, 2001. A look at the Maya through the lens of the city of Copán and its monuments, including information derived from the decipherment of Maya hieroglyphs.

Finkel, Irving. *The Ark before Noah: Decoding the Story of the Flood*. New York: Hodder & Stoughton, 2014. An account of Finkel's translation of a new tablet detailing the story of a great flood; in this version, the ark is round.

Fitton, J. Leslie. *Minoans*. London: British Museum Press, 2002. An accessible book on the Minoans of Crete, written by a respected scholar of the Bronze Age Aegean.

Hall, Stephen S. "Spirits in the Sand: The Ancient Nasca Lines of Peru Shed Their Secrets." *National Geographic* (March 2010): 56–79. An interesting article on the Nazca Lines, full of information and accompanied by gorgeous photographs.

Hawass, Zahi. *Tutankhamun and the Golden Age of the Pharaohs*. Washington, DC: National Geographic Society, 2005. One of the essential

books on King Tut; written by the former Egyptian Director of Antiquities and National Geographic Explorer-in-Residence Zahi Hawass.

Hester, Thomas R., Harry J. Shafer, and Kenneth L. Feder. *Field Methods in Archaeology*. 7th ed. Walnut Creek, CA: Left Coast Press, 2009. A useful field manual, especially aimed at undergraduate and graduate students moving up the chain of command on excavations—those who are being asked to do more than just grab a trowel and excavate.

Hodder, Ian. *The Leopard's Tale: Revealing the Mysteries of Çatalhöyük*. London: Thames and Hudson, 2011. Written by the current director of the excavations at Çatalhöyük, this is an interesting inside look, including his own interpretations of what has been found at the site to date.

Howard, Philip. *Archaeological Surveying and Mapping: Recording and Depicting the Landscape*. New ed. Boston: Routledge, 2007. A useful guide to current archaeological surveying and mapping procedures; interesting to both practicing and armchair archaeologists.

Johanson, Donald, and Maitland Edey. *Lucy: The Beginnings of Humankind*. New York: Simon and Schuster, 1981. The classic book on Lucy, written by her discoverer, Donald Johanson.

Johanson, Donald, and Kate Wong. *Lucy's Legacy: The Quest for Human Origins*. New York: Broadway Books, 2010. The discoverer of Lucy, Donald Johanson, puts the find into a larger context, 30 years after his original book was published.

Kelly, Robert L., and David Hurst Thomas. *Archaeology*. 6th ed. New York: Wadsworth. 2013. Introductory classroom textbook with good discussions on all kinds of archaeological topics, including such discussions such as processualism versus post-processualism; use in conjunction with Fagan and Durrani (2014).

Kelso, William M. *Jamestown: The Buried Truth*. Charlottesville, VA: University of Virginia Press, 2008. Written by the excavator, this is a

fascinating look at the finds at Jamestown, though new discoveries have been made since the publication of this book.

Kenyon, Kathleen M. *Digging Up Jericho*. London: Ernest Benn, 1957. A classic in the field, this is Kenyon's own story of her excavations at the site of Jericho.

Koch, Peter O. *John Lloyd Stephens and Frederick Catherwood: Pioneers of Mayan Archaeology*. Jefferson, NC: McFarland & Company, 2013. To be read alongside, or even in lieu of, the books by Stephens and Catherwood, Koch's account brings their adventures in Central America to life.

Krober, Theodora. *Ishi in Two Worlds: A Biography of the Last Wild Indian in North America*. 50th anniversary ed. Berkeley, CA: University of California Press, 2011. Another classic volume in the field, on Ishi, the last member of his California tribe. Written by the wife of Alfred Kroeber, who was an anthropologist in her own right and mother of the science fiction writer Ursula K. Le Guin.

Leach, Peter E. *The Surveying of Archaeological Sites*. London: Archetype Publications Ltd., 1992. Another useful guide, though a bit dated now, to archaeological surveying procedures.

Leakey, Mary D. *Olduvai Gorge: My Search for Early Man*. London: Collins, 1979. An autobiography of sorts, about Leakey's work in Olduvai Gorge.

Leakey, Richard E., and Roger Lewin. *Origins*. New York: E. P. Dutton, 1979. A standard volume owned by every practicing and wanna-be paleoanthropologist, this is Richard Leakey's take on the finds made by his family and other scholars.

Lloyd, Seton. *Foundations in the Dust: The Story of Mesopotamian Exploration*. London: Thames and Hudson, 1980. This volume by Seton Lloyd, a highly respected British archaeologist, is considered to be one of the most fundamental volumes ever written about early archaeology and archaeologists in Mesopotamia.

Luce, J. V. *End of Atlantis*. London: Thames and Hudson, 1969. J. V. Luce's short but classic masterpiece examines Plato's story of Atlantis and links it to the excavations at Akrotiri and the eruption of Santorini during the Bronze Age.

Macaulay, David. *Motel of the Mysteries*. Boston: Houghton Mifflin, 1979. In this oversized paperback, David Macaulay envisions the hilarious misinterpretations by a future archaeologist investigating the remains of a motel in the United States from the 1970s.

Magness, Jodi. *The Archaeology of Qumran and the Dead Sea Scrolls*. Grand Rapids, MI: William B. Eerdmans, 2002. Magness brings her knowledge and no-nonsense approach to the remains found at Qumran and the nearby caves that contained the Dead Sea Scrolls.

Mallory, J. P., and Victor H. Mair. *The Tarim Mummies: Ancient China and the Mystery of the Earliest Peoples from the West*. London: Thames and Hudson, 2000. Another compelling account of the intriguing mummies found in the region of the Tarim Basin (Ürümchi), China.

Mallowan, Agatha Christie. *Come, Tell Me How You Live: An Archaeological Memoir*. Reprint ed. New York: William Morrow Paperbacks, 2012. An autobiography of sorts from Agatha Christie, who was married to the archaeologist Max Mallowan. This book was written to answer questions from her friends concerning life on an excavation and in the Middle East in general.

Marinatos, Nanno. *Art and Religion in Thera: Reconstructing a Bronze Age Society*. Athens: D. & I. Mathioulakis, 1984. Written by the archaeologist daughter of Spyridon Marinatos, the discoverer of the site of Akrotiri on Santorini, this volume contains her thoughts on finds made at the site, especially the wall paintings found in many of the houses.

Matthiae, Paolo. *Ebla: An Empire Rediscovered*. Translated by Christopher Holme. Garden City, NY: Doubleday, 1981. The original volume written by the excavator of Ebla, this is another classic to be read and treasured by both professional and armchair archaeologists everywhere.

Owsley, Douglas W., and Richard L. Jantz, eds. *Kennewick Man: The Scientific Investigation of an Ancient American Skeleton*. (Peopling of the Americas Publications). College Station, TX: Texas A&M University Press, 2014. The final report—680 pages long and with contributions from more than 65 scholars and professionals—of the investigation into Kennewick Man.

Portal, Jane. *The First Emperor: China's Terracotta Army*. Cambridge, MA: Harvard University Press, 2007. A well-written and well-illustrated account of the terracotta army, from its discovery through the first 30 years of study; should be supplemented by recent finds made since 2007, including more warriors and insights into the paint used on them.

Pulak, Cemal. "The Uluburun Shipwreck: An Overview." *International Journal of Nautical Archaeology* 27 (1998): 188–224. A scholarly overview of the shipwreck and its cargo found at Uluburun, off the coast of Turkey, dating to about 1300 B.C. (Late Bronze Age); written by one of the directors of the project.

———. "Shipwreck: Recovering 3,000-Year-Old Cargo." *Archaeology Odyssey* 2/4 (Sept/Oct 1999): 18–29. An overview of the Uluburun shipwreck and its cargo, written for the general public by one of the directors of the project; nice photographs.

———. "Uluburun Shipwreck." In *The Oxford Handbook of the Bronze Age Aegean*, edited by Eric H. Cline, pp. 862–876. Oxford: Oxford University Press, 2010. The most up-to-date overview of the shipwreck and its cargo found at Uluburun, off the coast of Turkey, written by one of the directors of the project; meant for scholars and students but accessibly written for the general public, as well.

Ragan, Mark K. *The Hunley*. Orangeburg, SC: Sandlapper Publication Company, 2006. One of the most definitive volumes written about the *Hunley* and the excavations, by the resident historian of the recovery and excavation project.

Reeves, Nicholas. *The Complete Tutankhamun*. London: Thames and Hudson, 1990. The best book available on King Tut; written by a former

curator at the British Museum and at Highclere Castle, the estate of the earl of Carnarvon.

Reeves, Nicholas, and Richard H. Wilkinson. *The Complete Valley of the Kings: Tombs and Treasures of Ancient Egypt's Royal Burial Site*. London: Thames and Hudson, 2002. The best volume available on the Valley of the Kings; written by Reeves, the former curator at the British Museum and at Highclere Castle, and Wilkinson, a well-respected Egyptologist at the University of Arizona.

Reinhard, Johan. *The Nazca Lines: A New Perspective on Their Origin and Meaning*. Lima: Los Pinos, 1988. One of Johan Reinhard's first books about archaeology in Peru; he was later named a National Geographic Explorer-in-Residence.

———. *The Ice Maiden: Inca Mummies, Mountain Gods, and Sacred Sites in the Andes*. Washington, DC: National Geographic Books, 2005. The story of the discovery that first propelled Reinhard to international fame, the Ice Maiden found on the slopes of Mount Ampato.

———. *Machu Picchu: Exploring an Ancient Sacred Center*. Los Angeles: Cotsen Institute of Archaeology, UCLA, 2007. In this volume, Reinhard turns his sights on Machu Picchu, investigating it from the viewpoint of an archaeologist working a full century after the original explorations of Hiram Bingham.

Roux, George. *Ancient Iraq*. New ed. New York: Penguin Books, 1992. A bit dated but still a classic, this book was originally compiled from a series of articles that the author wrote for *ARAMCO* magazine, then continuously updated; extremely readable.

Schofield, Louise. *The Mycenaeans*. Malibu, CA: J. Paul Getty Museum, 2007. An accessible and readable introduction to the Mycenaeans of Late Bronze Age mainland Greece, with a great deal of information and minimal use of jargon.

Silberman, Neil A., Israel Finkelstein, David Ussishkin, and Baruch Halpern. "Digging at Armageddon." *Archaeology* (November/December 1999): 32–39. An article by the three codirectors and an archaeological journalist on the first several seasons of the renewed excavations at Megiddo in Israel, which commenced in 1992 and ran every other year.

Smith, Andrew M. II. *Roman Palmyra: Identity, Community, and State Formation*. Oxford: Oxford University Press, 2013. An expert on Roman Palmyra, Smith presents here a full scholarly study of the city and its inhabitants; not an easy read but worth the effort.

Spindler, Konrad. *The Man in the Ice: The Discovery of a 5,000-Year-Old Body Reveals the Secrets of the Stone Age*. New York: Harmony Books, 1995. The Austrian archaeologist in charge of the overall studies of Ötzi the Iceman, Konrad Spindler, has provided the reader with the story of the initial discovery and the first several years of investigation. Much more is now known, but this volume provides the important initial details.

Strauss, Barry. *The Trojan War: A New History*. New York: Simon & Schuster, 2006. Interesting exploration of the Trojan War but with a rather different take on things; engaging, but more fictional narrative than straight facts in places.

Stuart, David. *The Order of Days: The Maya World and the Truth about 2012*. New York: Harmony Books, 2011. Written by David Stuart, the Maya specialist who is the youngest-ever winner of a MacArthur Genius Fellowship, this excellent book was meant to soothe the fears of those who thought the Maya had predicted an end to the world in 2012. Along the way, Stuart introduces the reader to the fascinating civilization of the Maya as a whole.

Stuart, David, and George E. Stuart. *Palenque: Eternal City of the Maya*. London: Thames and Hudson, 2008. Written by a father-and-son team of Maya specialists, this is an interesting exploration of the Maya city of Palenque.

Taylor, R. E., and Martin J. Aitken, eds. *Chronometric Dating in Archaeology*. London: Springer, 1997. This edited volume goes into great detail about the various dating methods available to archaeologists as of 1997; there have been some changes since then, such as the newest technique of rehydroxylation, but much in this volume is still viable.

Vermes, Geza. *The Complete Dead Sea Scrolls in English*. New York: Penguin, 1998. One of the definitive publications in English of all the Dead Sea Scrolls, including the multiple fragments from cave 4.

Vivian, R. Gwinn, and Bruce Hilpert. *Chaco Handbook: An Encyclopedia Guide* (Chaco Canyon). 2nd ed. Provo, UT: University of Utah Press, 2012. A definitive handbook written by two of the foremost experts on Chaco Canyon; well worth reading if you plan to visit the site.

Walsh, John E. *Unraveling Piltdown: The Science Fraud of the Century and Its Solution*. New York: Random House, 1996. One of the accounts of the Piltdown Man hoax, written in a readable and accessible manner.

Weisman, Alan. *The World without Us*. New York: St. Martin's Press, 2007. An intriguing thought experiment and investigation into what would happen if humans were to suddenly cease to exist; the book gave rise to a National Geographic Channel special and speculation by archaeologists about how our civilization might be interpreted—and misinterpreted—by future scientists.

White, Gregory G., and Thomas F. King. *The Archaeological Survey Manual*. Walnut Creek, CA: Left Coast Press, 2007. One of the newest manuals available regarding archaeological surveying procedures.

Wilkinson, Toby. *The Rise and Fall of Ancient Egypt*. New York: Random House, 2013. Universally hailed as one of the most interesting and readable accounts on the history and archaeology of ancient Egypt, this volume will be of interest to many who are fascinated by Egypt.

Williams, Gareth. *Treasures from Sutton Hoo*. London: British Museum Press, 2011. An excellent volume on the finds from Sutton Hoo, including many that are on display in the British Museum.

Wood, Michael. In *Search of the Trojan War*. 2nd ed. Berkeley, CA: University of California Press, 1996. One of the best books written by a nonarchaeologist on the archaeology and history of the Trojan War; accompanied the BCC series of the same name. Highly recommended for those interested in the topic.

Yadin, Yigael. *Masada: Herod's Fortress and the Zealots' Last Stand*. New York: Random House, 1966. Yadin's best-known book, this is his account of the excavations at Masada, written for the general public in an accessible and jargon-free style.

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