

**Classical Archaeology of
Ancient Greece and Rome**
Part I: Creating a Science of the Past
Professor John R. Hale



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Archaeology has been the focus of Dr. Hale's academic career from his B.A. studies at Yale University to his doctoral research at Cambridge University in England, where he received his Ph.D. degree. The subject of his dissertation was the Bronze Age ancestry of the Viking longship, a study that involved field surveys of ship designs in prehistoric rock art in southern Norway and Sweden. During more than 30 years of archaeological work, Dr. Hale has excavated at a Romano-British town in Lincolnshire and a Roman villa in Portugal and carried out interdisciplinary studies of ancient oracle sites in Greece and Turkey, including the famous Delphic Oracle. Currently, he is participating in an undersea search in Greek waters for lost fleets from the time of the Persian Wars. In addition, Dr. Hale is a member of a scientific team seeking to develop and refine a method for dating mortar, concrete, and plaster from ancient buildings—a method employing radiocarbon analysis with an accelerator mass spectrometer.

Most of Dr. Hale's work is interdisciplinary and involves collaborations with geologists, chemists, nuclear physicists, historians, zoologists, botanists, physical anthropologists, geographers, and art historians. He has published his work in *Antiquity*, the *Journal of Roman Archaeology*, the *Classical Bulletin*, and *Scientific American*. He has written a book on the ancient Athenian navy, *Lords of the Sea*, for Viking/Penguin (2006).

Beyond archaeology, Dr. Hale's interests include rowing and music. A veteran of the Yale-Harvard boat race (the oldest intercollegiate sporting event in America!), he was a founder of the Louisville Rowing Club. Dr. Hale also serves as director of education for the Louisville Bach Society.

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Classical Archaeology of Ancient Greece and Rome

Scope:

The field of archaeology, which today covers all periods of the human past in all parts of the world, began as an investigation into the lost civilizations of Greece and Rome. The discipline takes its name from two Greek words meaning “ancient things” and “studies.” Archaeology may be defined as the study of cultures through their material remains. Those remains may range in size from a grain of pollen in a wine jar to an entire buried city.

“Classical” archaeologists are researchers who continue the quest for an understanding of Greek and Roman antiquity. Although their discoveries include written records on clay tablets or papyrus scrolls, Classical archaeologists devote most of their efforts to locating, recovering, and interpreting the seemingly mute remains of ancient sites—marble and mudbrick, bronze and concrete, industrial debris and great works of art, grave goods, cargoes lost at sea, pottery, coins, bones, and the very dirt that encloses them all.

What can you expect to learn from this course? By the end of the 36th lecture, you should have a clear idea of the scope of the field and of the methods that archaeologists use to find, map, and excavate ancient sites. You should be able to follow the process of conserving and restoring artifacts and understand the laboratory methods used to determine the age and provenance of artifacts and materials. Your “archaeological literacy” should embrace the accomplishments of pioneers in the field, the locations of important sites, and the archaeological terms for different time periods, cultures, and classes of artifacts. You should grasp the archaeological evidence relating to myths and legends and to historical events ranging from the trial of Socrates to the massacre of a Roman army. And you should see that no area of Classical archaeology is exempt from controversy, conflict of opinion, and a residue of doubt, uncertainty, and enduring mystery.

Above all, my hope is that this course will enable you to view the world of the Greeks and Romans, not as a sequence of historical events, but as an immense living organism, a system in which society, culture, and the natural environment interact in dynamic, creative, and sometime destructive ways. Out of this matrix came major religious, political, and philosophical concepts that continue to influence modern thought. As for the rich historical record of ancient literature and inscriptions, we are fortunate that these texts allow us to put names and faces to the long-dead individuals who participated in this extraordinary drama.

In terms of chronology, the course will span approximately 2,000 years. Most of the sites and discoveries fall within the “Classical” millennium from the 8th century B.C.—the traditional date for the first Olympic Games and the founding of Rome—to the reigns of the Roman emperors Hadrian and Marcus Aurelius in A.D. 2nd century, when Greco-Roman civilization achieved its fullest integration and widest impact. But to set Classical civilization in context, our survey must reach back in time to the 17th century B.C. and the great Bronze Age centers on the islands of Crete and the Cyclades. We will end at about A.D. 400, with the recall of the Roman legions from the western provinces and the imperial Roman edict that outlawed traditional religious cults in favor of Christianity.

The geographical scope of the course will also be wide-ranging. Archaeologists have excavated Greek cities from Spain to Afghanistan and from the Black Sea to the shores of North Africa. Long after the founding of these Greek colonies, the Roman Empire drew into a single administrative unit the territories of some 40 modern countries, from Britain and Morocco in the west to Romania and Iraq in the east. For both Greeks and Romans, sites on the periphery proved important for commerce and cultural change.

Like Caesar’s Gaul, our course will be divided into three parts. In the first 12 lectures, we will trace the evolution of Classical archaeology from a pastime for collectors and antiquarians to a mature science. This epic story is marked by encounters with great archaeologists, their landmark discoveries, and the techniques they developed to bring the buried past back to life. Classical archaeologists have made many contributions to the field of archaeology in general, ranging from the grid system of excavation to the first scientific underwater “dig.” Today, Classical archaeology is a multidisciplinary team effort that involves not only traditional diggers but geologists, geographers, chemists, physicists, biologists, physical anthropologists, historians, and linguists.

The second part of the course comprises a series of case studies that will take us to the sites of 12 important excavations. These ancient cities, trading emporia, frontier fortifications, religious sanctuaries, and other sites (a shipwreck, a Roman farm, a civic center, a battlefield, and even the interiors of a pair of bronze statues) have been chosen to illustrate the broad range of research in Classical archaeology. Each also features some particular problem, issue, or technical innovation.

The third part will present an overview of Classical civilization from an archaeologist's perspective, with focus on the detailed reconstruction of ancient life made possible by archaeological discoveries. Here, we will continually ask the question: What can archaeology reveal that written historical sources cannot? This part opens with the controversies concerning the origins of Classical civilization and closes with an examination of the evidence for the fall of the western Roman Empire and the end of the Classical world. Our approach for the most part, however, will be thematic rather than chronological. Important themes include the economic underpinnings of ancient society, the lives of those—particularly women and slaves—whose voices are almost entirely excluded from the written record, the technical achievements of ancient engineers and builders, the impact of imperial power and religion, and the vital importance of a common cultural tradition among the lands and communities of Classical antiquity. We will close by considering how the legacy of Greek and Roman civilization has helped to shape our own modern world.

Lecture One

Archaeology's Big Bang

Scope: Archaeology is a big field, and in this course, we focus on a part of that field called *Classical archaeology*. This is not so much a branch as the root of the entire field of archaeology. It was in the archaeology of Greece and Rome that the discipline of trying to understand the past through its material remains began. It's through Classical archaeology that some of the most important advances—such as proper field technique, experimental archaeology, and underwater archaeology—were all brought into this great world of study.

Outline

- I. The word *archaeology* comes from a pair of Greek words meaning “ancient things,” and “study.” Thus, the term means “the study of ancient things.” But that definition is too broad; it would include a number of other disciplines, such as history.
 - A. To understand exactly how archaeology positions itself in the world of inquiry into the past, imagine that you are present at a crime scene where a murder has been committed. Teams of experts from different disciplines, including historians, anthropologists, and archaeologists, try to reconstruct exactly what happened at the scene.
 1. The historians take statements from everyone available, such as eyewitnesses and relatives of the victim. Keep in mind that all the information they take down will be *partial* in both senses of the word: a subjective view and an incomplete view. The anthropologists try to create a picture of the cultural matrix in which the crime occurred.
 2. The archaeologists get down on their knees to measure the footprints in the flowerbed, find the murder weapon, collect the blood stains for analysis, and finally, examine the body itself. Archaeologists deal with the elements that cannot speak for themselves—the physical remains.
 - B. In many cases, the discoveries of archaeology—the mute testimony of material things—seem to speak the truth more clearly than witnesses. Remember, too, that if the crime scene takes place beyond the reach of witnesses—which, for historical purposes, means beyond the reach of written records—archaeology is our only route into the past.
- II. The first person to use the term *archaeology* was the Greek historian Thucydides. In his scientific history on the Peloponnesian War, he not only introduces the term, but he also gives examples of archaeological thinking.
 - A. During his time as a commander in the Athenian navy, graves were dug up on the holy island of Delos in the Athenian maritime empire. Delos was the birthplace of Apollo, the ancestor of all the Greeks, and according to tradition, it had always been a Greek dominion.
 - B. Thucydides records the Greeks' amazement when they dug up the graves and found foreign weapons, implements, and ornaments. Thucydides himself recognized that the artifacts were from a country in the southwest corner of Turkey called Caria.
 - C. From these artifacts, Thucydides drew a simple archaeological conclusion: Greeks had not always been the possessors of Delos; someone else had been there first.
 - D. Thucydides was also the first person to warn us of pitfalls into which archaeologists can fall and to illustrate how material remains can give a false impression. He uses the example of Sparta and Athens, the two great antagonists of the Peloponnesian War. A future archaeologist, looking at the remains of Sparta, would see little to suggest that it was once a supreme power.
- III. Not every field of study knows its exact birth date, but Classical archaeology does.
 - A. On October 22, 1738, Roque Joaquín Alcubierre, an engineer in the army of the Bourbon royal family in Naples, had himself lowered by ropes down a square well shaft, cut through volcanic material that had formed on the slopes of Mt. Vesuvius. As he descended, he used his palms to measure the different layers of volcanic material above what he knew to be a lost city.

- B. When Roque reached the bottom of the well, 65 feet below the surface, he began to wind his way through tunnels carved in the volcanic material, noting pieces of architectural elements as he went. He was in the remains of one of the cities that had been wiped out by the eruption of Vesuvius in A.D. 79, when Pompeii, Herculaneum, and several other Roman towns were destroyed.
 - C. It was Roque's mission as a military engineer to organize the earthworks, the mapping, the drawing, and the recording of a new project. He intended to systematically explore these buried ruins and bring back to the light of day artworks, colored marbles, and inscriptions. Later, interest developed in the discoveries of loaves of bread, lamps, and good-luck charms from the city of Herculaneum. This was the beginning of archaeology.
 - D. On the next day, October 23, Roque Alcubierre did something that made his project different from anything that had been undertaken before. He recorded a list of what had been found and where the artifacts had come from. That is what made his project archaeology.
 - E. Archaeology is not just the study of ancient things. Archaeology also involves identifying and excavating sites, recovering materials, and documenting the process day by day in written records so that later, someone else can go back and reconstruct the process. At that point, artifacts are usually taken to another place.
 - F. Roque didn't have a laboratory, but he had a great hall in the Portici palace, where King Charles had set aside room for all the treasures from the site to be conserved, drawn, and analyzed; ultimately, the results would be published. Every single aspect of modern archaeology was present in that very first excavation at the city of Herculaneum.
- IV. What led Roque to that well? The story begins about 30 years earlier with a landowner in an Italian village called Resina, a suburb of Naples.
- A. Sometime before 1710, this landowner, Cola Nocerino, brought in a crew to dig her well deeper because a drought had caused the water table to drop. As the workmen were digging, they brought up fantastic veneers of colored marble.
 - B. In 1710, Emmanuel Maurice, the duke of Elbeuf, bought some land in the area and began a systematic mining operation. His workmen brought up not only colored marbles but also statues and inscriptions. They found circular steps and columns in a great curve, which led them to believe they were in a temple, although they had actually hit the theater of the buried city of Herculaneum.
 - C. Three statues found by the duke, of robed Roman women, ultimately made their way into the collections of Augustus the Strong, elector of Saxony and king of Poland.
 1. In June of 1738, Augustus's granddaughter, Maria Amalia, who had seen the statues, was packed off to Naples to marry the 18-year-old Charles of Bourbon.
 2. Charles was a great collector himself, but he had showed no interest in antiquities until Maria Amalia arrived. A month after they were married, Roque Alcubierre was sent down the well shaft to see what lay below.
 3. It doesn't seem too far-fetched to say that Maria Amalia was almost certainly the driving force behind this expedition, although she was only 13 years old at the time.
 4. Charles and Maria set aside money to take care of the collection of antiquities as they were brought up. The artifacts would be kept together in Naples in a hall of the Portici palace. Further, the workmen assigned to the project were not gardeners or miners but military engineers who would keep careful records of their efforts.
 5. The influence of this royal couple was as important to this first archaeological excavation as the actual digging itself. Archaeology is unique among the sciences in that it must preserve the raw material of its researches. Maria and Charles guaranteed funding for the project, a place to keep the finds, and a succession of scholars, artists, and engineers to record and study them.
- V. Roque completed, in the first 12 months of fieldwork, the first great document in Classical archaeology.
- A. He realized, with the help of the local *cognoscenti*, that the well shaft led into a theater, which he decided to map. Working through the tunnels, Roque mapped the curve of each step and marked in each column, figuring out where pieces were missing.

- B. He came up with a single sheet of paper on which he showed the initial well shaft; the original tunnels burrowed haphazardly out from the shaft through the theater by the duke of Elbeuf and his workmen; and his own maze of tunnels. On top of that, Roque filled in his reconstruction of the missing or hidden columns, steps, and stage area. Finally, he recorded the positions of every statue and inscription that had been brought up.
 - C. Further, he noted the 70-foot depth, measured in palms, of volcanic material over the city, separated into three different strata. He drew a cross-section of every step of the theater to enable the whole thing to be reconstructed in three dimensions.
 - D. Thus, we have a record of both phases of the dig, Roque's and the earlier one; the find spots of all the artifacts; the reconstruction of the building itself, cross-section and plan; and a stratigraphy of what had buried the theater.
- VI. Roque became ill from working so long down in the tunnels and had to take on an assistant. This man, a Swiss engineer named Karl Weber, proved to be even more of a genius at drafting and reconstruction than Roque himself.
- A. Weber joined the team in the late 1740s, at a time when Pompeii was being opened up. Pompeii was much easier to dig. It had not been buried so deeply and was covered with ash and pumice, rather than the dense pyroclastic flow that was over Herculaneum. Weber presided over two of the great discoveries there.
 1. At Herculaneum, the workmen had uncovered a circular pavement with beautiful black-and-white mosaics. This was a *belvedere*, a garden feature from which one could look out at the Bay of Naples.
 2. Weber followed a path leading away from the belvedere, which brought him to what is now known as the Villa of the Papyri, taking its name from its vast library.
 3. Weber and his team started working at the villa in 1755 and finished in 1757. Eventually, they realized that they were looking at several hundred years' worth of building, all in one house.
 4. These discoveries set Europe on fire. A machine was invented to unwrap the charred papyri from the villa, and attempts were made to read the blackened surfaces. Scholars determined that these were philosophical treatises by a master of music named Philodemus. This man's patron was Lucius Calpurnius Piso, the father-in-law of Julius Caesar and, perhaps, the owner of the great villa.
 - B. At the same time, Weber was working at the villa and mapping it. Even though he never saw the whole thing, he drew such a wonderful map that the architects of J. Paul Getty were able to re-create the villa for Getty's museum in Malibu, California, in the 1970s.
- VII. Pompeii presented a contrast to the sublime finds at Herculaneum.
- A. The two cities were described for us by Pliny the Younger, an ancient writer who saw Vesuvius erupt. He and his uncle witnessed what Pliny described as a pine tree rising out of Vesuvius; this vast explosion of volcanic matter rose as high as 20 miles into the air.
 - B. Pompeii was a bigger site than Herculaneum and began to be exposed from 1748 onward. Herculaneum had been grand, but Pompeii had everything, from palatial-size residences to hovels. Pompeii also yielded a great house, something on the scale of the Villa of the Papyri, but this discovery offered observers the human touch.
 1. In large letters on the side of this house was the name Praedia ("the estate") of Julia Felix, daughter of Spurius. Julia was using her home as an investment, renting out rooms, apartments, shops, and entertainment grounds.
 2. Inside, Julia was found—at least, we imagine it was Julia. Her skeleton was discovered lying in the courtyard with others around her. At the gate, almost in the street, there was a crowd of 11 people, one with a key, who had just failed to get out of the city.
 3. The great artworks that had been found by the Bourbon excavations in Herculaneum had ignited a fire of interest in the scholarly and intellectual circles of Europe, but it was these poor, wretched skeletons that caught the interest of the world and brought visitors in an endless stream to Pompeii.

Suggested Reading:

Diess, *Herculaneum: Italy's Buried Treasure*.

Parslow, *Rediscovering Antiquity: Karl Weber and the Excavation of Herculaneum, Pompeii, and Stabiae*.

Questions to Consider:

1. How does archaeology differ from the disciplines of history and anthropology?
2. What elements of modern archaeology were present in the first excavation at Herculaneum?

Lecture Two

“Ode on a Grecian Urn”

Scope: In our first lecture, we witnessed the origins of archaeology at the cities of Pompeii and Herculaneum, buried by the eruption of Mt. Vesuvius in A.D. 79 and rediscovered almost 1,700 years later, in 1738. What happened at Pompeii and Herculaneum fed into a process that had been going on for centuries across Europe and the Mediterranean, where traces of the ancient world came to the surface out of farmers’ fields, out of mines, and off the floor of the sea. Such discoveries led to a great cult of collecting, and Pompeii and Herculaneum took that passion to a new level. A young English poet named John Keats paid tribute to this passion for collecting in 1820 in one of his most famous poems, “Ode on a Grecian Urn.” Our themes for this lecture are how to make artifacts talk and how to make a science of the material part of human culture. Thus, it seems appropriate to start with Keats, because his metaphor for the quest into the past was to imagine himself questioning an ancient Grecian urn.

Outline

- I. In “Ode on a Grecian Urn,” Keats questions an ancient artifact asking: who the youths and maidens are; what their wild pursuit is; and what music the silent instruments are playing?
 - A. At the end of the poem, the urn itself speaks. The poet has said that long after his generation is gone, the urn will live on, inspiring future generations. The urn speaks to the young man in a voice from the ancient world, a voice that is worthy of the Delphic Oracle itself—beautiful yet riddling: “Beauty is truth, truth beauty—that is all/Ye know on earth, and all ye need to know.”
 - B. The poem suggests that, on top of the scientific interest in untangling a historical problem, the antiquities that surfaced at Pompeii, Herculaneum, and other sites tapped into a strong spiritual and emotional mood in Europe.
- II. The team in Naples in the 1700s, King Charles and Maria Amalia, Roque Alcubierre, Weber, and others, were generally disliked in Europe because they didn’t open their site as a tourist destination.
 - A. In fact, the workers backfilled as they dug so that many of the rooms were simply filled up again with volcanic material taken from the next room. In doing so, they actually preserved the site better than it has been preserved since it was opened.
 - B. The scholars, engineers, and diggers at the site fought among themselves continually, and their reputation has come down to us as barbarians, vandals, and thieves. A respected modern American archaeologist, Lewis Binford, posited the “Pompeii Premise,” a conceptual construct that he used to ridicule the early diggers at Pompeii and any others whom he imagined looked at archaeological sites as simply frozen moments in time.
 - C. In truth, Alcubierre, Weber, and the other members of the team didn’t subscribe to the Pompeii premise. Alcubierre’s map of the Greek theater at Herculaneum shows an awareness that archaeological sites are complex and that, in a given site, a mass of history is in process.
 - D. These early archaeologists were also aware that the site had been altered by the volcano, that some artifacts had been destroyed. In addition, they knew of the burrowing and digging, especially into Pompeii, where looters or rescue workers from the time of the Romans up through the Middle Ages and the Renaissance had altered the site.
- III. The reason the team members at Herculaneum and Pompeii don’t get credit for their archaeological awareness can be traced to the visit of an important intellectual, Johann Joachim Winckelmann (1717–1768).
 - A. Winckelmann traveled to Herculaneum and Pompeii at a time when he was in service as an envoy of the papal court. He was a respected official, but he was not admitted into the tunnels at Herculaneum.
 - B. The team at Herculaneum wanted to publish the findings themselves, and they knew that if they showed Winckelmann too much, he would publish first. It’s interesting to note that this same idea of proprietary ownership of archaeological finds still exists today.

- C. To the credit of the Bourbons and their team, let it be said that keeping a collection together and studying it systematically was a new idea. Winckelmann didn't fit into that scheme, but he was so angry that he wrote an open letter to the world about what was going on at Pompeii and Herculaneum, singling out for criticism the man who started archaeology: Alcubierre. To this day, Winckelmann's accusations are presented in books, and he is often named as the father of archaeology.
- IV. Winckelmann returned to Rome and settled down to the task of studying the physical remains of antiquity.
- A. He was ultimately given the position of keeper of antiquities for the pope and, thus, had access to the libraries of the Vatican and all the great families in Europe, enabling him to study their collections of statues, rings, and coins.
- B. By the time Winckelmann came along in the 1750s, studies of some these collections, especially the coins, were quite sophisticated. For example, a coin might bear an image of a ruler's head and, on the reverse, a scene that offered a clue about the period from which the coin was minted. Such clues enabled coins to be placed into various classification schemes.
- C. Winckelmann's work in this field covered a wider range of antiquities in more depth than had ever been done before. As a great and memorable writer, he transformed what had been a purely antiquarian inquiry into something discussed by all the intellectuals in Europe.
- D. Winckelmann's studies ranged from Greek temples in Sicily to tiny cameo stones, gems that had been part of diadems or rings in the Roman period. But his specialty was marble statuary.
1. The statue group that most impressed Winckelmann was the *Laocoön*, in the gardens of the Vatican. The grouping depicts a priest in torment, contorted as two sea serpents wrap themselves around his naked body and the bodies of his two sons, preparatory to strangling them to death.
 2. This statue, which had been dug up in the 1500s and was the pride of the Vatican collection, had been mentioned in the *Natural History* of Pliny the Elder. Winckelmann studied every inch of the statue and began to write the first essay of what would go into a gigantic work called the *History of Ancient Art*.
 3. A nearby statue had been given its nickname from the spot where it stood, in the pope's belvedere. This was the *Apollo Belvedere*, showing Apollo as he has just let fly an arrow from his bow.
 4. Winckelmann also admired a third statue, which was a torso of a seated male figure that he had decided was Hercules. (We now think it's probably Ajax.) He read the musculature of the stone figure as if it were a text.
- E. After studying hundreds of statues, Winckelmann came to several important conclusions.
1. First, he decided that most of the statues he was looking at were Roman copies of Greek originals. No one else had figured this out.
 2. Second, Winckelmann classified ancient art, especially sculpture, into four great periods, which are still used as classifications today.
 - a. The archaic period is characterized by stiff formality and probably goes back to Egyptian models. The statues are frontal, posed, and balanced on two feet.
 - b. Next came what Winckelmann called the high or sublime period, the Classical period. This is dated to the 5th century B.C. in Athens with the sculptures of Phidias in the Acropolis and Parthenon.
 - c. Next was the beautiful period, in which the *Apollo Belvedere* belonged. This period falls in the 4th century B.C., with such great sculptors as Praxiteles, who had done a nude Venus, poised to step into the bath.
 - d. The last period was called the degenerate period, the low period. This was when Hellenistic Greeks and Romans began imitating the art of the first three periods.
 3. Winckelmann made some mistakes. For example, he thought that color had not been important to the Greeks, ignoring the traces of pigments he saw on statues. In fact, Greek statues were as painted as department store manikins, but because of Winckelmann, we don't see the past that way. Winckelmann created the idea of pure Classical taste because he believed in Classical perfection.
- V. Winckelmann believed that the Greeks, especially, but all of Classical antiquity, Greek and Roman, was truly classical in the sense of achieving a standard that might never be reached again.
- A. This belief became the cornerstone of an intellectual debate across Europe between proponents of the ancient and the modern. Winckelmann led the charge for the supremacy of Classical art.

- B. Just before his death at age 51 (he was murdered in Trieste), Winckelmann met Sir William Hamilton (1730–1803), envoy of the court of St. James to the Kingdom of Two Sicilies, which had its capital at Naples. Hamilton had come to Naples as a collector himself, of beautiful objects, antiquities, paintings, and women.
 - C. Hamilton tried to interest Winckelmann in a new art form: painted vases, generally the same type of urn that Keats wrote about. This distinctive red-and-black glossy pottery turned up in tombs across Italy. Hamilton decided that he would be first in the field to collect these vases, amassing hundreds of them. At the time, they were called Etruscan vases, believed to be from those forerunners of the Romans.
 - D. Hamilton, having failed to persuade Winckelmann to study the vases, carried out his own research. He concluded that the vases were Greek; that they showed a sequence of development over time, which could be detected in the stylistic rendering of the art and in the technology and shapes of the vases themselves; and that they represented a window on the past just as important as coin designs and statuary.
 - E. Hamilton shipped his collection to England, where it ended up in the British Museum. He published, in the 1760s and 1770s, gigantic folio volumes, in which artists had rendered all the designs on the vases. In this way, Hamilton created the same kind of furor about Greek vases that Winckelmann had for statuary.
- VI. Unlike King Charles, Maria Amalia, Alcubierre, and Weber, both Winckelmann and Hamilton were flamboyant personalities. Hamilton, especially, became involved in a number of lurid scandals.
- A. When Hamilton was an old man, he entertained in Naples a dashing young admiral named Horatio Nelson. Nelson and Hamilton’s wife, Emma, fell madly in love, and Hamilton did nothing to end their affair. The press had a field day with the scandal but, in the process, probably helped publicize Hamilton’s substantial contributions in the study of Greek vases and volcanology.
 - B. In later life, Hamilton put together another collection of vases, almost picking Italy dry. He began to negotiate again with buyers in England, but the negotiations were cut short by the French Revolution. Napoleon had set his sights on Italy, and Hamilton had to take advantage of his position as envoy and his friendship with Horatio Nelson to ask if a British ship could convey his precious collection back to England.
 - C. Hamilton believed that if English artisans and craftsmen could see these ancient examples of beauty, English arts would experience a great flowering.
 - D. Nelson offered Hamilton some room on the *Colossus*, which was about to sail from Naples to Britain because it was unfit for service. The ship got as far as the Scilly Isles, where it ran into a storm. On those treacherous reefs and rocks, the *Colossus* was battered and sank.
 - E. Despite the loss of the *Colossus*, however, Hamilton’s dream was fulfilled. If we look at 18th-century Wedgwood and other English pottery, we can see the spirit of Greece. All those old vase paintings that Hamilton loved so much have now become part of the English and modern European tradition.
 - F. It was with this idea of present use, present utility, the classics as a force in the modern world, that this branch of studying artifacts was born—not simply as a dry academic inquest but as an attempt to bring the genius that inspired the past into the present.

Suggested Reading:

Jenkins and Sloan, *Vases and Volcanoes: Sir William Hamilton and His Collection*.

Leppmann, *Winckelmann*.

Questions to Consider:

1. How did Alcubierre and Weber demonstrate that they *didn't* subscribe to the Pompeii premise?
2. What perspective did Winckelmann and Hamilton bring to the study of ancient artifacts?

Lecture Three

A Quest for the Trojan War

Scope: The discoveries at Herculaneum and Pompeii touched off a tidal wave of interest in the budding field of archaeology. Thomas Jefferson was inspired by one of the publications on Herculaneum to conduct an archaeological dig on an Indian mound on the Rivanna River. The discoveries at Vesuvius inspired Napoleon to take archaeologists with him when he went to Egypt in 1799, thus launching the field of Egyptology. In the beginning of the 19th century, Danish and German scholars worked out a three-age system—Stone Age, Bronze Age, Iron Age—based on discoveries in their homelands. All this interest made archaeology an up-and-coming field yet a field without a coherent profile or champion. This lecture is devoted to the quest for that mythical founder figure that archaeology in its first century could not yet claim. To identify that founder, let's travel back to Pompeii, on June 16, 1868, and join a group of distinguished visitors being shown around by the Italian archaeologist who was now in charge of the site, Giuseppe Fiorelli (1823–1896).

Outline

- I. In his tenure as director of the digging at Pompeii, Giuseppe Fiorelli revolutionized the field of archaeology.
 - A. He had devised a technique for restoring to a semblance of their original lives the bodies of those ancient Pompeiians who had been trapped inside volcanic material.
 1. Fiorelli realized that human bodies, along with furniture and building structures, would have been sealed in by the volcanic material, but when the bodies decomposed, they would leave behind a “negative” of the body in an open space.
 2. Earlier, people had experimented with pouring plaster of paris into the hollows left by wooden pieces of furniture and houses. Fiorelli tried the same technique with spaces left by human bodies.
 3. After the plaster of paris dried, Fiorelli broke away the volcanic material to reveal human beings in their last moments of agony. Ancient Pompeiians were found trying to hide in their cloaks; parents were seen trying to shield their children; and watchdogs were found still chained to their posts and trying to break free.
 - B. Fiorelli also attempted to lay the whole city open to the air for visitors. Further, he started the policy of leaving paintings and mosaics in place, instead of cutting them from the walls and transporting them to museums.
 - C. Every aspect of the site at Pompeii fascinated Fiorelli. When the Italian king Victor Emmanuel visited the site, he was so impressed with Fiorelli's work that he offered him a significant government grant. Fiorelli used the money to reopen the digs at Herculaneum.
 - D. However, Giuseppe Fiorelli is not our founder figure; he was too modest and unwilling to fabricate romantic stories about his finds.
- II. The man we are looking for was in Fiorelli's group of visitors on June 16, 1868, taking in his first experience of a Classical archaeological site. His name was Heinrich Schliemann (1822–1890).
 - A. Apologists for Schliemann have written that he had no example to follow in conducting archaeological digs, that there was no systematic science of archaeology or accepted archaeological technique in the middle of the 19th century. Nothing could be further from the truth.
 - B. In fact, Schliemann rejected Fiorelli's techniques. He wrote in his journal that he was dismayed to find that it took Fiorelli and his team two weeks to excavate one house—this was far too slow.
 - C. Schliemann was a German, the son of a Lutheran pastor, and raised in poverty. He climbed his way to the top in the world of business, but he lacked fame. Archaeology provided a world stage on which he could make his name.

- D. From Pompeii, Schliemann traveled to Greece, enthused with the idea that he, too, would make great discoveries. He landed on the island of Ithaca, famous as the home of Odysseus in Homer's *Odyssey*. With the help of some locals, he started digging on a hill and found what he claimed to be the remains of Odysseus and his wife, Penelope.
- III. In 1868, Schliemann also visited the Peloponnese in southern Greece, as well as the Troad region of northwest Turkey, where Greeks and Romans believed that the Trojan War had been fought.
- A. Late in his visit in 1868, Schliemann met an Englishman named Frank Calvert. Calvert confided to Schliemann that he believed he had found the hill where Troy was located. This was mound called Hissarlik.
- B. Calvert recognized Hissarlik as a *tell*, an artificial hill composed of layers of ancient cities. Tells formed mainly in the Near East, where structures were made of mudbrick, which tended to slump and decompose if the structures were not maintained. Jericho, Ur, and Nineveh are all examples of tells.
- C. Calvert had dug a small trench into the tell at Hissarlik and found Classical remains, yet he also knew that deeper into the tell must lie prehistoric remains, and this was where Troy would be found. Unfortunately, Calvert lacked the funds to conduct excavation.
- D. Schliemann made offers of partnership to Calvert, who ultimately agreed to arrange for the necessary permits in exchange for Schliemann's financial backing.
- E. In the meantime, Schliemann took on American citizenship, obtained a "quickie" divorce from his first wife in Indianapolis, remarried a Greek girl of 17, and returned to Hissarlik to begin work.
- F. Unfortunately for Schliemann, the Ottomans had awakened to the new spirit in the world of national ownership of archaeological treasures; a law had been passed prohibiting finds from being taken out of the country. Schliemann simply ignored the law and began digging.
- G. As Schliemann worked his way around the mound, sometimes on Calvert's property, sometimes on property now owned by the Turkish government, he found himself in a stratigraphical nightmare.
1. What is *stratigraphy*? The term means "reading layers," and tells are the perfect places to conduct such studies. The *law of association* is at work in stratigraphy; that is, artifacts of the same period typically go together and will date the layer that they are in. The *law of superposition* is also at work: The oldest material will be on the bottom, and each successive layer will be more recent.
 2. From Calvert's sketches, Schliemann had gotten the erroneous idea that digging at Hissarlik would be a simple matter of peeling off the past. However, Troy had apparently never been a neat, flattened hilltop. It had always had peaks, valleys, and depressions, which meant that some recent material might be found deep in the mound and some ancient material might be found at a much higher level.
- H. Schliemann's original plan was simply to dig the whole mound away to get at the Trojan treasure and make himself famous. Calvert ultimately left the site, and Schliemann began to write him out of the accounts of the dig, taking all the credit for himself.
- IV. Schliemann had been working for five years, when finally, his big moment arrived in 1873.
- A. Toward the end of May 1873, Schliemann and his most trusted workers spied gold in an area of the mound that had already yielded some small treasures. This was the second layer from the bottom of the mound.
- B. According to Schliemann's account, he sent the workmen away. With his young wife by his side (whom we know was in Athens) and a wall threatening to fall on him, Schliemann himself recovered eight baskets and a bag containing the treasure of King Priam.
- C. The Turks knew that a discovery had been made. Before they could confront Schliemann, he shipped the treasure off to Athens. He himself left almost immediately.
- D. Back in Athens, he posed his wife wearing the treasures and had her drawn by artists. He then sent his finds to Germany as a gift to the Kaiser and the German people.
- E. Archaeologists at the time were suspicious, believing that Schliemann's find was a contrived treasure. Worse still, some recognized that the treasure of Priam should date from around 1200 B.C., yet Schliemann's finds were 1,000 years older.

- F. Despite this controversy, Schliemann had achieved fame. He corresponded with world leaders and appeared on the front pages of newspapers everywhere. Freud later claimed that Schliemann had given him the metaphor for psychoanalysis, peeling back the layers of experience to discover primal experiences in the human mind.
- V. At this point, the story of the unscrupulous Schliemann takes a turn.
 - A. He began to work at many other sites, including Mycenae, and became interested in the Bronze Age period of the Greeks. It is true, in fact, that Schliemann opened up prehistoric Greece to archaeology.
 - B. To Schliemann's credit, he tried to learn from his critics. After making peace with the Ottoman government, he returned to Troy, bringing with him a team of experts who had the knowledge that Schliemann lacked. Chief among these experts was a young fellow named Wilhelm Dörpfeld (1853–1940), who brought systemization to the excavations of Troy. Although Dörpfeld ultimately proved that Schliemann had dug past Troy in the mound, Schliemann didn't stop his work.
 - C. In 1890, Schliemann returned to Germany for an operation on his ear. Against his doctor's orders, he then traveled to Pompeii, where he died.
 - D. Schliemann's activities in his final years redeem the travesties of archaeological work that he had been guilty of early on, and his story is one of the most inspiring in all of science.

Suggested Reading:

Allen, *Finding the Walls of Troy: Frank Calvert and Heinrich Schliemann at Hisarlik*.

Woods, *In Search of the Trojan War*.

Questions to Consider:

1. Does any other scholarly discipline number among its founders as controversial a figure as Heinrich Schliemann?
2. What specific archaeological remains would constitute proof that Homer's story of the Trojan War is essentially historical?

Lecture Four

How to Dig

Scope: In the last lecture, we met archaeology's mythical founder figure—Heinrich Schliemann. But Schliemann's elevation to this role of founder left a problem unsolved: What is the proper method for scientific digging of a type that can be applied anywhere in the Classical world? Remember, the Classical world reaches from central Asia—those remote Greek cities founded by Alexander the Great—into Scotland. A uniform system was needed that could be applied scientifically throughout the Classical world so that all digs could be conducted to the same high standards. Schliemann was certainly not the man to develop this system. Someone was needed to come forward and make archaeology a science, to think about, theorize about, and plan the actual techniques of archaeological fieldwork.

Outline

- I. At the same time that Heinrich Schliemann was doing his final digs at Troy, an Englishman who had retired from the army, General Lane-Fox (1827–1900), undertook a scientific archaeological dig on his gigantic new estate, Cranborne Chase, in Dorset in southwest England.
 - A. Fox took the name Lord Pitt-Rivers after acquiring his estate. He was a great collector of weapons and had an early interest in the anthropological study of artifacts.
 - B. Cranborne Chase had an incredible array of archaeological sites, and Pitt-Rivers decided to sample them all. His plan was to do landscape archaeology on a huge scale to piece together a map of the region and show how people in the Stone Age, the Bronze Age, the Iron Age, and the Roman Age had varied in the way they used different resources.
 - C. Pitt-Rivers did not have academic training either as a classicist or as an archaeologist. Instead, he brought to bear the same training that had served Alcuiberre and Weber and, more than a century later, Giuseppe Fiorelli—that is, his military background.
 1. The fieldwork archaeologists do is, in some ways, a branch of military science because it has similar characteristics: a carefully planned project, specifically assigned tasks, great attention to detail, a schedule, meticulous recordkeeping, and a focused effort to achieve a successful conclusion.
 2. Pitt-Rivers used his fortune to put into four leather-bound volumes his wisdom about fieldwork and the results of his years of work on Cranborne Chase, which included tracing Roman roads, finding Neolithic barrows, and digging up old cemeteries. Sadly, these volumes went unnoticed, and Pitt-Rivers was forgotten.
- II. It was up to a man who was born in 1890, the same year in which Heinrich Schliemann died, to resurrect the sound digging principles of Pitt-Rivers and to make them part of Classical archaeology. This man was Eric Mortimer Wheeler (1890–1976), born in Glasgow.
 - A. Wheeler attended the University of London, where he studied classics. He later served in the British artillery in both World War I and II and undertook some archeological work in India during his stint there in World War II. We'll look at this work toward the end of this lecture.
 - B. We touched on the word *classic* when we talked about Winckelmann and the idea that the ancient world represented a period when art and other endeavors had reached such high standards that all subsequent generations could accomplish would be to emulate the ancients.
 1. However, the word *classical* has another definition. In Latin, *classis* means an order or ordering. That sense comes into play in the words *classification* and *classify*, meaning to set things in order.
 2. In this sense, Greek and Roman antiquity still merit the term *Classical* because, for better or worse, many of the traditions in our modern world—our civilization, politics, philosophy, religion—took their form and their ordering from the precedents set by the Greeks and Romans.
 - C. The classics that absorbed Sir Mortimer Wheeler were augmented in his own mind with a desire to study archaeology. At some point in his studies, he came across those four magical volumes of Pitt-Rivers, which almost no one had read.
 1. In these, Wheeler found a sort of gospel or manifesto about proper archaeological field research.

2. One of the most important points made by Pitt-Rivers was his insistence on recording things that one doesn't necessarily understand or view as important.
 3. Further, Pitt-Rivers said that archaeologists must publish promptly, comprehensively, and in a way that is accessible to all.
- III.** After his World War I experience, Wheeler married Tessa Verney (1893–1936), a young woman who shared his passion for archaeology. Together, they yearned to start archaeological fieldwork using Pitt-Rivers's principles.
- A.** The Wheelers decided on a coherent plan, as their mentor had. Their idea was to focus on a single time period: specifically, the span of about four centuries during which Britain became the Roman province of Britannia and was incorporated into the Roman Empire.
 1. The conquest was accomplished during the reign of the emperor Claudius and ended under Honorius in 410, when the Roman legions were withdrawn from Britain.
 2. Britain did not join the Roman Empire easily. Many campaigns were fought; legions had to be shifted to Britain; Roman roads were built; forts were established; and Celtic Iron Age cities were overrun or destroyed. All this activity had left a record behind.
 - B.** Wheeler and his wife decided that they would systematically sample Roman forts from North Wales and South Wales to compare them. They would concentrate on the west side of the country, near Dorset, where Pitt-Rivers had worked.
 - C.** The early work in Wales didn't attract much attention, but it was on these digs that the Wheelers established the practice of mobilizing a large field army of students and firing them up with Pitt-Rivers's prescriptions for how to do a dig correctly.
 - D.** Tessa specialized in artifacts; Mortimer, in overall site planning and interpretation. Between them, they achieved Pitt-Rivers's ideal that once the dig was over, every artifact could be put back in its correct spatial position.
- IV.** Once the forts were done, the Wheelers decided to tackle a bigger challenge.
- A.** In the 1820s, a "dig" had been carried out on the estate of the Bathurst family in Gloucestershire at a spot called Lydney Park. What had been an extraordinary site, where Iron Age Celtic Britons had lived side by side with Romans right through the Roman occupation, had been butchered. The site had been written off by all serious archaeologists, but of course, the Wheelers took it on.
 - B.** So carefully did the Wheelers dig at Lydney Park and so precisely did Tessa document the position of every artifact that they began to build up a stratigraphic sequence and a picture of an early Roman fort.
 - C.** One of the things that had brought the Romans to Britain was its metals, especially the tin needed to make bronze. The Wheelers discovered that the fort had become a protected area of the western frontier in which iron mining was done.
 - D.** The Wheelers also discovered another life of the fort. In the 4th century A.D., toward the end of the Roman dominion, it had been a spa, a sanctuary, with religious overtones, for healing. Pilgrims came from great distances to take the waters and enjoy the curative powers of a local god named Nodens—never heard of before or elsewhere.
 - E.** Wheeler's discovery of a hoard of 1,600 tiny bronze coins at a Roman bath site at Lydney Park grabbed headlines and called the attention of the British Isles to this charismatic young couple.
- V.** The Wheelers' next stop was a city called Verulamium.
- A.** Many Roman cities had been dug; what did the Wheelers try to do that was different? They tried to set the city in its landscape, to get beyond the city walls and understand the banks, the ditches, the outlying farms, all the things that would give the city a context.
 - B.** Tragically, Tessa, whose health was frail, died before the Verulamium dig was published. But Mortimer finished the book on Verulamium, then tackled a gigantic project in Dorset called Maiden Castle.
 1. This was a prehistoric hill fort where a gigantic rise, swelling up from the plain, was ringed in walls of earth following its contours—triple walls—leading inside an elevated hilltop.

2. Maiden Castle dated back to the Stone Age. It has been used by the Iron Age Celts, and it was one of the places Wheeler believed that the Celtic resistance to Roman occupation would have held out. Wheeler thought that he would find, at the gates of Maiden Castle, east and west, the remains of a great Roman assault.
- C. At Maiden Castle, Wheeler put into practice his grid system, which he had developed at Verulamium and elsewhere as an extension of Pitt-Rivers's plan. In this system, the site is laid out like a checkerboard, with no trial trenches run through it.
1. Wheeler worked with 10-foot squares. He had decided that the squares should be as big as the depth expected to be reached so that they would be open to the sun and easy to move around in. If a dig was in a tell in the Near East, the checkerboard might require 30-foot squares because the depth might be 30 feet.
 2. Around the side of each square, Wheeler left 2 feet of earth as wheelbarrow tracks to carry the dirt away. This practice also preserved, on the original turf of the modern surface, a complete stratigraphic sequence of what had been dug through. The workers were never more than 5 or 6 feet from a record of everything they had already passed through as they dug.
 3. The grid system made it possible for Wheeler to do with his new assistants what Tessa had done, that is, measure every artifact by triangulating it to the corners of its square and measuring the depth down into the square.
- D. Wheeler's system might have gone unheralded if he hadn't been blessed with a gigantic discovery.
1. Outside the complex series of earthen walls was a cemetery, where Iron Age Britons, men and women alike, were buried inside hastily dug tombs. Also buried were the Roman weapons that had killed them. One man still had an arrow or catapult bolt in his spine.
 2. These seemed to have been victims of a battle who had been gathered where they fell and hastily buried by the survivors. Their discovery made headlines.
 3. On the front pages of all the British papers were pictures of Wheeler's grid system. It imprinted itself on the public mind and became the symbol of a scientific archaeological dig.
- E. Wheeler's theories have been attacked since the moment he published them, but we must give him credit for sticking his neck out with his interpretations of his findings.
- VI. Wheeler knew that he had created something novel with his grid system and that he had advanced archaeology. He took his ideas with him when he was posted as an artillery officer to India in World War II.
- A. In the south of India, Wheeler visited a local museum and found, to his amazement, Roman pottery, unlabeled and unrecognized, exactly the same kinds that he had been digging up in England at Roman sites.
 - B. As soon as he could, he organized a team to conduct scientific archaeology in India. They laid down a Wheeler grid on what turned out to be a warehouse stocked with Roman amphorae, pottery vessels, and lamps. The trade in spices and incense out of the Indian Ocean and the Arabian Gulf had probably brought Roman traders all the way to southern India.
 - C. The grid system doesn't work in all soils; parts of the Mediterranean, for example, are so baked that a pick is required, and it's very difficult to create neat walls in a dig. However, in my own experience at Dragonby, a Romano-British site in England, I encountered the compact, humid earth that allows Wheeler's perfectly straight walls and perfectly flat floors.
 - D. Wheeler, having been inspired in his youth by the work of Pitt-Rivers, decided to write his own manifesto, *Archaeology from the Earth* (1954), which became a bestseller. He had found his voice and his audience. With Tessa, Wheeler had devised a scientific and overtly theoretical methodology that made it impossible for anyone in the field to undertake a dig again without a carefully planned approach.

Suggested Reading:

Hawkes, *Adventurer in Archaeology: The Biography of Sir Mortimer Wheeler*.

Wheeler, *Archaeology from the Earth*.

Questions to Consider:

1. One German scientist called archaeology “a naïve science.” How does that claim look in the light of Wheeler’s career?
2. How important should popular interest be to archaeology or any other scholarly discipline?

Lecture Five

First Find Your Site

Scope: How do archaeologists find and identify sites? Obviously, we want to find sites in order to excavate them, but over the past century, reconnaissance conducted by archaeologists has become an end in itself. Large projects have been undertaken to map all the ancient sites in a certain tract of countryside or a certain region. Such a map, showing the distribution of sites and the appearance of towns or sacred centers through the ages, is a valuable archaeological document in and of itself. In this lecture, we'll look at several methods of archaeological reconnaissance, including examination of ancient texts, along with surface and aerial observation and penetration into the Earth.

Outline

- I. We'll start our survey of this topic with one of the wonderful writers from the prehistory of archaeology, William Camden (1551–1623). We will find him, a schoolteacher, sometime before 1585, sitting on a slope near where the Thames River runs into the North Sea, engaged in an immense project.
 - A. Camden wanted to map all the Roman sites in Britain, Roman region by Roman region, which means that he was following the order of the old Celtic tribes. His ultimate goal was to write a book to be called *Britannia*. Camden lived 150 years before formal archaeology began, but as a field investigator, he was one of the first and one of the best.
 - B. From his perch above the fields of Thanet, which is where the Romans landed when their legions came ashore in Britain, Camden saw the marks of a city that was no longer visible above ground—crop marks. He wrote a beautiful lyrical passage about his observations: “Time has devoured every trace of it. And to teach us that cities die, as well as men, it is now a wheat field...”
 - C. What Camden started has gone on to become a significant part of archaeology. In this lecture, we'll look briefly at some of the methods for finding sites that we've already encountered, and we'll examine three other classes of archaeological reconnaissance: surface exploration, aerial exploration, and penetration into the Earth.
- II. Most archaeological sites are not found by archaeologists. They are the fruit of accidental discoveries made by farmers, builders, and others.
 - A. The classic example is that team of well diggers, hired by Señora Cola Nocerino, who discovered the theater at Herculaneum completely by chance. When we talk about underwater sites in Lecture Six, we'll find that most of these are found by sponge divers and fishermen, not by professional archaeological teams.
 - B. We are also led to sites by historical clues. For an example of this, think back to those groups of people in the Roman period and again in the Enlightenment who were looking for Troy, using Homer and other ancient texts as a guide. Of course, by the 19th century, the tell that was most likely to be the inspiration for Homer's story of the Trojan War was located using an ancient text.
 - C. Another example of a historical text used to find an archaeological site comes to us from the early Roman Empire. In 9 B.C., the Roman annals recorded that the Emperor Augustus created a gigantic sundial and calendar on the Campus Martius in Rome, the traditional open space where legions were drilled and ceremonies were conducted.
 1. This arrangement was spread out on a vast marble pavement, 160 meters across and 75 meters wide. Its *gnomon*, its pointer, was an Egyptian obelisk, and the spot where it had stood was discovered by a German scholar, Edmund Büchner.
 2. Knowing the height of the obelisk, Büchner, projected where its shadow would fall. Using that information, he spread the gigantic calendar and sundial of Augustus over the map of modern Rome.
 3. Unlike the Forum, which has been laid bare, the Campus Martius is still under the heart of the city. Büchner found a house in which he could get a permit to dig in the cellar. Looking at his own reconstruction, he realized that the house should fit along the line for the beginning of Virgo.
 4. Büchner had to dig about 20 feet down before reaching a white marble pavement and a great bronze letter A. In Greek astrological terms, Virgo the Maiden is Parthenos, as in Athena of Parthenos, the

goddess of the Parthenon. Büchner found himself exactly where he had predicted, at the beginning of Virgo.

III. Now let's turn to our survey on the land, in the air, and beneath the surface, returning to William Camden and his crop marks.

- A.** The reason that Camden could see traces of streets in the wheat fields is that if stone streets or wall footings are buried under a field, the crops planted over those stones will be able to send their roots down only a short distance, and their growth will be stunted.
 - 1.** This means that if you are above the field at an angle, you will see the sudden dip in the landscape. It will be most visible at sunrise or sunset, when the light falling across the field is oblique.
 - 2.** We know from long experience that with these reconnaissance methods, you need to revisit the area at different times of day and in different seasons of the year to learn everything that the landscape can tell you about what's underneath.
- B.** Let's say that you've come to the field at the time when the crop is standing and you've mapped the depressions in the crop, the straggly, weak areas of growth, which show that there's stone underneath.
 - 1.** When you return to the area near harvest time, you will see certain areas where the crop is still lush and green, when the rest of the field has turned to gold and is ready for harvesting.
 - 2.** This pattern shows the locations of old pits and ditches, the areas where digging into the subsoil allowed humus to reach a deeper level. In this way, you can map outhouses and kitchen middens.
- C.** You'll also want to come back to the field at plowing time because the farmer will be digging about 10 inches down into the soil and turning it over. Ideally, you would return four years in a row to see the soil completely turned over.
- D.** The next step is to arrange a team along one end of the chosen field. Team members stand at 5-meter intervals and walk a straight line to the opposite end of the field. When a potsherd is found, it is marked, either on a map or by placing a flag on the spot. The potsherds are clues to the age of what's underneath the field.
- E.** Starting about the time of World War II, this technique of looking for sites in fields was expanded. At a micro level, the technique would lead to digging a trial trench to see if the building discovered was important enough to merit excavation.
- F.** The field walking was also enlarged in gigantic campaigns, similar to military campaigns, lasting many years and taking in entire regions.
 - 1.** One of these regions was the area of south Etruria, that is, the territory to the north and west of the Tiber River.
 - 2.** In the early 1950s, John Ward-Perkins, a member of the British School at Rome, conducted a field-by-field survey of this area. He and his students plotted all the different habitations, starting from before the time of the Roman Empire and running straight through to the medieval period.
 - 3.** What did they find? About 275 years before the fall of the city of Rome to the Goths in the A.D. 470s, there was a significant downturn in habitation in Rome's countryside. There were fewer sites, and the density of material at each site decreased.
 - 4.** This decrease in the population took place centuries before anyone would have guessed. We now believe that floods of the Tiber materially changed the countryside and brought on deaths due to malaria-carrying mosquitoes.
 - 5.** The region had not been unhealthy in the early Roman Empire, but it became, in the Middle Ages and the Renaissance, almost uninhabitable. Apparently, the decline in this area began when the Roman Empire seemed to be at its height.

IV. From the air, the fields yield even more. A French photographer found in 1853 that extraordinary images of the land could be taken from a balloon. Military engineers seized this idea in the years leading up to World War I.

- A.** Before World War I, maps with detailed photographs were made of the Roman Forum and of Ostia Antiqua, the Port of Rome, which was a ghost town rivaling Pompeii, so vast that mapping it had been difficult.

- B. Optimal height for such mapping was around 3,000 feet, and two kinds of photographs were needed: those shot from an absolute vertical position to minimize distortion of the landscape and those shot from an oblique angle.
 - C. Through these aerial photographs, wonderful discoveries were made, such as that of the Greek trading center Spina, which had thrived in the 6th and 5th centuries B.C. near Venice and the mouth of the Po River.
 - D. Another important discovery made through aerial photographs was what's called *centuriation*. This was a process of dividing the farmland around a new colonial city into equal blocks so that each retiring Roman legionnaire could be given the same amount of land.
 - 1. This practice shows us the careful use by Roman engineers and surveyors of a device called a *groma*, which enabled straight lines to be marked off at square right angles from a central point.
 - 2. The centuriation units were huge, almost half a mile square (776 yards on a side); they were further divided into 200 *iugera*, fields that an ox team could plow in a day. No one understood this system until archaeologists viewed the fields from the air.
 - E. Of course, we now also have satellites, bringing us images that we can download on computers. In 2005, a young Italian computer engineer, living near Parma in Italy, downloaded images off the Internet of his hometown and his house. In the field next to his house, he could see the rectangular plans of rooms and buildings and a gigantic oval, although he knew that the field was empty. When archaeologists excavated the area, they found pottery and masonry of an immense Roman villa from the 1st century B.C.
- V. Finally, we turn to the process of seeing what's underneath the ground from the surface.
- A. For this subject, we take as our example the work done at the city of Sybaris, founded in 720 B.C. and famous for its luxury. In 510, Sybaris was destroyed in a war with the neighboring city of Croton. The Crotons tore down all the buildings and turned the Crati River, which ran past the city, so that it would flow over the site.
 - B. Finding Sybaris became one of the holy grails of 20th-century archaeology. An American team traveled to the site in the 1960s, with every possible device for looking under the soil, and started work.
 - 1. The excavation was not easy. Three feet down in some places, the water level began; the ground was saturated below that. About five to six feet down, there was a layer of highly magnetic, compact clay, apparently laid down by the river flowing over the site. Below that was sand so waterlogged that it was like liquid.
 - 2. The team started by conducting a *resistivity survey*. In this procedure, metal stakes are pushed into the ground along a line; electrical impulses are then measured through the tract of soil. Wherever the resistivity is strong, archaeologists know that the electrical current is being interrupted, typically by a stone wall. This procedure didn't work at this site.
 - 3. The team next borrowed some equipment from geologists: sonar, ultrasound, and seismic devices. But for these, the site was too shallow, and the team could not get definite readings.
 - 4. Finally, the archaeologists turned to magnetometers and struck gold. Different things below the surface have different magnetic readings. Fired clay, as in bricks or pottery, for example, is very magnetic. Stone walls are completely nonmagnetic. The layer of clay that had sealed in the site was moderately magnetic.
 - 5. With the magnetometer readings, the team found rectangles in which they could locate brick walls sitting on top of stone footers, with scatterings of pottery along either side.
 - 6. The team then used a coring device to bring up pottery, bits of bricks, and so on. A rough map was made of the city, and the archaeologists came to a regretful conclusion: Their magnetometers had worked so well that they were looking 16.5 feet below the surface at a site that was completely waterlogged. We now know where Sybaris is, but we can't excavate it.
- VI. This trip through archaeological field survey methods should give you an idea of the extent of the field and some of the problems that archaeologists face, but keep in mind that sheer luck also plays a major role in finding sites.

Suggested Reading:

Bullitt, *Search for Sybaris*.

McIntosh, *The Practical Archaeologist: How We Know What We Know About the Past*.

Questions to Consider:

1. Does luck play as large a role in most scientific discovery as it does in archaeology?
2. How might existing technologies take archaeological reconnaissance even further?

Lecture Six

Taking the Search Underwater

Scope: Our subject in this lecture is underwater archaeology, and it is one of the glories of Classical archaeology that the pioneer in this field was himself a Classical archaeologist. Indeed, this archaeologist, George Bass, showed the world, in 1960, that it was possible to excavate an underwater site to all the same standards of documentation and scientific rigor required on terrestrial sites. Until that time, underwater excavation was regarded as mere treasure hunting. Since 1960, work on shipwrecks and submerged sites around the world has flowed from the initial underwater expedition of Bass and his team.

Outline

- I. We begin this lecture a little further back in time than 1960; in fact, we start in the Renaissance.
 - A. At about the same time that William Camden identified crop marks outlining an ancient Roman city in England, observers in the Alban Hills, south and east of Rome, noticed the shadows of two gigantic ships sunk in Lake Nemi, a small volcanic crater lake. We now know that these were pleasure boats of the emperor Caligula.
 - B. Such observations prompted Renaissance scientists, including Leonardo da Vinci, to try to design diving suits for underwater exploration. Free divers could stay underwater for longer than five minutes and had brought up such artifacts as a bronze wolf's head, colored marbles, and statuary from the site.
 - C. In the 20th century, Benito Mussolini had the lake drained, and the project became one of *nautical archaeology*, that is, the study of ships, whether found on land, in tombs, or underwater. In contrast, *underwater archaeology* includes the study of ships, sunken cities, harbor works, and so on.
 1. After the lake was drained, the ships were pried up and dragged onto the shore. A gigantic warehouse was built around them.
 2. In the mid-1940s, German forces retreating from Italy clashed with American forces at Lake Nemi, and the ships were destroyed.
- II. The problem of enabling divers to work underwater for long periods of time was tackled by scientists throughout the Renaissance and the Enlightenment.
 - A. In the early 19th century, the familiar Jules Verne-type diving suit was invented. This suit included a copper helmet and a porthole-like faceplate, connected by a tube to the ship above, where pressurized air was pumped to the diver. With this new capability, modern and ancient shipwrecks were explored.
 - B. Sponge divers were able to reach new depths with this equipment and made significant discoveries in the first half of the 20th century. One of the most remarkable of these was at Mahdia, off the coast of Tunisia, where a huge ship from the Roman period was found that had been carrying architectural pieces. Another group of Greek sponge divers, forced to anchor behind a small island called Antikythera off the southern tip of Greece, found a cargo from the 1st century B.C. containing the famous Antikythera device, an ancient computer.
 - C. Until the finds made by these sponge divers, archaeologists had not uncovered large artifacts. Almost the only large bronze statue known was *The Charioteer*, found by the French at Delphi.
 - D. In the 1920s, fishermen off Artemesium, a town at the north end of the island of Euboea, had brought up pieces of a statue in their nets over a period of a couple of years. The statue depicts either Zeus or Poseidon, together with a jockey and the horse on which the jockey had been mounted. After making a cast of the hand to determine who the god was, German archaeologists identified him as Zeus, who had at one time held a thunderbolt.
 - E. At the same time, there was a great drive militarily to make advances in diving technology. The person who was responsible for the breakthrough was Jacques Cousteau.
 1. In the 1940s, when France was occupied by Germany, Cousteau was working to develop methods to carry out military operations underwater. His efforts led to the invention of *scuba*, an acronym for "self-contained underwater breathing apparatus."

2. This was the culmination of 150 years of experimentation with air tanks, tubes to the mouth, and regulators, which prevent the air from the tanks, under high pressure, from rushing into the diver's lungs too quickly.
3. As soon as World War II was over, people began to use scuba equipment for purposes other than military, and Cousteau led the way. For one of his first efforts, he targeted the exploration of a Roman wine freighter that was known to be sunk near Marseilles. He teamed up with a French archaeologist who did not actually go underwater himself. Cousteau was able to drink Roman wine from one of the amphorae brought up that still had its stopper!
4. This effort revealed the need for archaeological study in place, in other words, for archaeologists to go underwater themselves.

III. One of the people who believed this was necessary was an American photojournalist named Peter Throckmorton.

- A. Throckmorton was an ardent diver, living in Turkey and working with sponge divers on the Turkish coast. One shipwreck he was shown, off Cape Gelidonya, was so exciting to Throckmorton that he couldn't allow it to pass unnoticed.
- B. Cape Gelidonya, off the coast of southern Turkey, had served as the dividing line at the time of Classical Athens between the Greek maritime sphere of influence and the eastern Persian sphere of influence.
- C. At this location, Throckmorton had seen a cargo spread out at the foot of an underwater cliff that reached down about 90 feet, just within scuba-diving range. In this cargo were oxhide ingots of copper, *oxhide* meaning shaped vaguely like an ox, a rectangular block with four legs for ease of carrying. Throckmorton knew this find dated from the late Bronze Age, the time of the Trojan War, which would have made this the oldest ship ever found underwater.
- D. Throckmorton's find was reported to the University of Pennsylvania, which had a dynamic archaeology program. In that program was a young graduate student named George Bass, who was offered the opportunity to travel to Turkey and make the dive.
- E. Bass joined a team that included Throckmorton; Honor Frost, an expert archaeological artist and diver; Frederic Dumas, a veteran of Cousteau's expeditions; underwater photography experts; conservationists; and others.
 1. Their camp was set up on a narrow beach an hour by boat away from the site of the shipwreck itself. The only source of fresh water at the camp was a seep that trickled down the side of a cliff at the back of the beach, which was used for drinking, cooking, and soaking the finds that came up from the shipwreck. A small cave was used as a darkroom.
 2. The first step in the excavation was to map the site, which was done by creating a photo-mosaic shot from the surface of the water. In the process of mapping the site, the researchers realized that they had found possibly the biggest single cache of Bronze Age ingots ever discovered.
 3. Raising the cargo at Cape Gelidonya was extremely difficult, in part because of strong currents that forced the divers to hold onto ropes in order to stay in place underwater. Further, the cargo had concreted itself into a solid mass, and everything from crowbars to car jacks was needed to break it up. However, sealed under the cargo were 3,000-year-old examples of basketry.
 4. Most of the ship itself had been destroyed by the teredo worm, a mollusk that makes its home in waterlogged timber, but a small piece of the hull had also been sealed under the cargo and was recovered.
 5. The team invented a device, an airlift, for removing sediment from the site. It consisted of a long tube that came down from the surface ship to the site and worked something like a vacuum cleaner. With this device, small finds were recovered, including a stone seal, scarabs, and three sets of weights.
 6. The team was ultimately able to date the ship to about 1200 B.C., the traditional date of the Trojan War. In the *dunnage* around the helm (*dunnage* meaning sticks and heather used for buffering material around the cargo and on deck), where the pilot would have been sitting, were found five olive pits that the helmsman had spat out as he ate the olives. The ship had obviously stopped in the Near East before arriving at its last port, Cyprus, the major source for copper at the time. Its destination was almost certainly the Aegean, the world of the Mycenaean and Minoans.

7. By the end of the summer of 1960, the team had recovered thousands of artifacts; had made the first map of an underwater site; and had even been able to reconstruct the route that the ship had followed to that point. From this pioneering expedition came the field of Classical underwater archaeology, to which we will return throughout this course.

Suggested Reading:

Bass, *Beneath the Seven Seas*.

Frost, *Under the Mediterranean: Marine Antiquities*.

Throckmorton, ed., *The Sea Remembers: Shipwrecks and Archaeology*.

Questions to Consider:

1. Why was it so important for archaeologists themselves to learn to work underwater?
2. Why does the quest for shipwrecks and other submerged sites attract such a high level of public and government interest?

Lecture Seven

Cracking the Codes

Scope: One of the things that sets the Greeks and Romans apart from other ancient people is how widespread literacy was in their world. An important part of Classical archaeology has been to study ancient texts in their original contexts. The name of this study is *epigraphy*, that is, “writing on things.” The “Big Bang” for epigraphy was the translation of the Rosetta Stone, which came about when the discovery was made that a Greek text ran parallel to the Egyptian text on that tablet. In this lecture, we’ll see how that text was deciphered, along with another ancient script, now called Linear B, discovered on tablets at Knossos. Cracking these codes gives us a different perspective on life in the ancient world than we can glean from works of literature.

Outline

- I. Let’s begin with the discovery of the Rosetta Stone in the 1790s.
 - A. Napoleon Bonaparte traveled to Egypt with an army and, following the precedent set by the Bourbon dynasty, brought with him a team of mapmakers, artists, archaeologists, and scholars, whose job was to create a colossal work called *The Description of Egypt*.
 - B. In the late 1790s, Napoleon’s engineers were at work in the Rashid, or Rosetta, mouth of the Nile. Most likely in an ancient fortification wall, these engineers found a large basalt stone with inscriptions on it.
 1. One of these inscriptions was in Egyptian hieroglyphics, one was in a cursive script called *demotic*, and one was in Greek.
 2. The inscription seemed to be a temple dedication on the part of a pharaoh named Ptolemy, a member of the dynasty that ended with Cleopatra. The pharaoh himself would have understood the Greek; the demotic Egyptian was for the common people entering the temple; and the hieroglyphics were for the priests and gods.
 3. The stone was recognized as a key to unlocking one of the great mysteries of the human past: What did the hieroglyphics mean?
 - C. Ultimately, the Rosetta Stone was placed as a prize exhibit in the British Museum in London, but the French had made copies and *squeezes* of the inscriptions. A *squeeze* is made through the technique of pressing papier-mâché into the inscriptions, resulting in a negative copy once the papier-mâché is removed.
 - D. A young Frenchman named Jean-François Champollion (1790–1832) set about translating the inscriptions. He found the name Ptolemy in the Greek portion of the inscription and deduced that the hieroglyphics would not have a single symbol (an *ideogram*) for this name, because it was Greek in origin. Thus, the name had to be rendered phonetically.
 1. Champollion found that every instance of Ptolemy’s name in the Greek inscription could be matched with a symbol inside a cartouche in the Egyptian.
 2. From this discovery, Champollion was able to determine that some of the symbols were ideograms and some represented phonetic values and cracked the code of hieroglyphics.
- II. Some scripts from Greco-Roman antiquity are still waiting to be decoded. One example is Etruscan.
 - A. Etruscan is a language from central Italy, ancient Tuscany, or Etruria, that predates the Romans. We have many Etruscan inscriptions, and we know that the alphabet is derived from Greek, but we are unable to decipher the language. We also know that Etruscan is probably a non-Indo-European language. Until we find a much longer inscription and some cross-references to other known languages, Etruscan will probably remain undeciphered.
 - B. The case of the Phaistos disc is even more puzzling. This disk was found in the Minoan palace of Phaistos, on the south coast of Crete. When the clay of this disk was still wet, impressions were made on it with what we can only call moveable type. There are several dozen symbols representing ships, weapons, flowers, men and women, and implements of the Minoan world. We do not know what language they represent, and no other examples of this script have ever been found.

- C. On the island of Crete, we have discovered a vast collection of inscribed clay tablets. The palaces, first on Crete, then on the Greek mainland, kept records using such tablets. The scripts on these tablets later fell out of use by scribes. These scripts are called Linear A, which has yet to be deciphered and was probably also a non-Indo-European language, and Linear B, which was a later script.
- D. In the 1930s, the project of deciphering Linear B caught the imagination of a student named Michael Ventris. Ventris later became an architect but devoted his spare time to the problem of Linear B.
1. Ventris constructed a rectangular grid, showing the elements of the script, what they were combined with, and where they appeared. He then plugged in possible phonetic equivalents for the symbols to determine whether they could be equated with some language.
 2. Evans believed that Linear B was a Near Eastern or Asiatic language. A breakthrough was made when an American scholar noticed endings in the inscriptions that seemed to be inflected.
 3. Ventris posited that the tablets might contain place names. He plugged in phonetic values for Knossos and another ancient site, Amnissos, and began to find words that resembled Greek. Ventris's announcement of his findings was met with great skepticism in the scholarly community.
 4. In 1939, Carl Blegen and his team uncovered, on their first morning of digging, the archive room of King Nestor's palace at Pylos. Work was halted at the site with the onset of World War II, but when Blegen returned in the early 1950s, he brought with him a copy of Ventris's groundbreaking article on Linear B.
 5. Ventris had decided the symbols did not represent an alphabet but a *syllabary* (where each consonant is assigned a set of symbols based on the vowels that go with it). With this knowledge, Blegen was able to decipher the word *tripod* and prove Ventris correct.
- E. We have now deciphered thousands of these tablets, and we know that they don't contain epics, poetry, prayers, history, or letters. In fact, it seems doubtful that this script was even used for those purposes. Instead, Linear B was used by scribes to keep track of the wealth of aristocrats. The tablets show tallies of sheep, goats, cattle, chariots, slaves, and so on—in other words, accounts of goods.
- F. We do get bits of history from Linear B tablets. For example, we learned the name for king was wanax and that Dionysus, who was thought to be a later addition to the pantheon of Olympian gods, in fact, appeared in the Bronze Age.
1. My colleague Shelly Waxman believes that some of the tablets may be evacuation orders issued at the end of the Bronze Age with the coming of the Sea Peoples. An entry on one of the clay tablets from Pylos offers proof of the Trojan War; a reference is made to a servant woman from Troy, implying that she had been captured.
 2. We also learn from these tablets that the palaces were production centers, manufacturing wool, textiles, and probably perfume.
 3. In this gigantic mass of data, we even find one entry naming two cows, Glossy and Blackie, and one entry noting that a room in the palace contained chariot wheels labeled "useless."
- III. We know from epigraphy that there was a hiatus during which Greece ceased to be a literate society.
- A. When the Greeks began to write again, they borrowed their alphabet from the Phoenicians.
 - B. *Phoenician* is a term from the Greeks, meaning "red people," or "purple people." The Phoenicians called themselves the *Canaanites*. They were the seafaring branch of the same Canaanites from the Old Testament.
 - C. These Canaanites had developed a row of about 24 symbols that served as phonetic "bits" to reproduce their own language or any other. We find an ancient example of the Greeks borrowing this alphabet at a small trading station on the island of Ischia, in the northwest corner of the Bay of Naples, within sight of Mt. Vesuvius.
 - D. The Greeks changed the alphabet from its Canaanite original to include vowel sounds. This change has caused some scholars to speculate that the Greeks borrowed the alphabet in order to write poetry.
 - E. Some inscriptions we have are nothing more than copies of the alphabet, but these give us complete sets of symbols specific to certain cities and periods. Every Greek city developed its own twist on the alphabetic script. One example of how important these minor changes can be is found in the dating of the diolkos, the ship track stretching across the Isthmus of Corinth. Letters found carved into the stone wall surrounding

the track verified an ancient tradition that this diolkos had been built by Periander, one of the kings of Corinth, around 600 B.C.

- F. We have since found scripts on many other objects, including papyrus used to wrap mummies and stone structures in public places. Out of all these examples, we will close this lecture with just a few.
1. A papyrus, found in 1904 by a German team at Abusir in Egypt, describes certain Egyptian tax exemptions granted to a Roman general and is signed “Let it be done” by Cleopatra.
 2. In a fort called Vindolanda, in northern England, archaeologists found, in 1973, a dump filled with letters from the time of the Romans, written on leaves of wood. From these, we know the nickname the Romans had for the local tribal people in England—“wretched Britons”—and that the Romans were frustrated that the Britons wouldn’t stand still to fight.
 3. Finally, from the wife of one fort commander to the wife of the commander at Vindolanda, we have an invitation to a birthday celebration. For me, these little pieces of the past are invaluable.

Suggested Reading:

Bowman, *Life and Letters on the Roman Frontier*.

Chadwick, “Linear B,” and Cook, “Greek Inscriptions,” in Hooker, *Reading the Past: Ancient Writing from Cuneiform to the Alphabet*.

Questions to Consider:

1. Today, we instinctively give more credence to contemporary inscriptions unearthed by archaeologists than to historical texts preserved through the literary traditions. Should we be concerned that most ancient Greeks would not have agreed with us?
2. Some would regard Ventris’s decipherment of Linear B as the single most important advance in Classical archaeology during the 20th century. Would you agree?

Lecture Eight

Techniques for Successful Dating

Scope: Built into the name of the field—archaeology—is the concept of time. Archaeologists are obsessive about time; they always want to know not just that an artifact is ancient but how ancient is it. You might think that Classical archaeologists have it easy when it comes to dating because clearly dated clues appear on so many sites. But because we have so much, much is expected of Classical archaeologists. We need to be extremely precise—often to the year—in identifying the dates of structures or events that we are investigating, to give them meaning in terms of a well-known historical framework. Keep in mind that for the period of the Iron Age between the fall of the Bronze Age system (c. 1200 B.C.) and the rise of literacy (8th century B.C.), we must use every possible clue to date these advances. In this lecture, we'll explore the process of dating, including the techniques of relative dating; absolute dating, such as radiocarbon and thermoluminescence dating; and dendrochronology, or more simply, tree-ring dating.

Outline

- I. The simplest kind of dating is called *relative dating*, meaning simply the determination that something is older or younger than something else.
 - A. When Sir Arthur Evans and others started working on Crete, around 1900, they were digging in Bronze Age sites. Nominally, the sites were prehistoric because the archaeologists couldn't yet read the Linear A and Linear B tablets. How did they date those palaces?
 1. They used a process of relative dating called *cross-dating*. The team would find Egyptian imports of known date in the levels of the palaces on Crete, and such finds would provide a *terminus post quem*, an endpoint after which that level had to have come into existence. In other words, the level must be dated after the artifact was made because the artifact was in it.
 2. A similar concept is *terminus ante quem*. When Vesuvius erupted in A.D. 79 and buried Herculaneum, all signs of everyday life in that buried town have a *terminus ante quem*, an endpoint before which the dating must be, of A.D. 79, August 24.
 - B. Stratigraphy on a site works in much the same way. Any site has levels, and we know from the law of superposition that the lowest levels came first; each accumulating level is a strip of time more close to our own period. In many cases, dates in a few of the levels may help pin down the dates for all the others.
 - C. With this relative dating framework, we can also associate some of the explorations into artifact study that we saw, first of all, with Sir William Hamilton and his studies of pottery.
 1. Winckelmann was also involved in artifact study with statuary, which he categorized in those four different styles: the *altare Stil*, the older archaic style; the *höhe Stil*, or high, Classical style (5th century B.C.); the *schöne Stil*, the beautiful style (4th century); and finally, the style of the *Stil der Nachahmer*, or the imitators, the degenerative or decadent style.
 2. Those time spans are quite large. They're relative to each other in the way that strata in the ground are relative to each other, but they give us a framework into which we can place different works of art.
 - D. Let's think also of our lettering systems. Alphabets are specific to different times and places. Thus, we can date the diolkos, the shipway across the isthmus at Corinth, by the lettering styles that were found inscribed on the stones of it.
 - E. Some Classical archaeological projects have carried relative dating to an extraordinary level. For example, in the 20th century, an Englishman named J. D. Beazley became interested in signed pottery.
 1. Typically, we don't find signed pottery in the autocratic societies of the Near East or Egypt. It appears only as we start to breathe a bit of that unique spirit that was Greece.
 2. Beazley studied signed pots and recognized different artistic hands and styles among the named potters. He did an inventory of styles for making an ear, a nose, a mouth, an eye, a knee, an elbow—those things that appeared so often that the artists had developed a kind of shorthand for drawing them.
 3. Beazley theorized that each artist's shorthand was different, and he was able to prove his theory using the signed paintings on vases, then extend it to vases that weren't signed.

4. For instance, Exekias was a Greek painter at the time of the Persian Wars who turned out beautiful black-figure pottery on a dark red ground. We know that he was a competitive fellow in the world of pottery painters flourishing in Athens at the beginning of the 5th century B.C. Among his famous paintings was one that showed the ship of Dionysus.
5. We can trace hundreds of works of Exekias, whether he signed them or not, because of Beazley's study. The fact that we know exactly which decades Exekias was working in gives us another clue for a kind of relative dating. A piece of pot by Exekias must have a *terminus post quim* of around 500 B.C., the time during which his pots entered the world of trade and global marketing that we will explore later in the course.

II. Absolute dating stands in opposition to relative dating.

- A. Absolute dates are not simply older or younger than; they help us to pin down an exact point in the past. This doesn't mean that we know the year in every case; absolute dating is often done with scientific laboratory techniques, which have a margin of error. Nonetheless, absolute dating allows us to pinpoint a certain time, rather than simply saying that, relatively speaking, this object is older or younger.
- B. We'll look at two lab techniques that are used for absolute dating—radiocarbon dating and thermoluminescence dating. Between them, they enable us to date most of the important things in the Classical world that archaeologists find. Thermoluminescence gives us clues to the age of pottery, and radiocarbon dating helps us date everything that was ever alive, such as wood from a building or a ship's hull, bone from an animal or a person, even seeds.

III. Development of the techniques of radiocarbon dating is credited to a chemist named Willard Libby (1908–1980), who won the Nobel Prize for chemistry because of his contributions to archaeology.

- A. Libby was a veteran of the Manhattan Project. He later set up his own lab at the University of Chicago and continued to try to understand the properties of various radioactive substances. One of the isotopes that interested him was carbon-14. The proper atomic weight of carbon is 12 because it is 6 on the periodic table. As 6, it should have 6 neutrons and 6 protons in its nucleus, for an atomic weight of 12.
- B. Carbon-14, in contrast, behaves like carbon, but it has an atomic weight of 14; it is in every living thing because we all have CO₂, carbon dioxide, within us. Libby realized, and some of his colleagues quickly confirmed, that carbon-14 would have implications for archaeologists because it has a half-life.
 1. When any animal dies, it stops assimilating CO₂ from plant foods, and the radiocarbon in the animal starts to decay. If we dig up the animal's bones 5,730 years from the time of its death, half of the original quota of radiocarbon is gone because it has a half-life, determined by Libby and others, of approximately 5,730 years.
 2. In another 5,730 years, half of that residue will be gone, which means that the bones will have 25 percent of the original amount. After another 5,730 years, the bones will be down to 12.5 percent, and so on until there isn't enough carbon-14 to measure.
 3. At that point, we're back about 80,000 years, but that time span is virtually all of human history and prehistory. As far as we can tell, modern humans don't appear until somewhere between 100,000 and 200,000 years ago. Thus, 80,000 years covers our time as hunters at the end of the Ice Age through to the Classical period.
 4. I've joined a team of Scandinavian scholars to determine whether radiocarbon dating can be applied to mortar, plaster, and concrete. In theory, there's a chemical bond between the CO₂ in the atmosphere and the hardening cement at the moment when it hardens; locked in the cement, then, is atmospheric carbon from the moment of hardening, which means at that point, the cement undergoes the same process as the animal's bones.
- C. Sometimes people get the impression that radiocarbon dating is inexact, but that's not the case. If you understand the chemistry of the process a bit more, you'll see how radiocarbon allows archaeologists to date the past.
 1. In Earth's outer atmosphere are masses of nitrogen molecules, N₂, nitrogen and nitrogen, bonding together. These nitrogen pairs are bombarded by cosmic rays from the remote reaches of the universe, and every now and then, a cosmic ray hits the nucleus of one of these bonded nitrogen pairs and works a strange change.

2. One of the 7 protons that make the element nitrogen becomes a neutron, leaving 6 protons and 8 neutrons. It still has the original weight of nitrogen—which is number 7 in the periodic table and has an atomic weight of 14—but it behaves like carbon chemically because it has 6 protons.
 3. This new carbon breaks off from the nitrogen atom and bonds with oxygen, forming a new compound similar to CO₂, carbon dioxide. This compound is unstable, and its lifespan as a carbon atom is limited because it is radioactive.
 4. The compound drifts down through the atmosphere and is absorbed by green plants, but in with the mass of CO₂ atoms, there may be an oddball, unstable carbon-14 atom masquerading as a normal carbon atom. This atom is absorbed and penetrates the system through the food chain.
 5. Some of the molecules break up immediately as the carbon switches back to nitrogen. This is the process that physicists call “decay,” but that word is misleading in this context. The proton that became a neutron corrects itself and, in so doing, emits a beta particle, which can be detected as radioactivity with a Geiger counter.
 6. Because this process occurs with regularity, about half of it every 5,730 years, we can use it to date things. We can use a curve that approaches 0 at around 80,000 or 100,000 years, and every point on the curve can be related to a residue of radiocarbon. Thus, any sample can be placed on the curve and dated.
 7. One problem with this technique is that the samples can be easily contaminated, but archaeologists try to protect the samples and send them off to the lab as quickly as possible.
 8. This method has been verified against historical inscriptions. Libby obtained his original calibrations from tombs of pharaohs whose dates of death were known almost exactly.
- D.** Radiocarbon dating gives us the ability to date organic things and a select group of building materials, but as archaeologists, we deal with tremendous amounts of pottery, and potsherds are resistant to radiocarbon dating. They were never part of the food chain and they don’t seem to seal in any amount of atmosphere at the time they were fired the way mortars will seal it in as they harden. We must turn, then, to thermoluminescence.
- IV.** Some years ago, scientists discovered that clay is thermoluminescent. *Thermo* obviously means “heat”; *luminescent* is “light.” If clay is heated to around 400° centigrade, it loses energy and emits light.
- A.** If clay has been turned into a pot, it lost light-producing energy at the point that it was initially fired, but it has accumulated it again over a period of years. If the pot is re-fired, it will again emit light, a lot of light if a long period of time has passed since the pot was originally fired or a little light if a short time has passed.
 - B.** Thermoluminescence is not as specific as radiocarbon dating; its margins of error are wider, but it’s still a method that holds great promise. In addition, different clays can have different thermoluminescent properties, but the technique is useful for determining genuine antiquities from modern forgeries. It also helps us date different pottery sequences from prehistory.
- V.** Radiocarbon dating requires incredibly expensive and complex laboratory equipment. The accelerator mass spectrometers that are used for precision dating actually count individual isotopes. Ironically, however, the dating system that has turned out to be most useful for Classical archaeologists is something that is so low-tech that almost any child is aware of its basis and its rationale—tree-ring dating.
- A.** This valuable dating system enables us to know, to the year, exactly when a wooden structure was built and gives us information about the weather during the time when the trees used for the structure were growing. In the scientific world, it’s called *dendrochronology*, from *chronos*, meaning “time”; *logoi*, “studies”; and *dendro*, “wood”—“telling time from wood.”
 - B.** Tree-ring dating was first used successfully in 1788 by a New England clergyman named Manasseh Cutler, who had bought land in what is today the state of Ohio, at a spot on the Ohio River called Marietta. Reverend Cutler found large Indian mounds in this town and became interested in finding out how old they were.
 1. Benjamin Franklin hypothesized that such mounds had been created by the Spanish conquistador De Soto as he made his way north out of the Okefenokee Swamp, traveling with a legion of hundreds of Spanish soldiers. De Soto would have built a fort at each place he stopped in the same way that Roman legions built earthworks and forts. Unfortunately, the simple mounds didn’t conform very well to that hypothesis.

2. Manasseh Cutler cut down an oak tree on one of the mounds on his land and counted 463 rings in the tree. That meant that the tree started to grow in 1300, and according to the law of superposition, it was younger than the mound it was standing on. The tree provided a *terminus ante quim*. The mound had to have been built before the tree started to grow.
- C. A man named Peter Kuniholm from Cornell University has taken up dendrochronology in the Aegean. He runs a Web site to which archaeologists and paleobotanists send information about pieces of wood they discover on their sites.
1. Thick rings on these samples indicate a rainy year; thin rings indicate a drought; and normal rings show a standard rainfall.
 2. Kuniholm accumulates all this information and has come up with a sort of endless tree covering a couple of thousand years of Aegean history and prehistory. Using this “tree,” we can date the building of a ship, the cutting of a piece of firewood, even the date when a piece of lumber showed up in an ancient carpenter shop.
 3. Nothing like this has ever existed before, and we owe it to scientific dating and its marvels that it exists today.

Suggested Reading:

Kuniholm, *The Aegean Dendrochronology Project*.

Silverberg, *Clocks for the Ages: How Scientists Date the Past*.

Questions to Consider:

1. Explain the science behind radiocarbon dating and thermoluminescence.
2. In what ways is dendrochronology valuable to archaeologists?

Lecture Nine

Reconstructing Vanished Environments

Scope: In Lecture Six, we finished up our fieldwork for the season by looking at how archaeologists have taken the search for Classical antiquities under the sea. Since then, with our study of epigraphy and dating methods, we've moved out of the field and into the lab, and this lecture will get us into the heart of that lab work, to study some of the techniques that archaeologists use to determine the sources of the materials they find. Then, we'll look at all the different ways that archaeologists can re-create an ancient environment through animal-bone studies and laboratory analysis of pollen and plant remains. Finally, we'll put these lab techniques together with dating techniques to take a quick look at the world of fakes and forgeries.

Outline

- I. We begin with a type of lab work called *sourcing*.
 - A. Recall Johann Winckelmann, who studied the pope's collection of marble statues in the Vatican. Already in the 18th century, Winckelmann could determine which marble statues were carved from stone that was taken from a given quarry.
 - B. We now know that there were at least 17 major quarries scattered across the Roman Empire. In fact, the sourcing of marble is now so precise that we are able to pinpoint not only which quarry but which part of a quarry a given block was taken from.
 - C. Recent studies have been done of one of the most famous monuments of antiquity, the Mausoleum at Halicarnassus, one of the seven wonders of the ancient world and the tomb of the Halicarnassian king Mausolus, erected in about the year 350 B.C.
 1. This is a gigantic cubicle building with a pyramidal roof, adorned with a fabulous collection of statues. Only shattered remnants of it have survived, but most of the remains are marble.
 2. The system that has been worked out for sourcing marble and other materials is called *stable isotope analysis*, and it works as follows: Stable isotopes of carbon and oxygen are present in quarries in different ratios, which are quite distinguishable through chemical analysis. The ratios can be plotted on a graph, and quarries can be identified that correspond to regions on the graph. Any chunk of unknown marble can be analyzed, and its position can also be plotted on the graph.
 3. In the Mausoleum at Halicarnassus, archaeologists learned that the marble for the grand statues was from a small Athenian quarry high on Mt. Pentilikon. The axle of a chariot from one of the statues, however, was made of less costly marble from Ephesus.
 4. Many of the blocks of the building had also been built using a much cheaper and lower-grade marble from Turkey.
- II. Marble is just one example of a material subject to sourcing. Let's look at a few commodities that carry us back long before the Classical Greeks and Romans, into the Bronze Age.
 - A. We'll start with a material that was important to prehistoric humans: obsidian. Obsidian is a volcanic glass that can be honed to the sharpest edge of any natural material that is commonly available for tools.
 1. Any place that has volcanoes is a potential source of obsidian. One example comes from excavations in Franchthi Cave, a cave in the Peloponnese facing the Aegean Sea that has a record of human habitation going back into the end of the Ice Age. In the levels from the 11th millennium B.C.—the Paleolithic, or Old Stone Age—obsidian suddenly appeared.
 2. When this obsidian was analyzed in the lab, it was found to have a special signature that traced it back to an overseas origin, the island of Melos in the Aegean.
 3. Thus, the archaeologists in Franchthi Cave knew that the Greeks had seafaring boats as early as 7000 B.C. and were routinely crossing the wide expanses of the Aegean Sea—an important discovery that could be made in almost no other way than finding materials specific to those islands showing up on the mainland.
 - B. Amber comes from even further away, but we now know that much of the amber found in Mycenaean tombs came from the Baltic Sea. This knowledge allows us to re-create a trade route through central

Europe and across the Alps from people that we now believe the Greeks called the Hyperboreans, the people beyond the North Wind.

- C. Silver shows up across the Mycenaean and Minoan world and was a very important metal in antiquity. Every bit of this silver comes from one range of hills near Athens, the Lavrion, or Laurion hills.
 - 1. The discovery of a great reef of silver ore in those hills in 483 B.C. allowed the Athenians to build the fleet of ships that beat the Persians and kept Greece free from takeover by King Xerxes.
 - 2. We know from sourcing studies that 1,000 years before that, these same mines were being exploited and Minoans were coming from Crete to the mainland to take advantage of this resource.
- D. Clay is a humble material, but it also has the fingerprint of its origins. Clay is a sediment, formed as rain washes down stones in a catchment area; in this way, clays contain the composition of all the rocks in a given area. We can differentiate settings that produce different clays.
- E. At the end of the Bronze Age, there was a great set of centers of trade on mainland Greece, with Mycenae seemingly the dominant one. There was also a great center on Crete—Knossos—that we now know from the Linear B translation was a Greek-speaking center, probably ruled by a Mycenaean king who had come over from mainland Greece.
 - 1. We believe that these were, in some cases, vassals, but in other cases, rivals. Such relationships can be worked out through the trading routes and markets overseas for the Mycenaeans and Minoans, and clay helps us determine these trading routes.
 - 2. Pottery finds indicate that the Mycenaeans of mainland Greece had Cyprus as a trading partner, while the Minoans—or, more accurately, the Mycenaeans who took over the old Minoan realm and were living at Knossos—traded much further afield, with modern Israel.
 - 3. These spheres of influence and trade are so distinct that they almost give the impression of trade wars or embargos between these two centers of late Bronze Age life, Mycenae and Knossos.

III. Analysis of organic materials allows archaeologists to reconstruct ancient life forms, ecosystems, and the environment as a whole.

- A. *Faunal studies* involve, of course, ancient animals and are conducted by *paleozoologists*; *floral studies* focus on plants and are conducted by *paleobotanists*.
- B. *Palynology* is the study of pollen, which is an important element for reconstructing ancient environments because it is almost indestructible. Seeds and stems may rot away, but pollen remains in the soil, and each grain of it has a unique shape specific to its species. A palynologist, then, can examine those grains and determine that buttercups were in the area, or oak trees, or a specific species of the rose family.
- C. In this way, palynologists, working with paleobotanists, who study the larger plant remains, have made some remarkable discoveries.
 - 1. Earlier, I mentioned Dragonby, a Romano-British site in northern England. This site had compacted, sandy soil, in which the pre-Roman Celtic Iron Age people had dug ditches. These ditches had then filled up, both before and after the Roman conquest, with rich, organic materials, including pollen. From the plant remains and pollen in these ditches, it was possible to determine a stratified sequence of the environment around the village.
 - 2. This stratification revealed innovations from the Roman period. In addition to the Celtic mix of barley, hops, and field grasses, we find summer savory, coriander, opium poppies, and flax that had been brought across the English Channel with the Roman legions.
 - 3. The opium poppy may have come as a weed, along with Roman wheat, or it may have been raised for its use as a drug. The flax is also interesting and may imply the opening of a new industry: ropes, cordage being made from the linen fibers inside the flax.
 - 4. Most interesting of the plant remains down below the Roman level, in the Iron Age Celtic levels of the tribes before the Romans came, was the first archaeologically verified discovery of a plant called *woad*. The blue dye worn by the Celts in battle, which was so frightening to the Romans, comes from this plant.
- D. We can also look at the process of Romanization in the Mediterranean. Let's explore a little Italian town called Metapontum, colonized by mainland Greeks, who had come across the sea to the west, to Italy.

1. Archaeologists from the University of Texas at Austin have determined that these Greek colonists had a mixed farming tradition. At the lower levels of the site, a range of animal bones has been found, including those of dogs, pigs, cattle, horses, some sheep, and goats.
 2. A great shift occurred after the site was conquered by Romans. The earlier picture with a diverse range of animals suggests subsistence farming, a self-sufficient city providing all of its own needs. With the Roman period, the horse, mule, and cattle bones virtually disappear and are supplanted by sheep and goats.
 3. The Roman economy was one in which masses of certain kinds of goods were produced in one place for distribution elsewhere. It would appear that Romanization changed the economy of Metapontum, supplanting self-sufficient farming with the raising of a cash crop—in this case, sheep and goats. Romanization, even in the Mediterranean, changed the environment fundamentally.
- IV. Finally, let's look at the interesting topic of fakes and forgeries, which has a long and "honorable" history as a human pastime.
- A. A student of mine once told me a story about a sculptor that her family had known when they were living in Rome. The sculptor had asked them to save her little brother's urine so that he could make sculptures in the ancient Roman style and soak them in a bath of urine to give them a patina of age and enable them to pass various scientific tests.
 - B. We can learn a couple of lessons from this story. First of all, the making of forgeries goes on all over the world, and second, the forgers are usually more advanced than the scientists. Finally, I've come to believe that any famous artifact in a museum collection or a gallery that didn't come from an archaeological site is probably fake.
 - C. Different areas of the ancient world inspire different fakes. In biblical archaeology, inscriptions are often forged. In the world of Greco-Roman antiquities, art has always been the target of forgers.
 - D. How can we tell that forgers are at work? One answer can be found in sourcing.
 1. Etruscan art is, in some ways, much more appealing than Roman art. It's much more fluid, more expressive of joy in life. The Etruscans loved to banquet, and their tombs contain images in bronze of banqueting.
 2. A couple of these bronzes showed up on the market. One was analyzed and proved to be proper bronze, with nine parts copper and one part tin. But the other one was copper mixed with zinc; it was brass, not bronze, which doesn't appear until the high Roman period, at least 500 years later than the Etruscan period.
 - E. A great scandal that erupted and grabbed headlines recently surrounded a *kouros* (Greek for "young man") of marble.
 1. In this piece, the young man was standing with his left foot forward and his hands down by his side; he was nude and had long, braided hair. The Getty Museum paid around \$10 million for him, thinking he was the most perfectly preserved *kouros* from antiquity, but the statue struck many specialists who looked at it as a fake.
 2. Finally, the case was blown open when a forgers' studio was discovered in Switzerland, where this *kouros* and others like it had been produced. These forgers had mixed up the feet, ears, braids, and buttocks of different periods in the history of that statue type.
 - F. Other great monuments of antiquity have also been proved false, including a collection of chryselephantine statues, that is, statues made of gold and ivory. None of these was found on an archaeological site, and they all are now known to be forgeries.
 - G. In fact, with the deathbed confession of one of the forgers and the use of radiocarbon dating, it's clear that this whole category of ancient art is fake. In this way, laboratory work allows us not only to see the sources of ancient materials and to reconstruct ancient environments but to separate the sheep from the goats among our artifacts—the fake from the real.

Suggested Reading:

Lambert, *Traces of the Past: Unraveling the Secrets of Archaeology through Chemistry*.

May, *Dragonby: Report on Excavations at an Iron Age and Romano-British Settlement in North Lincolnshire*, Section IV: "Environmental Remains."

Questions to Consider:

1. Is it necessary to understand the natural environment to study ancient cultures?
2. Each week in the field usually generates one to two months of lab analysis. Why?

Lecture Ten

“Not Artifacts but People”

Scope: One of Sir Mortimer Wheeler’s favorite sayings to his students was, “Always remember, you are not digging up artifacts; you are digging up people.” He was speaking metaphorically, but he meant that the goal of archaeology is not to find pots, or bronze artifacts, or ancient buildings—it’s to attempt to re-create the lives of the people who lived with these discoveries. The fact is, however, that archaeologists often do excavate the remains of people, and that’s our theme for this lecture: What can we learn from human remains? The information we can glean has become more detailed over time, as various kinds of scientific analysis have enabled us to determine everything from a person’s age, sex, and cause of death to pathologies and diseases he or she suffered and even diet. Now, with DNA studies, we can also learn genetic information from these long-gone individuals.

Outline

- I. Greeks and Romans are underrepresented in the study of ancient people because, for many Greek and Roman communities, the standard method of burial was cremation. Cremation is the burning of the bodies on a funeral pyre and the interment of the ashes or incinerated bones into urns or stone boxes in the ground.
 - A. Greeks and Romans did not, as the Egyptians and Vikings did, furnish the graves of their dead with all the things they possessed in life, although they did leave offerings at burial sites, such as lamps in which eternal flames would have burned.
 - B. We do have some remains of Greeks and Romans, and in this lecture, we’ll look at techniques for analyzing those skeletal and other human remains. We’ll then examine a few cases that will show us exactly how much information can be squeezed out of these fragments.
 - C. Greek and Roman cemeteries are usually found outside cities, because it was generally taboo to have burials inside city walls. Thus, there’s a segregation between the world of the living and the world of the dead in the ancient world that we don’t find in every society.
 - D. In this lecture, we’ll begin by visiting two early Greek cemeteries and try to see the burials through the eyes of a remarkable and gifted physical anthropologist at Adelphi University, Anagnostis Agelarakis.
- II. The first of these cemeteries is on the island of Paros in the Aegean, famous for its white marble and for its 7th-century-B.C. poet Archilochus, a warrior who wrote about warfare.
 - A. Starting in the 1980s, archaeologists working at a cemetery on Paros made a discovery that brought human flesh to the literary picture of Archilochus’s poems. A number of funeral urns were found, each containing the remains of a male adult. Analysis of the bones revealed that all the men had been between the ages of 18 and 45, the years of mandatory military service in the Classical Greek city-state.
 - B. Dr. Agelarakis also noted that the cranial bones, as well as the long bones and breastbones, of these men bore the cut marks of sharp weapons, such as swords or spears. These discoveries were a reminder of the beautiful line of the Athenian poet Aeschylus, himself a veteran of Marathon and the Battle of Salamis: “Men go to war, and in their place, urns and ashes return to their home.”
 - C. An interesting comparison could be made of the cremated remains inside the urns and the designs on the outside. A few of the urns were decorated in the early geometric style and showed the warriors arrayed in a phalanx with round shields (*hopla*). From this, Dr. Agelarakis and his colleagues concluded that the year 730 B.C. on Paros shows us the beginning of the hoplite world.
 - D. Further, the fact that this was a mass grave, with everyone treated equally, was very different from the older, aristocratic standards, in which heroic warriors from noble houses were each given distinctive burials of their own.
 - E. From this cemetery on Paros emerged important points about the evolution of Greek warfare and the involvement of Paros itself in wars overseas that must have claimed a staggering proportion of this small island’s adult male population.

- III.** The second Greek cemetery we will explore from this early period lies north of Paros, across the Aegean to the area of Thrace, where in 654 B.C., Ionian colonists established a city, Abdera.
- A.** Abdera was an access point to the rich land of Thrace, with its timbers and mines. We know that these colonists were not always welcome; wars were fought in which the Thracians tried to drive out the Greeks. In recent digs in the cemetery at Abdera, a woman was found who may have been a survivor of one of the raids by the Thracians.
 - B.** The body of this roughly 40-year-old woman was excavated, revealing the marks of a wound caused by something piercing her cranium. Dr. Agelarakis concluded that the marks had probably been caused by a weapon of some kind, but amazingly, the woman had undergone successful surgery on the wound and lived for another 20 years.
- IV.** The Greeks in the town of Metapontum departed from the custom of the Greek heartland and began to practice not cremation but *inhumation*, meaning that the body is placed in the ground in its entirety.
- A.** In this area, we find cemeteries at crossroads in the countryside; one in particular has yielded many burials of family members stretching over generations. We can tell from studies of the bones that the family members were clustered together in groups.
 - B.** Special studies have also been done to determine gender.
 - 1.** Bones of males tend to be more robust; females are more gracile, meaning that their bones are more slender and lighter. The muscle attachments are smaller, indicating that the muscles on females are also less pronounced than on males, as are the brow ridges.
 - 2.** Of course, at puberty, a woman's pelvis also flares out to allow childbearing, while a man's remains narrow. Women tend to be shorter, on average, than men. All these clues can be put together to determine which skeletons are males and which are females.
 - C.** With such information as number of males versus females and the ages of people in the cemetery, we can start to work out demographics. At Metapontum, females outnumbered males two to one. This is not a normal demographic, and as far as we can tell, it doesn't reflect any society in Classical antiquity of living people.
 - D.** What was going on at Metapontum? This is a question for physical anthropologists and paleopathologists. *Physical anthropologists* are scientists who study the remains of people; *paleopathologists* study the ancient diseases that people suffered to determine causes of death.
 - E.** One obvious possibility at Metapontum was that the men were dying and being buried away from home. But in formal battles, the dead in the Greek world were always collected and, if possible, brought home.
 - F.** I believe that during this time, Metapontum may have been characterized by a sort of Viking-like existence that it may have had in common with a number of Greek colonies. The lifestyle might have been one of roving, trading, and seafaring, in which many young men traveled and died far from home.
- V.** Greek and Roman texts tell us about people who lived to be 100. A recent find of a papyrus, bearing a poem probably by a Greek poet named Posidippus, included an epitaph he had written for a 100-year-old Greek woman who had died in Paphos on the island of Cypress.
- A.** Essays were written by Greeks and Romans about old age and the wonders that were carried out in old age. Sophocles was still writing *Oedipus* at Colonus when he was 90 years old. Isocrates in the next generation, a great Athenian orator, lived to be 99.
 - B.** Demographic studies of cemeteries, however, don't bear out the notion that these were long-lived groups of people. From analyzing bones and studying inscriptions, we know that few people lived past 40 in the Roman Empire.
- VI.** Our next cast study takes us to the south of Italy to a grave from the ancient Greek colonial city of Taras (modern Italian Taranto), dating to about 500 B.C.
- A.** The grave contained the remains of a young man; his inscription suggested that his name was Ikkos. He was about 30 years old, and his tomb was, essentially, a stone box with a peaked lid.
 - B.** Artifacts inside the tomb suggested that the young man had been an athlete. He had a *strigil*, which is a bronze implement for scraping olive oil from the body. He also had an *unguentarium*, a vial that would have held perfumed oil to rub on his body or to scent himself after a bath.

- C. Further, there were prizes that he had won as an athlete, including three beautiful amphorae from the city of Athens that would have been filled with olive oil. He had obviously participated in the Panathenaic Games, and his prizes featured images of a charioteer and boxers, as well as a double scene showing a discus event and the long jump.
 - D. Physical anthropologists removed this athlete from his tomb and studied his frame. He is about 5 feet, 6 inches tall and in perfect condition, both as a specimen in terms of his physique and in the preservation of his bones. The anthropologists were able to analyze both the growth of the bone and the muscle attachments, which showed that this young man was, overall, remarkably robust. His muscle development seems to suggest that he was a pentathlete.
 - E. Thanks to isotope studies of the content of his bones, we're able to determine what was in this athlete's diet. In some ways, his body was an artifact that he had built with every decision he made—which spring to drink from, what meals to eat, and what exercises to do during the day.
 - 1. The teeth have laminations that are similar to tree rings that enable us to pick out what years of a person's life were lean years, when he or she wasn't getting enough to eat.
 - 2. Our athlete had never been without food. His diet associated him with an ancient Greek school of medical thought that recommended a vegetarian diet with occasional jolts of meat. Thus, he seems to have been raised from the cradle to be an athlete.
- VII.** Very recently, archaeologists working in Turkey at the Greek city of Ephesus stumbled on a cemetery that proved to be the burying place of gladiators, those who fought in the Roman arena.
- A. Gladiators were not part of the Greek world. They were brought in with the Romans, and we can see some of the Greek theaters adapted for gladiatorial combats. Ephesus was a center for these combats.
 - B. The archaeologists working in Ephesus found an array of tomb inscriptions, and the epigraphy allowed them to reconstruct some of the lives of these people. Most interesting, however, were the burials themselves because, in many cases, these young men bore on their bodies the marks of the weapons that had killed them.
 - C. The most horrific death, in my opinion, was a man who seems to have been spread-eagled on the ground when his opponent drove his trident right through the victim's head. The marks of the spikes going through the cranium could still be seen in the skeleton.
 - D. In one case, evidence was found of a weapon that had been seen in a carving but not mentioned by name in any text and was not really believed to exist. This was a wicked tool with four prongs, like nails, sticking out of the end of it. A body was found marked with four terrible punctures on its bone, and it was clear that this man had been killed by that weapon.
- VIII.** Finally, let's go to the city of Pisa for our last case study of what we can learn from human remains.
- A. In 1998, a new railway building was being constructed in Pisa, and in digging the foundation, about 45 or 50 feet below the surface, workers were astonished to discover at least 10 Hellenistic and Roman ships that had sunk when the area had been a harbor. Among these ships were the remains of animals and humans, including an amphora containing a human baby and a jaw and tooth of a lioness.
 - B. Under what was known as Ship B, a ceremonial vessel, a 1st-century-B.C. Roman man was found, with his left arm flung out, holding a dog, something like a basset hound. We believe that the man was a sailor, about 40 years old, stocky, and around 5 feet, 6 inches tall; he and the dog had drowned together. The man's incisors had been worn down to the roots, as if he had used his teeth to hold ropes as he worked the sails in the ship's rigging.
 - C. We can see from these studies that physical anthropology can open up windows for us into the past that art and literature often do not penetrate, showing us everyday moments of people's lives and deaths.

Suggested Reading:

Chamberlain, *Interpreting the Past: Human Remains*.

Prag and Neave, *Making Faces: Using Forensic and Archaeological Evidence*.

Questions to Consider:

1. How much can be learned from cremated remains? How much can be learned from the skeletal material and soft tissues in an inhumation burial?
2. Does archaeology always bear out the information we may learn from art, literature, and other sources?

Lecture Eleven

Archaeology by Experiment

Scope: In this lecture, we venture out of the field of archaeological excavation and out of the laboratory to a branch of archaeological activity that lies somewhere between the two: experimental archaeology. This field represents a fairly recent development and encompasses the idea that weapons, tools, living systems, and customs of the past can be reconstructed, based on the archaeological record, and used today to try to understand their capabilities, their performance potential, and how they were used in antiquity.

The British have led the way in experimental archaeology. They have created Iron Age villages, typical of the British Isles before the Romans invaded, and persuaded small populations of people to live in them for an entire year, using Iron Age livestock and draft animals, plows, crops, and house types to see how such villages worked as a system. Classical archaeology has not yet conducted experiments on this scale, but it led the way into the world of experimental archaeology that many have followed in other fields. In this lecture, we'll talk about some of the outstanding examples of experimental archaeological projects and the potential of this field for the future.

Outline

- I. To start, let's return to our athlete from Taranto, ancient Taras in south Italy, whom we met last time and who was determined by Italian physical anthropologists to be a pentathlete, engaging in, among other sports, the long jump.
 - A. Greek long jumpers held a pair of weights in their hands, called *haltēres*. These weights looked like little slippers with handles on them and were probably made of metal. Jumpers are always shown in vase paintings flying through the air over the pit with *haltēres* in their hands.
 - B. Many modern long jumpers have been pressed into service by archaeologists at their universities to use these weights, but no one has yet come up with a technique that seems to enhance the jump by use of the weights.
 - C. We also have a fascinating bit of information from an account of an ancient athlete, suggesting that these weights held the secret to remarkable athletic achievements: One long jumper landed beyond the pit, a feat that would have broken the modern Olympic record for the long jump.
 - D. We would like to solve this puzzle of the weights in our quest to understand every aspect of the remarkable technical and material culture of the Greeks.
- II. The field of experimental archaeology began in 1861. Just as there were monarchs involved in the birth of archaeology itself—Charles of Bourbon and his wife, Maria Amalia—so, too, it was a royal—or, in this case, imperial—project that brought experimental archaeology into existence.
 - A. We know that Napoleon I, emperor of the French, helped create the field of Egyptology in the 1790s. His nephew, Napoleon III, was also an archaeologist of sorts, who was interested in fieldwork and the documentation of sites.
 - B. In 1860, Napoleon III had his forces working at the site of the battle of Alésia, where Julius Caesar won his greatest victory over massive armies of the Gauls. The French dug with extreme care; they were actually sounding the soil to determine the difference between the soil that had filled up the trenches that Caesar's troops had dug and the subsoil immediately beneath.
 - C. Napoleon III wanted to build up his navy also. This was a time when steamships were coming into their own, enabling the kind of maneuvering that had been possible with ancient Roman and Greek galleys.
 1. The ancient ships had been able to stop, move into the wind, move at right angles to the wind, and travel in a circle, all of which were difficult to accomplish in sailing ships but were potentially possible with steam engines. The guns could then be brought to bear from any point of the compass.
 2. Further, ancient galleys had a ram in front, so the ship itself was a kind of torpedo. Napoleon III and his admirals were interested in experimenting with this idea. Thus, he commissioned the building of a *trireme*, an ancient galley ship that had three tiers of oars along the sides.

3. The oars were the real engine of the ship. During battles, the mast and sail were actually removed and left on shore, and the oars carried the ship into battle. The pilot would direct the ship so that the bronze ram would strike and break into the hull of an enemy ship and swamp it.
 4. The man who provided the details for the rebuilding of this ship was a scholar named Auguste Jal (1795–1873). His model was the Roman trireme, which can be seen on Trajan’s Column. It was a massive ship and quite ornate. It was sheathed with copper and carried 35 metric tons of ballast. The ship had 150 crewmembers, 130 to pull the oars and the others to work the sails.
 5. The oars were arrayed in three tiers of different lengths: 4.5 meters for the lowest to the water, which would be the shortest; then 5.7 meters for the next rank up; and 7.4 meters for the top tier. The top oars, then, would be around 25 feet long.
 6. With 130 rowers, the ship was actually undermanned. Ancient triremes had 170 rowers. The only figure we have for the ancient oars is that the spare oars on an Athenian trireme were 9 or 9.5 cubits in length, which puts them at about 13.5 feet, a little longer than the oar for a modern Olympic racing shell.
 7. The ship was launched on the Seine and rowed between landmarks, reaching an average speed of 5 knots. However, Xenophon and other ancient writers record that ancient rowers in similar ships could maintain speeds of 10 knots and cover 125 sea miles in a day.
 8. As with the *haltēres*, this ship presents us with a conundrum: Why couldn’t it perform the way we know the triremes of antiquity performed? We don’t know the answer.
- D. This ship, however, opened the door to the idea that we could learn things about the past, not just by focusing on the remains, but by doing what ancient people had done.
- III. A branch in the field of ethnographic studies—studies of races or peoples—involves finding a modern group that is using something similar to an ancient tool or some technology that grew out of the Greco-Roman world and seeing how that tool or technology works for the modern group.
- A. I had the great experience of working in Portugal for a number of years on a large Roman site. We found some of the gigantic jars that the Romans used—*dolia*—that could be traced through the Roman and Greek world all the way back to the palace of Minos at Knossos.
1. Experiments had already been done to determine how these jars were made. They were built up by a coil method, similar to the one we all used to make pots in kindergarten.
 2. Interestingly, they were often sheathed on the inside with a coating of resin, which was used to enable the wine to be shipped long distances without deteriorating.
 3. The coating of resin was still visible inside some of the pots we found at the site. I visited a man in the area who was one of the last people who still lined these gigantic pots with resin. His method was to take a giant pot fresh from the kiln, tip it over on its side, and sling bucketfuls of resin into it as an assistant rolled it back and forth.
- B. One of the experiments that anyone can do who visits an ancient site is to test the acoustics at a Greek or Roman theater.
1. The Greeks somehow found the key to creating outdoor theaters that allowed for a single person standing in the center of the orchestra to speak in a normal tone and be heard to the very top row in a theater that seated thousands.
 2. I experienced the wonderful acoustics of a Greek theater in Ephesus at a performance of Beethoven’s Fifth Symphony by the Philharmonia of the Nations. The music was unlike anything I had heard before; the theater itself enabled the double-reed instruments, similar to an ancient instrument called an *aulos* (“pipe”), to dominate over the other instruments because they were played in an environment designed to showcase their sound.
- IV. Many experiments have been done over the years in reconstructing ancient weapons, such as the Roman catapult or ancient armor.
- A. One interesting study compared parade armor, which was all metal, to leather armor and leather shields to see which stood up better. To the surprise of the experimenters, a sword sliced right through the parade armor, but the leather was almost impenetrable.
- B. In the 1920s, the making of the silent film *Ben-Hur* sparked an interest in chariot racing. The sport involved four horses teamed in a row in front of a charioteer, running a course with a *spina* in the middle, a

sort of paperclip-style route, rather than the oval of a typical racecourse. Of course, a similar race was filmed in the later version of *Ben-Hur* starring Charlton Heston.

- V. Some striking experiments have also been done in the area of ancient technology.
 - A. Very elaborate, controlled experiments have been conducted with modern glassblowers to try to re-create the effects that the Romans achieved in their glass, such as the colors, the shapes, and the sculpting of the glass after it was blown. All this has now been duplicated, using Roman tools found on archaeological sites of glass workshops.
 - B. The black gloss on ancient Athenian pottery—the black and red figure pottery—was a mystery for some time. It was believed, at first, to have been achieved with paint or a glaze or, perhaps, by burnishing or polishing. Finally, through experimentation, it was discovered that the gloss was a result of a double-firing. The material on the surface that made the design was not paint but part of the pot itself, a piece of the same clay the pot was made from, mixed in a slurry with water and painted in among the lines to make the figures. After the pot had been fired a first time, a second firing was done with the slip in place and no oxygen allowed in the kiln.
- VI. As a rower, I'm intrigued by Napoleon III's efforts to reconstruct a trireme from antiquity, and I'm happy to say that the landmark experiments in Classical archaeology have also been with ships.
 - A. During the period 1985–1986, a replica was built of the *Kyrenia* ship, a wine freighter that we will look at in detail in Lecture Eighteen. This replica was the famous *Kyrenia II*, which was then taken out for sea trials and sailing tests.
 - B. Later in the same period, a writer named Tim Severin, who had a background in reconstructing old ships and watercraft, decided to reconstruct a small version of a Greek oared ship that might have been from the early days of Greek colonial exploration. He then rowed it along the course followed by Jason and the Argonauts.
 - C. Finally—and, perhaps, most famously—following the plans of John Morrison, a professor at Cambridge University, a team that included British scholars, the Greek navy, American rowers, and rowers from other countries was brought together to re-create an ancient Athenian trireme and commission it into the modern Greek navy.
 - 1. In his early days as a classicist, John Morrison came across a description in Plato's *Republic* that included a strange reference to a part of a ship. In this description, the dead soul of an Armenian named Er tells of a great beam or cord of light holding heaven and Earth together like the hypozomata of a trireme.
 - 2. Morrison was unable to track down the meaning of hypozomata, but in the process of trying to find it, he began to study Plato less and devoted himself to the study of ancient ships. Ultimately, he became one of the scholars who brought a new level of understanding to the study of ancient ships.
 - 3. Morrison designed models on paper, and his father, who was a woodcarver, would render them in wood. These models showed how rowers could be situated at three different levels and how the arrangement might have been held together by a hypozomata.
 - 4. After collecting data, Morrison decided that the hypozomata were girding cables that went around the outside of the trireme. He found some artistic depictions in which one could see rope going around the outside of the hull.
 - 5. He also realized, from the results of German excavations at the Piraeus, the shipyard of Athens, that the slipways in which the triremes had been pulled up suggested ships only about 20 feet wide, yet they were more than 120 feet long.
 - 6. Morrison determined that with these immense, rapier-like hulls, with great length in relation to the beam, indeed, it might have been essential to have girding cables around the hull in order to keep the ship together in high seas.
 - D. Morrison then tackled the questions of how the trireme worked, how it was manned, and how the three tiers of oars fit together. Combining all his information, he came up with a workable system.
 - 1. One rower was down in the hull; the next rower was up at shoulder height of the first level of rowers and a bit more outward; and finally, the top rower was out on the ship's gunwale, rowing through an outrigger.

2. Morrison posited that the oars were all of the same length, about 13.5 feet, basing his figures on those known for the spare oars of the Athenian navy.
 3. Morrison presented his ideas to the scholarly world, and some years later, his work sparked the interest of influential people in England. It was proposed that a naval architect be found to turn Morrison's theory into reality.
 4. The architect who took on the task was John Coates, retired from royal service. The Hellenic government then embarked on the project of building the ship in Athens and launching it as part of the modern Athenian or Greek navy.
 5. Sea trials of this ship, the *Olympias*, were conducted in the open waters of the Aegean with 170 rowers set at three levels and proved that Morrison's theories were workable. The three levels could all be rowed together without chaos and propelled the ship effectively.
- E. The *Olympias*, more than anything else, became a symbol of a revival in ancient Greek culture and technology. It became a familiar sight around the Saronic Gulf as it went about its sea trials and visited different ports. It is, indeed, part of this experimental branch of archaeology, which has brought many projects into the sphere of the public eye and enabled us to experience the Classical world for ourselves.

Suggested Reading:

Coles, *Archaeology by Experiment*.

Welsh, *Building the Trireme*.

Questions to Consider:

1. Experiment lies at the core of our scientific tradition and forms the basis of most day-to-day activity in the natural sciences. How closely does experimental archaeology conform to this standard model?
2. What aspects of material culture most readily lend themselves to projects in experimental archaeology?

Lecture Twelve

Return to Vesuvius

Scope: We have completed the first long leg of our journey through the world of Classical antiquity viewed through the lens of archaeology. In this lecture, we will take a brief look backward over the terrain we have covered so far. We'll go back to Vesuvius and see how the passage of 270 years has given us more information and deeper insights into what life was like before the volcano erupted. Pompeii and Herculaneum were the first targets of Classical archaeology and are still today among the most dynamic sites being worked anywhere in the Classical world.

Outline

- I. Today, Pompeii is still a greater attraction than Herculaneum, as it was in the 1730s and 1740s.
 - A. Pompeii was easier to excavate than Herculaneum, which meant that the city could be exposed and visitors could come through and experience the moving scenes of daily life and the thrill of walking on ancient streets.
 - B. Today, Herculaneum is a gigantic square pit, cut down through some 70 feet of volcanic matter. A view on top of the walls looking down almost gives the impression of a still-living community, much more so than in Pompeii. This sensation is due to the better preservation of the wood and other materials in Herculaneum, because it was subject to pyroclastic flow, rather than the hot ash that fell on Pompeii.
 - C. We now have a much clearer picture of what happened at Pompeii and Herculaneum starting on August 24, A.D. 79, thanks to the visits of volcanologists.
 1. We now know that, at first, the heavy fall of the *lapilli*, the “little stones,” was on Pompeii. The inhabitants of Herculaneum probably thought that they would not be directly affected by this eruption, because the fall of ash was being blown southward from the volcano’s crater.
 2. Herculaneum was then hit later in the day and probably in the night by red-hot flows of volcanic gases and molten rocks, sweeping down the mountainside at the speed of an express train.
- II. Let’s begin our journey through modern archaeological discoveries around Vesuvius with a carpenter shop.
 - A. We met briefly, when we talked about dendrochronology, a scholar from Cornell University named Peter Kuniholm. He has put together a team to collect samples of ancient wood from the Aegean and Mediterranean to study tree-ring sequences. Kuniholm and his team were called in to analyze the timbers found in a carpenter shop in Herculaneum and have come to some remarkable conclusions.
 - B. Some of the timbers found in the carpenter shop are gigantic beams. Where did these trees come from? How old are they?
 1. Some of this wood was 200 years old at the time it was buried, suggesting a world in which timber was very important. By A.D. 79, the Italian hills and mountains had probably been, to some extent, deforested.
 2. Amazingly, Kuniholm couldn’t match the timber found in Herculaneum to any stand of trees he knew of in the 1st century A.D. or the 1st century B.C. in Italy. These gigantic timbers were, in some cases, from the forest north of the Alps, in Germany.
 3. This discovery suggests an otherwise lost-and-forgotten long-distance trade on the Romans’ part in valuable timber.
- III. In the streets of Pompeii, archaeologists from every country in Europe, Japan, and the United States are all working in collaboration to ask new questions and solve new puzzles about Pompeii and Herculaneum.
 - A. In many places, we will now see stratigraphic digs going down below the surface of the ground as it was in A.D. 79, exploring centuries of earlier occupation on these two sites.
 - B. You may remember that Herculaneum was a Greek colony. Pompeii was a colony of local Italians, tribal people who had originally coexisted with the Romans and were later conquered by them. The remains of their houses are now being found, and we can see how much of what we sometimes think of as purely Roman civilization owes its origins to these earlier neighbors of the Romans.

- C. Such sites as the House of the Surgeon show us that those pre-Romans built so well that some of their houses were still in use 200–300 years after they were erected.
 - D. Archaeologists are also at work in the gardens of such houses. The pioneer for garden archaeology was an American scholar named Wilhelmina Jashemski. Jashemski went to Pompeii with her husband and began by documenting, with photographs, all the images of flowers, gardens, and trees that were frescoed on the houses.
 - 1. Jashemski was ultimately interested in reconstructing the gardens themselves. She collaborated on sites where archaeologists were able to reveal the ridges in gardens that marked where plants were set in rows and the earth heaped up around them.
 - 2. She found irrigation channels in these gardens, suggesting a system in which the gardener works with a hoe, opening and closing each branch of the irrigation system as water flows down a gentle slope.
 - 3. Jashemski also wanted to get below the soil. Some projects had already been done involving cement casts of the roots of large trees that had been incinerated during the volcanic eruption. Jashemski began to make similar casts of the roots of smaller plants and found that many were identifiable as grapevines.
 - 4. Almost single-handedly, Jashemski made it possible to envision Pompeii—and, by extension, Herculaneum and other sites—as it really looked on the summer day when the volcano erupted.
- IV. We can also look at the epigraphical work being conducted at Pompeii and Herculaneum.
- A. Among the specialists working now is an English scholar named Andrew Wallace-Hadrill, head of The British School at Rome. He is researching collections of family documents and trying to reconstruct the lives of these people through their contracts, lawsuits, and property documents.
 - B. In the process, Wallace-Hadrill is creating for us a new picture of Pompeii and Herculaneum as towns with an almost uproarious level of life and fluidity. Many people came to these cities as slaves, then later gained their freedom and worked their way up through the system until they were living in a style almost on a par with the older families.
 - C. Wallace-Hadrill has shown that there was a sort of space between free and slave filled by many people who had a foot in both worlds. Documents were found outlining the legal status of a young woman whose mother was a slave in a household but whose father was the master of the house.
 - D. This information gleaned from documents helps us reconstruct a picture of a melting pot that may be far more typical of a Roman town than our usual vision.
- V. In the 1980s, archaeological work in Herculaneum moved down the slope to the place where the beach would have been.
- A. You may remember that this volcano poured out masses of material—so great, indeed, that the shoreline was pushed almost a quarter of a mile further out into the Bay of Naples than it had been before the volcano erupted. This change hid the old shoreline and made it difficult to match the modern topography with ancient descriptions.
 - B. In the 1980s, archaeologists found an impressive arcade of concrete arches facing the beach, with vaults behind them to shelter boats. This, of course, was one of the beaches where rescuers, such as Pliny the Elder, tried to bring their boats to save survivors.
 - C. Up to this time, many bodies had been found in Pompeii but few in Herculaneum. The city gave the optimistic impression that most of its inhabitants had gotten away. On the beach, however, a soldier was found; he had apparently been thrown from the balcony level above the arcades onto the beach by some tremendous force: the pyroclastic flow.
 - D. As the archaeologists moved down the beach, they found more and more bodies like that of the soldier. People had been running toward the beach to escape but had then been caught by the incredible wave of gases and hot rock and died instantly in the heat.
 - E. As the teams worked their way toward the arcade of open arches leading back into the vaulted spaces, they found a 30-foot-long boat that had been flipped over, probably by a huge wave created by violent seismic shocks. Dick Steffy was called in from the Institute of Nautical Archaeology.

1. Many people had been counting on that boat, or boats like it, to get away. Under the vault were found 300-odd bodies—men, women, and children who had all rushed down to the sea and tried to take refuge in these vaulted spaces.
 2. Many of these bodies were in crouching positions, as if they were waiting. There was no sign of a violent struggle in their final moments. They were simply overtaken by the waves of incredibly hot gases that poured down the slope and filled up the vaulted spaces where they had taken refuge.
 3. These bodies didn't have cavities around them, as the people in Pompeii did. What they were hit with was so hot that the flesh was seared off their bodies instantly; their skeletons were perfectly preserved in position as the pyroclastic flows rose higher and higher and filled up those spaces along the sea.
- F. A physical anthropologist named Sara C. Bisel has much to tell us about some of these people.
1. Near the mouth of one of the vaulted spaces was a man called the *paterfamilias*, the “father of the family.” He was a big fellow, about 45 years old, who had been an athlete and privileged throughout his life. He was probably a javelin thrower, because his left arm was about 10 centimeters shorter than his right.
 2. Not too far away, a child was found, clutching what we would call a piggybank with two coins inside.
 3. A little further in, the skeletons of a 14-year-old girl and an infant were found intertwined. The baby had ornaments on it, but the girl had nothing. Analysis of her teeth and bones showed that she was probably a slave, perhaps the baby's nursemaid.
 4. A couple of women were identified as prostitutes from various possessions they had, and near one was found a few strands of blonde hair that had survived the heat of the pyroclastic flow. Women were also found who were pregnant, and even their fetuses could be examined.
 5. Working skeleton to skeleton, we're able to build up a picture that goes beyond the documents about life in Pompeii and Herculaneum that shows us what it was like to die in that disaster and the kind of people who had been living in those cities.
- VI. Before we close, we'll go back to Pompeii, leaving Herculaneum with its incredible collection of skeletons, and look at a beautiful archaeological experiment, based in part on Wilhelmina Jashemski's work.
- A. The goal of the experiment is to bring a Roman vineyard back to life, growing in the volcanic soil of Pompeii itself and using some of the grape varieties that have been teased out from a combination of the botanical and artistic information.
 - B. This experiment involves the field of ampelography, the determination of grape varieties through a study of the way they are shown in art. Through this study, a grape variety of modern Italy called *chachi nosso* has been determined to be the black grape of Pompeii, at least one of the grapes that was grown in the city.
 - C. Italian vintners have assisted in growing these grapes and producing wine that allows visitors to both taste the past and drink a toast to all the great investigators who have helped bring it back to life.

Suggested Reading:

Berry, *Unpeeling Pompeii: Studies in Region I of Pompeii*.

Jashemski and Meyer, eds., *The Natural History of Pompeii*.

Wallace-Hadrill, *Houses and Society in Pompeii and Herculaneum*.

Questions to Consider:

1. In view of the vast capabilities of modern scientific analysis, what aspects in the early excavations at Herculaneum and Pompeii seem most regrettable today?
2. How different are the sites of Pompeii and Herculaneum in terms of their capacity to yield information to archaeologists and other scientists? What, in your opinion, would be the “ideal” cataclysm to bury an archaeological site?

Timeline I

Important Periods of Greek and Roman History

Note: Important sites mentioned in the lectures are listed under each period. Dates for periods are approximate.

- 10,500–7000 B.C. **Mesolithic or Middle Stone Age.** Obsidian deposits in Franchthi Cave, Greece, show that Mesolithic mariners had seagoing vessels capable of crossing the Aegean to the volcanic island of Melos.
- 7000–3600 B.C. **Neolithic or New Stone Age.** Farming communities spread across Greece, creating distinctive painted pottery and establishing such villages as Dimini and Sesklo.
- 3600–2100 B.C. **Early Bronze Age in the Aegean.** (Late Neolithic in Italy and the western Mediterranean.) Important settlements at Troy and Knossos.
- 2100–1600 B.C. **Middle Bronze Age (Aegean).** Eruption of Santorini volcano circa 1620 B.C. destroys Akrotiri on the island of Thera, a major center of Cycladic civilization.
- 1600–1100 B.C. **Late Bronze Age.** Mycenaean contacts with Italy and Sicily. Proliferation of Minoan sites on Crete, most of which share the fate of Gournia and are abandoned or destroyed in about 1450 B.C. Greek-speaking Mycenaeans rule from such palaces as Mycenae on the Greek mainland and Knossos on Crete, using the Linear B script for their accounts. Shipwreck at Uluburun off southern Turkey, circa 1320 B.C. Legendary time of the Trojan War, variously dated to 1250 B.C. or 1184 B.C. Ultimate destruction of palaces at the end of the Bronze Age.
- 1100–800 B.C. **Iron Age or Dark Age.** Site of Rome settlement about 1000 B.C.; Ionian Greek cities in Asia Minor settled about the same time. Lefkandi, Euboea, is the center for “Homeric” chieftains and Near Eastern trade at about 950 B.C.
- 800–500 B.C. **Age of Colonization; Age of the Polis.** Greeks and Italians adopt alphabet from the Phoenicians. Greek colonies established near the Bay of Naples and in southern Italy and Sicily. Homer composes the *Iliad* and *Odyssey*. Rise of ritual activity at Delphi and Olympia—first Olympic Games held in 776 B.C. (traditional date). Rome founded in 753 B.C. (traditional date). Etruscans dominate Rome; local tyrants rule in many Greek city-states. Eastern and western Greek colonial cities surpass the cultural achievements of Corinth, Athens, Sparta, and others in the heartland. Archaic period of art, circa 580–480 B.C.
- 500–330 B.C. **Classical Age.** Romans expel the last king circa 500 B.C. Greeks involved in wars with Persians in the east and Carthaginians in the west. Athenians begin to develop the Agora northwest of the Acropolis as a grand civic center. After the Persian Wars, Athens rules as a maritime empire thanks to its fleet of triremes. After 450 B.C., Athenians build the Parthenon and other temples on the Acropolis. “Golden Age” of Athens. Phidias creates monumental statues of Athena at Athens and Zeus at Olympia. Romans begin to expand their territory, taking over Veii circa 396 B.C. The archaic temple at Delphi is destroyed circa 372 B.C. and is replaced by a 4th-century temple. In 334 B.C., Alexander the Great embarks on his conquest of the Persian Empire, founding Alexandria in Egypt in 331 B.C.
- 330–28 B.C. **Hellenistic Age; Roman Republic.** Successors of Alexander the Great created Hellenized kingdoms in the eastern Mediterranean and Near East. Ptolemaic dynasty in Egypt inaugurates the lighthouse at Alexandria in 283 B.C. Romans conquer Samnian territory (including Pompeii and Herculaneum) by 290 B.C., establish maritime colonies at Cosa and Paestum in 273 B.C., and are embroiled in the Punic Wars with Carthage from 264–146 B.C. Alexandria and Rhodes become literary and scientific centers, as shown by the famous bronze Antikythera device. Romans conquer Athens in 86 B.C. In 30 B.C., the Roman general Octavian captures Egypt. The last queen, Cleopatra, commits

suicide, and Octavian's military and administrative successes bring an end to both the Hellenistic Age and the Roman Republic.

- 27 B.C.– A.D. 96..... **Roman Empire: Julio-Claudian and Flavian Dynasties.** The former Octavian, now Caesar Augustus, rules as emperor—a status that will eventually grow into a divine cult. From 20 to 9 B.C., Roman engineers help construct a harbor city called Caesarea Maritima for Augustus's friend and client Herod of Judea. Augustus's legions suffer a great loss in Germany at the Teutoburg Forest in A.D. 9. The emperor Claudius launches a successful Roman invasion of Britain in A.D. 43. Eruption of Mt. Vesuvius in A.D. 79. buries Pompeii and Herculaneum. The great amphitheatre known as the Colosseum is inaugurated in A.D. 80, having been built with spoils brought back to Rome from Judea after the Jewish Revolt.
- A.D. 96–235..... **Roman Empire: Trajanic, Antonine, and Severan Dynasties.** During the reign of Hadrian (117–138), limits, such as Hadrian's Wall, are constructed to mark the imperial frontier; a high-water mark of Hellenization is reached in Roman culture; and the cult of Antinous is introduced. Emperors continue to sponsor extraordinary engineering works in concrete up through Caracalla (211–217) and his baths, the largest in Rome.
- A.D. 235–284..... **Crisis of the Third Century.** Economic collapse, weakening of centralized power, and widespread "barbarian" invasions threaten the existence of the Roman Empire. In 267, the Heruli from the Black Sea launch a maritime invasion of Greece, sacking and burning the Agora at Athens.
- A.D. 284–476..... **Late Roman Empire.** Economic edicts and coinage reforms of Diocletian get the empire back on an even keel (301–302). Constantine legalizes Christianity (313) and moves the capital of his empire from Rome to Byzantium, renaming it Constantinople (324). Circa 360, the last Pythia at Delphi gives a final oracle to Julian the Apostate. Theodosius closes the temples of the old gods (391). Honorius withdraws the Roman legions from Britain (410). Geric and his Vandals sack Rome in 455, and 21 years later, an Ostrogothic king establishes rule over Italy.

Timeline II

Classical Archaeology

- 1738 By order of Charles of Bourbon, king of Naples, the military engineer Roque Joaquín Alcubierre begins the first systematic archaeological excavations at the site of Herculaneum, an ancient city buried during the eruption of Mt. Vesuvius in A.D. 79.
- 1748 Alcubierre extends the Bourbon excavations to Pompeii, where the shallow layers of pumice pellets ultimately allow much of the buried city to be completely uncovered.
- 1750 Swiss military engineer Karl Weber excavates and maps the great Villa of the Papyri in Herculaneum, famous for its library of papyrus scrolls. More than two centuries later, American tycoon J. Paul Getty will attempt to recreate the villa as a museum of ancient art at Malibu in California.
- 1764 Johann Joachim Winckelmann publishes his groundbreaking *History of Ancient Art*, in which he distinguished Greek originals from Roman copies and laid out the four periods of art (corresponding to Archaic, Classical, 4th Century, and Hellenistic/Roman) that still form the basis of art historical chronology.
- 1766 Sir William Hamilton, British envoy to Naples; volcanologist; and collector of ancient vases, coins, and other antiquities, publishes his first collections of vases with lavish engravings by d'Hancarville. He identifies most of the figured vases as Greek, rather than Etruscan or Roman, and champions the study of vases alongside ancient sculpture and architecture.
- 1803 Thomas Bruce (Lord Elgin) removes sculpted marbles from the Parthenon in Athens, including pedimental sculptures and reliefs from the frieze, and ships them to England, where they eventually find their way to the British Museum. The Elgin Marbles have been a source of bitter controversy ever since they were removed from the Acropolis.
- 1825 Faustino Corso publishes *Delle Pietri Antichi*, describing more than 1,000 specimens of ancient marble from Rome and, where possible, tracing the stone back to the quarry from which it had been cut.
- 1861 Giuseppe Fiorelli takes charge of the excavations at Pompeii and initiates the practice of making plaster casts of long-dead Pompeians from cavities in the volcanic matrix at the site.
- 1861 The emperor Napoleon III of France sponsors the reconstruction and launching of a trireme, along with excavations and reconstructions of the Roman siegeworks at Alesia—both projects marking pioneering efforts in the field of experimental archaeology.
- 1868 Heinrich Schliemann visits Pompeii, tours the excavations, and hears Fiorelli lecture on his discoveries and on the scientific methods used to excavate the buried city.
- 1871 Having informed Heinrich Schliemann of his belief that the tell of Hissarlik was the site of Homer's Troy and, therefore, the city of Priam described in the *Iliad*, British scholar and diplomat Frank Calvert agrees to collaborate with Schliemann in the excavation of the site. In 1873, Schliemann alienates Calvert and the government of Turkey by smuggling the hoard known as Priam's Treasure out of Turkey, first to Greece, then to Germany.
- 1875 A six-year campaign of excavation begins at Olympia in Greece, site of the ancient Olympic Games, under the direction of German archaeologist Ernst Curtius, who had previously excavated at the site of the Hellenistic city of Pergamon in Turkey and the Assembly Hill (Pnyx) in Athens.
- 1876 Under an agreement that he will pay all costs and turn all finds over to the Greek government, Heinrich Schliemann excavates the late Bronze Age citadel of Mycenae,

- discovering the Shaft Graves and such treasures as the famous gold Mask of Agamemnon.
- 1877 Italian archaeologist Rodolfo Lanciani begins to survey, excavate, and map ancient structures in the Roman Forum, a project that will eventually embrace Rome's aqueduct system, the port city of Ostia, and Hadrian's villa at Tivoli, and lead to the publication and preservation of many important Roman remains.
- 1884 Greek archaeologist Christos Tsountas attempts the first scientific underwater archaeological survey in history, employing sponge divers to examine the sea floor in the straits of Salamis for remains of the famous sea battle between Greeks and Persians in 480 B.C.
- 1891 French archaeologists begin the decade-long Grande Fouille, or "Big Dig," at Delphi in Greece, uncovering the sanctuary of Apollo, the foundations of the temple that was the site of the famous Delphic Oracle, and masterpieces of art, including the bronze *Charioteer*.
- 1900 British scholar Arthur Evans begins his famous dig at Knossos in north central Crete, site of the palace of King Minos and the legendary labyrinth. The stratigraphic sequence worked out by the field director, archaeologist Duncan MacKenzie, helps to establish a new chronological framework for the Aegean Bronze Age.
- 1900 Greek sponge divers recover important artifacts from an ancient shipwreck at the islet of Antikythera, south of Greece, including the corroded remains of an ancient astronomical computer composed of 39 circular bronze gears of varying sizes, a turntable, and 3 bronze dials. The Antikythera device dates from the 1st century B.C.
- 1901 American archaeologist Harriet Boyd of Smith College excavates at Gournia in eastern Crete, revealing the houses and streets of a working Minoan town that had been abandoned about 1450 B.C. Among Boyd's discoveries was an altar, shrine, and clay statue of a snake-enwreathed mother goddess.
- 1901 Greek archaeologist Christos Tsountas starts excavations at the Neolithic hilltop settlement of Sesklo near the Gulf of Volos in central Greece.
- 1921 Mortimer Wheeler uses his excavations at the Roman fort of Segontium in Wales as a launching platform for his reform of archaeological fieldwork methods, taking as his guide the pioneering but almost forgotten works of General Pitt-Rivers.
- 1928 Russian-American archaeologist and historian Michael Rostovtzeff begins excavations at Dura-Europos on the Euphrates River, where he uncovers remains of a Roman military post, a trading center, and religious centers for Jews, Christians, and followers of Mithras. Rostovtzeff worked his discoveries into his pioneering studies of ancient society and economics.
- 1932 Excavations in the Agora of ancient Athens are undertaken by the American School of Classical Studies in Athens, thus initiating one of the largest, longest-lived, and most productive digs in the field of Classical archaeology.
- 1939 American archaeologist Carl Blegen discovers a late Bronze Age palace at Pylos in southwestern Greece, the so-called Palace of Nestor, having brought the palace's archive room to light on the very first day of digging. Linear B tablets from Pylos helped clinch Ventris's controversial decipherment of the Bronze Age script.
- 1945 American chemist Willard F. Libby initiates a study of radioactive carbon isotopes (carbon-14) that will eventually provide archaeologists with a method for dating ancient artifacts and materials by measuring the amount of radiocarbon that they contain. Libby will receive the Nobel Prize for Chemistry in 1960 for his discovery.

- 1945 Mortimer Wheeler and a team of Indian archaeologists excavate an ancient warehouse containing Roman pottery and other artifacts at Arikamedu in south India.
- 1947 A chance discovery by a Portuguese laborer reveals the immense Roman villa of Torre de Palma in east central Portugal, with a complex of buildings, including barns, stables, smithies, an oil press, bath houses, and an early Christian basilica, as well as extensive mosaic pavements.
- 1952 Jacques Cousteau and a team of divers collaborate with French archaeologist F. Benoit in recovering amphorae and other materials from Hellenistic and Roman shipwrecks at Grand Congloue near Marseilles, using the scuba gear recently developed by Cousteau.
- 1953 English architect Michael Ventris completes his decoding of the Linear B script from late Bronze Age palace sites on Crete and the Greek mainland, proving that the tablets were palace accounting tallies and that the language represented by the Linear B syllabary was Greek.
- 1953 American archaeologist William McDonald and Canadian Richard Hope Simpson begin the Minnesota Messenia expedition—a systematic surface survey of Messenia in southwest Greece, first mapping late Bronze Age sites and later establishing the region’s settlement patterns from prehistoric to early modern times. (A similar regional survey is conducted in southern Etruria, Italy, by John Ward Perkins of the British School at Rome.)
- 1953 French archaeologists find the largest Greek bronze *krater* ever discovered, part of the treasures in the tomb of a Celtic queen or princess at Vix in eastern France. The immense vessel for mixing wine with water had a capacity of 250 gallons and attests to the 6th-century wine trade between Greeks and Celts.
- 1954 Emil Kunze locates and excavates the workshop of the ancient sculptor Phidias in the sanctuary at Olympia, Greece, where Phidias created the monumental chryselephantine statue of Zeus that ranked as one of the Seven Wonders of the World.
- 1954 Mortimer Wheeler publishes *Archaeology from the Earth*, an archaeological manifesto that promoted the use of scientific techniques in survey, excavation, recording, and analysis.
- 1959 Italian archaeologists dig at Caesarea Maritima on the coast of Israel, a city of Roman design and construction built during the reign of Herod the Great. Eventually, the excavations will involve the efforts of more than 20 institutions in Israel, the United States, Canada, and other countries and will reveal one of the most ambitious harbor-building projects from the entire ancient world.
- 1959 Italian archaeologists unearth the skeleton of a Greek athlete in an elaborate stone-built tomb at Taranto in southern Italy, permitting a rare opportunity to perform a full battery of anatomical and chemical tests on an ancient Greek of the early 5th century B.C.
- 1960 Led by American archaeologist George Bass, a team of scuba divers and other specialists conducts the first scientific survey and excavation of a shipwreck site at Cape Gelidonya, Turkey. The success of the project leads to the establishment of the Institute of Nautical Archaeology, based at College Station, Texas, and at Bodrum, Turkey.
- 1963 Excavations at Dragonby, Lincolnshire, England, reveal an important Romano-British village site, later to be excavated by an archaeological team from the University of Nottingham. The site will yield substantial botanical and zoological evidence, permitting archaeologist Jeffrey May to reconstruct changes in the ancient environment brought on by the process of Romanization.
- 1968 Near the harbor of Kyrenia in northern Cyprus, Michael Katzev of the Institute of Nautical Archaeology begins excavation of a 4th-century B.C. wine freighter. Enough of

- the hull was recovered to permit a full-scale replica of the Kyrenia ship to be built and tested at sea.
- 1968 Subsurface reconnaissance detects the remains of the Classical Greek city of Sybaris in southern Italy, but the overlying sediments are too deep and waterlogged to permit excavation.
- 1969 Greek archaeologist Spyridon Marinatos begins large-scale excavations at the Bronze Age town of Akrotiri on Thera (Santorini), which had been buried by a volcanic eruption in about 1620 B.C. In 1983, Christos Doumas takes over as director of the historic project, which revolutionizes the archaeology of the Cyclades Islands and early Greece.
- 1971 Under the directorship of British archaeologist Barry Cunliffe, a project is launched to excavate the deeply buried Roman West Baths under modern Bath, England, followed by excavations at the Sacred Spring and the temple of Sulis Minerva.
- 1972 An Italian sport diver discovers the bronze statues of two Greek warriors or heroes in shallow water off Riace Marina in Calabria, Italy.
- 1973 At the Roman fort of Vindolanda in northern England, excavators recover a cache of waterlogged documents written in ink on thin wooden tablets, including accounting records and personal letters that record military life on the Roman frontier in the late 1st and early 2nd centuries A.D.
- 1977 Greek archaeologist Manolis Andronikos excavates Tomb II at the royal Macedonian cemetery of Vergina in northern Greece and identifies the occupant as King Philip II, father of Alexander the Great.
- 1979 Edmund Büchner uses historical evidence to locate the remains of the great sundial erected by Augustus in 9 B.C. on the Campus Martius, which had long been concealed beneath the modern buildings of Rome.
- 1980 Italian archaeologists discover hundreds of human skeletons near and under the vaulted concrete docks of ancient Herculaneum, the remains of victims of the eruption of Vesuvius in A.D. 79, thus bringing to light one of the first major collections of human skeletal material from the time of the Roman Empire.
- 1981 Excavations at the Iron Age site of Lefkandi on the island of Euboea (Evia) in Greece reveal a 10th-century-B.C. long house of a local chieftain, along with elaborate burials and imported goods from Egypt and the Near East—surprising evidence for sophisticated culture in the heart of the Greek Dark Age.
- 1983 Off Uluburun in southern Turkey, American and Turkish archaeologists of the Institute of Nautical Archaeology, led by Cemal Pulak, begin the survey and excavation of an important shipwreck from the late Bronze Age, possibly dating to as early as 1320 B.C. A gold scarab of Queen Nefertiti, the world’s oldest known codex or hinged “book,” raw glass and ivory, and sections of the massive wooden hull are among the materials recovered from the Uluburun wreck.
- 1986 A banner year for experimental reconstructions of ancient ships in Greece, including the first replica of the Kyrenia ship (*Kyrenia I*) and hypothetical reconstructions of Jason’s *Argo* by Tim Severin and of an Athenian trireme, the *Olympias*. The sea trials of these ships were landmarks in experimental archaeology.
- 1987 The site of the Teutoburg Forest battle (A.D. 9) is discovered by British army officer Tony Clunn at Osnabrueck in northwest Germany. Subsequent excavations by German archaeologists locate a mass grave of Roman soldiers killed in the battle.
- 1992 Austrian archaeologists working at Ephesus in Turkey discover a cemetery for gladiators and conduct an interdisciplinary study of the skeletons, the weaponry and modes of killing, and the inscriptions on the grave markers.

- 1994 French archaeologist Jean-Yves Empereur of the Center for Alexandrian Studies begins a project to map and recover stone sculptures, architectural elements, and other antiquities from the ancient harbor of Alexandria, capital of Hellenistic Egypt.
- 1997 Analysis of an ice-core taken from a glacier on Greenland reveals that intensive Roman mining and smelting of lead, mainly from the Rio Tinto mines of southern Spain, created pollution of the atmosphere worldwide in the 1st century A.D.
- 1999 Ten Roman ships with cargoes, plus the skeletons of a man and dog, are found by chance at Pisa in Italy during construction on the site of the ancient harbor, now completely silted up.
- 2000 British archaeologist Hilary Cool publishes an analysis of human remains from a 3rd-century Roman military cemetery at Brougham near Hadrian's Wall and discovers that two of the graves interpreted as belonging to cavalry officers were the graves of women.
- 2005 Satellite images reveal Roman villas and other previously undetected sites throughout the Classical world.

**Classical Archaeology of
Ancient Greece and Rome
Part II: An Archaeologist's Casebook
Professor John R. Hale**



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John R. Hale, Director of Liberal Studies at the University of Louisville in Kentucky, is an archaeologist with fieldwork experience in England, Scandinavia, Portugal, Greece, and Turkey, as well as in the Ohio River valley. At the University of Louisville, Dr. Hale teaches introductory courses on archaeology, as well as more specialized courses on the Bronze Age, the ancient Greeks, the Roman world, Celtic cultures, Vikings, and on nautical and underwater archaeology. He has received awards for distinguished teaching, including the Panhellenic Teacher of the Year Award and the Delphi Center Award. He has toured the United States and Canada as a lecturer for the Archaeological Institute of America and has presented lecture series at museums and universities in Finland, South Africa, Australia, and New Zealand.

Archaeology has been the focus of Dr. Hale's academic career from his B.A. studies at Yale University to his doctoral research at Cambridge University in England, where he received his Ph.D. degree. The subject of his dissertation was the Bronze Age ancestry of the Viking longship, a study that involved field surveys of ship designs in prehistoric rock art in southern Norway and Sweden. During more than 30 years of archaeological work, Dr. Hale has excavated at a Romano-British town in Lincolnshire and a Roman villa in Portugal and carried out interdisciplinary studies of ancient oracle sites in Greece and Turkey, including the famous Delphic Oracle. Currently, he is participating in an undersea search in Greek waters for lost fleets from the time of the Persian Wars. In addition, Dr. Hale is a member of a scientific team seeking to develop and refine a method for dating mortar, concrete, and plaster from ancient buildings—a method employing radiocarbon analysis with an accelerator mass spectrometer.

Most of Dr. Hale's work is interdisciplinary and involves collaborations with geologists, chemists, nuclear physicists, historians, zoologists, botanists, physical anthropologists, geographers, and art historians. He has published his work in *Antiquity*, the *Journal of Roman Archaeology*, the *Classical Bulletin*, and *Scientific American*. He has written a book on the ancient Athenian navy, *Lords of the Sea*, for Viking/Penguin (2006).

Beyond archaeology, Dr. Hale's interests include rowing and music. A veteran of the Yale-Harvard boat race (the oldest intercollegiate sporting event in America!), he was a founder of the Louisville Rowing Club. Dr. Hale also serves as director of education for the Louisville Bach Society.

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Classical Archaeology of Ancient Greece and Rome

Scope:

The field of archaeology, which today covers all periods of the human past in all parts of the world, began as an investigation into the lost civilizations of Greece and Rome. The discipline takes its name from two Greek words meaning “ancient things” and “studies.” Archaeology may be defined as the study of cultures through their material remains. Those remains may range in size from a grain of pollen in a wine jar to an entire buried city.

“Classical” archaeologists are researchers who continue the quest for an understanding of Greek and Roman antiquity. Although their discoveries include written records on clay tablets or papyrus scrolls, Classical archaeologists devote most of their efforts to locating, recovering, and interpreting the seemingly mute remains of ancient sites—marble and mudbrick, bronze and concrete, industrial debris and great works of art, grave goods, cargoes lost at sea, pottery, coins, bones, and the very dirt that encloses them all.

What can you expect to learn from this course? By the end of the 36th lecture, you should have a clear idea of the scope of the field and of the methods that archaeologists use to find, map, and excavate ancient sites. You should be able to follow the process of conserving and restoring artifacts and understand the laboratory methods used to determine the age and provenance of artifacts and materials. Your “archaeological literacy” should embrace the accomplishments of pioneers in the field, the locations of important sites, and the archaeological terms for different time periods, cultures, and classes of artifacts. You should grasp the archaeological evidence relating to myths and legends and to historical events ranging from the trial of Socrates to the massacre of a Roman army. And you should see that no area of Classical archaeology is exempt from controversy, conflict of opinion, and a residue of doubt, uncertainty, and enduring mystery.

Above all, my hope is that this course will enable you to view the world of the Greeks and Romans, not as a sequence of historical events, but as an immense living organism, a system in which society, culture, and the natural environment interact in dynamic, creative, and sometime destructive ways. Out of this matrix came major religious, political, and philosophical concepts that continue to influence modern thought. As for the rich historical record of ancient literature and inscriptions, we are fortunate that these texts allow us to put names and faces to the long-dead individuals who participated in this extraordinary drama.

In terms of chronology, the course will span approximately 2,000 years. Most of the sites and discoveries fall within the “Classical” millennium from the 8th century B.C.—the traditional date for the first Olympic Games and the founding of Rome—to the reigns of the Roman emperors Hadrian and Marcus Aurelius in A.D. 2nd century, when Greco-Roman civilization achieved its fullest integration and widest impact. But to set Classical civilization in context, our survey must reach back in time to the 17th century B.C. and the great Bronze Age centers on the islands of Crete and the Cyclades. We will end at about A.D. 400, with the recall of the Roman legions from the western provinces and the imperial Roman edict that outlawed traditional religious cults in favor of Christianity.

The geographical scope of the course will also be wide-ranging. Archaeologists have excavated Greek cities from Spain to Afghanistan and from the Black Sea to the shores of North Africa. Long after the founding of these Greek colonies, the Roman Empire drew into a single administrative unit the territories of some 40 modern countries, from Britain and Morocco in the west to Romania and Iraq in the east. For both Greeks and Romans, sites on the periphery proved important for commerce and cultural change.

Like Caesar’s Gaul, our course will be divided into three parts. In the first 12 lectures, we will trace the evolution of Classical archaeology from a pastime for collectors and antiquarians to a mature science. This epic story is marked by encounters with great archaeologists, their landmark discoveries, and the techniques they developed to bring the buried past back to life. Classical archaeologists have made many contributions to the field of archaeology in general, ranging from the grid system of excavation to the first scientific underwater “dig.” Today, Classical archaeology is a multidisciplinary team effort that involves not only traditional diggers but geologists, geographers, chemists, physicists, biologists, physical anthropologists, historians, and linguists.

The second part of the course comprises a series of case studies that will take us to the sites of 12 important excavations. These ancient cities, trading emporia, frontier fortifications, religious sanctuaries, and other sites (a shipwreck, a Roman farm, a civic center, a battlefield, and even the interiors of a pair of bronze statues) have been chosen to illustrate the broad range of research in Classical archaeology. Each also features some particular problem, issue, or technical innovation.

The third part will present an overview of Classical civilization from an archaeologist's perspective, with focus on the detailed reconstruction of ancient life made possible by archaeological discoveries. Here, we will continually ask the question: What can archaeology reveal that written historical sources cannot? This part opens with the controversies concerning the origins of Classical civilization and closes with an examination of the evidence for the fall of the western Roman Empire and the end of the Classical world. Our approach for the most part, however, will be thematic rather than chronological. Important themes include the economic underpinnings of ancient society, the lives of those—particularly women and slaves—whose voices are almost entirely excluded from the written record, the technical achievements of ancient engineers and builders, the impact of imperial power and religion, and the vital importance of a common cultural tradition among the lands and communities of Classical antiquity. We will close by considering how the legacy of Greek and Roman civilization has helped to shape our own modern world.

Lecture Thirteen

Gournia—Harriet Boyd and the Mother Goddess

Scope: With this lecture, we embark on the second leg of our voyage through the world of Classical archaeology and start a new part of our series. In the next 12 lectures, we'll examine 12 great archaeological excavations or discoveries in the Bronze Age world of the Aegean and the eastern Mediterranean, the world of Classical Greece, and the world of the Roman Empire. We begin with one of the most significant digs and one of the most significant archaeologists to work in the field of Classical archaeology: Harriet Boyd (1871–1945) and her work at Gournia.

Outline

- I. Harriett Boyd was born on October 11, 1871, in Boston. She was to become a great archaeologist, but there were only a few hints of her future profession in her childhood.
 - A. As a child, Harriet saw a spectacle put on by a theater in the Back Bay. This was “The Last Days of Pompeii,” inspired by the novel by Bulwer-Lytton and featuring an actual erupting volcano on stage.
 - B. Harriet was also interested in art, and the art museum in Boston was filled with casts of great Greek and Roman statues. Visitors were allowed to view them up close and touch them.
 - C. In her schoolwork, Harriet was a fair-to-middling student, but her drawing master discovered that she was interested in geography and had her draw maps while he timed her. As an undergraduate at Smith College, Harriet attended a lecture by Amelia Edwards, a famous explorer and author, that led her onto the path of archaeology.
- II. After Harriet finished her undergraduate degree at Smith, her family experienced a series of tragedies. Two of her brothers fell ill and died. She began an unofficial career as a nurse among family and friends and tried a career as a schoolteacher, which she didn't like.
 - A. After her second brother died, Harriet decided to go abroad. Onboard ship, she met a man whose brother was an archaeologist and who prompted her to change her travel plans to visit Greece.
 - B. In Athens, Harriet began to take classes at the American School and, in a tradition that still exists today, was taken on “field trips” to the archaeological sites of Greece, the Aegean, Turkey, and Crete.
 1. More than ever, Harriet wanted to do archaeology. The places she visited were magical to her: Mycenae; the ruined theater at Epidaurus; the sites around Nafplion, such as Tiryns, Delphi, and Corinth. She was among the first women ever to climb to the top of Mt. Helicon, the old hill of the muses.
 2. But her interest in archaeology was diverted by two issues: First, it was the rule of the American School that men work in the field, while women work in the library. She was assigned the task of studying ancient inscriptions from Eleusis, a temple site of the goddess Demeter and her daughter, Persephone, whom the Greeks called Kore, the maiden.
 3. Second, the outbreak of war further diverted Harriet's plans. In 1897, Greece went to war with Turkey over Crete, which, at the time, was still part of the Ottoman Empire, although mainland Greece had been free of Turkish control for the better part of a century.
 - C. Harriet instinctively took an interest in current events, and when the Cretan rebellion broke out, she became actively involved. She joined the Union of Greek Women, received training as a nurse, joined the Red Cross, and was sent to the front, to Lamia, a castle site by the pass of Thermopylae, in a battalion of Greek women and nurses.
 - D. The war ended somewhat inconclusively. The Great Powers of Europe intervened and determined that Crete should not leave Turkish control. A commission was created to make Crete semi-independent, with the crown prince of Greece, now one of the commissioners, overseeing the government of Crete.
 - E. By this time, Harriet was known throughout Greece. Queen Olga had organized the Red Cross effort and considered Harriet a close friend. Sophia Schliemann heard about Harriet, invited her to her home, and introduced her to Wilhelm Dörpfeld, a veteran of the dig at Olympia.

- F. In 1899, Harriet met a Cretan in the streets of Athens, a war veteran, who urged her to travel to Crete. Greece had nothing to compare with the beauties or the historical sites of his native island, he told her.
- III. When Harriet first approached the American School with the idea of going to Crete, she met resistance, but she found unexpected friends at the British School, where a great project was being launched.
- A. In the winter of 1899–1900, Arthur Evans (1851–1941), under the aegis of the British School, initiated his project on a site called Knossos, near the harbor of Heraklion, in north-central Crete. This was believed to be the site of the palace of King Minos and the ancient labyrinth.
- B. Evans had successfully negotiated with the landowner to buy the hilltop, and he encouraged Harriet to visit the site. She went back to the American School and received reluctant permission to get permits from the Greek and Turkish governments and try to work on her own site.
- C. Harriet teamed up with another young American woman, Jane Patten, a botanist who dreamed of going to Crete to study local flowers and plants. In April of 1900, she and Harriet sailed from the Piraeus to the port of Hania, the capital of Crete, then made their way eastward, first to Rethymnon and, finally, to the harbor of Heraklion.
- D. At Heraklion, Harriet was met by some members of Evans’s team. He had been working for several months and invited her to come to the hilltop at Knossos to see what he had found. He had already uncovered much of the palace of Minos, and on the day that Harriet arrived, Evans discovered the throne, with Harriet standing by and watching.
1. This was the oldest throne in Europe and had been the seat of the kings who ruled at Knossos or, perhaps, the queens. Evans thought that the throne might be appropriate for a mother goddess, and he had discovered several signs of a pre-Classical religion that seemed to focus on women and goddesses holding snakes. He inspired in Harriet a desire to follow up these discoveries.
 2. Evans had also found the Linear B tablets. As we learned earlier, the young Michael Ventris cracked the code of these tablets and proved that, in the latter stages of its existence, Knossos was the seat of a Greek monarch, not a native Cretan and Minoan one.
- E. Inspired by these discoveries, Harriet and Jane Patten went eastward, reaching a place called Mirabello Bay (Agios Nikolaos is the name of the port there), where Crete draws together in a narrow isthmus. Harriet realized that the spot ought to have antiquities because it offered a short land route between the southern coast, facing Egypt and North Africa, to the northern coast with the port at Mirabello Bay, facing the Aegean.
- F. Harriet activated her permit and began to explore the countryside. When she returned to Mirabello Bay, she had the thrill of seeing a Minoan seal stone, used by nobles, merchants, and kings to press their pictorial signatures into clay or wax. Harriet was told that the stone came from Gournia, a name that would be linked with hers from that point to the end of time.
- IV. Gournia was an orchard of carob trees, but here and there were large, round stones with basins in the top. The local name for these was *gournes*, hence the name Gournia for the site.
- A. To Harriet, the seal she had seen suggested some sort of administrative center. She shifted her army of workers to this place by the sea, a hilltop with a slope running down to the water. Among the trees, it was possible, even then, to see the fortifications in the big stones.
- B. The team started digging and immediately uncovered paved streets, along with the remains of houses—ultimately 70 houses, all with party walls, nestled together in a hive.
- C. The settlement showed an interesting traffic pattern, with a ring road in the middle and streets radiating outward and inward from it. There was no city wall, in spite of the fact that the site was right by the sea. The inhabitants must have lived in a peaceful, idyllic paradise.
- D. The workers were fascinated to find tools that they recognized in these houses. Harriet was amazed, too, that the city seemed like Pompeii, as if the people had been working up to the last day of their existence. Then, there were the marks of a great conflagration, and the tools and household possessions seemed to have been abandoned in place.
- E. Harriet identified the carpenter shop, with a handful of chisels, a saw, and an axe. The weaver, identified through a row of loom weights, may have been the wife of the carpenter. The fisherman’s house had hooks

and net sinkers; the painter's house had a stone pestle that he would have used to grind the pigments for his colors.

- F. Also found were artifacts that reminded Harriet of what Evans was finding at Knossos: a bull's head and a double axe, called a *labrys*, which gave its name to the labyrinth.
 - G. One workman found 86 fragments of a pot; when it was pieced together, it had an image of double octopi. The pot was typical of the art of Gournia, with motifs of everyday items, so different from the palatial frescos and elaborate, sophisticated work of Knossos.
 - H. At the top of the hill, the workers tried to find a place to dump the soil, but wherever they made a sounding to make sure that something wasn't buried by the backdirt, they hit more ruins. On the hilltop, they found gigantic blocks of masonry, different from the small stones used for the walls of the houses lower down. This was the central palace of Gournia.
 - I. The palace itself did not yield a great deal. It had been high up, shallowly buried, and exposed to looters and vandals, but Harriet did make a remarkable find there: a tablet with writing on it, different from what Evans had found in Knossos. We now call it Linear A. It's the original Cretan script, and to this day, it has defied decipherment.
- V. Harriet had uncovered the oldest town ever discovered, up to that time, in Europe and was heralded in the news.
- A. Although her fame increased, Harriet stayed focused on the ruins. She became interested in the fact that the palace had been built first, then surrounded by a one-level town. The town had been abandoned in a date that we now think was about 1450 B.C. Only one other structure beyond the palace seemed to stand outside the routine of the town.
 - B. Harriet found a stone path leading away from the palace to an altar. In Greek temples, the altar is always outside the shrine because burnt offerings are made there, and the smoke must rise up to heaven.
 - 1. Harriet knew that her find was an altar because strange objects were placed on it. There were cones without bottoms, so that if the cone were held upright, its contents would flow out through the hole in the base. We don't know, to this day, the use of these cones.
 - 2. Back from the altar, a shrine was discovered that proved to be the dwelling of Arthur Evans's mother goddess. Harriet had found the first temple to that seemingly mythical ancient goddess known as the Great Mother, whom Evans and Harriet believed stood behind all the goddesses of the Classical Olympian family.
 - 3. This goddess was posed almost as an Egyptian deity might be, with her arms raised, gazing upward, and a snake twisted around her torso.
 - C. Harriet returned to the United States and began lecture tours to try to raise money for other digs and publications. Ultimately, she was to have four field seasons around the site of Gournia.
 - D. After 1902, Harriet returned to Gournia and found a complete array of sites in the region. She ultimately found sites that she could date by their pottery from 3000 B.C., the very beginning of the Bronze Age and the earliest Minoan period, right down to the early Iron Age in about the year 1000 B.C.—a remarkable achievement.
- VI. Gournia was Harriet's one and only great archaeological effort. She married an anthropologist named Charles Hawes, who came to visit her there. Together, the couple wrote books and raised a family.
- A. Harriet became embroiled in the great wars of the early 20th century, speaking out against fascism and Hitler; she was arrested, at one point, by Nazis.
 - B. By the time she died, on Easter Sunday 1945, with the world still caught up in the horrors of World War II, Harriet's name was almost forgotten, her discoveries slipping into oblivion. But I feel we archaeologists have a lot to learn from Harriet Boyd, a woman who made it clear that among the most precious things an archaeologist can take into a site are an open mind and an open heart.

Suggested Reading:

Alsebrook, *Born to Rebel: The Life of Harriet Boyd Hawes*.

Hawes and Hawes, *Crete: The Forerunner of Greece*.

Questions to Consider:

1. Knossos is known to millions; Gournia to a handful. Why?
2. How clearly can the iconography of any religion reflect its theology and beliefs?

Lecture Fourteen

Thera—A Bronze Age Atlantis?

Scope: Harriet Boyd, the American archaeologist we met in Lecture Thirteen, said of herself, “I was never a collector—only a detective.” Her career, and that of the generation that was doing archaeology with her, marks the end of the era of collectors. This era gave way to a new, more problem-oriented approach to archaeology: becoming, as Harriet Boyd said, a detective.

Partly because of Harriet’s work, a question remained unanswered about ancient Crete: Why was it that, in about the year 1450 B.C., almost all the palaces that were discovered in the early 20th century showed signs of destruction? Out of that watershed event, only a few cities, led by Knossos, continued on into the late Bronze Age. In this lecture, we look at one city that, at first, seemed to offer a solution to this puzzle and the archaeologist who uncovered it, Spyridon Marinatos.

Outline

- I. Up to the year 1450 B.C., the palaces that had been uncovered on Crete seemed to have used Linear A script. After 1450 B.C., the few palaces that survived were using Linear B, the same script known on mainland Greece.
 - A. We now know that Linear B was a form of writing that expressed the Greek language; given this fact, it seems plausible that after some cataclysm occurred, the cities of Crete continued on with Linear B. Yet only a few cities—basically four, with Knossos leading the way—endured, now using Linear B, speaking Greek, and probably dominated by Mycenaean Greeks from the mainland. What happened to the earlier world?
 - B. A second question that was already being asked in the early 20th century was: Could there be any link between this great disaster—the sinking of Minoan civilization, the pure Cretan-bred, non-Greek civilization—and a certain myth that appeared in the dialogues of Plato—the myth of Atlantis?
 - C. There is an enduring human desire to read explanations about ancient myths but, above all, about this ancient myth of a lost continent, a continent that existed somewhere near the edges of the Mediterranean Sea, out beyond the pillars of Hercules at Gibraltar.
 1. According to Plato, 10,000 years before *his* time, the Atlanteans used their navy of 1,200 triremes to stage a great invasion of the Mediterranean. They conquered all of Europe as far as Greece and all of Africa as far as the borders of Egypt. The Atlanteans were ultimately turned back by Egyptians in the south and Athenians in the north.
 2. Then came a cataclysm. Atlantis sank, forming, according to Plato, a sea of mud that blocked entrance to the Atlantic Ocean from Gibraltar (an entrance that probably never existed). Athens, too, was changed; the original hills and uplands were washed away by rains.
 - D. The story of Atlantis has continued to thrill and interest people to this day. It has a relationship to what Harriet Boyd and Arthur Evans were finding, in that there were said to be bull worshipers in Atlantis, as in Knossos. Further, the Atlanteans were seafaring people, and King Minos of Crete was called by Thucydides *thalassocrat*, the sea ruler. Finally, some sort of catastrophe had destroyed the indigenous Minoan civilization of Crete.
 - E. The picture of Atlantis painted by Plato describes a land that is not likely to have ever existed. Nonetheless, many wondered if it was possible that the kernel of truth behind Plato’s myth could be found in the destruction of Minoan Crete.
 - F. Thus, we have two puzzles: the destruction of the palaces around 1450 B.C. in such towns as Gournia and the legend of Atlantis. A discovery and an excavation on an island north of Crete presented itself as a solution for both these questions in the new world of theory-inspired archaeological investigation.
- II. In 1866, quarrymen were working on an island called Santorini (whose ancient name was Thera). Santorini is a large volcanic island, 70 miles north of Crete and more than 100 miles from the Greek mainland.
 - A. These quarrymen were working in *pozzolana*, a substance we will encounter again when we get to Roman engineering because it was the foundation of Roman hydraulic concrete.

1. *Pozzolana* is volcanic ash, and if mixed with burnt lime, the result is a hydraulic cement or mortar that will set up even as it is poured into seawater. As soon as it settles, it hardens, because it makes a chemical bond, instead of a mechanical bond through drying.
 2. *Pozzolana* was very valuable in the 1860s, because in Egypt, engineers were building the Suez Canal, and they needed this material for their cement works.
- B.** The workers quarrying into the sides of the volcano on Santorini broke into a buried city. Some local antiquaries were called in, and a vulcanologist named Ferdinand Fouqué (1828–1904) explored the site. Some 100 pots were found, painted in a style that no one had ever seen before. Also found were many rooms, some of them with beautiful frescos on the walls, apparently the oldest ones ever discovered. This was a discovery before its time; no one was yet capable of understanding its importance.
- C.** The prehistoric ruins of Santorini passed by almost unnoticed, but a few Greek archaeologists retained the memory of the discovery. One of them, who learned about it and cherished the idea of digging there, was a young Greek named Spyridon Marinatos (1901–1974).
1. In 1939, Marinatos declared to the world a theory about Santorini—even though he hadn’t worked there yet: If the island had been a volcano, plainly, it had erupted, and the eruption had buried the town.
 2. Further, Marinatos was willing to guess that this happened in about 1450 B.C. and was the cataclysmic natural event that had destroyed Minoan civilization.
 3. He could imagine the tidal waves spreading out from the volcano and sweeping over Crete, destroying such seaside sites as Gournia, as well as Knossos and the others, at least temporarily.
 4. Some scientists now believe that Marinatos was wrong. It’s one of the beautiful ironies of archaeological work that you are often led to a great discovery by a faulty idea of what you’re going to find when you get to a site.
 5. Marinatos was delayed in getting to Santorini, but at last, in the early 1960s, as the General Director of Archaeology in Greece, he set aside funds for the scientific exploration of whatever lay under the volcanic material on that distant island.
- D.** In 1967, Marinatos went to the island and found himself in a strange landscape that can still be seen today: sheer cliffs around the *caldera* (Spanish, “cauldron”), the central circle; a big island and a couple of smaller ones hemming it in; a little volcano emerging in the middle; and unique forms of farming on the slopes.
1. Marinatos interviewed locals on the island, finding some of the old-timers who vaguely remembered where the holes were from the quarrying in the 1860s. He found himself on the southern tip of the island in a bay that faced Crete. It was the closest point to Crete, and it was protected from the island’s strong north winds.
 2. The town that was there in Marinatos’s day was called Akrotiri, and he gave the same name to the town that he discovered underneath. In 1967, he sunk test pits in an effort to relocate this town and, almost immediately, hit stone buildings, buildings made of rubble with timber frames to support their structures.
 3. Marinatos eventually gave up trying to outline the area because he could find no limit. We still don’t know whether he found the bulk of the town or one tiny corner of it, the rich people’s section or an average slice of life. We don’t even know how close it was to the water’s edge.
- III.** We do know, however, that Marinatos initiated the most startling and exciting series of archaeological finds in the history of the Aegean. He had found an urban conglomeration of buildings that had been wiped out almost overnight. It was, again, a Bronze Age Pompeii but far more dramatic than what Harriet Boyd had found at Gournia.
- A.** Marinatos initially considered tunneling, because the overburden was thick and the problem of carrying it all away would be expensive and time-consuming. But the material covering the town was very ashy, and it quickly dried out and began to fall. Any houses that were exposed began to crumble, and there was no way to shore them up.
- B.** Marinatos realized that he would have to conduct open excavations, as had been done at Herculaneum. To make that possible, he put a roof over the whole site. He borrowed the idea of a central pillar with roof beams fanning out from it from the buildings of Santorini. The vast roofed area he erected covered the 10 houses and 7 partial houses that had been discovered.

- C. The roof made it possible for Marinatos to initiate seven years of digging and an archaeological project on Santorini that has continued there up to the present. His reconstruction of the disaster is now championed by his daughter, Nanno Marinatos.
- IV. At Akrotiri, Marinatos found a town quite similar to Gournia, with buildings packed together and sharing party walls. However, where Gournia had been simple and provincial in feeling, the houses in Akrotiri were incredibly elaborate. They gave testimony to a standard of private living that no one had dreamed existed in the Bronze Age.
- A. Each house had several rooms on each floor. Because the volcanic material offered a good vehicle for preservation, some of the buildings carried up to the third story. As Marinatos dug down, he found places where timbers had been, and remembering Fiorelli's work at Pompeii, he poured in concrete to stabilize the buildings.
- B. Today in Akrotiri, visitors can see winding streets, sometimes ending in flights of stairs to the next level, sometimes revealing small, irregular open spaces. The feeling is similar to what one experiences in the stone villages of the Cyclades Islands to this day.
- C. Inside these houses are amazing frescos.
1. The West House, or Admiral's House, in Akrotiri contains frescos showing a fleet of incredible ships with nobles seated onboard. Also shown are teams of people, bending over the sides and applying their paddles as if the ship were an outrigger canoe.
 2. The frescos are decorated with butterflies and flowers, and on the ships can be seen steersmen standing in the stern with their oars. The ships move across the wall in a great procession, with people standing on the shore on what seems to be an island nearby.
 3. The warriors on shore have large ox-hide shields and wear helmets made of boar's tusks. Altogether, the scene is one of naval power. There are also battle scenes with islanders being tossed into the sea by these warriors from, we imagine, Thera.
- D. Another extraordinary fresco was uncovered in Delta House, this one witnessed by an important English archaeologist named Colin Renfrew, an innovator in radiocarbon dating.
1. Renfrew was visiting Akrotiri when a perfectly preserved fresco was uncovered, showing a fantasy landscape with strange crags rising up, irises and lilies growing on the crags, and multicolored, phantasmagorically represented strata of rocks. In the air above, pairs of swallows have been identified as fighting over their turf.
 2. This was one of the great natural paintings in all of European history or prehistory, and Renfrew was there to see it and to help publicize the extraordinary finds of Marinatos in this town.
- E. The pottery was as beautiful as the frescos. Here and there in the houses were cavities, and Marinatos, just as Fiorelli had done, poured in plaster to reveal furnishings.
- F. But not a single person and no personal treasures of any kind were found. Plainly, the people of Akrotiri had had time to get away. In fact, the only clue to a living thing was the skull of a monkey, probably a family pet.
- G. Does this mean, as was originally thought at Herculaneum, that all the inhabitants of Akrotiri got away? Some people think so, but I think we need to reserve judgment until the dig gets down to the harbor side to see if, in fact, people were trapped down there.
- V. We do know, however, from Marinatos's careful digging, that the situation in Akrotiri was different from that of Pompeii or Herculaneum.
- A. Marinatos found walls that were in the process of being repaired. He found houses that had been swept clean of furnishings, yet there would be a stack of beds in the middle of a room on the ground floor or tools or plaster for restoring walls. Out in the street, he found a number of large basalt blocks. Each was like an elongated bowling ball with a narrow middle around which a rope could have been tied.
- B. Marinatos concluded that the town had been hit by a volcanic eruption or an earthquake. Houses had been shaken down, but all the people had escaped; when things stabilized, workmen came back to try to restore the town, assuming the worst was over.

- C. Those strange, elongated stones were wrecking balls that would have been mounted on stands out in the street and hurled repeatedly at weakened walls to clear them for the process of rebuilding. But before that could be accomplished, a more serious eruption occurred, and the site was buried under many feet of volcanic material.
- D. When the first publications came out about Akrotiri in the 1960s, we were given the impression of a sort of Mt. Fiji- or Mt. Kilimanjaro-type cone rising out of the Aegean that had blown its top.
 - 1. We now know that impression is not true. Santorini was part of a ring of islands surrounding a central volcano. The effects of the eruption, such as tsunamis, were baffled, to some extent, by that outer ring.
 - 2. Nonetheless, Floyd McCoy of Hawaii, a volcanologist who has done a good deal of work at Santorini, has been able to show that territories all around the eastern Mediterranean would have been affected by the fall of pumice and ash and, perhaps, by tidal waves.
- E. Recent geological data suggest that this catastrophe happened 200 years before the 1450 B.C. mystery dateline when so many of the palaces on Crete disappeared. The eruption of Santorini, although it sealed in an incredible Bronze Age city and has left us with even more questions about the development of civilization in the Bronze Age Aegean, is now a smoking gun still looking for a victim.
- F. Marinatos himself died a death fitting for an archaeologist, on site at Akrotiri. In accordance with his instructions, his wife and daughter made sure that he was buried in a specific room, under ash fall from the great volcano, along with the ghosts of those who had created that Bronze Age Atlantis so many years before.

Suggested Reading:

Friedrich, *Fire in the Sea: The Santorini Volcano, Natural History, and the Legend of Atlantis*.

Palyvou, *Akrotiri, Thera: An Architecture of Affluence 3,500 Years Old*.

Questions to Consider:

- 1. Is it possible for an archaeological discovery to scientifically “prove” the truth of any myth?
- 2. How different would our view of the Bronze Age be if Marinatos had not excavated the site of Akrotiri?

Lecture Fifteen

Olympia—Games and Gods

Scope: In the last lecture, we saw Santorini with its incredible buildings and beautiful frescos. Before that, we looked at Harriet Boyd and Gournia and saw a town so secure in a peaceful world that its inhabitants needed no walls around them. At Knossos, we learned of Sir Arthur Evans's discovery of the Linear B tablets that showed us the high level of literacy that was already present in the Bronze Age world. All this disappeared. Sometime around the year 1200 B.C., after the generation of the Trojan War and probably some 450 years after the eruption of the volcano at Santorini that buried the site of Akrotiri, the Bronze Age came to an abrupt end. Not just the Mycenaean centers but other centers all over the eastern Mediterranean were snuffed out. Abrupt discontinuities in the archaeological evidence appear at these sites, with burning, looting, and destruction marking the end of Bronze Age kingdoms. In this lecture, we'll touch briefly on the collapse of the Bronze Age, then turn to a site where a new version of Greece seemed to emerge: Olympia. It is here that we find early evidence of the city-states of Greece, tied together by bonds of religion.

Outline

- I. Sometime around the year 1200 B.C., with the exception of Egypt, the great Bronze Age empires, such as the Hittite Empire and all the palace sites of the Mycenaeans, were abandoned and destroyed. Even though squatters would return and occupy these sites, the Bronze Age world was wiped out. Where did its inhabitants go?
 - A. One of the first great waves of Greek colonization seems to have carried refugees from the shattered homeland of Greece eastward.
 1. Legend held that the people from Pylos escaped in ships. You may remember my colleague Shelly Waxman's theory that the rowing-men tablets from Pylos record evacuation orders for the population in the face of the advancing Sea Peoples.
 2. The myth in Athens was that the people from Pylos used Athens, the one mainland center that was never destroyed, as a springboard for passing through the islands of the Aegean and founding cities at such places as Miletus on the Asiatic coast, the foundation of what later came to be called Ionia.
 3. Some of these Mycenaeans got as far as Cyprus; some of them seemed to have ended up on the Palestine coast and founded the cities of the Philistines. We know this because evidence of the early Philistines in the first levels at Gaza and other sites shows that they were making and using Mycenaean pottery.
 - B. At the end of the Bronze Age, literacy died out, and the role of the king disappeared in most places. In general, the Greek world seems to have turned against the idea of kingship after the Bronze Age, perhaps as a result of brutality or oppression.
 - C. At the same time, royal centers, as well as the crafts and long-distance trade associated with them, all but disappeared. In fact, there's a century or two in what is called the Dark Ages when we can't even find tombs in Greece.
- II. In this lecture, however, we'll look at a site where we can see a new Greece based on the *polis*, the city-state, emerging from the Dark Ages.
 - A. City-states—not kingdoms, not royal centers—became the political units of Greece and seem to have been tied together by the bonds of religion stemming back to the Bronze Age.
 - B. The gods that were “reconstituted” in this newly created world of the 8th century B.C. were associated, by Homer and others, with a tall mountain in the north of Greece called Mt. Olympus and were called the Olympian gods. Our site, Olympia, which was the cult center of the head of this divine family, Zeus, is not, however, associated with Mt. Olympus.
 - C. Olympia was located in the countryside, in the northwest corner of the Peloponnese, surrounded by city-states but not itself an urban center. It was in the southern half of the Greek heartland, connected to the mainland by a four-mile-wide isthmus at Corinth. Here, the diolkos that we've already talked about, the “shipway,” ran across to connect the Corinthian Gulf to the Saronic Gulf.

- D. We now have archaeological evidence for settlement in this rich farmland, all the way back into the Neolithic, or New Stone, Age. The rivers that pass through the plain at the site of Olympia, Kladeos and Alpheus, deposit black silt through the region, just as the Nile does in Egypt.
 - E. Olympia is a place where flocks and herds would have been kept and grapevines and olive groves planted. But the big cities, such as Elis and Pisa, are at a distance. Early on, Olympia became a sacred place where many people came together, but no one built a city there.
 - F. As a cult center of Hera and Zeus, Olympia became a place to gather for great festivals. Zeus was honored at a central spot near the banks of the river in his sacred grove of trees (*altis*).
 - G. The Greeks took advantage of the contours of the land to lay out a running track, a race course, and wrestling areas, and Olympia came to be a place where worship was held through competition.
 - 1. We know sports existed back in the Bronze Age, but we don't get the sense of any fiercely competitive societies. In truth, autocracies, such as Crete seems to have been, don't generally produce competitive societies.
 - 2. To the Greeks in the Classical period, however, one of the defining elements of their identity was the idea of competition associated with worship. This competition wasn't limited to games or races; it might also have included music and drama.
 - H. Olympia was known to be an important site early on. Winckelmann, the great student of Greek sculpture in the 18th century, proposed himself as the first person to dig at Olympia, but his plan was never carried out.
 - I. In 1829, a French team that included archaeologists camped on the site of Olympia, dug down where the ancient Olympics Games had been, and found some of the *metopes* from the temple of Zeus. A *metope* is a square block from above the entablature and columns of a temple. These would have gone under the pedimental triangular sculptural group, in the gable. A row of metopes showed scenes—in this case, scenes from the life of Heracles. The metopes found by this French team are in the Louvre today.
- III. From about 1875 onward, Germans had been digging at Olympia, and their results were so extraordinary that a revival of the ancient Olympic Games was proposed. The first modern Olympic Games were held in 1896.
- A. Starting in 1875, a German named Ernst Curtius (1814–1896), a veteran of archaeology, had received an offer from the Greek government to dig at Olympia. Schliemann was chagrined at this decision; he had hoped to get a permit to dig there himself. Curtius was determined to conduct the dig scientifically.
 - B. Curtius initiated the idea that there would be no “mining” of the site. His arrangement with the Greeks included the following terms: The permit would be granted on the condition that all discoveries remain in Greece; the Germans would finance the project; and a museum would be created onsite to house the discoveries. The archaeologists would take home photographs, drawings, descriptions, maps, and the right to publish the site as they laid it bare.
 - C. Having noticed the mayhem that had been wrought at the tell at Hissarlik, Curtius also outlined a systematic plan for the dig at Olympia.
 - 1. He laid out a vast rectangle, covering the site of the ancient sanctuary and including the temple of Zeus; the temple of Hera; the accommodations for the athletes; the gymnasia where athletes trained; guesthouses; bathhouses; masses of statues; dedications by important people, such as Philip II of Macedon; and small shrines.
 - 2. Curtius's team then systematically worked their way around the site, structure by structure and zone by zone.
 - D. With this systematic excavation, a new age of archaeology was born in Olympia. This new archaeology included careful documentation of *all* the finds—not just the museum-worthy beauties. Further, the agreement that the Greek government should retain all the finds set the pattern for future archaeological fieldwork in Greece.
 - E. The leading light of Curtius's team was Wilhelm Dörpfeld (1853–1940); together, the two men tackled this vast site.
 - 1. They focused, of course, on the temples, starting with the temple of Hera, where they found many columns that could be erected again.

2. The temple of Zeus, in contrast, was a mess. It had been a high pedestal with steps going up the side. The columns, which had been 30 feet high and made in sections, had collapsed.
 3. The first of the glories that came out of the ground at Olympia were the pedimental sculptures from the temple of Zeus. They showed Zeus himself under one gable, presiding over a chariot race between Pelops and the local king. Pelops wins the race through *metis*, “cunning,” revered by the Greeks.
 4. On the other gable was a surprising scene: Apollo, the son of Zeus, is presiding at a battle between a group of Greeks called Lapiths and some centaurs who are attacking a wedding celebration. Apollo directs a young hero, Theseus of Athens, as he tries to fight back the tide of centaurs. The scene was surprising because the Peloponnese was not traditionally a friendly area to Athens.
- IV. Another surprising link to Athens came with the discovery of the chryselephantine statue of Zeus inside his temple at Olympia, another of the Seven Wonders of the Ancient World. It sat about 40 feet high and showed Zeus on a throne with an eagle.
- A. By this time, Curtius understood the plan of the *cella* (“central room”) of the temple. He had also noticed the ruins of another building, yet to be excavated, that had the same dimensions as the temple *cella*.
 - B. Curtius hypothesized that was the workshop of the artist who had made the statue of Zeus. Perhaps the artist had made a model of the temple so that he could do an initial assembly of the giant statue, which would have had a wooden core covered by ivory plaques and gold.
 - C. Phidias, the sculptor of the Zeus statue, is famous from his work in Athens on the Parthenon. He came from Athens shortly before the Peloponnesian War, in the 430s B.C., and set up his workshop in Olympia. When this workshop was finally excavated in the 1950s, Curtius was proved to be right.
 1. Phidias’s tools were found, along with the molds he had used, made of terracotta, for each fold of Zeus’s robe. We believe that Phidias would have used these molds to shape the sheets of gold that were then appliquéd onto the outside of the great statue.
 2. One of the greatest finds was a simple clay drinking cup, bearing the words *Phidias eimi*, “I belong to Phidias.”
 - D. Another remarkable object found was a Corinthian helmet, with the engraving “From Miltiades to Zeus.” Miltiades was the man who beat the Persians at the Battle of Marathon in 490 B.C. This was his helmet, which he had engraved as an offering to the god and left at Olympia.
 - E. The importance of Hera was also an interesting discovery. Her temple was much older than that of Zeus, suggesting a link back to Harriet Boyd’s mother goddess and its shrine.
 - F. Finally, a tunnel was found that ran from the temple area out to the stadium. This tunnel was similar to a stone vault, which it had been assumed was an invention of the Romans. This tunnel was immediately labeled Roman, and it was only 20th-century analysis that proved it had been built by Greeks in the 3rd century B.C.
- V. At Olympia, we find the beginnings of the Greek world of Panhellenism, in which all the *poleis* can meet together. We also see the embodiment of the idea of Greek competition as an offering to the gods. Along with personal memorials and artistic monuments, we find the technological marvels of the world’s oldest vault and the first radiant-heat baths. All this is in a single place that surely ranks as the spot where the spirit of Greece was reborn after those long centuries of the Dark Ages.

Suggested Reading:

MacKendrick, *The Greek Stones Speak: The Story of Archaeology in Greek Lands*.

Swaddling, *The Ancient Olympic Games*.

Questions to Consider:

1. How can we account for the emphasis on competition, whether athletic, artistic, or dramatic, in Greek religious sanctuaries?
2. Why would Phidias’s statue of Zeus have been included among the Seven Wonders of the Ancient World?

Lecture Sixteen

Athens's Agora—Where Socrates Walked

Scope: In the last lecture, we looked at Olympia, a site that stands for the concept of Panhellenic culture. It was a place where Greeks from Spain, France, the Black Sea, North Africa, and the Adriatic met to affirm their common language, gods, culture, and interest in sport and competition. But Olympia is not typical because Panhellenic tradition was actually a fairly weak force for the Greeks. They were, in fact, a race of people divided into cities and city-states (singular, *polis*; plural, *poleis*). The typical Greek cultural establishment is not a great Panhellenic shrine but, rather, a *polis* in the Greek heartland itself or on one of the islands of the Aegean, the Mediterranean, or the Black Sea.

In this lecture, we look at one of these cities, perhaps the most important of them all, Athens. Athens is the capital of modern Greece, but in antiquity, 2,500 years ago, it was the most grand of Greek cities, a leader in both democracy and imperialism. This city managed to weld together—thanks to its great navy—a maritime empire of 150 cities and islands that paid it tribute, allowing Athens to clothe itself in the time of Pericles with some of the most beautiful temples and public monuments ever created. Athens is the site where democracy developed into its highest form in the ancient world and, in the minds of many, was the birthplace of philosophy, art, and drama.

Outline

- I. Athens has at its heart an area called the *Agora*, meaning “open space,” or what would be called a *forum* in a Roman city. This central place served as a government center, a market, a religious center, and a place for spectacles and shows, as well as a workplace for potters and bronzecasters.
 - A. Since 1931, one of the great digs in all of Classical archaeology has been going on in the Agora at Athens. For three-quarters of a century, the American School of Classical Studies at Athens has been systematically excavating the remains of this ancient civic center.
 - B. When this work began in 1931, no one was sure where the Agora actually lay. Unlike the Roman Forum, which had never been lost, the Agora was buried under the buildings of Byzantine and modern Athens.
 - C. A few landmarks were visible. The Acropolis was just to the southeast. There was a temple on a hill, now known to be the temple of the craftsman god Hephaestus. There was also a *stoa* that had been built by a Hellenistic monarch named Attalos as a gift to the Athenian people.
 1. A *stoa* is a portico, a place with a colonnade and a covered porch behind it, often, with rooms behind that. These rooms could have served as shops or offices, banqueting halls, government centers, or legal or religious meeting places.
 2. The Agora, we know, had a number of stoas.
 - D. Clearly, the Agora had to be somewhere in this area, but it wasn't until the dig began in 1931 and the modern houses were systematically torn down that the ancient landmarks could be found underneath. In fact, it was only in 1938 that the first *horos*, one of the boundary markers of the Agora, appeared.
 1. Such boundaries markers were important because the Agora was a sacred place, and there were severe restrictions about who could be inside.
 2. Certain members of Athenian society were not allowed in, such as children, criminals, debtors, those who had committed acts of impiety, and entire bodies of foreigners.
 3. Just before the Peloponnesian War, the Athenians declared, “No Megarian shall enter the Agora.” Thus, the Megarians no longer had access to the markets or the law courts. Indeed, the banning of the Megarians may well have been the bit of tinder that finally ignited the Peloponnesian War in 431 B.C. between Athens and Sparta.
- II. Let's travel to the Agora in the company of its current excavating director, Dr. John Camp of the American School. We can meet him in the Stoa of Attalos, the current headquarters for the excavation.
 - A. This stoa was excavated in the 19th century by Greek archaeologists. Its walls had always been visible, standing to a great height among the houses of downtown Athens. The stoa was clearly the best preserved of all the public buildings, except for the temple of Hephaestus.

- B. On the upper floor of the Stoa of Attalos are offices and storage areas for some of the older finds, as well as *maquettes*, or models, of some of the buildings and stoas that have been reconstructed. Some of the 7,500 inscriptions are here, along with the library, which includes daybooks that have been kept by excavators.
 - C. Adjoining the library are areas where some of the conservation is done on artifacts. These artifacts include tiny bone stamps that might have been impressed onto wet clay to make a design on pottery, coins that are being cleaned, and small statuettes of ivory that have come up from some of the cult sites.
 - D. Meetings are held on the upper floor of the Stoa of Attalos among the site supervisors, laboratory technicians, and scholars. A broad range of people work on such multidisciplinary projects, including specialists in animal bones, pottery, inscriptions, dating issues, and so on. These specialists generally keep the same hours that the ancient Greeks kept in the Agora, an early-morning schedule imposed on the Mediterranean by the Sun.
- III. Next, we go out onto a broad expanse of a couple of dozen acres, now stripped of its modern buildings. Here, we can see ancient Athens; walk the same streets as Pericles and Socrates; and try to get a feeling of what this place was like in the dynamic time when Athens was one of the most important cities in the world.
- A. Athens didn't remain important, even to the end of antiquity. By the time of the Roman Empire, Athens was a sleepy little university town, but at its height, it was a place that ruled the fate of hundreds of thousands of people.
 - B. We are first struck, I think, by the openness of it all. Not only is this true today, when most of the buildings are represented only by their foundations, but it would have been true in antiquity, as well. There were broad, open spaces in the Agora, all the way through its history.
 1. Some of these spaces would have been filled with the sheds of the market.
 2. We know that, at times, these market booths were set on fire as a means of sounding a public call for a meeting of all citizens.
 - C. The open areas also had, cutting across them, a great processional route. In the month we call July, Athena, celebrating her birthday, was honored by the Panathenaic procession, in which the young, noble horsemen of Athens paraded down the center of the Agora. All the young maidens carried baskets and offerings to Athena. A hundred oxen were driven through on this processional route, up to the Acropolis to be sacrificed on the altar.
 - D. There was also a racetrack in the middle of the Agora, a place where games could be held, probably chariot races, footraces, and exhibitions of strength. At times, before the semicircular theater of Dionysus was built on the south side of the Acropolis, shows were given in the Agora.
 - E. One of the first buildings that was discovered was the Metroon, a place dedicated to the mother goddess. *Metro* comes from the word for "mother," and *metropolis* means "mother city." The mother goddess worshipped in the Agora was an Asiatic deity who was in charge of public records in Athens.
- IV. Let's now follow the course of one of the most famous of all Athenians—Socrates—as he would spend the day in the Agora.
- A. Socrates was once asked why he didn't travel more. We know he had a couple of stints of military service abroad, as all Athenian citizens did. He fought at the siege of Potidaea in northern Greece in 432 B.C., just before the Peloponnesian War, but basically, he was found every day in the Agora.
 1. Many philosophers of the time were natural philosophers; they would go out in the country and study the natural world, and indeed, Socrates had started in the same way.
 2. But then he had a great insight, what he called his "second sailing." He saw the need to study people. He wanted to have dialectic encounters with adversaries. He turned conversation into a competition, a contest. He frequented the Agora because he was more interested in people than trees.
 - B. We know that Socrates liked to go to the stoas, such as the Stoa of Zeus. There, he would meet some of the men who were part of his philosophical circle.
 - C. At one time, Socrates took his turn at being one of the people who governed Athens. The archaeologists of the American School have found some of the mechanisms used to assign people to government positions and to juries.

1. Imagine a big column—square, not round—with hundreds of little slots in it, into which could be placed bronze tablets with names on them of Athenian citizens. The slots are arranged in 10 vertical rows, 1 for each of the 10 tribes of the Athenians.
 2. On a given day, all the people who were up for a certain position or for jury duty would have their names in those slots. A tube ran down the side of the slots, into which white and black marbles were placed. A crank at the bottom was turned, and a white or a black marble would come out. If it was a white marble, everybody in the first row would be up for jury duty that day. If it was a black one, everybody in that row was dismissed.
 3. This method was used to select juries, anywhere from 201 to 501 people, which couldn't be corrupted or bribed because nobody knew until the morning of the trial who would serve. It was also a way to pick magistrates; in fact, we know that Socrates was chosen for a magistracy.
 4. In the summer of 406 B.C., after a great sea battle, some of the Athenian generals neglected to pick up survivors and corpses from the sea, even though they'd won the battle, and they were accused by the survivors of having committed a terrible offense. Socrates presided over the case, refusing to allow the Athenians to rush into judgment and vote that the generals should be executed.
 5. In the end, the case was heard again the next day when someone else was magistrate who was less endowed with integrity and determination and, perhaps, did not have personal friends among the generals, as Socrates did.
- D. Once the job was assigned to him, Socrates would have had to take an oath at the Stoa Basileios, the Stoa of the King.
1. Athens hadn't had real kings since the time of the Mycenaeans, back in the Bronze Age, and its citizens had developed a great distaste for kings. But the *basileios* in Athens, the king, was a religious dignitary. He was chosen like the magistrates, but he carried out the religious functions of a monarch.
 2. In front of his stoa, magistrates would stand on an ancient stone, perhaps the lintel stone from an ancient Mycenaean royal tomb, and take an oath.
- E. Socrates would have then gone to the Pnyx, the crowded assembly place. This was where he faced down the mob of people clamoring for the execution of the generals and declared that it was more important to obey the law than to give in to the will of the people.
1. As we know, Socrates's own turn was coming. *Demos* in *democracy* means "the people"; *cracy* means "power." The term had two shades of meaning in Greek. One is "all the people," but another is "the people" as in *popular*—the mob, the unpropertied, the working class, the poor, the great majority. They ruled in Athens, and they could outvote the aristocrats.
 2. Socrates spent most of his time with aristocrats and, thus, wasn't popular with the *demos*.
- F. One of the significant finds in the Agora dig was a little house filled with hobnails and tools for leather working and a cup on which the owner's name, Simon, had been scratched.
1. It's known from the ancient writings of Xenophon and Socrates's other students that there had been a shoemaker on the edge of the Agora in whose shop Socrates would meet some of his disciples. The shoemaker himself was so interested in the conversations that he kept notes, which he later published.
 2. The house near the boundaries of the Agora is an important find because it may verify the accounts in the ancient texts about this meeting place for students of Socrates.
- G. When Socrates's time came for confrontation with the Athenian legal system, he was accused of impiety, worship of gods other than the city's gods, and corruption of the young. Because these were religious charges, he had to face the accusations at the Stoa of the King. A jury was selected, and Socrates was condemned to death.
1. American archaeologists have found some of the voting tokens (*sophos*) that were used in these affairs. Imagine a little bronze wheel or disk with an axle through it, also in bronze. If the axle was hollow, the vote was guilty; if it was solid, the vote was not guilty.
 2. In a strange box made out of roof tiles, half a dozen of these wheels were found. A juror would have gotten one of each. The juror could cover the ends of the axle with his thumb and forefinger to conceal his vote as he placed the wheel in the box.
- V. We will end our tour through the Agora at the state prison, where archaeologists have discovered about 10 rooms that could have been cells. This was not a place of punishment; it was a holding tank for people who were awaiting trial or execution.

- A. Interestingly, there is a cistern here. We know that there was water in the prison because Socrates told his students that he had taken a bath. Inside the cistern were 13 vials, such as apothecaries would use. These are believed to be the vials that held the fatal draft of hemlock, the means of executing criminals in Athens, including the great philosopher Socrates.
- B. The dig at the Agora offers much more than just the ability to see ancient sites. Archaeologists have discovered, for instance, that the Agora was once an area of cemeteries and private houses. It was actually a normal neighborhood until the time of the tyrants, in the century before the birth of democracy in the 6th century B.C.
 - 1. An Athenian noble named Peisistratos and his sons, Hippias and Hipparchus, seized control of the Athenian government and cleared this vast neighborhood. It was these people, these tyrants, who were determined to make Athens great.
 - 2. It's an irony of history established by the digs at Athens that we owe this grand Agora, not to ancient Greek tradition as the meeting place for the people, but to these "tyrants" who were determined to raise Athens to a position of glory.
- C. It's also important to realize the degree of integration in Athenian life represented by the Agora. Working places, commerce, education, philosophy, religion, spectacle—all were here in one place. The sense of a people who lived more in public with their fellow citizens than in their own homes is captured for us in this Greek archaeological dig.

Suggested Reading:

American School of Classical Studies at Athens, *Excavations of the Athenian Agora: An Ancient Shopping Center; Socrates in the Agora; Life, Death and Litigation in the Athenian Agora; Ancient Athenian Building Methods*.
Camp, *The Athenian Agora: Excavations in the Heart of Classical Athens*.

Questions to Consider:

- 1. What image do we receive of ancient Athenian democracy from its physical remains?
- 2. For many visitors, especially Americans, the Athenian Agora is a place of pilgrimage, the "birthplace of democracy." What role do such archaeological shrines play in modern culture?

Lecture Seventeen

Delphi—Questioning the Oracle

Scope: In our casebook of Classical archaeological sites, we have seen both the great Panhellenic center of Olympia and the Agora of ancient Athens and have noted the mixing of religion and politics in the ancient Greek world. At the Agora, excavators have found thousands of potsherds called *ostraka*, each one inscribed hastily with the name of an Athenian citizen. These were cast as voting ballots for ostracisms, in which a citizen who was considered dangerous could be banished for a period of 10 years. This tradition grew out of religion; sometimes a person was banished as a kind of purification for the good of all the people, and this purification, with its religious slant, ties into our next site: Delphi. Here, we'll see the ancient legends of the oracle of Delphi confirmed by contributions from a number of modern scientific disciplines.

Outline

- I. In our last lecture, we mentioned that the ritual banning of people from Megara from the Athenian Agora helped lead to the Peloponnesian War between Athens and Sparta. Another precursor to the war was a statement from an extraordinary shrine in the heart of the Greek world called Delphi.
 - A. At Delphi, a woman who spoke for the god Apollo said that Athens was a cursed city; a cursed family resided in the city and needed to be expelled. The Spartans claimed that one of their duties as religious-minded Greeks was to help the Athenians expel this family, the Alcmeonidae. Among the family members was Pericles, the leader of Athens; thus, the Spartans' actions were directed toward eliminating the strongest man in Athens before the war ever began.
 - B. This statement from the oracle confronts us with an issue that many people find disturbing about ancient Greece, and people in antiquity also found it disturbing: In this society, which seems to have put such a premium on rationality, people in crisis would either send envoys or travel themselves to the remote shrine at Delphi to consult the oracle.
 1. This site is on the rocky southern slope of the holy mountain Parnassus, looking over the waters of the Corinthian Gulf. In the bowels of the temple there was a smaller area called the *adyton*, the "do not enter" area, where a woman was seated on a tripod.
 2. We are grateful to an Athenian painter who used the image of the Delphic Oracle (the woman was called the Pythia) as a design on a drinking cup. The painter has included a column in the center of the design, which shows us that we're in an interior space, under the level of the temple floor.
 3. The woman is shown slumped in an oracular trance. She holds a *phiale*, an unfooted water dish, in one hand and, in the other, a sprig of laurel, the bay tree, Apollo's special tree. Her own spirit has fled and the god uses her like an instrument.
 4. The Delphic Oracle had tremendous prestige. The Greeks thought that the tradition went back to the Bronze Age. Agamemnon was supposed to have consulted the oracle before the Trojan War.
 5. Even non-Greeks sent envoys to the Delphic Oracle, such as King Croesus of Lydia. When Croesus asked whether he should fight the Persians, under King Cyrus, who were threatening to take over his kingdom, he was given a riddling answer.
 6. When a Persian king, Xerxes, threatened to take over Greece, the oracle told the Athenians to put their faith in a wooden wall. Themistocles rightly interpreted this to mean the Athenian navy.
 7. It's surprising a woman's voice should be so powerful in the Greek world because, in general, women were seen rarely in public life.
- II. The temple at Delphi was situated in a remote area, with no large city nearby. Even the Delphians admitted that their town would be the poorest in Greece if it weren't for the temple and the oracle. Delphi represents an oracle of place, a specific spot where some force inspires the prophet and allows the channeling of messages from above and beyond Earth.
 - A. The oracles were always women of Delphi. They could be old or young, rich or poor, illiterate or sophisticated in their learning. They were not from the same family but seem to have been chosen for their aptitude.

- B.** It appears that the oracles originally served a goddess, Ge, Mother Earth, at the same spot, who originated the oracular tradition with her priestesses. The young god Apollo took over the site by shooting Mother Earth's python with an arrow. (The python gave the name Pythia to the oracle and the ancient name Pytho to the site.) Apollo built his own temple and brought in his own priests, but he couldn't get rid of those women. They were the ones who knew how to channel the voices.
- C.** Where did the power of the oracle come from? Why was this place so special?
1. The ancient Greeks claimed that there was a cleft in the rock of the mountainside at Delphi, and a *pneuma* ("breath, vapor") came up out of the rock from a source deep inside the Earth. When the oracle sat on the tripod that straddled the cleft and breathed in the *pneuma*, a trance was triggered, and suddenly, the god Apollo was speaking through her. She could still sit up; she could hear the questions and see the questioners, but it was not she who was actually speaking.
 2. Plutarch, famous for having written *The Lives of Noble Grecians and Romans*, served as high priest at Delphi for many years and attempted to explain the phenomenon of the oracle. He noted the sweet smell of the *pneuma* and explained it as the pick with which Apollo, the musician, "plucked" the woman, his instrument.
- III.** French archaeologists began digging at Delphi around 1890 and conducted intensive excavation from 1892 to 1903. In that decade, the site was basically strip-mined, and the whole town of Delphi was moved.
- A.** The site itself was then uncovered, with the French working from the bottom of the slope up. By the third season, they found the temple. They had high hopes because they had earlier found some beautiful statues, including the famous bronze *Charioteer*. Further, the site had been visited by many Greeks and must have accumulated thousands of statues as offerings from devout visitors.
- B.** The French archaeologists were thoroughly disappointed; essentially, only the ruins of the temple foundation were left. All the sculpture had disappeared, including a gold Apollo. There wasn't even much left of the sculptural pediments and *metopes*.
- C.** The archaeologists dug into the empty center of the temple, expecting to find a cleft in the rock and to experience the *pneuma* as soon as they could clear the overburden, but they were again disappointed. Ultimately, the French declared that the idea of vapors rising from rock at Delphi was impossible because only a volcanic area could produce such vapors and there were no volcanoes near Delphi.
- D.** The Greeks remained the only believers in the source of the oracle's power. Elsewhere, scholars from around the world fell in line with the view that the dig at Delphi was a classic case in which archaeology had disproved an ancient tradition.
- E.** I, too, held that view until I met Dr. Jelle de Boer of Wesleyan University, an expert on ancient earthquakes and volcanoes and their relationship to archaeological sites.
1. In 1996, I traveled with Dr. de Boer to Delphi, and with the support of archaeologists from the Delphi Museum, we relocated a huge exposed face of a fault on either side of the sanctuary, masked within the sanctuary by artificial terracing on top of the natural rock. Gases may have seeped out of this fault, accounting for the sweet smell that Plutarch had noted.
 2. The fault line was 20 kilometers long. If gases were seeping up all along it, why was there only one Delphi? Certainly having the oracle was certainly lucrative for a town. Dr. de Boer pointed out that a cross fault, a place where two faults intersect, would make the crust permeable and allow gases and spring water to come up in abundance at that spot.
 3. We then located the trace of another fault high on Mt. Parnassus and showed that it crossed the original fault right at the temple site.
 4. Dr. de Boer studied the rocks in the area and found that the limestone that makes up Parnassus was, in this spot, *bituminous*, meaning it contained petrochemicals. As the stone was heated by the motion of the faults and reached a certain temperature, the petrochemicals would vaporize and slide up along the faults, along with the spring water. These petrochemicals included light hydrocarbon gases that are known to be intoxicating.
 5. Dr. de Boer and I next tackled the problem of finding evidence to show whether or not the gases were emerging at the time the temple was functioning as an oracle. Dr. de Boer had noticed drippings of travertine all over the site. These would be similar to a flow of stalactite/stalagmite material, in which the calcites that come up with the springs harden as they reach the surface. It was possible that some

gas would be trapped inside these flows of rock as they formed, rather than being expelled into the atmosphere.

6. We took samples of rock from just outside the temple and sent them to a chemist in Florida, Jeff Chanton. In our samples, he found methane and ethane in higher quantities than should have been present. In samples of the modern spring water, we also found ethylene, which has a sweet smell, just as Plutarch had noted about the gas he smelled inside the temple.
7. Toxicologist Dr. Henry Spiller explained that ethylene had been used as an anesthetic in the early 20th century and, in lesser amounts, could induce a light trance. In some cases, it could cause violent deliriums and even contribute to death in human subjects, confirming Plutarch's reports that, at times, the Pythia had died.
8. At this point, I believe, all the evidence has come together to indicate that the stories of the oracle at Delphi are not mythical. In fact, at Delphi, I think we are privileged to have eyewitness accounts of a genuine religious experience that was the center of Greek faith and politics for centuries that are supported—almost to the finest detail—by the discoveries of modern science.

Suggested Reading:

Amandry, *Delphi and Its History*.

Hale, de Boer, Chanton, and Spiller, "Questioning the Delphic Oracle," *Scientific American*.

Questions to Consider:

1. How important is interdisciplinary teamwork for archaeological research?
2. To what extent can archaeological discoveries test the truth of historical and literary texts?

Lecture Eighteen

Kyrenia—Lost Ship of the Hellenistic Age

Scope: In this lecture, we journey to the island of Cyprus, south of the southern coast of Asia Minor in the eastern Mediterranean, and to the time between the end of the Classical age of Greece and the rise of the great Hellenistic kingdoms that would carry Greek culture to the ends of the known world during the period after the conquests of Alexander the Great. At some time near the beginning of that change of epochs, a ship carrying a cargo of wine from the island of Rhodes sank just a mile from the coast of Cyprus. From that ship, we have learned more about Classical seafaring, the ancient wine trade, and the lives of mariners as they were at the end of the Classical period than from almost all the rest of the evidence that we have put together. The ship is called the *Kyrenia*, after the harbor near which it was discovered.

Outline

- I. In 1965, a Cypriot diver named Andreas Kariolou discovered a pile of 80 ancient amphorae. These were double-handled clay transport vessels with pointed ends that were used as shipping containers for wine, olive oil, and other substances throughout most of the Classical period.
 - A. The next day, when Kariolou returned to the spot, he couldn't find the amphorae. For two years, he sought the ship that had held this cargo. Finally, he rediscovered it in 1967 during the visit to Cyprus of two American underwater archaeologists: Michael and Susan Katzev.
 - B. The Katzevs had trained with George Bass at a site called Yassi Ada, which means "Flat Rock." Susan began her career as an artist with Bass and became a skilled diver. Michael worked on iron concretions for Bass's team. These are the masses of rust and corrosion that result when an iron artifact is immersed for long periods in water. Michael made latex rubber casts of these concretions to identify the artifacts.
 - C. Together, the Katzevs toured the Mediterranean and attempted to find shipwreck sites for Bass. Bass had formulated the idea for a project to find, identify, and raise a shipwreck from each century of the Classical period. He often noted the extended duration of the seafaring tradition in the ancient Mediterranean, from the time of the inhabitants of Franchthi Cave in the 11th millennium B.C. up to the Middle Ages.
 - D. In Cyprus in 1967, Susan and Michael Katzev dove at the site of Kariolou's shipwreck and saw the original 80 amphorae. They were sure that they were seeing just the top of an amphora pile that would have been inside a wooden ship's hold. They thought that the decay and collapse and, perhaps, burial of parts of the wooden ship might have resulted in the deposit of a lot more cargo and parts of the ship itself under the sediment, out of sight.
 - E. The possibility of finding a ship from the Classical period was exciting. At Yassi Ada, Bass and his team had been unable to preserve much of the Byzantine ship they had discovered. The Katzevs conducted a survey with probes around the amphora pile and found that the site might involve a far larger area than originally thought.
 - F. For the next two years, from 1968–1969, the Katzevs assembled a team of 50 people, including technicians, archaeologists, and students, to work on the site during the three-month summer seasons.
 1. A barge was anchored over the site to serve as a floating headquarters. A device invented by the Katzevs, a Plexiglas dome called the underwater phone booth, was put into use to give divers rest breaks and allow them to communicate with people on the surface about what they were finding.
 2. This communication was important because at a depth of 90 feet, the divers could spend only 30 to 40 minutes per dive working on the wreck and could make dives only twice a day.
- II. Despite the challenges posed by the site, the team managed to raise, not just the cargo, but the ship itself.
 - A. The team first erected a grid over the site so that the locations of finds could be pinpointed. The divers then began bringing up the amphorae, of which 384 were found. Most of these were intended for carrying wine; a few probably had almonds in them. Below the amphorae, the team found ballast stone and 29 millstones.

- B.** Once these finds had been mapped and brought to the surface, divers found the hull—in 6,000 pieces. They could see that after the ship had sunk, it had settled on its keel, then listed over onto its port side. Thus, the port side had been buried and was protected by the sediment. The starboard side, jutting upward, ultimately collapsed and, as it did so, the amphorae and other cargo, the equipment, and the personal belongings of the crew all spilled onto the sea floor.
- C.** Little by little, all the timber was brought to the surface, leaving a hollow behind where it had rested. As the divers were passing over the hollow, to make sure they hadn't missed anything, they found eight iron concretions, similar to what Michael Katzev had been studying at the earlier dig with George Bass. Of course, they lifted these artifacts, noted their presence under the hull, and carried them up to the conservation workshop.
- III.** The excavation phase of the project was complete. Now the team faced years of work to analyze what they had found.
- A.** One of the first tasks to be completed was to conserve the ship's hull. In 1970, Michael and Susan Katzev traveled with their conservation officer, Frances Talbot of the London Institute of Archaeology, across Europe, seeking ideas to preserve waterlogged wood.
1. In Stockholm, they saw a ship called the *Vasa*, that, in the 17th century (of our era), had been launched by King Gustavus Vasa of Sweden and sank within a few minutes of slipping into the sea.
 2. The *Vasa* had come to the surface in the early 1960s, at a time when a Swedish forestry company had patented a new chemical for wood preservation called polyethylene glycol. In a conservation effort that would last 17 years, the hull was being sprayed with a continual shower of polyethylene glycol.
 3. Smaller pieces of the ship were in tanks. After an immersion of some months, the polyethylene glycol would work its way into the cellular structure of the wood, stiffen it, and make it possible to lift up the pieces, study them, and put them back together.
 4. The biggest advantage of this conservation technique was that it was reversible; the polyethylene glycol could be soaked out of the wood if necessary. The team returned to Cyprus knowing they could use this technique.
- B.** Another important member of the analysis team was Dick Steffy, an electrical engineer who had approached George Bass with the idea of building a model of the wreck at Yassi Ada. Steffy went on to become the world's expert on the reconstruction and technology of ancient ships and shipbuilding, for which he received a MacArthur Genuis award.
1. With the 6,000 pieces of the *Kyrenia* ship's hull now conserved in polyethylene glycol, Steffy began the painstaking task of examining each piece, obtaining drawings and measurements, and seeing how they all fit back together.
 2. Steffy found that, unlike modern ships, this ship had been built with the shell first. The skin of the ship grew upward from the 30-foot-long keel.
 3. Next, the pine planking was added. There were 22 *strakes*, or lines of planking, coming up either side. Steffy was thrilled to have about 60 percent of the actual substance of the ship's hull. Because a hull is symmetrical, he really had about 75 percent of the ship to work with.
 4. Steffy was able to follow the ancient boat builders as they had cut slots, called *mortises*, in the edges of the planking; a matching slot in the next plank would be slid over the first. These were spaced very close together, hundreds of them within the ship. Finally, the whole thing was fitted together like a piece of cabinet work. The ribs were put in afterward as stiffening devices.
 5. For Steffy, this costly and time-consuming method of building seemed to be a sign of the slave labor system on which the ancient world's technology rested.
- IV.** Steffy made numerous models of the ship—some of them reduced in scale, some of them full scale. Ultimately, three replicas were built of the *Kyrenia*.
- A.** The *Kyrenia II* was built in Athens in 1985 and had successful sea trials. It was taken to New York Harbor for the rededication of the Statue of Liberty and to Japan. The Japanese admired the ship so much that they built the *Kyrenia III*, which is now in the museum at Fukuoka.

- B.** On Cyprus itself, a third Kyrenia replica was built in 2002, the *Kyrenia Liberty*. It was captained by Glafkos Kariolou, the son of Andreas Kariolou, who had also worked with Susan and Michael Katzev in the first years on the wreck.
- C.** With these replicas and finds made from the wreck, it was possible to test the capabilities of the ship, which turned out to be an efficient sailing vessel. Its seaworthiness was tested in the Aegean and the eastern Mediterranean. For the *Kyrenia Liberty*, Susan Katzev supervised the reproduction of enough amphorae to restock the ship with its original cargo.
- D.** Steffy noticed in his drawings and calculations of the weight of the cargo and the trim of the ship that something was missing. The ship could not have been afloat with the proper trim for handling unless there was an additional 2 tons of material in its bow than the archaeologists had found. Something had either rotted away or had been taken away.
1. Perhaps a cargo such as carpets was missing, or perhaps, the ship had been robbed before it sank.
 2. This interesting discovery was matched by observations of the Katzevs as they looked over the artifacts. They had the cargo and a number of items that the captain and crew must have used, but some items were obviously missing. There should have been a large number of silver coins, yet only seven small, corroded bronze coins were found on the wreck.
 3. The images of the Hellenistic rulers stamped on these coins helped date the wreck to about 288 B.C. That was also the initial radiocarbon date on the shells of the almonds found. The ship seems to have gone down between 295–285 B.C., and it was probably about 25–30 years old at the time.
 4. When it sank, the ship had already been extensively patched and repaired. It had been given a skin of lead sheets held on with copper tacks in an attempt to keep it seaworthy. Lead strips had been placed on the inside where the hull was cracking or leaking. New timbers had been put in, recycled from other ships, as old ones rotted.
 5. Nonetheless, Steffy thought it was possible that the ship had gone down simply because of its age. Another possibility was that it had been overloaded.
 6. Also missing from the ship were balance weights, probably made of bronze, which would have been quite valuable. Further, no valuables were found for the captain and three crewmembers.
 7. Recall the first season of excavation, when the iron concretions were found. When latex casts were made of the interiors of the concretions, the results looked like javelin points. This discovery suggested that the ship had been caught in a pirate attack. The pirates seized the most immediately saleable parts of the ship's contents, including the four crewmembers (to be sold as slaves), all the small valuables, and the missing two tons of cargo.
 8. Finally, Susan Katzev made a discovery that, for her, was evocative of what might have been the ship's last moments: She found a lead curse tablet. She imagined a scenario in which one of the pirates had returned to the ship and nailed to a beam this illiterate prayer that the ship be bound under the sea forever.
- E.** In whatever way the pirates sunk the ship, it did indeed succumb to that curse for many lifetimes. As Susan likes to say, though, the curse apparently had a shelf life of only about 2,300 years. Once Andreas Kariolou found the site, it was only a matter of time before modern science and the techniques of underwater archaeology brought it to the surface once more.

Suggested Readings:

Bass, *Beneath the Seven Seas*.

Fagan, *Time Detectives: How Scientists Use Modern Technology to Unravel the Secrets of the Past*.

Questions to Consider:

1. What is some of the knowledge we have gained about Classical seafaring and ancient trade from the Kyrenia shipwreck?
2. What contributions did Dick Steffy make to the archaeologists' interpretation of the finds from the shipwreck?

Lecture Nineteen

Riace—Warriors from the Sea

Scope: Thus far in our survey of Greek archaeological sites, we have looked at excavations of large areas: Olympia, Delphi and the shrine of Apollo, the entire Athenian Agora. These sites cover many acres and have taken decades to study. For our last look at a specific case study of a Greek archaeological discovery, we'll turn to a tiny archaeological dig, a micro-dig inside a pair of bronze statues. These statues were cast around clay cores. The Italian team conducting the excavation went in from the open feet of the hollow bronze statues to the clay core inside, using some of the same tools that surgeons use in arthroscopy to examine and perform surgery on the inside of a joint, such as the knee. This micro-archaeology represents another new frontier in our study.

Outline

- I. The story of these bronze statues is extraordinary. They were first discovered by a chemist from Rome named Stefano Mariottini while he was on holiday in the south of Italy.
 - A. Mariottini was a diver and had gone out for a swim from a beach at Riace, which is located on the southern Italian coast between the toe and the instep of the boot that is Italy. A number of Greek cities were planted there as colonies in the 6th and 7th centuries. It was also an important area for Roman shipping.
 1. Ships from the eastern Mediterranean would come along the coast; go around the toe of the boot, through the famous Straits of Messina (traditionally associated with the Scylla and Charybdis of the *Odyssey*); and make their way to Rome.
 2. This area was known to be a graveyard of ships. Even the Romans had regulations about the divers who were sent down to recover ships that had wrecked along this coast. By the time Mariottini reported his find, in 1972, the area had already yielded a number of amazing artworks and many amphorae wrecks.
 - B. Mariottini was snorkeling about 300 meters from shore. The water was fairly shallow, about 24 feet deep, and very clear. When he looked down, he saw an arrangement of boulders on the bottom and an arm sticking up out of the sand.
 1. Mariottini swam down and felt the arm, which was solid; he then swept the sand away and realized that an entire statue was buried there. Nearby, he saw a second statue. Both were about 6 feet, 5 inches tall, naked men in bronze, and rendered realistically.
 2. Mariottini marked the spot with a buoy and went in to call the local archaeologist. The archaeologist was excited, but probably not as excited as Mariottini because many similar finds had been made.
 3. Big statues such as these tend to be Hellenistic or Roman. Recall that Winckelmann graded Greek art in four chronological periods: the archaic; the high, or Classical; the beautiful; and the decadent, degenerative period. Odds were that these statues were from the late period.
 - C. A week later, police divers arrived and inflated balloons underwater to create a lifting device; they tied these to the first statue (which we'll call Warrior B) and brought it to the surface. The next day, the same procedure was used for the other statue. This statue initially had, in the crook of its elbow, a large piece of a pot, which would have been important for dating the shipwreck. Unfortunately, the lifting device failed, and the statue broke free of its ropes and fell. When it was lifted again, the statue was undamaged, but the piece of pot was missing.
 - D. When the divers brought the statues back to the beach, they had a near-riot on their hands. The people of Riace thought the statues belonged to their city. They believed that the statues were of Saints Cosmos and Damien, two early Christian divines who were also the patron saints of Riace. Ultimately, the Riace Warriors, as they are now called, were taken to Reggio Calabria for conservation and study.
- II. Archaeologists didn't return to the site for a year; at that time, Mariottini was brought back to Riace to point out where he had found the statues.
 - A. In the intervening months, the sand had been shifted by currents. Except for a few pieces, the pottery was gone, and there was no sign of the big piece that had been found with the second statue. Some lead rings

were found, which could have been weights for fishing nets or the brailing rings for old sails, but there was no ship. Crucially, there was no ballast pile, which almost any kind of a ship would have had.

- B. One theory was that the statues had been in packing cases and had been heaved overboard to lighten the vessel as the ship was about to be dashed on shore. Another theory held that the statues had been recently placed in the water by black marketers. These speculations caused a great furor, but in the end, we still do not know when the statues ended up in the sea. Because one of the statues is encrusted with marine material, we know that it was underwater for a long time.
 - C. Teams have been sent repeatedly to Riace, up to the present day, and still, the shipwreck has not been found. These statues are now recognized as among the most important and most beautiful Classical bronzes ever found. The Greeks greatly admired bronze artwork, but little bronze has survived because the material was infinitely reusable.
- III. One reason archaeologists remained ambivalent about these statues was that, with their encrustation, they didn't seem to fit into Winckelmann's classification scheme for the high, or Classical, period.
- A. The statues are almost hyperrealistic, which also seemed to place them in the last category, the decadent period. The veins are visible in the hands, and each muscle is highly sculpted. Initially, the find did not set the art historical or archaeological world on fire.
 - B. Further, the statues were difficult to clean. They were ultimately sent to Florence, the center for artwork in Italy, and were worked on for years.
 - C. As the crust came off and some of the clay core came out, the statues emerged, gleaming. They had lost the appurtenances that might have identified them, such as their helmets, shields, and weapons, but even so, they were incredibly rich-looking. The statues had silver teeth; pure copper had been used to give reddish highlights to the lips and nipples; individual hairs in the eyebrows were indicated; white stones or paste were used for the eyes, with colored irises in the eye sockets.
- IV. Let's describe the statues further to understand this discovery.
- A. As mentioned, at 6 feet, 5 inches tall, the statues are larger than life. Their height makes it unlikely that they were cast from a live model.
 - B. Both statues are in the same full-frontal pose. Warrior A looks off the side dramatically, with his mouth open. We can see his silver teeth gleaming, the alert arch to the eyebrows, his shoulders held square and back. His left hand is raised, and his elbow is crooked. His hand was, at one point, closed around the grip of his shield. For Warrior B, we actually have the grip. These statues had big, round shields, what's called a *hoplite* shield, for heavily armed infantrymen.
 - C. Warrior A probably held, in his other hand, some sort of weapon. Around his head, there is a filet, or ribbon, a broad band. These can be the sign of an athletic winner, a priest, a god, or a deified hero.
 - D. Warrior A's hair is pressed down as if he had worn some sort of ornamental helmet. His haircut is interesting. He has a mop of hair, neither the long braids of the archaic aristocrats nor the short, modern-looking cut of the working man in the Classical period. Warrior A's hair is a mass of corkscrew curls that frame his face.
 - E. This statue is standing with one foot slightly forward. His left arm is crooked; right arm down, holding the weapon; weight on the left foot; and the right hip dropped. The body is in a slightly sinuous S-curve; the position is called *contrapposto*. All the weight is on one foot, and the statues are flatfooted. In antiquity, the feeling of life was represented by raising the heel of the trailing foot, but that isn't apparent here, which means that the statues date from earlier than the 5th century.
 - F. It was later learned that Warrior B had a replacement right arm; thus, we're not exactly sure how he held his weapon. Clearly, Warrior B was also missing a Corinthian helmet. His head had been made in a reduced size, shaped in a bizarre cone, and the curved back of the Corinthian helmet had left its mark on his head.
 - G. The two statues were exactly the same size and looked much the same, but Warrior B had short, wavy hair, similar to that seen on Pericles in the famous bust from Athens.
- V. In 1980, the statues were displayed in Florence before they were to be shipped back to Reggio.

- A. The display ultimately drew hundreds of thousands of people, waiting for hours to file past these two incredible statues. The statues became a huge sensation in Italian popular culture.
- B. In the wake of this popular furor came the experts. Two of them in particular had ideas about what the statues were.
 - 1. The first scholar to publish was a German named Fuchs. He believed that 10 additional similar statues must exist to complete a dozen. He associated the Riace bronzes with collections of statues in such sanctuaries as Olympia and Delphi.
 - 2. All these statues were set on marble bases, with lead clogs to hold the feet in place. The lead would have been poured in through a toe in the final setting of the statue on its plinth. The lead clogs for the Riace bronzes were available, and this scholar tried to fit them into statue bases all over the Mediterranean but couldn't come up with any convincing matches.
 - 3. Another theory was that the statues were not high Classical originals. Because they look so much alike, they must be the result of a mass production system. The idea was that they were indirect casts, with the same molds used repeatedly.
- C. Many of these theories were put to the test by the world's smallest archaeological dig. The impetus for the dig came after the Riace bronzes were sent back to Reggio in 1981.
 - 1. In the Riace museum, corrosion began to appear on the statues. When an artifact is impregnated with seawater, the salt begins to permeate the material. This is what happened in the clay core of the statues, and the salts were now eating through the bronze.
 - 2. X-rays showed that there was an iron armature inside the statues. The bronzes had been made in the lost-wax process, called *cire perdue*. An iron armature is constructed; clay is molded around the armature; and wax is poured in a skin over the clay. When the final mold is put in place, the wax is melted out and bronze is poured in. The artist is left with a thin shell of bronze over the clay; if possible, the clay is removed, but it had not been in this case.
 - 3. With the idea of saving the statues, conservationists looked inside, expecting to find that all the clay had been poured in to a mold, because experts had said that the statues were indirect casts.
 - 4. That wasn't the case at all. There were strata in these statues, stratigraphy, to be read. The conservationists switched over from the pulverizers used to pull out the clay to arthroscopy tools. They took 80 hours of video, working their way up from the open feet into the bodies of the statues.
 - 5. They could see, wrapped around the iron armature, sheets of clay that had been mixed with animal hair to give it a fibrous texture and molded to build the body from the inside. They could even see the finger marks of the workers as they had pressed the clay from the outside. The statues were direct, one-time casts. They could not have been made assembly-line fashion in a workshop.
 - 6. Finally, the conservationists could see that Warrior A, who had the curls, was crudely put together on the inside. Warrior B, who appeared to be from a generation later, probably around 430 B.C., actually had the muscular modeling on the clay core itself. The artists didn't wait for the wax to make Warrior B look realistic. His realism was already present in his clay muscles.
- D. The remaining question was: Where did the clay originate? It had a high chromium content, which ruled out Italy. Matches for the clay were found in Athens, the central area of old Greece, and possibly, the island of Aegina, known to have been a center for bronze casting.
- E. From this micro-dig, carried out by technicians, came more information about these remarkable statues than had been provided by the best art historians in the world. The technical evidence of the clay core answered the most important questions about these works of art.

Suggested Reading:

Mattusch, *Classical Bronzes: The Art and Craft of Greek and Roman Statuary*.
Lombardi Satriani and Paoletti, *Heroes from the Sea*.

Questions to Consider:

- 1. Is it right or prudent for governments to reward those who discover and turn in antiquities with large payments of money?
- 2. What impact can the archaeological studies of the Riace Warriors have on their subjective evaluation as works of ancient art?

Lecture Twenty

Rome—Foundation Myths and Archaeology

Scope: This lecture begins a series of five that will look at classic discoveries in the world of Roman archaeology. These discoveries have some links, however, with the Greek and Bronze Age sites that we have seen in past lectures. We'll see these links as we consider the connections between mythical traditions and legends and archaeological discoveries, and how archaeologists can use myth and legend to guide them as they approach archaeological sites. The first Roman site we will explore is Rome itself; we'll look at the myths surrounding the foundation of Rome and see how modern archaeologists have tried to use those myths as guides to examining the City of the Seven Hills.

Outline

- I. Rome began as a small community at a bend of the Tiber River, where there was an island that allowed one to ford easily from bank to bank. It was situated on the first spot, as one came up from the sea, where it was easy to cross the river. Right by the crossing were seven hills, the Capitoline Hill, the Palatine Hill, and others, around which myths clustered.
 - A. We've also encountered myths in some of our previous lectures.
 1. We started off with Heinrich Schliemann at Troy, associating his dig and discoveries there with Homer's story of the Trojan War and the epics of the *Iliad* and the *Odyssey*.
 2. At Santorini, we saw Plato's myth of Atlantis, and at Knossos, on Crete, we encountered the story of the Minotaur and the labyrinth. At Delphi, the ancient Greek myths told of the young god Apollo driving out Mother Earth and taking over the sanctuary for himself.
 3. Finally, in the last lecture, the Riace bronzes generated myths about how they were discovered, what happened to all the pieces that had been lost, and what powers they might hold.
 - B. When Rome became the greatest city on Earth, it was necessary that its past have a mythical dimension. As archaeologists, we always look for the truth in such myths.
- II. Let's begin with a quick review of the myths surrounding the foundation of Rome because they tie in with some of our earlier studies.
 - A. One very ancient strand of the foundation myth of Rome linked it to the Trojan War: As Troy was in flames, a young Trojan prince, Aeneas, escaped with his household gods, his aged father, and his son. As a refugee, he then sailed the length of the Mediterranean, stopping off at Trent, Albania, Carthage, and Tunisia.
 1. Finally, directed by the gods, this son of Anchises and the goddess Aphrodite, or Venus, made his way to Italy and founded a city called Lavinium. His son reigned in the nearby town called Alba Longa. Several generations later, their descendants became the kings of Rome.
 2. In other words, the family of Julius Caesar could claim to be descended from the goddess Venus, could link their city's past and their own genealogy to the most famous epic in the Mediterranean, the story of Troy.
 - B. One of the kings of Alba Longa had a daughter, a vestal virgin, one of the young women of Italy who worshipped the goddess Vesta (Greek: Hestia). She's the goddess of the hearth and fire, at the center of every house and community.
 1. Vestal virgins must be pure, but this king's daughter lapsed from her vows. The god Mars himself, the god of war, ravished her.
 2. The twins Romulus and Remus were born to this girl on the banks of the Tiber River and were cared for, not by their mother, but by a she-wolf. A famous image in Roman myth is of the she-wolf, with the twins suckling at her breast.
 3. The twins were raised by a shepherd and, when they grew up, lived on the Palatine Hill. Romulus decided to build a hut for himself on the hill but was mocked by his brother when he attempted to fortify the hilltop with a wall. According to the myth, Romulus was so angry that he killed Remus.

4. Romulus, now alone, invited outlaws, bandits, and runaways to join him at the ford of the Tiber and create a new city. These newcomers set up camp on the adjoining hill, the Capitoline, and built huts there. They carried off the women of the nearby Sabine tribe and brought them to the new settlement, now called Rome.
 5. When the male Sabines came to reclaim their women, the women reconciled the battling male groups, and Rome was left as a city fused together of different populations and traditions.
 6. This instituted an era that the Romans called the *Regnal Period*, the period of kings. This era was supposed to have lasted for 250 years—with only seven kings. The Romans decided that Romulus had built his house and established Rome in about 753 B.C.
- C. The Roman kings were supposed to have done great things, such as building the temple of Capitoline Jupiter and the Cloaca Maxima, the extended sewer that ran from the Forum down to the River Tiber.
1. We must keep in mind, however, that the Romans didn't like kings, and those whom we call emperors were not regarded as kings or monarchs. The Romans maintained a constitutional fiction that the emperor was chosen through legal means, and these rulers were given such names as *imperator*, implying a military commander.
 2. The first emperor, Augustus, built his house on the Palatine Hill, making himself a neighbor of Romulus. Supposedly, the original hut of Romulus, allegedly dating from 753 B.C. and, therefore, seven centuries old at the time of Augustus, was still standing.
- III. Let's return to the tradition of the connection between the founding of Rome and Troy.
- A. There were three sites in the central area of Italy around the Tiber River called Latium: Lavinium, the city founded by Aeneas himself; Alba Longa, where the descendants of Aeneas ruled; and Rome.
 - B. All three of these sites are the oldest tier of sites in Latium. Thus, the legendary tradition had at least singled out correctly the three oldest communities in this area.
 - C. How far back does this legendary tradition go? This question is not easily answered. We know that the Bronze Age is the backdrop for the Greek world, but the year 753 B.C., the traditional date of the founding of Rome, is in the Iron Age. The Romans didn't project their city back into the Bronze Age.
 - D. Vulcanologists have recently discovered that the region may have been uninhabitable in the Bronze Age. Volcanoes in the area were active from about the time of the pyramids in Egypt, in the 5th millennium B.C., through the Bronze Age. Roman history tells of portents that come out of the sky—rains of fire—and we now understand that these accounts are probably accurate.
 - E. The Romans, of course, were famous for having links with the Etruscans, who lived just to the north of Rome's boundaries. As you remember, although we can decipher the script and know what the letters are, no one knows what the language of the Etruscans was. Note, too, that the *tru* in *Etruscan* resembles the *tr* in *Troy* and *Trojan*. Many people believe that the Etruscans, who were early kings of Rome, were refugees from Troy.
 1. According to Herodotus, the Etruscans were from Asia Minor. But there was a tradition in Homer that Aeneas went west to Italy to found a new homeland for the Trojans in exile.
 2. The Romans certainly believed this, and there is the possibility that when the language is finally identified, it will prove to be true that the Etruscans in Italy are like the Carthaginians in Africa, people who were sent as refugees—or, in the case of the Carthaginians, colonists—from home populations in Asia.
- IV. Of all the stories about Rome, the one that seems most fantastical is, of course, that of Romulus and Remus, the twins.
- A. From an anthropological point of view, it is not out of the question that Romulus and Remus were raised by a she-wolf. Even this, which seems most like a fairytale element, can't be proven to be impossible.
 - B. What about the physical details of the foundation myth, such as the hill and the house?
 1. Augustus's palace had been found, and next to it was an area of houses and shops and a temple precinct of the mother goddess Cybele, the same deity we saw presiding over the public records in the Athenian Agora.

2. In the middle of the complex, however, nothing had been allowed to be built. As the archaeologists dug down, they found post holes. A big building at most Bronze Age or Classical sites would have had a stone footer, but postholes mean that the original structure was wooden.
 3. The method of building used is called *wattle and daub*, in which the house is put together in much the same way as a big basket, with woven twigs and branches, and is then plastered over. Further, the archaeologists knew that the original structure had been thatched because no roof tiles were found.
 4. Pottery found at the site dated to the 8th century B.C., just the right period for the 753 founding of Rome.
- C. The story that there was a hut in this complex and that it dated from around the 8th century B.C. was absolutely true. Not only was it in the right place to be the house of Romulus, but it had also been preserved by the Romans themselves. Further, the remains of a masonry wall were found to protect the site and keep casual visitors out.
- V. For me, the most exciting studies that have been done at Rome have been geological.
- A. We've already mentioned the fact that there was volcanic activity around Rome during the Bronze Age. Rome is a very complicated site geologically because it combines sediments from the Tiber River with flows of volcanic material. In fact, the Romans used those flows. The famous Appian Way that led south from Rome was built up the sloping track of an ancient volcanic flow.
 - B. The volcanic material hardened into a substance called *tuff*. This is a great building stone, very easy to work, and workers can tunnel through it. Right from the beginning, there was an underground Rome with storage places, dwellings, and tunnels to connect one part of the city with another.
 1. The idea of underground Rome prompted some archaeologists and natural scientists to conduct coring studies to try to reconstruct the early history of Rome.
 2. These specialists would take geological cores and analyze the stratigraphy inside to see how far down ancient material was found and the sequence in which it was deposited.
 - C. Albert Ammerman from Colgate University was in charge of much of this experimental coring work in Rome. His project was focused on the Capitoline Hill, the Forum area, and the lowland between the Forum and the River Tiber.
 1. The Forum for Rome was, of course, like the Agora of Athens, a civic center, a marketplace, a place for worship, and a place for show and spectacle.
 2. The Forum had already yielded ancient graves, just as the Agora in Athens had. We know that it wasn't originally intended to be the civic center; it was not, in fact, an urban site at all.
 - D. How was this low swale of land between these hills transformed into the seat of power for the entire Roman Empire, and how early did that happen?
 1. The Romans believed that the greatness of Rome was somehow inherent in themselves and in the site of their city, even before there were legions, Caesars, or conquests. They believed that Rome was already great, thanks to the will of its people and the city they had created.
 2. This line of thinking obviously flies in the face of rationality. It's much easier to believe that the Romans stumbled, step by step, into an empire, then projected into the past mythical traditions that would make it appear that the gods meant for the empire to emerge.
 - E. We might not think that geological cores would be the best way to address this question, but that turned out to be the case. Ammerman and his team performed what they called "noninvasive surgery" at sites around Rome, and what they found amazed them.
 1. On the Capitoline Hill was the temple of the high god Jupiter. It was 200 feet long and had been built exactly when the Roman legends said it had.
 2. The coring explained why one king had spent his entire reign preparing the site but hadn't actually built the temple. In what must have been a gigantic engineering project, a natural knoll had been built up as the place for the altar, and the temple itself was erected over an immense area of fill.
 3. When was this construction done? In the 6th century B.C.—exactly the period when the Roman tradition said it had. Given that the oldest written Roman traditions are only from the 2nd century B.C., this means that the memory was preserved by the oral tradition for about 400 years—and preserved accurately.

- F. Ammerman and his team took core samples from all over the Forum area and found that they were not standing on natural soil. This area had flooded so routinely that the Romans had undertaken the enormous task of building up the entire Forum area—acres and acres of land—by two meters, at least.
- G. The last element of the Roman myth, as I see it, is the idea of destiny, of intentionality, of a people who had a vision of their own greatness. The Etruscan kings of Rome had the same vision as the tyrant Pisistratus from Athens, who cleared the way for the Agora. In carrying out this vision, the Roman people made that little bend in the Tiber River, long before the conquests or the empire itself, into a city that was already—just as their myths had said—truly great.

Suggested Reading:

Boatwright, Gargola, and Talbert, *The Romans from Village to Empire: A History of Ancient Rome from Earliest Times to Constantine*.

Coulston and Dodge, *Ancient Rome: The Archaeology of the Eternal City*.

Questions to Consider:

1. What is the most surprising or unexpected archaeological discovery concerning the foundations of Rome?
2. Given the archaeological evidence for hilltop fortifications on the Palatine and the Capitoline, has any new light been shed on the myth of Romulus killing his brother, Remus?

Lecture Twenty-One

Caesarea Maritima—A Roman City in Judea

Scope: In the last lecture, we followed archaeologists to the city of Rome to find evidence that could confirm or refute the foundation myths that the Romans had about their city. We saw how Rome was laid out as a world city, long before the legions were created, the first foreign city was conquered, or the empire was built. In this lecture, we follow the Romans to a site far across the sea, a place called Caesarea Maritima, on the shores of modern Israel. There, the Romans, in the course of pursuing their empire and transforming the Mediterranean into *mare nostrum*, “our sea,” established a port on what had been originally a straight shore on the coast of Israel. In the process, we will see the creation of a site that will become important for the identity of modern Israel, because this is where the great Jewish Revolt began, which set the homeland of Judea in opposition to the world’s mightiest empire.

The ancient writer Tertullian asked a question that still resonates in the world today: What does Athens have to do with Jerusalem? He was talking about the pagan philosophical schools in Athens, as opposed to the Christian tradition that was growing at the time and was associated with Jerusalem. But the question has a wider implication: What does the Classical civilization that we have been studying have to do with that Judeo-Christian tradition that sits in opposition to it at the eastern end of the Mediterranean? The site we will explore in this lecture, Caesarea Maritima, plays into that question.

Outline

- I. In 1960, an American couple, Edwin and Marion Link, who had fitted out a research vessel called the *Sea Diver*, came to the sea of Israel, looking for a lost harbor. With their divers and their floating research station, they had been involved in a number of projects, including a search through the sunken remains of the city of Port Royal, a pirate town in Jamaica.
 - A. The Links had been intrigued by the description, by an ancient writer named Josephus, of a lost harbor city. He had been born a Jew and was, in fact, a general in the initial Jewish resistance to the Romans in the A.D. 60s, but when he was captured by the Romans, Josephus became a Roman—Flavius Josephus—and wrote a history of the Jewish war.
 - B. In that war, the projects of an earlier king named Herod (we call him Herod the Great) played an important role; these include such sites as Masada, a Roman fortress built on a high plateau over the Israeli countryside, and a great city by the sea, Caesarea Maritima. Josephus described the building of the harbor as massive in scale.
 - C. In the 19th century, many people assumed that Josephus’s description was outrageously exaggerated, but in fact, his account represents eyewitness testimony, not myth. The Links wanted to test the truth of the description: Was it possible that something on this enormous scale was created on the shores of modern Israel?
 - D. The Links sent divers down and immediately confirmed that massive underwater structures projected from the shore to create a giant harbor.
- II. Within about 15 years, the Links’ early survey led to a proper underwater archaeological excavation on a huge scale at Caesarea.
 - A. This project is known by the acronym CAHEP for Caesarea Ancient Harbor Excavation Project. Its directors have been Avner Raban of the University of Haifa and Bob Hohlfelder, an American underwater archaeologist from the University of Colorado at Boulder.
 - B. Together, these two men have masterminded a multi-year excavation underwater that has mapped the ancient harbor remains and determined how the tumbled blocks, which had been shifted around by the sea and the movement of sand, actually fit back together into the 200-foot-wide projecting breakwater that Josephus described.
 - C. The archaeologists discovered that Josephus’s description, although accurate on the monumental scale of the harbor, missed the fundamental engineering problem of how the Romans created those breakwaters.
- III. Let’s begin with some information about the environment at Caesarea.

- A. The water there is very clear, and the depths are not extreme. It was possible, at times, for the divers to dispense with their scuba gear and use a hookah adapted for underwater archaeological purposes.
 - B. The area is extremely active. Masses of sand are moved around by the currents, leaving no stratigraphy in the way that one would find on land. According to the law of superposition, the oldest artifacts should be found at the deepest levels, but this does not hold true when the sea is churning through the sediments.
 - C. The challenge was to try to clear away the sand, find the remains of the structure, and determine how it all fit together. Keep in mind that the structure had been erected from about 22 B.C. to 10 B.C. and even Josephus mentioned the violence of the sea in the area.
 - D. When the team got below the surface, they did not find gigantic blocks of stone as described by Josephus, but even larger blocks of concrete.
- IV. It was clear from Josephus's description that there was a link between Herod the Great of Judea and the first Roman emperor, Caesar Augustus. Recall that Caesar had started life as Octavian but had adopted his title when he defeated Antony and Cleopatra in the Battle of Actium in the 30s B.C.
- A. Caesar Augustus had known Herod the Great before either had assumed their titles. In fact, in the year 40 B.C., Herod had visited Rome, possibly to ingratiate himself with Caesar Augustus and to take advantage of the fact that he had not joined Antony and Cleopatra in their war against Caesar.
 - B. Caesar seems to have agreed to bankroll Herod's efforts to establish himself firmly as king of Judea, although Herod was an Idumean, not a Jew. Herod set himself up as the military leader and king of Judea, but his position was somewhat in opposition to the Jewish people.
 - C. The quid pro quo for Augustus is that he would have a client kingdom in Judea. The region would become a window for the caravan trade as it came out of Asia and up from Arabia to the Mediterranean. Judea, and the new harbor, Caesarea Maritima, would replace Egypt in handling that caravan trade.
 - D. Augustus seems to have sent a fleet of ships, with engineers, loaded with an important ingredient for Roman hydraulic concrete: *pozzolana*.
 - 1. This substance is the *tuff* that we talked about in the last lecture, a soft volcanic deposit. It is crushed and used as a substitute for sand in making concrete, mixed with quicklime that comes from burning limestone or marble in a kiln.
 - 2. The Romans learned that pozzolana has an almost miraculously useful property. If it is mixed with quicklime and put in water, it hardens in the water. It does not have to be dried. The chemical bond occurs when the pozzolana from the volcanic deposits, the quicklime, and the water come together. The dry cement mix can be poured into molds set in the sea, and it will harden underwater.
 - 3. One way the Romans created some of their harbor works was to tow an old ship to a spot where protection was required for the harbor, fill it up from the surface with the dry cement mix, then allow it to harden.
 - E. The Romans used this hydraulic concrete and engaged in harbor-making very early.
 - 1. In 273 B.C., at the time of the wars with Carthage, Rome made itself a maritime power, establishing a city called Cosa, up the coast of Italy, to be used as a maritime base. There, the Romans created an artificial harbor.
 - 2. Cosa has been excavated by an American underwater archaeologist named Anna Marguerite McCann. In a project called ROMACONS, others are studying Roman concrete and harbor fortifications all around the Mediterranean.
 - F. The Roman engineers traveling to Caesarea also brought logs of spruce, pine, fir, and poplar, all from European forests. How do we know this? The blocks found on the sea floor at Caesarea harbor show the grooves of immense wooden frames, or molds, into which the concrete had been poured.
 - 1. Carbon-14 dating of remaining chunks of the frames puts the wood at about 1,970 years old, plus or minus 70 years. This would date the wood right on the edge of the period between 22 and 10 B.C.
 - 2. Equally interesting was the nature of the wood, which all came from Europe. In Bob Hohlfelder's reconstruction, the huge frames would have been maneuvered into position by a guild of Roman underwater experts called *urinatores*, "urinators." This was the unflattering description Romans used for professional divers.

3. The Roman engineers and architects would have been standing on the shore as these great frames of wood were floated out and anchored into position, then filled from above with the mix of lime and pozzolana. When this mixture hardened, its weight carried the blocks down to the bottom of the sea floor.
 4. The next step was for the Roman engineers to place berms of stones by dropping them into the water, all around the edges, so that the action of the sea wouldn't cut under the big blocks, pull the sand out, and cause the blocks to tip.
 5. On top of this, the Romans placed a paving of masonry and all the facilities that Josephus had described, including towers—perhaps even a lighthouse—and colossal statues. These seem to have been lost, probably looted in antiquity.
- G. In the end, although Josephus got the engineering wrong, he didn't get the scale wrong. Josephus also implies that the harbor project belonged solely to Herod, but it's difficult to believe that he could finance both the harbor and the adjoining new Roman city. Probably Augustus was backing Herod to create a city that would be the key to holding his newly consolidated eastern end of the Mediterranean.
- V. Caesarea would go on to play an important role in the Roman world.
- A. The palace Herod built was the same one where Paul was brought before the Roman governor Phaistos when he was preaching a new religion, Christianity.
 - B. Caesarea represents an attempt on the part of a monarch, straddling the Roman world and the Jewish world, to somehow pull these two forces together.
 - C. There was some evidence that Herod's dream could become a reality. The east, around Jerusalem, had been, to some extent, Hellenized ever since the conquests of Alexander the Great. Jerusalem, at one point, was even organized like a Greek *polis*. The city seemed to be a stepping stone to a new world that would combine Roman engineering, Greek civilized thought and art, and Jewish faith and tradition.
 - D. In 1961, the earliest inscription bearing the name Pontius Pilate, who was dedicating a temple to the Emperor Tiberius there, was found.
 - E. In Caesarea, we see the imperial cult alongside Jewish worship. According to Josephus, probably about 20,000 Jews were living in this city, with a somewhat larger majority of Greeks and Romans. That makeup was common to cities such as Antioch and Alexandria.
 - F. Looking at maps of Caesarea today, it appears that the architects of this city certainly tried to accommodate the different populations on an equal basis. Inevitably, however, there were certain elements of those cultures that were incompatible.
 1. Until the time Caesarea was built, religious wars were uncommon, but one was touched off here.
 2. In A.D. 66, a group of young men, who were not Jewish, performed a pagan sacrifice just outside the door of the synagogue on the Sabbath, touching off a riot that spread to Jerusalem.
 3. When these disturbances settled down, the Jewish authorities in Jerusalem banned sacrifices to pagan gods, including the Caesars, the emperors, who insisted on being treated as gods.
 4. It was this ban that led to the Jewish wars. When news spread about the riots in Jerusalem and the repression of the Roman troops who were sent in to put it down, the Greco-Roman population of Caesarea massacred the Jewish population. Less than a century after the city was created, 20,000 Jews were killed.
 5. In Caesarea, two forces collided head-to-head, and an explosion occurred that would not just color the rest of ancient history but have repercussions in the modern world, as well.
 - G. Caesarea lasted a long time and was, in turn, a Byzantine, Crusader, and Islamic city. But it was the city laid out by Herod and funded by Augustus, built by Roman engineers to be a great port city and to link Rome to Jerusalem and all of Asia beyond, that was the place where one of the fundamental shifts in human history took place.

Suggested Reading:

Holum, Hohlfelder, et al., *King Herod's Dream: Caesarea on the Sea*.

Oleson, John Peter, et al., "The Caesarea Ancient Harbour Excavation Project: Preliminary Report," *Journal of Field Archaeology* 11 (1984).

Questions to Consider:

1. What are the essential elements that distinguish a Roman city from other traditions?
2. The builders of Caesarea made extraordinary investments of money and expertise. Why?

Lecture Twenty-Two

Teutoburg Forest—Battlefield Archaeology

Scope: In this lecture, our subject is a new and growing branch of archaeology: battlefield archaeology. We have visited lost cities and the floor of the sea, but we haven't yet been to a place where archaeologists are in search of clues about what happened at a single event—a place not associated with human habitation.

Battlefield archaeologists have worked at sites all over the world, from Little Bighorn to the pass of Thermopylae. But our battle is far to the north of the Alps, on the far side of the River Rhine, at a site that the Romans called *Saltus Teutoburgensis*, translated as the Teutoburg Forest. There, three Roman legions were massacred by a coalition of German tribes in the year A.D. 9, when Caesar Augustus was still emperor of Rome.

Outline

- I. The news of the defeat at Teutoburg Forest came to Rome at a time when word had just been received that the young Tiberius, emperor-to-be, had won great victories in Eastern Europe. Rome was in a mood of jubilation. No one dreamed that bad news would come from Germany.
 - A. Julius Caesar had decided that the River Rhine should be the limit of the Roman Empire in Central Europe, but his successors saw no reason to stop there. Thus, Roman incursions had been made across the Rhine. Forts and headquarters had been established. A great process of Romanization was taking place and would continue with or without the disaster in the Teutoburg Forest for several centuries to come.
 - B. Roman legions had been pulled across the Rhine, led by military commanders who had close ties to Augustus and Tiberius. In particular, a commander named Varus, a former provincial governor, was in charge of the legions in Germany.
 - C. How did the Romans interact with people on the frontiers? They knew that in any group of people, some would vie for power, and there would be different claimants to authority and to wealth. The Romans would generally support unsuccessful contenders with the proviso that the support would be returned to Rome in the future. This strategy had been carried out repeatedly with Gaulish and German tribes.
 - D. In the year A.D. 9, one young German chief, Arminius, had gone so far toward Romanization that he had become a Roman citizen and was even made an *equites*, a knight, enrolled as a citizen in the upper classes. He spoke good Latin and had close ties to Varus and his circle.
 1. But just as trouble arose in Caesarea with the Jews (the Romans expected Judea to pay the legions who had put down the Jewish Revolt), similar events occurred in the Rhineland. Varus, needing money, levied a tax on the German tribes, which they were unwilling to pay. Unbeknownst to Varus, Arminius began to contact people in free Germany and set up resistance to the Romans.
 2. According to Roman historians, Varus was lured across the River Rhine with his legions by the report of a distant rebellion. He was directed into a narrow place where his legions, tens of thousands of men, would be stretched out over six or seven miles. The Germans were waiting and destroyed the legions.
 - E. When word reached Rome of this disaster, Caesar Augustus assumed that the Germans would be battering at the gates of Rome soon. Rome had, in fact, been assaulted by Gauls in its early years, and the capital had been burned. The Germans did not, in fact, follow up on their conquest, but Augustus never recovered emotionally from the defeat.
 - F. For the Germans of the modern era, this battle was an important part of their history and national identity. The Germans took pride that their forebears had wiped out three Roman legions, the biggest single defeat in the history of the Roman Empire. Thus, for centuries, people looked for the spot where this battle took place.
- II. In the early 18th century, a scholar noted that a certain field in Germany yielded coins. This field was between the Weser and the Ems Rivers, in what is today northwest Germany. The land was owned by barons of the von Bar family, who had made collections of curios, all from their own estates.
 - A. Great scholarship had gone into classifying, cataloging, describing, and dating all the different issues of coinage from the Greco-Roman world. (The study of coins is *numismatics*.) In the early 1700s, one scholar

believed that this great battle had taken place near the lands of the barons von Bar, basing that belief on coins found there.

- B.** In the late 19th century, one of the greatest of all Roman historians, a German named Theodor Mommsen (1817–1903), became interested in these coins.
 - 1. He discovered that the bulk of them were from the reign of Augustus, but the last issue of gold coins that Augustus had minted in the year 13 was not represented. Further, no emperor later than Augustus was in the collection.
 - 2. Mommsen believed that the coins were associated with the battle at Teutoburg, because Roman armies traveled with war chests of money to pay the soldiers and buy supplies. What could leave hundreds of coins scattered around a field except some sort of disaster?
 - 3. Mommsen chose for the site a place called Kalkriese, pinpointing it between the lower slope of a hill and a great moor, where the road suddenly narrowed.
- C.** The matter rested with Mommsen until 1987, when a British military man named Tony Clunn was assigned to the area around Osnabrück and Kalkriese. He was an amateur archaeologist, and whenever he wasn't performing his official duties, he liked to go out in the countryside with his metal detector and look for antiquities.
 - 1. In Britain, Clunn had helped archaeologists find a Roman road; in Germany, he met Wolfgang Schlüter, the archaeologist who was in charge of that part of the Germany countryside, and explained that he was interested in looking for the long-lost battle site of the Teutoburg Forest.
 - 2. Clunn believed that the site might be near Teutoburgerwald, a modern German place name for a range of hills. Schlüter gave Clunn access to the records about the coin finds in the area and steered him toward the fields near Kalkriese and the associated hill.
 - 3. Clunn was a virtuoso at using his metal detector. In particular, he could recognize the sound when his instrument detected a coin, even if it was almost a foot below the surface. In his first sweep of the field, he found a few coins, which he collected and labeled, and of course, he marked the spots where he had found them.
 - 4. In a return trip to the field, Clunn and his children found a hoard of more than 100 Roman silver coins of the denomination denarius.
 - 5. Clunn took the material to Schlüter, who realized that the coins were evidence of some sort of remarkable event. Hoards are typically associated with troubled times, when people bury money, although no one would have had time to dig holes on the Teutoburger battlefield. However, pouches and small chests of money would surely have been lost in the chaos of battle.

III. Schlüter took over from Clunn and started the archaeological dig at the Teutoburger site.

- A.** The name Teutoburg Forest derives from the Latin word *saltus*, which is more commonly used to mean a narrows or a gap.
- B.** The discoveries made at the Teutoburger site must have surpassed Clunn's wildest dreams, even though the personal articles of the legionnaires had disappeared. We now know, after more than a decade of archaeological work, that the battlefield was spread out over miles.
- C.** One of the most important issues at Teutoburg was the German preparation of their battle site.
 - 1. The archaeologists found, on the slopes of a hill, a small mound. They then dug down and found a wall. They imagined that a palisade had probably been erected on top of the wall.
 - 2. Because the wall ran in an angular fashion, it faced in several different directions, for hundred of yards along the lower slope of the hill. Forces could have hidden behind the wall and waited until the Romans had strung themselves out along the passage before attacking from close range.
 - 3. This long wall took time to prepare and gives us a good impression of the care with which the Germans prepared for this battle. This was not a savage horde appearing out of the primeval forest and attacking a Roman army. This was a carefully planned and executed military maneuver, spearheaded by Arminius himself.
- D.** Part of the wall had fallen, and under the mass of collapsed earth, the archaeologists found some large artifacts, including a skeleton of a mule with its elaborate harness and a face mask of raw iron from a Roman cavalry officer.
 - 1. Archaeologists are divided in their opinions about the objects found under this collapsed wall.

2. One theory holds that the wall fell over by accident and buried the mule and the cavalry officer. These artifacts were left in place when the looting stripped the surface of the battlefield of everything else it could yield.
 3. Another possibility is that the artifacts represent a battlefield offering to the gods.
- E. With regard to the course of the battle, Clunn had made an interesting find. In mapping the find spots of coins, he discovered a place where the mass of finds suddenly forked, as if the great army had split in two and fleeing detachments went in opposite directions.
- F. Schlüter was also excited by the arrow-like heads, catapult bolts, that Clunn had found; these would have been used by the Roman legions. This supported a military explanation for the presence of the coins.
- IV. Out on the battlefield, the Germans left all the corpses as their victory monument. For an ancient person, not to be buried was a horrible fate, because it meant that the soul would wander unappeased for eternity.
- A. We know from historians that other Roman generals went back to the site to bury the dead. One of the people who was sent back in was Pliny, who attempted to find those who were missing in action and try to buy them back if they were captives.
- B. In returning, the Romans observed the campsite where their legions had been. The officers, including Varus, had committed suicide, leaving the men to face the Germans alone. At one point, the legionnaires had erected temporary earthworks to try to make a last stand against the Germans. Those Roman earthworks associated with the battle have not been found.
- C. German archaeologists have found the site, Kalkriese, where Germanicus, a member of the imperial family, buried the bones of the Romans who fell at Teutoburg in mass graves.
1. These graves have equine bones on top and, underneath, the disarticulated bones of young- to middle-aged males—many of them bearing wounds, even on their bones.
 2. The science of *taphonomy*, which is the study of bones after death, has shown that these bones were weathered, that they lay on the ground before they were collected and buried. More than anything else, those mass graves show that this is the spot where the main fighting of the Teutoburg Forest disaster took place.
- D. Finally, you may remember the women who were supposed to have traveled with the legions. Women’s jewelry has been found among other artifacts, scattered along a 15-kilometer corridor that led through the German countryside to this place.
- E. This archaeological effort has managed to provide discoveries that illustrate, map, or coincide with specific historical references in ancient sources in a way that has convinced most historians and students of the Classical world that the site of the disaster at Teutoburg has, indeed, been found. This identification can be attributed to the coins, the persistence of one amateur archaeologist, and the collaboration of the German archaeologists who have been working the site ever since.

Suggested Reading:

Clunn, *The Quest for the Lost Roman Legions: Discovering the Varus Battlefield*.

Wells, *The Battle That Stopped Rome: Emperor Augustus, Arminius, and the Slaughter of the Legions in the Teutoburg Forest*.

Questions to Consider:

1. What are some of the unique challenges that battle sites present to archaeologists?
2. In what ways have the discoveries at Kalkriese helped enhance or correct the historical records of the battle of the Teutoburg Forest?

Lecture Twenty-Three

Bath—Healing Waters at Aquae Sulis

Scope: In this lecture, we will move a long way, in terms of cultural experience, from the battlefield of the last lecture, to a place where the Romans went seeking healing and peace. But we still retain our interest in how these Romans, with their Mediterranean culture, tried to interface and harmonize with the different cultures they found around their boundaries in their ultimate quest to conquer the world. The site in this lecture is one of the miracles of geology that fell within the boundaries of the Roman Empire, a place called Bath, in England. If ever there was a place that deserved to be called Bath, this is it. Every day, a quarter of a million gallons of hot water bubble up from deep inside the Earth at this spot and flow into the River Avon. For thousands of years, people who were lucky enough to live near this resource enjoyed the warmth of the baths. The fact that there's sulfur in the water led the baths also to be used for medicinal purposes.

Outline

- I. We've been preoccupied with myths and, of course, a myth exists about Bath. It comes from the pages of Geoffrey of Monmouth's chronicle, written in about the year 1135 of our era.
 - A. Back in the mists of time, a Trojan named Brutus, fleeing the sack of Troy, came to the island of Britain, conquered the giants who held the island, and set up a kingdom. Thus, the kings and queens of England could trace themselves back, just as the Romans could, to the Trojans.
 - B. In time, the line descending from Brutus produced a young prince named Bladud, who was sent by his father to Athens for 11 years of study. While he was in Athens, he contracted leprosy, and he returned home a diseased man. Because he could no longer live at court, he went away to a place near the River Avon and became a swineherd.
 - C. Bladud discovered a hot spring that seemed to heal his pigs of sores; when he waded into the waters, his leprosy was also cured. He reclaimed his rightful place at court and became king of England.
 - D. This story has some points in common with another myth about the founding of Delphi. In this story, the site was discovered by a goatherd, a Greek named Koretas, who saw that when his goats got near a certain cleft in the rock, they began to bleat in a strange way. When Koretas breathed in at the same spot, he, too, began to speak in tongues. To the other herdsmen, it seemed as if Koretas was foretelling the future. We can see the connections between this myth about Delphi and the one that grew up around Bath.
- II. The water at Bath is rainwater that fell eons ago on the Mendip Hills.
 - A. The Mendip Hills are a great source of metals, including lead. The rainwater soaks down below Earth's surface, is heated, then bubbles back up through a vent at Bath—essentially recycled rainwater, coming back to the surface, with minerals from deep in the layers of limestone.
 - B. We know that Bath was of interest to people long before the Romans, but it was the Romans who built huge structures over this wonderful source of hot water. The Romans brought to Britain a tradition of public bathing, which was unusual in the ancient world.
 - C. The springs at Bath solved one of the major problems for the Romans in building their baths; heating water and air was already taken care of by nature. The bathing pool had to be located away from the springs, because these were sacred and would be polluted by bathers.
 - D. There was also an altar to a local god on which burned a mysterious everlasting fire. One of the great archaeological discoveries at Bath was lumps of coal clinker, or cinders, left behind from this burning coal.
 1. Who are the gods who presided over this altar? Again, we see a process of syncretism, in which a Roman tradition is blended with a local tradition. The Romans did not try to stamp out local worship; instead, they would adopt the local gods and include them alongside the others in their pantheon.
 2. At Bath, the Romans found a god called Sulis. In fact, their name for the place was Aquae Sulis, "the waters of Sulis." He looks to us as if he were a male god, but the Romans syncretized him with their goddess Minerva. Thus, Sulis Minerva became the presiding deity at Bath.
 3. In 1727, workmen in Bath, digging a sewer on Stall Street, found a life-size gilded bronze head of Sulis Minerva herself, probably the actual head of the cult statue that would have been in the grand

temple at Bath. Archaeologists now know that this temple had a façade of four 25-foot-tall Corinthian columns holding up the pediment—one of the grandest buildings in western England.

- III.** At about the same time that statue's head was found at Bath, a remarkable Englishman named John Wood came from Yorkshire to try to develop the area. He sponsored renewal of the baths and new building projects. With all this activity, the archaeology of Bath was born.
- A.** Certain things had never been lost to sight, including inscriptions from Roman tombstones that had been reused around the walls of the spa.
 - B.** In 1738, at a site Wood was developing to be a hospital for visitors to come and take the chemical waters, he found a *hypocaust*, an underground heating system, of a Roman bath.
 - 1.** Roman baths had three parts: the *caldarium* (the hot bath), the *tepidarium* (the tepid bath), and the *frigidarium* (the cold plunge). The rooms, as well as the water, had to be maintained at the proper temperatures. In order to heat the *caldarium* and the *tepidarium*, the Romans needed hot air circulating under the floor.
 - 2.** They would make small stacks of square tiles, place them close together on a floor, then cover them with a raised floor of larger tiles. Hot air would flow from the furnaces through that area and keep the whole floor warm.
 - 3.** Wood found this arrangement and knew what it was. He also found a beautiful geometric mosaic and did a drawing of it. In this way, English archaeology got its start at about the same time as Classical archaeology.
 - C.** Wood's goal was to make Bath look like Rome. He thought there should be an arena and a hippodrome. He used the different orders—the Ionic, the Corinthian—for columns. The overall impression of Bath today is a little strange; visitors can see groups of buildings in pale yellow local stone, looking as if they were transported from downtown Rome but with 18th-century chimney pots for heating.
 - D.** As the workmen associated with Wood and other developers cleared out one area, they discovered the old Roman bath, a swimming-pool-sized area into which water from the sacred spring had been led through a series of channels and pipes.
 - 1.** Incredibly, the bath still had its lining of gigantic lead sheets, made of lead brought from the Mendip Hill mines.
 - 2.** The lead was used to keep cold groundwater from seeping into the bath and lowering the temperature of the hot water from the spring.
- IV.** To do archaeological work in Bath, it was necessary to tunnel under the streets, because modern Bath is itself a historic landmark.
- A.** The chief archaeologist who became interested in Bath was Barry Cunliffe, currently a professor of archaeology at Oxford. He was intrigued by cultures and the question of the interface between the Romans and the people they met on the periphery of their world.
 - B.** Cunliffe faced the challenge of excavating under Bath's modern streets, typically not going down from above but extending out from the exposed bath. What he and his team did was remarkable, recovering two gigantic complexes that show the extraordinary scale of the bath.
 - C.** In fact, so huge are the bath and the complexes associated with it and so humble is the town around it that it's possible Bath was more in the category of sacred healing sanctuaries, such as Epidaurus in Greece. Treatment centers, places of worship, places of entertainment, and guesthouses were probably established to deal with the flood of wealthy pilgrims to Bath.
 - D.** We now have an inscription left behind by one such grateful visitor. He was a man, possibly a military man, who had served at Trier in Germany and left an inscription thanking the gods. His name was Peregrinos, which means the pilgrim.
- V.** The bath itself introduces us to a side of Roman technology that we have neglected: their mastery in using concrete. Roman engineers created bathing complexes in which water was carefully controlled, fire was introduced to heat the water and air, and air was moved, not just under the floor, but in flues up through the walls so that the whole structure could be maintained at a certain temperature.

- A. One of the most interesting projects in trying to understand this technology was carried out in 1998, when the television program *NOVA* asked an eminent Turkish archaeologist, Fikret Yegul, to reconstruct a Roman bath in Turkey near the site of one that had been discovered.
 - B. Yegul and his team—probably thinking that the task would be fairly easy given that the remains of the bath were all around them—attempted to build the bath, in just a couple of months, using local labor, including people who mixed cement by hand.
 - C. The team ran into problems and decisions at every turn. They had to figure out the course of the hot air through the system. How hot did the air need to be kept? How hot did the furnace have to be? How much wood had to be burned to keep the bath going?
 - D. Yegul’s experimental archaeology showed just how complicated these baths were. Fortunately at Bath in England, we have the remains of all the bits and pieces of Roman engineering—pipes, sluices, fittings of brass, tubes of wood, tubes of lead—all linking the system from the natural furnace, that incredible sacred spring itself.
 - E. The Romans had lined the spring in an irregular way so that there was a stone facing around it and a frame. They had also placed stone plinths in the water, and Cunliffe believes that statues would have been on these plinths, rising up out of the water. Visitors would have seen the steam rising around these statues of spirits or gods. The springs were not a place for bathing, but they were a place for sacrifice.
 - 1. In the sacred spring at Bath were found 10,000 Roman coins, mostly of small denominations. Some of the 1st-century coins were uncirculated. They must have come out of the pockets of soldiers who had just gotten their pay and had thrown a coin into the water.
 - 2. Here, at least, we can see a religious belief system that has some explanation for an otherwise strange urge that persists to this day: The water is sacred; it is the domain of deities. If you foul the water, they will pursue you, but if you bless the water by making an offering to it, you will get something of value in return.
 - 3. Mixed in with the mass of coins was something a little less pleasant but equally illuminating about popular culture in the Roman period: curse tablets.
 - 4. The curse tablets at Aquae Sulis are a wonderful and varied collection. Some of them give the name of the person who is pronouncing the curse, the deities called on to carry out the curse, who is to be cursed, and what exactly should be done.
 - 5. One fellow whose purse was stolen calls down curses on the person who took it and asks for a revelation of the name. He writes at the end, “whether pagan or Christian.”
- VI. Bath is interesting to us as archaeologists both because it represents the desire to Romanize the world and because it persisted as part of daily life, with the Roman material ultimately crumbling away, and later Saxon, Norman, and English additions and changes built on top of it.
- A. When the great bath itself was at its height, visiting the site would have been like entering a Roman hall of justice. A basilica surrounded the big pool, with rows of columns and curved apses at either end. Visitors must have felt as if they were in a little bit of the empire, just to be in that building. At the same time, as I said, daily life went on, and the Roman material was replaced by later additions.
 - B. One of the most extraordinary testaments that we have from the Middle Ages comes from Bath, expressing the wonderment with which the people of medieval Europe looked back at the Classical world through the ruins of the buildings surrounding them.
 - C. We’ll close with this passage, written in Latin by a monk who may have been at Bath Abbey. This piece is called “The Ruin,” and it’s only a fragment, but it’s one of the most evocative pieces of writing I know for giving us a sense of the spirit of archaeological inquiry already present in medieval England.

Suggested Reading:

Cunliffe, *Roman Bath Discovered*.
 Rook, *Roman Baths in Britain*.

Questions to Consider:

1. What specific pattern of artifact deposit at Bath reflects the Roman attitudes toward spring water?
2. How different was Roman Bath from its 18th-century successor spa on the same spot?

Lecture Twenty-Four

Torre de Palma—A Farm in the Far West

Scope: This is the last lecture in the second part of our course on Classical archaeology, in which we have looked at 12 case studies of amazing sites or discoveries that have helped us piece together different aspects of the ancient world. We've been to a battle site, a spa and healing center, ports, and cities that were buried under volcanoes, among other places. In this lecture, we'll close our tour of these sites with a place that was probably more typical of the daily experience of most ancient people than any other: a farm.

This is a special kind of farm called by the Romans a *latifundia* ("wide and deep"). It's an immense country estate that is not only a subsistence farm producing food for the farmer's family and slaves but also a place where immense fortunes are made through cash crops. These crops may be wheat, olives, grapes, livestock—even fish were sometimes farmed by the Romans up and down the coast of Italy. The site we will focus on in this lecture, Torre de Palma, the "Tower of the Palm," is in the westernmost province of the mainland of the Roman Empire—Lusitania—which lies in modern Portugal.

Outline

- I. Let's begin by briefly revisiting the Teutoburg battle site.
 - A. Tony Clunn, who found the coins there, also found some objects that were related to a special branch of a legion, the First Cohort. This branch included specialists, such as doctors, surveyors, clerks, and administrators. Clunn's finds of artifacts from the First Cohort indicated that the entire legion was present at Teutoburg.
 - B. In the same way, the first artifact discovered at Torre de Palma implied an entire Roman villa. In 1947, a young man plowing a field at Torre de Palma uncovered the top of a Roman column drum still in its place. With his fellow workers, he dug down and found that the column piece was sitting on a mosaic floor.
 - C. As the men worked their way across the mosaic, figures started to appear: nine women in robes, each of them carrying an attribute, a mask of comedy or tragedy, a globe, or a musical instrument. The plow team realized that they'd discovered something important; mosaics of this type were found in Roman villas of the wealthy.
 - D. We now know that the workers were in a dining room, but they had also found an artifact that, in itself, implied something much larger: the rest of the *villa urbana*—the landowner's house for his family—and the whole of the *villa rustica*—all the barns and sheds, the olive press, the wine press, the servants' quarters, the granaries, and so on.
 - E. Inscriptions on the mosaic were read by a local schoolmaster, who, of course, identified the women as the nine muses. Another inscription was obviously meant for the servants cleaning the house; it read: "Please do not deface this mosaic by using a hard broom."
 - F. The landowner asked the team to spend some time exploring the field to determine the limits of the great house. In fact, it was a huge spread of buildings that covered about seven acres. The landowner then donated the land to the state as an archaeological park.
- II. The Villa of Torre de Palma immediately became famous for its mosaics, more of which were found. Nothing, however, surpassed the beautiful multicolored muses.
 - A. The muses were found in the entranceway to a vast dining room, where guests would have reclined on couches, with a space in the middle for entertainers and for the serving staff to move around and bring food. There was a well-worn path from the door where the muses were found across this internal hallway to the kitchen.
 - B. Also at Torre de Palma were a number of rooms around an open, square courtyard that had the *impluvium*, a tank of water, in the middle and probably a garden around it, with colonnades all around. Many of these rooms had more mosaics in them, illustrating mythological subjects.

1. Theseus was shown, killing the Minotaur from the labyrinth, a legend that was already ancient to the Romans at the time the mosaic was installed.
 2. There was a scene showing Bacchus, the god of wine, in a chariot drawn by panthers. He had a young man beside him who was probably Luces, the legendary companion of Bacchus. In Greek and Roman mythology, Luces is supposed to have given his name to Lusitania, the province that ultimately became modern Portugal.
 3. In some rooms, the tile patterns in the mosaics looked like ornamental carpets, with flowers, stars, and geometric shapes. The square walkway under the colonnades around the central courtyard had black and white motifs.
 4. One of the wonderful discoveries was the mosaic in a hallway that we think led to the master's study or receiving area. The mosaic in this hallway depicts five portraits of stallions with their names on scrolls. Some of these names are related to wine; along with Bacchus, that is a clue that the farm produced grapes and wine.
 - a. We also know from the palm branches on the heads of these horses that they were winners. It's possible that they were the pride of a stud farm and a reminder to visitors that they were the source of the master's power.
 - b. Interestingly, the stud farm of the Portuguese kings was not far from this villa, and the horses, the modern Lusitanians, look just the same as the Roman horses on the mosaics, similar to the modern Morgan horse.
- C. Many of the mosaics were lifted from their places and taken to the National Museum in Lisbon to be conserved and displayed.
- III. The archaeologists also worked their way through the rooms, not only of the *villa urbana*, but also of the *villa rustica*.
- A. In the *villa rustica*, archaeologists put together the largest collection of Roman iron agricultural implements ever assembled, many of which are duplicated in the modern Portuguese countryside. The forms of agriculture and the agricultural technology there have not changed significantly in 2,000 years.
 - B. Torre de Palma stood at the head of a whole class of villas, great establishments in the Roman countryside, that were intended for both cash-crop and subsistence farming. Further, as we now know, these villas were centers of production for many other goods, including roof tiles and domestic pottery, items of metal and wood, and cloth.
 - C. The *villa urbana*, a beautiful country house for the wealthy, gives us our modern definition of the term *villa*. The *villa rustica* appears in French *ville*, meaning "town." After the collapse of central authority and the western Roman Empire, this type of settlement became a magnet for people who found cities too dangerous because they were targets for looters and armies. These small estates in the country, lost in the hills and fields, offered a place for people to gather, carry out subsistence agriculture, and keep the flame of existence alive.
 - D. One of the most interesting structures found at Torre de Palma was a basilica on the north side. We saw the basilica form in Bath alongside the great pool: the two rows of columns, the grand central aisle, the apses at either end, and side aisles beyond the columns in a long, rectangular building.
 1. This basilica was a Christian church; we know this because it was surrounded by cemeteries, and tombs were found inside. To a Roman or Greek, it would have been unthinkable to have the polluting force of a dead body inside a holy structure.
 2. In the 1970s, an American art historian from the University of Louisville, Dr. Stephanie Maloney, was shown the site and launched a project that ultimately involved two decades of work by archaeologists (including myself) and other specialists.
 3. We have all returned to Torre de Palma, summer after summer, to try to understand the full range of life in this extraordinary Roman agricultural complex.
- IV. Since about 1983, Dr. Maloney and our team have made some remarkable finds.
- A. The original altar in the church was located where, at one time, was a table used to serve a meal. It stood clear of the walls under a canopy. In early Christian times, people would have gathered around the table as at a family feast.

1. Dr. Maloney could see where the legs had been that supported either the canopy or the table itself. In excavating under that area, she hoped to find some of the oldest parts of this basilica.
 2. The thinking at the time was that this church was not a Roman structure but a revival of a Roman plan erected by Visigoths (Germans) at the end of the 5th century A.D. The Visigoths were Aryan Christians.
 3. In 1983, Dr. Maloney's excavators found a handful of Roman coins directly under the altar. These coins were of great interest because they were from the mid-4th century, the time of Constantius II, a rabidly Christian emperor and the son of Constantine the Great.
 4. The coins were probably tossed into the plaster by the building crew, a custom that is still followed by workers around the world whenever a first load of cement is poured in a new building.
 5. The coins seem to date this basilica, not to the Visigothic period, but to the time of the Roman Empire itself.
- B.** The date of the structure, around A.D. 350–360, has some other important implications. The date was confirmed by a team of scholars who joined the project from Scandinavia, led by Dr. Asa Ringbom, an art historian and a member of a group working to perfect a radiocarbon dating method.
1. This dating method involves analyzing chunks of plaster, mortar, and concrete in an accelerator mass spectrometer to determine how much radioactive carbon-14 they absorbed from the atmosphere when the material was still wet and hardening.
 2. Dr. Ringbom and her team have determined that the area under the altar dated from the 4th century, but many of the walls were from the Visigothic period. The building had obviously been expanded and enlarged over a period of centuries.
 3. The olive press building was also found to date from about the mid-4th century. It's possible that as the landowners became Christian, raising racehorses no longer seemed appropriate; thus, they turned to olive oil production.
- V.** This interest in the horses takes us to a nearby city, Mérida, which is across the border in Spain today but was the capital of Lusitania. It had a hippodrome that was set up at the time of Agrippa.
- A.** The people from our farm would have followed the Roman road through the countryside across the bridges and taken their livestock to Mérida during the time of the High Roman Empire.
 - B.** With the growth of Christianity, Mérida became a center of pilgrimage, focused on a young girl, Eulalia, who was martyred there by Roman troops. The site of this girl's tomb, rather than the racetrack, would have become the attraction for people traveling from the countryside to Mérida at the beginning of the Christian age.
 - C.** We can also see, in the artifacts of the villa, the change in attitude manifested at the end of the Roman world. An original altar dedicated to Mars was found thrown into a field, and its place was taken by the Christian church.
- VI.** Let us conclude by returning to the mosaic we discussed at the beginning of the lecture.
- A.** This mosaic is worthy of a palace in Rome. It was probably installed in the 3rd or even the 4th century A.D., at a time when the Roman Empire itself and its cities were beginning to decline. Wealthy people were fleeing the cities and establishing themselves on country estates.
 - B.** This same pattern of settlement has pulled much of the life out of American cities today, and it had equally disastrous results for the Roman Empire.
 - C.** We see here, in microcosm at this farm, shifts in settlement patterns, shifts in economics, and shifts in religious faith that can give us a picture of what was to come for the entire Classical world.

Suggested Reading:

De la Bedoyere, *Roman Villas and the Countryside*.

Maloney and Hale, "The Villa of Torre de Palma (Alto Alentejo)," *Journal of Roman Archaeology*, 1996.

Questions to Consider:

1. How much can a remote provincial farm reveal about the workings of the Roman Empire and its economy?
2. What might account for the trajectory of wealth and new building at a villa like Torre de Palma, which seems almost an inverse of the fortunes of Rome and other urban centers in the empire?

Glossary

Absolute chronology: A sequence of dates fixed to specific calendar years and based on historical records.

A.D./B.C. dates: These designations indicate the era of a year number or century. Traditionally, *A.D.* was derived from the Latin “*anno domini*” and was written before the year number; the designation could not correctly be ascribed to centuries. In this course, both A.D. and B.C. are used following both annual dates and centuries, with A.D. an abbreviation for “advancing dates” and B.C. an abbreviation for “backward count.”

These same eras are sometimes labeled C.E., or Common Era (= A.D.), and B.C.E. (= B.C.). However, that system is *not* universally “common”; the duplication of *C.E.* in *B.C.E.* can create confusion in speaking and in field notes, and the discrepancy in the number of letters (two for C.E., three for B.C.E.) is cumbersome when creating computer programs with coded fields for entering dates.

Adyton: The holy inner sanctum of a Greek temple; literally, the “no entry” chamber.

Aerial reconnaissance: A survey carried out from aircraft or balloons that can reveal features on the ground that are obscured or invisible to people on the surface.

Agora: The open area in the heart of a Greek city, serving as a government, religious, and commercial center.

Alphabet: A script originating among Canaanite peoples in which a couple of dozen signs contrive to represent the sounds of any language. The original alphabet represented only consonants; the Greeks added vowels.

Amber: Golden lumps of fossilized tree resin, highly prized in the Classical world and sometimes imported from as far away as the Baltic.

Amphitheatre: A place of public entertainment in the form of a “double theatre,” in which an enclosed circle or oval of tiered seats surrounded a central arena. Modern usage departs from the ancient meaning, by calling any open-air theatre an amphitheatre.

Amphora: A transport container for wine, olive oil, or other comestibles, almost always pottery, with a distinctive pointed foot. The name derives from the pair of handles on either side of the neck, which allow the pot to be “carried on both sides.”

Archaeology: The scientific and humanistic discipline of recovering, analyzing, and interpreting the physical remains of past cultures.

Artifact: Any object made by human agency, as opposed to a *geofact*, made by natural processes.

“Black Athena”: A scholarly controversy launched by philologist Martin Bernal, who asserts that the Classical world owed much of its intellectual achievement to cultural borrowings and innovations originating in Egypt and the Near East.

Bronze Age: The middle period in the Old World’s three-age system (Stone Age, Bronze Age, Iron Age), when the dominant material used for tools and weapons was bronze—an alloy of nine parts copper and one part tin. The famous Bronze Age civilization of the Mycenaeans began to give way to the Iron Age in about 1200 B.C.

Chronometric chronology: A system of dating based on the measurement of natural processes at the atomic or molecular level, as in radiocarbon dating and thermoluminescence.

Chryselephantine: Made of gold and ivory, as were Phidias’s great 5th-century-B.C. sculptures of Athena in the Parthenon at Athens and Zeus at Olympia.

Classical: Derived from the Latin root for “order” (as in modern English *classify*), the term has taken on a life of its own to describe styles or periods that seem to set a pattern for subsequent ages. In this course, it is used of the Greco-Roman culture that arose in the early Iron Age and lasted for about a millennium and a half, down to the collapse of the western Roman Empire.

Crop mark: A variation in the growth of wheat or other field crops, usually only visible through aerial reconnaissance and often indicative of stone walls or other remains below the surface.

Curse tablet: A magical object, usually of lead, on which a secret prayer for harm or destruction was inscribed. The tablet was then deposited in a sacred place or at a spot where it was hoped that the magical spell would take effect.

Dark Age: Modern designation for a period of history in which such civilized attainments as writing, engineering, and sophisticated urban life are reduced or disappear. The Classical world emerged from the Dark Age that followed the collapse of the Bronze Age kingdoms in about 1200 B.C. and was submerged into the Dark Age of early medieval Europe.

Daybooks: The written records that record the excavations and discoveries on an archaeological site; a sort of journal or “site diary.” The maintenance of daybooks by Alcubierre and Weber at Herculaneum and Pompeii marked the beginning of archaeology as a discipline.

Dendrochronology: A natural system of dating that can be exact to a specific year, thanks to the unique sequences of annual rings that mark variable rainfall and other conditions during each year of a tree’s growth. A dendrochronological sequence must be established region by region; some now extend more than 6,000 years into the past.

Elgin Marbles: The statues and reliefs from 5th-century-B.C. Athens that originally formed part of the pediments, friezes, and metopes of the Parthenon. Their removal from the Parthenon by Lord Elgin, who shipped them to England and ultimately placed them in the British Museum, has been a source of controversy from the first.

Epigraphy: The study of ancient inscriptions.

Etruscan civilization: A sophisticated urban culture of central Italy that preceded and helped shape Roman civilization. Best known from the art in their tombs, the Etruscans spoke a non-Indo-European language that has still not been deciphered.

Experimental archaeology: The field of recreating ancient artifacts or structures and performing trials to test their use, performance, or properties.

Forum: The open area at the heart of a Roman city, equivalent to the Greek *agora*, where governmental, religious, and commercial activities took place.

Fresco: An artistic technique first appearing in the Cycladic and Minoan cultures, in which pigments are applied to plaster while it is still wet or “fresh.”

Graffito: Literally “little writing” and more familiar in the plural form, *graffiti*. A graffito is a short piece of informal writing scratched or painted onto a surface that was not originally intended to receive it, such as a house wall or a potsherd.

Ground-penetrating radar: A survey technique in which a box containing a radar transmitter is dragged across a site, and measurements are recorded of the depth at which a hard object (bedrock, a wall, a buried beach) bounces the radar back to the receiver.

House church: The oldest places of Christian worship, found as far apart as Carthage in Tunisia and Dura on the Euphrates, in which the enclosed, courtyard-centered design of the typical Classical home provided a secret place of worship for this banned religion.

Hypocaust: The most typical feature of a Roman bath, composed of close-set stacks of tiles that supported a raised concrete floor and allowed hot air to circulate beneath.

Inhumation: A form of burial in which the entire corpse is buried, as opposed to the more popular rite of *cremation* (burning of the body) or *excarnation* (burial of the disarticulated bones after the flesh has been removed).

Iron Age: An age that is technically still with us, given that most of our tools and weapons are made of steel, but the term is used by Classical archaeologists to designate only the early centuries in which iron-using spread throughout the Mediterranean.

Krater: A large vessel with a wide mouth in which wine was mixed with water before serving at a symposium or banquet.

Latifundia: A Roman villa, farm, or country estate of enormous size, “wide” and “deep” as its name indicates, and generally devoted to commercial mass production of a few varieties of crop or livestock.

Lerici periscope: A reconnaissance device for viewing the contents of buried tombs and sealed chambers before opening them.

Linear B script: The late Bronze Age writing system used at Knossos on Crete and at such sites as Pylos, Mycenae, and Thebes on the Greek mainland. Michael Ventris demonstrated that the Linear B signs represented syllables (consonant plus vowel) and that the language of the tablets was Greek.

Lost-wax casting: A technique for casting bronze and other metals, in which wax that has been encased in a clay matrix is first melted out, then replaced with a flow of molten bronze. The clay core sometimes remains inside the finished piece.

Magnetometer: A device that can measure the degree of magnetism of a buried or submerged object, especially but not exclusively where iron is present. It can also distinguish magnetically charged soil types, such as certain clays.

Minoan civilization: The name coined by Arthur Evans as a label for the advanced Bronze Age culture of Crete, typified by palaces at Knossos and elsewhere and deriving from the name of the mythical Cretan king Minos.

Mithraeum: A subterranean chamber consecrated to the religious rituals of followers of the Eastern god Mithras, a power of light whose triumph over darkness was symbolized in the sacrifice of a bull. This popular religion was widespread throughout the Roman Empire, particularly among soldiers.

Mosaic: A pavement (or, less commonly, a wall or ceiling decoration) in which small square pieces of stone, tile, or glass—*tesserae*—are cemented together. Most mosaics use *tesserae* of different colors to create a pattern or picture.

Mycenaean civilization: The Bronze Age culture that developed on the Greek mainland at such sites as Mycenae, Tiryns, Pylos, Athens, and Thebes, then spread to Knossos and elsewhere. Associated with the legend of the Trojan War, the Mycenaeans established wide trading or colonizing contacts in Sicily and southern Italy, as well as on the Mediterranean coasts of Asia.

Obsidian: A volcanic glass, usually black, that can be traced back to its source and, thus, provides archaeologists with evidence of ancient trade routes.

Oracle: A site where public divination was practiced and where it was believed that one could receive guidance directly from the gods.

Ostrakon: A potsherd and, more specifically, a sherd bearing a graffito or inscription. The casting of votes to exile dangerous citizens in Athens was performed with names written on *ostraka*, hence our word *ostracism*.

Oxhide ingot: A large flat casting of metal—usually copper or bronze—with a pair of projecting handles or “legs” at either end to facilitate carrying. These ingots are important parts of Bronze Age cargoes in the eastern Mediterranean.

Palynology: The study of plant pollens, used in archaeological research to reconstruct the living environment in and around an ancient site or the plant-derived contents that survive as residues in ancient pots and other containers.

Papyrus: The ancestor of modern paper, invented and manufactured in Egypt from the fibrous stems of a river plant and much used throughout the Mediterranean as a medium for written texts and records. Unfortunately, papyrus does not normally survive under humid conditions.

Physical anthropology: The study of human remains, important to archaeology for providing information about demography, health, age at death, and life histories of ancient individuals and populations.

Pompeii premise: A term coined by American archaeologist Lewis Binford to describe the naïve supposition that an archaeological site can reveal a single moment of the past, frozen in time and perfectly preserved.

Pozzolana: A volcanic deposit, occurring naturally in the Bay of Naples and surrounding areas, that can be used in place of sand to create mortar or concrete that will “set up” even underwater.

Radiocarbon dating: A chronometric system developed by Willard Libby that determines the age of an artifact or sample based on the amount of radioactive carbon-14 that it contains. Radiocarbon is found in most living things, but the amount is steadily reduced after death in accordance with a half-life of 5,730 years.

Relative chronology: A chronology based on stratigraphic sequences or typological series that reveals “earlier-than” and “later-than” relationships between structures, layers, or artifacts but does not assign exact dates.

Resistivity meter: A survey technique that identifies buried remains based on their varying ability to transmit (e.g., wet soil) or resist (e.g., stone walls) electrical impulses passing along a row of metal rods set in the ground.

Scuba: An invention by a French team that included Jacques Cousteau, this “self-contained underwater breathing apparatus,” with its mouth-held regulator attached to tanks of compressed gas or air, opened up shipwrecks and other submerged sites to archaeological investigation. Because of safety issues involving decompression, scuba is most useful on sites lying in less than 150 feet of water.

Sherd: A broken piece of a pot, tile, brick, or other ceramic object and the most commonly encountered artifact type at most Classical sites. Sherds can reveal the shape and function of the original piece, its place of manufacture, and its date.

Sidescan sonar: A reconnaissance technique for locating anomalies projecting from the sea floor, sidescan sonar relies on echoes bounced back to a receiver from sound waves broadcast obliquely on either side of a research vessel.

Stratigraphy: The recording and reading of layers that have accumulated on an archaeological site.

Syllabary: A writing system, such as Linear B, that uses symbols to record consonant-plus-vowel combinations. Syllabaries require more symbols than alphabets but fewer than hieroglyphic or ideogram-based scripts.

Tell: An artificial hill or mound that is composed of layer upon layer of cities or other human habitations. Tells form in the eastern Mediterranean and the Near East, where prevailingly dry conditions and scarcity of fuel for the baking of bricks encourages construction based on mudbrick, rammed earth, or adobe. The most important tell in the realm of Classical archaeology was Hissarlik, identified with Homer's Troy.

Teredo: Mistakenly called a "ship worm," this marine organism is actually a mollusk that uses its razor-sharp residual shell to bore holes in wood. Thanks to the relentless activity of the teredo, most wooden parts of ancient shipwrecks have been destroyed, except in cases where they were sealed away from attack by an overburden of mud, sand, ballast, or solid cargo.

Thermoluminescence: A chronometric method of dating ceramic objects that have been fired rather than merely dried, this process reheats the sample to firing temperature and measures the amount of energy stored in the clay since the original firing. Thermoluminescence dates tend to have a fairly wide margin of error, and the method is most used by Classical archaeologists to distinguish genuine ancient pottery from fakes.

Thermopolium: A type of sidewalk shop popular in Pompeii, where food, including hot, ready-to-eat food, was sold from pots set in a counter, and patrons could socialize around the counter in the open shop front as at a bar.

Trace elements: Impurities found in ancient stone, metal, clay, and bone that allow chemists to identify the geographical source of the sample.

Trireme: A type of oared ship with a bronze ram, much used in Greek and Roman fleets. Attempts to reconstruct the three-level arrangement of the oars have featured in the field of experimental archaeology since its 19th-century inception. No part of any trireme's wooden hull has yet been recovered by archaeologists.

Villa: In its simplest original sense, a villa was a Roman farm. Large villas were called *latifundiae*. The cluster of buildings on a typical Roman farm included a *villa urbana* for the landowner and his family and *villa rustica* for the workers and the agricultural functions. The term *villa* was later extended to describe private seaside establishments or country retreats for wealthy citizens.

Biographical Notes

Alcubierre, Roque Joaquín (1702–1780). Spanish military engineer who directed the first archaeological campaigns at Herculaneum starting in 1738 and at Pompeii a decade later. He is notable for keeping daybooks and creating the oldest surviving scientific archaeological illustration: a plan and cross-section of the theatre at Herculaneum, indicating different phases of excavation, find spots of various artifacts, and the layering of volcanic deposits on top of the ruins.

Andronikos, Manolis (1919–1992). Greek archaeologist most famous for his excavations at the royal Macedonian cemetery of Vergina. Andronikos also worked on early Iron Age remains at Vergina and other sites in northern Greece.

Bass, George. American archaeologist who, in 1960 at Cape Gelidonya, directed the first excavation of a shipwreck that met fully scientific standards for archaeological fieldwork and publication. He subsequently founded the Institute of Nautical Archaeology.

Blegen, Carl (1887–1971). American archaeologist who discovered and excavated the Bronze Age palace at Pylos in southwestern Greece.

Boyd, Harriet (1871–1945). American archaeologist who excavated the Bronze Age town of Gournia in eastern Crete.

Calvert, Frank (1828–1908). British diplomat and archaeologist who devoted his life to research in the Troad region of northwestern Turkey. His test trenches in the tell at Hissarlik convinced him and, soon after, Heinrich Schliemann, also, that Calvert had found the site of Homer's Troy.

Camp, John M. American archaeologist and director of excavations in the Athenian Agora.

Curtius, Ernst (1814–1896). German archeologist who established important precedents for fieldwork during his excavations at Olympia in Greece.

Dörpfeld, Wilhelm (1853–1940). German archaeologist whose wide-ranging career began at Olympia and included work with Schliemann at Hissarlik.

Elgin, Lord (Thomas Bruce) (1766–1841). British ambassador to Constantinople in 1799, known for his removal of marble statues and reliefs from the Parthenon in Athens to the British Museum in London.

Evans, Sir Arthur (1851–1941). British archaeologist whose excavations at Knossos in Crete spanned 40 years and added the term *Minoan* to the vocabulary of Classical studies.

Fiorelli, Giuseppe (1823–1896). Italian archaeologist who was appointed by Garibaldi as director of excavations at Pompeii. He provided the site with the system of area designations that is still in use and pioneered the use of plaster poured into hollow cavities to recover casts of ancient Pompeians who had died during the eruption of Vesuvius.

Frost, Honor. British underwater archaeologist who has conducted fieldwork throughout the Mediterranean, from Sicily to Alexandria, and published important studies of ancient stone anchors.

Hamilton, Sir William (1730–1803). British envoy to Naples and a scholar who used his time in Italy to study vulcanology and amass an immense collection of Greek and Etruscan vases.

Hohlfelder, Robert. American underwater archaeologist specializing in Roman harbor construction from Cosa in Italy to Caesarea Maritima; one of his particular interests is in the properties of Roman hydraulic concrete.

Kuniholm, Peter. American archaeologist and founder of the Aegean Dendrochronology Project.

Marinatos, Spyridon (1901–1974). Greek archaeologist known for excavations at the Bronze Age site of Akrotiri on the volcanic island of Santorini (Thera).

Pulak, Cemal. Turkish underwater archaeologist who directed the excavation of the Bronze Age shipwreck at Uluburun.

Schliemann, Heinrich (1822–1890). German tycoon and archaeological enthusiast, famous for his claim to have discovered Homer's city of Troy in the tell at Hissarlik. His explorations and books opened up the field of Bronze Age archaeology in Greece and the Aegean.

Thucydides (c. 460–404 B.C.). Athenian historian of the Peloponnesian War and the first writer to use the term and the concept of *archaeology*.

Tsountas, Christos (1857–1934). Greek archaeologist who conducted pioneering work in the fields of prehistory at Sesklo and underwater survey at Salamis but is best known for his work at Mycenae.

Ventris, Michael (1922–1956). British architect who deciphered the Linear B script of Bronze Age Crete and Greece and determined that the language was Greek.

Ward, Cheryl. American underwater archaeologist and paleobotanist who has done pioneering work in the study of wood and plant remains in ancient wrecks and their cargoes.

Weber, Karl Johann (1712–1764). Swiss military engineer who directed excavations at Herculaneum and Pompeii from 1749 until his death. His plans and reconstructions of the Villa of the Papyri, the House of Julia Felix, and the entire landscape of the Bay of Naples set a high standard for archaeological recording and illustration.

Wheeler, Sir Mortimer (1890–1976). British archaeologist who championed more rigorous methods of fieldwork in a series of excavations at Roman sites in Britain and an ancient warehouse full of Roman pottery in southern India.

Winckelmann, Johann Joachim (1717–1768). Prussian scholar whose publications on the history of Greek and Roman art transformed the field into an academic discipline and established a chronology still followed today.

**Classical Archaeology of
Ancient Greece and Rome**
Part III: A View from the Trenches
Professor John R. Hale



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John R. Hale, Ph.D.

Director of Liberal Studies, University of Louisville

John R. Hale, Director of Liberal Studies at the University of Louisville in Kentucky, is an archaeologist with fieldwork experience in England, Scandinavia, Portugal, Greece, and Turkey, as well as in the Ohio River valley. At the University of Louisville, Dr. Hale teaches introductory courses on archaeology, as well as more specialized courses on the Bronze Age, the ancient Greeks, the Roman world, Celtic cultures, Vikings, and on nautical and underwater archaeology. He has received awards for distinguished teaching, including the Panhellenic Teacher of the Year Award and the Delphi Center Award. He has toured the United States and Canada as a lecturer for the Archaeological Institute of America and has presented lecture series at museums and universities in Finland, South Africa, Australia, and New Zealand.

Archaeology has been the focus of Dr. Hale's academic career from his B.A. studies at Yale University to his doctoral research at Cambridge University in England, where he received his Ph.D. degree. The subject of his dissertation was the Bronze Age ancestry of the Viking longship, a study that involved field surveys of ship designs in prehistoric rock art in southern Norway and Sweden. During more than thirty years of archaeological work, Dr. Hale has excavated at a Romano-British town in Lincolnshire and a Roman villa in Portugal and carried out interdisciplinary studies of ancient oracle sites in Greece and Turkey, including the famous Delphic Oracle. Currently he is participating in an undersea search in Greek waters for lost fleets from the time of the Persian Wars. In addition, Dr. Hale is a member of a scientific team seeking to develop and refine a method for dating mortar, concrete, and plaster from ancient buildings—a method employing radiocarbon analysis with an Accelerator Mass Spectrometer.

Most of Dr. Hale's work is interdisciplinary and involves collaborations with geologists, chemists, nuclear physicists, historians, zoologists, botanists, physical anthropologists, geographers, and art historians. He has published his work in *Antiquity*, the *Journal of Roman Archaeology*, the *Classical Bulletin*, and *Scientific American*. He has written a book on the ancient Athenian navy, *Lords of the Sea*, for Viking/Penguin (2006).

Beyond archaeology, Dr. Hale's interests include rowing and music. A veteran of the Yale-Harvard boat race (the oldest intercollegiate sporting event in America!), he was a founder of the Louisville Rowing Club. Dr. Hale also serves as director of education for the Louisville Bach Society.

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Classical Archaeology of Ancient Greece and Rome

Scope:

The field of archaeology, which today covers all periods of the human past in all parts of the world, began as an investigation into the lost civilizations of Greece and Rome. The discipline takes its name from two Greek words meaning “ancient things” and “studies.” Archaeology may be defined as the study of cultures through their material remains. Those remains may range in size from a grain of pollen in a wine jar to an entire buried city.

“Classical” archaeologists are researchers who continue the quest for an understanding of Greek and Roman antiquity. Although their discoveries include written records on clay tablets or papyrus scrolls, classical archaeologists devote most of their efforts to locating, recovering, and interpreting the seemingly mute remains of ancient sites—marble and mudbrick, bronze and concrete, industrial debris and great works of art, grave goods, cargoes lost at sea, pottery, coins, bones, and the very dirt that encloses them all.

What can you expect to learn from this course? By the end of the 36th lecture, you should have a clear idea of the scope of the field and of the methods that archaeologists use to find, map, and excavate ancient sites. You should be able to follow the process of conserving and restoring artifacts and understand the laboratory methods used to determine the age and provenance of artifacts and materials. Your “archaeological literacy” should embrace the accomplishments of pioneers in the field, the locations of important sites, and the archaeological terms for different time periods, cultures, and classes of artifacts. You should grasp the archaeological evidence relating to myths and legends and to historical events ranging from the trial of Socrates to the massacre of a Roman army. And you should see that no area of Classical archaeology is exempt from controversy, conflict of opinion, and a residue of doubt, uncertainty, and enduring mystery.

Above all, my hope is that this course will enable you to view the world of the Greeks and Romans, not as a sequence of historical events, but as an immense living organism, a system in which society, culture, and the natural environment interact in dynamic, creative, and sometime destructive ways. Out of this matrix came major religious, political, and philosophical concepts that continue to influence modern thought. As for the rich historical record of ancient literature and inscriptions, we are fortunate that these texts allow us to put names and faces to the long-dead individuals who participated in this extraordinary drama.

In terms of chronology, the course will span approximately 2,000 years. Most of the sites and discoveries fall within the “Classical” millennium from the 8th century B.C.—the traditional date for the first Olympic Games and the founding of Rome—to the reigns of the Roman emperors Hadrian and Marcus Aurelius in A.D. 2nd century, when Greco-Roman civilization achieved its fullest integration and widest impact. But to set Classical civilization in context, our survey must reach back in time to the 17th century B.C. and the great Bronze Age centers on the islands of Crete and the Cyclades. We will end at about 400 A.D., with the recall of the Roman legions from the western provinces and the imperial Roman edict that outlawed traditional religious cults in favor of Christianity.

The geographical scope of the course will also be wide-ranging. Archaeologists have excavated Greek cities from Spain to Afghanistan and from the Black Sea to the shores of North Africa. Long after the founding of these Greek colonies, the Roman Empire drew into a single administrative unit the territories of some 40 modern countries, from Britain and Morocco in the west to Romania and Iraq in the east. For both Greeks and Romans, sites on the periphery proved important for commerce and cultural change.

Like Caesar’s Gaul, our course will be divided into three parts. In the first 12 lectures, we will trace the evolution of Classical archaeology from a pastime for collectors and antiquarians to a mature science. This epic story is marked by encounters with great archaeologists, their landmark discoveries, and the techniques they developed to bring the buried past back to life. Classical archaeologists have made many contributions to the field of archaeology in general, ranging from the grid system of excavation to the first scientific underwater “dig.” Today, Classical archaeology is a multidisciplinary team effort that involves not only traditional diggers but geologists, geographers, chemists, physicists, biologists, physical anthropologists, historians, and linguists.

The second part of the course comprises a series of case studies that will take us to the sites of 12 important excavations. These ancient cities, trading emporia, frontier fortifications, religious sanctuaries, and other sites (a shipwreck, a Roman farm, a civic center, a battlefield, and even the interiors of a pair of bronze statues) have been chosen to illustrate the broad range of research in Classical archaeology. Each also features some particular problem, issue, or technical innovation.

The third part will present an overview of Classical civilization from an archaeologist's perspective, with focus on the detailed reconstruction of ancient life made possible by archaeological discoveries. Here, we will continually ask the question: What can archaeology reveal that written historical sources cannot? This part opens with the controversies concerning the origins of Classical civilization and closes with an examination of the evidence for the fall of the western Roman Empire and the end of the Classical world. Our approach for the most part, however, will be thematic rather than chronological. Important themes include the economic underpinnings of ancient society, the lives of those—particularly women and slaves—whose voices are almost entirely excluded from the written record, the technical achievements of ancient engineers and builders, the impact of imperial power and religion, and the vital importance of a common cultural tradition among the lands and communities of Classical antiquity. We will close by considering how the legacy of Greek and Roman civilization has helped to shape our own modern world.

Lecture Twenty-Five

Roots of Classical Culture

Scope: With this lecture, we embark on the final leg of our voyage through the world of Classical archaeology. As you remember, we began in Part I by looking at the origins of archaeology at Pompeii and Herculaneum. We saw archaeology grow into a mature science concerned with recovering and interpreting material remains of the past. In Part II, we took an archaeologist's casebook tour of 12 sites or discoveries from the Bronze Age, the world of the Greeks, and the world of the Romans. In this final part of our course, our mission is to ask some larger questions about Classical civilization to see what answers archaeology can give us.

We'll begin in this lecture with the following question: Where did Classical civilization originate, and what does it owe to the older civilizations of Egypt and the Near East? When archaeology was born, in the 18th century, there was a belief that the Greeks stood as a fountainhead at the beginnings of Western civilization; that view has been challenged, especially in the 20th century. In this lecture, we will look at the archaeological evidence for the origins of Greek civilization and the later civilizations that grew out of it, including the Roman culture that spread over the Mediterranean basin and beyond. In each of these last 12 lectures, as we take up a topic, we will look at a specific site in the Classical world to see how that site can help us answer larger questions. For this lecture, our site is a tell called Sesklo.

Outline

- I. The tell site of Sesklo is similar to Troy but on the other side of the Aegean. About 10 miles away from this hilltop site is the Gulf of Volos, across which Jason and his Argonauts sailed in the quest for the Golden Fleece.
 - A. In the Bronze and Neolithic Ages, the Gulf of Volos was a heavily populated center of developing Greek culture. At Sesklo, one of the first Greek archaeologists, Christos Tsountas (1857–1934), discovered a village going back thousands of years before the time of Classical Greece. This village shows us in embryo some of the features that would set the Greeks apart from other Neolithic peoples.
 - B. In 1901, Tsountas came to Sesklo, having earlier worked with Schliemann at Mycenae. At Sesklo, he used a technique that was the reverse of Mortimer Wheeler's grid system. He left behind, in the middle of the site, a square column of sediment consisting of built-up layers of the tell. Such a column is called an *archaeological martyr*, in this case, *martyr* meaning "witness."
 1. This column of earth preserves in layers what Tsountas and his successors dug through and maintains a record for future archaeologists.
 2. The martyr reveals layers of burning, which can be seen where the soil changes color. Sherds of pottery and acorns—millennia old—are also preserved inside the mix.
- II. What did Tsountas find at Sesklo that gives us a window on some of the differences in Greek civilization?
 - A. Sesklo was a farming village, and we know from what they raised that its inhabitants were migrants to Greece.
 1. In fact, after the Ice Age, Greece was temporarily depopulated. We do not have any sign of human habitation for about 1,000 years at the beginning of the modern era. In the Mesolithic Age, we begin to find light evidence of habitation in such sites as Franchthi Cave.
 2. Some centuries after that, the first farmers seem to have arrived in Greece. They brought with them domesticated plants and animals, such as wheat, sheep, goats, and pigs, that do not have their origins in Europe or on the Greek mainland.
 3. These plants and animals come from the east—Anatolia, Turkey, the Zagros Mountains—where these species occur wild and seem to have been domesticated.
 - B. Among the differences between the tell at Sesklo and those in the Near East is that, at Sesklo, the houses did not have party walls.
 - C. Inside the houses has been found some of the most beautiful pottery ever created in the Neolithic Age. This pottery has a pallet of black, red, yellow, and white, mixed together in geometric patterns.

1. The pottery has no visible practical purpose in terms of storage or cooking. An American archaeologist, Curtis Runnels, has offered the opinion that the pottery was for display.
 2. It is possible that these pots reveal the origins of a Greek tradition that spread across the Classical world: the *symposium*, a wine-drinking ceremony of friends gathered around a central container and served their drinks in cups.
- III.** From Sesklo, Tsountas went into the Cyclades. His work there is important because he discovered early Neolithic life there—not on the mainland, where scholars had focused, but on these small rocky islands in the Aegean.
- A.** On such islands as Malta, Madagascar, Easter Island, or New Zealand, unique forms of life emerged that are quite different from those on the mainland. Islanders feel much safer than mainlanders and are able to achieve cultural developments more quickly. The fact that the archipelago of the Aegean was shown by Tsountas to be one of the hearts of Greek civilization explains some of the unusual features that set it apart from its Near Eastern antecedents.
 - B.** What does the Classical world owe to the Near East and Egypt? A Latin phrase sums up one way of answering this question: *Ex oriente lux; ex occidente lex*: “Out of the Orient, light; out of the Occident, law.” In this view, creativity and inspiration are attributed to the Near East. Law and order, engineering, and the practicalities of life would come from the Greeks and Romans.
 1. The Greeks themselves were aware of this division. They had myths about borrowing their traditions from Phoenicia and Egypt, and were proud of the fact they could trace both their customs and individual bloodlines to places far outside the borders of Greece.
 2. Plato expressed Greek cultural jingoism by asserting that the Greeks had perfected everything they borrowed.
 - C.** In the 18th century, when the modern view of the Greek world was solidified around the idealizing work of Winckelmann and others, the earlier part of the equation—the idea that the Greeks owed so much to Egypt and to the Near East—was forgotten. The Greeks were presented to the scholarly world as the originators of civilization.
 - D.** A modern scholar, Martin Bernal, from Cornell, has written a long meditation on this process, including both the ancient Greek practice of borrowing and transforming cultural impulses from the East and Africa, specifically Egypt, and the modern forgetfulness of this debt.
 1. Bernal believes that our forgetfulness is, at heart, racist—Europeans claiming for ancestral Europeans the credit for being the prime force behind civilization.
 2. Bernal’s book, *Black Athena*, has stimulated tremendous scholarly debate because it makes a double-pronged attack, first on the Greeks themselves—how little of their cultural baggage they actually manufactured—then on those scholars who suppressed the record of what is owed to the Egyptians, the Sumerians, and other pre-Greek peoples.
 - E.** In looking at the evidence of Classical civilization, we can see that the Greeks are not the originators, nor did they claim to be. Temples with columns; the *kouroi*, those beautiful statues of young men; mathematics; science; metallurgy; the world of art and architecture; epic poetry—all these originated outside of Greece.
- IV.** Why were the Greeks successful, and what was it about their civilization that they truly originated?
- A.** A few cultural innovations are foreshadowed at Sesklo, including a sense of individualism that we find much less in the Egyptian and Near Eastern societies than in the Greek world—the idea of the individual as a measure of society.
 1. We see this idea develop in the Classical world into a great respect for the individual. The fact that writing became common in everyday life in the Greek and Roman worlds attests to the pride of individuals.
 2. We have names of thousands of individual Greek and Roman citizens. We find artists—and even ordinary craftspeople—who sign their works, something that is not seen in Egypt and the Near East. We even see rivalries between craftspeople.

- B. This sense of personal worth leads to two additional cornerstones of the Classical tradition that were new to the Greek world and, perhaps, inherited from the Cycladic civilization that Tsountas first illuminated.
 1. One of these was the interest in giving ordinary people a place to speak in public. As you recall, in the heart of Athens was the Agora, open to all citizens to come and share in their government.
 2. Above the Agora was the rock called the Pnyx (“the place of the crowd”). On this ancient stone, speakers would stand to address their fellow citizens.
 3. In the Forum in Rome was the Rostrum, the speakers’ platform where ordinary citizens could stand up and be heard.
 4. If we look at Classical civilization from Scotland to Arabia, in every community, we see public meeting places, theaters, odeons (covered halls for musical performances)—all used for speechmaking—as well as schools of rhetoric.
 5. The idea of proclaiming things in public and establishing one’s identity as a citizen was an essential and unique innovation in Greek civilization. We can also see this idea in the archaeological record in the way ancient people laid out their communities.
 - C. The second important innovation of Classical civilization was competition, which we noted at Olympia. No earlier civilization had its most important religious sanctuary dedicated to contests between individuals.
 1. This aspect of ancient life would grow into the Roman love of sports, which involved blood sports, heavy betting, and professionals. But in its beginning, Olympia was a place where people could test themselves against each other, one on one. Except for the rowing races, team sports played no part. Competition was focused on the individual.
 2. Even the dialectic form that Socrates used is a contest of words. The philosopher who sits down in a study to write down thoughts gets nowhere. Progress in thought is made only when individuals are face to face, challenging and arguing with each other.
 - D. From this sense of the individual, we get, first of all, the idea of public responsibility, the onus of the individual to speak. Socrates himself said that the point of an education is so that a young man who goes to the theater will not be merely one block of stone sitting on another.
 1. The individual must participate in public affairs, and archaeology shows that communities were set up for that purpose. We see a decreasing interest in private homes and the decoration of private homes.
 2. Life was experienced outdoors, and wealthy people contributed beautiful things to the community.
- V. What made Greek civilization successful? I believe that the answer to this question can be found in a new kind of militarism.
- A. On display in the museum in the town of Nafplio in the Peloponnese is a suit of armor from Dendra, found inside a warrior’s tomb. It has a conical helmet, with boars’ tusks glittering on its sides in rows.
 - B. The body armor suggests that this warrior was one of the earliest heavily armed infantrymen, who could operate only in a line with many other infantrymen, each protecting the rest of the line with a shield held on the left arm.
 - C. Such a fighting unit, the *phalanx*, would develop into the Roman legions. The phalanx downplays the aristocratic cavalry or chariots and light-armed mobile troops and puts all its stock in a line of heavily armed men—equals, all depending on the others.
 - D. In this suit of armor, we see the beginnings of a tradition that will carry this Classical civilization through time and around the world. Those armed men will preserve and spread their own culture and bring new cultural impulses and wealth back to their world.

Suggested Reading:

Powell, *Homer and the Origin of the Greek Alphabet*.

Runnels and Murray, *Greece Before History: An Archaeological Companion and Guide*.

Questions to Consider:

1. How important is the study of prehistoric cultures in the Mediterranean for an understanding of Greeks and Romans in the historical period?
2. To what extent do the “high” achievements of Classical Greek and Roman culture—art, architecture, engineering, philosophy, literature, drama, science, medicine—seem to be part of its original “cultural DNA”?

Lecture Twenty-Six

The Texture of Everyday Life

Scope: In this lecture, we explore everyday life in the ancient world, examining archaeological evidence that tells us what went on in the streets, the public places, and the homes of ordinary people in ancient Greece and Rome. Our type site for everyday life is Pompeii. This was the city buried by the eruption of Mount Vesuvius which, in a single day, sealed in the city's inhabitants, their clothing, their pets, their domestic arrangements, their graffiti, all the humble moments and activities of the everyday. This is the place that captured the imagination of the world and convinced people that, over and above the great questions of art and philosophy, there might be something valuable in the idea of looking at the ancient world through its material remains.

Outline

- I. In one of our earlier discussions of Pompeii, we briefly mentioned the estate of a woman named Julia Felix. Her property spanned more than two city blocks, with gardens, dining areas, porticos, and so on; one of her buildings was decorated with an extraordinary fresco, more than 100 feet long.
 - A. This fresco was adorned with scenes of everyday life from the forum at Pompeii: shopkeepers selling their wares, people making speeches, a religious procession. It was not just a testimony of everyday life, but it shows an interest in everyday life as something to glorify.
 1. Throughout Pompeii and Herculaneum, we also find frescos that include graphic representations of sex, which were shocking for 18th-century visitors. In fact, there were so many frescos of sexual activity dotted around Pompeii and Herculaneum that, originally, people assumed many of these buildings were brothels.
 2. However, these depictions weren't pornographic. To the Greeks and Romans, they were a life-enhancing part of everyday existence.
 - B. The Athenians, to the east, had their own way of glorifying everyday life; they celebrated it by depicting ordinary scenes on pottery.
 1. Along with mythological scenes and scenes from dramas were scenes that show, for example, olive pickers going about their work in an olive grove. They're shown without any exaggeration—just ordinary people doing an ordinary job.
 2. There are also pictures of pottery makers, bronze workers, and fishmongers. One scene shows a young man after drinking too much, with a kindly prostitute, the *hetaera*, holding his head.
 - C. In the last lecture, we were searching for features that set the Classical world apart from the grand, older civilizations of the Near East and Egypt. This glorification of everyday life found in Roman frescos and Athenian pottery designs is just such a signifier.
 - D. Over the hills to the north of Athens, in the flat cattle country of Boeotia, is a place called Tanagra that had wonderful clay. Artists at Tanagra made terracotta figurines out of the clay, showing actors, musicians, women making bread, children playing games, carpenters working with wood, and so on. This array of themes is not typical of most artists. It's characteristic of the Greeks and Romans that they put a high value on everyday activities.
 - E. Even in their borrowings from the East, the Greeks and Romans introduced a homey touch. The griffin, for example, was borrowed by the ancient Greeks from the Near East. This magical beast had the body of a lion, the wings and head of an eagle, and the tall ears of a horse.
 1. Griffins are found across the Near East, often around treasures and temples, and they appear at Delphi and Olympia.
 2. It took a Greek artist to show a griffin family at home, in a scene with a nest, young griffins and their parents on either side. The foreleg of one of the parents is lovingly raised, touching the leg of the other parent on the other side of the nest.

3. This kind of lighthearted domesticity is part of our “big picture” of the Greek and Roman world. It’s a feature that often eludes the net of historical writings and texts that have come down to us from the ancient world.

II. Let’s consider leisure activities or activities that embody the element of choice in everyday life.

- A. Whenever we find artifacts of a certain kind proliferating in a specific area, we know that activities associated with those artifacts were increasing in importance for that culture. In our own world, we might think, for example, of the many different kinds of balls we have, implying an interest in ball games.
- B. In the same way, the Greeks and Romans were also interested in games. We find many images of games in stone, in paintings, and on frescoed walls, as well as actual artifacts from games. There is even an area in Ephesus where a checkerboard is carved into almost every marble step leading to that city’s agora.
- C. On the other end of the Mediterranean, on the island of Sicily, is an emperor’s hunting lodge called Piazza Armerina. The lodge is decorated with beautiful mosaics, showing people working out, trying to enhance their physical conditioning.
- D. Children were also a big part of everyday life. The Classical world does not bear out the current idea that children were treated as little adults. We have a huge array of toys, pacifiers, and other artifacts that relate to children. We even have a potty chair from the Athenian Agora.

III. This toilet seat leads us to basic bodily functions of ancient peoples.

- A. Where did ancients take care of the needs for urination and defecation?
 1. Greek houses are not known for having a separate room for these functions, which often were performed in public.
 2. In the Roman world, public latrines were developed, large U-shaped rooms with benches around three walls. The benches were made of marble with holes cut in it, spaced about 18 inches apart. There were no partitions, doors, or locks and, perhaps, 5 inches of personal space between the users.
 3. Directly under the hole was a flow of water from an aqueduct, rushing through to carry the waste away to the nearest river.
- B. As mentioned earlier, sex was also of great interest to the ancients.
 1. Young men were initiated into sex in formal ways by *hetaerae*, young women who were engaged to show them the art of love.
 2. Brothels were available, but banquets were also held during which young women were brought into the home to entertain men. Couples would then go off to private rooms or participate in an orgy amidst the tables of the banquet hall.
 3. Both heterosexual and homosexual activities are shown in art. Erect male sexual organs were fashioned in bronze and gold as amulets to hang around the neck and as pottery.

IV. In an earlier lecture, we touched briefly on the daily routine of the ancients, who were quite specific about when certain things should happen throughout the day.

- A. The day began with sunup, making for a short day in winter and a longer one in summer. Months were usually lunar. The calendar was so arranged that the festivals that were assigned to certain days of the month fell on the night of the full moon. The Mediterranean has fair weather almost every day from May to September. The ancients took advantage of this for their summer festivals and all-night revels.
- B. Ancient people generally rose at dawn to start the day. The markets would open shortly after dawn and close shortly after noon. People then went home, had a midday meal and a nap, and were ready for social activities in the evening.
- C. Cities were filled with banqueting halls, where small groups of friends could gather together for an evening of conversation, food, and wine. We have many lamps to show that people extended their daily activities well into the nighttime.
- D. Reading also became part of everyday life. Books were written to be read for pleasure. The great works of Homer might still be recited by a specialist at a dinner party, but scrolls also proliferated so that individuals

could take home the works of Thucydides or Aristophanes or just a good novel in the Hellenistic and Roman periods.

1. Romantic novels, featuring young lovers, were popular, as were novels telling of daring escapes, pirates, long voyages, and long-lost parents being rediscovered.
 2. Ancient people interacted with the written word, whether casual letters to friends or longer works to be read for entertainment.
- E. These different hours of the day—the morning work period, the midday meal, and the evening social hours—were marked off by timepieces. Many communities had some sort of sundial with a *gnomon*. The Agora in Athens had water clocks, in which the level of water in a tank decreased, and a floating object marked the passing hours of the day.
1. The ancients had two ideas about hours. We, of course, think of an hour as a fixed time span, but they were much more flexible. Some water clocks were marked with lines, reflecting the idea of a fixed period of time.
 2. Typically, however, hours were not thought of as fixed. The first hour of the day began at dawn, and the day ended at sunset. Thus, the hours were long in summer and short in winter, because every day had 12 hours and every night had 12 hours.
 3. We don't know of any way that the Greeks and Romans had to measure minutes and seconds. The shortest measures we know of are the water clocks that were used in the law courts in Athens to time speeches.
 - a. Trials took place quickly in the ancient world, especially in Athens, perhaps because this ancient society was so litigious. The timer used for speakers in a trial was a jar of water with a hole in the bottom, with another jar below to catch the water flowing out.
 - b. Sets of these timers were kept for each of the 10 tribes that would rotate through the administration of Athenian government, and they apparently came in different sizes.
 - c. The only such timer that has been discovered gives the speaker about six minutes. This timer was probably used for minor witnesses. We know from the lengths of recorded speeches that a defendant justifying himself in a murder case, for example, would have been given more time.
- V. The Greeks and Romans put a premium on filling one's life with agreeable activities.
- A. We have some interesting graffiti that attest to this outlook on life. In a city designed for retired soldiers called Timgad, in what is today North Africa, we find two sayings: "Hunting, bathing, banqueting, drinking, laughing; that's what life is about" and "Baths, wine, sex; they'll shorten your life. But what's life all about except baths, wine, and sex?"
 - B. This seems to be a casual, secular view of the purpose of people on Earth. In many societies, individuals didn't (and still don't) have choices about their activities. With religious rituals, the economic necessities of making a living, the social customs and traditions of the community, and the political and military demands of the city, other societies didn't have free time. Greeks and Romans not only had free time, but they treasured it, and they invented many activities to fill it.
 - C. We've been through a crisis in this country with the 9/11 attacks, but after these attacks, we were all urged to return to normal life. Our world owes much of its "cultural DNA" to the Greek and Roman world, where "normal life" was also the essence of society. To many people, unconstrained freedom of choice in everyday life seems more important than freedom of political action or decision-making.
 - D. Like the Greeks and the Romans, we have created entire building complexes to deal with casual, everyday life choices.
 1. For the Romans, one of these complexes was the baths, where men would go in the morning and women in the afternoon. People, including many slaves, would relax in the vaulted interiors of a bath complex, surrounded by lapping water.
 2. This leisure time extended beyond people to their pets. At Pompeii, the 18th-century excavators discovered a tag from a dog collar that read, "Greetings. I belong to Viventius. If you find me, please return me to my master." This dog was out on the loose, trotting around town, not a chained watchdog on duty. Like his master, this dog had the leisure and the choice to enjoy life exactly as he saw fit.

Suggested Reading:

Liversidge, *Everyday Life in the Roman Empire*.

Camp and Fisher, *The World of the Ancient Greeks*.

Questions to Consider:

1. To what extent do everyday pursuits and customs define a culture or provide an alternative view to its large-scale monuments?
2. What evidence will the modern world yield for future archaeologists about our own “everyday life”?

Lecture Twenty-Seven

Their Daily Bread

Scope: This lecture takes as its theme one component that might be thought of as the foundation of everyday life—daily bread. For the Greeks and Romans, a loaf of bread, usually made from wheat flour, was essential. Armies needed massive amounts of wheat to provide the daily bread for soldiers. Cities were founded in remote parts of the Mediterranean to channel grain imports to Athens or to Rome. Trade networks were set up. Barbarian chiefs and kings were bribed. Vast parts of each city’s economy were devoted to that essential substance, the daily bread. Bread became more than just the staff of life. It spread, as wine would also do in its way, into religious thought and became, in fact, the basis of one of the most emotionally meaningful aspects of ancient Greek religion. The archaeological site that will lead us into this aspect of Classical antiquity is Eleusis, on the shores of a bay to the west of the city of Athens, looking across the water to the island of Salamis.

Outline

- I. Eleusis is the Greek community that was most closely associated with the goddess of grain, Demeter.
 - A. Several natural products were so important to the ancient economy that they were associated with gods: Demeter for grain and bread, Dionysus for grapes and wine, and Athena for olives and olive oil.
 - B. As we saw in a previous lecture, wheat came from Asia. Greek myth, however, retained no memory of a time when grain did not grow in Greece. Thus, it was associated with Demeter, a sister of Zeus, who was present from the beginnings of human life in Greece.
 - C. Eleusis was an important site for the myth of Demeter. She had a daughter, whom we call Proserpina or Persephone, but the Greeks generally called the daughter Kore, “the maiden.”
 1. Demeter’s brother, god of the underworld, Hades or Pluto, saw this radiant young girl picking springtime flowers, back in the time when there was no winter and the Earth was abundant and fruitful throughout the year.
 2. Hades carried the girl away to the underworld, leaving her mother, Demeter, desolate on the Earth’s surface. In her grief, Demeter allowed all living things on Earth to go into a state of death, decay, or hibernation—this was the world’s first winter.
 3. At Eleusis, Demeter learned what had happened to her daughter, and Kore was restored to her mother through a fissure in the Earth. As we know, however, Kore had eaten a few seeds from a pomegranate in the underworld. The Fates decreed that for every seed she had eaten, the Earth would experience a month of winter in the annual cycle, during which Kore would return to the underworld.
 4. Eleusis became a cult center for Demeter, a place where grain was celebrated, but also a place where one came face to face with the ultimate mystery: life coming out of death. The seed must be planted under the earth, just as Kore went down into the Earth; both seem to be lost to the sight of mortals, but both ultimately return to the land of the living.
 5. For the Greeks, this was the ultimate mystery, and they celebrated elaborate pagan festivals each year at Eleusis to be initiated into the secrets of new life brought out of death.
- II. In its original form, the wheat that came out of Asia was called *einkorn*. It’s one of the clusters of wild grasses that have basically made human civilization possible.
 - A. From the perspective of the far future, we can imagine archaeologists looking back at millennia of human history and debating the most important change or invention or transformation.
 1. The answer is almost certainly the transformation of certain wild grasses—wheat, barley, rye, millet, rice, and corn—into food crops and the development of a system of agriculture and food preparation that turned these into the basis of life for burgeoning populations all over the planet.
 2. These developments transformed our species from wanderers on the Earth, hunters and gatherers, to sedentary people with large populations and the settled food supply that allowed cities and civilizations to emerge.

3. This is one reason that Demeter was honored, in recognition that the grain of which she was the goddess was an essential component of civilization.
- B. The grain itself was given an identity in a relief at Eleusis. The relief shows a trinity of divine figures: the mother, the maiden, and a little boy called Triptolemus. The boy is the grain, and he never grows up to become a man. He is continually what Frazer called “the dying god,” the sacrifice, the young man who must perish so that the next generation can grow.
 - C. In America, planting season is in the spring and harvest season is in the fall. The reverse is true in the Mediterranean world. Grain would be planted in the fall, grow throughout the winter, come up in spring, and be harvested in roughly the month we call June. This cycle gave a shape to the year in the same way that the day was shaped by the Sun.
 1. In years that the Greeks were involved in warfare, the fighting stopped in June, and the warriors returned home, got the harvest in, and went back to fight a second season in the late summer and fall.
 2. The Romans, by professionalizing the military and using legionnaires who were not tied to home farms, were able to station forces on permanent duty on the fringes of the empire.
 - D. Within that cycle, of course, different tools and methods were used to prepare the soil, nurse the grain to maturity, harvest it, and process it.
 1. The plow was needed to break the soil in Greece, unlike in the river valleys of the Nile, the Tigris, and the Euphrates, where the soil was generally soft and rich. Part of the point of domesticating animals, such as the donkey and the ox, was to pull the plows. By the end of the Roman Empire, we read about wheeled plows.
 2. After plowing, farmers had to sow the seed. This was done by hand, by boys carrying skins or baskets and casting seed over the plowed field.
 3. Continual hoeing and tending of the fields was required to discourage weeds and deter birds and animals from eating the crop.
 4. At harvest time, the people of the ancient Near East had used sickles, originally those with obsidian chips in the blades. The Greeks used iron sickles, which was a great innovation. Iron was abundant and cheap and came into use for all farming implements.
 5. The Romans established a tradition of improving agricultural practices. In Gaul, we find reliefs showing mechanical harvesters being dragged by draft animals through fields and scything through stands of grain.
 6. Once the grain was gathered in, it would be tied into sheaths and allowed to dry, after which it would be ground into flour. Related crops, such as emmer or oats, will stand up to freezes and cold winters but must be parched or roasted before they can be ground into flour.
 7. Of course, the wheat must be separated from the chaff, and for this, every community had a threshing floor. These were broad, circular, paved areas of stone. Around this, draft animals would tow a contraption called a *sledge*, with pieces of flint in the bottom to break up the grain and loosen the seed from the surrounding bits of the plant.
 8. Finally, on a breezy day, the grain and chaff would be thrown into the air, and the wind would carry away the lightweight chaff, leaving behind the hard, heavy kernels of grain. These would be scooped up and stored in a granary.
 - E. We see granaries everywhere in the Classical world. The footers of these are characterized by tiny walls, closely spaced. A large timber structure would have rested on top. The walls on the bottom lift the structure clear of the ground, away from the dampness of winter so that the grain doesn’t rot. The small passages in the footer also provide ventilation and access for ferrets, cats, or dogs to track down vermin that might otherwise get into the precious grain supply.
 - F. One of the well-known threshing floors (*haloa*) in Greece is at Delphi. These facilities also provided early societies with natural places to hold dances and theatrical performances, and the one at Delphi became the site of an annual pageant.
- III. After harvesting and storing the grain, the next step was to mill it into flour, and we find a range of technologies for milling grain in all communities.

- A. Such technologies may be as simple as a *metate*, a grinding stone, and a handheld pestle, the *mano*, which would be rolled or rotated over the grain every day for hours, to create enough flour for the day's bread. This task was horribly tedious, and people quickly sought ways to perform it more efficiently.
 - B. In the Classical world, gritty volcanic rock was often crafted into a device similar to a double funnel with an hourglass shape. This would be placed on top of another stone that had a conical top. The grain would be poured into the top of the funnel while a slave or a donkey rotated the device. This action would grind the grain, and the flour would spill out the bottom.
 - C. As a result of this process, Classical bread contains a certain measure of grit, for which archaeologists are thankful because it has provided us with one of the only ways we have to determine how old adults were at death.
 - 1. Up until the time that the wisdom teeth come in—traditionally age 18—the teeth are not very worn. The eruption of the teeth gives an almost year-by-year sequence for human beings during the first part of their lives. Physical anthropologists can, thus, be very precise about the age of a child, based on dentition.
 - 2. After the wisdom teeth come in, however, the human body doesn't give many chronological clues to its age, except in countries where stone-ground flour was baked into tough, chewy bread, which had the effect of grinding away at the teeth. Physical anthropologists now have tables that identify how much tooth wear from grit is associated with various ages.
 - D. The early millstones were quickly seen to be insufficient. Roman engineers turned their ingenuity to finding better and faster methods for grinding grain.
 - 1. We are familiar with the harnessing of water for gristmills in our own colonial period. The Romans did the same thing. The most amazing work of Roman agricultural technology is a watermill at Barbegal, in southern France, where the flour was ground for the city of Nîmes.
 - 2. The Romans found a hillside with a water source at the top, brought in by an aqueduct from a distant spring. The aqueduct channel divided into two and spilled down two millraces, and as it did so, it passed through individual houses on the slope (all connected inside).
 - 3. In each house was a mill wheel, 8 on one side, 8 on the other side—16 mill wheels at once—turning day and night to grind grain into flour to feed the city of Nîmes.
 - E. Communal ovens were used in almost every Roman settlement. Each household would work its flour into dough and shape it into loaves. Some people had ovens in their homes, but that arrangement was costly in terms of space and fuel. In many communities, loaves were taken to the bakery, then retrieved after they had been baked. Small wooden stamps found in some houses in Pompeii were probably used to identify the loaves of bread for each household.
- IV. These means of providing for the cities were not sufficient for long. In Athens, for example, by the 5th century, the city could no longer feed itself from its own fields. In the case of Rome, already by the time of the republic, people couldn't feed themselves from the farms of Latium or Campania.
- A. Grain had to be imported, and the Greeks and Romans became dependent on distant growers in a way that Near Eastern societies never did. In fact, the Egyptians became great exporters of wheat to both the Greeks and the Romans.
 - B. It was a great moment in the Roman year when the watchers on the capes of southern Italy would spot the immense grain freighters appearing in the annual fleet, coming over the sea from Egypt and bringing tons of grain from the Nile Delta and its farms for Rome to feed its million inhabitants.
 - C. Docks were constructed to receive these gigantic ships. We can get an idea of what the ships looked like from the two big barges found in Lake Nemi, south of Rome, that we discussed in one of our first lectures.
 - D. The Athenian response to the lack of grain was to establish colonies or trading posts or take over areas that could provide the city with grain. One impetus behind the growth of the Athenian maritime empire was the desire to secure grain-producing regions and make them part of the Athenian power network.
- V. We started this lecture at Eleusis, where Demeter lost her daughter. At this site a cult of spiritual rebirth grew up, the closest we get in ancient societies to the charismatic personal communion with the other world that we take for granted in most religions today.

- A. The Athenians built a huge square hall at Eleusis called the Telesterion, where people gathered every year. In September, mystery celebrations were held there. Initiates came, and after sacrificing a pig and washing themselves in the waters of the sea, they went into the dark hall and were shown things that changed their lives.
- B. Seated on bleachers around three sides of the hall, up to 3,000 people crowded into the interior space for this annual life-changing experience. The priestesses and priests would enter a structure called a *palace* on the stage area in the center, then come out and pronounce revelations. People left the hall feeling that they had been reborn.
- C. What was revealed? There is not a single question about antiquity that we would more like to have answered than that one, but each participant took an oath of silence, and we don't know of anyone who ever broke that vow.
- D. What was a mystery then remains a mystery to us and is tied in with the ultimate mystery of these plants; unlike the fruits of trees, which can be plucked and leave the tree behind, or the olive trees or the grapes on the vine, with grain, life had to come from death.

Suggested Reading:

Liversidge, *Everyday Life in the Roman Empire*.

Wilkins, *Food in Antiquity*.

Questions to Consider:

1. Argue for or against the idea that the transformation of wild grasses into food crops enabled the spread of civilization more so than, say, the harnessing of fire.
2. To what extent can the militarism of the ancient Greeks and Romans be traced to the need to feed their populations?

Lecture Twenty-Eight

Voyaging on a Dark Sea of Wine

Scope: We devoted the last lecture to bread and all the artifacts and systems that grew up around grain, flour, and bread. In this lecture, we'll look at its counterpart, wine. Just as bread had as its goddess Demeter, wine, too, had a god, Dionysus. He is sometimes thought of as the inventor of the process of distilling wine from grapes and sometimes as the wine itself; ancient people were, thus, drinking the god as they drank wine. Our site to represent wine in this lecture is far from the main centers of Classical society, up the River Rhône from Marseilles, in a region of Burgundy whose modern name is Vix.

Outline

- I. Everyone drank wine in the ancient world, including children.
 - A. We have from Athens tiny vases called *oinochoe*, which were used in the wine festivals of springtime specifically for children. These vases have scenes on them of children at play.
 - B. Wine was always diluted, not just for children, but also for adults. The typical proportion of Greek and Roman wine served at the table was one part wine and three parts water. Wine was also flavored with a number of additions, such as spices or tree resin.
 - C. Wine was extraordinarily important in the Greek world and even included a formal religious dimension. It was not just an economic, agricultural, or social item in the baggage of Greek and Roman civilization but was wrapped up with the Olympian gods. Dionysus was sometimes called the 13th Olympian and was exalted. His purpose was to cause forgetfulness of cares, intoxication, liberation of the spirit, joy, and sexual mayhem, all of which makes him a strange god in our eyes.
 - D. Dionysus is the god not only of drinking wine and the agriculture of the wine but of certain festivals that spun off into forms that we wouldn't necessarily link to wine drinking and intoxication. All the theatrical performances in Athens, for example, were done at the theater of Dionysus, in front of the god's own statue. His image was carried from the temple to the theater, and his high priests sat next to the statue to affirm that the performance was a religious contest.
- II. In 1952, archaeologists in Vix discovered, at the tomb of an Iron Age Celtic queen or princess, a great tumulus, many meters tall, with a chamber in which the royal person had been buried.
 - A. Inside the chamber were found the partial remains of a tall and robust occupant. This person probably would have been classified as a male by modern physical anthropological tables, except that all her belongings were found along with her, including jewelry and other feminine possessions. A four-wheeled cart was in the grave, in which she must have ridden around the countryside during the time that she presided over that corner of the Celtic world.
 - B. The artifact found in the tomb that most surprised archaeologists was a *krater*, a ceremonial vessel in which wine and water would have been mixed in the Greek and Roman world.
 1. Made of bronze and 5 feet tall, this krater was the largest ever discovered. In addition, it was ornamented in a lavish style for which there was no precedent in any monumental Greek bronze vessel. It had *volute* handles, beautiful spiral forms coming up the side of the vase to its rim, with Classical mythological figures worked into the handles.
 2. Around the rim of the krater were many plaques of bronze, showing horsemen and charioteers in an archaic style of the art of around 500 B.C. These had probably been assembled onsite because they were detachable. On the back of each one was inscribed a Greek letter that matched a letter on the rim of the body of the pot where that appliqué was intended to be fixed.
 3. The size, beauty, and level of workmanship of this vessel were unique. It was the single most spectacular find of apparatus associated with the *symposium*, the wine-drinking ceremony from Greece, found hundreds of miles outside the Greek world in the tomb of a Celtic princess.
 - C. It now seems that the monarchs of the Celtic tribes who inhabited central Europe were approached by traders from the Mediterranean world. These traders wanted to lure out of central Europe things of great

economic value: amber, slaves, furs, timber, metals, and salt. Because the Celts were the ironworkers of the world, the Greeks and Romans obviously wanted Celtic iron expertise, as well.

1. Their method was neither to incorporate those Celtic lands into their orbit through political takeover or military conquest nor to trade as equals with the Celtic people.
 2. Instead, the Greeks and Romans attempted to find the leaders of these remote regions and buy them with gifts. It's a measure of the value placed on wine that the gift with which this particular family had been bought was the most spectacular wine-related artifact that we know of from the entire Greek world.
- D. Why was the site of Vix, lying between the Rhône and the Seine, so important?
1. The Greeks were interested in tin from the region for producing bronze. They traded through Celtic countries for tin that came from the Atlantic seaboard, from Cornwall and other sites along the Atlantic.
 2. Greeks couldn't go out through Gibraltar and up to Cornwall on their own because the Phoenicians had a grip on that strait. Instead, a caravan route and a river transport route were developed by the Greeks to make an end run around the Phoenician stranglehold at Gibraltar and through France.
- E. The vessel found at Vix tells us something about the Celts and their love of wine and something about the global market as the Greeks and Romans saw it.
1. The Greeks and Romans would send items—perhaps items of great value, such as the krater, perhaps items of minimal value, such as simple amphorae of wine—to people who put a tremendous premium on these goods.
 2. Once the royal family's goodwill had been bought, the goods that the Greeks and Romans needed would flow through the Celtic or Thracian or Scythian realm to the Mediterranean. The wine was the lubricant that oiled the wheels of international trade.

III. Wine, under its god, Dionysus, also plays a leading role in Greek myth.

- A. Dionysus himself is supposed to have come from the sea. As mentioned in the last lecture, the Greeks retained a memory that grapes had come to them from Asia. They showed Dionysus, in some of their art, on his own ship, cruising through the Aegean. In one story, he transformed pirates who had kidnapped him into dolphins and caused their ship to become a floating vineyard. Thus, when Dionysus landed in Greece, he was already surrounded by the vine.
- B. Perhaps the most disturbing of the surviving Greek tragedies is the *Bacchae* of Euripides. It was written at the end of the playwright's life for performance before the king of Macedon, an ancestor of Alexander the Great. The *Bacchae* tells the story of how Dionysus came to Greece and of the disapproval from the establishment of his intoxicant.
- C. Given the late arrival of wine in mythical tradition in Greece, archaeologists who analyzed the set of tablets with Linear B inscriptions found at Pylos were surprised to find the name of Dionysus. It's possible that this reference is to an ordinary man, but it seems more likely that the tablet reveals the Bronze Age presence of wine and the cult of wine in Greece.
- D. Archaeology, with the assistance of chemistry, has been able to document wine being made and drunk in Greece at least since the early Bronze Age, in the 3rd millennium B.C.
1. Patrick McGovern, a chemist and archaeological researcher at the University of Pennsylvania, has made it his life's work to conduct chemical analyses of residues found inside ancient pottery. At one point in his career, he was invited to analyze Minoan and Mycenaean pots from the Bronze Age.
 2. When Arthur Evans excavated in the palace of Minos at Knossos, he found what he called magazines, large storage areas, filled with gigantic pots called *pithoi*. These pots would have been quite heavy when full, and ropes would have been wound around the pots to allow them to be hoisted and moved by cart or trolley.
 3. McGovern and his team analyzed the inside of such pots and found that they had held wine. McGovern also found the residue of wine in pots from other ancient sites, including Myrtos on the south side of Crete and one from a building in Attica. Both of these sites dated back to the early Bronze Age, long before the myths of Minos and Dionysus.

4. The *pithoi* had an oddity of design, a hole near the base. If one were to try to tap the jar at that point, the *lees*, that is, the dregs of the wine, would, in theory, pour out along with the wine, making it less fit to drink. The usual way to get wine out of these jars would be to dip it from the top.
 5. Thanks to ethnographic parallels discovered on the dig at Torre de Palma, we may understand what lies behind this early Bronze Age design. In antiquity (and in modern Portugal), the grape juice would have been “sealed” into the jar with a layer of olive oil, which would sit on top and prevent dust and air from reaching the juice. When the juice had fermented, the wine would be poured out of the hole at the base of the jar.
- IV. Of course, the importance of wine continued through the Roman period, during which, if one were to take a count of the ships at sea at any given moment, most of them would have been carrying cargos of wine.
- A. The Kyrenia ship that we discussed in Lecture Eighteen was a great freighter filled with amphorae of wine, quite typical of the wrecks we find from the Greco-Roman world on the bottom of the Mediterranean. Indeed, most of these shipwrecks are just piles of amphorae today.
 - B. For many years, scholars had questions about how the trade of the ancient world was carried out. One popular hypothesis was the “monopoly theory” of ancient history, in which ancient peoples were said to have started with nothing and gradually accumulated knowledge through experience. Under this theory, if a group of people started with no knowledge of the sea, they would be timid and hug the shore in their voyages; later, they would get bolder, until they were willing to use a compass and cross the open ocean.
 1. With this theory, it was assumed that the Greeks and Romans typically didn’t get much beyond the shore, although nothing could be more counter to common sense. The most dangerous place to be in a ship is near the shore.
 2. Nonetheless, the idea that the ancients did not venture into open water bedeviled the study of ancient navigation and trade. Robert Ballard, the oceanographer and scientist who discovered the *Titanic*, formed a partnership with Anna Marguerite McCann to study the trade routes of the eastern Mediterranean by looking at the locations of amphora wrecks.
 3. Specifically, this team decided to look at the route between Rome in central Italy and Carthage on the African coast in modern Tunisia. After the Romans defeated Carthage in the Punic Wars, they rebuilt the port as a Roman city and set up the business of importing wine and exporting olive oil. Amphorae would have been used on both sides of this trade.
 4. What route did the trade take? Did the Romans creep along the coast of Italy, follow the coast of Sicily to the closest crossing point to Africa, cross over, and finally, creep along to Carthage? Or did they just cross the sea in a southwesterly direction from Rome, out of sight of land most of the time?
 5. Starting in Sardinia, Ballard and McCann towed remote-operated vehicles (ROVs), equipped with cameras and lights, along the sea floor. Ultimately, they found a highway of discarded amphorae and shipwrecks that ran all the way from Carthage to Rome.
 6. Ballard’s theory is that these are the empties, that the crew, sailing these great ships filled with wine, would take the opportunity to crack open an amphora and drink it down. To get rid of the evidence, the amphora, now empty, would be tossed over and sink to the bottom, left to mark the ship’s route.
 7. This finding reaffirms for us the vital importance of wine— both as the blood of the ancient economy and of ancient life in general—and tells us something important about the technical skill of the Romans as navigators.

Suggested Reading:

Fleming, *Vinum: The Story of Roman Wine*.

McGovern, *Ancient Wine: The Search for the Origins of Viniculture*.

Questions to Consider:

1. Can you account for the Classical world’s preference for wine over that even more venerable alcoholic beverage, beer?
2. How many modern commodities or substances overlap in our culture with the roles played by wine in antiquity?

Lecture Twenty-Nine

Shows and Circuses—Rome’s “Virtual Reality”

Scope: The theme of this lecture embraces the world of sport and entertainment among the ancient Greeks and Romans. In one sense, then, we are looking back to some of our previous themes, in which we’ve seen systems built around bread and wine that pervaded the agricultural, economic, social, and religious aspects of antiquity. At the same time, this topic of the ancient entertainment industry looks forward to some of our upcoming topics, including the infrastructure of technology and engineering in the ancient world, the roles of slaves and women, and general issues of economics and government. How did emperors manage to rule with the technology and communications available to them in the first centuries of our era, in an empire that embraced dozens of modern nations that could never get along today? They had tools other than the legions to make that a possibility. Juvenal, a Roman satirist, paid tribute to what he felt were the two obsessions of the people, cultivated by the Roman ruling elite and the emperors to ensure that the citizens would be obedient subjects. He said that, in olden times, the Roman people had been interested in governing and in bestowing consulships and offices on representatives who would then rule their empire. But in his day, the people desired only two things: *panem et circenses*, “bread and circuses.” In this lecture, we look at a well-known site of one of the Roman circuses, the Colosseum itself.

Outline

- I. Juvenal (A.D. 55–127) equated the public dole in Rome, a system under which citizens were given their daily bread, with the circus.
 - A. The circus for Romans was the racetrack, especially where chariot races were held. The great one was the Circus Maximus in Rome, an entertainment facility that could accommodate probably a quarter of a million people.
 - B. Instead of being an oval racetrack, the track at Circus Maximus was shaped like a paperclip, with a *spina*, a narrow wall that ran down the middle, around which the chariots would circle. The spina was ornamented with obelisks and statues of gods and emperors.
 - C. There was also a set of eggs and dolphins that were removed one by one to indicate the passage of the seven laps that were part of each race. The chariots probably took 8 to 10 minutes to complete a race.
 - D. The Circus Maximus has left minimal archaeological traces. The track can be seen, but most of the objects from the spina have long been taken away. Visitors must picture in their minds the slopes of the Circus Maximus, with wooden bleachers and the box for the emperor and his family, which led back to the imperial palace on the Palatine Hill.
- II. One feature of the Roman entertainment complex that doesn’t require our imagination is the Colosseum, the single most striking antiquity in Rome.
 - A. The Colosseum is located at one end of the Forum, over the site of an ancient lake. The site takes its name from the colossal statue installed there by the emperor Nero. In the year 71, the emperor Vespasian chose the earlier site of Nero’s pleasure lake and palace for a grand amphitheater, an oval entertainment complex for gladiatorial combats and wild animal shows.
 - B. Throughout the centuries, the Colosseum was never buried; it was always the most visible landmark in Rome. For this reason, it has had a reverse appeal for archaeologists. The structure was built with hydraulic concrete and high-quality travertine. Archaeologists have been able to dig into its foundations and see some of the engineering involved to make possible the magical shows and transformations in the Colosseum.
 - C. When the Colosseum was inaugurated, 9,000 animals were killed in the opening days. Exotic animals brought from Africa or Europe—bears, bulls, elephants, zebras, camels, lions—all fought in the sands of the Colosseum. When the animals were cleared away, gladiators with various kinds of armor and weapons would fight to the death.

- III.** German archaeologists have been working inside the Colosseum to try to understand how these contests were managed and how magical transformations were performed, with animals appearing from nowhere and castles or forests seeming to rise up out of the floor.
- A.** Dotted around the oval of the Colosseum were almost 30 lifts, elevator shafts that descended below the floor. Ropes and pulleys would have been run down each of these shafts, and simple lifts could bring up, from different levels, wild animals in cages, stage sets, or gladiators, all ready to appear magically at the level of the performing arena.
 - B.** The animals were brought up to a certain level, then released from their cages; they would run up a ramp and suddenly appear in the middle of the sand, without the audience being able to quite see where they came from. They would then fight, the day would wear on, and at the end, the carcasses were hauled off.
 - C.** Below the sand, deep in the bowels of the Colosseum, slaves would move sets into place to prepare for the next day's performance. The shows had to be timed exactly so that the appearances and disappearances would take place in dramatic sequence.
- IV.** The Colosseum excavations show evidence of how the site was prepared, with massive hidden foundations under the outer ring; how the structure was built; and how all the theatrical contraptions worked. The investment in terms of human ingenuity and money is staggering.
- A.** One inscription about the source of the funds for building the Colosseum has been found and has been interpreted by many archaeologists to be the wealth of Judea, brought back to Rome after the suppression of the Jewish Revolt in the late 60s and early 70s.
 - B.** We have images of the triumph of Titus, a future emperor and the general in charge of putting down the Jewish Revolt, surrounded by his troops as they carry the treasures of the temple of Solomon into Rome. The Romans looted Judea, and many people believe that's what made possible the huge expenditure to build the Colosseum.
- V.** The Colosseum is also the most obvious place where we can get a look at something that became a "virtual reality" for Greeks and Romans, an interest in the exploits of epic figures in the arena.
- A.** Charioteers were among the top members of the entertainment industry. Often, they were slaves and began their careers as teenagers. They learned the technique of wrapping the reins of the chariots around their waist and guiding the horses through the turns. Chariot racing was a risky endeavor, and many charioteers died in their 20s.
 - 1.** The lives of the charioteers show us one of the ways that slaves could achieve upward mobility into the ranks of accepted Roman society. We will talk about slaves in the ancient world in a future lecture, and we will see that the arrival of freed slaves in society did for the Romans what immigration does for the modern United States, bringing in new people to the citizen body.
 - 2.** In America, this process is lateral, coming from outside. In the Roman world, it was vertical, coming from below, from the ranks of the slaves. The charioteers are the most prominent examples of such people because they could make millions of *sesterces* through their winnings, buy their own freedom, and set themselves up as wealthy citizens.
 - B.** The epitaph inscription for one of the most famous charioteers, Diocles, illustrates the extent to which the virtual reality of the Roman arena occupied the minds of the people. Diocles was a charioteer of the red faction, and the writer of his epitaph recounts in great detail the statistics of his career. The archaeological discovery of this inscription seems to tell us, much more than any historical record does, about the concerns on the mind of the average Roman.
- VI.** Of course, both the charioteers and gladiators were also involved with animals, and one of the developing areas of Classical archaeology is faunal analysis, especially the study of animal bones.
- A.** A young Canadian paleozoologist, Michael MacKinnon, has been one of the leaders in this area for Roman archaeology. MacKinnon worked with our team on the dig at Torre de Palma in Portugal and was able to tell us that many of our animal bones were red deer. Forests must have covered much of that part of Portugal, and people had gone out on horseback, hunting the deer. There had also been an industry in our villa of turning the deer bone into hairpins, fishhooks, and other tools.

- B. Another aspect of MacKinnon’s research as a zooarchaeologist is to understand what species were brought to the amphitheaters for the famous wild animal shows, in which, according to the literary sources, thousands of wild animals fought humans and each other for the entertainment of the crowd.
- C. What were the mechanics of getting these animals out of their habitats, onto ships, and across the sea to Rome? The literary sources describe widespread destruction of habitat, a vast range of animals, and great reliance on African fauna. To what extent do these sources and the mosaics found at Piazza Armerina in Sicily and elsewhere tell us how these animals were captured in the wild?
 - 1. From the work of faunal experts and paleobotanists who reconstruct ancient ecologies of plants, we know that this quest for wild beasts at least partially brought on the destruction of the forests of North Africa.
 - 2. Today, the Sahara virtually reaches to the Mediterranean, but that wasn’t true in Roman times. In antiquity, there was a strip of forests, rivers, lakes, wooded hills, and plains, filled with an abundance of wildlife. All that is gone because of the hunting and deforestation of the Romans.

VII. The Roman tradition of games began, of course, with the Greeks. Recall from our visit to Olympia that the games were sacred to the Greeks, contests in honor of the gods. Archaeology has been able to fill in some blanks and show us some interesting corners of the ancient games that we wouldn’t suspect from historical texts alone.

- A. At Olympia, we know the list of the official games: chariot races; races on the backs of horses; chariot races with mules; footraces of different lengths; track and field, represented by the pentathlon; wrestling; boxing; and “all-in boxing” (*pankration*), which is like modern kick-boxing and in which contestants sometimes died. In addition to the games for men, at other times, there were games for women in honor of the goddess Hera.
- B. Not mentioned in historical texts about Olympia was a weightlifting contest that was not one of the official ancient games.
 - 1. A man named Bybon was said to have thrown over his head, with one hand, a stone weighing 315 pounds. We know this from the inscription on the stone itself, a reddish block of sandstone. This remarkable feat reminds us of those mysterious weights used by Greek long jumpers that enabled them to jump further than a modern Olympic athlete.
 - 2. In interpreting this inscription, we must keep in mind that the Greeks had centuries, even millennia, behind them, of intense emphasis on physical training. Remember the young athlete found in the tomb at Metapontum. Analysis of his bones revealed that his life had been devoted, since boyhood, to athletic training.
 - 3. Our tradition of sports on an intense amateur or professional level goes back only about 150 years. It’s possible, although modern athletes would disagree, that the Greeks achieved some standard of strength that we have not yet reached.

VIII. It’s not just individual objects but entire structures that help expand our knowledge of the ancient Greek athletics that lie behind the Roman obsession with sport and entertainment.

- A. There were four sites for ancient games: Olympia; Delphi, site of the Pythian Games in honor of Apollo; the Isthmus near Corinth, where games were held in honor of Poseidon; and Nemea, in the Peloponnese, where, as in Olympia, games were held in honor of Zeus.
- B. Since the early 1970s, American archaeologists from the University of California at Berkeley, led by Stephen Miller, have been digging at Nemea, studying the temple of Zeus and the sports complex there. One of the major discoveries was the tunnel through which the athletes walked from their changing area into the stadium. This tunnel, like the tunnel at Olympia, shows us that long before the Romans developed the vault, Greek architects had already done so.
- C. This tunnel, built around the year 320 B.C., bears graffiti written by bored athletes, standing around waiting for their events. One read, “Akrotatos [a man’s name] is beautiful.” Below this, another person scratched, “To the one who wrote this.”
- D. At Nemea and Isthmia, the system of the starting gate was worked out. Runners lined up along a long stone sill in the ground that had grooves in it—one for the left foot and one for the right foot.

1. Runners would crouch down in a position with their hands out front, ready for the starter's call. Postholes found in these stone sills obviously held upright wooden posts with rope strung between them to hold the runners at the start.
 2. Experimental archaeology has revealed that this system was effective for starting a race because the contest started when the poles fell over and the rope was taken down. Anyone who made a false start was simply tripped by the rope because it hadn't hit the ground yet and was automatically punished by falling down.
- IX.** These insights into ancient Greek athletics, along with all the material from almost 200 amphitheaters and countless hippodromes and circuses, have helped archaeologists build a complete picture of the sports and entertainment industry. However, we must always remember that the literary sources can show us aspects of attending these events that may not be captured in the archaeological record.
- A.** A wonderful example comes from Ovid's *Ars amatoria*, "*The Art of Making Love*," a series of poems in which the poet imagines men trying to enchant or charm women, one of which is set at the Circus Maximus.
 1. From this poem, we learn many things that archaeologists can't know. For example, the bleachers had painted divisions for each person's seat; we know this because the young woman keeps trying to edge away from the boor who is reciting the poem by Ovid.
 2. We know that printed programs were available because he fans her when she gets hot. No archaeological trace had survived of those. Finally, we know there must have been a grille in front of the seats, because he offers to tuck her toes up in the grille so that she can be more comfortable.
 - B.** Through this combination of archaeological and literary evidence, we get a rich picture of this industry. But we should never forget that such activities were perpetuated by the Romans to distract the people from the fact that they were living in an autocracy, an oppressive empire in which they had virtually no control over their own destinies. It seems to have been enough for the Romans that they could go to the arena or the circus and watch life-and-death struggles in the lives of others.

Suggested Reading:

Futrell, *Blood in the Arena: The Spectacle of Roman Power*.

Valavanis, *Games and Sanctuaries in Ancient Greece: Olympia, Delphi, Isthmia, Nemea, Athens*.

Questions to Consider:

1. What parallels can we point to in our own society of the Romans' preoccupation with sports and entertainment?
2. How just is Juvenal's criticism of Rome's leaders, who consistently provided the people with *panem et circenses*, or "bread and circuses"?

Lecture Thirty

Engineering and Technology

Scope: In this lecture, we will devote ourselves to archaeological discoveries that have laid bare some unsuspected achievements of ancient Greek and Roman engineers and technical inventors. We've had occasion, throughout this course, to talk about the wonders of ancient engineering; the control these engineers had over their materials, including the famous hydraulic cement; the interest they took in moving water from one place to another through aqueducts; and their naval engineering, which created fabulous pleasure ships and freighters that brought grain from Egypt to Athens or to Rome. All these achievements are the bedrock of Classical Greek and Roman engineering, and they formed a foundation for those civilizations. It's impossible to think of those achievements without including the engineers, architects, and technical crews that created such buildings as the Parthenon. In this lecture, we will focus on two discoveries that exemplify these wonders and have given us glimpses of ancient technical achievements that we scarcely dreamed possible. The first of these discoveries is from a Roman fort called Aquincum in Austria; the second is the Antikythera device, a creation of Greek engineers, sometime in the 1st century B.C., that puts the lie to that conventional belief that the Greeks were not interested in engineering and technology.

Outline

- I. In 1931, Lajos Nagy, director of the Aquincum museum, became interested in investigating the Roman fort's firehouse.
 - A. In the lower level of this house, which had itself been burned, probably sometime in the 4th century, Nagy found a strange mass of bronze tubes and pipes, along with an inscription dating the find to A.D. 228. His discovery was hundreds of pieces of a pipe organ, an instrument with a long and honorable history.
 - B. The pipe organ dates back to the time of the great Greek scholars and inventors at the library of Alexandria in Egypt and to one in particular, an inventor named Ktesibios (fl. 270 B.C.).
 1. Ktesibios applied water engineering to create a mechanical set of pipes constructed on the model of the panpipes.
 2. He made a number of bronze pipes of different lengths and set them on a wooden case with a water pump mechanism inside, allowing compressed air to be applied to the ends of the tubes. Specific tubes could be chosen by the instrumental performer by pushing down what amounts to a key, which would open the base of that tube and allow a rush of air to enter.
 3. This *hydraulos* operation probably required two people, one to operate the keyboard and another to pump to keep up the pressure between the water and the air inside the valves and pipes.
 - C. To reconstruct the jumbled mass of pipes, Nagy first had to determine their original orientation. This, in turn, required reconstructing the layout of the original building to determine how the organ might have fallen when the building was burning. Once he worked all this out, Nagy had what looked like a modern portable pipe organ that has since been put to the test.
- II. This *hydraulos* ties into one of the chief interests of Greek and Roman engineers: moving water.
 - A. As we've said, the Mediterranean offered a challenging landscape to the Greeks and Romans, and the long stretches between rainfalls left an imprint on agriculture. Olive trees, for example, became a backbone of Mediterranean agriculture, because they could survive through the dry season. Further, the great estates took their shape from the availability of only widely scattered sources of water.
 - B. One of the projects of the Athenian tyrants called the Pisistratids was the construction of an aqueduct to bring water to the Agora that they were developing to be the new town center.
 1. When the Athens metro was constructed, workers tunneling under the streets of the city hit the submerged aqueduct, a long pipe made up of sections of terracotta tubing. These sections, similar to miniature barrels with lips around the ends, led from the springs outside the city through the city wall.
 2. Cutouts in the top of these pipe sections would have enabled inspectors to see obstructions blocking the flow of water.
 3. At the Agora, a Y-shaped contraption was installed to divert the water flow into two different fountain houses.

- C. The project in Athens is an infant of engineering compared to the achievement on the island of Samos by another Greek tyrant, Polycrates.
1. Among his other accomplishments, Polycrates built gigantic moles, or jetties, to enclose the harbor at Samos, along with ship sheds for his war fleet.
 2. The water supply on Samos was insufficient for the expanding population of the capital city. Thus, Polycrates instructed his engineers to build a tunnel that would bring water from a source on the other side of a nearby mountain.
 3. The engineer who designed this tunnel is known by name, Eupalinos. Remarkably, he chose a spot on one side of the mountain for the ingress of water, a matching spot on the other side for the water to flow out and be diverted to the town, and a method of driving tunnels from either end until they met in the middle. A jog in the middle of the tunnel attests to how close the workers were to meeting at the midpoint.
 4. Distance, of course, was not the only issue; the angle for the flow of the water also had to be calculated accurately to take advantage of gravity. Miraculously, the difference in the height of the two tunnels working their way toward the center was only 1 meter.
 5. Having linked up, the two crews then dug a new tunnel alongside the walkway as the actual channel for the water, with deep shafts reaching the surface and smaller airshafts for maintenance workers.
- III. The Greek hydraulic systems were, of course, far surpassed by those of the Romans.
- A. The Greeks knew how to use gravity to move water from its source to a different place, but the Romans realized that water could actually go far below the level of its destination and be brought back up, using the water's own pressure.
 - B. At a site in Aspendos, in southern Turkey, we find the remains of Roman aqueducts that lead water from an elevated source across an immense plain. Towers at intervals on the plain carry the water up and down, enabling it to gain enough pressure to reach the next tower.
- IV. In addition to these waterworks, ancient Greeks and Romans also made achievements in building bridges, roads, and dams, some of them dating back to the Mycenaeans. Chief among the Greek achievements—and one known to us only through underwater archaeology—is a computer.
- A. In 1900, a shipwreck was found by a group of Greek sponge divers who had been forced to take refuge from a storm behind a rocky islet off the southern coast of the Peloponnese called Antikythera.
 - B. Over the next couple of years, archaeologists went back to the site and sent divers down to retrieve much of the material from the wreck. They found complete bronze statues of great beauty, as well as a small concreted mass that obviously had some metal at its core.
 - C. When one archaeologist began to chip away at the mass, to his amazement, interlocking gears of various sizes began to appear. Eventually, the chunk was taken to a scientific lab and exposed to X-rays and gamma rays to pierce through the mass of corrosion.
 - D. What was seen on the inside was dozens of gears, of many sizes, all obviously made to interlock, because all the teeth on the gears had the same angle, notches of 60 degrees, and were the same size. On the surface of the device were inscribed the signs of the zodiac and some numbers.
 1. To those who study ancient astronomy and astrology, these numbers, 76, 19, 223, were significant. The number 223, for example, is the cycle of lunar months that typically occurs between one eclipse and the next.
 2. The number 19 was the cycle of years in the calendar system invented by an Athenian named Meton, who had worked out a way to reconcile the solar annual calendar with the lunar religious calendar of Athens.
 3. The number 76 was from Callippus, an astronomer who had adapted Meton's 19-year cycle into a 4-year cycle that would have applied to the Olympic Games, for instance.
 4. Clearly, this wasn't some sort of simple sighting device. Each of the gears represented a heavenly body and its motions. The Sun and the Moon, for example, were represented by small gears; Jupiter and Saturn, each describing slow cycles that span years, were represented by larger gears.
 - E. The Antikythera device is in the National Museum at Athens today, still encrusted in its lump, along with a beautiful reconstruction. It was apparently enclosed in a wooden box for portability.

1. Inside the box were bronze plates inscribed with all the information about the heavenly bodies that could be tracked.
 2. A crank was turned to move all the gears one notch, enabling the movements of the planets to be synchronized and allowing users to predict eclipses and other phenomena.
 3. Most remarkably, it was possible to determine the zero date, the year in which the device had been set up, by working back to the beginnings of the cycles represented. The year was pinpointed to 80 B.C.
- F. This small treasure, of which there is no indication in any ancient text, completely surpasses all our previous ideas about the capabilities of ancient Greek scientists.

Suggested Reading:

American School of Classical Studies at Athens, *Waterworks in the Athenian Agora*.
De Camp, *The Ancient Engineers*.

Questions to Consider:

1. Individual gods presided over bread, wine, and olive oil. Why was there no single deity of water?
2. “Mediterranean” climates exist throughout the world. Do they breed a distinctive culture or lifestyle?

Lecture Thirty-One

Slaves—A Silent Majority?

Scope: In the last few lectures, we've discussed engineering, technology, trade, the production of bread and wine, and many other achievements of the ancient world that depended on an element to which we have not yet paid sufficient attention—the institution of slavery. Slaves are, to a great extent, invisible in the archaeological record because they didn't own anything. Our lack of evidence about slaves is problematic, because according to some ancient sources, slaves outnumbered free citizens in many cities. Indeed, that assertion is quite credible when we consider all the slaves who would have worked in the houses and farms, workshops and factories of a city such as Athens. In this lecture, we'll look at a site in the Laurion hills on the peninsula of Attica. In antiquity, hundreds of mineshafts, operated entirely by slave labor, were sunk down into these hills in the search for veins of silver ore.

Outline

- I. We begin with visual evidence of slaves, of which we have little.
 - A. As mentioned in an earlier lecture, Athenians had a mania for showing glimpses of everyday life in crafts and artwork. A famous red figure vessel, for instance, shows us the inside of a bronze worker's shop. The craftsman himself sits by the upright column in which the bronze is being smelted. Peeking out from behind the column is the assistant, reaching down to help the master.
 1. Is the assistant the slave, or is this the master's son or an apprentice? Is the master himself a slave, working as an expert craftsman for a master of his own, who then enriches himself with the products of the skilled slave's labor?
 2. We know of many such men in Athens, generals or demagogues, whose fortunes were based on slaves working in the mines or factories. Demosthenes, the famous orator, made his fortune from the labor of slaves who crafted flutes.
 - B. Similarly, it's difficult to identify evidence of slaves in buildings because, unlike the situation in the American South, slaves were integrated into the domestic architecture of the Greek and Roman world.
 1. We know that sometimes slaves were penned up in rooms that had no doors. Ladders had to be let down from a hole in the roof so that the slaves could climb out and do their daily work.
 2. Such square cubicles were found in the long rows of rooms at the Roman villa at Torre de Palma in Portugal. It's easy for us to think of these rooms as slave quarters, each with its own hearth, all in a row, close to the barns, stables, and granaries, but we don't know that's the case.
 - C. The problem of finding evidence of slaves is compounded further by the fact that slaves were involved in all parts of society. Again, unlike the situation in the American South, slaves in the ancient world were not basically unskilled and illiterate. Greek or Roman slaves could be craftspeople, scribes, or tutors and often held positions of great trust.
 1. Sicinnus was a slave who tutored the children of Themistocles, an Athenian general in the Persian Wars. Before the battle of Salamis, Themistocles sent Sicinnus to the Persian camp with a false report that the Greeks were planning to flee in the night. In reality, 300 Greek ships were waiting in the narrow straits between Salamis Island and the mainland. The Persians were lured into the strait, and the resulting battle was one of the most important naval conflicts in history.
 2. What became of Sicinnus? So successful was his mission that he was given his freedom and made a citizen of Thespieae. This is one example of the upward mobility possible in the slave system, which again, makes it difficult to recognize slaves from archaeological remains alone.
 - D. Analyzing the bones and cremated remains of ancient individuals may someday give us better clues about who the slaves were. Stable isotope analysis of the minerals in bones may even be able to tell us the water sources people drank from as children and, thus, their countries of origin.
 1. In this way, we might be able to pick out people born in France, Gauls, who were sold as slaves to Greek and Roman wine merchants in exchange for amphorae full of wine.

2. Analysis of bones can also tell us something about the burdens that slaves were forced to carry or move. Recall the young girl found at Herculaneum, whose massive muscle attachments showed that she had spent her life shifting heavy loads and running up and down stairs in her master's house.
- E. One of the most intriguing visual artifacts of slavery we have comes from the Piraeus in Athens. This is a necklace, a band of metal, inscribed with the name of the master of the woman who wore it. This find is an exception, however, to the general rule that material evidence of slaves is lacking.
- II. People often note that ancient slavery didn't have a racial basis, as did our brand of American slavery, but this assertion is not entirely true.
- A. Texts by Classical Greek writers tell us that most slaves were despised because they came from Asia. They didn't go to gymnasia when they were young, and thus, they were considered soft. As prisoners of war, they became expendable parts of the Athenian economy, of little worth as people because they were barbarians.
1. Note that the word *barbarian* meant someone who didn't speak Greek, and to the Greeks, there was only one language—Greek.
 2. The semantic arguments we read in the Greek philosophers come from the idea that the gods created one word to be associated with one thing, and that word embodied the essence of the thing. However, this system worked only in Greek.
 3. The term *barbarian* was a way of dismissing people simply because the language they spoke was not Greek.
- B. Certainly the fact that one source of slaves was international trade also speaks to a racial element in slavery.
1. Town trumpeters were well paid and highly respected, and we have some interesting Greek vases that show African trumpeters. It's quite possible that these people rose within the ranks of the Greeks in their new city-states.
 2. We also know that the policemen of Athens were slaves from Russia. They were Scythian archers, bowmen who had been captured during tribal wars in Scythia, sold to Greek slave traders, brought to Athens, and bought by the state.
 3. In the case of the Jewish Wars, thousands of captives led to a vast expansion in the world of Roman slavery. Under Nero, the Romans attempted to dig a canal through the Isthmus of Corinth, using perhaps as many as 8,000 slaves from the Jewish Wars. These slaves had been deported from their own country and taken to Corinth to spend their lives digging.
- III. Let's go now to the mineshafts in the Laurion hills.
- A. The Athenian people themselves, the *demos*, owned the mining district; individual Athenians would pay upfront for leases on the land and keep the profits from the ore their mines produced. This system for mining would not have been possible without the labor of tens of thousands of slaves—men, women, and children, old and young—serving in chains.
- B. The silver mines in the Laurion hills were the basis of Athenian greatness. Ironically, if they had not hit a reef of silver ore here in 483 B.C., the Athenians would never have had the wherewithal to build the warships with which they beat the Persians at Salamis. They would never have established their own liberty, fostered democracy, and gone on to become the rulers of a maritime empire—all of which was made possible by the backbreaking labor carried out by thousands of slaves in the silver mines.
- C. Each mineshaft was cut as a square, perhaps with a twist as it descended so that it could be braced with wooden frames. Some of the mineshafts reach down 100 yards into the hills. The slaves would have been lowered by ropes down these shafts into complete darkness, but each slave who would be digging also carried a lamp filled with olive oil that would burn for about 9 hours.
- D. From the bottom of the shaft, the slaves would move out through galleries into individual tunnels, each man with his pick, crawling into a tunnel that was probably only about 1 meter high. Each slave would probably chip away only about a hand's span into the mountain each day. We believe that children would crawl along the shafts with baskets or sacks to carry away the crushed rock.

- E. These miners were destined to die in the mines. They worked in the dark in incredible heat and were deprived of oxygen. They never knew when the next stroke of a pick might release toxic subterranean natural gas that might kill them.
 - F. Once the crushed ore was brought to the surface, it would be taken to washing areas, great table-like floors, covered with lime mortar, with channels around their edges through which water flowed. Slaves crushed the ore and carried it to the channels, where water washed over it. The heavy ore settled in basins that punctuated the flow along the channels. The ore would then be smelted, using charcoal, at furnaces tended by slaves.
 - G. At the other end of the Mediterranean, in the Roman world, were the Rio Tinto mines, which yielded lead and other metals. Centuries after serious mining stopped here, the landscape is still stained and polluted.
 - 1. About 100 years ago, Spanish archaeologists found enormous wheels of wood in the Rio Tinto mines, similar to small Ferris wheels. These were ultimately reconstructed as part of a water-lifting system to allow the mine to be dug below the water table. Excess water would be caught in buckets suspended around the edges of these wooden wheels and carried up to the surface.
 - 2. Slaves would have been standing inside these wheels all day, walking hour after hour to keep the system moving.
 - 3. The importance of these mines for Rome cannot be understated. By the year A.D. 79, production at Rio Tinto had reached such heights that lead pollution from the mines blanketed the Earth's atmosphere, reaching the Greenland icecap thousands of miles to the north.
- IV. What can we say about the lives of slaves who somehow escaped the animal-like existence of the miners and worked in households?
- A. As we've said, in the ancient model of slavery, people moved, at times, out of slavery. Some people became slaves through owing debts. If the debts were paid, they regained their free status. Others were slaves who became so indispensable to their families and so beloved by them that they would be freed on the death of the master. These slaves would ultimately take their places as citizens with full rights.
 - B. The public baths at Pompeii show us the range of experience for slaves. Below the floors of the baths, in darkness, tending the fires, were slaves whose daily lives were probably not much better than those of the slaves in the mines. Yet at the same time, slaves were also customers of the baths, enjoying the waters alongside their masters or with friends.
 - C. We also know that some slaves became the owners of businesses and were eventually able to buy their freedom. Among these was a group of silversmiths who were proud of the fact that they worked their way to prosperity and became fully accepted as free citizens.
 - D. Again in Pompeii, we have found bundles of documents of household accounts that give us a picture of slavery as much more dynamic than we might otherwise expect. Andrew Wallace-Hadrill of The British School at Rome has found documents of one household that included slaves, freed slaves, and offspring of the master and a slave mother.
- V. We'll close with an image to counter the happy thought of an upwardly mobile slave population in cities such as Rome and Pompeii.
- A. At Laurion, fortified towers guarded the landscape, and we found a similar tower at the Roman farm of Torre de Palma. A recent study by archaeologists from the University of California at Los Angeles, Sarah Morris and John Papadopoulos, has established that such towers existed on farms all over Greece to be used as places of confinement for slaves and to watch for those who tried to make a break for freedom.
 - B. This side of the Greek and Roman world fits poorly with our high ideas about their philosophy, political science, and cultural achievements, but it's a side that we should never forget.

Suggested Reading:

Thompson, *The Archaeology of Greek and Roman Slavery*.

Westermann, *The Slave Systems of Greek and Roman Antiquity*.

Questions to Consider:

1. How much of the “Classical achievement” depended on a system of slave labor?
2. If the city-states of the Italian Renaissance managed without slaves, why could not Athens and Rome do the same?

Lecture Thirty-Two

Women of Greece and Rome

Scope: In the last lecture, we looked at a sector of the ancient population whose voices are almost never heard or read in historical texts. This lecture concentrates on another almost voiceless and unrepresented branch of the ancient population, women. As we know, some women rose to prominence, including the poet Sappho and the great queen of Hellenistic Egypt, Cleopatra. For the most part, however, the voices of women are underrepresented or absent altogether from ancient texts. What evidence can we find in archaeology about women's lives and the extent to which this minimalization of women represents the day-to-day reality in the world of Greece and Rome? To answer this question, we'll visit a fort in Brougham, in the far northwest corner of the Roman Empire, on the west end of Hadrian's Wall.

Outline

- I. The fort at Brougham was known to exist, but archaeologists who were assigned to the site in connection with a road-building project in 1966–1967 were surprised by what they found there.
 - A. The focus of these British archaeologists was a cemetery at the fort, where they found the remains of cremated bodies and grave goods that would have been added to the funeral pyres as the fires were lit.
 - B. From the pottery, the archaeologists knew that they were dealing with a cemetery dating to A.D. 3rd century, the period when Roman emperors were trying to stem the tide of barbarian chaos. Rome went through a crisis in the 3rd century, and distant fortification sites, such as Brougham, were affected. Troops were moved there to guard the border.
 - C. The remains from the cemetery were separated in boxes according to whether they were found in a tomb or a deposit of cremated material. The lead excavator died in 1980, and this potentially valuable mass of evidence languished in boxes until the year 2000.
 1. In that year, Hilary Cool, an archaeologist working for a company called Barbican Research Associates, applied for funding to do what amounted to a dig in those boxes. She wanted to try to “excavate” the material that had been pulled out of the ground in the 1960s.
 2. Cool had a multidisciplinary team that included physical anthropologists (specifically, *osteoarchaeologists*) and pottery experts. The excavated material included beautiful examples of red gloss ware, once called Samian ware; bowls, such as the Roman legions used in their mess kits; glass and silver cups; and jewelry.
 3. The people had obviously been buried fully clothed because hobnails from boots were found that had been worn when the corpse was put on the funeral pyre. The positions of the boots in some inhumation graves also suggested the possibility that the boots had been placed as separate offerings on the pyre.
 4. A zoologist was brought in to study the animal bones, some of which would have resulted from feasting with the dead. Bones of horses were also found, indicating that a cavalry unit had been stationed there and some soldiers had been cremated with their horses.
 5. The bones of women, children, and the elderly were also found. These could be distinguished by such features as the gracile nature of the skull bones. Some distinctions could also be made based on the grave material for each person. For instance, the glass drinking cups seemed to be with the male bones and the buckets were with the women's bones. These finds seemed to bear out the traditional cultural divisions of men and women.
 6. Surprisingly, though, bone fragments and grave goods were found from what had obviously been high-ranking cavalry officers, and amazingly, they were young women between 20 and 30 years old.
 7. Cool thought, perhaps, that these might be the wives of high-ranking officers who were buried with their husbands' badges of rank. In hundreds of other graves, however, there were no other examples of one person buried with the trappings of someone else of a different social rank, gender, or age.
 8. Cool finally announced that she had found young females who had penetrated the world of the Roman legions as cavalry officers among the forces on the frontier.

- D. Other clues have also been found that women sometimes played men's roles in violent activities, particularly in England. For example, an inscription has been found that clearly describes two female gladiators named Achilleia and Amazona. In another Roman tomb in England, the trappings of a gladiator were found along with the remains of a woman.
 - E. The population posted at the fort at Brougham seemed to be from the Danube region, perhaps Sarmatians, a troublesome tribe conquered by the Romans sometime around the end of the 2nd century or the beginning of the 3rd. The Sarmatians were cavalry fighters and would have been required to perform service for Rome. It's possible that they carried a tradition of women fighting on horseback from the Danubian provinces.
- II.** Typically, such authors as Aristotle and Plato have a very low opinion of women, and we generally assume that they are speaking for the society as a whole. But we don't get the same impression in looking at the material remains of the Greek world.
- A. Among the burials found in the heart of Athens under the Agora was one of a woman who died in the 9th century B.C. Her tomb was surrounded by others, most of which had elaborate assemblages of grave goods. The most elaborate of all, however, was this woman's, buried at the time of the Greek Dark Ages.
 1. This tomb included large pots, jewelry, and a model of a granary that served as her cosmetic box. The granary had five minaret-like domes as its silos, placing it in the property distinction for the highest class of Athenians, the *pentakosiomedimnoi*, "the people whose farms produced 500 bushels of grain."
 2. Thus, we see a woman buried, not only with elaborate, costly things to show the wealth of her background, but with a symbol of land ownership and management.
 - B. If we look even further back in the Greek world, beyond the Classical period in the Dark Ages and into the Bronze Age, it becomes clear that women played an even larger and freer role.
 1. Frescos at Knossos, for example, show men and women together, equally, in a crowd gathered to watch the spectacle of the bulls.
 2. We might also recall the shrine to the mother goddess found by Harriet Boyd at Gournia, representing what may have been a strong matriarchal element in Minoan society, with an emphasis on goddesses as the supreme beings in the pantheon.
 - C. The prominence of women in religion endured into the Classical Greek period.
 1. Think of the hall at Eleusis, where the ceremonies of the mother goddess were celebrated. The initiates, men and women, seated side by side and completely undifferentiated, were born again as they experienced the mysteries of the goddess and her daughter.
 2. We frequently see that women carried out the rituals of Athenian religion, often apart from men. In many cases, men didn't even know how to enact these rituals, but the community could not survive unless certain rites were conducted by women.
 3. This prominence in religion climaxed at Delphi, where women spoke for the god Apollo as the most influential voice in the Greek world.
- III.** We sometimes automatically think that the range of role models available to a group of people in society helps shape their consciousness of their place in the world, and it's hard to imagine a stronger set of positive role models than were given to girls growing up in Athens.
- A. Athena, the warrior, was never seen without her helmet, her breastplate with a gorgon's head, her shield, her spear, and a great python-like snake, an emblem of her power. At the Parthenon, she is shown with a woman on her hand, Nike, who comes on wings to bring victory in every competition. Also seen with Athena is Artemis, the twin sister of Apollo, and Hera, the reigning queen of the heavens.
 - B. If we move to the Roman period, we see even greater possibilities opening for women. The supreme example is Cleopatra herself, ruling from a glorious palace; looking out on the Pharos, the lighthouse that was one of the Seven Wonders of the Ancient World; and reigning over her Egyptian kingdom from Alexandria, a city founded by Alexander the Great.
 1. Cleopatra was part of a great tradition of women as rulers and seemed to have no problem holding her own against Caesar, against male claimants of the Ptolemy dynasty to the throne, and against Mark Antony.

2. Until the end, she represented the most powerful force in the world outside the circle of Roman generals and leaders trying to snatch up the mantle of Julius Caesar. She was an able administrator and military leader and a woman of tremendous education.
- C. Inscriptions on the walls of Pompeii further negate the idea that women were marginalized in the Roman world. One is by Eumachia, a woman who funded a public structure in the town and participated in its dedication ceremonies. We also have Julia Felix's advertisement for her property, which she seems to have rented out in her own name.
- D. From these glimpses of women in Greek and Roman antiquity, we get a picture that differs from the image of the repressed, silent woman that comes to us from philosophical and historical texts. Our archaeological evidence accords better with the evidence from drama, where many of the tragedies and comedies feature women as heroines and protagonists. What we have found in archaeology calls for a reevaluation of the role and status of women in the Classical world.

Suggested Reading:

Lewis, *The Athenian Woman: An Iconographic Handbook*.

Pomeroy, *Goddesses, Whores, Wives, and Slaves: Women in Classical Antiquity*.

Questions to Consider:

1. To what extent can any culture's material remains reveal the relationships between the sexes, or the relative status of men and women?
2. Both Greeks and Romans were adept at delivering what we might call "propaganda" messages in art and other images. How might this affect our view of ancient women?

Lecture Thirty-Three

Hadrian—Mark of the Individual

Scope: In the last few lectures, we have looked at Greeks and Romans in the multitudes—women, slaves, people on the streets, engineers—thus, it seems appropriate to devote one session to a single person. There is a great conflict in the way we approach ancient history between those who are oriented toward the study of individuals—rulers, generals, and so on—and those who see the past as a succession of great movements and shifts involving entire populations. To what extent does the individual have an impact? Admittedly, looking at the ancient world through the lens of one person, in this case, a Roman emperor, is loading the dice toward seeing the power of the individual to change history. But when we turn our attention to the Emperor Hadrian, we see someone who truly did change the world of the Romans and Classical antiquity in a way that would have been difficult to predict before his time. The site where we will begin this lecture on Hadrian is Troy.

Outline

- I. You may recall that the Romans linked their own existence to the refugees from Troy, specifically the Trojan prince Aeneas who fled across the Mediterranean and established a town in Italy that led to the rise of Rome.
 - A. When the Romans took what is today Turkey into their empire, Troy was one of the cities they targeted for the establishment of a new civic center, calling the city there Ilium.
 - B. Recently, the Roman levels at Troy have been dug by archaeologists from the University of Cincinnati, led by Brian Rose. In 1993, this team was working in the odeon and discovered that it had been refurbished by and dedicated to the Emperor Hadrian; they also found a larger-than-life statue, in marble, of the emperor.
 1. The statue is wearing a very simple *cuirass*, bronze body armor, with just one decoration on the chest. He looks like a true field commander, and Hadrian was, indeed, one of the soldier-emperors.
 2. The statue shows Hadrian with the smooth-shaven face and bowl-style haircut of a proper male Roman, but this image of a soldier is somewhat deceptive. Hadrian, in spite of being a successful general, was the emperor responsible for setting limits to the Roman Empire and stopping the relentless process of expansion.
 3. Even the statue's beardless cheeks send a cultural message. Hadrian was the first emperor to wear a beard, which was not a neutral matter of choice in Roman culture. In wearing a beard, he presented himself as a Greek and revealed two conflicting strands of imperial thought: The love of things Greek and the desire to champion Greek culture stood in opposition to his position as the leader of the warrior culture that had conquered the world, as well as his own desire to set defensible limits to the empire.
 4. These desires sum up some of the conflicts in the character of Hadrian himself, who is certainly the most complex and difficult to understand of all the Roman emperors.
 - C. In this lecture, we'll try to understand Hadrian through his works, tangible artifacts that have been left behind from his reign which archaeologists have discovered across the Mediterranean world and up to the northern frontiers of England. These artifacts range from a single coin to an entire defensive wall running for many miles across the land.
- II. Hadrian was born in Italica, in the south of Spain, in A.D. 76. When his father died, Trajan took charge of the boy, and because Trajan was childless himself, Hadrian became his heir and married Trajan's great niece.
 - A. By A.D. 117, when Trajan died, Hadrian had campaigned across the empire and had come to know it on a personal level from having fought on its frontiers. As emperor, he and his wife, Sabina, traveled around the provinces, visiting some of the thousands of cities, establishing new towns, and erecting or refurbishing buildings.
 - B. Up to his time, the provinces were regarded as captives, an array of nations and regions that the Romans had conquered and that were now tied by conquest to Rome. In contrast, Hadrian saw the provinces as a family of peoples linked to Rome by ties of community, common purpose, religion, and culture.

- C. Hadrian struck coins and created images that would send this message to the Roman people. He erected fabulous buildings throughout the empire and funded public works projects. He had his artists create iconic statues of the provinces, personified as women and linked to Rome, the ultimate mother figure, in this great family of peoples.
 - D. Among Hadrian's most popular moves was the reduction of taxes. In fact, we get a glimpse of his largess to cities throughout the empire in the matter of taxes from a rare discovery. In Aphrodisias, the city of Aphrodite in Turkey, letters from Hadrian to the town have been found inscribed into stone for all the citizens to read. One letter in particular releases Aphrodisias from paying a tax on iron.
- III.** Hadrian was aware of problems all along the northern frontier—the frontier where the German tribes had massacred the Roman legions in the Teutoburg Forest in A.D. 9.
- A. The emperor toured the northern frontier and created a massive defensive line, stretching from Eastern Europe to the Rhine, with walls, fences, cleared zones, forts, and camps.
 - B. He then crossed over to England and toured that province. One of his methods for gaining inside information was to remove his insignia of rank, wrap himself in an old cloak, and sit with the soldiers at night to hear what the rank-and-file were talking about.
 - 1. We have one report written on a wooden tablet from Vindolanda that sums up the kind of information Hadrian might have gathered in this way: The soldiers complained that the Britons, whom they called Brittunculi, “wretched little Britons,” didn't stand still to fight and were able to throw their javelins from running horses.
 - 2. In response, Hadrian decreed that a wall should be built from sea to sea across the northern narrow neck of Britain. The wall would have watchtowers along it, gates, and forts. This immense fortification was, on the one hand, a proclamation of Roman power and wealth, but on the other hand, an admission of partial defeat.
 - 3. Hadrian had given up on the dream of Alexander the Great and early emperors that Rome would continue to expand until it truly ruled the world.
 - 4. The line drawn across Britain that we know as Hadrian's Wall—that line of fortifications all through central Europe that gave the army a feeling of security—represented a turning point in Rome's history and in Rome's idea of itself.
 - C. In this situation, it was all the more important to emphasize the positive—Rome's previous triumphs and the happy family of provinces. For this reason, Hadrian erected triumphal arches, completed a gigantic temple to Zeus begun by the Peisistratids, and funded other projects.
 - D. The province of Judea gave Hadrian great trouble during his reign. Jews there rebelled against pressure to embrace Roman culture, particularly pagan gods. Hadrian ultimately went to Judea himself to repress the revolt and built a triumphal arch in Jerusalem, proclaiming his victory over the Jews. His exile of the Jews from their own country resulted in the diaspora of the Jewish people.
- IV.** Hadrian was also responsible for extraordinary projects in Rome. In fact, whenever he traveled, he was accompanied by engineers and architects to carry out his wishes for a new aqueduct, arena, or some other feature for a remote city.
- A. Hadrian erected a temple of Venus and Rome and a great bridge across the Tiber River, leading to a gigantic cylindrical building that would ultimately serve as his tomb.
 - B. He decided also to rebuild a structure that had been built by one of his predecessors, Augustus, a *pantheon*, that is, a temple for all the gods.
 - 1. Hadrian's name is not on the Pantheon; instead, he preserved the inscription from the original building erected by Augustus, which attributes the construction of this great temple to Marcus Agrippa. This inscription deceived people for centuries about the true date of the Pantheon.
 - 2. Archaeologists finally determined the real date by studying the structure of this engineering marvel. The Pantheon is a circular building with a great dome, a masterpiece of Roman concrete engineering. It sits, as archaeologists discovered, on a vast donut of brick and concrete sunk into the ground. The cylinder rises to the base of the dome; then the dome soars out—a perfect hemisphere.
 - 3. From the top of the dome, which has a 30-foot-wide *oculus*, or “open eye,” to the floor in the center of the circle below is exactly 142 feet. Half of that is the hemisphere that is the dome itself. The other

- half would be a perfect invisible hemisphere with the south pole, as it were, on the floor and the north pole being up in the oculus. The structure is a perfect mathematical solid, a cylinder and half a sphere.
4. Within the building, we can see one final testament to Hadrian’s genius. The lower parts of the cylinder and the dome use heavy stone for the aggregate in the concrete of which they are made. As the dome rises over the floor, the Roman engineers switched to pumice for the aggregate. Thus, the structure actually gets lighter as it rises and was, therefore, more capable of holding itself up, which it has done for 2,000 years.
- V. We see much of the public side of Hadrian, but what do we know about the private man?
- A. We know that Hadrian loved hunting because he loved to show himself at the hunt. Circular reliefs often show Hadrian with one foot planted on a lion. One of his horses was named Borysthenes, and when the horse died, Hadrian had a monument erected for it that included a poem reminiscing about his wonderful equine companion.
 - B. At some point on his journeys, Hadrian met a young man from a Greek community called Bithynia, near the southwest end of the Black Sea. This young man’s name was Antinoös, and he became part of Hadrian’s court as he traveled around the empire.
 1. Antinoös was one of the most handsome young men of the age. He died when he was about 20, but during the few years that he was with Hadrian, we know he was also a companion of the hunt.
 2. A recent archaeological study uncovered a jar in Egypt containing a papyrus that records an epic poem describing a lion hunt that Hadrian and Antinoös went on together.
 3. We don’t know if Hadrian’s relationship with Antinoös was another example of the emperor’s expressing his love of all things Greek, or if Antinoös took the place of a son for Hadrian. We do know how strongly Hadrian felt about Antinoös because when the boy died on a state visit to Egypt, Hadrian made him a god.
 4. A city was built on the banks of the Nile, Antinoopolis, in memory of the young man. His worship was taken up with enthusiasm by people throughout the Roman Empire who were looking for a religious savior figure.
 5. At Delphi, French archaeologists discovered a marble statue of Antinoös, dedicated by the people of Delphi to Hadrian as a mark of honor, because this emperor had done so much for Delphi, as he had done for Athens and other Greek cities.
 - C. When Hadrian became old and ill, he retired to a villa called Tiburtina (Tivoli) that he had created outside Rome. Here, acre after acre was filled with a sort of theme park of buildings in imitation of different places around the empire: Erechtheion, the porch with the maidens as caryatids, holding up the roof; the Acropolis at Athens; or the Canopus, inspired by the Nile River and his visits to Egypt.
 - D. Hadrian died on the Bay of Naples, leaving behind a poem about his life that is as enigmatic as everything else we know about him. In the poem, he calls himself, “*animula, vagula, blandula*,” “little spirit, little wanderer, little charmer.” For the emperor of the world to view his own soul as a drifting wanderer leaves us with a final question mark.
 1. If we look at the work of the man, spread across the Roman Empire, we can see that he tried to remake that empire, set limits to it, and glorify its Hellenic elements—both in his public and private lives.
 2. Just as the emperor’s great wall was both an emblem of glory and an admission of defeat, so were his attempts to Hellenize the empire, to hold back time and change. We see a record of failure with Hadrian, an inability to keep at bay the shadows that would soon fall over the Roman Empire, even in the midst of incredible glory.

Suggested Reading:

Birley, *Hadrian: The Restless Emperor*.

MacDonald and Pinto, *Hadrian’s Villa and Its Legacy*.

Questions to Consider:

1. According to one Roman biographer, Hadrian died “hated by all.” Does his record suggest the reason?
2. Would the material record of our modern world suggest the presence of any individual Hadrians since the time of the Renaissance?

Lecture Thirty-Four

Crucible of New Faiths

Scope: One of the themes we touched on in our last lecture was religion, specifically new religions emerging in the Roman world. Hadrian, the emperor we looked at last time, was himself the target of devotions by cities and launched a new religion by establishing the cult of his dead favorite, the young man Antinoös. This was in line with the essentially polytheistic basis of Greco-Roman civilization; people worshiped many gods and had no difficulty accepting new ones. Throughout the ancient world, there was a blending of gods from different cultures. But in A.D. 1st and 2nd centuries—the time when the emperors, starting with Augustus, were trying to distract the attention of the population with shows and entertainments—a contrary force was operating in the empire. This force took the form of a craving for religious experience over the “virtual reality” of the sports world. Although their everyday lives may have become more comfortable, the people were politically oppressed under Roman rule, and many desired something more, perhaps something like the mysteries of Eleusis, a feeling of direct contact with divinity. To look at the archaeological record of that desire, represented by the creation of new cults, we’ll go to the eastern extremities of the Roman world, to a site called Dura-Europos.

Outline

- I. In the spring of 1920, a troop from India, part of a multinational peacekeeping force assembled after World War I, discovered a fresco at a bivouac on the Euphrates River. The spot was itself a natural-seeming fortification, a high place with earth and mounds around it that looked like ramparts.
 - A. This fresco showed auxiliary troops of the Roman Empire—almost 2,000 years before—lined up behind their Roman commanders. These were men who had obviously served from this area of Syria under Roman command to secure this spot on the Euphrates for Roman control.
 - B. Off to the west was Palmyra, a caravan city whose queen, Zenobia, was troublesome to the Romans. Palmyra was part of a caravan route into the heart of Asia, which brought precious metals, gems, spices, silk, and other treasures out of Asia and into the Roman world. This newly discovered spot would seem to have been part of the network of caravan cities on the eastern fringe of the Roman Empire, but no one had known of a Roman presence at this point on the Euphrates.
 - C. Later that year, James Breasted, a young American archaeologist, working at the Oriental Institute at the University of Chicago, was invited to come to the site to do some digging. His initial exploration touched off years of excavation and quickly uncovered an inscription showing a goddess of the town whose name was Tyche, the “good fortune” of Dura.
 - D. This discovery led the archaeologists to a name for this site: Dura-Europos. Europos had been the Greek name when it was founded in about 300 B.C. by the successors of Alexander the Great, and Dura was the name that the Romans had given to it, meaning “fortress.” The site is still being worked today, because it offers evidence about Roman military life on the frontier and an unmatched array of religious centers for different faiths.
- II. The Romans took over Dura in about the year A.D. 160, holding it for just under a century before it was recaptured by the Parthians, the ancestors of the modern Persians and Iranians.
 - A. The military aspects of the site were spectacular. Thanks to the siegeworks and the walls of the town, such artifacts as the frescos that were found in some of the religious centers were sealed in and preserved under the fallen ramparts.
 - B. Archaeologists found graffiti, dated to the year that we would call A.D. 238, that read, “The Parthians have fallen upon us.” Obviously, there had been an attack from the east; evidence of an assault by a Parthian army was also found outside the Roman garrison.
 - C. Towers were found in the fortification wall, under which the Parthians had dug a tunnel, a mine, held up with a wooden framework. Their plan, apparently, was to set fire to the wood, which would collapse the

mine and bring down the tower. The Romans must have gotten wind of this plan, because they dug a countermine, but the Parthians also destroyed that. An underground battle took place, leaving the bodies of Roman soldiers still inside the countermine, to be discovered by archaeologists 1,800 years later.

- III.** In the heart of Dura-Europos was a Greek agora, just like the one in Athens, a central civic and religious space. There were temples to the Classical gods of the Greco-Roman pantheon, along with a Jewish synagogue and one of the oldest places of Christian worship ever identified.
- A.** The people of Palmyra had come to Dura and created a temple to their gods, such as Bel or Baal, who were part of the ancient Near Eastern tradition. There was also a temple to the god Mithras, from the Persian tradition. The cult of Mithras was particularly popular with the legionnaires. Mithras represents the kind of cult that could have become dominant in the centuries to come but didn't.
1. In the cult of Mithras, men would go down below ground level into an artificial cave, set up as a rectangular chapel, with rows of seats. In rituals of initiation that involved slitting a bull's throat and spilling the blood on the initiate, they paid tribute to their god.
 2. Mithras was a young man, wearing a stocking cap that was a mark of Phrygians and Asiatics. In some representations, he kneels with one knee on the back of a bull, an emblem of brute nature; Mithras pulls the bull's head back and cuts its throat.
 3. Through the act of killing the bull, Mithras represented the triumph of light and good over darkness and evil. This image of a divine hero, fighting on behalf of humanity and overcoming the powers of darkness, was an appealing one. It came into Christianity in the guise of the *Manichaean heresy*, the idea that the world was a battlefield between forces of light and darkness. God would triumph, but it was a battle that hung in the balance and involved heroism in the winning.
 4. In spite of its popularity, Mithraism finally fell out of favor, perhaps because the religion was limited to adult males, particularly soldiers.
- B.** Just up the street from the temple of Mithras was a Christian center. The Christians had just been expelled from synagogues across the empire by Jews, who no longer saw any compatibility between the Jewish traditions and the new Christian ones.
1. Christianity became an underground religion, its adherents, mostly women and slaves, meeting in secret. This religion would grow in a way that neither Mithraism nor Judaism could.
 2. At Dura, the Christian shrine was a house converted to religious use. The Christians did some remodeling of the interior structure, and on the walls, they added scenes from the Old Testament and from the life of Christ and his ministry.
- C.** We must always be careful, from an archaeological standpoint, in judging a faith by its symbols, but it's possible to make certain assertions about early Christianity from the kind of place that enshrined its worship. Archaeologists are interested in the places of worship, the artifacts used in ceremonies, the symbols, the paintings and statues, and finally, any traces of rituals that were performed.
1. Just the fact that they worshiped in a house tells us something about early Christians. There is a sense of informality and family; women and slaves were part of the natural picture because the worship took place in a family dwelling.
 2. There was no sign in this church of hierarchies with powerful church figures on top and a subservient congregation accepting their words and their rulings below. All were equal.
 3. In this early Christian period, although not specifically represented at Dura, we know that worship had a feature called the *agape*, the "love feast." This tradition descended from family meals of the ancient pagan world, in which people imagined that they were feasting with their dead loved ones.
 4. The symbols of the early church—fish, anchors, ships, lighthouses—emphasize the feeling of life as a voyage. All these watery images, of course, also call up the idea of God separating the waters from the rest of the Earth, as well as the baptism in water, which is important symbolically in Christianity.
 5. The fish fits in with the watery images and, in itself, is a secret anagram. The letters of *fish*, *ichthys* in Greek, are the opening letters of the Greek phrase "Jesus Christ, God's son, the savior." Just by showing a fish, early Christians could evade the attention of the Roman authorities but proclaim themselves to others who were also part of that secret cult.
- IV.** As we know, Christianity experienced an extraordinary flowering at the turn of the 3rd century.

- A. Toward the end of the 3rd century and the beginning of the 4th, the Roman Empire was under attack and besieged from within by dissension among its leaders. One of the leaders who was trying to establish himself at that time was Constantine.
- B. Camped at the Milvian Bridge and knowing that he would soon face the armies of another contender, Constantine told his army that he had had a dream, in which he had seen the symbols of Christianity—his mother’s religion—on their banners and shields. He had heard in his mind a voice saying, “*In hoc signo vinces*,” “In this sign, you will conquer.” The soldiers put on the Christian symbols, went into battle the next day, and were victorious; Constantine became emperor.
- C. Ultimately, Constantine would have an impact as great as that of Hadrian on the fabric of the Roman Empire. He created a new capital in the east in the ancient Greek city of Byzantium, which he called Constantinopolis, “Constantine’s city.” In so doing, he divided the empire in two and ensured that the eastern side, with its Greek center, would survive long after the western side, now divorced from the exclusive attention of the emperors.
- D. Constantine had also embraced Christianity—not Mithraism, not the religion of Isis, not any of the other possible cults—but Christianity. His sons, including Constantius II, who was a fervent Christian, began the process in which the pagan temples would be closed.
- E. The whole empire recognized the arrival of Christianity as the state cult. The religion that had been condemned, the religion that had been persecuted, now was brought into the light of day, honored, and fused with imperial authority.
 - 1. An extraordinary archaeological find from the Palatine Hill shows us how despised Christianity had been. In a guard’s house there, dating from sometime in A.D. 1st or 2nd century, is a graffito showing the image of a cross. Crucified on the cross is a being with the body of a man and the head of an ass. A man is off to one side with his hands raised in the position of adoration. Underneath, a cynical Roman soldier has written, “Alexis worships his god.”
 - 2. It’s amazing that this religion, which had been outlawed and scorned for centuries, was now brought into the limelight as the official religion of emperors.
- F. With its new status, Christianity needed a new home. There had always been a tradition in the Greek and Roman world that temples lay at the heart of communities, that the state religion was an essential part of experience. Thus, Christianity would have to move out of small houses for worship, and the family feeling would be lost.
 - 1. The new building form chosen, the basilica, traditionally used for large buildings that could accommodate crowds of people, left its mark on the nature of the religion itself.
 - 2. Within the space of the basilica, hierarchies were naturally created, with a sense of power and judgment that was miles away from Dura-Europos and the warm family feeling embodied by Christianity when it was still a small cult struggling for recognition on the frontiers of the Roman Empire.

Suggested Reading:

Mancinelli, *The Catacombs of Rome and the Origins of Christianity*.

Ulansey, *The Origins of the Mithraic Mysteries: Cosmology and Salvation in the Ancient World*.

Questions to Consider:

- 1. To what extent can the physical trappings of a religion truly convey its beliefs?
- 2. Did the Greco-Roman culture in which Christianity developed play a greater role in shaping the new religion than its Judaic roots?

Lecture Thirty-Five

The End of the World—A Coroner’s Report

Scope: Our theme in this lecture is the end of Classical antiquity and the fall of the western Roman Empire, an event we can’t date with precision. We have some convenient years to start with, such as 376, the year in which the Goths crossed the Danube into the Roman Empire, or 476, the date of the last western Roman emperor, Romulus Augustulus. We might point to the year 391, in which Theodosius closed all the pagan temples and banned pagan worship, including the consultation of the Delphic Oracle and the Olympic Games conducted in honor of Zeus. In 409, Rome itself was sacked, leading in 410, to the recall of the legions from such provinces as Britain. All these dates are popular choices for pinpointing the end of Classical antiquity, but history shows us that the fall of the western empire was a process, not an event. In this lecture, we’ll look at the material evidence for important changes between the Classical world and the time that came after it, revisiting the site of Torre de Palma, the villa in the ancient Roman province of Lusitania.

Outline

- I. The writer who perhaps gives us the best view of the end of the Classical world is Edward Gibbon (1737–1794) in his gigantic work, *The History of the Decline and Fall of the Roman Empire*.
 - A. Gibbon’s work starts when the Roman Empire appears to be at its height and ends in the 15th century, with the final seizure of Constantinople by the Turks.
 1. Gibbon gives us a beautiful image to illustrate his view of those centuries; he compares the gradual fall of the Roman Empire to a fabric that crumbled due to its own weight.
 2. That image also sums up what archaeology has to show us about the end of Classical antiquity. It was not immediate; the empire was like a fabric of woven threads going in different directions, interlocking, each thread depending on the other, and it crumbled, rather than being torn.
 3. Gibbon carefully chronicles all the barbarian invasions that brought hordes of Germans, Goths, and other outsiders into the former territories of the Roman Empire to claim the provinces as new barbarian kingdoms. Gibbon is aware that these invasions were the final blow to the empire, but the real cause was something from within.
 - B. The idea that the Roman Empire fell is modern. Ancient writers were not aware that events were happening in their lifetimes that brought on the end of their way of life.
 1. The idea of a fall took hold in the Renaissance, in Florence, with thinkers who were involved in the revival of Greek and Roman learning. They perceived a vast space across the centuries that separated them from the Greeks and Romans and the present, a period they called the Middle Ages. There must have been a decline into darkness, then, from which the Renaissance thinkers could emerge.
 2. Some of the famous names of the Italian Renaissance were involved in this debate. Petrarch, inventor of the sonnet and a scholar and collector of antiquities and coins, promoted the idea that the Roman Empire fell apart from within. Machiavelli, who studied ancient Greek and Roman warfare and politics, put the blame on the barbarians. Without them, he believed that the empire could have survived.
 - C. Some modern scholars hark back to the medieval view that the empire never fell—it just gradually transformed itself. Indeed, this theory has become popular among historians today. These scholars see a period of *transition*, not a decline or fall, between A.D. 2nd century, after Hadrian, when events start to turn against the Romans, and the year 800, when Charlemagne was crowned in Rome and revived, in a political sense, the Holy Roman Empire.
 - D. From an archaeological point of view, I believe that the evidence shows a death, although many historians might disagree. One of the questions we must ask in looking at the end of the Roman Empire is: What evidence do we emphasize—indications of continuity or indications of loss of cultural traditions and changes? My impression from the evidence is that a great civilization did go under, but some of its interlocking parts spun off separately and survived.

- II.** As you remember, the villa at Torre de Palma was a fantastic complex with a manor house, bathhouses, and gardens, all decorated with mosaics and frescos. The villa shows us the amenities of a rich Roman house, whether in Rome itself, or Pompeii, or the Portuguese countryside.
- A.** Surrounding the villa was a working farm with a gigantic olive press, stables for racehorses, quarters for slaves, granaries, and wine presses. The farm was obviously an economic powerhouse, not only supporting the local people, but producing cash crops and livestock in such abundance that they became an important element in the imperial economic system.
- 1.** As a site, Torre de Palma survived almost to the time of the Arab invasion shortly after 700, when the Moors came across from North Africa, eliminated the remains of Visigothic royal power, and made most of Iberia part of the Islamic world. After that period, we have only a few of sherds of Islamic pottery from Torre de Palma; we know then it was not an active farm.
 - 2.** Roman traditions and tools survived at Torre de Palma, however, right into the late 20th century, which would seem to be good evidence for continuity of the civilization.
- B.** If we go a little bit north from the villa and come to the basilica, we find the tombs of those who were running the farm in the centuries after Roman power was broken.
- 1.** In these tombs, we find bits and pieces of the Roman villa itself, torn out and carried to the churchyard. Huge rectangular slabs of concrete that served as the gutters around the impluvium were later used as the walls or capstones of tombs. Column capitals were pulled from the house and lintels from doors; roof tiles were used to line the tombs, which tells us that the roof no longer existed.
 - 2.** These architectural pieces became meaningless in their new role as part of a tomb. At the base level of agricultural tradition, we find continuity, but the great emblem of Roman civilization, the villa itself, was dismantled.
- C.** In walking around the villa, we notice places where the mosaics have been roughly patched or even paved over by people who no longer have the money or, perhaps, the technical skill to repair them.
- D.** The lovely colonnades around the atrium, once open to the air, are now filled in with solid walls for security.
- E.** We get a mixed feeling from the tearing apart and gradual transformation of the villa. We see the demise of a great system, of which the villa was a flower, and the system itself, now dead, leaving behind only the base level of continuity and a new cultural tradition, based on the basilica, rising to the top.
- III.** What was happening at the same time elsewhere in the empire?
- A.** The Roman Empire was, among other things, a great economic engine. It was the center of a global trading system that had its western end in the Canary Islands and reached all the way east to China. From north to south, the network ran from Sweden and the Baltic to equatorial Africa, and all the lands in between were part of this vast system.
- B.** From archaeological evidence, we know that this system went under. What had been commonplace—markets in every town of the Greco-Roman world, where goods from faraway places were available to all—disappeared. As the centuries progress, we find a subsistence economy based on short-range trade and around far fewer major centers.
- C.** The great cities themselves went under. In the year A.D. 609, the pope petitioned the emperor in Constantinople for permission to turn the Pantheon into a church. Rome was, at that time, a village of a few thousand people, where it had once been a city of 1 million. All its gigantic monuments were now empty or in shambles.
- D.** Remember that we are looking at A.D. 3rd, 4th, and 5th centuries of the western empire. The eastern empire was still thriving, to some extent, thanks to that older, more entrenched Greek tradition and the presence of the emperor in Constantinople. But the western empire was in decline. Rome's fate is emblematic of many cities, most of which were abandoned.
- 1.** Most of the cities in the western empire were no longer safe. Regional security was in the hands of a few strong military leaders, and villas in the countryside became the headquarters for these people, the nuclei of new towns. The cities were targets for wandering hordes because they were filled with goods that could be sold, but they were dangerous for settled life.

2. The great trading systems and the system of cities—the *polis* of the Greeks, the *urbs* of the Romans—were bedrocks of Classical civilization. The idea of a human being, a citizen in the Greek and Roman world, was tied to a city. If the cities were no longer habitable, Classical civilization could no longer exist.
 3. We can see a flight of people, particularly the wealthy, from the cities in the final centuries of the Roman Empire in the west. These people moved their households to the country and created islands of civilization outside the city.
- E. We see the same trend in Greece. In the 2nd century, when Hadrian was traveling through Greece, he was invited to the Roman-style villa of a famous Athenian, Herodes Atticus.
1. This man had donated a gigantic theater on the south side of the Acropolis to his fellow citizens, in keeping with the tradition of his predecessors in Attica. His own home, however, was not in Athens; he had built himself a palace, far to the south in a seaside town called Nafplio.
 2. Archaeologists are now bringing this villa to light. Among the other visitors, besides Hadrian, were philosophers, entertainers, and public figures. All the influential people from the city had retreated to the countryside.
- F. Thus, even this fall of the cities seems to be something that we can associate with Gibbon's crumbling fabric; forces from within were pulling the economic and social support for city life out from under those who must remain in the city to make their living.
- IV. The environment also played a role as the backdrop to this picture of decay and decline.
- A. The Mediterranean environment was steadily degrading. Pollen studies show that once the first farmers came into the Mediterranean, 7,000–8,000 years ago, a process of deforestation began; at the same time, good soil was loosened from the slopes. As mentioned in an earlier lecture, Plato himself was aware of these changes.
 - B. Scientists on the research vessel *Aegeao* have used subbottom profilers to see how thick the sediment is on the floors of the seas around Athens and the Greek coast to the north. In some places, they have found what appears to be up to 45 feet of mud. These are sediments that came sweeping off the mountains in historic times, completely covering the sea floor. The mountains themselves are bare down to the water's edge.
 - C. This deforestation, in turn, had an impact on rainfall, the temperature, the number of crops that could be raised, and the extent of farms; the very basis for wealth in that world eroded away.
 - D. Even cities suffered from environmental problems. In Ephesus, the river that comes out of the interior of Asia Minor was silted up at its mouth from the erosion of the mountains and hills along its upper course.
 1. In the days of the Ionian Greeks, Ephesus was one of the greatest cities in the Greek world, and it remained so into the Roman period.
 2. In time, however, Ephesus was left high and dry, miles from the coast, as the river filled up its delta; marshy swamps teeming with mosquitoes made the city dangerous to inhabit. Ephesus was left behind, gradually becoming a ghost town.
 - E. Through these processes, populations, cities, and economic systems were lost. All these factors together are threads in Gibbon's fabric, which archaeologists can see, one by one, were broken. Which thread was the one that ultimately caused the fabric to crumble beyond repair is an issue we continue to debate.

Suggested Reading:

Brown, *The World of Late Antiquity, AD 150–750*.

Ward-Perkins, *The Fall of Rome and the End of Civilization*.

Questions to Consider:

1. Based on the physical record of the Classical world, was the collapse of the western Roman Empire and Classical civilization inevitable?
2. From a historian's viewpoint, Gibbon saw the decline and fall as the crumbling of a fabric. What other metaphors might the archaeological record suggest?

Lecture Thirty-Six

A Bridge across the Torrent

Scope: We've come a long way in this course since we first followed Roque Alcubierre down the well shaft at the site of Herculaneum in 1738. We witnessed the birth of Classical archaeology when he came back to the surface and wrote down what he had seen, keeping a day-by-day record of the exploration of this buried site. Since then, we have traveled through North Africa, Asia, Europe, and from end to end of the Mediterranean, looking at Greek and Roman sites, as well as culturally hybrid sites where the Greeks and Romans came in contact with peoples on their frontiers. We've tried to see exactly what it is that archaeology can reveal to us about these great ancient civilizations. In each of our final 12 lectures, we have visited a site that was somehow emblematic of one of our themes. In this lecture, we'll look at the legacy of the Classical civilizations we have explored at a site that is today called Alcántara, Arabic for "the bridge."

Outline

- I. Alcántara is in the far west of Spain, the site of a bridge spanning the gorge of the river that the Romans called Tagus (modern Portuguese, Tejo; Spanish, Tajo), one of the great rivers of Iberia that rises in the highlands of Spain and flows westward to the Atlantic Ocean at Lisbon.
 - A. The bridge at Alcántara is one of the Romans' most extraordinary engineering and architectural achievements. It was the highest bridge in the Roman Empire, standing 175 feet tall, with six grand arches carrying a 25-foot-wide roadway for 600 feet from bank to bank.
 - B. The architect and engineer who was in charge of erecting the bridge included in his work a temple—a shrine with a pair of columns framing a doorway—so that in crossing the bridge from the north, the temple was directly ahead.
 - C. On that temple was a list of all the municipalities in Lusitania that, in the year 106, the time of the Emperor Trajan, had contributed money to build the bridge. Then, there was the name of the architect, Lacer, and a statement by him: "*Pontem perpetui mansuram in saecula mundi*," "I have built this bridge to last forever, through the ages of the world."
 - D. The bridge at Alcántara symbolizes for me an important element of Classical civilization that makes it still worth studying today: the desire to create something of value that would last. Whether it was a philosophical argument or a poem or a building or a work of engineering, these things were built to last.
- II. Many different approaches can be taken to the study of the ancient world.
 - A. We started these lectures with Johann Joachim Winckelmann, the man who called art history into existence when he studied Greek and Roman statues. Winckelmann believed that we should study antiquity because the Greeks and Romans had created a perfect standard of art, something that we should try to emulate. He also believed that this perfection in art was shared by the entire culture in which the ancient Greeks lived.
 - B. As mentioned in an earlier lecture, Winckelmann ignored the evidence of color on ancient marble statues. He imagined that they were all pure and white. I think that one of the great achievements of archaeology has been to put the color back in, to show us the polychrome richness of effect that the ancients loved to achieve in their art and that we can find in their lives.
 - C. That richness, that complexity that we see in the art, is emblematic of what has been lost through the ages in our view of ancient civilization. The modern popular perspective on Greco-Roman antiquity is still dominated by Winckelmann's idealizing view of Greece and Rome and the belief that we should study these civilizations as models.
 - D. To some extent, this view was enhanced during our own American Revolution with Roman ideas of republicanism and Greek ideas of democracy. The founding fathers of the United States looked back to Classical antiquity as a source of inspiration and validation for their ideas about how a country should be run.

- E. I believe that all these assumptions and claims about the ancient world not only go too far, but they miss the point. By idealizing, one fails to see the humanity and the complexity of this civilization and fails to learn all that these people had to offer.
 - F. A contrary tendency among some scholars and historians is to emphasize the negative: the injustices, the horrors, the unrelenting warfare, and slavery.
 - 1. In this context, Winckelmann had some sound advice for archaeologists: “Don’t be like schoolboys who simply look at their master to criticize and point out all the faults. Until you have fully understood the good that a person has achieved, you are not ready to look at the bad.”
 - 2. I think this approach is wise; we should assess the achievements of the Greeks and Romans, then consider aspects of those civilizations that were not so successful.
- III.** I hope this course has introduced the idea that the Greeks and Romans resemble us in uncanny ways. Their legacy has come to us through direct descent, convergent evolution, and deliberate imitation.
- A. Many of our institutions are direct descendents of the ancient world, having survived through the intervening centuries. One example is the agricultural system, derived from Roman villas in the form of modern ranches and haciendas.
 - B. Some features of our world that are similar to those in antiquity have come about through convergent evolution. For example, some of our forms of government came to be like the Greek world and the Roman world, simply because we’re the same kind of people with the same kind of economies and the same kind of urban life.
 - C. Finally, the framers of the American Constitution deliberately imitated the example of the Greeks and Romans in establishing our government. Palladian forms of houses and buildings that hark back to Classical models became our standard for architecture. Many of our ideas about painting and sculpture can be traced back to the Greeks and Romans. All of this makes them a living presence in our world.
 - D. The point of any study is to achieve what was written on the outside of the temple of the Delphic Oracle: “Know thyself.” We should all strive to know ourselves and our world, but doing so while we are in the midst of that world can be difficult. We must look to worlds that most resemble ours to see where other civilizations went wrong and take steps to avoid the same mistakes.
 - 1. One element of the past that I hear challenged again and again from my students is warfare. Wasn’t the Roman Empire basically a product of its legions? Isn’t the Parthenon the end result of the Athenians’ naval conquests?
 - 2. Those assertions are true, but are we then forced to say that the whole Classical achievement would have been impossible without warfare? I don’t think the evidence supports that conclusion.
 - 3. Most of the sites in Greece today do not date from the 5th century, the time of the Peloponnesian War between Athens and Sparta. Only after those wars were over did the economy blossom. From the 4th century on, we get the major building projects that still adorn Greek city sites today.
 - 4. In Rome, we learn that before there were legions, before there were wars, before the first conquest of a neighboring city, the Romans had already resculpted their Seven Hills and laid the foundations for their city. Their work wasn’t the fruit of militarism but a product of a confident citizen body directed by charismatic leaders.
- IV.** Above all, I think we should learn from the Greeks and Romans the value of the individual engaging in the life of the community.
- A. In an earlier lecture, I quoted Pericles on this subject: “We have no respect for the person who keeps aloof from public affairs, who tries to lead a private life. That person is not valued in Athens. We expect people to be participants in the life of their city.” This statement applied to all citizens in democratic Athens and republican Rome. The wealthy made offerings of great public works; the middle class and the poor participated in festivals, warfare, and the commerce of the city.
 - B. Pompeii in A.D. 79 was deeply into the period of the Roman Empire. The imperial government was an absolute autocracy, but each city still managed its own affairs. And what we do find on the walls of Pompeii? Election slogans, showing us an image of people engaged with their world.
- V.** The remains of the Greeks and the Romans and their civilization are slipping through our fingers.

- A. Cites that are excavated are often subject to more destruction than they would have been if they had been left underground. Further, there is scarcely enough money in any governmental treasury, anywhere in the realm of the old Greek and Roman civilization, to deal adequately with all that has been pulled up from the ground by archaeologists.
 - B. In Pompeii and Herculaneum, pigeon droppings have marred many of the statues, reliefs, and frescos, and falcons have been brought in to keep the pigeons at bay. The weather, too, has destroyed frescos and other artifacts. Under the water, shipwrecks have been looted by treasure hunters and sites damaged by the effects of uncontrolled trawling.
 - C. Does this destruction matter? If we consider an artifact such as the Antikythera device, I think we can see the answer. We have hundreds of thousands of artifacts from the Greco-Roman world, but nothing else like this device. It is the sole representative, surviving into our modern world, of a completely lost tradition for making complex astronomical calculations. Without this chance find, every modern scholar would deny that the ancients were capable of that kind of science.
 - D. We have important things to learn from the Greeks and Romans about the durability of civilization. Who would have believed, walking the streets of Rome in the time of Hadrian, that this civilization would soon be finished? By 409, the gates of Rome would be battered down and there would be a German army in the streets. Yet in the time of Hadrian, the world seemed completely secure, and those “barbarians” seemed so distant.
 - E. The system itself reminds us again and again that it’s its own worst enemy. It’s like the cloth that is so heavy that the fabric crumbles of its own weight. As strand by strand goes, we can see how the Greco-Roman world eventually went under, but we also know that the ancients weren’t aware of the decline at the time. There was no call to action.
 - F. For those of us who have come after, every day is a time for action. We must always struggle to perceive the dangers in our society, to choose the right path to correct the errors we have made, and to ensure that the world we live in will continue—and will improve.
- VI. The buildings and artifacts we have seen in this course have outlived the legions and their military victories. These are works of human craft, artistic genius, engineering skill, and imagination.
- A. Looking at the bridge at Alcántara recalls some beautiful lines from the *Iliad*. Late in the book, King Nestor is coaching his son, Peisistratus, on how to win a chariot race. Peisistratus does not have the fastest horses nor is he the most powerful contender in the race. But Nestor tells his son that he can win anyway, because achieving victory comes through wisdom and art:

It is not strength, but art, obtains the prize,
 And to be strong is less than to be wise.
 ’Tis more by art than force of numerous strokes
 The dexterous woodman shapes the stubborn oaks;
 By art, the pilot, through the boiling deep
 And howling tempest steers the fearless ship;
 And ’tis the artist wins the glorious course;
 Not those who trust in chariots and in horse.
 - B. The achievements of the ancients in power, might, and military victory have vanished. What is left behind, as we roam through the regions of the Classical world, are the achievements of its artists, craftspeople, engineers, thinkers, and designers. It’s a legacy that not only illuminates and beautifies our own world but, just as Winckelmann said, should be a beacon for us, even if it’s not perfect. Then, we should try to surpass it. Perfect or not, let us try also to create things in our world about which we can say, with pride, “This will last forever.”

Suggested Reading:

Dyson, *Ancient Marbles to American Shores: Classical Archaeology in the United States*.

Taplin, *Greek Fire: The Influence of Ancient Greece on the Modern World*.

Questions to Consider:

1. The process of exploring, excavating, and preserving Classical remains is costly. Is the expense justified?
2. What should be the highest priorities for Classical archaeologists in the future?

Bibliography

Essential Reading:

Allen, Susan Hueck. *Finding the Walls of Troy: Frank Calvert and Heinrich Schliemann at Hisarlik*. Berkeley: University of California Press, 1999. The most authoritative study yet written on what happened at Troy and what it has meant to Classical archaeology.

Alsbrook, Mary. *Born to Rebel: The Life of Harriet Boyd Hawes*. Oxford: Oxbow Books, 1992. This biography of the pioneering discoverer of Gournia was written by the archaeologist's daughter.

Amandry, Pierre. *Delphi and Its History*. Athens: Archaeological Guide Editions, 1984. Formerly the director of the French Archaeological School, Amandry has devoted much of his long and eminent career to the study of Delphi. His short and authoritative essays here accompany maps, photos, and reconstruction drawings of both the site and the artifacts in the Delphi Museum.

American School of Classical Studies at Athens, various authors. *Excavations of the Athenian Agora: Picture Books* (series). Athens: American School of Classical Studies, 1959 to present. These two dozen pamphlets cover topics ranging from pots and pans (1959) to women and marbleworkers (2005), with lamps, birds, waterworks, inscriptions, graffiti, horsemanship, coins, Socrates, building methods, and law-court apparatus among the feast of subjects.

Bass, George. *Beneath the Seven Seas*. London: Thames and Hudson, 2005. This worldwide survey includes first-hand accounts of the underwater excavations of shipwrecks at Cape Gelidonya, Kyrenia, and Uluburun in the eastern Mediterranean.

Berry, Joanne, ed. *Unpeeling Pompeii: Studies of Region I of Pompeii*. Milan: Electa, 1998. In its in-depth stratigraphic study of one sector of Pompeii, this little volume sets a high standard for illustration and presentation of a very complex chronological picture.

Biek, Leo. *Archaeology and the Microscope: The Scientific Examination of Archaeological Evidence*. New York: Praeger, 1963. Do not be put off by the uninformative table of contents. Physical chemist Biek offers stimulating insights into palynology, analysis of waterlogged wood and leather, aerial photography, and scientific dating techniques.

Birley, Anthony. *Hadrian: The Restless Emperor*. London: Routledge, 1997. This biography of the peripatetic emperor emphasizes Hadrian's building projects and is illustrated throughout with Hadrianic coins, medallions, and other artworks.

Boardman, John. *The History of Greek Vases: Potters, Painters and Pictures*. London: Thames and Hudson, 2001. An essential work on a vital aspect of Greek archaeology. The chapters on "Trade," "Greek Vases in Use," and "Tricks of the Trade" would alone be worth the price of the book.

Boatwright, Mary, Daniel Gargola, and Richard Talbert. *The Romans from Village to Empire: A History of Ancient Rome from Earliest Times to Constantine*. This book is recommended to those who prefer a traditional historical narrative to set archaeological discoveries in context. The early chapters on Rome's Italian neighbors are especially rewarding.

Bowman, Alan K. *Life and Letters on the Roman Frontier: Vindolanda and Its People*. London: British Museum Press, 1994. This book, by one of the scholars who worked on the Vindolanda tablets, provides text and translations of 34 important Roman letters, accounting records, and military documents from a fort in northern England.

Broad, William. *The Oracle: The Lost Secrets and Hidden Message of Ancient Delphi*. New York: Penguin, 2006. A study of the geology and history of Delphi and its famous oracle, including an account of the interdisciplinary research conducted at the site since 1996 by geologist Jelle de Boer, archaeologist John Hale, chemist Jeff Chanton, and toxicologist Henry Spiller.

Brown, Peter. *The World of Late Antiquity, AD 150–750*. London: Thames and Hudson, 1971. An extremely influential historical reassessment of the transition between the Classical and medieval worlds, in which the author proposes "Late Antiquity" as a designation for these turbulent centuries.

Bullitt, Orville. *Search for Sybaris*. Philadelphia: Lippincott, 1969. A painfully honest account of an archaeological "failure," this book chronicles the attempts to find the lost city of Sybaris using a barrage of subsurface detection devices. (The site was finally located but judged to be too deep and too waterlogged for excavation.)

Camp, John M. *The Archaeology of Athens*. New Haven: Yale University Press, 2001. This masterly survey embraces archaeological discoveries dating from the Stone Age to the late Roman period, illustrated throughout with great photographs, maps, plans, and colorful reconstruction paintings. Camp goes far beyond familiar Classical monuments to provide a geographical study and includes sections on more than a dozen sites of ancient Attica, from Cape Sounion to Marathon and Eleusis.

———. *The Athenian Agora: Excavations in the Heart of Classical Athens*. London: Thames and Hudson, 1986. A clear and compelling reconstruction of daily life, governmental operations, and commercial activity in the cradle of ancient democracy.

———, and Elizabeth Fisher. *The World of the Ancient Greeks*. London: Thames and Hudson, 2002. An excellent introduction to archaeological sites and discoveries in Greece, this book is co-written by the director of excavations in the Athenian Agora and an authority on Bronze Age pottery.

Chadwick, John. "Linear B," in J. T. Hooker, ed., *Reading the Past: Ancient Writing from Cuneiform to the Alphabet*. London: British Museum Press, 1990. The author collaborated with Michael Ventris on the decipherment of the Linear B script found at Bronze Age palaces on Crete and mainland Greece.

Chamberlain, Andrew. *Interpreting the Past: Human Remains*. London: British Museum Press, 1994. From biomolecular evidence to demographics and from ancient disease to legal ethics, this short handbook covers the field concisely and clearly.

Clunn, Tony. *The Quest for the Lost Roman Legions: Discovering the Varus Battlefield*. New York: Savas Beatie, 2005. Major Clunn used a magnetometer to search for the "Teutoburg Forest" battle site and has written an account that merges archaeology with a novelistic recreation of the Roman campaign in Germany in 9 A.D.

Connolly, Peter, and Hazel Dodge. *The Ancient City: Life in Classical Athens and Rome*. Oxford: Oxford University Press, 1998. This is a book for the ages, and for *all* ages, thanks to Connolly's brilliant and inimitable artistic recreations of ancient architecture, landscapes, and daily life.

Cook, B.F. "Greek Inscriptions," in J. T. Hooker, ed., *Reading the Past: Ancient Writing from Cuneiform to the Alphabet*. London: British Museum Press, 1990. This handbook provides an excellent introduction to Greek inscriptions from the earliest days of the alphabet to the heyday of Hellenic civilization.

Cornell, Tim, and John Matthews. *Atlas of the Roman World*. New York: Facts on File, 1982. This historical and cultural atlas vividly charts the rise of the city of Rome and the spread of Roman power and civilization to an empire stretching from the Atlantic to the Euphrates. The region-by-region survey of the empire is especially useful.

Coulston, Jon, and Hazel Dodge, eds. *Ancient Rome: The Archaeology of the Eternal City*. Oxford: Alden Press 2000. This collection of essays provides a valuable overview of current research on the largest urban center of the Classical world.

Cunliffe, Barry. *Roman Bath Discovered*. London: Routledge, 1984. Through this book, the author and excavator presented the results of decades of fieldwork on one of the most important Roman sites in Britain.

———. *The Extraordinary Voyage of Pytheas the Greek*. New York: Walker Publishing Co., 2002. A distinguished British archaeologist uses the 4th-century-B.C. voyage of Pytheas of Marseilles as a lens for examining links between the Greeks and Atlantic Europe.

Curnow, Trevor. *The Oracles of the Ancient World: A Comprehensive Guide*. London: Duckworth, 2004. A detailed survey of Classical oracles, country by country and site by site, written by a scholar who has visited most of them and can cite both ancient authors and personal experience.

De Camp, L. Sprague. *The Ancient Engineers*. New York: Barnes and Noble, 1960. This wide-ranging volume embraces engineering achievements from aqueducts to war ships and includes four chapters on Greek and Roman engineers.

De Grummond, Nancy T., ed. *An Encyclopedia of the History of Classical Archaeology*. Westwood, CT: Greenwood Press, 1996. A comprehensive and indispensable reference work to the most important figures, sites, and discoveries from the Renaissance to 1994.

De la Bedoyere, Guy. *Roman Villas and the Countryside*. London: Batsford 1993. The author, an expert on Roman pottery, presents a clear and vivid reconstruction of villa life in Roman Britain, including detailed drawings.

Delgado, James, ed. *Encyclopedia of Underwater and Maritime Archaeology*. London: British Museum Press, 1997. In addition to short articles on more than 30 ancient wreck sites, this volume features longer essays on subjects from legal issues to underwater survey and excavation techniques.

Diess, Joseph J. *Herculaneum: Italy's Buried Treasure*. Malibu: J. Paul Getty Museum, 1989. A comprehensive overview of the site where Classical archaeology began, organized building by building, with excellent photographs and plans.

Dyson, Stephen L. *Ancient Marbles to American Shores: Classical Archaeology in the United States*. Philadelphia: University of Pennsylvania Press, 1998. An important historical survey of American scholars and institutions involved in the emergence and growth of Classical archaeology.

Empereur, Jean-Yves. *Alexandria Rediscovered*. Paris: George Braziller, 1998. This illustrated survey was written by one of the most active explorers in the rediscovery of ancient Alexandria.

Fantham, Elaine, et al. *Women in the Classical World: Image and Text*. New York: Oxford University Press, 1995. A comprehensive introduction to the role of women in ancient Greece and Rome and the image that they have left behind in works of literature and art.

Fleming, Stuart. *Vinum: The Story of Roman Wine*. Glen Mills, PA: Art Flair, 2001. This well-illustrated survey ranges from archaeological evidence to considerations of wine's use in medicine and religious rites.

Friedrich, Walter. *Fire in the Sea: The Santorini Volcano, Natural History and the Legend of Atlantis*. Cambridge: Cambridge University Press, 2000. Although written by a geologist, this lavishly produced volume is an indispensable guide to the eruption of Santorini from an archaeological standpoint as well.

Futrell, Alison. *Blood in the Arena: The Spectacle of Roman Power*. Austin: University of Texas Press, 1997. Through painstaking scholarship, Futrell assembles from archaeological evidence and literary clues a convincing overview of Roman blood sports and is able to show connections to the realm of human sacrifice.

Hale, John and Jelle de Boer, Jeff Chanton, and Henry Spiller. "Questioning the Delphic Oracle." *Scientific American*, August 2003. This article, also available online at the "SCIAM" website, recounts the results of an interdisciplinary investigation into the geological origins of the famous Delphic Oracle in Greece.

Hawes, Charles, and Harriet Boyd Hawes. *Crete: The Forerunner of Greece*. New York: Harper, 1909. One of the early attempts to produce a synthesis on Minoan sites and archaeology, this overview by the excavator of Gournia and her husband was written less than a decade after Evans started work at Knossos.

Holum, Kenneth, Robert Hohlfelder, Robert Bull, and Avner Raban. *King Herod's Dream: Caesarea on the Sea*. New York: W.W. Norton, 1988. This multidisciplinary study presents a colorful and scholarly introduction to one of the most important sites created by the Romans, a harbor city for the client kingdom of Judea.

Humphrey, John, et al. *Greek and Roman Technology: A Sourcebook*. London: Routledge, 1998. This grand anthology collects passages from Classical authors on agriculture, mining and quarrying, metallurgy, engineering, hydraulics, crafts, transport, time-keeping, writing, military technology, and ancient attitudes toward labor and innovation, along with short essays and extensive bibliographies.

Jashemski, Wilhelmina, and Frederick Meyer, eds. *The Natural History of Pompeii*. Cambridge: Cambridge University Press, 2002. Jashemski pioneered the study of gardens at Pompeii and, along with Meyer (a botanist), has assembled an extraordinary collection of specialist studies ranging from volcanology and pollen studies to human health and nutrition.

Jenkins, Ian, and Kim Sloan. *Vases and Volcanoes: Sir William Hamilton and His Collection*. London: British Museum Press, 1996. Six illuminating essays precede an illustrated catalogue of an exhibition that did full justice to Hamilton's life and work.

Lambert, Joseph B. *Traces of the Past: Unraveling the Secrets of Archaeology through Chemistry*. Reading, MA: Helix Books, 1997. Aegean obsidian, Greek vases and bronzes, and Roman glass and statuary are among the items considered in this worldwide survey on the applications of chemical analysis to archaeological materials.

Levi, Peter. *Atlas of the Greek World*. New York: Facts on File, 1984. The maps in this historical and cultural atlas are supplemented by short, thoughtful essays and hundreds of images of sites and artifacts.

Lewis, Sian. *The Athenian Woman: An Iconographic Handbook*. London: Routledge, 2003. This volume analyzes women in Athenian vase paintings to draw an in-depth portrait of women's lives in Classical Athens.

Liversidge, Joan. *Everyday Life in the Roman Empire*. London: Batsford, 1976. This authoritative overview, with superb drawings by Eva Wilson, was written by the Hon. Keeper of the Roman Collections in the Museum of Archaeology and Ethnology at Cambridge University.

Lombardi Satriani, Luigi, and Maurizio Paoletti, eds. *Heroes from the Sea*. Rome: Gangemi, 1986. Eight informative and provocative essays examine various aspects of the bronze statues known as the Riace Warriors, from their chance discovery and possible provenance to a humorous look at their impact on Italian popular culture.

MacDonald, William, and John Pinto. *Hadrian's Villa and Its Legacy*. New Haven: Yale University Press, 1995. This beautifully illustrated volume presents a detailed survey of Hadrian's famous villa at Tivoli and a consideration of its lasting influence on art and architecture.

MacKendrick, Paul L. *The Greek Stones Speak: The Story of Archaeology in Greek Lands*. New York, W.W. Norton, 1983. This archaeological tour through the world of the ancient Greeks weaves history, architecture, and major discoveries into a gripping narrative. MacKendrick visits sites from Alexandria in Egypt to Paestum in Italy, but the emphasis rests firmly on Greece and the Aegean.

———. *The Mute Stones Speak: The Story of Archaeology in Italy*. New York: W.W. Norton, 1984. This original volume in MacKendrick's "Speaking Stones" series ultimately led as far afield as *The Dacian Stones Speak*, covering Roman remains in modern Romania. All are great reading and useful reference works.

Maloney, Stephanie, and John Hale. "The Villa of Torre de Palma (Alto Alentejo)." *Journal of Roman Archaeology* 9 (1996). This report covers the first decade of fieldwork at this Roman villa and presents the evidence for determining the dates and functions of buildings in this large rural complex, which includes an early Christian basilica.

Mancinelli, Fabrizio. *The Catacombs of Rome and the Origins of Christianity*. Florence: Scala, 1981. The author, a curator in the Vatican collections, provides an extensively illustrated tour of Rome's catacombs and the art and artifacts that have been found in them.

Mattusch, Carol. *Classical Bronzes: The Art and Craft of Greek and Roman Statuary*. Ithaca: Cornell University Press, 1996. The author considers the techniques of ancient bronze production and sets statues in the context of the ancient art market.

May, Jeffrey. *Dragonby: Report on Excavations at an Iron Age and Romano-British Settlement in North Lincolnshire*. Oxford: Oxbow Monograph 61, 1996. The two volumes of this report include valuable chapters on reconstructing the ancient environment, including the impact of Romanization on the natural setting of the town.

McGovern, Patrick. *Ancient Wine: The Search for the Origins of Viniculture*. Princeton: Princeton University Press, 2003. The study of Greek wine is here set in the wider context of wine's Near Eastern origins, in a book that does full justice to archaeology, chemistry, and history.

McIntosh, Jane. *The Practical Archaeologist: How We Know What We Know About the Past*. New York: Facts on File, 1986. Through concise presentation and down-to-earth style, the author manages to compress most current fieldwork and lab procedures into this short and effective overview.

Olesen, John, et al. "The Caesarea Ancient Harbour Excavation Project," *Journal of Field Archaeology* 11 (1984). This article is a report on the important discoveries of the 1980–1983 field seasons.

Palyvou, Clairy. *Akrotiri, Thera: An Architecture of Affluence 3,500 Years Old*. Philadelphia: INSTAP Academic Press, 2005. This book takes the reader through the ruins of Akrotiri, house by house and room by room, in the company of an architect who participated in the dig under both Marinatos and Doumas.

Pomeroy, Sarah. *Goddesses, Whores, Wives, and Slaves: Women in Classical Antiquity*. New York: Schocken, 1995. Despite the sensational title, this book is an authoritative work that goes beyond conventional literary sources to include demographic, legal, and medical evidence. The writer has also written a book devoted to the women of Sparta in ancient Greece.

Powell, Barry. *Homer and the Origin of the Greek Alphabet*. Cambridge: Cambridge University Press, 1991. The development of the alphabet in Greece is here tracked through a sequence of archaeological discoveries of early inscriptions, each one meticulously described and interpreted.

Prag, John, and Richard Neave. *Making Faces: Using Forensic and Archaeological Evidence*. College Station: Texas A&M University Press, 1997. The authors are most famous for having brought their combined archaeological and medical expertise to bear on reconstructing the face of King Philip II of Macedon, but their book includes a well-illustrated history of the field and many case studies.

Rook, Tony. *Roman Baths in Britain*. Risborough, UK: Shire Publications, 1992. An excellent introduction to Roman bath technology and architecture in general, with comparisons to the great imperial baths of Rome and good details on lead piping.

Runnels, Curtis, and Priscilla Murray. *Greece before History: An Archaeological Companion and Guide*. Stanford: Stanford University Press, 2001. The authors share their insights and observations on sites ranging in space from Crete to northern Greece and in time from the Paleolithic to the end of the Bronze Age.

Snodgrass, Anthony. *An Archaeology of Greece: The Present State and Future Scope of a Discipline*. Berkeley: University of California Press, 1987. In the course of these Sather Lectures, the author considers everything from Dörpfeld's hunt for the palace of Odysseus on the island of Leukas (!) to Iron Age settlements, the rural landscape, figural scenes in early art, and the discovery of Augustus's sundial in Rome.

Swaddling, Judith. *The Ancient Olympic Games*. Austin: University of Texas Press, 1988. This short work packs in a tremendous amount of information about the events of the ancient Olympics and the site on which they were held.

Taplin, Oliver. *Greek Fire: The Influence of Ancient Greece on the Modern World*. New York: Macmillan, 1990. An enthusiastic essay on the persistence of Greek cultural elements in the modern mainstream.

Thompson, F. Hugh. *The Archaeology of Greek and Roman Slavery*. New York: International Publications Marketing, 2005. An immense work that combines literary evidence with archaeological discoveries, this book serves to emphasize the many gaps in our knowledge of ancient slaves and their lives.

Ulansey, David. *The Origins of the Mithraic Mysteries: Cosmology and Salvation in the Ancient World*. Oxford: Oxford University Press, 1989. The author reconstructs Mithraic religion by combining ancient texts with the evidence of archaeological discoveries—and with a heavy emphasis on iconography.

Valavanis, Panos. *Games and Sanctuaries in Ancient Greece: Olympia, Delphi, Isthmia, Nemea, Athens*. Los Angeles: J. Paul Getty Trust, 2004. A big book on an epic subject, this survey by an archaeologist at the University of Athens focuses on the archaeological remains involving ancient athletic events, along with the monuments that attest to the cult of victorious athletes and the religious dimension of the games.

Wallace-Hadrill, Andrew. *Houses and Society in Pompeii and Herculaneum*. Princeton: Princeton University Press, 1994. This book presents a startlingly new vision of social history and everyday life in these famous cities, based on the author's extensive excavations and researches as director of The British School at Rome.

Ward-Perkins, Bryan. *The Fall of Rome and the End of Civilization*. Oxford: Oxford University Press, 2005. An archaeologist rebuts the currently popular view that the western Roman Empire transformed itself peacefully and without much loss of cultural complexity into medieval Christendom.

Wells, Peter S. *The Battle That Stopped Rome: Emperor Augustus, Arminius, and the Slaughter of the Legions in the Teutoburg Forest*. New York: W.W. Norton, 2003. An American archaeologist combines a report on the archaeological discoveries with a close reading of the ancient historical record to create a detailed reconstruction of a pivotal military disaster.

Westermann, William. *The Slave Systems of Greek and Roman Antiquity*. Philadelphia: American Philosophical Society, 1955. This work concentrates on literary and historical evidence but does offer a broad survey that compares slavery in Greece and Rome.

Wheeler, Mortimer. *Roman Art and Architecture*. London: Thames and Hudson, 1985. This handbook shows Sir Mortimer's familiarity with Roman sites from Britain to India, as well as his genius for synthesizing data from many fields.

White, K. D. *Greek and Roman Technology*. London: Thames and Hudson, 1984. This classic study takes a problem-oriented approach, supplemented with many illuminating line drawings and reconstructions.

Woods, Michael. *In Search of the Trojan War*. Berkeley, University of California Press, 1998. This popular bestseller offers an excellent introduction to the many questions raised by the excavations at Hisarlik (ancient Ilium), and what they tell us about the historical reality behind Homer's epic poem.

Supplementary Reading:

Coles, John. *Archaeology by Experiment*. New York: Scribner's, 1973. The author covers experimental reconstructions and trials involving artifacts from plows to boats and from weapons to musical instruments.

Fagan, Brian. *Time Detectives: How Scientists Use Modern Technology to Unravel the Secrets of the Past*. New York: Touchstone, 1995. The author includes sections on Mortimer Wheeler's excavation techniques, the Uluburun shipwreck, the Vindolanda tablets, and Hadrian's Wall.

Frost, Honor. *Under the Mediterranean: Marine Antiquities*. Englewood Cliffs, NJ: Prentice-Hall, 1963. A fascinating account of early days in underwater archaeology by a diver and scientific artist who worked with both Cousteau and Bass and, ultimately, became an authority on stone anchors.

Greene, Kevin. *The Archaeology of the Roman Economy*. Berkeley: University of California Press, 1991. The author methodically marshals archaeological evidence and statistics from a broad area to reconstruct the Roman economy from its agricultural base to inter-regional trade networks.

Hawkes, Jacquetta. *Adventurer in Archaeology: The Biography of Sir Mortimer Wheeler*. New York: St Martin's, 1982. A life of the great innovator of archaeological field technique; this book was written by an eminent archaeologist who has a keen appreciation for Wheeler's contributions.

Higgins, Michael D., and Reynold Higgins. *A Geological Companion to Greece and the Aegean*. Ithaca: Cornell University Press, 1996. The authors, a geologist and an archaeologist, explored the ancient sites of Greece and the Greek island to create this important handbook, illustrated with many maps and plans.

Hitchens, Christopher, et al. *The Elgin Marbles: Should They Be Returned to Greece?* London: Verso, 1998. A history of the controversy spanning 200 years, this book follows the marbles from the Acropolis to the British Museum and advocates restitution.

King, Anthony. *Archaeology of the Roman Empire*. London: Bison Books, 1982. The author surveys the empire thematically, rather than by period or region, with sections on the army, cities, villas, technology, trade, entertainment, mosaics, religion, and the collapse of the empire.

Koloski-Ostrow, Ann O., ed. *Naked Truths: Women, Sexuality, and Gender in Classical Art and Archaeology*. New York: Routledge, 1997. A wide-ranging collection of essays that reaches well beyond its primary theme of visual representations and gender identity.

Leppmann, Wolfgang. *Winckelmann*. New York: Knopf, 1970. This biography of the great 18th-century art historian offers detailed background information on the intellectual life of Europe during the decades in which the science of archaeology took form.

Medwid, Linda M. *The Makers of Classical Archaeology*. New York: Humanity Books, 2000. Biographical sketches of 119 archaeologists, antiquarians, and art historians, with invaluable details on the education, career, and publications of each.

MacDonald, William L. *The Pantheon: Design, Meaning, and Progeny*. Through vivid firsthand accounts and extensive plans and photographs, the author surveys every part of the best preserved structure from antiquity, from its deeply buried foundations to its soaring concrete dome.

McDonald, William A., and Carol G. Thomas. *Progress into the Past: The Rediscovery of Mycenaean Civilization*. Bloomington: Indiana University Press, 1990. This classic overview includes sections on the career of Heinrich Schliemann and the decipherment of Linear B script by Michael Ventris.

Parslow, Christopher C. *Rediscovering Antiquity: Karl Weber and the Excavation of Herculaneum, Pompeii and Stabia*. Cambridge: Cambridge University Press, 1995. Weber may get star billing, but Parslow has conducted detailed research into the life of almost every figure involved in the 18th-century excavations. An essential sourcebook.

Runnels, Curtis. *The Archaeology of Heinrich Schliemann: An Annotated Bibliographic Handlist*. Boston: Archaeological Institute of America, 2002. This evaluation of Schliemann's achievements is based on a comprehensive study of all his publications.

Schuetze, Sebastian, and Madeleine Gisler-Huwiler. *The Complete Collection of Antiquities from the Cabinet of Sir William Hamilton*. Cologne: Taschen, 2004. This gigantic, landmark volume includes a lavish reprinting of d'Hancarville's original 18th-century engravings of Hamilton's vases, along with beautifully illustrated modern essays.

Sear, Frank. *Roman Architecture*. Ithaca: Cornell University Press, 1992. From the late republic to the end of the empire, Sear has drawn together examples of buildings that illustrate all aspects of Roman architecture, including valuable information on building techniques, construction materials, and city planning.

Shanks, Michael. *Classical Archaeology of Greece: Experiences of a Discipline*. New York: Routledge, 2000. A personal reflection on the current state of the field, interweaving vivid site and artifact descriptions with thought-provoking observations.

Silverberg, Robert. *Clocks for the Ages: How Scientists Date the Past*. New York: Macmillan, 1971. A handy journalistic compendium, this book offers background to the problems of archaeological dating and detailed accounts of dendrochronology and radiocarbon dating.

Talbert, Richard J. A. *Barrington Atlas of the Greek and Roman World*. Princeton: Princeton University Press, 2000. A monument of scholarship and cartography, this atlas includes both magnificent maps of the entire Classical world and references to ancient and modern sources on the location of sites from Scotland to Sri Lanka.

Throckmorton, Peter, ed. *The Sea Remembers: Shipwrecks and Archaeology*. New York: Weidenfeld and Nicolson, 1987. With sections on “The Ancient Mediterranean” and “From Rome to Byzantium,” this book collects essays by underwater archaeologists discussing their own work.

Welsh, Frank. *Building the Trireme*. London: Constable, 1988. This account of the design, construction, and sea trials of the ship *Olympias* was written by a member of the Trireme Trust and provides an engaging personal diary of the project.

Wheeler, Sir Mortimer. *Archaeology from the Earth*. Baltimore: Penguin, 1954. An important manifesto, setting forth a coherent plan and rationale for archaeological fieldwork.

———. *Rome Beyond the Imperial Frontiers*. Baltimore: Penguin, 1954. This study of Roman influence outside the empire reflects Wheeler’s own discoveries on Roman sites from Britain to southern India.

Website:

www.arts.cornell.edu/dendro/ This indispensable archaeological resource presents an ongoing record of dendrochronology dates and studies from the entire Aegean area.