Archaeology

Archaeology, or archeology[^1] (from Greek ἀρχαιολογία, archaiologia – ἀρχαῖος, archaios, "ancient"; and -λογία, -logiā, "-logy[^2]"), is the study of past human societies, primarily through the recovery and analysis of the material culture and environmental data which they have left behind, which includes artifacts, architecture, biofacts and cultural landscapes (the archaeological record). Because archaeology employs a wide range of different procedures, it can be considered to be both a science and a humanity[^3] and in the United States it is thought of as a branch of anthropology[^4] although in Europe it is viewed as a separate discipline.

Archaeology studies human history from the development of the first stone tools in eastern Africa 3.4 million years ago up until recent decades[^5]. It is of most importance for learning about prehistoric societies, when there are no written records for historians to study, and which makes up over 99% of total human history, from the Palaeolithic until the advent of literacy in any given society[^3]. Archaeology has various different goals, which range from studying human evolution to cultural evolution and understanding culture history[^6].

The discipline involves surveyance, excavation and eventually analysis of data collected in order to learn more about the past. In broad scope, archaeology relies on cross-disciplinary research. It draws upon anthropology, history, art history, classics, ethnology, geography[^7], geology[^8] [^9] [^10], linguistics, physics, information sciences, chemistry, statistics, paleoecology, palaeontology, paleozoology, paleoethnobotany, and paleobotany.

Archaeology developed out of antiquarianism in Europe during the 19th century, and has since become a discipline practiced across the world. Since its early development, various specific sub-disciplines of archaeology have developed, including maritime archaeology, feminist archaeology and archaeoastronomy, and numerous different scientific techniques have been developed to aid archaeological investigation. Nonetheless, today, archaeologists face many problems, ranging from dealing with pseudoarchaeology to the looting of artifacts and opposition to the excavation of human remains.
Purpose

The purpose of archaeology is to learn more about past societies and the development of the human race. Over 99% of the history of humanity has occurred within prehistoric cultures, who did not make use of writing, thereby not leaving written records about themselves which we can study today. Without such written sources, the only way to learn about prehistoric societies is to use archaeology. Many important developments in human history occurred during prehistory, including the evolution of humanity during the Palaeolithic period, when the hominins developed from the australopithecines through to the early homos in Africa and finally into modern Homo sapiens. Archaeology also sheds light on many of humanity’s technological advances, for instance the ability to use fire, the development of stone tools, the discovery of metallurgy, the beginnings of religion and the creation of agriculture. Without archaeology, we would know nothing of these evolutionary and technological changes in humanity that pre-date writing.\[11\]

However, it is not only prehistoric, pre-literate cultures which can be studied using archaeology, but historic, literate cultures as well, through the sub-discipline of historical archaeology. For many literate cultures, such as Ancient Greece and Mesopotamia, their surviving records are often incomplete and invariably biased to some extent. In many societies, literacy was restricted to the elite classes, such as the clergy or the bureaucracy of court or temple. The literacy even of aristocrats has sometimes been restricted to deeds and contracts. The interests and world-view of elites are often quite different from the lives and interests of the populace. Writings that were produced by people more representative of the general population were unlikely to find their way into libraries and be preserved there for posterity. Thus, written records tend to reflect the biases, assumptions, cultural values and possibly deceptions of a limited range of individuals, usually a small fraction of the larger population. Hence, written records cannot be trusted as a sole source. The material record may be closer to a fair representation of society, though it is subject to its own biases, such as sampling bias and differential preservation.\[12\]

Theory

There is no one singular approach to archaeological theory that has been adhered to by all archaeologists. When archaeology developed in the late 19th century, the first approach to archaeological theory to be practiced was that of cultural-history archaeology, which held the goal of explaining why cultures changed and adapted rather than just highlighting the fact that they did, therefore emphasizing historical particularism.\[13\] In the early 20th century many archaeologists who studied past societies with direct continuing links to existing ones (such as those of Native Americans, Siberians, Mesoamericans etc.) followed the direct historical approach, compared the continuity between the past and contemporary ethnic and cultural groups.\[13\] In the 1960s, an archaeological movement largely led by American archaeologists like Lewis Binford and Kent Flannery arose that rebelled against the established cultural-history archaeology.\[14\] They proposed a "New Archaeology", which would be more "scientific" and "anthropological", with hypothesis testing and the scientific method very important parts of what became known as processual archaeology.\[13\]

In the 1980s, a new postmodern movement arose led by the British archaeologists Michael Shanks,\[16\] Christopher Tilley, Daniel Miller, Daniel Miller, Daniel Miller and Ian Hodder, which has become known as post-processual archaeology. It questioned processualism's appeals to scientific positivism and impartiality, and emphasised the importance of a more self-critical theoretical reflexivity. However, this approach has been criticized by processualists as lacking scientific rigor, and the validity of both processualism and post-processualism is still
under debate. Meanwhile, another theory, known as historical processualism has emerged seeking to incorporate a focus on process and post-processual archaeology's emphasis of reflexivity and history.[29]

Archaeological theory now borrows from a wide range of influences, including neo-Darwinian evolutionary thought, phenomenology, postmodernism, agency theory, cognitive science, Functionalism, gender-based and Feminist archaeology, and Systems theory.

**Methods**

An archaeological investigation usually involves several distinct phases, each of which employs its own variety of methods. Before any practical work can begin however, a clear objective as to what the archaeologists are looking to achieve must be agreed upon. This done, a site is surveyed to find out as much as possible about it and the surrounding area. Secondly, an excavation may take place to uncover any archaeological features buried under the ground, and thirdly, the data collected from the excavation is studied and evaluated in an attempt to achieve the original research objectives of the archaeologists. It is then considered good practice for the information to be published so that it is available to other archaeologists and historians, although this is sometimes neglected.[30]

**Survey**

A modern archaeological project often begins with a survey. Regional survey is the attempt to systematically locate previously unknown sites in a region. Site survey is the attempt to systematically locate features of interest, such as houses and middens, within a site. Each of these two goals may be accomplished with largely the same methods.

Survey was not widely practiced in the early days of archaeology. Cultural historians and prior researchers were usually content with discovering the locations of monumental sites from the local populace, and excavating only the plainly visible features there. Gordon Willey pioneered the technique of regional settlement pattern survey in 1949 in the Viru Valley of coastal Peru,[31] [32] and survey of all levels became prominent with the rise of processual archaeology some years later.[33]

Survey work has many benefits if performed as a preliminary exercise to, or even in place of, excavation. It requires relatively little time and expense, because it does not require processing large volumes of soil to search out artifacts. (Nevertheless, surveying a large region or site can be expensive, so archaeologists often employ sampling methods.)[34] As with other forms of non-destructive archaeology, survey avoids ethical issues (of particular concern to descendant peoples) associated with destroying a site through excavation. It is the only way to gather some forms of information, such as settlement patterns and settlement structure. Survey data are commonly assembled into maps, which may show surface features and/or artifact distribution.

The simplest survey technique is surface survey. It involves combing an area, usually on foot but sometimes with the use of mechanized transport, to search for features or artifacts visible on the surface. Surface survey cannot detect sites or features that are completely buried under earth, or overgrown with vegetation. Surface survey may also include mini-excavation techniques such as augers, corers, and shovel test pits. If no materials are found, the area surveyed is deemed sterile.

Aerial survey is conducted using cameras attached to airplanes, balloons, or even Kites. A bird's-eye view is useful for quick mapping of large or complex sites. Aerial photographs are used to document the status of the archaeological dig. Aerial imaging can also detect many things not visible from the surface. Plants growing above a buried man made structure, such as a stone wall, will develop more slowly, while those above other types of features (such as middens) may develop more rapidly. Photographs of ripening grain, which changes colour rapidly at
maturation, have revealed buried structures with great precision. Aerial photographs taken at different times of day will help show the outlines of structures by changes in shadows. Aerial survey also employs infrared, ground-penetrating radar wavelengths, LiDAR and thermography.

Geophysical survey can be the most effective way to see beneath the ground. Magnetometers detect minute deviations in the Earth's magnetic field caused by iron artifacts, kilns, some types of stone structures, and even ditches and middens. Devices that measure the electrical resistivity of the soil are also widely used. Archaeological features whose electrical resistivity contrasts with that of surrounding soils can be detected and mapped. Some archaeological features (such as those composed of stone or brick) have higher resistivity than typical soils, while others (such as organic deposits or unfired clay) tend to have lower resistivity.

Although some archaeologists consider the use of metal detectors to be tantamount to treasure hunting, others deem them an effective tool in archaeological surveying. Examples of formal archaeological use of metal detectors include musketball distribution analysis on English Civil War battlefields, metal distribution analysis prior to excavation of a 19th century ship wreck, and service cable location during evaluation. Metal detectorists have also contributed to archaeology where they have made detailed records of their results and refrained from raising artifacts from their archaeological context. In the UK, metal detectorists have been solicited for involvement in the Portable Antiquities Scheme.

Regional survey in underwater archaeology uses geophysical or remote sensing devices such as marine magnetometer, side-scan sonar, or sub-bottom sonar.

**Excavation**

Archaeological excavation existed even when the field was still the domain of amateurs, and it remains the source of the majority of data recovered in most field projects. It can reveal several types of information usually not accessible to survey, such as stratigraphy, three-dimensional structure, and verifiably primary context.

Modern excavation techniques require that the precise locations of objects and features, known as their provenance or provenience, be recorded. This always involves determining their horizontal locations, and sometimes vertical position as well (also see Primary Laws of Archaeology). Similarly, their association, or relationship with nearby objects and features, needs to be recorded for later analysis. This allows the archaeologist to deduce what artifacts and features were likely used together and which may be from different phases of activity. For example, excavation of a site reveals its stratigraphy; if a site was occupied by a succession of distinct cultures, artifacts from more recent cultures will lie above those from more ancient cultures.

Excavation is the most expensive phase of archaeological research, in relative terms. Also, as a destructive process, it carries ethical concerns. As a result, very few sites are excavated in their entirety. Again the percentage of a site excavated depends greatly on the country and "method statement" issued. In places 90% excavation is common. Sampling is even more important in excavation than in survey. It is common for large mechanical equipment, such as
Archaeology excavation which discovered prehistoric caves in Vill (Innsbruck), Austria

An archaeologist sifting for POW remains on Wake Island.

backhoes (JCBs), to be used in excavation, especially to remove the topsoil (overburden), though this method is increasingly used with great caution. Following this rather dramatic step, the exposed area is usually hand-cleaned with trowels or hoes to ensure that all features are apparent.

The next task is to form a site plan and then use it to help decide the method of excavation. Features dug into the natural subsoil are normally excavated in portions in order to produce a visible archaeological section for recording. A feature, for example a pit or a ditch, consists of two parts: the cut and the fill. The cut describes the edge of the feature, where the feature meets the natural soil. It is the feature's boundary. The fill is, understandably, what the feature is filled with, and will often appear quite distinct from the natural soil. The cut and fill are given consecutive numbers for recording purposes. Scaled plans and sections of individual features are all drawn on site, black and white and colour photographs of them are taken, and recording sheets are filled in describing the context of each. All this information serves as a permanent record of the now-destroyed archaeology and is used in describing and interpreting the site.

Analysis

Once artifacts and structures have been excavated, or collected from surface surveys, it is necessary to properly study them, to gain as much data as possible. This process is known as post-excavation analysis, and is normally the most time-consuming part of the archaeological investigation. It is not uncommon for the final excavation reports on major sites to take years to be published.

At its most basic, the artifacts found are cleaned, cataloged and compared to published collections, in order to classify them typologically and to identify other sites with similar artifact assemblages. However, a much more comprehensive range of analytical techniques are available through archaeological science, meaning that artifacts can be dated and their compositions examined. The bones, plants and pollen collected from a site can all be analyzed (using the techniques of zooarchaeology, paleoethnobotany, and palynology), while any texts can usually be deciphered.

These techniques frequently provide information that would not otherwise be known and therefore contribute greatly to the understanding of a site.

Virtual archaeology

Some time around 1995 archaeologists started using computer graphics to build virtual 3D models of sites such as the throne room of an ancient Assyrian palace or ancient Rome.\[^{35}\] This is done by collecting normal photographs and using computer graphics to build the virtual 3D model.\[^{35}\] More generally, computers can be used to recreate the environment and conditions of the past, such as objects, buildings, landscapes and even ancient battles.\[^{35}\] Computer simulation can be used to simulate the living conditions of an ancient community and to see how it would have reacted to various scenarios (such as how much food to grow, how many animals to slaughter, etc.)\[^{35}\]

Computer-built topographical models have been combined with astronomical calculations to verify whether or not certain structures (such as pillars) were aligned with astronomical events such as the sun's position at a solstice.\[^{35}\]


**Academic sub-disciplines**

As with most academic disciplines, there are a very large number of archaeological sub-disciplines characterised by a specific method or type of material (e.g. lithic analysis, music, archaeobotany), geographical or chronological focus (e.g. Near Eastern archaeology, Islamic archaeology, Medieval archaeology), other thematic concern (e.g. maritime archaeology, landscape archaeology, battlefield archaeology), or a specific archaeological culture or civilisation (e.g. Egyptology, Indology, Sinology).

**Historical archaeology**

Historical archaeology is the study of cultures with some form of writing.

In England, archaeologists have uncovered the long-lost layouts of medieval villages abandoned after the crises of the 14th century and the equally lost layouts of 17th century parterre gardens swept away by a change in fashion. In downtown New York City archaeologists have exhumed the 18th century remains of the African burial ground.

**Ethnoarchaeology**

Ethnoarchaeology is the archaeological study of living people.\[36\] [37] [38] [39] [40] [41] The approach gained notoriety during the emphasis on middle range theory that was a feature of the processual movement of the 1960s. Early ethnoarchaeological research focused on hunting and gathering or foraging societies. Ethnoarchaeology continues to be a vibrant component of post-processual and other current archaeological approaches.\[42\] [43] [44] [45]

Ethnoarchaeology is the use of ethnography to increase and improve analogs, which are then used as analogies to interpret the archaeological record. In short, ethnoarchaeology is the application of ethnography to archaeology.\[46\]

**Experimental archaeology**

Experimental archaeology represents the application of the experimental method to develop more highly controlled observations of processes that create and impact the archaeological record.\[47\] [48] [49] [50] [51] In the context of the logical positivism of processualism with its goals of improving the scientific rigor of archaeological epistemologies the experimental method gained importance. Experimental techniques remain a crucial component to improving the inferential frameworks for interpreting the archaeological record.

**Archaeometry**

Archaeometry is a field of study that aims to systematize archaeological measurement. It emphasizes the application of analytical techniques from physics, chemistry, and engineering. It is a lively field of research that frequently focuses on the definition of the chemical composition of archaeological remains for source analysis.\[52\]

Archaeometry also investigates different spatial characteristics of features, employing such methods as space syntax and geodesy which can be analyzed using computer-based geographic information system technologies. A relatively nascent subfield is that of archaeological materials, designed to enhance understanding of prehistoric and non-industrial culture through scientific analysis of the structure and properties of materials associated with human activity.\[53\]

**Cultural resources management**

While archaeology can be done as a pure science, it can also be an applied science, namely the study of archaeological sites that are threatened by development. In such cases, archaeology is a subsidiary activity within Cultural resources management (CRM), also called heritage management in the United Kingdom.\[54\] Today, CRM accounts for most of the archaeological research done in the United States and much of that in western Europe as well. In the US, CRM archaeology has been a growing concern since the passage of the National Historic Preservation Act (NHPA) of 1966, and most taxpayers, scholars, and politicians believe that CRM has helped
preserve much of that nation's history and prehistory that would have otherwise been lost in the expansion of cities, dams, and highways. Along with other statutes, the NHPA mandates that projects on federal land or involving federal funds or permits consider the effects of the project on each archaeological site.

The application of CRM in the United Kingdom is not limited to government-funded projects. Since 1990 PPG 16\(^{[55]}\) has required planners to consider archaeology as a material consideration in determining applications for new development. As a result, numerous archaeological organisations undertake mitigation work in advance of (or during) construction work in archaeologically sensitive areas, at the developer's expense.

In England, ultimate responsibility of care for the historic environment rests with the Department for Culture, Media and Sport\(^{[56]}\) in association with English Heritage.\(^{[57]}\) In Scotland, Wales and Northern Ireland, the same responsibilities lie with Historic Scotland,\(^{[58]}\) Cadw\(^{[59]}\) and the Northern Ireland Environment Agency\(^{[60]}\) respectively.

Among the goals of CRM are the identification, preservation, and maintenance of cultural sites on public and private lands, and the removal of culturally valuable materials from areas where they would otherwise be destroyed by human activity, such as proposed construction. This study involves at least a cursory examination to determine whether or not any significant archaeological sites are present in the area affected by the proposed construction. If these do exist, time and money must be allotted for their excavation. If initial survey and/or test excavation indicates the presence of an extraordinarily valuable site, the construction may be prohibited entirely. CRM is a thriving entity, especially in the United States and Europe where archaeologists from private companies and all levels of government engage in the practice of their discipline.

Cultural resources management has, however, been criticized. CRM is conducted by private companies that bid for projects by submitting proposals outlining the work to be done and an expected budget. It is not unheard-of for the agency responsible for the construction to simply choose the proposal that asks for the least funding. CRM archaeologists face considerable time pressure, often being forced to complete their work in a fraction of the time that might be allotted for a purely scholarly endeavor. Compounding the time pressure is the vetting process of site reports which are required (in the US) to be submitted by CRM firms to the appropriate State Historic Preservation Office (SHPO). From the SHPO's perspective there is to be no difference between a report submitted by a CRM firm operating under a deadline, and a multi-year academic project. The end result is that for a Cultural Resource Management archaeologist to be successful, they must be able to produce academic quality documents at a corporate world pace.

The annual ratio of open academic archaeology positions (inclusive of Post-Doc, temporary, and non tenure track appointments) to the annual number of archaeology MA/MSc and PhD students is grossly disproportionate. This dearth of academic positions causes a predictable excess of well educated individuals who join the ranks of the following year's crop of non-academically employed archaeologists. Cultural Resource Management, once considered an intellectual backwater for individuals with "strong backs and weak minds"\(^{[61]}\) has reaped the benefit of this massive pool of well educated professionals. This results in CRM offices increasingly staffed by advance degreeed individuals with a track record of producing scholarly articles but who have the notches on their trowels to show they have been in the trenches as a shovelbum.

**History of archaeology**

Flavio Biondo, an Italian Renaissance humanist historian, created a systematic and documented guide to the ruins and topography of ancient Rome in the early 15th century for which he has been called an early founder of archaeology. Ciriaco de' Pizzicolli or Cyriacus of Ancona (31 July 1391 — 1453/55) was a restless itinerant Italian humanist who came from a prominent family of merchants in Ancona. Ciriaco traveled all around the Eastern Mediterranean, noting down his archaeological discoveries in his day-book, *Commentaria*, that eventually filled six volumes. He has been called *father of archaeology*.
After that, modern archaeology has its origins in the antiquarianism of Europe in the mid-19th century, where it developed soon after the scientific advancement of geology, which had shown that the Earth was billions rather than thousands of years old, as was then commonly believed. Soon after this, in 1859, Charles Darwin's *On the Origin of Species* was published, outlining his theory of evolution, eventually leading scientists to believe that humanity was in fact millions of years old, thereby providing a time limit within which the burgeoning archaeological movement could study. Meanwhile, in 1836 the Danish historian Christian Jürgensen Thomsen published *A Ledetræd til Nordisk Oldkyndighed (Guideline to Scandinavian Antiquity)* translated into English in 1848, in which he proposed the idea that the European prehistoric could be divided up into a three age system; the Stone Age, Bronze Age and Iron Age, based upon the materials used by humankind. It was these three concepts of human antiquity, evolution and the Three-Age system that are often thought of as the building blocks for modern archaeology.[62]

Soon the early archaeologists began to investigate various areas around the world, with the study of ancient Aegean civilization being stimulated by the excavations of Heinrich Schliemann at Troy, and of Arthur Evans at Crete, whilst John Lloyd Stephens was a pivotal figure in the rediscovery of Maya civilization throughout Central America. However, the methodologies employed by these archaeologists were highly flawed by today's standards, often having a eurocentric bias, and many early European archaeologists often relied on anthropological and ethnographic accounts provided by the likes of Edward Tylor and Lewis Henry Morgan, thereby comparing contemporary "savage" peoples like the Native Americans with the historical peoples of Europe who lived in similar societies.[63]

Soon the new discipline of archaeology spread to North America, where it was taken up by figures like Samuel Haven and William Henry Holmes, whom excavated ancient Native American monuments.[64]

Further advancements in archaeological field methodology arose in the late 19th century. One of the pioneering figures in this was Augustus Pitt Rivers, who meticulously excavated on Cranborne Chase in southern England, emphasising that it was not only items of beauty or value that should be recorded, but mundane items as well; he therefore helped to differentiate archaeology from antiquarianism. Other important archaeologists who further refined the discipline in the late 19th and early 20th centuries were Flinders Petrie (who excavated in Egypt and Palestine), Sir Mortimer Wheeler (India), Dorothy Garrod (the Middle East), Max Uhle (Peru) and Alfred Kidder (Mexico).[65] Further adaptation and innovation in archaeology continued throughout the 20th century, particularly in the 1960s, when maritime archaeology was popularised by George Bass, urban archaeology became more prevalent with redevelopment in many European cities, and rescue archaeology was developed as a result of increasing commercial development.[65]

**Popular views of archaeology**

Early archaeology was largely an attempt to uncover spectacular artifacts and features, or to explore vast and mysterious abandoned cities. Such pursuits continue to fascinate the public. Books, films, and video games, such as *The City of Brass*, *King Solomon's Mines*, *Indiana Jones*, *Tomb Raider*, *The Mummy* and *Relic Hunter* all testify to the public's interest in the discovery aspect of archaeology.

Much thorough and productive research has indeed been conducted in dramatic locales such as Copán and the Valley of the Kings, but the bulk of activities and finds of modern archaeology are not so sensational. Archaeological adventure stories tend to ignore the painstaking work involved in carrying out modern survey, excavation, and data processing. Some archaeologists refer to such off the mark portrayals as "pseudoarchaeology".[66]

Archaeology has been portrayed in the mainstream media in sensational ways. This has its advantages and disadvantages. Many practitioners point to the childhood excitement of Indiana Jones films as the inspiration for
Archaeologists are also very much reliant on public support. The question of exactly who they are doing their work for is often discussed. Archaeologists are also very much reliant on public support, the question of exactly who they are doing their work for is often discussed.

**Current issues and controversy**

**Public archaeology**

Motivated by a desire to halt looting, curb pseudoarchaeology, and to help preserve archaeological sites through education and fostering public appreciation for the importance of archaeological heritage, archaeologists are mounting public-outreach campaigns. They seek to stop looting by combatting people who illegally take artifacts from protected sites, and by alerting people who live near archaeological sites of the threat of looting. Common methods of public outreach include press releases, and the encouragement of school field trips to sites under excavation by professional archaeologists. Public appreciation of the significance of archaeology and archaeological sites often leads to improved protection from encroaching development or other threats.

One audience for archaeologists’ work is the public. They increasingly realize that their work can benefit non-academic and non-archaeological audiences, and that they have a responsibility to educate and inform the public about archaeology. Local heritage awareness is aimed at increasing civic and individual pride through projects such as community excavation projects, and better public presentations of archaeological sites and knowledge. The U.S. Dept. of Agriculture, Forest Service (USFS) operates a volunteer archaeology and historic preservation program called the Passport in Time (PIT). Volunteers work with professional USFS archaeologists and historians on national forests throughout the U.S. Volunteers are involved in all aspects of professional archaeology under expert supervision.

In the UK, popular archaeology programs such as *Time Team* and *Meet the Ancestors* have resulted in a huge upsurge in public interest. Where possible, archaeologists now make more provisions for public involvement and outreach in larger projects than they once did, and many local archaeological organizations operate within the Community archaeology framework to expand public involvement in smaller-scale, more local projects. Archaeological excavation, however, is best undertaken by well-trained staff that can work quickly and accurately. Often this requires observing the necessary health and safety and indemnity insurance issues involved in working on a modern building site with tight deadlines. Certain charities and local government bodies sometimes offer places on research projects either as part of academic work or as a defined community project. There is also a flourishing industry selling places on commercial training excavations and archaeological holiday tours.

Archaeologists prize local knowledge and often liaise with local historical and archaeological societies, which is one reason why Community archaeology projects are starting to become more common. Often archaeologists are assisted by the public in the locating of archaeological sites, which professional archaeologists have neither the funding, nor the time to do.

**Pseudoarchaeology**

Pseudoarchaeology is an umbrella term for all activities that claim to be archaeological but in fact violate commonly accepted and scientific archaeological practices. It includes much fictional archaeological work (discussed above), as well as some actual activity. Many non-fiction authors have ignored the scientific methods of processual archaeology, or the specific critiques of it contained in post-processualism.

An example of this type is the writing of Erich von Däniken. His 1968 book, *Chariots of the Gods?*, together with many subsequent lesser-known works, expounds a theory of ancient contacts between human civilisation on Earth and more technologically advanced extraterrestrial civilisations. This theory, known as palæocontact theory, or Ancient astronaut theory, is not exclusively Däniken’s, nor did the idea originate with him. Works of this nature are usually marked by the renunciation of well-established theories on the basis of limited evidence and the interpretation of evidence with a preconceived theory in mind.
Looting

Looting of archaeological sites is an ancient problem. For instance, many of the tombs of the Egyptian pharaohs were looted during antiquity.[72] Archaeology stimulates interest in ancient objects, and people in search of artifacts or treasure cause damage to archaeological sites. The commercial and academic demand for artifacts unfortunately contributes directly to the illicit antiquities trade. Smuggling of antiquities abroad to private collectors has caused great cultural and economic damage in many countries whose governments lack the resources and or the will to deter it. Looters damage and destroy archaeological sites, denying future generations information about their ethnic and cultural heritage. Indigenous peoples especially lose access to and control over their ‘cultural resources’, ultimately denying them the opportunity to know their past.[73]

Popular consciousness often associates looting with poor Third World countries, but this is a false assumption.[73] A lack of financial resources and political will are chronic worldwide problems inhibiting more effective protection of archaeological sites. Many Native American Indians today, such as Vine Deloria, Jr., consider any removal of cultural artifacts from a Native American Indian site to be theft, and much of professional archaeology as academic looting.

In 1937 W. F. Hodge the Director of the Southwest Museum in Los Angeles CA, released a statement that the museum would no longer purchase or accept collections from looted contexts.[74] The first conviction of the transport of artifacts illegally removed from private property under the Archaeological Resources Protection Act (ARPA; Public Law 96-95; 93 Statute 721; 16 U.S.C. 470aamm) [75] was in 1992 in the State of Indiana.[76]

Descendant peoples

In the United States, examples such as the case of Kennewick Man have illustrated the tensions between Native Americans and archaeologists which can be summarized as a conflict between a need to remain respectful towards burials sacred sites and the academic benefit from studying them. For years, American archaeologists dug on Indian burial grounds and other places considered sacred, removing artifacts and human remains to storage facilities for further study. In some cases human remains were not even thoroughly studied but instead archived rather than reburied. Furthermore, Western archaeologists’ views of the past often differ from those of tribal peoples. The West views time as linear; for many natives, it is cyclic. From a Western perspective, the past is long-gone; from a native perspective, disturbing the past can have dire consequences in the present.

As a consequence of this, American Indians attempted to prevent archaeological excavation of sites inhabited by their ancestors, while American archaeologists believed that the advancement of scientific knowledge was a valid
reason to continue their studies. This contradictory situation was addressed by the Native American Graves Protection and Repatriation Act (NAGPRA, 1990), which sought to reach a compromise by limiting the right of research institutions to possess human remains. Due in part to the spirit of postprocessualism, some archaeologists have begun to actively enlist the assistance of indigenous peoples likely to be descended from those under study.

Archaeologists have also been obliged to re-examine what constitutes an archaeological site in view of what native peoples believe to constitute sacred space. To many native peoples, natural features such as lakes, mountains or even individual trees have cultural significance. Australian archaeologists especially have explored this issue and attempted to survey these sites in order to give them some protection from being developed. Such work requires close links and trust between archaeologists and the people they are trying to help and at the same time study.

While this cooperation presents a new set of challenges and hurdles to fieldwork, it has benefits for all parties involved. Tribal elders cooperating with archaeologists can prevent the excavation of areas of sites that they consider sacred, while the archaeologists gain the elders’ aid in interpreting their finds. There have also been active efforts to recruit aboriginal peoples directly into the archaeological profession.

**Repatriation**

*See Repatriation and reburial of human remains*

A new trend in the heated controversy between First Nations groups and scientists is the repatriation of native artifacts to the original descendants. An example of this occurred June 21, 2005, when community members and elders from a number of the 10 Algonquian nations in the Ottawa area convened on the Kitigan Zibi reservation near Maniwaki, Quebec, to inter ancestral human remains and burial goods — some dating back 6,000 years. It was not determined, however, if the remains were directly related to the Algonquin people who now inhabit the region. The remains may be of Iroquoian ancestry, since Iroquoian people inhabited the area before the Algonquin. Alternatively, the oldest of these remains might have no relation at all to the Algonquin or Iroquois, and belong to an earlier culture who previously inhabited the area.

The remains and artifacts, including jewelry, tools and weapons, were originally excavated from various sites in the Ottawa Valley, including Morrison and the Allumette Islands. They had been part of the Canadian Museum of Civilization’s research collection for decades, some since the late 19th century. Elders from various Algonquin communities conferred on an appropriate reburial, eventually deciding on traditional redcedar and birchbark boxes lined with redcedar chips, muskrat and beaver pelts.

Now, an inconspicuous rock mound marks the reburial site where close to 80 boxes of various sizes are buried, no further scientific study is possible. Although negotiations were at times tense between the Kitigan Zibi community and museum, they were able to reach agreement.\(^{[77]}\)

Kennewick Man is another repatriation candidate that has been the source of heated debate.

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**Further reading**

• Archaeology (magazine)
• C. U. Larsen - *Sites and Monuments* (1992)
• David Hurst Thomas - *Archaeology* 3rd. edition (1998)
• Glyn Daniel - *A Short History of Archaeology* (1991)
• International Journal of South American Archaeology - IJSA (magazine)
• Internet Archaeology e-journal
• Kevin Greene - *Introduction to Archaeology* (1983)
• Alison Wylie - *Thinking From Things: Essays in the Philosophy of Archaeology*, University of California Press, Berkeley CA, 2002
• Ian Hodder & Scott Hutson - "Reading the Past" 3rd. edition (2003)
External links

- Archaeology Daily News (http://www.archaeologydaily.com/)
- 400,000 records of archaeological sites and architecture in England (http://pastscape.org.uk/)
- NPS Archeology Program: Visit Archeology (Archeology travel guides) (http://www.nps.gov/history/archeology/visit/index.htm)
- Great Archaeology (http://www.greatarchaeology.com/)
- Archaeological news updated daily (http://www.archaeologynews.org/)
- Council for British Archaeology (http://www.britarch.ac.uk/)
- Fasti Online - an online database of archaeological sites (http://www.fastionline.org/)
- Kite Aerial Photographers - Archaeology (http://www.armadale.org.uk/kite03.htm)
- The Archaeology Division of the American Anthropological Association (http://www.aanet.org/)
- The Archaeological Institute of America (http://www.archaeological.org/)
- The Society for American Archaeology (http://www.saa.org/)
- US Forest Service Volunteer program Passport in Time (http://www.passportintime.com/)
- The World Archaeological Congress (http://www.worldarchaeologicalcongress.org/site/about.php)
- Archaeolog.org (http://archaeolog.org/)
- The Archaeology Data Service - Open access online archive for UK and global archaeology (http://ads.ahds.ac.uk/)
- The Canadian Museum of Civilization - Archaeology (http://www.civilization.ca/cmc/exhibitions/online-exhibitions/archaeology)
- Sri Lanka Archaeology - New Knowledge in Archaeology in Sri Lanka (http://www.archaeology.lk/)